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ADVANCE
PLANNING



Project Study Report To

Request Programming in the 2010 SHOPP

01-DN-101-PM 22.5/23.0

01216-49560k

01 0000 0491

201.010

December, 2010



In Del Norte County about 2.5 miles south of Crescent City from 0.2 miles south to 0.3 miles north of Hamilton Road.

I have reviewed the right of way information contained in this Project Study Report – Project Report and the R/W Data Sheet attached hereto, and find the data to be complete, current and accurate:

James Appleton

James Appleton, North Region Right of Way Manager (Acting)

APPROVAL RECOMMENDED:

Kevin Church
Kevin Church, Project Manager



Ralph Martinelli
Ralph Martinelli, District Program Advisor

APPROVED:

Charles C. Fielder
Charles C. Fielder, District Director

December 10, 2010
Date

This Project Study Report has been prepared under the direction of the following registered civil engineer. The registered civil engineer attests to the best of his knowledge the technical information contained herein and has judged the qualifications of any technical specialists providing engineering data upon which recommendations, conclusions, and decisions are based.



REGISTERED CIVIL ENGINEER

11/30/2010
DATE



Project Study Report

1. Introduction

Brief Project Description:

This project proposes two “build” alternatives. Each of these alternatives will increase horizontal curve radius, shoulder width, and superelevation rate, to its current design standard, throughout. Both alternatives will also improve an existing left-turn deceleration lane to the standard length, improve the right-turn deceleration lane, and improve superelevation transitions. The alternatives require constructing two new retaining walls and a viaduct, or alternatively, three new retaining walls.

District-County-Route:	01-DN-101	<p>Route 101 looking north from the scenic overlook towards Hamilton Road at PM 22.7:</p> 
Project Limits:	PM 22.5/23.0	
Type of Facility:	Conventional Highway	
Number of Alternatives:	2 plus a “no build”	
Number of Structures:	Alternative 1 1 Viaduct 2 Retaining Walls Alternative 2 3 Retaining Walls	
Capital Construction	\$6,700,000 (2010) Alt 1 \$7,300,000 (2010) Alt 2	
Right of Way Cost Estimate:	\$545,000 (2010) Alt 1 \$545,000 (2010) Alt 2	
Total Project Cost (Alternative 2 used for programming)	\$7,245,000 (2010) Alt 1 \$7,845,000 (2010) Alt 2	
Funding Source:	2010 SHOPP	
Project Program:	Safety Improvements	
Anticipated Environmental Clearance Document:	ND (CEQA) FONSI (NEPA)	<p>Looking west at the Hamilton Road / Route 101 intersection:</p> 
Proposed Construction Year:	2015	
Legal Description:	In Del Norte County near Crescent City from 0.2 miles south to 0.3 miles north of Hamilton Road.	

A project report will serve as approval of the “selected” alternative.

2. Background

Existing Facilities

This project is located in Del Norte County approximately three miles south of Crescent City on Route 101. Within the project limits, the route is a conventional, 2-lane, rural highway, with a passing lane in the southbound (uphill) direction and a design speed of 55 MPH. At the southern end of the project is a 2,500' tangent, followed by reversing curves of 700' and 600' at the central to northern part of the project. Hamilton Road intersection, located on the 700' radius curve, is the public access for the northern part of Mill Creek State Park. The intersection is a "T" type, and consists of a left-turn deceleration lane for southbound traffic entering Hamilton Road, and a right-turn deceleration lane for northbound traffic entering Hamilton Road. The entire project is situated on a continuous and consistent 7% grade, downhill in the northern direction. The existing roadway surface is open graded asphalt concrete (OGAC).

Project Conception

This project was initiated by a traffic safety investigation. The location has had 25 collisions over a 3-year period from 4/01/2005 to 3/31/2008. Fatality and injury collisions have continued to occur following the period of analysis. The traffic safety investigation identified that vehicles are not slowing to the recommended 40 mph speed in the northbound direction when entering the 700' radius curve, and that the curve radius and superelevation, are less than the current design standards. The superelevation transition is also non standard. The collisions are almost exclusively northbound, run off the road incidents, associated with wet pavement and loss of traction. Most are run off the right side of the road collisions, initiated in the vicinity of the Hamilton Road intersection on the 700' radius curve, some of which, terminate over the left bank. Some of the wet pavement, traction loss collisions are occurring on the second curve in the reversing set. The project passed two standard skid tests requested by Traffic Safety.

Hamilton Road and Del Norte Coast Redwoods State Park

Del Norte Coast Redwoods State Park (Parks) occupies most of the land beyond Caltrans right of way on the east side of the highway, as well as, a large area south of the project, including a campground near Mill Creek (see Attachment A). Currently, Hamilton Road is a day use public access to the northern part of the Park, but does not receive much traffic (although that traffic includes horse trailers). The Mill Creek Campground (145 campsites) and a majority of park use, is by way of Mill Creek Road, 3 miles to the south of Hamilton Road. However, the Park plans to eventually make Hamilton Road the main and only public access to its existing (and expanded) facilities, as described in their Mill Creek Addition General Plan Amendment (GPA), a copy of which is contained in the project file.

3. Purpose and Need Statement

The project is needed because this segment of the highway has had 25 collisions over the period of 4/01/2005 to 3/31/2008 resulting in Fatality plus Injury (F+I) and Total collision rates of 8 and 11 times, respectively, the statewide average for a similar facility. The purpose of the project is to reduce the frequency (Total) and severity (F+I) of collisions to at or below statewide average.

4. Deficiencies

The primary deficiency with this segment of the highway is a combination of several aspects of the highway’s geometry. One such aspect is that the centerline curves of the existing horizontal alignment have smaller radii than is mandated in the Highway Design Manual (HDM). Specifically, the existing radii are about 600’ and 700’ and should be 1000’ for a design speed of 55 mph.

Another aspect of this highway’s existing geometric deficiency is related to the superelevation of the roadway. For example, the maximum existing superelevation rate for the existing curve radii in the northbound direction is 6.5%. The standard superelevation rate for the existing curve radii is 11%. This deficiency is further compounded for the northbound lanes where a 7% downgrade is coupled with a less than standard curve radius.

5. Corridor and System Coordination

The Route Concept Report (2002) refers to the route as “the economic lifeline of the north coast and the most important route in the District”. The Facility Concept for this segment of the highway is to retain the existing facilities with some realignment to bypass unstable areas. Functionally, the report designates this portion of the route as a 2-lane conventional highway with truck passing lanes. The Route Concept Report assigns a ‘C’ level of service rating for the existing conditions of this segment and a ‘D’ for the volume of traffic projected for 2020.

The current and forecasted traffic data is listed below. This data was provided by the Office of Travel Forecasting and Modeling in a memorandum dated March 01, 2010. A copy of which is provided as Attachment K.

	Annual ADT	Peak Hour
Base Year 2008	5,100	740
2014	5,410	780
2024	5,920	860
2034	6,430	930

20 Year Directional percentage:	60
20 Year DH Truck percentage:	8.0
10 Year Traffic Index:	9.0
20 Year Traffic Index:	10.0

6. Alternatives

This project proposes two alternatives to address the existing high collision rate. Both of these alternatives will increase curve radius, superelevation rate, shoulder width, and left deceleration lane length, to its current design standard, throughout. Additionally, 4’ separation from oncoming traffic will be added to the left-turn deceleration lane, and the right-turn deceleration lane radius will be increased. To make these improvements, both alternatives will require the construction of structures. An increase in the use of Hamilton Road is anticipated with further development of the State Parks Mill Creek Addition. The improvements proposed with this project are needed to help ensure that the facility investments will adequately serve the location for their design life.

In the following description for each alternative, project elements are grouped into northbound and southbound categories, depending on the direction of travel they serve (and are referenced to the respective alignment).

Alternative 1- One Viaduct and Two Retaining Walls - \$7,245,000 (2010)

Alternative 1 has a northbound alignment (“A1N”) and a southbound alignment (“A1S”). “A1N” is the alignment to which retaining wall structures are referenced and “A1S” is used as a viaduct reference.

Northbound (“A1N”) Features, Alternative 1:

Curve Radius

“A1N” will increase the radius of the two existing reversing curves, “CN1” and “CN2”, from 700’ and 600’, respectively, to the standard 1000’ radius for 55 mph. The curve improvements are shown in Table 1 below. See also, Attachments B and C for Alternative 1 Layout and Typical Sections, respectively.

Superelevation

The superelevation rate will be set at the standard 10% for a 2-lane, conventional highway with a horizontal alignment radius of 1,000 feet. The superelevation improvements are also tabulated below.

Table 1:

Alternative 1, Curve and Superelevation Data for Northbound Alignment “A1N”

Curve Number	Curve Radius		Superelevation	
	“CN1”	“CN2”	“CN1”	“CN2”
Existing	700’	600’	7%	7%
Proposed	1000’	1000’	10%	10%
Standard	1000’	1000’	10%	10%

Northbound Right Turn Deceleration Lane for Hamilton Road

The existing right-turn deceleration lane, providing northbound Route 101 access to Hamilton Road, will be realigned and the curve radius will be increased from 60’ to 80’. The shoulders widened from 4’ to 8’, and 6’ of separation from the mainline traveled way will be added.

Shoulder Widening / Rumble Strips

Northbound shoulders will be widened from approximately 3’ to 8’. Adjacent to Retaining Wall A1-1, shoulders will be constructed to a 10’ width. New shoulder, centerline, and deceleration lane separation rumble strips will also be constructed. If rider comfort or noise level issues prove to be a concern, centerline rumble strips may be omitted adjacent to the vista point. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians. The shoulder width improvements are shown in Table 2 below.

Table 2:

Alternative 1, Northbound Shoulder Width, Northbound Alignment “A1N”

	A1N Station				
	0+00 – 6+05	6+05 – 7+66	7+66 – 10+94	10+94 – 15+40	15+40 – 16+40
Existing	3’	NA*	Varies 3’ to 8’	3’	3’
Proposed	8’	NA*	Varies 8’ to 10’	10’	Varies 10’ to 3’
Standard	8’	NA*	8’	10’	8’

*Hamilton Road Intersection

Southbound (“A1S”) Features, Alternative 1:

Curve Radius

Two existing reversing curves will be replaced with two standard 1000’ radius curves. These two curves, “CS1” and “CS3”, are the southbound companions to “CN1” and “CN2”. Segment “CS2” is a curve that transitions the lane to provide additional width for a left turn pocket. All new curve radii meet the current standard. The curve improvements are shown in Table 3 below.

Superelevation

For southbound traffic, the superelevation rate will also be set at the standard 10% for a 2-lane, conventional highway with a horizontal alignment radius of 1,000 feet. However, within the left turn pocket the superelevation rate will be set at 7% (Design should consider 6%, which is the maximum allowed difference in cross slope between same direction lanes) to provide a comfortable cross slope in this lane. The superelevation improvements are tabulated below.

Table 3:

Alternative 1, Curve and Superelevation Data for Southbound Alignment “A1S”:

Curve Number	Curve Radius			Superelevation		
	“CS1”	“CS2”	“CS3”	“CS1”	“CS2”	“CS3”
Existing	740’	740’	612’	7%	7%	7%
Proposed	1000’	1000’	1046’	10%	10%*	10%
Standard	1000’	1000’	1000’	10%	10%	10%

*7% in turn pocket for Hamilton Road

Southbound Left Turn Deceleration Lane for Hamilton Road

The right-turn deceleration lane will be widened from 11’ to 12’, and the deceleration-plus-storage length will be increased from 355’ to 450’ (The alignment allows further increase in length). As previously mentioned, the left turn lane will sit on a 7% cross-grade.

Shoulder Widening / Rumble Strips

Southbound shoulders will be widened from approximately 3’ to 8’. New shoulder rumble strips will be constructed as well. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians. For a section at the northern limits of construction and immediately south of the scenic vista, shoulders will taper to conform to the existing width. The shoulder width improvements are shown in Table 4 below.

Table 4:

Alternative 1, Southbound Shoulder Width, Alignment “A1S”

	“A1S” Station		
	0+0 – 2+00	2+00 – 11+68	11+68 – 13+40
Existing	NA *	Varies 3’- 8’	Varies 3’- 8’
Proposed	NA *	8’	Taper to Conform
Standard	NA *	8’	8’

*Along scenic overlook

Additional Information (Alternative 1):

Viaduct and Retaining Wall Construction

For this alternative, the northbound and southbound curve radii increase to the standard 1000' is accomplished by the construction of a viaduct and a major retaining wall on the northbound cut-side at "CN2". The estimated length and cost of the viaduct, and the estimated lengths, maximum heights, face areas, and costs of Wall A1-1 and Wall A1-2 are summarized in Table 5 below. The estimated dimensions for the viaduct, Wall A1-1, and the resulting APS were made prior to availability of survey data, but are conservative. Three segments of special detail metal beam guard rail and Wall A1-2 were added to the alternative after receiving survey data. A see-through barrier rail will be constructed along the top of the concrete barrier on the viaducts and Wall A1-2. These railings will be installed along the entire length of these two structures.

Table 5:

Alternative 1, Structures Summary

Structure	Cost (2010)	Length	Max. Height
Viaduct	\$872,000	253'	NA
Wall A1-1	\$1,028,000	456'	19'
Wall A1-2	\$285,000	94'	9'

Reconstructed Roadway and Culvert Replacement/Removal

Much of the existing structural section will be reconstructed or partially reconstructed, and a new structural section created to accommodate the curve improvements. A portion of Hamilton Road will be elevated to match the grades along the new highway. Costs to overlay the overlook parking area have been included.

Except for the existing 36" culvert which is deteriorated and will be replaced by a new 36" diameter culvert, all existing cross culverts will be replaced with 24" culverts to improve maintenance access and reduce the probability of debris clogging. New energy dissipation devices will be constructed at all culvert outlets as well. A new 24" cross drain will be added at the end of the northernmost retaining wall. Additional work related to the replacement of the 36" culvert includes shortening the culvert length so the new culvert no longer extends onto State Park (Park) property. The removed section of the culvert will be replaced with a bio-engineered channel. State Parks requested that no rock slope protection be installed in the new channel. Access to Park property will be obtained through either a Temporary Construction Easement or a Right to Enter agreement. Parks concurred with this concept at a field meeting on May 26, 2010 (see Attachment G).

Design Exceptions

All design features of this project are expected to conform to the mandatory design standards of the Highway Design Manual. However, because of the short tangent length between the reversing curves, an advisory design exception for the superelevation transition will be required in the next stage of the project development.

Alternative 2- Three Retaining Walls - \$7,845,000 (2010))

Alternative 2 has a northbound alignment (“A2N”) and a southbound alignment (“A2S”). “A2N” is the alignment to which eastern retaining wall structures are referenced. “A2S” is the alignment to which the western retaining wall structure is referenced. See also, Attachments B and C for Alternative 2 Layout and Typical Sections, respectively.

Northbound (“A2N”) Features, Alternative 2:

Curve Radius

“A2N” will increase the radius on two existing reversing curves to the current design standard for 55 mph. An additional curve “CN1” is used to transition the roadway and provide for a deceleration lane. The curve improvements are shown in Table 6 below.

Superelevation

For northbound traffic, the superelevation rate will be set at the standard 10% for a 2-lane, conventional highway with a horizontal alignment radius of 1,000 feet. The superelevation improvements are tabulated below.

Table 6:

Alternative 2, Curve and Superelevation Data for Northbound Alignment “A2N”

Curve Number	Curve Radius			Superelevation		
	“CN1”	“CN2”	“CN3”	“CN1”	“CN2”	“CN3”
Existing	NA	700’	600’	Crown	7%	7%
Proposed	4500’	1000’	1000’	Crown	10%	10%
Standard	1000’	1000’	1000’	2%	10%	10%

Northbound Right Turn Deceleration Lane for Hamilton Road

The existing right-turn deceleration lane, providing northbound Route 101 access to Hamilton Road, will be realigned and the curve radius will be increased from 60’ to 80’. The shoulders widened from 4’ to 8’, and 6’ of separation from the mainline traveled way will be added.

Shoulder Widening / Rumble Strips

Northbound shoulders will be widened from approximately 3’ to 8’. Adjacent to cut slope retaining walls, shoulders will be 10’. New shoulder, centerline, and deceleration lane separation rumble strips will be constructed. If rider comfort or noise level issues are raised, centerline rumble strips may be omitted adjacent to the vista point. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians. The shoulder width improvements are tabulated in Table 7 below.

Table 7:

Alternative 2, Northbound Shoulder Width, Alignment “A2N”

	A2N Station						
	0+00 to 02+50	2+50 to 5+20	5+20 to 6+00	6+00 to 8+58	8+58 to 10+84	10+84 to 15+40	15+40 to 18+50
Existing	3’	--	3’ to 8’	NA*	3’	3’	3’
Proposed	8’	10’	8’ to 10’	NA*	8’ to 10’	10’	8’
Standard	8’	--	8’	NA*	8’	8’	8’

*Hamilton Road Intersection

Southbound (“A2S”) Features, Alternative 2:

Curve Radius

Alignment “A2S” will increase the radii of the two existing reversing curves with CS1”/“CS2” and “CS3”. All new curve radii meet the current design standards. The curve improvements are shown in Table 8 below.

Superelevation

For southbound traffic, the superelevation rate will also be set at the standard 10% for a 2-lane, conventional highway with a horizontal alignment radius of 1,000 feet. However, within the left turn pocket the superelevation rate will be set at 7% (Design should consider 6%, which is the maximum allowed difference in cross slope between same direction lanes) to provide a comfortable cross slope in this lane. The superelevation improvements are tabulated below.

Table 8:

Alternative 2, Curve and Superelevation Data for Southbound Alignment “A2S”:

Identity	Curve Radius			Superelevation		
	“CS1”	“CS2”	“CS3”	“CS1”	“CS2”	“CS3”
Existing	740’	740’	612’	7%	7%	7%
Proposed	1000’	1000’	1140’	10%	10%*	10%
Standard	1000’	1000’	1000’	2%	10%	10%

*7% in turn pocket for Hamilton Road

Southbound Left Turn Deceleration Lane for Hamilton Road

The left-turn deceleration lane will be widened from 11’ to 12’, and the deceleration-plus-storage length will be increased from 355’ to 450’ (The alignment allows further increase in length). As previously mentioned, the left turn lane will sit on a 7% cross-grade.

Shoulder Widening / Rumble Strips

Southbound shoulders will be widened from approximately 3’ to 8’. New shoulder rumble strips will be constructed as well. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians. A section at the northern limits of construction and immediately south of the scenic vista, shoulders will taper to conform to the existing width. The shoulder width improvements are shown in Table 9 below.

Table 9:

Alternative 1, Southbound Shoulder Width, Alignment “A2S”

	A2S Station		
	0+60 – 0+70	1+20 – 6+24	6+24 – 18+44
Existing	3’	NA*	Varies 3’- 8’
Proposed	Taper 3’- 8’	NA*	8’
Standard	8’	NA*	8’

*Along scenic overlook

Additional Information (Alternative 2):

Retaining Wall Construction

For this alternative, the alignment to the standard 1000’ is accomplished by the construction of three retaining walls: Wall A2-1 retains a cut slope adjacent to the Hamilton Road deceleration lane. Wall A2-2 holds fill on the left side of Route 101 adjacent to “CS2”. Design should consider substituting the Type 2 wall in this alternative with a soldier pile wall; it may be less costly, and similar in construction to the other two walls. Wall A2-3 retains a cut slope adjacent to curve “CN3”. The estimated dimensions for the walls, and the resulting APS were made prior to availability of survey data, but are conservative. The estimated length, maximum height, wall face area, and cost of the retaining walls are summarized in Table 10 below. A segment of special detail metal beam guard rail is needed along the southbound shoulder at the north end of the project. A see-through barrier rail will need to be constructed along the top of the Wall A2-2 concrete barrier. This railing will be installed along the entire length of the structure.

Table 10:

Alternative 2, Structures Summary

Structure	Cost (2010)	Length	Max. Height
Wall 2-1	\$514,000	236’	14’
Wall 2-2	\$851,000	236’	16’
Wall 2-3	\$903,000	342’	18’

Reconstructed Roadway and Culvert Replacement and Removal

Much of the existing structural section will be reconstructed or partially reconstructed, and a new structural section created to accommodate the curve improvements. A portion of Hamilton Road will be elevated to match the grades along the new highway. Costs to overlay the overlook parking area have been included.

Except for the existing 36” culvert which is deteriorated and will be replaced by a new 36” diameter culvert, all existing culverts will be replaced with 24” culverts to improve maintenance access and reduce the probability of debris clogging. New energy dissipation devices will be constructed at all culvert outlets as well. Additional work related to the replacement of the 36” culvert includes shortening the culvert length so the new culvert no longer extends onto Park property. The removed section of the culvert will be replaced with a bio-engineered channel. State Parks requested that no rock slope protection be installed in the new channel. Access to Park property will be obtained through either a Temporary Construction Easement or a Right to Enter agreement. Parks concurred with this concept at a field meeting on May 26, 2010. (See Attachment G)

Design Exceptions

All design features of this project are expected to conform to the mandatory design standards of the Highway Design Manual. However, because of the short tangent length between the reversing curves along this project’s alignment, an advisory design exception for the superelevation transition runoff will be required in the next project stage of development.

Alternative 3-No Build

The no-build alternative was considered but deemed not viable as it does not meet the purpose and need of the project.

7. Community Involvement

No community involvement was deemed necessary for this initial stage of the project. However, a public meeting to inform the community of the scope of this project should be considered in the next phase. Caltrans, State Parks and National Parks held meetings early in this project’s development to discuss concerns and long term plans for the area. Notes from these meetings are included in the project’s Preliminary Environmental Assessment Report (Attachment G).

8. Environmental Determination and Environmental Issues

A Preliminary Environmental Assessment Report document was prepared for this report and is included as Attachment G. Environmental impacts are expected to be similar and nearly equal in magnitude between the project’s alternatives. The environmental issues include biological, visual and archeological impacts. The primary biological impacts are related to special status species of plants, wetlands and spotted owl habitat. Determining the degree of the biological impact will require further biological study and consultation with other agencies such as the Department of Fish and Game, US Fish and Wildlife Services. A portion of the limits of this project lie within an area that is eligible for National Register of Historic Places and will require assessment in later stages of the project development. Further, although areas around this project have been previously surveyed and no archaeological resources in the vicinity were found, this project will require archaeological resource surveys.

A 404 permit from the Army Corp of Engineers, a 401 permit from the Regional Water Quality Control Board, a 1602 from the California Department of Fish and Game and a Coastal Development Permit from Del Norte County are required with this project. A comprehensive list of anticipated environmental commitments is listed in the PEAR (see Attachment G).

This project is expected to qualify for a Finding of No Significant Impact (FONSI) under NEPA and an Initial Study or Focused Initial Study with Negative Declaration or Mitigated ND under CEQA. The final determination is dependent upon additional field surveys and concurrence that the project will not have significant environmental effects. Parks emphasized that they will not prepare the CEQA document for the portion of the work on their property. Caltrans will act as CEQA lead for impacts within both Parks and Caltrans right of way.

On October 12, 2010, the Environmental Coordinator, Brandon Larsen, prepared a list of comments on the PSR. These comments primarily highlight differences between the scope of the project in the PEAR and that in the PSR. This is a result of the PEAR being prepared early on in the scoping phase of the PSR. Although there are some discrepancies between these two documents, such as shoulder widths, wall heights etc, the anticipated environmental impacts of the project are the same and the environmental study limits remain the same. No additional environmental issues are anticipated as a result of the changes that have occurred and from an environmental standpoint, the PEAR continues to represent the environmental assessment of the project.

Additional clarifications to the PEAR include:

- Brush removal will need to take place outside of the nesting bird season (March 1st to September 1st). Northern Spotted Owl (NSO) breeding and nesting season occurs between February 1st and August 1st and construction may be limited during this time.
- Other than State owned utilities for the power supply to a changeable message sign, no other relocations are anticipated. See the Right of Way & Utilities section below.

Environmental Resources (Att B) of the PEAR is superseded by the resource sheet in the project file.

9. Other Considerations

Right of Way & Utilities

Included as Attachment I, are Right of Way Data Sheets which were prepared for each of the build alternatives for this project. A Temporary Construction Easement or a Right to Enter agreement will be required for the work related to the removal of the existing 36” culvert that extends from State right of way and onto State Park lands. The area on State Park property where the pipe was removed will be replaced by a bio-engineered channel. Environmental permit and mitigation costs which were estimated in the PEAR are included in the right of way costs. These costs include funding for the potential need to purchase credits in a wetland mitigation bank or purchase and development of a mitigation property. Funding has also been included for stewardship (endowment) of such a property

Although these utilities do not appear to be present within the project limits, utility verification is anticipated for facilities owned by Blue Star Gas, Pacific Power & Light, Verizon, Charter Communications, County of Del Norte and City of Crescent City. There are no known high risk utilities within the project limits. The vertical clearance between retaining wall construction equipment and the overhead utilities as shown on the layout sheets (Attachment B) exceeds the minimum required by Cal/OSHA and therefore, these lines will not require de-energizing and/or relocation.

Hazardous Materials

An Initial Site Assessment (ISA) request was made for this project and is provided as Attachment H. As stated in this assessment, this location likely has a potential for hazardous waste issues with aerial deposited lead (ADL) and nominal waste issues with treated wood waste and thermoplastic strips.

At a minimum, the ISA recommends inclusion of a Lead Compliance Plan and further evaluation when the project enters the next phase.

Hydraulic Recommendations

The Hydraulic Unit recommends replacement of all four of the existing culverts within this project's limits. These new culverts may be composed of alternative pipe materials (see Materials Recommendation, Attachment M). The Hydraulics Unit recommended replacing all except the small diameter culvert at the north end of the overlook parking area in kind. However, Maintenance has expressed a preference to use 24" diameter culverts whenever possible to facilitate maintenance of the culverts.

The hydraulic recommendation also follows that all culverts have light rock energy dissipators at the outlets. Hydraulics recommended installation of a cross drain at the northernmost retaining wall of Alternative 1. Per the recommendations, some inlet structures will be replaced. The table below summarizes the hydraulic recommendations for both alternatives.

	PM	Existing	Recommendation	Applies to
Culvert Treatments	22.68	8" culvert with type G1 Drainage Inlet (DI)	Replace with 18" culvert and a type GO DI, add rock energy dissipator at outlet	Same recommendation for Alternative 1 & 2
	22.69	36" corrugated metal pipe(CMP) culvert with flared end section (FES) inlet	Replace with 36" alternative pipe culvert(APC), shorten to within State RW, add new FES and add rock energy dissipator at outlet	Same recommendation for Alternative 1 & 2
	22.77	18" CMP culvert with type GO Drainage Inlet (DI)	Replace with 18" APC and a type GDO DI with bike grate, add rock energy dissipator at outlet	Same recommendation for Alternative 1 & 2
	22.83	18" CMP culvert with type GO Drainage Inlet (DI)	Replace with 18" APC and a type GDO DI with bike grate, add rock energy dissipator at outlet	Same recommendation for Alternative 1 & 2
	22.86	None	Install new 24" APC cross drain and a type GDO DI with bike grate, add rock energy dissipator at outlet	Alternative 1 only
Roadside Ditch Treatments	22.67	Ditch south of Hamilton Rd on right	Replace with new ditch along deceleration lane. Drain ditch into new DI at PM 22.69	Alternative 1 only
	22.67	Ditch south of Hamilton Rd on right	Construct high super elevation ditch along new retaining wall on right. Drain into new DI at PM 22.69	Alternative 2 only
Overside Drains Treatments	22.75	None	Install overside drain with rock energy dissipator at northern edge of new viaduct	Alternative 1 only
	22.75	None	Install overside drain with rock energy dissipator at northern edge of new Type 2 wall	Alternative 2 only

The project lies within Zone D of FEMA's Floodplain Map for this area. Zone D covers areas with possible, but undetermined flood hazards.

Hydraulics recommends that a supplemental drainage request be made as this project's design becomes more refined. This supplemental request should include flood plain evaluation and determination.

Transportation Management Plan

A Transportation Management Plan (TMP) has been prepared for this project. Significant traffic impacts are not anticipated provided TMP recommendations are followed. The recommendation of this PSR is to consider slowing vehicles substantially ahead of the construction and overlook areas. Methods of accomplishing this include portable radar feedback signs and temporary flashing beacons. Costs for these devices are included as traffic control and maintenance line items in the project's cost estimate. Traffic Operations requests that the TMP be updated in the design phase.

Materials

A request for pavement and culvert material recommendations was made for this project. The recommended pavement sections were based on a 20-year traffic index which was provided by the Office of Traffic Forecasting and Modeling (Attachment K). In all, there were three pavement section strategies recommended for this project. Each of these included an open graded friction course (OGFC) as the upper surface treatment. Life Cycle Costs Analysis will be conducted in next phase.

Field Maintenance forces have expressed a preference that the road surface be a hot mix asphalt bonded wearing course rather than a OGFC. The decision on final structural section of the road is subject to review and approval by the Pavement Selection Committee and is deferred to the next phase of this project.

Structures

The Structures Unit prepared an Advance Planning Study (APS) for this project. A copy of the APS is included as Attachment E. For the APS, the Structure Unit elected to use a combination of field reconnaissance and as-built information in lieu of a formal Preliminary Geotechnical Report from the Geotechnical Unit. Survey data was not available to the Structures Unit for this study.

After preparation of the APS, a second wall was added to the scope of Alternative 1. This wall is located along the southbound shoulder and is approximately half the size of the other walls. Cost for this wall is included in the estimate and is based on the conservative assumption of a construction cost rate similar to the rate used for the higher walls. The Structures unit has been informed of this addition.

Parks requested an aesthetic treatment be provided on the face of the wall similar to that at Cushing Creek and Last Chance Grade. Parks also requested Wall A2-2 of Alternative 2 be naturally colored to blend into the surroundings if any face of the structure is visible from either the ocean or the outlook. Landscape reviewer prefers see-through railing on the viaduct and Wall A1-2 of Alternative 1 and on Wall A2-2 of Alternative 2. Specific details of the railing type will be determined in the design phase. This railing is not shown on the APS drawings (Attachment E), but is shown on the typical sections (Attachment C). Cost for the railing is included in the estimates.

10. Funding

The District recommends that this project be programmed for \$8,578,000 in construction costs and for \$643,000 in Right of Way cost for a total of \$9,221,000 in the 2015/2016 fiscal year. This project qualifies for funding through the 20.XX.201.010 Safety Improvement Program. Detailed Cost Estimates are included in Attachment D.

	Alternative 1 (2010)	Alternative 2 (2010)
Structure Costs	\$2,230,000	\$2,300,000
Roadway Costs	\$4,470,000	\$5,000,000
Total Construction Cost	\$6,700,000	\$7,300,000
Right of Way Cost	\$545,000	\$545,000
Total Project Capital Cost	\$7,245,000	\$7,845,000

11. Scheduling

HQ Milestones	Delivery Date (Month, Day, Year)
Program Project	01-01-2011
Begin Environmental	04-01-2011
Circulate DED	02-01-2013
PA & ED	08-01-2013
Regular Right of Way	02-01-2013
Project PS&E	07-01-2015
Right of Way Certification	12-15-2015
Ready to List	12-15-2015
Approve Contract	06-15-2016
Contract Acceptance	04-01-2018

12. FHWA Coordination

This project is eligible for federal funding and is considered to be State authorized under current FHWA-Caltrans Stewardship agreements. FHWA will review this project for funding approval during the PS&E phase.

13. District and Local Entity Contacts

Name	Title *	Telephone **
Carlton Schriever	Project Engineer	441-2079
Brian Simon	Project Engineer	441-3935
Ilene Poindexter	Chief, Advance Planning	441-3969
Kevin Church	Project Manager	445-6440
Brandon Larsen	Environmental Coordinator	445-6410
Ralph Martinelli	Chief, Traffic Safety	445-6376
Moe Amini	Structures Liaison Engineer	916-227-8797
Greg Slocum	Structures Design, E2	916-227-8475
Roger Goddard	CA State Parks	445-6547 x25
Barney Riley	National Parks	465-7303
Pat Morrill	Chief, Surveys	445-6560
Weldon Hailey	Field Maintenance Supt.(Acting)	954-0913
Robert Close	RW Project Coordinator	441-5786

* Caltrans office unless otherwise noted

** Area Code 707 unless otherwise noted

14. District Reviews

Field Review #1	C. Schriever, Dave Workman, B. Larsen	Date	Spring 2010
Field Review #2	Rodger Goddard (CA State Parks) Jay Harris (CA State Parks) Patrick Vaughn (CA State Parks) Jeff Bomke (CA State Parks) Barney Riley (National Parks) Brandon Larsen (Caltrans) Ilene Poindexter (Caltrans) Kevin Church (Caltrans) Deborah Harmon (Caltrans)	Date	May 26, 2010
District Maintenance	Tami Libolt	Date	September 2010
District Safety Review	Steve Hughes	Date	September 2010
Constructability Review	Heidi Quintrell	Date	September 2010
	Josh Runnion	Date	October 2010
	Gary Johnson	Date	November 2010
DES Review	Moe Amini	Date	September 2010
Geometric Review	Heidi Sykes	Date	September 2010
Project Manager	Kevin Church	Date	September 2010
District SHOPP Program Advisor	Royal McCarthy	Date	September 2010
HQ SHOPP Program Advisor	Shaila Chowdhury	Date	September 2010

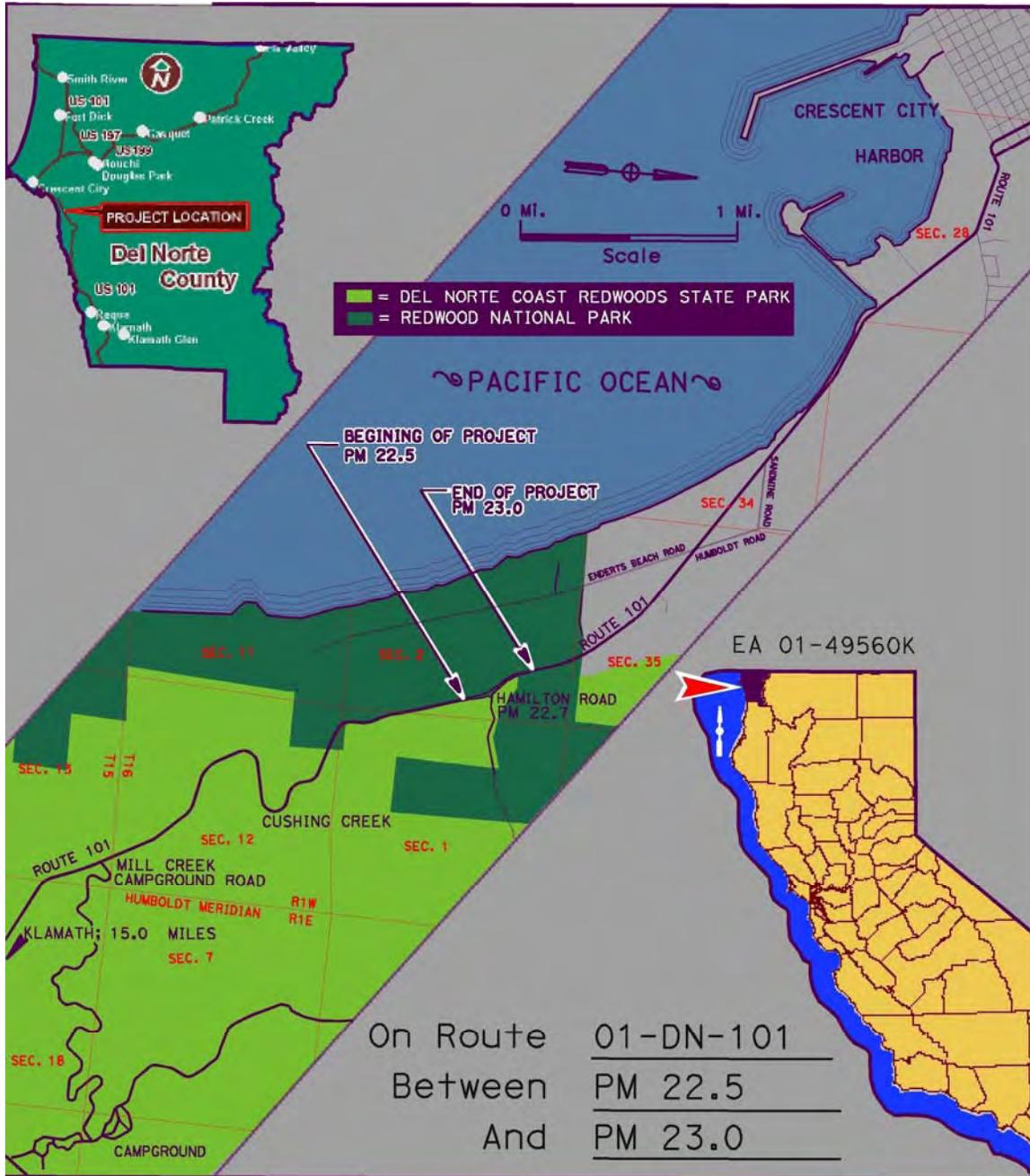
List of Attachments

- A. Location Map
- B. Layouts
- C. Typical Cross Sections
- D. Cost Estimate
- E. Advance Planning Study
- F. Transportation Management Plan
- G. Preliminary Environmental Analysis Report (PEAR)
- H. Initial Site Assessment
- I. Right of Way Data Sheet
- J. Programming Sheet
- K. Traffic Index
- L. LAAS
- M. Materials Recommendations
- N. Hydraulic Recommendations
- O. Storm Water Data Report

ATTACHMENT A

Location Map

Location Map

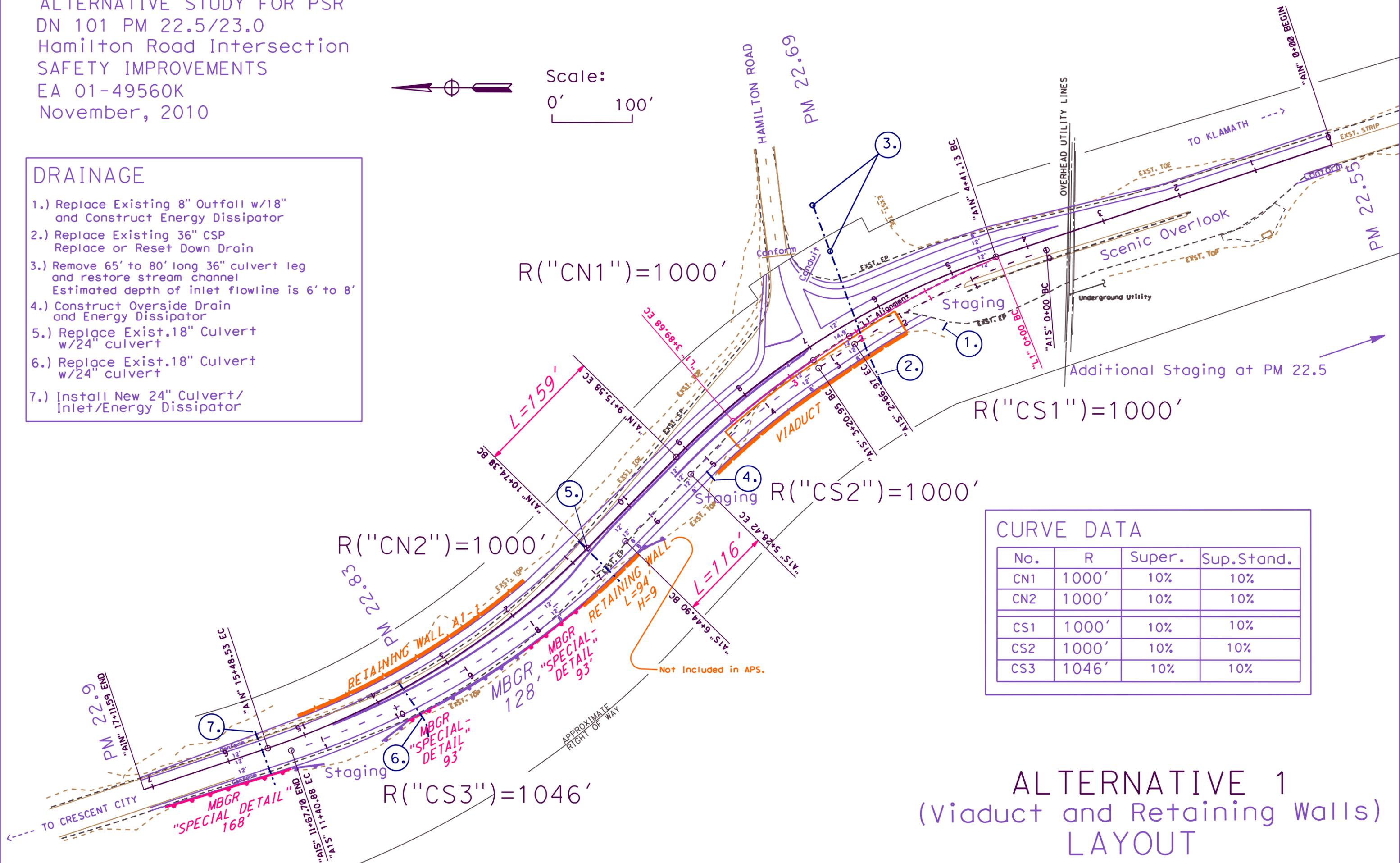


ATTACHMENT B

Layout Sheets



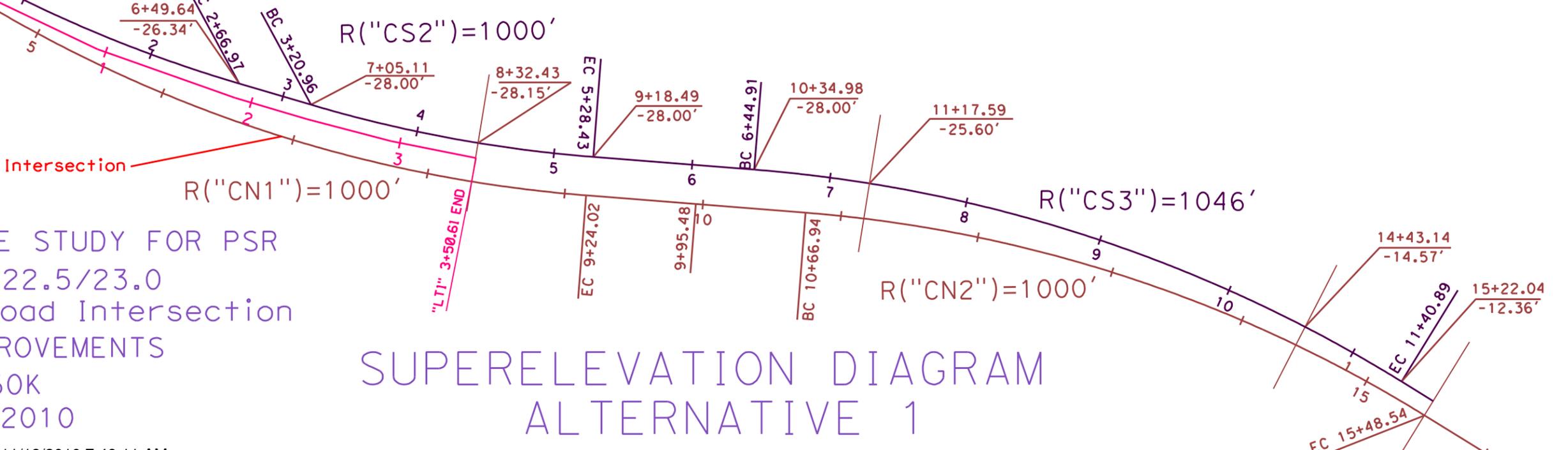
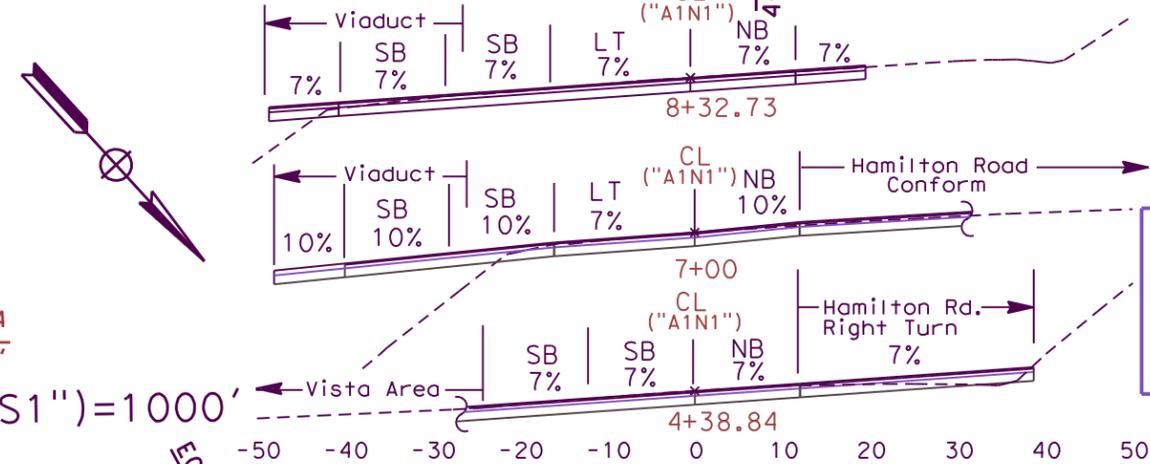
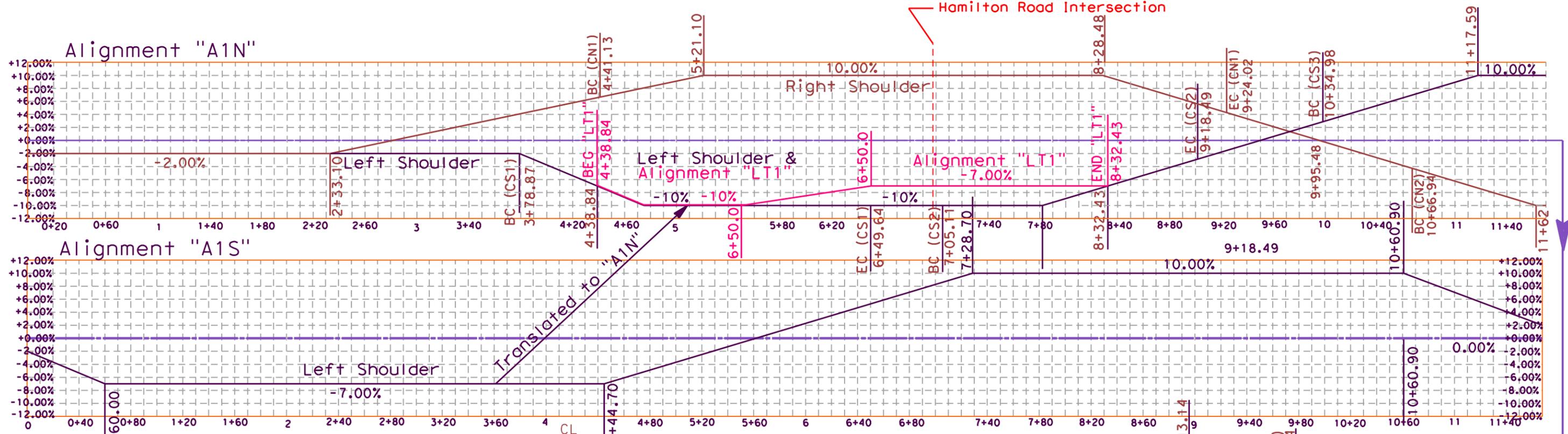
- DRAINAGE**
- 1.) Replace Existing 8" Outfall w/18" and Construct Energy Dissipator
 - 2.) Replace Existing 36" CSP Replace or Reset Down Drain
 - 3.) Remove 65' to 80' long 36" culvert leg and restore stream channel Estimated depth of inlet flowline is 6' to 8'
 - 4.) Construct Overside Drain and Energy Dissipator
 - 5.) Replace Exist.18" Culvert w/24" culvert
 - 6.) Replace Exist.18" Culvert w/24" culvert
 - 7.) Install New 24" Culvert/ Inlet/Energy Dissipator



CURVE DATA

No.	R	Super.	Sup.Stand.
CN1	1000'	10%	10%
CN2	1000'	10%	10%
CS1	1000'	10%	10%
CS2	1000'	10%	10%
CS3	1046'	10%	10%

**ALTERNATIVE 1
 (Viaduct and Retaining Walls)
 LAYOUT**



ALTERNATIVE STUDY FOR PSR
 DN 101 PM 22.5/23.0
 Hamilton Road Intersection
 SAFETY IMPROVEMENTS
 EA 01-49560K
 November, 2010

SUPERELEVATION DIAGRAM ALTERNATIVE 1

ALTERNATIVE STUDY FOR PSR
 DN 101 PM 22.5/23.0
 Hamilton Road Intersection
 SAFETY IMPROVEMENTS
 EA 01-49560K
 November, 2010



DRAINAGE

- 1.) New 24" APC (320')
- 2.) Replace Existing 8" Outfall w/18" and Construct Energy Dissipator
- 3.) Replace Existing 36" CSP Replace or Reset Down Drain
- 4.) Remove 65' to 80' long 36" culvert leg and restore stream channel Estimated depth of inlet flowline is 6' to 8'
- 5.) Construct Outfall/ Energy Dissipator
- 6.) Replace Exist.18" Culvert w/24" culvert/ Energy Dissipator
- 7.) Replace Exist.18" Culvert w/24" culvert/ Energy Dissipator

R("CN2")=1000'

R("CN1")=4500'

R("CS1")=1000'

R("CS2")=1000'

R("CN3")=1000'

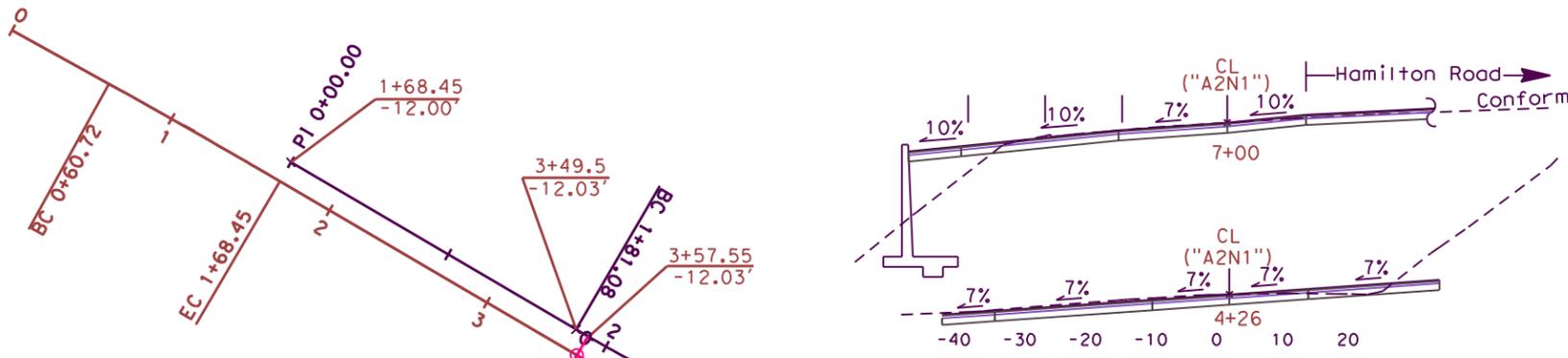
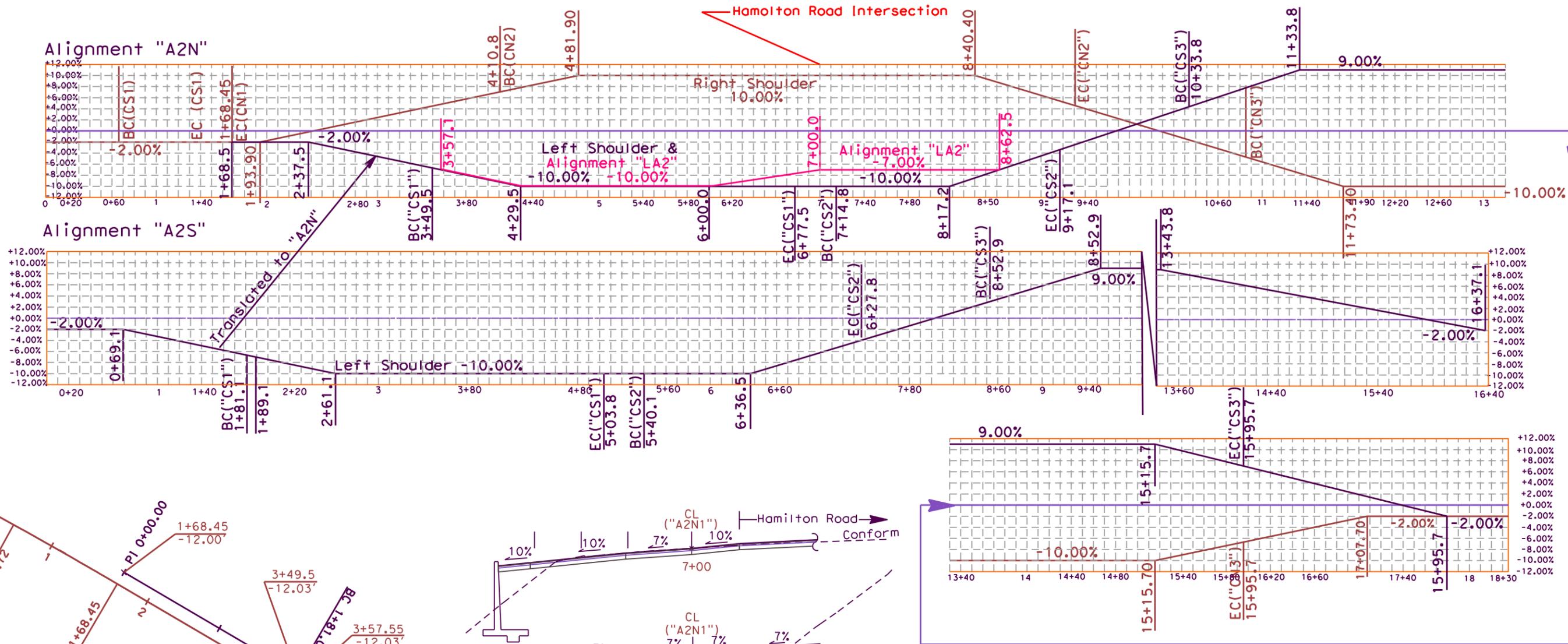
R("CS3")=1140'

Additional Staging at PM 22.5

CURVE DATA

No.	R	Super.	Sup.Stand.
CN1	4500'	CROWN	2%
CN2	1000'	10%	10%
CN3	1000'	10%	10%
CS1	1000'	10%	10%
CS2	1000'	10%	10%
CS3	1140'	9%	9%

**ALTERNATIVE 2
 (Retaining Walls)
 LAYOUT**



R("CN1")=4500'

R("CS1")=1000'

R("CS2")=1000'

R("CS3")=1140'

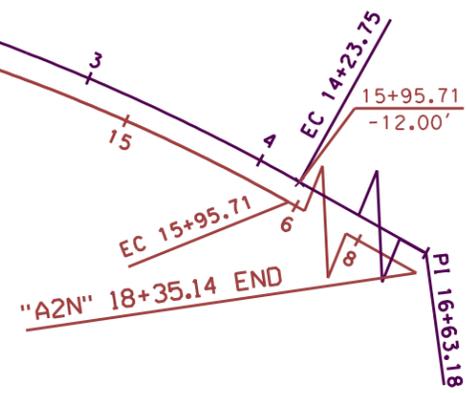
R("CN2")=1000'

R("CN3")=1000'

Scale:
100'

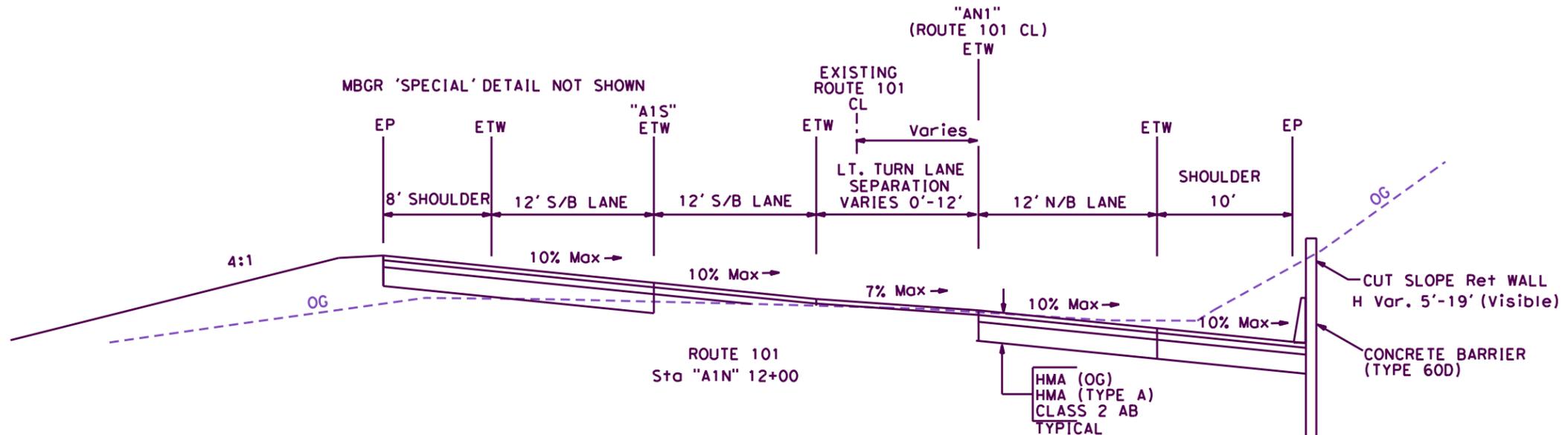
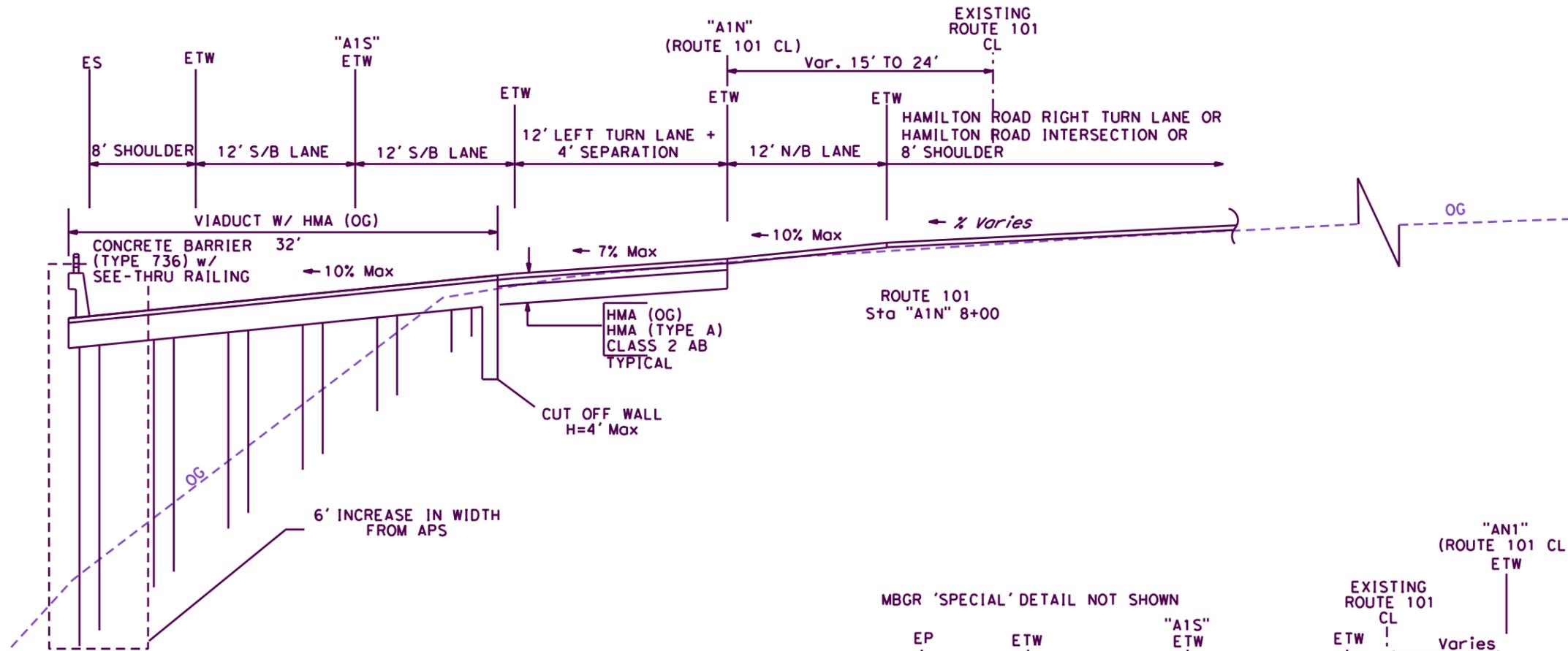
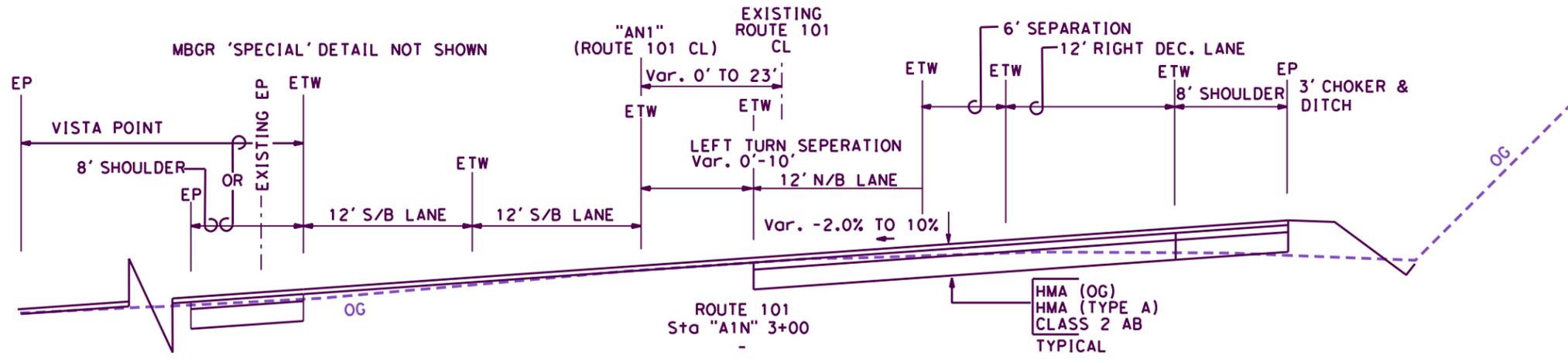
ALTERNATIVE STUDY FOR PSR
DN 101 PM 22.5/23.0
Hamilton Road Intersection
SAFETY IMPROVEMENTS
EA 01-49560K
November, 2010

SUPERELEVATION DIAGRAM
ALTERNATIVE 2



ATTACHMENT C

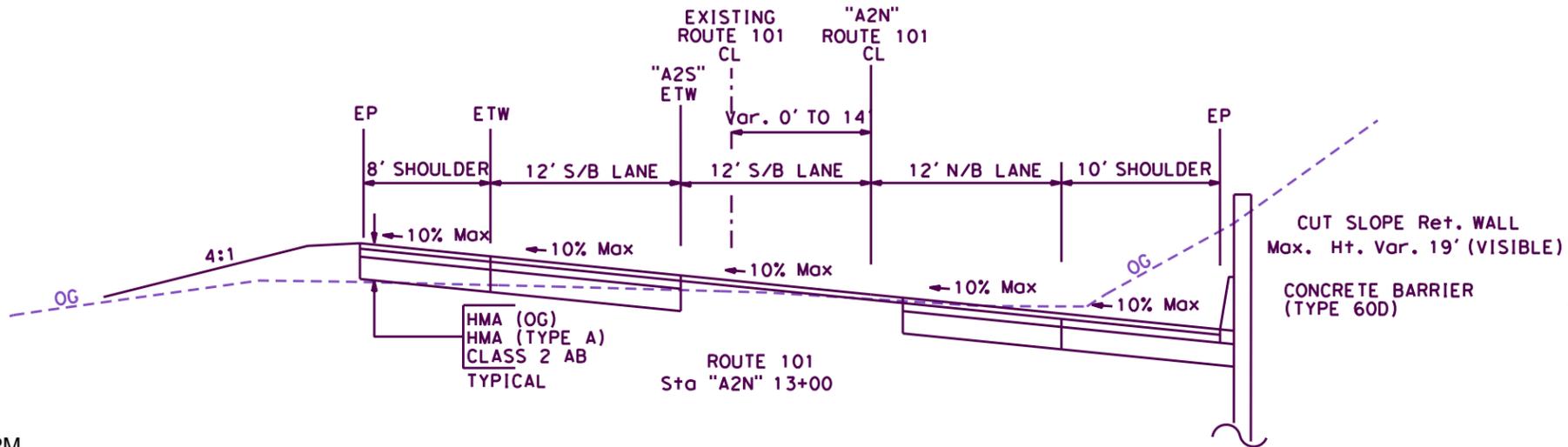
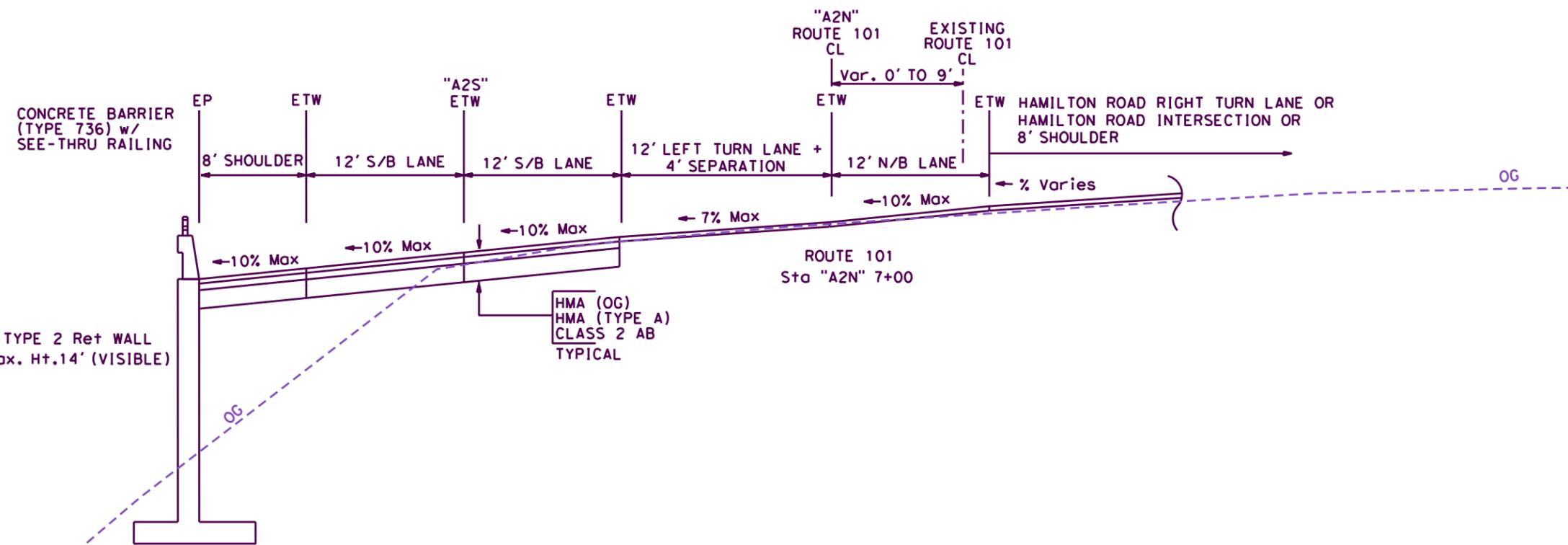
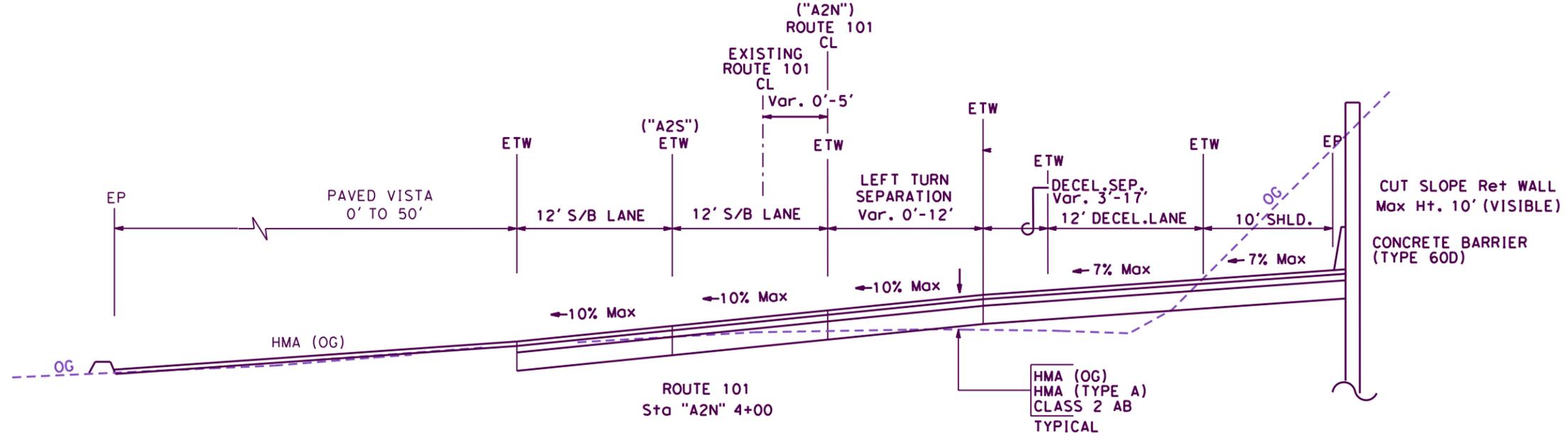
Typical Cross Sections



**Alternative 1
 (Viaduct & Retaining Walls)
 TYPICAL CROSS SECTIONS**

SCALE AS SHOWN

ALTERNATIVE STUDY FOR PSR
 DN 101 PM 22.7
 Hamilton Road Intersection
 SAFETY IMPROVEMENTS
 EA 01-49560K
 November, 2010



55 mph DESIGN SPEED
Alternative 2
(Retaining Walls)
TYPICAL CROSS SECTIONS
 SCALE AS SHOWN

ATTACHMENT D

Cost Estimate

ATTACHMENT D
Alternative 1
Project Study Report-Cost Estimate

01-DN-101-PM 22.5/23.0
EA 01-49560K
Program Code 201.010
November/2010

PROJECT DESCRIPTION:

Curve and Superelevation Improvements

Side Hill Viaduct / Soldier Pile Walls
(240 Working Days)

SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS (2010)	\$4,470,000
TOTAL STRUCTURE ITEMS (2010)	\$2,230,000
SUBTOTAL CONSTRUCTION COSTS (2010)	\$6,700,000
TOTAL RIGHT OF WAY ITEMS (2010)	\$545,000
TOTAL PROJECT CAPITAL OUTLAY COSTS (2010)	\$7,245,000

Reviewed by District Program Manager Raf Martell Date 12/3/10

Approved by Project Manager Ann Clark Date 12/7/10

I. ROADWAY ITEMS

Section 1 Primary work item	Quantity	Unit	Unit Price	Item Cost
Remove MBGR	265	FT	\$2	\$530
Remove Existing Terminal End Section	2	EA	\$500	\$1,000
Install MBGR & Terminal End Section	4	EA	\$3,500	\$14,000
MBGR ('Special Detail')	354	FT	\$550	\$194,700
Install MBGR	128	FT	\$50	\$6,400
Weed Control Mat	123	SY	\$25	\$3,067
Subtotal				\$219,697

Section 2 Earthwork/Other	Quantity	Unit	Unit Price	Item Cost
Slope Excavation (No Rock): Contractor Owns	1,010	CY	\$80.00	\$80,800
Roadway Excavation	4,948	CY	\$50	\$247,400
Obliterate surfacing	7,171	SY	\$15	\$107,565
Clearing and Grubbing (0.83 AC)	1	LS	\$50,000	\$50,000
Excavation (Restore Stream channel)	1,425	CY	\$50	\$71,250
Bioengineering (Stream channel)	1	LS	\$45,000	\$45,000
Revegetation w/ 3-5 year establishment (Entire)	1.0	LS	\$85,000	\$85,000
Subtotal Earthwork				\$687,015

Section 3 Pavement Structural Section	Quantity	Unit	Unit Price	Item Cost
HMA (Struct. Sec.)	2,420	TON	\$100	\$242,000
HMA (leveling)	450	TON	\$100	\$45,000
OGFC	1,580	TON	\$100	\$158,000
AB (Class 2)	3,347	CY	\$50	\$167,350
Cold Plane Asphalt Concrete (0.17')	4,350	SY	\$8	\$34,800
Pavement Reinforcing Fabric	1,425	SY	\$4	\$5,700
Remove Existing AC Dike	1,390	FT	\$8	\$11,120
Lead Compliance Plan	1	LS	\$2,000	\$2,000
Place AC Dike (Type A)	1,390	FT	\$18	\$25,020
Shoulder Backing	90	CY	\$50	\$4,500
AC Price Index Fluctuation	1	LS	\$16,379	\$16,379
Incentive for Asphalt Concrete (QC/QA) (4% of HMAc)	1	LS	\$17,800	\$17,800
Subtotal Pavement Structural Section				\$729,669

Section 4 Drainage	Quantity	Unit	Unit Price	Item Cost
18" Overside drain (Quantity 2):				
Remove Drainage Inlet	1	EA	\$500	\$500
Drainage Inlet (18" Type GO)	2	EA	\$4,500	\$9,000
18" APC (2)	30	FT	\$175	\$5,250
RSP- Light-Energy Dissipator (2)	5.0	CY	\$150	\$750
36" CMP (Quantity 1):				
Replace 36" Steel Flared end section	1	LS	\$1,000	\$1,000
Replace 36" CMP with 36" ACP	129	FT	\$200	\$25,800
36" CMP Downdrain/Elbow	65	FT	\$150	\$9,750
Culvert paddle markers	2	EA	\$100	\$200
Saw off (remove) CIDH concrete Pilings	1	LS	\$2,000	\$2,000
Anchor Downdrain to Bridge Pile	1	LS	\$2,500	\$2,500
RSP-1/4 Ton Energy Dissipator	18.0	CY	\$150	\$2,700
24" CMP (Quantity 3):				
Reset Culvert paddle markers	4.0	EA	\$100	\$400
Culvert paddle markers	2.0	EA	\$100	\$200
Replace 18" CMP with 24" APC (2)	148	FT	\$125	\$18,500
Drainage Inlet (Type GO)	3	EA	\$4,500	\$13,500
Remove Drainage Inlet	2	EA	\$500	\$1,000
Place 24" APC (1)	62	FT	\$125	\$7,750
RSP- Light-Energy Dissipator (3)	13	CY	\$150	\$1,950
Subtotal Drainage				\$102,750

Section 5 Specialty Items	Quantity	Unit	Unit Price	Item Cost
Progress Schedule (Critical Path Method)	1	LS	\$7,500	\$7,500
Vegetation Mitigation (Park Impacts)	1	LS	\$91,000	\$91,000
Prepare SWPPP + RQM	1	LS	\$6,000	\$6,000
Prepare Rain Event Action Plan	1	LS	\$10,000	\$10,000
Prepare Storm Water Annual Report	1	LS	\$2,000	\$2,000
Storm Water Sampling & Analysis	1	LS	\$10,000	\$10,000
Construction Site BMPS / Site Management (1.5%)	1	LS	\$97,500	\$97,500
Temporary Concrete Washout (Portable)	2	EA	\$2,000	\$4,000
Subtotal Specialty Items				\$228,000

Section 6 Traffic Items	Quantity	Unit	Unit Price	Item Cost
Portable Changeable Message Sign (CMS)	4	EA	\$5,000	\$20,000
Construction Area Signs	1	LS	\$5,000	\$5,000
Temporary Railing (Type K)	1,000	FT	\$25	\$25,000
Thermoplastic Striping (4")	8,320	FT	\$1.0	\$8,320
Thermoplastic Striping (8")	1,480	FT	\$1.0	\$1,480
Thermplastic Pavement Marking	310	SF	\$20	\$6,200
Rumble Strip (AC Ground-in Indentations)	35.6	STA	\$100	\$3,560
Recessed Pavement Marker (Retroreflective)	306	EA	\$16	\$4,896
Reset Roadside signs (2 post)	5	EA	\$300	\$1,500
Reset Roadside signs (1 post: Includes chevrons)	13	EA	\$150	\$1,950
Subtotal Traffic Items				\$77,906
SUBTOTAL SECTIONS 1 THROUGH 6				\$2,045,037

Traffic Additions (Added in "TOTAL SECTIONS 1 thru 6)				
Traffic Control System	1	LS	(7% Item Subtotal)	\$299,200
Maintain Traffic (including one way and 24-hour)	1	LS	(9% Item Subtotal)	\$384,700
Subtotal Traffic Additions				\$683,900
TOTAL 1:6 + TRAFFIC ADD.				\$2,728,937
Plus Time Related Overhead (5%)				\$2,865,384

Section 7 Minor Items				
$\$2,865,384 \times (5\%) =$				\$143,269
(Subtotal Sections 1 thru 6)				
TOTAL MINOR ITEMS				\$143,269
TOTAL 1:7				\$3,008,653

Section 8 Roadway Mobilization				
$\$3,008,653 \times (10\%) =$				\$300,865
(Subtotal Sections 1 thru 7)				
TOTAL ROADWAY MOBILIZATION				\$300,865
TOTAL 1:8				\$3,309,518

Section 9 Roadway Additions	Quantity	Unit	Unit Price	Item Cost
Supplemental Work				
			\$3,008,653 x (5%) =	\$150,433
			(Subtotal Sections 1 thru 7)	
Partnering				\$20,000
			per (RTL Guide)	
Contingencies				
			\$ 3,008,653 x (30%) =	\$902,596
			(Subtotal Sections 1 thru 7)	
COZEEP @ \$100 per Hour Working 14 Hour Days	\$ Per Hour	Hours Per Day	Work Days (Partial)	
	\$100	14	45	\$63,000
Construction Office			RE Office (7 months @ \$2,500/month)	\$17,500
TOTAL ROADWAY ADDITIONS				\$1,153,529

TOTAL ROADWAY ITEMS Sections 1:9 \$4,463,047

CALL \$4,470,000

II. STRUCTURES ITEMS				
Soldier Pile Wall A1-1	1	EA	\$1,028,000	\$1,028,000
Retaining Wall A1-2 (Not in APS)	1	EA	\$285,000	\$285,000
Retaining Wall A1-2 Bike Railing	94	LF	\$125	\$11,750
Side Hill Viaduct	1	EA	\$872,000	\$872,000
Side Hill Viaduct Bike Railing	253	LF	\$125	\$31,625
SUBTOTAL STRUCTURES ITEMS				\$2,228,375
Railroad Related Costs:	NA			
SUBTOTAL RAILROAD ITEMS				\$0
TOTAL STRUCTURES ITEMS				\$2,228,375
CALL				\$2,230,000

III. RIGHT OF WAY ITEMS	
Total Estimated Right of Way Cost (Unescalated)	\$545,000
TOTAL RIGHT OF WAY ITEMS \$545,000	

Estimate Checked By: Carlon Schriever
Estimate Prepared By: Brian Simon

Phone # 707.441.2079
Phone # 707-441-3935

ATTACHMENT D
Alternative 2
Project Study Report-Cost Estimate

01-DN-101-PM 22.5/23.0
EA 01-49560K
Program Code 201.010
November 2010

PROJECT DESCRIPTION:

Curve and Superelevation Improvements

Soldier Pile Walls
(240 Working Days)

SUMMARY OF PROJECT COST ESTIMATE

TOTAL ROADWAY ITEMS (2010)	\$5,000,000
TOTAL STRUCTURE ITEMS (2010)	\$2,300,000
SUBTOTAL CONSTRUCTION COSTS (2010)	\$7,300,000
TOTAL RIGHT OF WAY ITEMS (2010)	\$545,000
TOTAL PROJECT CAPITAL OUTLAY COSTS (2010)	\$7,845,000

Reviewed by District Program Manager Paul Martell Date 12/3/2010

Approved by Project Manager Shun Choy Date 12/7/10

I. ROADWAY ITEMS

Section 1 Primary work item	Quantity	Unit	Unit Price	Item Cost
Remove MBGR	265	FT	\$2	\$530
Remove Existing Terminal End Section	2	EA	\$500	\$1,000
Install MBGR & Terminal End Section	4	EA	\$3,500	\$14,000
MBGR ('Special Detail')	160	FT	\$550	\$88,000
Weed Control Mat	66	SY	\$25	\$1,644
Subtotal				\$105,174

Section 2 Earthwork/Other	Quantity	Unit	Unit Price	Item Cost
Slope Excavation (less structures excavation)	1,960	CY	\$75.00	\$147,000
Roadway Excavation	5,550	CY	\$50	\$277,500
Sheet Pile	1	LS	\$200,000	\$200,000
Obliterate surfacing	8,043	SY	\$15	\$120,645
Clearing and Grubbing (0.83 AC)	1	LS	\$50,000	\$50,000
Excavation (Restore Stream channel)	1,425	CY	\$50	\$71,250
Bioengineering (Stream channel)	1	LS	\$45,000	\$45,000
Revegetation w/ 3-5 year establishment (Entire)	1.0	LS	\$85,000	\$85,000
Subtotal Earthwork				\$996,395

Section 3 Pavement Structural Section	Quantity	Unit	Unit Price	Item Cost
HMA (Struct. Sec.)	2,714	TON	\$100	\$271,400
HMA (leveling)	450	TON	\$100	\$45,000
OGFC	1,580	TON	\$100	\$158,000
AB (Class 2)	3,753	CY	\$50	\$187,650
Cold Plane Asphalt Concrete (0.17')	3,500	SY	\$8	\$28,000
Pavement Reinforcing Fabric	1,500	SY	\$4	\$6,000
Remove Existing AC Dike	1,390	FT	\$8	\$11,120
Lead Compliance Plan	1	LS	\$2,000	\$2,000
Place AC Dike (Type A)	1,390	FT	\$18	\$25,020
Shoulder Backing	90	CY	\$50	\$4,500
AC Price Index Fluctuation	1	LS	\$17,428	\$17,428
Incentive for Asphalt Concrete (QC/QA) (4% of HMAC)	1	LS	\$18,976	\$18,976
Subtotal Pavement Structural Section				\$775,094

Section 4 Drainage	Quantity	Unit	Unit Price	Item Cost
18" Overside drain (Quantity 2):				
Remove Drainage Inlet	1	EA	\$500	\$500
Drainage Inlet (18" Type GO)	2	EA	\$4,500	\$9,000
18" APC (2)	30	FT	\$175	\$5,250
RSP- Light-Energy Dissipator (2)	5	CY	\$150	\$750
36" CMP (Quantity 1):				
Replace 36" Steel Flared end section	1	LS	\$1,000	\$1,000
Replace 36" CMP with 36" ACP	129	FT	\$200	\$25,800
36" CMP Downrain/Elbow	65	FT	\$150	\$9,750
Culvert paddle markers	2	EA	\$100	\$200
Saw off (remove) CIDH concrete Pilings	1	LS	\$2,000	\$2,000
Anchor Downrain to Bridge Pile	1	LS	\$2,500	\$2,500
RSP-1/4 Ton Energy Dissipator	18	CY	\$150	\$2,700
24" CMP (Quantity 3):				
Reset Culvert paddle markers	4	EA	\$100	\$400
Culvert paddle markers	2	EA	\$100	\$200
Replace 18" CMP with 24" APC (2)	148	FT	\$125	\$18,500
Drainage Inlet (Type GO)	3	EA	\$4,500	\$13,500
Remove Drainage Inlet	2	EA	\$500	\$1,000
Place 24" APC (1)	320	FT	\$125	\$40,000
RSP- Light-Energy Dissipator (3)	13	CY	\$150	\$1,950
Subtotal Drainage				\$135,000

Section 5 Specialty Items	Quantity	Unit	Unit Price	Item Cost
Progress Schedule (Critical Path Method)	1	LS	\$7,500	\$7,500
Vegetation Mitigation (Park Impacts)	1	LS	\$91,000	\$91,000
Prepare SWPPP + RQM	1	LS	\$6,000	\$6,000
Prepare Rain Event Action Plan	1	LS	\$10,000	\$10,000
Prepare Storm Water Annual Report	1	LS	\$2,000	\$2,000
Storm Water Sampling & Analysis	1	LS	\$10,000	\$10,000
Construction Site BMPS / Site Management (1.5%)	1	LS	\$97,500	\$97,500
Temporary Concrete Washout (Portable)	2	EA	\$2,000	\$4,000
Subtotal Specialty Items				\$228,000

Section 6 Traffic Items	Quantity	Unit	Unit Price	Item Cost
Portable Changeable Message Sign (CMS)	4	EA	\$5,000	\$20,000
Construction Area Signs	1	LS	\$5,000	\$5,000
Temporary Railing (Type K)	1,000	FT	\$25	\$25,000
Thermoplastic Striping (4")	10,360	FT	\$1	\$10,360
Thermoplastic Striping (8")	1,169	FT	\$1	\$1,169
Thermplastic Pavement Marking	310	SF	\$20	\$6,200
Rumble Strip (AC Ground-in Indentations)	45.0	STA	\$100	\$4,500
Recessed Pavement Marker (Retroreflective)	306	EA	\$16	\$4,896
Reset Roadside signs (2 post)	5	EA	\$300	\$1,500
Reset Roadside signs (1 post: Includes chevrons)	13	EA	\$150	\$1,950
Subtotal Traffic Items				\$80,575
SUBTOTAL SECTIONS 1 THROUGH 6				\$2,320,238

Traffic Additions (Added in "TOTAL SECTIONS 1 thru 6")				
Traffic Control System	1	LS	(7% Item Subtotal)	\$323,200
Maintain Traffic (including one way and 24-hour)	1	LS	(9% Item Subtotal)	\$415,500
Subtotal Traffic Additions				\$738,700
TOTAL 1:6 + TRAFFIC ADD.				\$3,058,938
Plus Time Related Overhead (5%)				\$3,211,885

Section 7 Minor Items					
				$\$3,211,885 \times (5\%) =$	\$160,594
(Subtotal Sections 1 thru 6)					
TOTAL MINOR ITEMS					\$160,594
TOTAL 1:7					\$3,372,479

Section 8 Roadway Mobilization					
				$\$3,372,479 \times (10\%) =$	\$337,248
(Subtotal Sections 1 thru 7)					
TOTAL ROADWAY MOBILIZATION					\$337,248
TOTAL 1:8					\$3,709,727

Section 9 Roadway Additions	Quantity	Unit	Unit Price	Item Cost
Supplemental Work				
			\$3,372,479 x (5%) =	\$168,624
(Subtotal Sections 1 thru 7)				
Partnering				\$20,000
per (RTL Guide)				
Contingencies				
			\$ 3,372,479 x (30%) =	\$1,011,744
(Subtotal Sections 1 thru 7)				
COZEEP @ \$100 per Hour Working 14 Hour Days	\$ Per Hour	Hours Per Day	Work Days (Partial)	
	\$100	14	45	\$63,000
Construction Office		RE Office (7 months @ \$2,500/month)		\$17,500
TOTAL ROADWAY ADDITIONS				\$1,280,868
TOTAL ROADWAY ITEMS Sections 1:9				\$4,990,595
CALL				\$5,000,000

II. STRUCTURES ITEMS				
Soldier Pile Wall A2-1	1	EA	\$514,000	\$514,000
Type 2 Wall A2-2	1	EA	\$851,000	\$851,000
Type 2 Wall A2-2 Bike Railing	224	LF	\$125	\$28,000
Soldier Pile Wall A2-3	1	EA	\$903,000	\$903,000
SUBTOTAL STRUCTURES ITEMS				\$2,296,000
Railroad Related Costs:	NA			
SUBTOTAL RAILROAD ITEMS				\$0
TOTAL STRUCTURES ITEMS				\$2,296,000
CALL				\$2,300,000

III. RIGHT OF WAY ITEMS	
Total Estimated Right of Way Cost (Unescalated)	\$545,000
TOTAL RIGHT OF WAY ITEMS	
	\$545,000

Estimate Checked By: Carlon Schriever
Estimate Prepared By: Brian Simon

Phone # 707.441.2079
Phone # 707-441-3935

ATTACHMENT E

Advance Planning Study

Memorandum

*Flex your power!
Be energy efficient!*

To: KEVIN CHURCH
PROJECT MANAGER
DISTRICT 1

Date: August 16, 2010

File: 01-DN-101-22.5/23.0
01-49560K
Hamilton Rd Safety Project

From: GUDMUND SETBERG, Chief 
Bridge Design Branch 2
Office of Bridge Design North
Structure Design
Division of Engineering Services MS 9-4/8I

Subject: Advance Planning Study Transmittal

Attached are two copies of the Advance Planning Study for the above referenced project as submitted to the Division of Engineering Services by your Request Memo dated March 22, 2010.

The Probabilistic Structure Cost Estimates (with 80% probability), including 10% mobilization and 25% contingencies, are as follows:

	<u>Structure</u>	<u>Cost Estimate</u>
Alternative #1	Soldier Pile Wall	\$1,028,000
	Side Hill Viaduct	<u>\$890,000</u>
	Total	\$1,918,000
Alternative #2	Wall #1: Soldier Pile Wall	\$514,000
	Wall #2: Retaining Wall Type 2	\$851,000
	Wall #3: Soldier Pile Wall	<u>\$903,000</u>
	Total	\$2,268,000

This Advance Planning Study and associated cost estimates are based on the following assumptions:

1. Concrete gutter per recommendation of Tim Alderman (GS)
2. Choice of wall types and viaduct per direction from Steve Wiman (DES) and District
3. Viaduct pile embedment length is 40' per BDA 11-68
4. Soldier pile embedment length based on analysis which considered soil parameters for the nearby Cushing Creek project
5. Type 2 Retaining Wall pile lengths assumed
6. Low ground water at all locations (similar to Cushing Creek location)
7. LRFD seismic loading considered for all structures, including soldier pile walls

KEVIN CHURCH - District 1

August 16, 2010

Page 2

If you have any questions or if you need additional information regarding this study, please contact Gregory Slocum at 916-227-8475 or Gudmund Setberg at 916-227-8282

Attachments

- c: ILENE POINDEXTER, Advanced Planning Branch Chief, Dist. 1
- ESKINDER TADDESE, Project Coordination Engineer MS 9-5/11G
- TOM OSTROM, Office Chief, Design North MS 9-4/8I
- GUDMUND SETBERG, Bridge Design Branch 2 Chief MS 9-4/8I
- MOE AMINI, Technical Liaison Engineer MS 9-1/5C FM2
- PETE WHITFIELD, Structure Maintenance & Investigations MS 9-1/9I
- DAN THOMAS, Construction Manager, Dist.1
- ROY BIBBENS, Office Chief, Geotechnical Design North MS 5

PROBABILISTIC STRUCTURE COST ESTIMATES

PROBABILISTIC STRUCTURE COST ESTIMATE

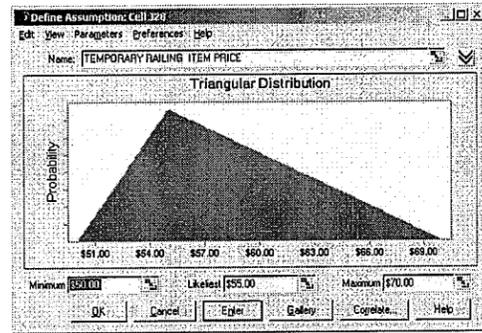
GENERAL PLAN ESTIMATE x ADVANCE PLANNING ESTIMATE

Revised - July 6, 2010

BRIDGE: Hamilton Rd Safety Project alt 2
TYPE: Soldier Pile Wall 3
CU: 01-000
EA: 49560K
PROJECT I
DESIGN SECTION: 2
OF STRUCTURES IN PROJECT : 1
PRICES BY : Wing Size Siu
PRICES CHECKED BY :
QUANTITIES BY: G Slocum

IN EST: 07/12/10
OUT EST: 08/12/10
DISTRICT: 1
CO: DN
RTE: 101.00
PM: 22.5/23.0
LENGTH
WIDTH
AREA
EST. NO. 1
COST INDEX: 317
DATE:
DATE: 7/12/2010

CONTRACT ITEMS	UNIT	QUANTITY RANGE		
		MINIMUM	LIKELIEST	MAXIMUM
1 Structure Excavation (RW)	CY	285	317	349
2 Timber Lagging (6" x 12")	MFBM	24	27	30
3 Steel Soldier Pile (HP 14 x 132)	LF	665	740	814
4 Steel Soldier Pile (W21 x 182)	LF	974	1,084	1,192
5 Clean & Paint Steel Soldier Piling	LB	265,471	294,968	324,465
6 Lean Concrete Backfill	CY	205	228	251
7 Class 3 Concrete Backfill	CY	129	145	160
8 30" Dia Drilled Holes	LF	618	687	756
9 36" Dia Drilled Holes	LF	924	1,028	1,130
10 Concrete Barrier (Type 60D)	LF		396	
11 Chain Link Fence	LF		396	
12 Minor Concrete (Gutter)	LF		396	
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				



The Assumption Curves, unless noted otherwise, are modeled with a triangular distribution with the "Minimum, Likeliest and Maximum values."

ITEM PRICE RANGE	ITEM PRICE RANGE			AMOUNT
	MINIMUM	LIKELIEST	MAXIMUM	
\$25.00	\$50.00	\$75.00	\$15,850	
\$1,900.00	\$2,850.00	\$4,000.00	\$76,950	
\$90.00	\$100.00	\$110.00	\$74,000	
\$99.00	\$130.00	\$150.00	\$140,920	
\$0.16	\$0.25	\$0.30	\$73,742	
\$123.00	\$175.00	\$190.00	\$39,900	
\$200.00	\$260.00	\$280.00	\$37,700	
\$30.00	\$40.00	\$55.00	\$27,480	
\$40.00	\$43.00	\$48.00	\$44,204	
\$20.00	\$45.00	\$60.00	\$17,820	
\$25.00	\$35.00	\$60.00	\$13,860	
\$20.00	\$40.00	\$64.00	\$15,840	

SUBTOTAL	\$578,266
TIME RELATED OVERHEAD	\$57,827
MOBILIZATION (@ 10%)	\$70,677
SUBTOTAL BRIDGE ITEMS	\$706,770
CONTINGENCIES (@ 25%)	\$176,692
BRIDGE TOTAL COST	\$883,462
COST PER SQ. FOOT	
BRIDGE REMOVAL (CONTINGENCIES INCL.)	
WORK BY RAILROAD OR UTILITY FORCES	
GRAND TOTAL	\$883,462
BASELINE ESTIMATE TO MIDPOINT OF CONSTRUCTION	
BASE CASE ESTIMATE	\$883,000

- ROUTING**
- DES SECTION
 - OFFICE OF BRIDGE DESIGN - NORTH
 - OFFICE OF BRIDGE DESIGN - CENTRAL
 - OFFICE OF BRIDGE DESIGN - WEST
 - OFFICE OF BRIDGE DESIGN - SOUTH 1
 - OFFICE OF BRIDGE DESIGN - SOUTH 2

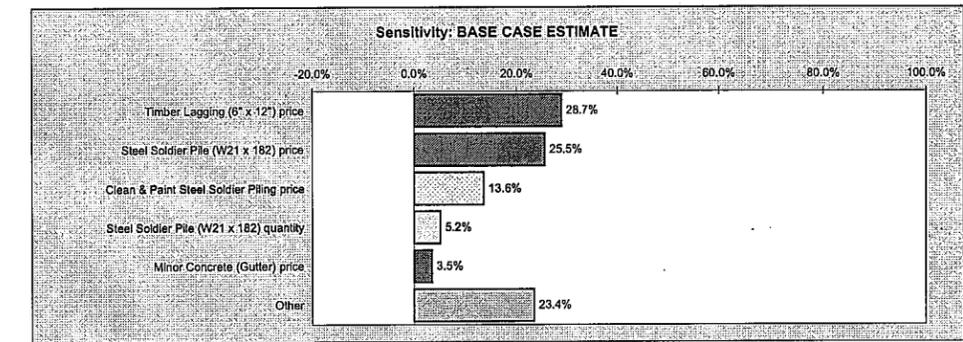
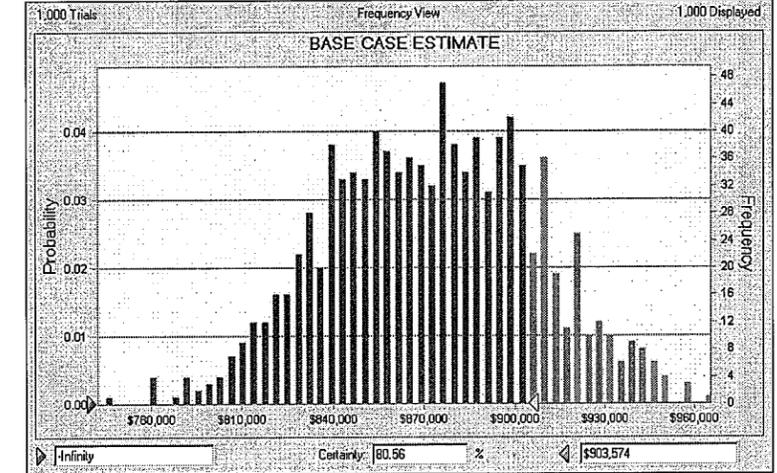
COMMENTS:

Notes
 Highlighted cells represent the quantities and prices that are included in the model.
 Base Case Estimate is the sum of the "Likeliest" Quantity multiplied by "Likeliest" Item Price

← INPUT

OUTPUT →

The estimate ranges generated below were prepared using Crystal Ball software. Crystal Ball software automatically calculates and records the results of thousands of different "what if" cases. Analysis of these scenarios reveals to you the range of possible outcomes, their probability of occurring, the inputs that most impact your model, and where you should focus your efforts.



Percentiles:	Forecast values
0%	\$764,000
10%	\$828,000
20%	\$842,000
30%	\$853,000
40%	\$862,000
50%	\$873,000
60%	\$882,000
70%	\$892,000
80%	\$903,000
90%	\$916,000
100%	\$963,000

Recommended Range

80% FORECAST VALUE = \$903,000.00

*80% Forecast Value Escalated Budget Estimate to Midpoint of Construction

Years Beyond Midpoint	Escalation Rate	Escalated Budget Est.
1	2.3%	\$924,000
2	3.0%	\$952,000
3	4.0%	\$990,000
4	3.8%	\$1,028,000
5	2.7%	\$1,056,000

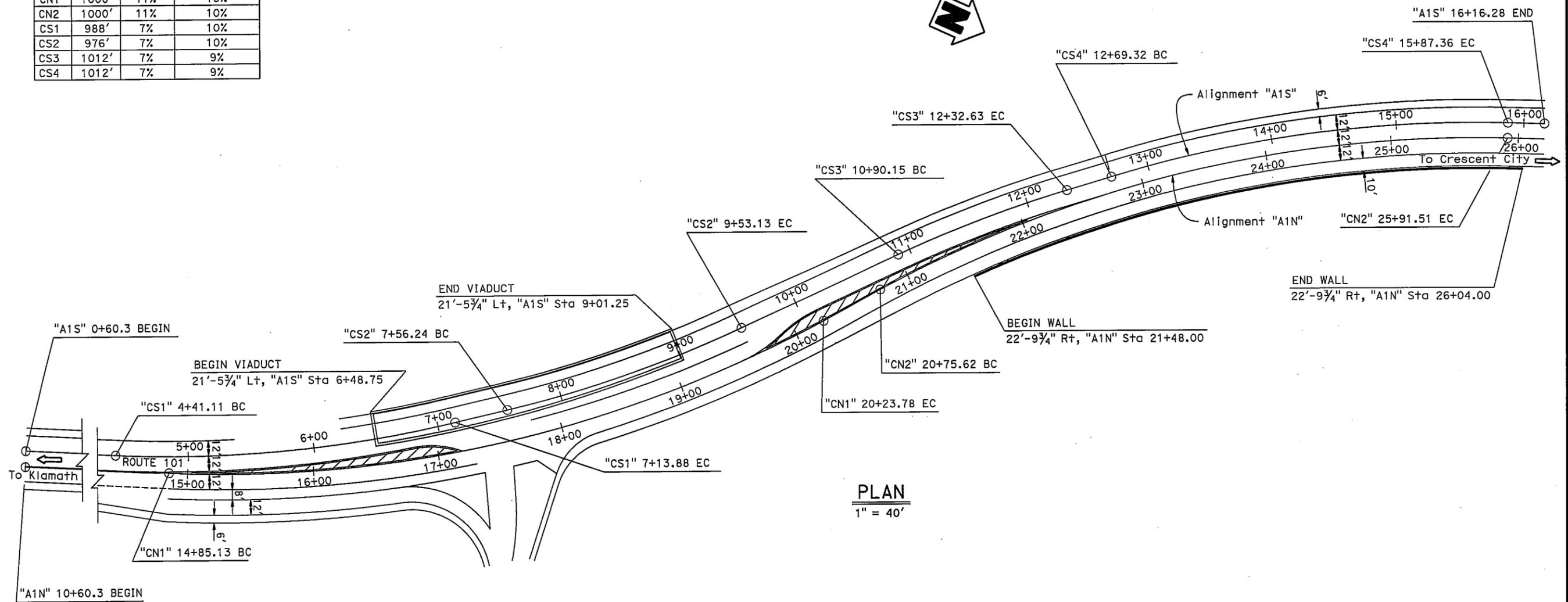
* Escalated structure cost is provided for information only, actual construction costs may vary. Escalated structure costs provided do not replace Departmental policy to update cost estimates annually. Escalation rate used are based on Global Insight data posted at <http://www.dot.ca.gov/hq/oppd/costest/data.htm>

STRUCTURE PLANS

DIST.	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0

CURVE DATA

No.	R	Super.	Sup. Stand.
CN1	1000'	11%	10%
CN2	1000'	11%	10%
CS1	988'	7%	10%
CS2	976'	7%	10%
CS3	1012'	7%	9%
CS4	1012'	7%	9%



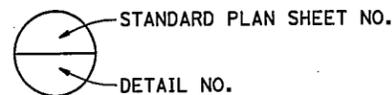
PLAN
1" = 40'

STANDARD PLANS DATED MAY 2006

- A10A ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
- A10B ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
- A62B LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
- A62C LIMITS OF PAYMENT FOR EXCAVATION AND BACK FILL BRIDGE
- A76A CONCRETE BARRIER TYPE 60
- B0-1 BRIDGE DETAILS
- B0-3 BRIDGE DETAILS
- B11-56 CONCRETE BARRIER TYPE 736

INDEX TO PLANS

1. LAYOUT
2. SOLDIER PILE WALL SHEET 1 OF 2
3. SOLDIER PILE WALL SHEET 2 OF 2
4. VIADUCT

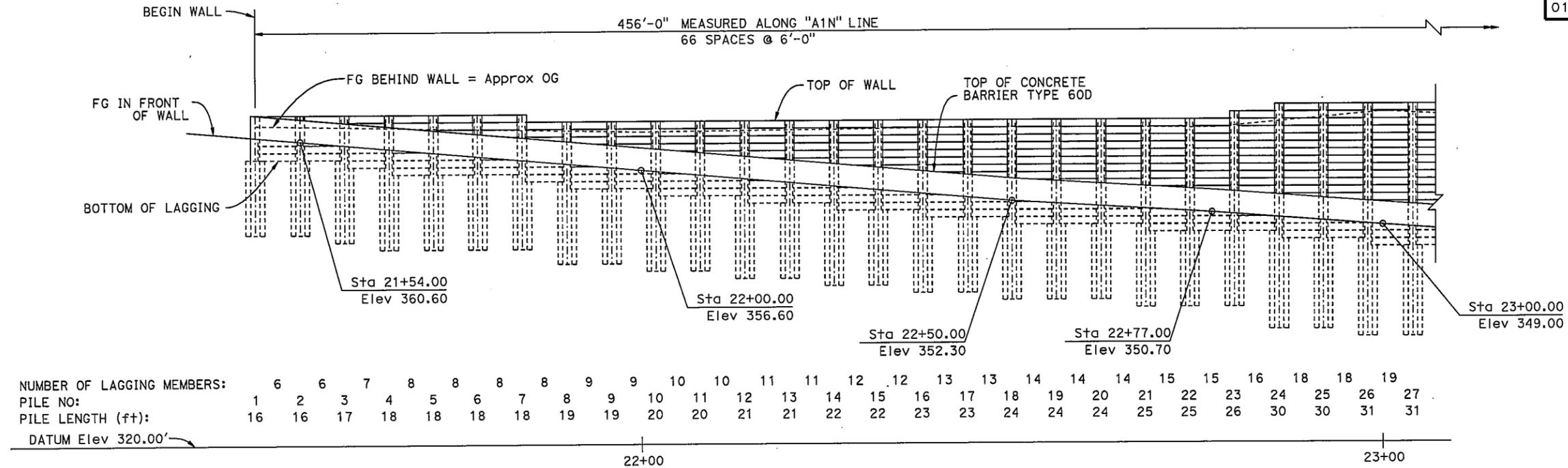


DESIGNED BY	E. Ward	DATE	06-23-10
DRAWN BY	J. Yang	DATE	06-23-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

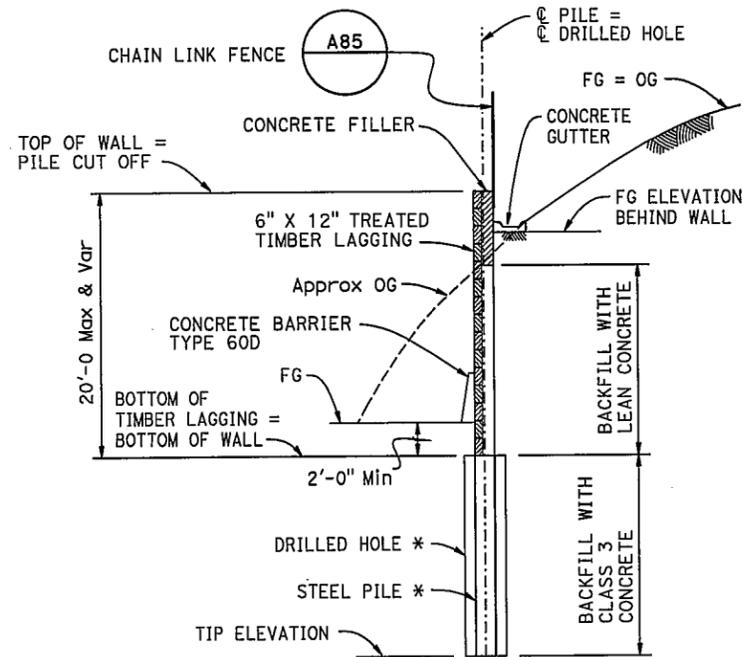
STRUCTURE DESIGN BRANCH
2

ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 1	
LAYOUT	
BRIDGE NO. X	CU 01
SCALE: 1" = 40'	EA 49560K

DIST	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



MIRROR ELEVATION
1/8" = 1'-0"



TYPICAL SECTION
3/16" = 1'-0"

* For piles 1-23 and 57-77 use 2.5' Dia drilled hole and W14x132 steel pile. For piles 24-56 use 3.0' Dia drilled hole and W21x182 steel pile.

DATE OF ESTIMATE	08-12-10
BRIDGE REMOVAL	=
STRUCTURE DEPTH	=
LENGTH	= 456'-0"
WIDTH	=
AREA	=
COST/□ INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=
TOTAL COST	\$1,028,000

ASSUMPTIONS

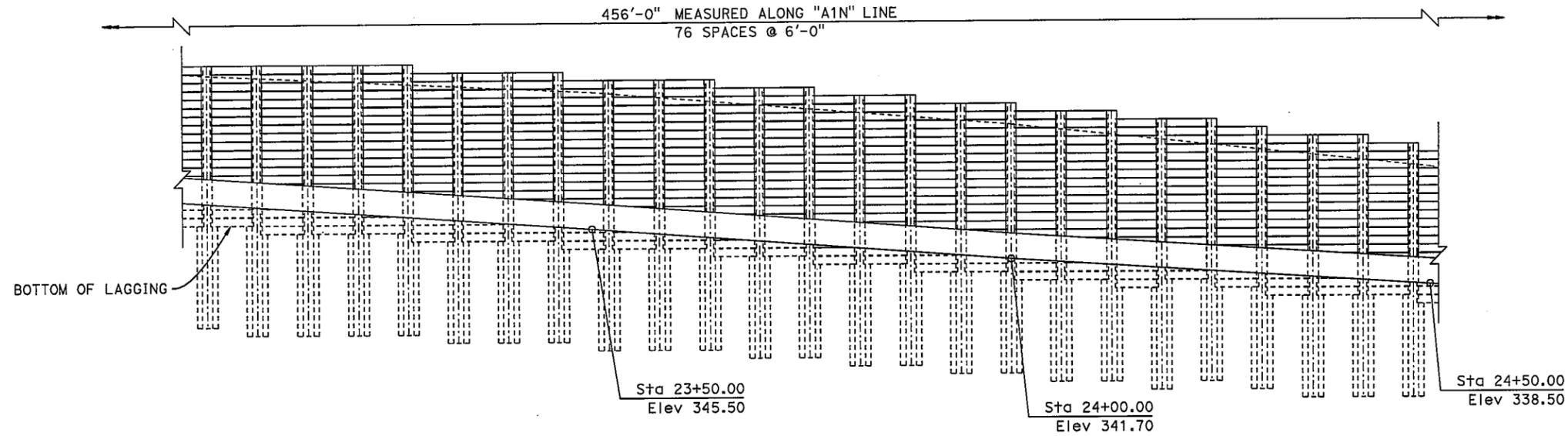
1. Wall layout is preliminary only.
2. Geology similar to that at Cushing Creek Sidehill Viaducts No.1 & No. 2. (Rte 101 PM 20.95 & 21.7)
3. Pile lengths based on geotechnical analysis.
4. Wet pile construction anticipated at depths greater than 10'.
5. LRFD Seismic Loading considered.

DESIGNED BY	E. Ward	DATE	06-23-10
DRAWN BY	J. Yang	DATE	06-23-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

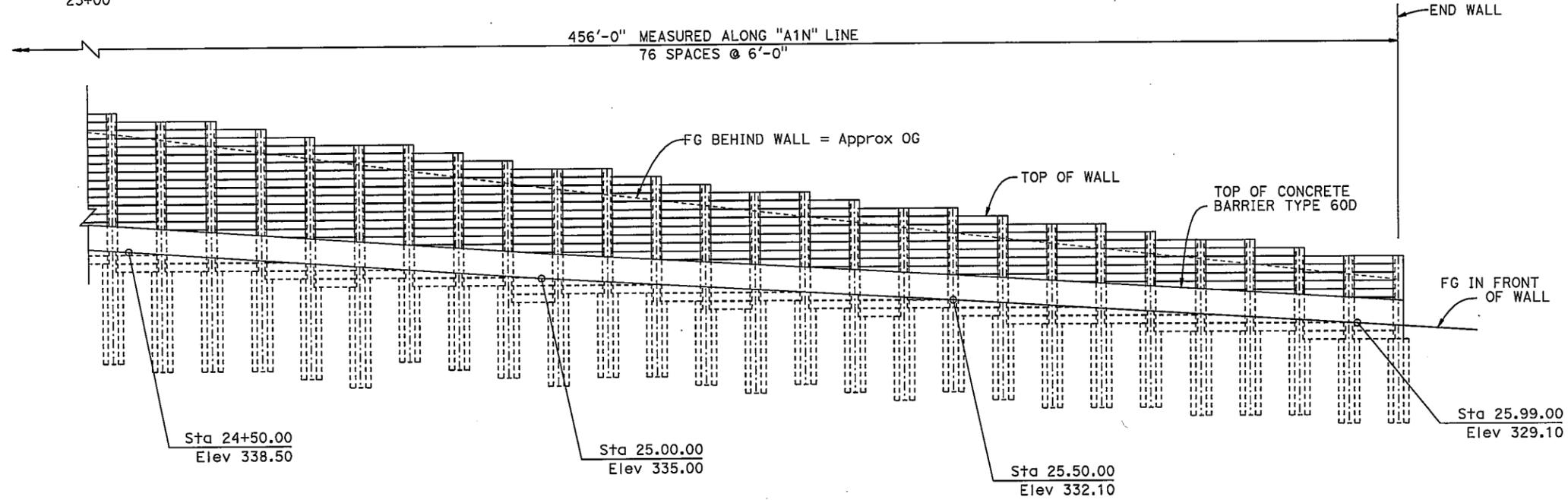
ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 1	
SOLDIER PILE WALL SHEET 1 OF 2	
BRIDGE NO. X	CU 01
SCALE: 1" = 40'	EA 49560K

DIST	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



NUMBER OF LAGGING MEMBERS:	19	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	19	19	19	19	18	
PILE NO:	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51
PILE LENGTH (ft):	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	31	30

DATUM Elev 310.00'



NUMBER OF LAGGING MEMBERS:	18	18	17	17	17	16	16	15	16	15	14	14	14	13	13	13	12	12	12	12	11	11	11	10	10	10	
PILE NO:	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77
PILE LENGTH (ft):	30	30	30	29	29	29	26	26	26	26	25	24	24	24	23	23	23	22	22	22	22	21	21	21	20	20	20

DATUM Elev 295.00'

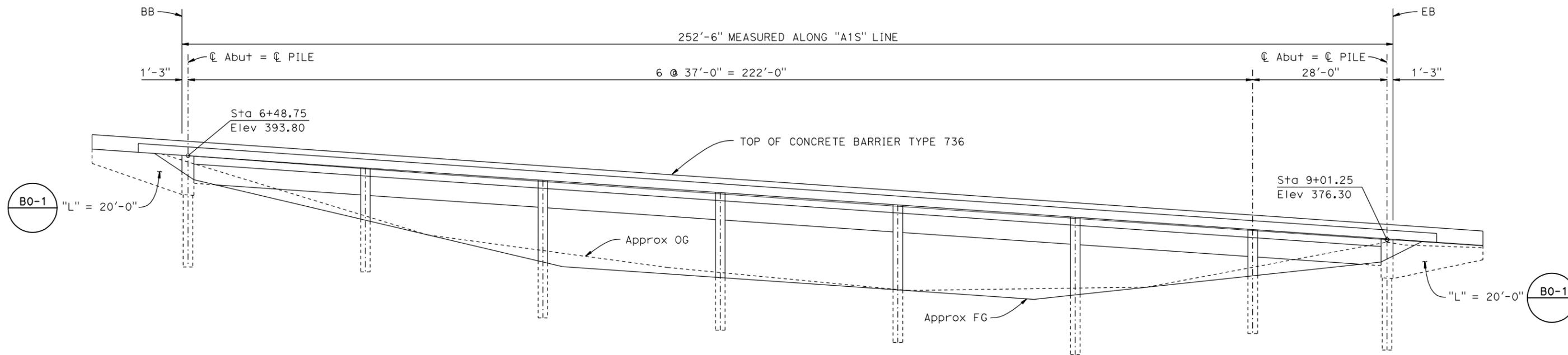
MIRROR ELEVATION
1/8" = 1'-0"

DESIGNED BY	E. Ward	DATE	06-23-10
DRAWN BY	J. Yang	DATE	06-23-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 1	
SOLDIER PILE WALL SHEET 2 OF 2	
BRIDGE NO. X	CU 01
SCALE: 1" = 40'	EA 49560K

DIST	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



MIRROR ELEVATION

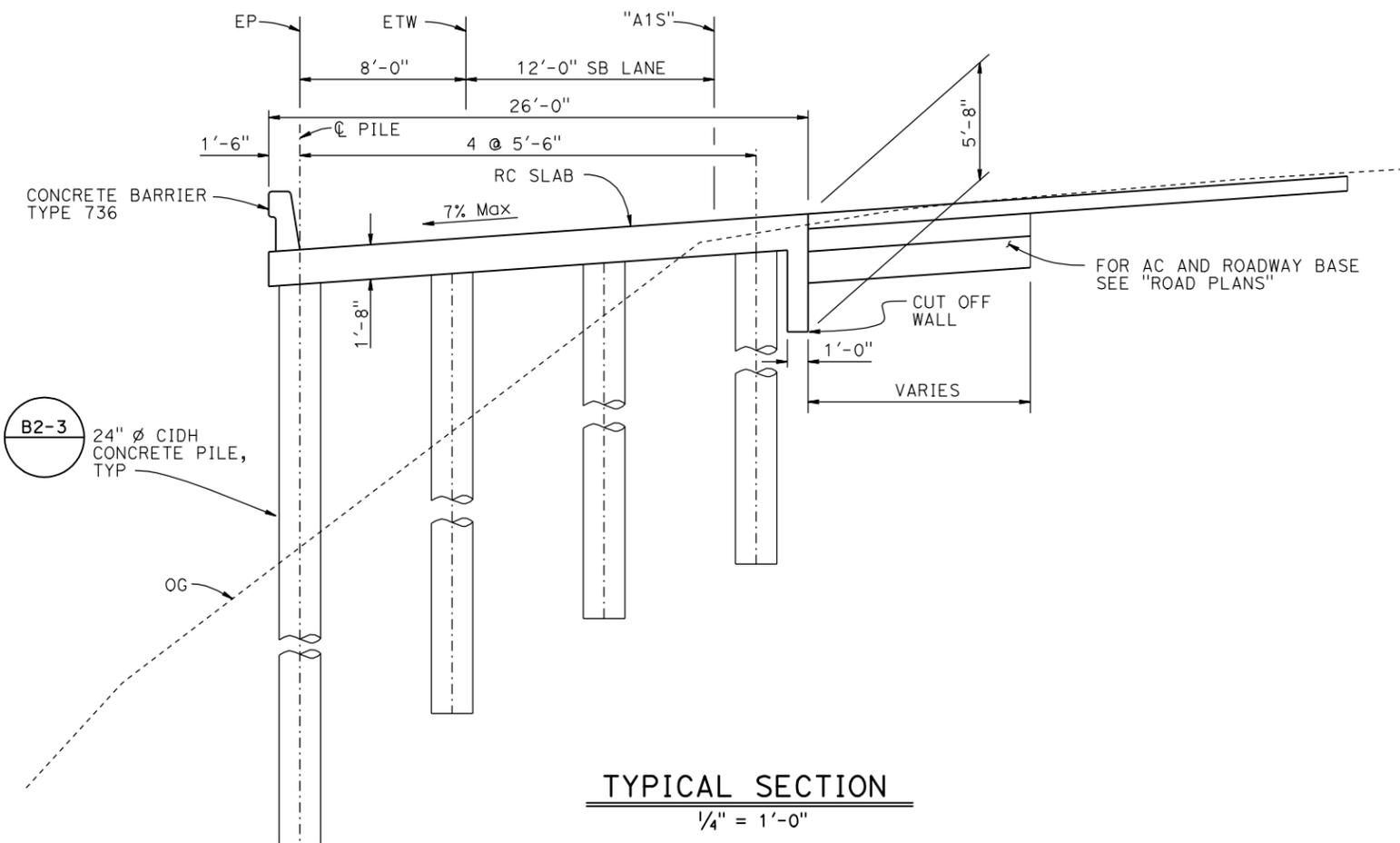
3/32" = 1'-0"

Notes:

1. Approx OG and Approx FG are shown at left edge of deck looking up station.
2. Piles are standard class 200 CIDH.

ASSUMPTIONS

1. Viaduct layout is preliminary only.
2. Piles to be CIDH embedded 40' into the ground and extended to superstructure.
3. Wet pile construction anticipated.



TYPICAL SECTION

1/4" = 1'-0"

DATE OF ESTIMATE	=	08-12-10
BRIDGE REMOVAL	=	
STRUCTURE DEPTH	=	
LENGTH	=	252'-6"
WIDTH	=	26'-0"
AREA	=	
COST/□ INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=	
TOTAL COST	=	890,000

DESIGNED BY	E. Ward/GES/GS	DATE	06-30-10
DRAWN BY	J. Yang	DATE	06-30-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

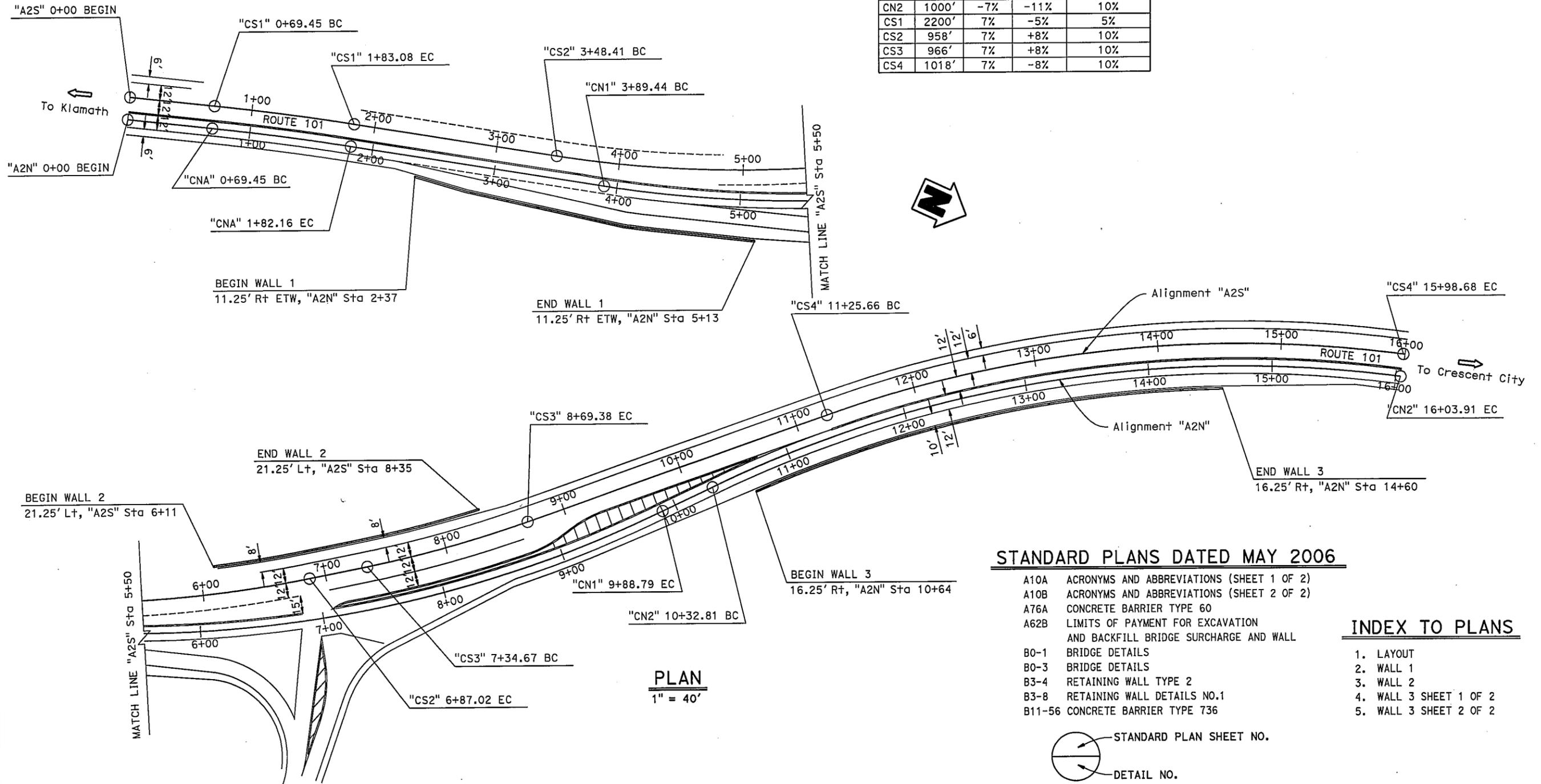
STRUCTURE DESIGN BRANCH
2

ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 1	
VIADUCT	
BRIDGE NO. X	CU 01
SCALE:	EA 49560K

DIST.	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0

CURVE DATA

No.	R	GRADE	Super.	Sup. Stand.
CNA	2200'	-7%	-5%	5%
CN1	1000'	-7%	+11%	10%
CN2	1000'	-7%	-11%	10%
CS1	2200'	7%	-5%	5%
CS2	958'	7%	+8%	10%
CS3	966'	7%	+8%	10%
CS4	1018'	7%	-8%	10%



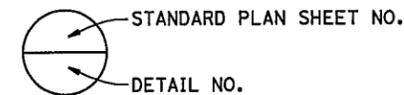
PLAN
1" = 40'

STANDARD PLANS DATED MAY 2006

- A10A ACRONYMS AND ABBREVIATIONS (SHEET 1 OF 2)
- A10B ACRONYMS AND ABBREVIATIONS (SHEET 2 OF 2)
- A76A CONCRETE BARRIER TYPE 60
- A62B LIMITS OF PAYMENT FOR EXCAVATION AND BACKFILL BRIDGE SURCHARGE AND WALL
- B0-1 BRIDGE DETAILS
- B0-3 BRIDGE DETAILS
- B3-4 RETAINING WALL TYPE 2
- B3-8 RETAINING WALL DETAILS NO.1
- B11-56 CONCRETE BARRIER TYPE 736

INDEX TO PLANS

- 1. LAYOUT
- 2. WALL 1
- 3. WALL 2
- 4. WALL 3 SHEET 1 OF 2
- 5. WALL 3 SHEET 2 OF 2

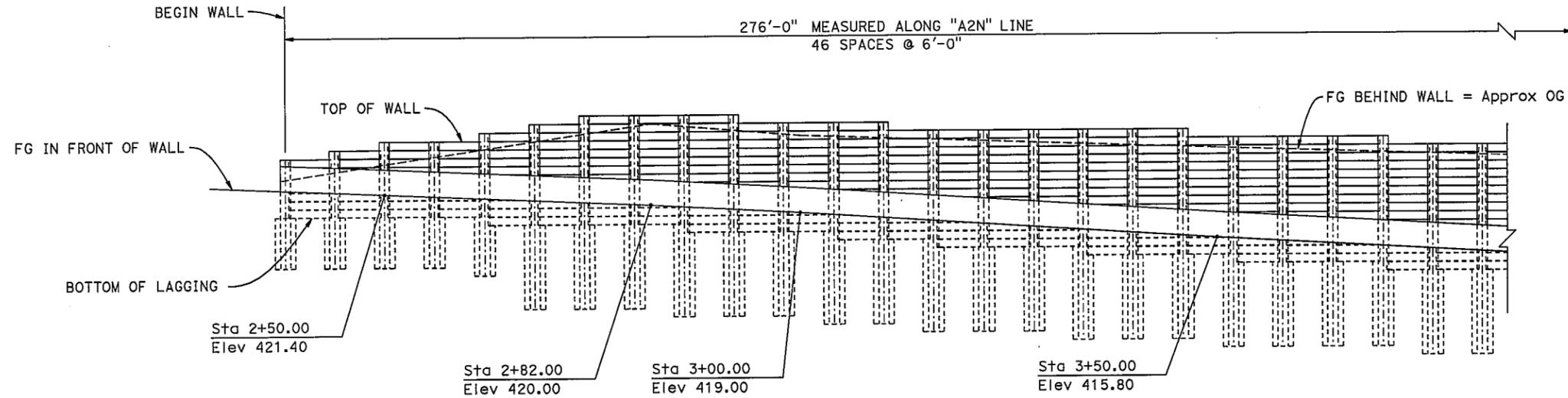


DESIGNED BY E. Ward	DATE 06-10-10
DRAWN BY J. Yang	DATE 06-10-10
CHECKED BY X	DATE X
APPROVED X	DATE X

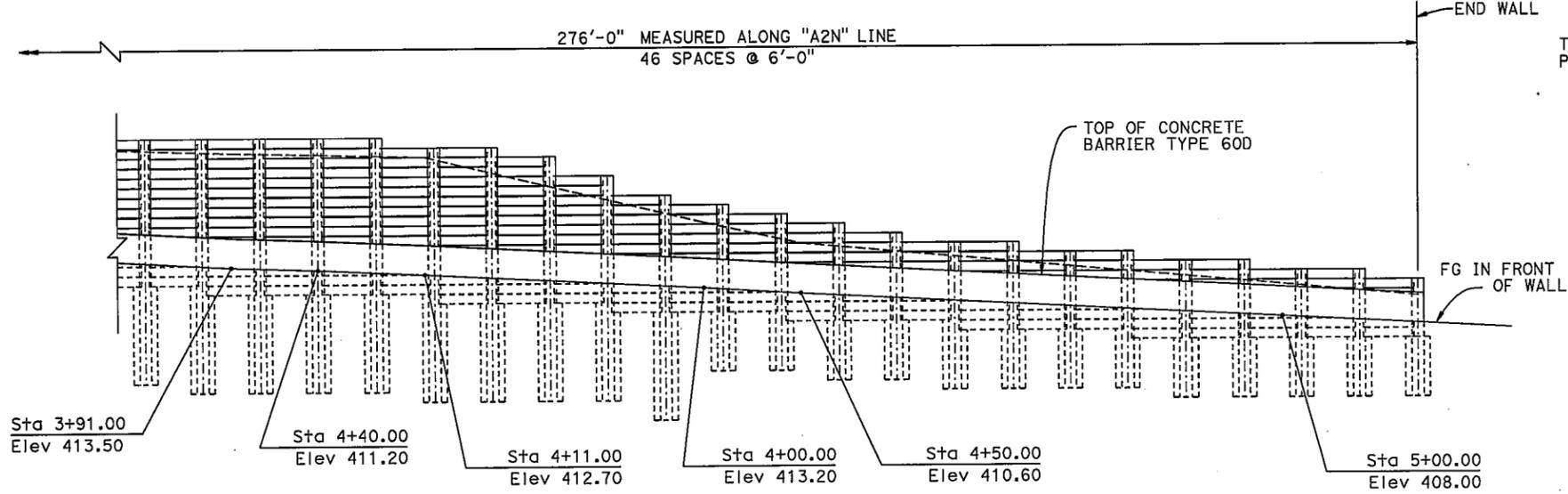
STRUCTURE
DESIGN
BRANCH
2

ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 2	
LAYOUT	
BRIDGE NO. X	CU 01
SCALE: 1" = 40'	EA 49560K

DIST	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



NUMBER OF LAGGING MEMBERS:	7	8	9	9	11	12	13	13	14	13	13	14	13	14	14	14	14	15	15	14	15	15	15	15	15
PILE NO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
PILE LENGTH (ft):	13	14	15	15	17	22	23	23	24	24	23	24	24	24	24	24	25	25	25	25	25	25	25	25	25



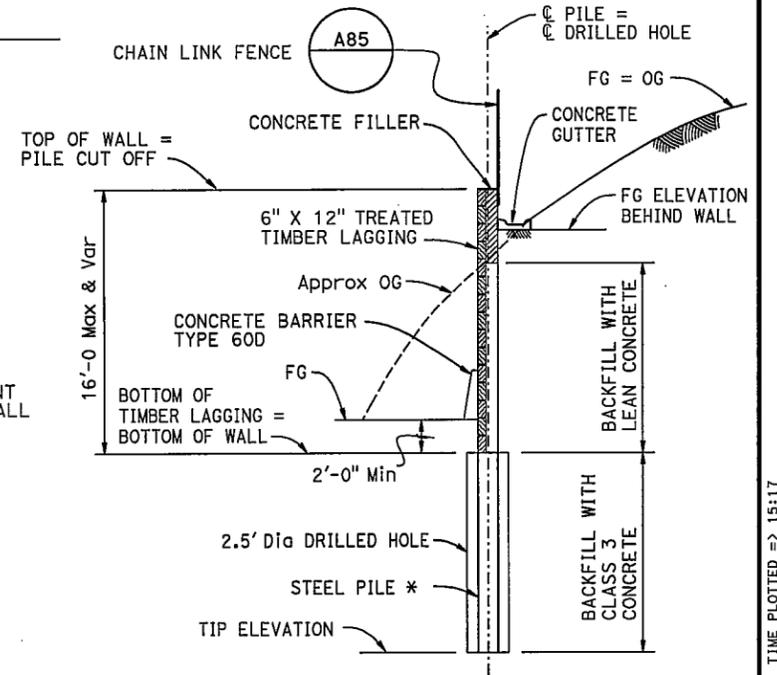
NUMBER OF LAGGING MEMBERS:	15	16	16	16	15	16	15	13	13	11	10	10	9	8	9	8	8	8	8	8	7	7	6
PILE NO:	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
PILE LENGTH (ft):	25	26	26	26	26	26	26	25	23	23	17	16	16	15	15	15	14	14	14	14	13	13	12



MIRROR ELEVATION
1/8" = 1'-0"

- ASSUMPTIONS**
1. Wall layout is preliminary only.
 2. Geology similar to that at Cushing Creek Sidehill Viaducts No.1 & No. 2. (Rte 101 PM 20.95 & 21.7)
 3. Pile lengths based on geotechnical analysis.
 4. Wet pile construction anticipated at depths greater than 10'.
 5. LRFD Seismic Loading considered.

DATE OF ESTIMATE	08-12-10
BRIDGE REMOVAL	=
STRUCTURE DEPTH	=
LENGTH	= 276'-0"
WIDTH	=
AREA	=
COST/□ INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=
TOTAL COST	= \$514,000



TYPICAL SECTION
3/16" = 1'-0"

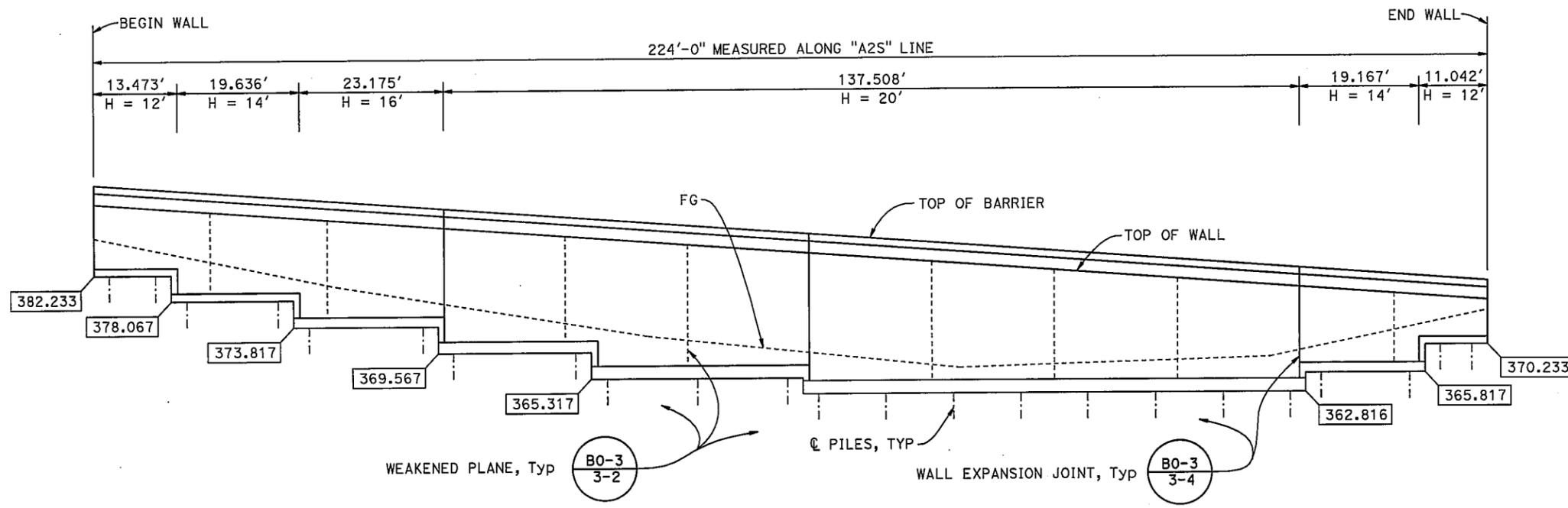
* For piles 1-5 and 35-47, use HP 14x73.
For piles 6-34 use W14x132

DESIGNED BY	E. Ward	DATE	06-14-10
DRAWN BY	J. Yang	DATE	06-14-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

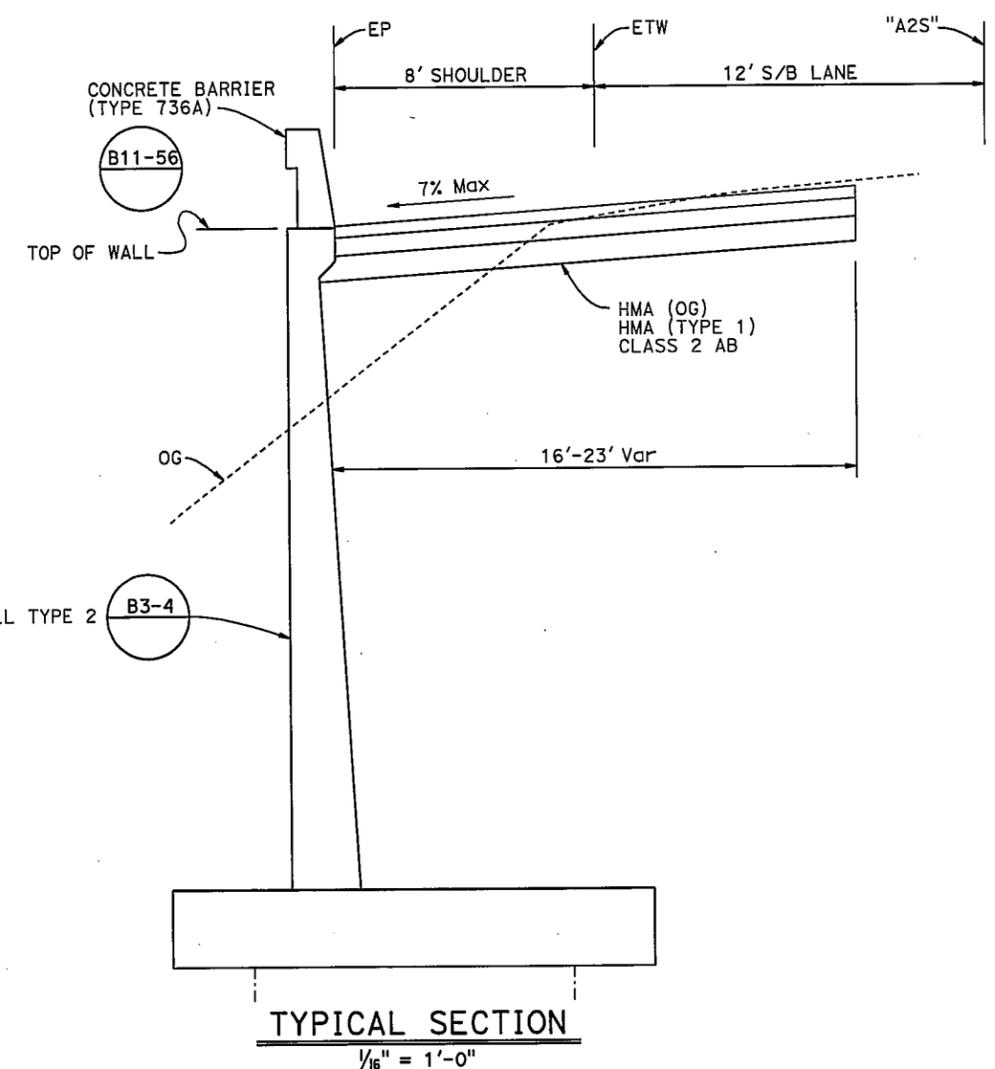
ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 2	
WALL 1	
BRIDGE NO. X	CU 01
SCALE: 1/8" = 1'-0"	EA 49560K

DIST	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



NOTE:
XX.XX Bottom of footing elevation

MIRROR ELEVATION
 $\frac{3}{32}'' = 1'-0''$



TYPICAL SECTION
 $\frac{1}{16}'' = 1'-0''$

- ASSUMPTIONS**
1. Wall layout is preliminary only.
 2. Class 90 open-ended pipe piles
 3. Pile lengths 40'
 4. Pile number based on BDD 6-60
 5. Exposed surfaces to receive aesthetic treatment.

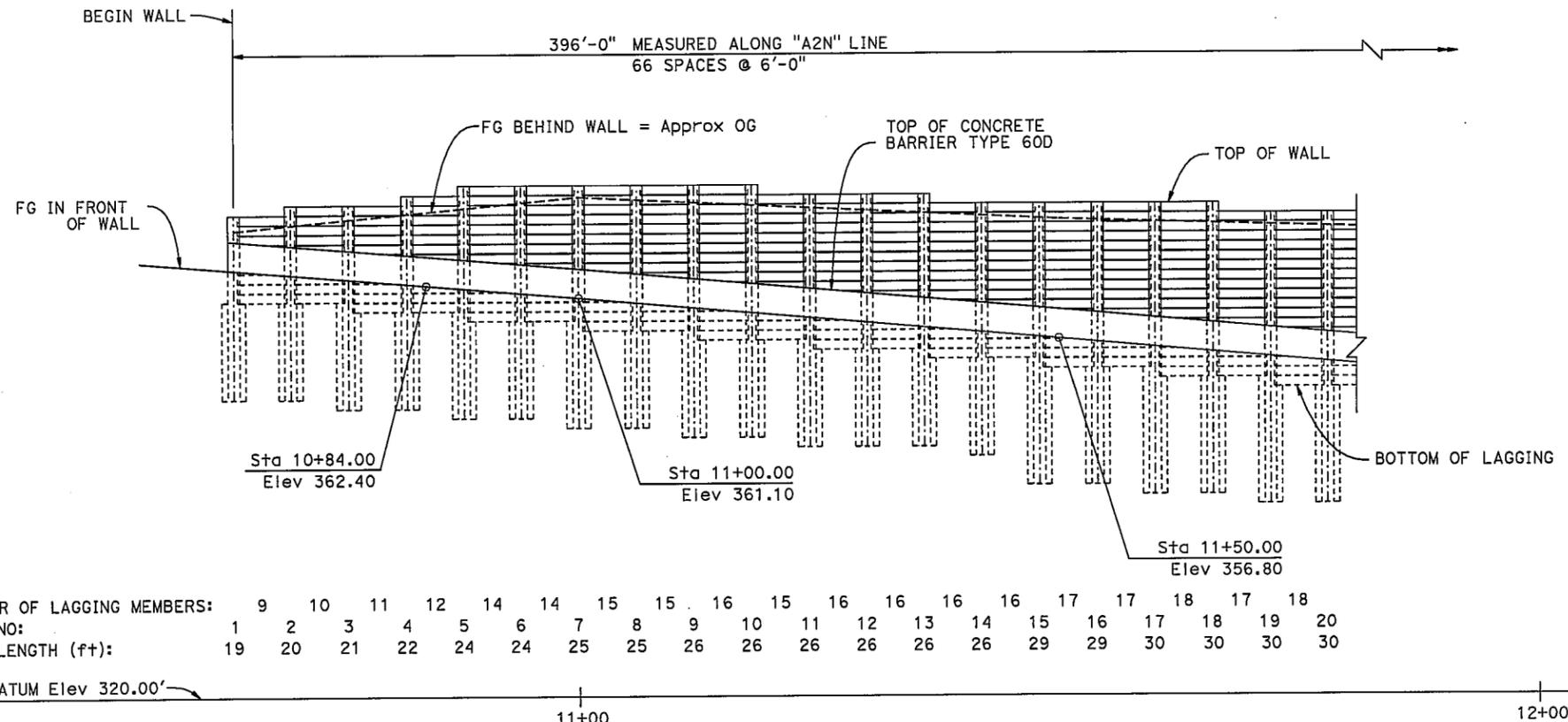
DATE OF ESTIMATE	08-12-10
BRIDGE REMOVAL	=
STRUCTURE DEPTH	=
LENGTH	= 224'-0"
WIDTH	= 16'-0" & Varies
AREA	=
COST/ <input type="checkbox"/> INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=
TOTAL COST	= \$851,000

DESIGNED BY	E. Ward	DATE	06-15-10
DRAWN BY	J. Yang	DATE	06-15-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

ADVANCE PLANNING STUDY	
HAMILTON ROAD SAFETY PROJECT ALT 2	
WALL 2	
BRIDGE NO. X	CU 01
SCALE: X	EA 49560K

DIST.	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0



NUMBER OF LAGGING MEMBERS:	9	10	11	12	14	14	15	15	16	15	16	16	16	16	17	17	18	17	18	20
PILE NO:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
PILE LENGTH (ft):	19	20	21	22	24	24	25	25	26	26	26	26	26	26	29	29	30	30	30	30

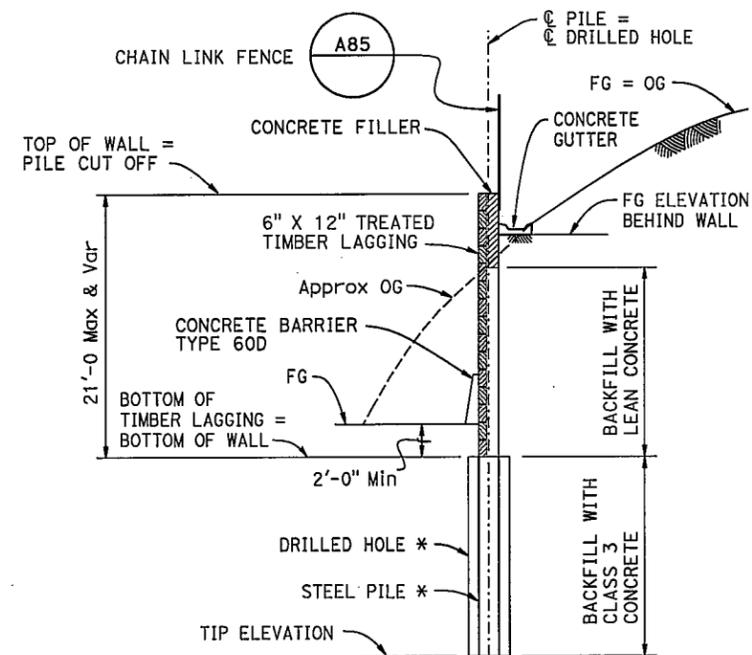
MIRROR ELEVATION

1/8" = 1'-0"

DATE OF ESTIMATE	08-12-10
BRIDGE REMOVAL	=
STRUCTURE DEPTH	=
LENGTH	= 396'-0"
WIDTH	=
AREA	=
COST/□ INCLUDING 10% MOBILIZATION & 25% CONTINGENCY	=
TOTAL COST	\$903,000

ASSUMPTIONS

1. Wall layout is preliminary only.
2. Geology similar to that at Cushing Creek Sidehill Viaducts No.1 & No. 2. (Rte 101 PM 20.95 & 21.7)
3. Pile lengths based on geotechnical analysis.
4. Wet pile construction anticipated at depths greater than 10'.
5. LRFD Seismic Loading considered.



TYPICAL SECTION

3/16" = 1'-0"

* For piles 1-14 and 50-67 use 2.5' Dia drilled hole and W14x132 steel pile. For piles 15-49 use 3.0' Dia drilled hole and W21x182 steel pile.

ADVANCE PLANNING STUDY

HAMILTON ROAD SAFETY PROJECT ALT 2

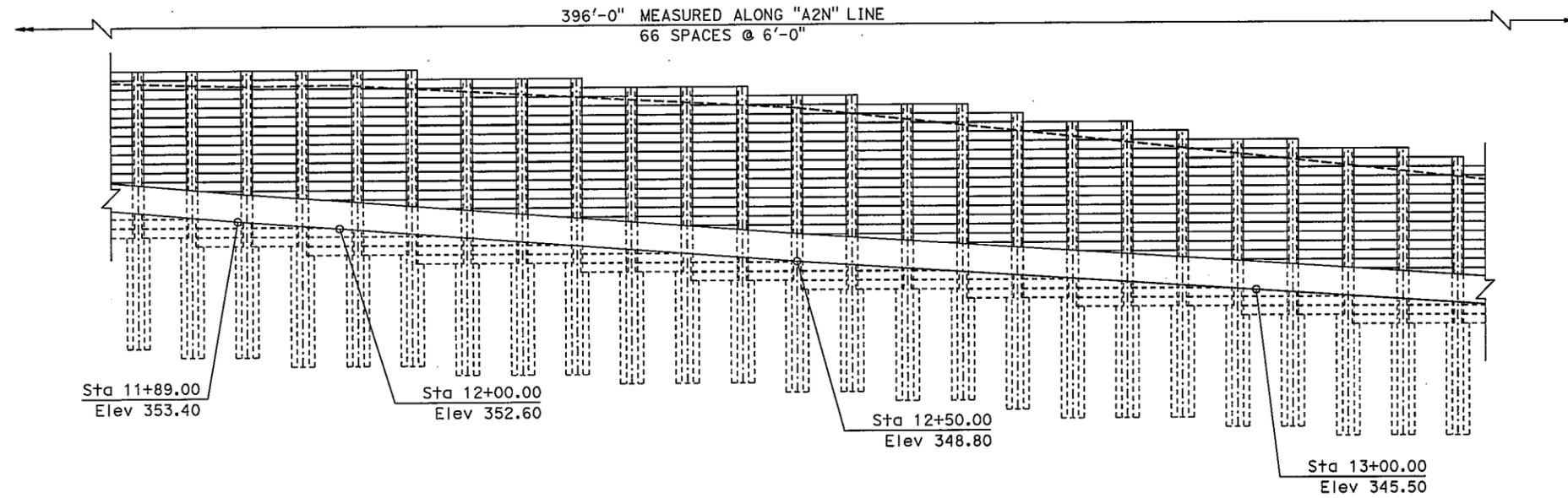
WALL 3 SHEET 1 OF 2

BRIDGE NO. X	CU 01
SCALE: 1/8" = 1'-0"	EA 49560K

DESIGNED BY	E. Ward	DATE	06-16-10
DRAWN BY	J. Yang	DATE	06-16-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

DIST.	COUNTY	ROUTE	POST MILE
01	DN	101	22.5/23.0

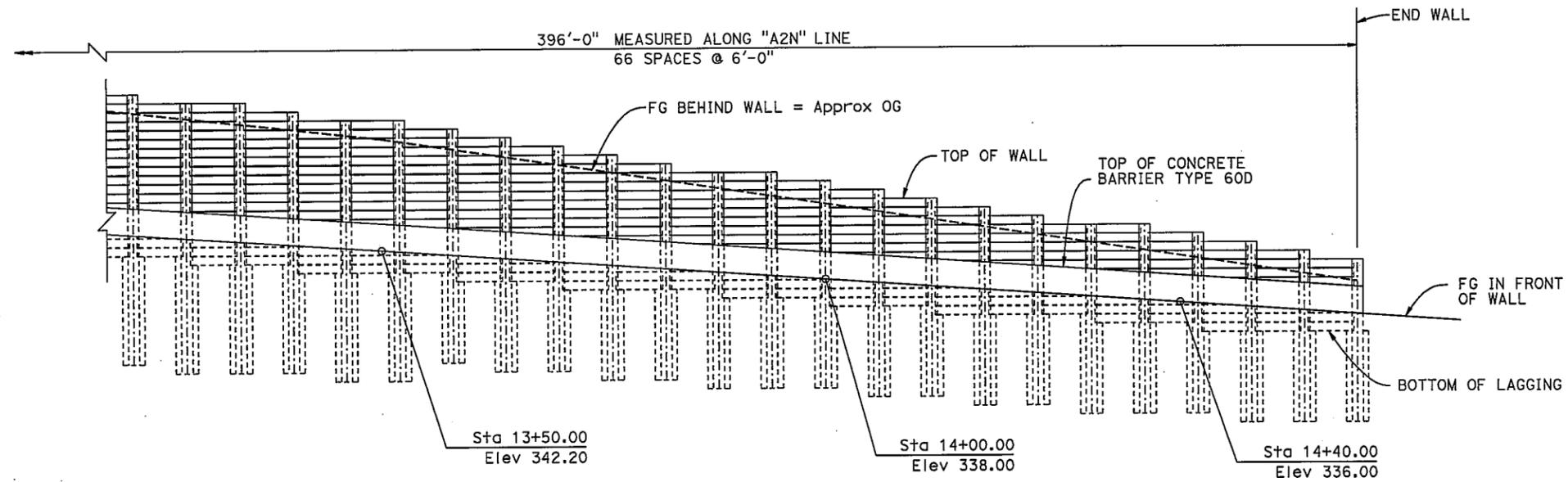


NUMBER OF LAGGING MEMBERS:	18	19	19	20	20	20	20	20	20	20	20	21	20	21	20	20	20	19	20	19	18	19	18	19	18
PILE NO:	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44
PILE LENGTH (ft):	30	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	31	31	31	31	31	30

DATUM Elev 320.00'

12+00

13+00



NUMBER OF LAGGING MEMBERS:	17	18	17	17	17	16	16	15	15	14	13	14	13	13	12	12	11	10	11	10	10	9	8	
PILE NO:	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67
PILE LENGTH (ft):	30	30	30	29	29	29	26	26	25	25	24	24	24	23	23	22	22	21	21	21	20	20	19	18

DATUM Elev 300.00'

13+00

14+00

MIRROR ELEVATION

1/8" = 1'-0"

DESIGNED BY	E. Ward	DATE	06-16-10
DRAWN BY	J. Yang	DATE	06-16-10
CHECKED BY	X	DATE	X
APPROVED	X	DATE	X

STRUCTURE DESIGN BRANCH
2

ADVANCE PLANNING STUDY

HAMILTON ROAD SAFETY PROJECT ALT 2

WALL 3 SHEET 2 OF 2

BRIDGE NO. X	CU 01
SCALE: 1/8" = 1'-0"	EA 49560K

ATTACHMENT F

Transportation Management Plan

TRANSPORTATION MANAGEMENT PLAN

To: Carlon Schriever
Project Engineer

Date: 23 March 2010
File: DN-101 PM 22.7
EA: 01-49560K
Hamilton Road Safety

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

Project Information

Location: In Del Norte County near Crescent City from 0.2 miles south to 0.3 miles north of Hamilton Road.

Type of Work: Curve improvement, viaduct, retaining wall.

Anticipated Traffic Control: Lane reduction.
Shoulder closure.

Estimated Maximum Delay: Minimal.

Peak Hour Traffic Volumes: 800 vph.

Lane Requirement Charts
Included: Yes.

Number of Working Days: 60 days.

Next Major Milestone and Date: PSR - June/2010

RTL Date: July/2015

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

TMP Coordinator: Marie Brady (707) 441-5784

In accordance with A + B bidding Provisions, a Road User Cost (RUC) calculation has been completed for this project. The Calculated Road User Cost (CRUC) has been determined to be \$ 0 per day. Since the project does not exceed the minimum CRUC threshold of \$5,000 per day, this project is not subject to the requirements of A + B Bidding.

Anticipated Traffic Impacts

Significant traffic impacts are not anticipated provided that the following recommendations and requirements 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

- See Chart No. 1 “Lane Ramp Requirements” for work hour restrictions.
- 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 Event, The Sea Cruise, held the second weekend of October. The contractor shall verify the actual dates for this Special Event. See Chart No. 2 “Lane Closure Restrictions for Designated Legal Holidays and Special Days” for work day restrictions.

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 HQ Construction Liaison Jay Horton at (916) 322-4957.
- 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.
- Include in a memo to the Resident Engineer that at least 5 days in advance of excavation work in the vicinity of possible Caltrans facilities, that Maintenance-Electrical Supervisor (825-0233) shall be contacted to locate existing Caltrans underground electrical facilities.

Traffic Control

- One closure is permitted within the project limits.
- The W11-1 vehicular traffic sign (bicycle symbol) and the W16-1 supplemental plaque (SHARE THE ROAD) shall be placed, in each direction of travel, prior to the construction zone.
- Work that occurs within 6 ft of the edge of traveled way, on a conventional highway, shall require a shoulder closure in conformance with “Figure 6H-3.

Work on Shoulders (TA-3)” in the September 26, 2006 CA MUTCD for Streets and Highways (Pg. 6H-11/12).

- Work that requires a lane closure shall be in conformance with the Caltrans Standard Plan T-11, “TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS.”
 - A minimum of 16 ft of paved roadway in each direction of travel shall be open for use by public traffic.
- Work that requires closing half the roadway shall be in conformance with the Caltrans Standard Plan T-12, “TRAFFIC CONTROL SYSTEM FOR LANE CLOSURE ON MULTILANE CONVENTIONAL HIGHWAYS.”
 - A minimum of 16 ft of paved roadway in each direction of travel shall be open for use by public traffic.
- Work that requires a moving lane closure shall be in conformance with the Caltrans Standard Plan T-15, “TRAFFIC CONTROL SYSTEM FOR MOVING LANE CLOSURES ON MULTILANE CONVENTIONAL HIGHWAYS.”
- A minimum of one PCMS in advance of both ends of the construction site shall be required 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.
- This section of Highway 101 is part of the Pacific Coast Bike Route. Bicycles shall be accommodated through the work zone by providing a 4 ft traversable paved shoulder.
- 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.

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 TAA

Approved by:

 District Traffic/ TMP Manager

TAA/pwh

- CC: 1)TAArseneau, 2)JCandalot
 1)RMMartinelli, 2) DWorkman, 3) File
 IPoindexter
 KChurch
 HLQuintrell
 RLingford
 AJones

Chart No. 1 Lane Requirements																									
County: DN							Route: 101										PM: 22.7								
FROM HOUR TO HOUR	24	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Mondays through Thursdays	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fridays	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										
Saturdays																									
Sundays																						1	1	1	1

Legend:

1	A minimum of 16 ft of paved roadway in each direction shall be open for use by public traffic. The maximum lane closure length is 2000 ft.
	No closures allowed.

- The full width of the traveled way shall be open for use by public traffic when construction operations are not actively in progress.

Chart 2: Lane Closure Restrictions for Designated Legal Holidays and Special Days										
Thu	Fri	Sat	Sun	Mon	Tues	Wed	Thu	Fri	Sat	Sun
xx	H xx									
	SD xx									
	xx	H xx								
		SD xx								
			H xx							
			SD xx							
	xx			H xx						
				SD xx						
				xx	H xx					
					xx	H xx				
						xx	H xx	xx		
Legends:										
	Refer to lane closure charts									
xx	The full width of the traveled way shall be open for use by public traffic.									
H	Designated Legal Holiday									
SD	Special Day									

ATTACHMENT G

Preliminary Environmental Analysis Report (PEAR)

DEPARTMENT OF TRANSPORTATION

DISTRICT 1, P. O. BOX 3700
EUREKA, CA 95502-3700
PHONE (707) 445-6410
FAX (707) 441-5869



*Flex your power!
Be energy efficient!*

October 12, 2010

PDT Team
District 1

EA 49560K
Hamilton Rd Safety

SUBJECT: COMMENTS ON OCTOBER, 2010 DRAFT PSR

To Brian Simon:

After reviewing the PSR it was noticed that there are a few inconsistencies between the PEAR and the draft PSR, please see the following comments:

- 1 • Pg 3, under 6. Alternatives: The PEAR stated that the shoulders were going to be 3'-6' with the exception of the shoulders near the retaining walls where they would be upwards of 10' in width. PSR is showing 8' shoulders.
- 2 • Pg 4, under Hamilton Road Deceleration Lane: In Alternative 1 in the PEAR it does not state that there is the need for an 8' horizontal separation. Alternative 2 does state that it will require a 4' horizontal separation which is consistent with the PSR. Will this expand the footprint of the project area for alternative 1 in the PSR from what was shown in alternative 1 in the PEAR.
- 3 • Pg 4 and 5, under Shoulder Widening / Rumble Striping: The PEAR stated that the shoulders were going to be 3'-6' not 3'-8'. The exception would be the shoulders near the retaining walls where they would be upwards of 10' in width as stated in the PSR and PEAR.
- 4 • Pg 6, under Viaduct and Retaining Wall Construction: "CS1" was stated as "CN1" in PEAR. See Pg 3 of the PEAR. Also in this section it is mentioned that there may be the installation of MBGR which was not mentioned in the PEAR. It should be noted that the CCC may have comments/concerns about MBGR within the Coastal Zone and this may require additional coordination.
- 5 • Pg 6, under Reconstructed Roadway and Culvert Replacement/Removal: It is mentioned that "A new 24" cross drain will be installed at the end of the retaining wall". This was not mentioned in the PEAR and may add to permitting costs (same comment on Pg 11 of PSR). Also instead of using Attachment N in the PSR to describe the field meeting with State Parks you may want to use Attachment E of the PEAR (same comment on Pg 10 of the PSR).
- 6 • Pg 7, under Hamilton Road Deceleration Lane: The PEAR stated that the shoulders were going to be 3'-6' not 3'-8'.
- 7 • Pg 9, Table 8: It appears that the wall lengths and heights are different than shown in Alternative 2 in the PEAR but it is good to see that the heights were kept under 18'.
- 8 • Pg 9, under Reconstructed Roadway and Culvert Replacement and Removal: It states that "A portion of Hamilton Road will be elevated to match the grades along the highway". This is inconsistent with the PEAR which does not mention changing the grade elevation but this should not significantly change the scope of environmental.

- 9 • Pg 10, under 8. Environmental Determination and Environmental Issues: It's not that there are no archaeological resources in the vicinity it's that there has not been any eligible cultural or historical resources identified immediately adjacent to the project area. Additional section 106 analysis needs to take place to ensure that there are no potentially eligible cultural or historical resources within the project limits. Also note that Caltrans will be the CEQA lead.
- 10 • Pg 10, under 8. Environmental Determination and Environmental Issues: Are you going to list any of the Anticipated Environmental Commitments as listed in the PEAR? If not you may want to make reference in the PSR to this section of the PEAR.
- 11 • Pg 12, under Right of Way & Utilities: see Memo to file on 10/07/10 for Alteration to Attachment B of the PEAR and Mitigation Costs for more information that may be useful for Right of Way expenditures. Also use the Memo to file for adding additional resources to the Resource Assigned spreadsheet attached to this draft PSR.

If you have any questions regarding this memo, please call me at (707) 445-6410.

Sincerely,



Brandon Larsen
Associate Environmental Planner
Office of Local Assistance

Attachments

cc: 1. KChurch
2. IPoindexter
3. KSchrieve
4. DHarmon



PRELIMINARY ENVIRONMENTAL ANALYSIS REPORT

1. Project Information

District 1	County Del Norte	Route 101	PM 22.17/23.00	EA 49560K
Project Title: <i>Brief descriptive phrase, e.g., CAPM, Curve Re-alignment, Passing Lane, etc.</i> Hamilton Road Safety Project – Curve Improvement and Open Graded AC				
Project Manager Kevin Church			Phone # (707) 445-5210	
Project Engineer Carlton Schrieve			Phone # (707) 441-3968	
Environmental Office Chief/Manager Deborah Harmon			Phone # (707) 445-6431	
PEAR Preparer Brandon Larsen			Phone # (707) 445-6410	

2. Project Description

Purpose and Need

The project is needed because it has had 25 collisions over the period of 4/01/2005 to 3/31/2008 resulting in Fatality plus Injury (F+I) and Total collision rates 8 and 11 times, respectively, the statewide average for a similar facility. The purpose of the project is to reduce the frequency (Total) and severity (F+I) of collisions to at or below the statewide average.

Description of work/Background

This high priority project is located in Del Norte County approximately three miles south of Crescent City on Route 101. (See attached Location Map). The project was identified during a traffic safety investigation. The location has had 25 collisions over the period of 4/01/2005 to 3/31/2008. Fatality and Injury collisions have continued to occur following the period of analysis. See the project Purpose and Need below.

The traffic safety investigation identified that vehicles are not slowing to the recommended 40 mph speed in the northbound direction (a 7% down-grade entering a 700' radius curve with an existing OGAC overlay) and that roadway geometrics (curve radius, superelevation rate and transitions) are nonstandard. Collisions are mostly run off the road collisions associated with wet pavement and loss of traction. The project passed the standard skid test requested by traffic safety. Hamilton Road intersection is the public access for the northern part of Mill Creek State Park and is located on the curve where most of the collisions are occurring. Currently, Hamilton Road does not receive much traffic (although that traffic includes horse trailers) and Mill Creek Campground (145 campsites) is accessed by Mill Creek Road, 3 miles south of Hamilton. The Park plans to eventually make Hamilton the main and only public access to its existing (and expanded) facilities, as described in the Mill Creek Addition General Plan Amendment (GPA). This project proposes two alternatives to address the existing high collision rate, and moderate improvements to the Hamilton Road intersection in anticipation of increased use of the facility. The intersection is not

designed for a particular future ADT, as that information is unknown and the improvements are, as yet, unscheduled.

Alternatives

Alternative 1 The scope of work for this alternative is detailed below:

Curve/Superelevation Improvement and Turn-Pocket Construction-Alternative 1 has a northbound alignment “A1N” and a southbound alignment “A1S”. Both alignments increase the radius of the reversing curves to the standard for 55 mph. The curve improvements are shown in Table 1 and Table 2 below.

Table 1:
Alternative 1, Curve and Superelevation Data
NORTHBOUND Alignment “A1N”

Curve Number	Existing Radius	Proposed Radius	Existing Superelevation	Proposed Superelevation
“CN1”	700’	1000’	7%	11%
“CN2”	600’	1000’	7%	11%

Northbound superelevation will be increased, and the transition to full superelevation at “CN1” will be improved. The Hamilton Road intersection will be re-profiled for a smooth transition to Route 101. The existing deceleration lane, providing northbound Route 101 access to Hamilton Road will receive the addition of an 8’ horizontal separation from through traffic and shoulders will be widened to 6’.

Table 2:
Alternative 1, Curve and Superelevation Data
SOUTHBOUND Alignment “A1S”

Curve Number	Existing Radius	Proposed Radius	Existing Superelevation.	Proposed Superelevation
“CS1”	740’	988’	7%	7%
“CS2”	740’	976’	7%	7%
“CS3”	612’	1012’	7%	7%
“CS4”	612’	1012’	7%	7%

“CS2” and “CS4” are the southbound reversing curves similar to “CN1” and “CN2”. Additional curves, “CS1” and “CS3”, provide the additional width for a left turn pocket. The left turn pocket, providing southbound access to Hamilton Road, will be lengthened from 90’ to 180’, and widened from 11’ to 12’.

The improvements to Hamilton Road intersection are consistent with the Mill Creek Addition General Plan Amendment, and are needed to help ensure that the proposed facility and structural investments will adequately serve the location for their design life.

Viaduct and Retaining Wall Construction-The above curve improvements require construction of a 254' long viaduct on the down hill (west) side of the road at "CN1" and a retaining wall on the east side of the road at "CN2" (See attached Alternative 1 Layout and Typical Sections).

Reconstructed Roadway and Culvert Replacement/Extension-Much of the existing structural section will be reconstructed or partially reconstructed, and a new structural section created to accommodate the curve improvements. Two 18" culverts will be replaced with 24" culverts, one 36" culvert (deteriorated) will be replaced, and one 8" outfall will be enlarged to 12 or 18 inches and install energy dissipation measures. A new outfall at the north end of the viaduct will be constructed. Additionally, an approximate 93' leg of the above 36" culvert extends beyond Caltrans right of way and will be removed and the stream channel restored.

Shoulder Widening-Shoulders will be widened from approximately 3' to 6' and new shoulder rumble strips constructed. Centerline rumble striping will also be constructed. Adjacent to the retaining wall, 10' shoulders will be constructed. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians.

Alternative 2 The scope of work for this alternative is detailed below:

Curve/Superelevation Improvement and Turn-Pocket Construction-Alternative 2 has a northbound alignment "A2N" and a southbound alignment "A2S". Both alignments increase the radius on two existing reversing curves to the standard for 55 mph. The curve improvements are shown in Table 3 and Table 4 below. Additional curve "CNA" is used to transition from the tangent section into the deceleration lane for right turn movements onto Hamilton Road.

Table 3:

Alternative 2, Curve and Superelevation Data
NORTHBOUND Alignment "A2N"

Curve Number	Existing Radius	Proposed Radius	Existing Superelevation	Proposed Superelevation
"CNA"	NA	2,200'	NA	5%
"CN1"	700'	1000'	7%	11%
"CN2"	600'	1000'	7%	11%

The northbound superelevation will be increased, and the transition to full superelevation at "CN1" will be improved. The Hamilton Road intersection will be re-profiled for a smooth transition to Route 101. The existing deceleration lane, providing northbound Route 101 access to Hamilton Road, will be realigned and shoulders widened to 6' (10' adjacent to the retaining wall).

Table 4:

Alternative 2, Curve and Superelevation Data
SOUTHBOUND Alignment "A2S"

Curve Number	Existing Radius	Proposed Radius	Existing Superelevation.	Proposed Superelevation
"CS1"	740'	2,200'	7%	7%

“CS2”	612’	958’	7%	7%
“CS3”	NA	966’	7%	7%
“CS4”	NA	1018’	7%	7%

Curves “CS3” and “CS4” are the southbound reversing curves similar to “CN1” and “CN2”. Additional curves, “CS1” and “CS2”, are used to realign the roadway or provide the additional width for a left turn pocket. The left turn pocket, providing southbound access to Hamilton Road, will be lengthened from 90’ to 180’, widened from 11’ to 12’, and 4’ horizontal separation will be added.

The improvements to Hamilton Road intersection are consistent with the Mill Creek Addition General Plan Amendment, and are needed to help ensure that the proposed facility and structural investments will adequately serve the location for their design life.

Retaining Wall Construction- This alternative eliminates the need for a viaduct via the alignment’s shift to the east, but requires a retaining wall in the same location, as well as an additional retaining wall along the Hamilton Road deceleration lane. A third retaining wall is required at curve “CN2”, similar in height and location, but shorter in length, than the one in Alternative 1 (See attached Alternative 2).

Reconstructed Roadway and Culvert Replacement/Extension- Much of the existing structural section will be reconstructed or partially reconstructed and a new structural section constructed to accommodate the curve improvements. It is likely that some existing pavement will be removed in the vicinity of Hamilton Road. Two 18” culverts will be replaced with 24” culverts, one 36” culvert (deteriorated) will be replaced, and one 8” outfall will be enlarged to 12 or 18 inches and install energy dissipation measures. A new outfall at the north end of the viaduct will be constructed. Additionally, an approximate 93’ leg of the above 36” culvert extends beyond Caltrans right of way and will be removed and the stream channel restored

Shoulder Widening- Shoulders will be widened from approximately 3’ to 6’ to provide room for new shoulder rumble striping. Centerline rumble striping will also be constructed. Adjacent to the retaining walls, 10’ shoulders will be constructed. Wider shoulders will allow for better access and improved safety for bicycles and pedestrians.

3. Anticipated Environmental Approval

Check the anticipated environmental determination or document for the proposed project in the table below.

CEQA		NEPA	
Environmental Determination			
Statutory Exemption	<input type="checkbox"/>		
Categorical Exemption	<input type="checkbox"/>	Categorical Exclusion	<input type="checkbox"/>
Environmental Document			
Initial Study or Focused Initial Study with Negative Declaration or Mitigated ND	<input checked="" type="checkbox"/>	Environmental Assessment with Finding of No Significant Impact	<input checked="" type="checkbox"/>
Environmental Impact Report	<input type="checkbox"/>	Environmental Impact Statement	<input type="checkbox"/>
CEQA Lead Agency (if determined):		Caltrans	
Estimated length of time (months) to obtain environmental approval:		24 Months	
Estimated person hours to complete identified tasks:		6921	

4. Special Environmental Considerations

For each viable alternative, summarize below any special processes such as NEPA/404, seasonal constraints, Section 7, Section 4(f) that may affect project delivery and require unusual, exceptional, or extended environmental processes.

Both alternatives require improvements or replacement of existing culverts along with the building of one or more retaining walls. Alternative 1 would require building a viaduct. Both alternatives will most likely require a 404 permit along with a 401, 1602 and Coastal Development Permit. The installation of the viaduct will need to take place in the dry season or when the existing stream is dry. Redwood National Park abuts Caltrans right of way to the west of the project but there are no direct impacts that are expected to occur on National Park property.

For both alternatives a 4(f) analysis and consultation with State Parks will need to occur due to the effects the project will most likely have on Del Norte Coast Redwoods State Park. A meeting with State Parks (Roger Goddard) took place on 12/17/09 and on 05/26/10 to inform State Parks of the Alternatives being analyzed as a result of this project. None of the Alternatives require Right of Way acquisition from State Parks but access will be impacted during construction and there will be direct impacts from work occurring as a result of the culvert removal on State Park land. There will be potential for indirect impacts, traffic delays and water quality impacts. See notes attached from 12/17/09 and 05/26/10 meeting with State Parks. There will be a need for a right of entry from State Parks to do culvert work and stream restoration.

Biological Resources:

Listed Species

For both alternatives Section 7 consultation will need to take place with US Fish and Wildlife Service (USFWS) for impacts to Northern Spotted Owl (NSO). A Biological Assessment (BA) will need to be prepared by a qualified biologist and sent to USFWS in order to receive a letter of

concurrence or a Biological Opinion (BO) to fulfill Section 7 consultation. If it is determined that the project is having an adverse affect on NSO than formal consultation will need to take place and USFWS will prepare a BO. If the effect call is a not likely to adversely affect then it will be informal consultation and we will anticipate receiving a letter of concurrence. Time allotted for Section 7 consultation is typically 135 days for receiving a BO and typically less time in receiving a letter of concurrence. The 135 days does not include the time it takes to write the BA.

Trees being taken as a result of the project may have a potential to affect NSO. There is also potential for harassment of NSO as a result of noise impacts created due to construction related activities.

Potential minimization includes conducting work outside of the NSO nesting season, which typically runs from February 1st to August 1st. If work cannot be avoided during the nesting season a NSO survey must occur to prove absence of the species so that construction can proceed. The NSO survey is conducted during 2 nesting seasons in the project area. The other alternative would be to assume presence and provide USFWS with a BA describing impacts to NSO and asking for concurrence on the effect and providing mitigation for the assumed affect.

None of the streams that occur in or immediately adjacent to the project area have potential for salmonids being present. The ephemeral stream that runs adjacent to Hamilton Road flows under US 101 and out the west side of the highway. The stream flows off the west side of the highway and off the side of the mountain which forms an impassible route for spawning salmonids.

Migratory Nesting Birds

For impacts to nesting birds covered under the Migratory Bird Treaty Act (MBTA) tree and vegetation removal should be avoided between the months of March and September or a biologist will need to survey the area prior to vegetation removal and a buffer area established for any nests found until the young have fledged.

Special Status Species

There are several different plant species that are identified as species of concern or special status species in the area. A Botanical Study as part of the NES will need to take place in order to identify any of this species listed within the project area. One of these species known to exist within the project area is Siskiyou or coast checkerbloom.

During the Last Chance Grade project located on DN 101 at PM 15.06 *Sidalcea Sp.* (Siskiyou or coast Checkerbloom) was located within the project area. It was decided as part of the mitigation effort to replant the species in a new location outside the project area. Dry seasonal restrictions of summer (low soil moisture and rainfall) prohibited direct replanting of the plants at time of salvage. It was determined that all plants identified would be salvaged, potted and cared for until plants could be replanted at a seasonally appropriate time (rainy season of 2009/2010) following identification of an appropriate habitat site near or on project site after construction.

The replanting site was DN 101 at PM 22.54 on the west side of the southbound National Park interpretative pullout/vista point that is kept open (periodical clearing of overstory vegetation to maintain view) and is dominated by native plants. It has also come to light via personal communication with Steve Hansen, Caltrans Environmental Planner/Biologist, that there were *Sidalcea* plants noted at this site in the past but details on this occurrence are lacking. These on-site plants have been identified for avoidance prior to transplanting the Last Chance Grade plants, and have been identified and documented in-house and with the California Natural

Diversity Database (CNDDDB) during the coastal blooming period for *Sidalcea* species which occurs in May or June, 2010.

Concurrence on this transplant location has been obtained from Leonel Arguello, National Park Service Chief of Vegetation Management, and Gordon Leppig, California Department of Fish and Game Staff Environment Scientist and Caltrans Liaison. In-house archaeological clearance has also been obtained from Barry Douglas, Environmental Planner/Archaeologist.

Since these plants are located immediately adjacent to this project a botanical study and communication with Caltrans Botanists to locate the replanted plants and naturally occurring individuals will need to occur. ESA fencing will be required to protect these plant species from further disturbance.

Wetlands

The roadside ditches on the eastern side of the road have potential for being classified as jurisdictional wetlands. There is also an area to the south east of the Hamilton road entrance that has wetland characteristics. These areas will need to have a wetland delineation conducted to make a determination as to whether or not they qualify as jurisdictional wetlands.

The potential wetland to the south east of the Hamilton road entrance will be disturbed with the replacement of the 36" culvert and the subsequent channel restoration. Approximately 93' of the above 36" culvert extends beyond Caltrans right of way and will be removed and the stream channel restored.

Cultural and Historical Resources:

This information covers both of the build alternatives and additional information that was collected for the Cushing Creek Widening PEAR that was prepared in 2002.

Cultural resource studies for the proposed project will include a records and literature search, archaeological field surveys for both prehistoric and historic resources, and a historic resources evaluation of the Del Norte and Southern Railroad Grade, the Crescent City/Klamath Road, and features associated with early 20th Century logging. A project study area and the Area of Potential Effects (APE) will be developed in accordance with the 2004 Section 106 Programmatic Agreement. Cultural resources identified within the project's APE will be evaluated for National Register of Historic Places (NRHP) eligibility; if eligible for inclusion on the NRHP, mitigation will be required if the sites cannot be avoided. Consultation regarding cultural resources will also be required with the California Native American Heritage Commission, the Tolowa Native American groups, the Del Norte County Historical Society, the Del Norte County Historical Advisory Committee, and other interested parties. Examination of records maintained by Redwood National and State Parks, as well as consultation with the Park Archaeologist(s) will be required. If there are sites that cannot be avoided which are eligible under the NRHP the site will also need to have a 4(f) analysis conducted.

Route 101 between Post Miles 13.3 and 22.58 is eligible for the National Register of Historic Places as a historic landscape district under Criterion C at the state level of significance as the design of a master landscape architect, as an engineering achievement, and for its aesthetic qualities. Caltrans has also evaluated this property in accordance with Section 15064.5(a)(2)-(3) of the CEQA Guidelines, using criteria outlined in Section 5024.1 of the California Public Resources Code, and determined that this property is a historical resource for the purposes of CEQA. There are also remnants of a historic railroad grade that run parallel with 101 and up Hamilton road. The historic railroad grade may be impacted as a result of the project depending

on which alternative is selected. The historic railroad grade will need to be evaluated for its historical significance.

Clement (2001) prepared a Historic Resource Evaluation Report for the historic landscape between Post Mile 13.3 and 22.58 on Route 101. Field surveys for other historic resources within the project area have not been conducted. The Del Norte and Southern Railroad grade is within the existing Caltrans right-of-way east of Route 101 north of Hamilton Road. Portions of this railroad were evaluated by Peterhagen in 1991 and determined not eligible for inclusion on the National Register. The railroad grade will have to be evaluated for the current project. Similarly, any segments of the Crescent City and Klamath Road within the current project will have to be evaluated for National Register eligibility. Segments of the roadway evaluated by Mikesell in 1990 were found to be not eligible. If any resources from the early 20th century spruce and redwood logging remain in the project area, these will have to be evaluated for National Register eligibility also.

No other cultural resources have been identified within the project area that are listed on or eligible for the National Register of Historic Places or the California Register of Historical Resources, or listed on the California Inventory of Historic Places, the California Historical Landmarks, or the California Points of Historical Interest

Information regarding compliance to the National Historic Preservation Act (Section 106), 36 Code of Federal Regulations 800, the California Environmental Quality Act, and the Department of Transportation Act (Section 4f) are available separately and will not be reiterated herein.

Barry Douglas surveyed the existing Caltrans right-of-way between Post Miles 21.6 and 22.3 for archaeological resources in 1990 and 1991; no resources were located. None of the available ethnographic sources (see Baumhoff 1958; Curtis 1924, Drucker 1937; Gould 1978; and Waterman 1925) identify Tolowa villages, campsites, or sites of religious or economic importance, near the project location. The 1878 Humboldt Meridian Township Plat of Township 15 N. Range 1 W shows a segment of an Indian Trail that crosses the existing alignment at approximately P. M. 22.00. No evidence of this trail was identified by surveys conducted in 1990 and 1991 by Barry Douglas. However there is a portion of the project area that has not been surveyed from PM 22.5 to 23.0.

5. Anticipated Environmental Commitments

For each viable alternative, prepare briefly summarize the anticipated environmental commitments by impacted resource. If commitments have been made, include a copy of the ECR. For standard PSRs, include a cost estimate for each environmental commitment. Include the total cost of all environmental commitment costs in Item 8. PSR Summary Statement below. Reference PEAR Environmental Commitments Cost Estimate.

Alternative 1 (See page 2 for description)

The following commitments may be required:

- Working outside the nesting bird season for both migratory birds and Northern Spotted Owl (NSO). Brush removal will need to take place outside of the nesting bird season (September 1st through March 1st). NSO breeding and nesting season also occurs around the same time and construction may be limited between February 1st and August 1st.
- ESA fencing will need to be put in place to protect rare plant species near the staging and work areas. If these species will be impacted as a result of the project then

mitigation efforts similar to what occurred at the Last Chance Grade project will most likely need to occur.

- Native American Monitoring may need to occur.
- Wetland impacts will need to be mitigated.
- There may be time constraints as to when Hamilton Road access may be blocked as a result of the 4(f) analysis with State Parks.
- The wall aesthetics need to be similar to the ones installed at Cushing Creek.

Alternative 2 (See page 3 for description)

The following commitments may be required:

- Working outside the nesting bird season for both migratory birds and Northern Spotted Owl (NSO). Brush removal will need to take place outside of the nesting bird season (September 1st through March 1st). NSO breeding and nesting season also occurs around the same time and construction may be limited between February 1st and August 1st.
- ESA fencing will need to be put in place to protect rare plant species near the staging and work areas. If these species will be impacted as a result of the project then mitigation efforts similar to what occurred at the Last Chance Grade project will most likely need to occur.
- Native American Monitoring may need to occur.
- Wetland impacts will need to be mitigated.
- There may be time constraints as to when Hamilton Road access may be blocked as a result of the 4(f) analysis with State Parks.
- The wall aesthetics need to be similar to the ones installed at Cushing Creek.

6. Permits and Approvals

Include timelines for acquiring permits or agreements. Reference PEAR Environmental Commitments Cost Estimate.

401 – RWQCB – expect 6 to 8 months for permit acquisition

404 – USACOE - expect 6 months for permit acquisition

1602 - CA DFG - expect 4 to 6 months for permit acquisition

CDP – County - expect 6 to 8 months for permit acquisition

Encroachment Permit – State Parks / National Parks (Unknown)

TCE – State Parks for culvert removal and stream restoration

7. Level of Effort: Risks and Assumptions

See Section 5.2 PEAR Handbook regarding important considerations that can affect the level of effort and resources needed not only for the environmental document but also for the PEAR scoping document.

Cultural and Historic Resources

Expenditure Estimate - 1096 hours = 0.57 PYs

Historic Resource Evaluation

Del Norte and Southern Railroad Grade, Segments of the Crescent City to Klamath Road, and Logging use of the area - Evaluation + Determination of Eligibility. Consultation regarding management of the historic landscape between Post Miles 13.3 and 22.58 may need to occur. The management plan would need to be sent to the SHPO and the ACHP for concurrence. - 12 to 16 months elapsed time/ 800 hours.

See Attachment B for more details.

Biological Resources

Expenditure Estimate – 796 hours = 0.41 PYs

This estimate does not include mitigation costs for wetland and coastal zone impacts.

Concurrence from USFWS and the California Coastal Commission will most likely increase the amount of PYs attributed to this portion of the project.

There will be potential to have an effect on listed plant species as a result of the project. A botanical study will need to take place to identify the presence of listed and rare species. Mitigation due to impacts to these species may be necessary.

See Attachment B for more details.

8. PEAR Technical Summaries

Use brief paragraphs focused on topics that will need environmental review. Indicate the absence of issues to document that they were considered. Refer to the Environmental Studies Checklist when preparing the following summaries. Make a separate statement for each viable alternative. See the PEAR Handbook Exhibit 3 for examples. These paragraphs should be based upon the technical summary provided by each specialist to the generalist who is writing the PEAR.

8.1 Land Use: All of the property on the west side of the road is National Park land. Caltrans Right of Way is approximately 140 feet from the shoulder along this side of 101 and all work in each of the alternatives is expected to stay within this Right of Way. On the east side of US 101 outside of the 80 foot Right of Way is State Park land. All work (with the exception of the culvert removal and stream restoration occurring on State Park land) on the east side of US 101 for each of the alternatives falls within Caltrans Right of Way.

With the culvert work and stream restoration occurring on State Park land temporary easements will be required along with consultations with National Park Service and/or State Parks, and this may trigger a 4(f) determination as well.

There may be some underground utilities that will need to be moved as a result of this project. There are some utility poles located adjacent to the project area and depending on how the project is to be constructed may need to be relocated. These utility relocations will need to be taken into consideration in the technical studies prepared as a result of this project.

8.2 Growth: This project is not a growth-inducing project and will not have a significant effect on growth within the neighboring communities or area. The project is not expected to increase capacity and will not provide for any new access points within the project area.

8.3 **Farmlands/Timberlands:** N/A

8.4 **Community Impacts:** The project is not expected to have any substantial adverse effects on the local community or economy. Access to the State Park land will be maintained with the exception of potential short-term closures during construction.

8.5 **Visual/Aesthetics:** A visual impact report will be required as a result of this project and should include project effects and any mitigation that is proposed as a result of this project. Tree removal will need to be minimized to reduce the effect on the visual setting. Views of the roadway and surrounding area from the scenic overlook located in the project area will need to be considered. Retaining walls will be installed as a result of both alternatives and the visual characteristics of these walls will need to be analyzed. The retaining walls will be placed within the California Coastal Zone and consultation with State Parks, National Parks and the California Coastal Commission will need to take place. The current plan is to make the walls look similar to those installed during the Cushing Creek project in order to keep a consistent theme along the corridor.

The walls proposed in both build Alternatives will be installed on the east side of the road north of the Hamilton intersection and will most likely not exceed 20' in height with the exception of Alternative 2. The lengths vary slightly amongst the alternatives.

Alternative 2 has one additional wall that will be installed on the east side of the road South of the Hamilton road intersection. These walls may be as high as 25' depending on the necessary design to accomplish a right turn lane as per the alternative.

8.6 **Cultural Resources:** For both build Alternatives an Archaeological Survey Report and a Historic Property Survey Report will need to be conducted. From information that was collected in the areas immediately adjacent to this project site it appears the project may have no significant adverse change on cultural or historic resources. In order to determine this a Section 106 analysis will need to be done. Alternative 2 will impact a historic railroad grade bench that runs parallel with 101 where the north east wall is being constructed as a result of this alternative. See section 4 Special Environmental Consideration and meeting notes from 05/26/10 for more information.

8.7 **Hydrology and Floodplain:** Alternative 2 will require a floodplain evaluation report. A portion of Hamilton road falls within the 100-year floodplain, due to its proximity to the unnamed ephemeral stream that runs adjacent to the existing Hamilton road. Alternative 2 requires some roadway alignment work on the Hamilton Road intersection within the floodplain.

8.8 **Water Quality and Storm Water Runoff:** The site should be evaluated for potential water quality impacts associated with the project. If site dewatering is required for new construction, a dewatering plan is required. Site access for construction must be included in any water quality analysis. Potential for discharge onto the beach will be a concern and will need to be addressed as a result of both alternatives.

8.9 **Geology, Soils, Seismic and Topography:** NA

8.10 **Paleontology:** NA

- 8.11 **Hazardous Waste/Materials:** An Initial Site Assessment (ISA) for the “Hamilton Road Safety” project was conducted on February 4, 2009 by Steve Werner (District 1 Hazardous Waste Coordinator).

The ISA found that the project likely has potential hazardous waste issues related to Aerially Deposited Lead (ADL) within the shallow soils in the existing road shoulder areas that will be disturbed during construction. The ISA found that it may be necessary to conduct a study to determine lead levels present, depending on whether – and from where – excess material is generated.

Additional nominal hazardous waste issues include those for Treated Wood Waste (TWW) and lead in existing thermoplastic striping. TWW will be a waste issue if a retaining wall with timber lagging is constructed as part of one of the project alternatives, or if guardrail is removed. Thermoplastic stripe will be a potential issue if it is removed as a separate operation.

At the minimum, the lead issues present on the project will require that the contractor prepare a Lead Compliance Plan (LCP). An Earth Material Containing Lead nssp will also be needed for the contract plans.

For the purposes of determining the appropriate environmental documents required for the project, the work site(s) should not be considered to be on the *Hazardous Waste and Substances Site List (Cortese List)*.

- 8.12 **Air Quality:** NA

- 8.13 **Noise and Vibration:** Potential noise impacts would be primarily associated with construction effects to listed species, especially if nesting occurs within ¼ mile of the project location. This will need to be analyzed for both build alternatives with Alternative 2 most likely causing the most disturbance due to the two extra retaining walls provided by this alternative. Alternative 1 may have disturbance concerns that need to be evaluated due to the viaduct installation especially if pile driving is required.

- 8.14 **Energy and Climate Change:** NA

- 8.15 **Biological Environment:**

Each of the build alternatives will have potential impacts to Northern Spotted Owl and Rare plant species see Section 4 Special Environmental Considerations. Permits will be required for both build alternatives for impacts to jurisdictional waters and wetlands see Section 6 Permits and Approvals.

- 8.16 **Cumulative Impacts:** NA

- 8.17 **Context Sensitive Solutions:** The design of the walls that will be installed as a result of the alternatives will be similar to those constructed at Cushing Creek to keep a consistent theme along 101.

9. Summary Statement for PSR or PSR-PDS

For each practicable alternative write a brief summary of key environmental issues, studies required, permits, and anticipated environmental commitments for permanent impacts. Include a time and potential constraints or special considerations, such as construction windows, biological monitoring, Native American monitoring, acquisition of Permits to Enter, etc. For a standard PSR, include cost estimates for environmental permits and commitments. This statement will go directly into the PSR or PSR-PDS.

Alternative 1 (See page 2 for description)

The following technical studies will be required:

- Section 106 Analysis consisting of an ASR, HPSR, HRER, and APE Map
- Natural Environment Study (NES)
- Biological Assessment (BA)
- Botanical Study
- Wetland Delineation
- 4(f) Analysis and Consultation
- Hazardous Waste Initial Site Assessment
- Storm Water Treatment Plan
- Visual Impact Analysis
- Noise Study
- Climate Change Evaluation
- Preliminary Site Investigation for ADL
- Hydraulic Study for stream restoration

The following consultations will be required:

- Native American Consultation
- Section 7 Consultation with US Fish and Wildlife Service
- Consultation with California Coastal Commission
- Consultation with National and State Park Service
- Del Norte County
- Section 106 consultation with interested parties

The following permits will be required:

- 404 permit from the ACOE
- 401 permit from RWQCB
- 1602 from CA DFG
- Coastal Development Permit from Del Norte County

Alternative 2 (See page 3 for description)

The following technical studies will be required:

- Section 106 Analysis consisting of an ASR, HPSR, HRER, and APE Map
- Biological Assessment
- Natural Environment Study

- Botanical Study
- Wetland Delineation
- 4(f) Analysis
- Hazardous Waste Initial Site Assessment
- Storm Water Treatment Plan
- Visual Impact Analysis
- Noise Study
- Climate Change Evaluation
- Hydraulic Floodplain Study
- Preliminary Site Investigation for ADL
- Hydraulic Study for stream restoration

The following consultations will be required:

- Native American Consultation
- Section 7 Consultation with US Fish and Wildlife Service
- Consultation with California Coastal Commission
- Consultation with National and State Park Service
- Del Norte County
- Section 106 consultation with interested parties

The following permits will be required:

- 404 permit from the ACOE
- 401 permit from RWQCB
- 1602 from CA DFG
- Coastal Development Permit from Del Norte County

10. Disclaimer

This Preliminary Environmental Analysis Report (PEAR) provides information to support programming of the proposed project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the PEAR are approximate and are based on cursory analyses of probable effects. A reevaluation of the PEAR will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

The studies required and consultations that have occurred to date are based on the 2 Alternatives that are shown in this PEAR. Additional studies or consultations may be warranted if changes in the Alternatives occur.

11. List of Preparers

Cultural Resources specialist Barry Douglas	<i>Barry Douglas</i>	Date: 6-22-10
Biologist Susan Leroy	<i>Susan Leroy</i>	Date: 6-24-10
Community Impacts specialist NA		Date:
Noise and Vibration specialist Suzi Theiss	<i>Suzi Theiss</i>	Date: 8/9/10
Air Quality specialist NA		Date:
Paleontology specialist/liaison NA		Date:
Water Quality specialist Alex Arevalo	<i>Alex Arevalo</i>	Date: 6/24/10
Hydrology and Floodplain specialist NA		Date:
Hazardous Waste/Materials specialist Steve Werner	<i>Steve Werner</i>	Date: 6/22/10
Visual/Aesthetics specialist Jim Hibbert	<i>Jim Hibbert</i>	Date: 6/22/10
Energy and Climate Change specialist NA		Date:
Other: NA		Date:
PEAR Preparer (Name and Title) Brandon Larsen (Associate Environmental Planner)	<i>Brandon Larsen</i>	Date: 06/22/10

12. Review and Approval

I confirm that environmental cost, scope, and schedule have been satisfactorily completed and that the PEAR meets all Caltrans requirements. Also, if the project is scoped as an EA or EIS, I verify that the HQ DEA Coordinator has concurred in the Class of Action.

Deborah L. Harman

Environmental Branch Chief

Date: 6/28/10

Ken Church

Project Manager

Date: 8/9/10

REQUIRED ATTACHMENTS:

Attachment A: PEAR Environmental Studies Checklist

Attachment B: Estimated Resources by WBS Code

Attachment C: Memorandum Advanced Planning

Attachment D: PEAR Environmental Commitments Cost Estimate (Standard PSR)

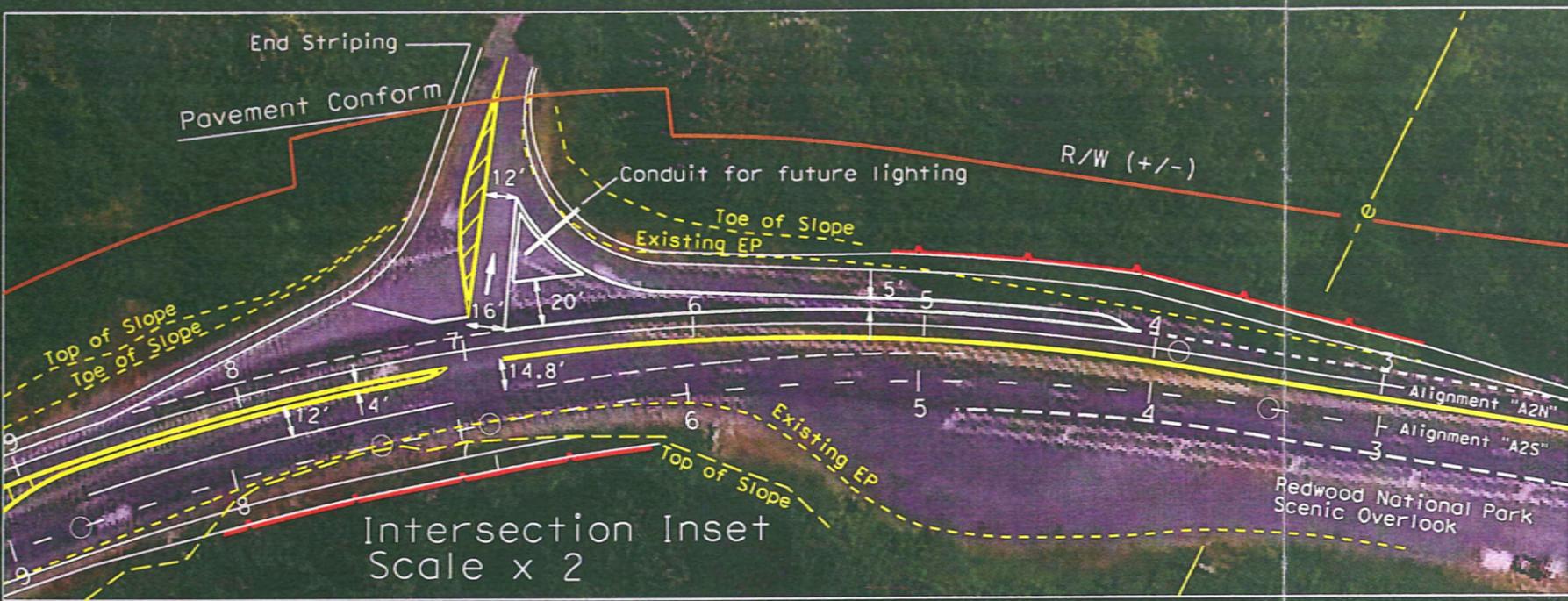
Attachment E: Meeting notes with State Parks

ALTERNATIVE STUDY FOR PSR
 DN 101 PM 22.5/23.0
 Hamilton Road Intersection
 SAFETY IMPROVEMENTS
 February, 2010

Scale:
 0' 100'

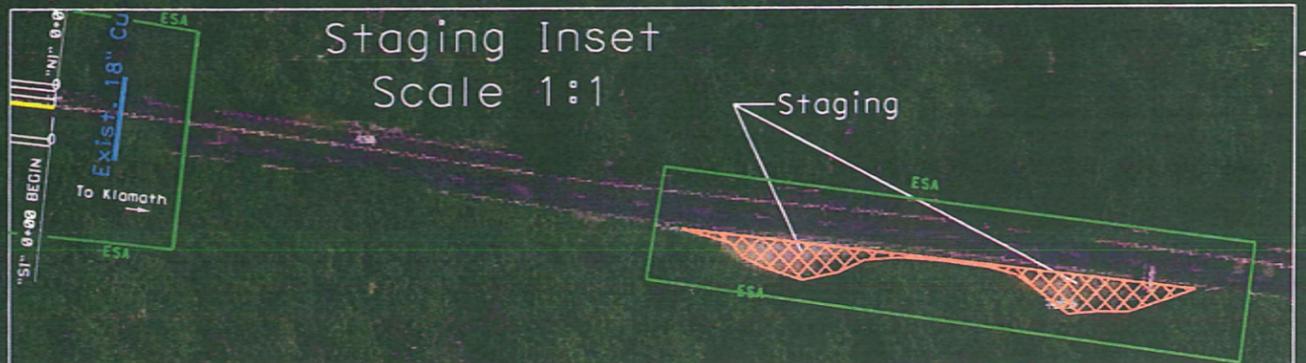
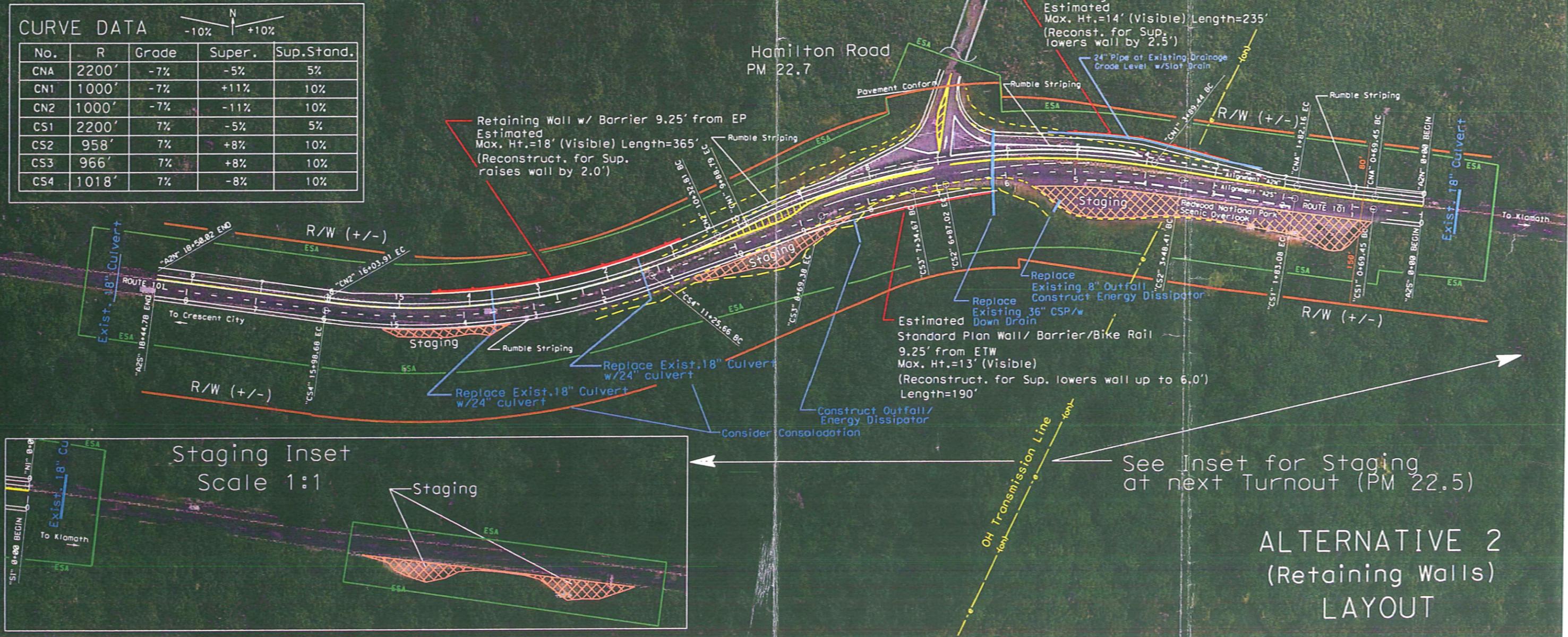


- = Construction Staging
- RWNP= Redwood National Park
- CSP= California State Parks
- ESA = Environmental Study Limits



CURVE DATA

No.	R	Grade	Super.	Sup.Stand.
CNA	2200'	-7%	-5%	5%
CN1	1000'	-7%	+11%	10%
CN2	1000'	-7%	-11%	10%
CS1	2200'	7%	-5%	5%
CS2	958'	7%	+8%	10%
CS3	966'	7%	+8%	10%
CS4	1018'	7%	-8%	10%



See Inset for Staging
 at next Turnout (PM 22.5)

ALTERNATIVE 2
 (Retaining Walls)
 LAYOUT

Attachment D: PEAR Environmental Commitments Cost Estimate

Standard PSR Only

(Prepare a separate form for each viable alternative described in the Project Study Report)

PART 1 PROJECT INFORMATION

rev. 11/08

District-County-Route-Post Mile D1-DN1-101-PM 22.17	EA: 49560K
Project Description: Hamilton Road Safety Project	
Form completed by (Name/District Office): Brandon Larsen	
Project Manager: Kevin Church	Phone Number: 707-445-5210
Date: 06/22/2010	

PART 2 PERMITS AND AGREEMENTS

	Permits and Agreements (\$\$)
<input checked="" type="checkbox"/> Fish and Game 1602 Agreement	600
<input checked="" type="checkbox"/> Coastal Development Permit	1,260
<input type="checkbox"/> State Lands Agreement	0
<input checked="" type="checkbox"/> Section 401 Water Quality Certification	700
<input checked="" type="checkbox"/> Section 404 Permit – Nationwide (U.S. Army Corps)	0
<input type="checkbox"/> Section 404 Permit – Individual (U.S. Army Corps)	0
<input type="checkbox"/> Section 10 Navigable Waters Permit (U.S. Army Corps)	0
<input type="checkbox"/> Section 9 Permit (U.S. Coast Guard)	0
<input type="checkbox"/> Other:	0
Total (enter zeros if no cost)	2,560

PART 3. ENVIRONMENTAL COMMITMENTS FOR PERMANENT IMPACTS

To complete the following information:

- Report costs in \$1,000s.
- Include all costs to complete the commitment:
 - Capital outlay and staff support. Refer to Estimated Resources by WBS Code. For example, if you estimated 80 hours for biological monitoring (WBS 235.35 Long Term Mitigation Monitoring), convert those hours to a dollar amount for this entry. For current conversion rates from PY to dollars, see the Project Manager.
 - Cost of right of way or easements.
 - If compensatory mitigation is anticipated (for wetlands, for example), insert a range for purchasing credits in a mitigation bank.
 - Long-term monitoring and reporting
 - Any follow-up maintenance
 - Use current costs; the Project Manager will add an appropriate escalation factor.
 - This is an estimating tool, so a range is not only acceptable, but advisable.

Environmental Commitments Alternative		
	Estimated Cost in \$1,000's	Notes
Noise abatement or mitigation	0	
Special landscaping	5 - 40	
Archaeological resources	1 - 8	
Biological resources	1- 30	
Historical resources	0 to 5	
Scenic resources	0 to 5	
Wetland/riparian resources	1 - 16	
Res./bus. relocations	0	
Other:	0	
Total (enter zeros if no cost)	8 to 104	

Memorandum

*Flex your power!
Be energy efficient!*

To: RODGER GODDARD
BRANDON LARSEN
CARLON SCHRIEVE
BRIAN SIMON
KEVIN CHURCH
RALPH MARTINELLI
SUSAN LEROY

Date: December 22, 2009

From: JAIME HOSTLER
Assoc. Trans. Planner
System Planning

Subject: Hamilton Road meeting w/ California State Parks
Meeting Date: 12/17/09

Attendees

Rodger Goddard, CA State Parks
Brandon Larsen, Planning & Local Assistance
Carlton Schriever, Advance Planning
Brian Simon, Advance Planning
Kevin Church, Project Management
Ralph Martinelli, Traffic Safety
Jaime Hostler, Planning
Susan Leroy, Environmental

Introduction and Purpose & Need

Meeting opened with introductions. Project location is in Del Norte (DN) County on Route 101 from post mile (PM) 22.5 - 23.0 at Hamilton Road. Project area borders California (CA) State Parks land. The purpose of meeting is to discuss project alternatives with CA State Parks.

Ralph Martinelli provided a summary of the purpose and need of the project. The purpose of the project is to reduce the severity and frequency of collisions along the segment of highway within the project area. The need for the project is demonstrated in the fatality and injury collision rate being 11 times the state average on this segment.

Background

Ralph continued with background information about the project area. The project area includes a reverse curve located at DN 101 between PM 22.65 and PM 22.85 on a 7% downgrade. Safety concerns are primarily with motorists heading in the northbound (NB) direction. NB motorists traveling on the descending grade tend to run off the road to the right. Additionally, NB motorists will overcorrect and run off the road to the left. The most recent collision occurred on November 27th, 2009, and involved a motorist that lost control of their truck, crossed southbound (SB) lanes and went down the embankment resulting in a fatality. Another recent collision involved a tractor-trailer that jack-knifed, crossed SB lanes and went down the embankment resulting in an injury. The fatal/injury rate for this area is similar to that of the Cushing Creek segment. The increased collision rates have prompted Caltrans (CT) to make geometric improvements to the roadway. In addition, CT has already initiated an interim safety project (Minor B - project under \$147,000) to install rumble strips to direct attention to the curve warning sign.

CT has previously completed incremental improvements in the project area. However, these improvements have not resulted in a decreased collision rate. Improvement projects include:

- Open Graded Asphalt Concrete overlay (November 2003)
- Sign improvements (added chevrons/arrows) and reduced curve warning sign from 45 MPH to 40 MPH (April 2007)
- Pavement surface ground to increase friction on roadway (December 2009)

In 2008, CT investigated the condition of the pavement (Premium Open Grade Asphalt) in the project area. Core samples were extracted, tested and found acceptable. The Skid Test Unit performed skid tests and determined that the pavement "passed." CT Traffic Safety Unit requested that skid tests be conducted again. Results will be available in 1-2 weeks. CT theorizes that moss may be present on the highway shoulder, causing drivers to slide off road.

Kevin Church summarized the factors contributing to the collision rate:

- Substandard curve radii
- Substandard super elevation
- 7% downgrade
- possible moss on shoulder

Project has been peer-reviewed and assigned to CT Advance Planning unit to complete Project Study Report (PSR).

Draft Alternatives

Carlton Schrieve explained that CT is looking at 3 alternatives to address the safety issues.

Alternative # 1:

A retaining wall and viaduct will be built and curve radii will be increased. One retaining wall is proposed that is approximately 500ft. in length (L) and 15ft in height (H). Curve radii will be increased to 1000 ft. (for both curves). The deceleration lane to Hamilton Road will be lengthened. Turn pocket will be lengthened to provide for SB traffic onto Hamilton Rd. The intersection of Hamilton Rd. & Rte. 101 will remain in the same location as the existing intersection. Construction is expected to be within State right of way (r/w). Construction cost is approximately \$7 million. The following discussion ensued:

- Rodger Goddard asked if there would be impacts to access at Hamilton Rd.
- Carlon replied that no permanent impacts were likely. However, temporary impacts include needing space for staging for two seasons while project is completed.
- Rodger agreed to staging area provided it will cause no environmental impacts.
- Rodger asked if there will be increased water run off/sheeting.
- Carlon replied that run off will likely increase however open grade pavement will lessen sheeting impacts.

Alternative # 2:

Retaining walls will be built, curve radii increased and intersection will be moved. Curve radii will be increased to 1000 ft. (for both curves). Two retaining walls are proposed. Wall 1 will be approximately 440 ft. (L) and 15 ft. (H). Wall 2 will be approximately 400 ft. (L) and 20-25 ft. (H). Super elevation for both alternatives will be increased to 10% – 12%. Superelevation for NB will be 10-12% and will transition at the centerline to 7% for the uphill SB traffic. A left turn lane will be provided for improved access to the Vista Point.. A 4 ft. separation between NB and SB will be constructed for the SB turn-pocket into Hamilton Road. Construction cost is approximately \$3.5 million. The following discussion ensued:

- Rodger asked if sight distance would be adequate for SB traffic entering the highway from the shoulder.
- Carlon replied that sight distance is adequate.
- Rodger added that State Parks anticipates an increase in traffic to Hamilton Rd. in the future due to potential development. He asked CT which alternative would best accommodate increased traffic.
- Carlon replied that Alternative # 2 would best meet safety & development needs.
- Ralph asked about anticipated traffic volumes
- Rodger replied that traffic volume is difficult to estimate because the level of future development is undetermined. He projected that the overall traffic volume will not likely increase much however, volumes may spike seasonally.
- Rodger asked if culverts will be replaced during construction.
- Ralph asked if the left turn pocket could be extended to Hamilton Road intersection for vehicles leaving Hamilton Rd to go SB on 101. Carlon will investigate feasibility of this concept.

- Carlon responded that culverts will be replaced with 24 in. culverts (provided CT Hydraulics unit and CA State Parks Geologist agree).
- Rodger asked if a sign could be constructed in the separation/island.
- CT agreed to consider this option

Alternative # 3

Intersection will be closed, Hamilton Rd. access gated, and one retaining wall built. Curve radii will be increased to 1000 ft. One retaining wall is proposed that is approximately 350 ft. (L) and 15 ft. (H). To mitigate for loss of access, a new access road would need to be constructed between Mill Creek campground and Hamilton Road (approximately 2 miles). Cost is approximately \$1.5 million for work on the State Highway

The following discussion ensued:

- Rodger stated that Alternative # 3 is not a viable alternative from State Parks perspective. He added that Mill Creek Road in the primary access road to the Mill Site location. Mill Creek Rd. is unstable and would cost more than Alternative # 3 to repair.
- Ralph asked Rodger what the cost of repairing Mill Creek Rd. would be
- Rodger replied that the cost would be extensive because Mill Creek Rd. is in extremely poor condition.

Focus Alternative # 2

The group decided to focus discussion on Alternative # 2.

New Development

- Rodger asked if a 2-way turn lane could be added to provide a sanctuary for truck/trailers
- CT agreed to consider this option
- Ralph asked if future traffic volume could be estimated
- Rodger replied that it is difficult to predict future volume. He added that new development is in the planning stages however, it's too early to predict volume.
- Ralph explained that it would be advantageous to build the road to support the needs of future traffic volume/new development. He added that CT needs traffic volume information to modify improvements to suit new development.
- Rodger agreed and advised that at this point we should focus improvements on addressing the safety issues.

Retaining Wall

The group discussed the issues concerning the height of the 25 ft. retaining wall. Wall may be visually impacting. There is an option to remove the retaining wall however, the right turn lane

would also have to be removed. Removing right turn lane will cause traffic be stopped on Rte. 101 while waiting to turn onto Hamilton Rd. Group concluded that this is not a viable option. Group agreed that retaining wall should be modeled after Cushing Creek wall keeping visual theme consistent.

Construction Staging

Group discussed need to consider a staging area for materials and equipment during construction. Carlon asked about using Park land in front of gate for construction staging. Roger indicated it may be feasible during certain times of the year if proper erosion control is used.

General Issues

Bicycles

Options for bicycles discussed include:

- Share the Road signs
- Pacific Coast Bicycle Route (PCBR) signage
- Electronic signs (possible trenching)

Environmental

Brandon Larsen introduced environmental issues. Brandon explained that an Archeological Study report was conducted in 2002 for the Cushing Creek project and included the project area of this project (Hamilton Rd.). No archeological issues were identified.

Brandon explained that the Maple Leaf Checker Bloom is present in project area. However, he is not sure if it is immediately present in area where viaduct would be constructed. If present, species may be impacted by Alternative # 1. He added that the Northern Spotted Owl and Marbled Murrelet are present near project area. Noise impacts may be an issue for all alternatives. Brandon projected that Alternative # 3 would be most environmentally impacting of all alternatives.

Coastal Commission

Brandon predicted that the California Coastal Commission (CCC) will likely be concerned with the following:

- Drainage caused by viaduct

- Visual impacts of retaining walls

Rodger predicted that the CCC would not likely consider Alternative # 3 because they contributed to the acquisition of Del Norte Redwoods State Park.

State Parks

Rodger representing State Parks mentioned the following throughout the course of the meeting:

- State Parks does not agree with Alternative 3, which eliminates access to the Del Norte Coast Redwoods State Park by closing down Hamilton Road. State Parks does acknowledge that there is a safety issue at this location and feels that Alternatives 1 and 2 are feasible.
- Ralph Martinelli proposed putting in flashing beacons as a temporary safety measure and asked if State Parks would be opposed to this. Rodger replied that State Parks would not have an issue.
- Rodger mentioned he would like CT to minimize retaining walls for both length and width. CT will work towards this as it is in the interests of both CT and Parks.
- State Parks would like the walls to look like the Cushing Creek wall, which they would like to keep as the theme up and down 101.
- Rodger also mentioned that State Parks would not have any issues if Caltrans needed to work on Hamilton Rd to fix the approach with 101.

National Parks

Rodger reported that National Parks (NP) is primarily concerned with the overlook. Provided the overlook is not permanently impacted, NP should not have concerns with this project. CT added NP may have concern with Alternative # 1, which will cause drainage onto NP land.

Action Items

- 1.) Investigate 2-way turn lane
- 2.) Investigate super elevation
- 3.) Investigate State Parks sign at Hamilton Road intersection

Meeting adjourned.

c: Suzanne Theiss
Cheryl Willis
Barry Douglas
Debra Harmon
Ilene Poindexter

Jaime Hostler
12/22/09
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Susan Leroy

Jaime Hostler/JH

Memorandum

*Flex your power!
Be energy efficient!*

To: RODGER GODDARD
CARLON SCHRIEVE
BRIAN SIMON
KEVIN CHURCH
RALPH MARTINELLI

Date: May 26, 2010

From: BRANDON LARSEN
Associate Environmental Planner
Office of Local Assistance

Subject: Hamilton Road meeting w/ California State Parks and National Parks
Meeting Date: 05/26/10 at the project site.

Attendees

Rodger Goddard, CA State Parks
Jay Harris, CA State Parks
Patrick Vaughn, CA State Parks
Jeff Bomke, CA State Parks
Marty Riley, National Parks
Brandon Larsen, Planning & Local Assistance
Ilene Poindexter, Advance Planning
Kevin Church, Project Management
Deborah Harmon, North Region Environmental

Introduction

The meeting was kicked off giving a brief explanation of the safety issues at this location (collision rate 11 times state wide average) and an explanation of the 2 alternatives currently being analyzed. After a brief explanation we turned the meeting over to State Parks to ask any questions or concerns they may have about the overall project.

The first concern State Parks had was whether the project would accommodate Park expansion that is currently outlined in the Parks General Plan Amendment, in particular with respect to equestrian trailers. State Parks mentioned that they would like to see a south bound acceleration lane for trailers coming out of Hamilton Road. Caltrans responded that the alternatives don't provide an acceleration lane, but the project would result in better sight distance. Alt 2 provides a little shelter for trailers turning south bound. Caltrans mentioned that perhaps we can look at

doing a hybrid version of a wall and using the vista point area to provide more room for south bound turning vehicles.

State Parks had some concern over a conduit that was shown on the plans near the Hamilton road entrance. It was mentioned by Parks that they do not want any lighting at the Park entrance. Caltrans responded that the conduit was most likely for a flashing beacon. State Parks then mentioned that it may be a good idea to have the conduit in place after construction for potential future informational signs so that they don't have to dig anything up after construction.

State Parks asked if the vista point would be closed during construction. Caltrans responded that the vista point would be closed during construction for staging. State Parks expressed that they would have no concerns over closing the vista point during construction for purposes of staging.

State Parks mentioned that they would want to put up a sign for a park entrance. Caltrans mentioned that we look into making accommodations to put up the sign near the terminus of the southerly wall.

State Parks asked if the drainages would be armored that were proposed in the alternatives. Caltrans noted that we would be using rock energy dissipaters at the outlets. It was also noted that none of these streams within the project area are fish bearing. The discharge out of these culverts is not that high and the slopes themselves will most likely not be armored.

State Parks pointed out that there is a historic railroad grade bench visible to the north of the Hamilton road entrance on the east side of 101. This bench may be affected by the installation of the northerly wall as proposed in Alternative 2. There are currently railroad trestles still standing within the Park.

It was pointed out by State Parks that the wall aesthetics should look similar to the Cushin Creek project. It was mentioned by Caltrans that we will try and incorporate that design into our project to keep a consistent theme for this stretch of 101. Parks stated that continuity on the wall aesthetics is important for maintaining a sense of place.

State Parks mentioned that the Hamilton Road entrance is used year round by State Park maintenance crews and that we would need to notify State Parks in advance of any closures to Hamilton Road as a result of the project. Caltrans noted that Hamilton Road will remain open during construction with exception of a short term closure that will occur when work to the Hamilton Road entrance begins. State Parks mentioned that this would be satisfactory and to notify them prior to the closure.

The meeting then focused on the culvert relocation that is identified in both Alternatives. Caltrans mentioned to State Parks that currently we are looking at removing the ~93' portion of the culvert pipe that is currently on State Park land and restoring the existing stream which will then drain into the new culvert that will begin within Caltrans right of way. Caltrans asked the question as to whether State Parks would rather see the culvert removed and the stream restored

or whether they would prefer the culvert be replaced in kind with Caltrans getting a right of way easement for future maintenance. It was unanimous amongst State Parks that they would like to see the 93' section of culvert removed and the stream restored. State Parks had concerns over lining the ditch with RSP mentioning that they would rather see bioengineering incorporated into the stream restoration plans. State Parks stated that they don't want RSP on the side slopes because invasive plants will eventually come in. They would rather see bioengineering or wood cribbing with willows planted behind it. If Caltrans uses RSP, State Parks stated they will require endowment from Caltrans to deal with invasive removal in future. State Parks noted that Caltrans may have to lay back the slopes of the bank so the banks are more stable and in that case Caltrans may not need to use RSP or similar stabilization methods. State Parks also noted Caltrans may have to put in gabion or other structures to reduce potential for head cutting.

With respect to the stream restoration State Parks asked if Caltrans would be installing a Metal Beam Guard Rail (MBGR) in order to prevent motorists from going off the road and into the ditch or headwall. Caltrans responded that since the headwall for the culvert is expected to be around 10' deep it may be necessary to install MBGR.

After the culvert discussions were completed the meeting switched focus to the proposed north eastern wall. It was again noted by State Parks that the proposed wall may have an effect on the historic rail road grade bench.

State Parks had some concerns over the potential height of the wall. It was mentioned that if the wall is to exceed 15 feet in height that State Parks would like to see Caltrans work on a way to scale it down either visually or physically. In order to visually scale it down State Parks suggested that Caltrans consider moving the wall back. Caltrans noted that by laying the wall back we may increase the number of trees taken and increase the extent of the impacts upslope. Caltrans noted that we would look at the benefits of laying the wall back in order to decrease the "dominating" effect of a high wall. State Parks was asked if they had any geotechnical concerns with tie backs being used into State Park property. State Parks responded that they won't know until a geotechnical study is produced. State Parks also suggested aligning the road further to the west and adding a downhill wall, thereby reducing the height of the uphill wall. Caltrans indicated that this would likely result in significantly more ground disturbance, including adding roads to access the site, as well as increase the project length and associated impacts. Caltrans agreed to take a closer look at this concept.

At the end of the meeting it was noted that the trees taken during the project could be used as part of the bioengineering for the stream restoration portion of the project.

Action Items

- 1.) Investigate reason for conduit in plans
- 2.) Investigate stream restoration methods

Brandon Larsen

05/27/10

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- 3.) Investigate State Parks sign at Hamilton Road intersection
- 4.) Investigate North Eastern wall height and options

Meeting adjourned.

c: Suzanne Theiss
Debra Harmon
Ilene Poindexter
Kevin Church

Attachment A: PEAR Environmental Studies Checklist

Rev. 11/08

Environmental Studies for PA&ED Checklist					
	Not anticipated	Memo to file	Report required	Risk* L M H	Comments
Land Use	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Growth	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Farmlands/Timberlands	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Community Impacts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Community Character and Cohesion	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Relocations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Environmental Justice	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Utilities/Emergency Services	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	Info in TMP
Visual/Aesthetics	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Cultural Resources:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Archaeological Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Historic Resources Evaluation Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Historic Property Survey Report	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Historic Resource Compliance Report	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Section 106 / PRC 5024 & 5024.5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Native American Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Finding of Effect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Data Recovery Plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Memorandum of Agreement	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Hydrology and Floodplain	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Water Quality and Stormwater Runoff	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
Geology, Soils, Seismic and Topography	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Paleontology	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
PER	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
PMP	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Hazardous Waste/Materials:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
ISA (Additional)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
PSI	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Air Quality	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Noise and Vibration	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Energy and Climate Change	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L	
Biological Environment	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Natural Environment Study	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Section 7:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
Formal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	Informal?
Informal	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L	
No effect	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Section 10	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
USFWS Consultation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	
NMFS Consultation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L	
Species of Concern (CNPS, USFS, BLM, S, F)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M	

Environmental Studies for PA&ED Checklist

	Not anticipated	Memo to file	Report required	Risk*			Comments
				L	M	H	
Wetlands & Other Waters/Delineation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			
404(b)(1) Alternatives Analysis	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			
Invasive Species	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	M			
Wild & Scenic River Consistency	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
Coastal Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	M			
HMMP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L			
DFG Consistency Determination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
2081	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
Other:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
Cumulative Impacts	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
Context Sensitive Solutions	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	L			
Section 4(f) Evaluation	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	L			
Permits:							
401 Certification Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			
404 Permit Coordination, IP, NWP, or LOP	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			
1602 Agreement Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			
Local Coastal Development Permit Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
State Coastal Development Permit Coordination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	M			County?
NPDES Coordination	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
US Coast Guard (Section 10)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
TRPA	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			
BCDC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	L			

ATTACHMENT B - Resources by WBS Code

EA:	Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
	Project Management														
	100.05.05 - Project Init. & Pllng.											0			
	100.05.10 - PID Cmpmt Exec. & Ctrf.											0			
	100.05.15 - PID Cmpmt Closeout											0			
	100.10.05 - PA&E Cmpmt Init. & Pllng.											0			
	100.10.10 - PA&E Cmpmt Exec. & Ctrf.											0			
	100.10.15 - PA&E Cmpmt Closeout											0			
	100.10.20 - Project Shelving (PA&E)											0			
	100.10.25 - Project Unshelving (PA&E)											0			
	100.10.30 - Updd Admtv Rec during PA&E Process											0			
	100.15.05 - PS&E Cmpmt Init. & Pllng.											0			
	100.15.10 - PS&E Cmpmt Exec. & Ctrf.											0			
	100.15.15 - PS&E Cmpmt Closeout											0			
	100.15.20 - Project Shelving (PS&E)											0			
	100.15.25 - Project Unshelving (PS&E)											0			
	100.15.30 - Updd Admtv Rec during PS&E Process											0			
	100.20.05 - Execd Coop Agre for PS&E Process											0			
	100.20.10 - Const. Cmpmt Init. & Pllng.											0			
	100.20.15 - Const. Cmpmt Exec. & Ctrf.											0			
	100.20.20 - Const. Cmpmt Closeout											0			
	100.20.25 - Project Shelving (Construction)											0			
	100.20.30 - Project Unshelving (Construction)											0			
	100.20.35 - Updd Admtv Rec during Const											0			
	100.25.05 - Execd Coop Agre for Const Process											0			
	100.25.10 - RW Cmpmt Init. & Pllng.											0			
	100.25.15 - RW Cmpmt Exec. & Ctrf.											0			
	100.25.20 - RW Cmpmt Closeout											0			
	100.25.25 - Project Shelving (Right of Way)											0			
	100.25.30 - Project Unshelving (Right of Way)											0			
	100.25.35 - Updd Admtv Rec during ROW											0			
	100.25.40 - Execd Coop Agre for ROW Process											0			
	100.25.50 - Execd Coop Agre for ROW Rlnmnt											0			
	Total Project Management	0	0	0	0	0	0	0	0	0	0	0			
	Perform Preliminary Engineering Studies and Prepare Draft Project Report														
	160.05.05 - Approv PID Review	4	16									20			
	160.05.10 - Geotechnical Information Review	1	8			8						17			
	160.05.20 - Traffic Data & Forecasts Review											0			
	160.05.30 - Project Scops Review	8	8	8	8	8		8				48			
	160.10.20 - Value Analysis											0			
	160.10.25 - Hydraulics/Hydro Study											0			
	160.10.30 - Hwy Planting Des Concepts											0			
	160.15.20 - Draft Project Report	2										2			
	160.15.25 - Draft PR Crc. Rev. & App	1	2									3			
	160.30.05 - Maps for ESR	8	8	8	8	8						24			
	160.30.10 - Surveys/Maps for Env Studies	1	8	8	8	8						25			
	160.30.15 - Prop Access Rights for Env/Eng Studies	4	16	16	16	16						36			
	160.40 - NEPA Delegation	2	8									10			
	Total Prelim Eng Studies	17	64	40	40	40	16	8	0	0	0	185			

Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
Perform Environmental Studies and Prepare Draft Environmental Document														
165.05.05 - Project Information Review	4	100									104			0
165.05.10 - Pub & Agency Scoping	12	100	8	4	4		4	4			136			0
165.05.15 - AIs for Further Study		4									4			0
165.10.15 - CIA, Land Use & Growth	1	4									5			0
165.10.20 - Visual Impact Analysis/Scenic Resource														0
165.10.25 - Noise Study	10	20						120			150			0
165.10.30 - Air Quality Study		8						40			48			0
165.10.35 - Water Quality Studies	10	40					60				110			0
165.10.40 - Energy/Climate Change Studies		20									20			0
165.10.45 - Sum Geotech Report		8									8			0
165.10.50 - Preliminary Site Investigation HW	10	10			60						80			0
165.10.55 - Draft RW Relocation Impact Eval		2									2			0
165.10.65 - Paleontology Study											0			0
165.10.70 - Wild & Scenic River Coordination											0			0
165.10.75 - Wild & Scenic River Coordination	10	100	80	80	20		40				330			0
165.10.75 - Envir Commitments Record											0			0
165.10.99 - Other Env Studies	10	40	200								250			0
165.15.05 - Biological Assessment	10	40	160								210			0
165.15.10 - Wetlands Study	40	60	60	24							184			0
165.15.15 - Resource Agency Coord	10	40	180								230			0
165.15.20 - NES Report			100								100			0
165.15.99 - Other Biological Studies				250							254			0
165.20.05 - Archeology Survey	4	20		80							100			0
165.20.05.05 - APE Map		20		80							100			0
165.20.05.10 - NA Consultation		20		80							80			0
165.20.05.15 - Records & Literature Search				40							40			0
165.20.05.20 - Field Survey				100							130			0
165.20.05.25 - ASR	10	20		40							40			0
165.20.05.99 - Other Archy Products											0			0
165.20.10 - Extended Phase I Archy Studies											0			0
165.20.10.05 - Native American Consultation											0			0
165.20.10.10 - Extended Phase I Proposal											0			0
165.20.10.15 - XP1 Field Investigation											0			0
165.20.10.20 - XP1 Materials Analysis											0			0
165.20.10.25 - Extended Phase I Report											0			0
165.20.10.99 - Other Phase I Archy Products											0			0
165.20.15 - Phase II Archy Studies											0			0
165.20.15.05 - NA Consultation											0			0
165.20.15.10 - Phase II Proposal											0			0
165.20.15.15 - Field Investigation											0			0
165.20.15.20 - Materials Analysis											0			0
165.20.15.25 - Phase II Report											0			0
165.20.15.99 - Other Phase II Archy Products											0			0
165.20.20 - Hist & Architectural Studies	10	20		160							190			0
165.20.20.05 - Prelim APE/Study Area Maps - Archl											0			0
165.20.20.10 - Hist Res Eval Rpt - Archy											0			0
165.20.20.15 - Hist Res Eval Rpt - Archl											0			0
165.20.20.20 - Bridge Evaluation											0			0
165.20.20.99 - Other H & A Study Products											0			0
165.20.25 - Cultural Res Comp Docs											0			0
165.20.25.05 - Final APE Maps											0			0
165.20.25.10 - PRC 5024.5 Consult	10	20		80							110			0
165.20.25.15 - HPSR/HRCR											0			0
165.20.25.20 - Finding of Effect											0			0
165.20.25.25 - Archy Data Recovery Plan											0			0
165.20.25.30 - MOA											0			0
165.20.25.99 - Other Cult Res Comp Products	40	300									340			0
165.25.10 - Draft ED Analysis	60	100		50							210			0
165.25.15 - CE/CE Determination											0			0
165.25.20 - Env Quality Control & Other Reviews	8	8	8	8	4		8	8			52			0
165.25.25 - Approval to Circ Resolution	2	8									10			0

Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
165.25.30 - Env Coordination	8	20									28			0
165.25.99 - Other DED Products														0
165.30 - NEPA Delegation	4	24									28			0
Total Env Studies & Prep DED	283	1156	796	1096	88	0	112	172	0	0	3703			0
Permits, Agreements, and Route Adoptions during PA&ED Cmpmt														
170.05 - Required Permits (list)	8										8			0
170.10.05 - US Army Corps 404 Permit		10	60								70			0
170.10.10 - US Forest Service Permit(s)											0			0
170.10.15 - US Coast Guard Permit											0			0
170.10.20 - DFG 1600 Agreement(s)		10	40								50			0
170.10.25 - Coastal Zone Development Permit		10	40								50			0
170.10.30 - Local Agency Concurrence/Permit											0			0
170.10.40 - Waste Discharge (NPDES) Permit(s)											0			0
170.10.45 - US Fish & Wildlife Service Approval		10	60								70			0
170.10.50 - Updated EOR		20	40								50			0
170.10.95 - Other Permits		20									20			0
170.45 - MOU from TERO Office											0			0
170.55 - NEPA Delegation		16	8								24			0
Total Permits, Agreements & Route Adoptions	0	114	248	0	0	0	0	0	0	0	362			0
Circulate Draft Environmental Document and Select Preferred Project Alternative														
175.05.05 - Master Dist & Invitation Lists	2	24									26			0
175.05.10 - Notices Pub Hear & DED Avail	2	8									10			0
175.05.15 - DED Pub & Circulation		8									8			0
175.05.20 - Fed Consistency Det (Coastal)											0			0
175.05.99 - Other DED Circulation Products	1	4									5			0
175.10.05 - Need for Pub Hearing Determination	1	24									25			0
175.10.10 - Pub Hearing Logistics	4	40									44			0
175.10.15 - Displays for Pub Hearing	4	40									0			0
175.10.20 - 2nd Notice Pub Hear & Avail	1	4									5			0
175.10.25 - Map Display & Hearing Plan											0			0
175.10.30 - Display Pub Hear Maps	8	16	4	4							32			0
175.10.35 - Public Hearing	1	8									9			0
175.10.40 - Record of Public Hearing											0			0
175.10.99 - Other Pub Hearing Products	8	60									68			0
175.15 - Responses to Pub Hear Comments	8	10									18			0
175.20 - Project Preferred Alternative		2									2			0
175.25 - NEPA Delegation		208	4	4	0	0	0	0	0	0	252			0
Total DED & Preferred Alt	36	208	4	4	0	0	0	0	0	0	252			0
Prepare and Approve Project Report and Final Environmental Document														
180.05.10 - Approved Project Rep											0			0
180.05.15 - Updated Stormwater Data Report							8				8			0
180.10.05 - Approved FED	20	100	8	8	8	8	8	8	8		160			0
180.10.05.05 - Draft FED Review	20	100	8	8	8	8	8	8	8		160			0
180.10.05.10 - Revised Draft FED	10	40									50			0
180.10.05.15 - Section 4(f) Evaluation	2	8									10			0
180.10.05.20 - Findings Report	2	4									6			0
180.10.05.25 - Statement of Overriding Consid											0			0
180.10.05.30 - CEQA Certification											0			0
180.10.05.35 - FHWA and Approval											0			0
180.10.05.40 - Section 106 Cons & MOA	4	4		20							28			0
180.10.05.45 - Section 7 Consultation	4	4	20								28			0
180.10.05.50 - Final Section 4(f) Statement	4	8									12			0
180.10.05.55 - Floodplain Only PAF	1	2									3			0
180.10.05.60 - Wetlands Only PAF	1	2	8								11			0
180.10.05.65 - Sect 404 Permit Compliance	2	2	8								12			0
180.10.05.70 - Mitigation Measures	20	100	24	8							152			0
180.10.10 - Public Dist & Resp to Comments	4	100									104			0

Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
180.10.15 - Final ROW Rebo Impact Document											0			0
180.10.99 - Other FED Products											0			0
180.15.05 - ROD (NEPA)											0			0
180.15.10 - ROD (CEQA)	4	20									24			0
180.15.20 - Env Commitment Record	4	24									28			0
180.15.99 - Other Complete ED Products											0			0
180.20 - NEPA Delegation											0			0
Total App PR & FED	102	518	76	44	16	0	24	16	0	0	796			0
Update Project Info for PS&E														
185.05.05 - Project Concept Review for PS&E		8	8	8	8		8	8			48			0
185.05.10 - Updated Project Info for PS&E dev		4	4	4	4		4	4			24			0
Total Update for PS&E	0	12	12	12	12	0	12	12	0	0	72			0
ROW & Excess Land														
195.40.25 - Property Maint & Rehab (non-rental)											0			0
195.40.35 - Transfer of Prop to Clear Status											0			0
195.45.05 - Excess Lands Inventory											0			0
195.45.20 - Prop Dispo Units less than \$15 K											0			0
195.45.25 - Prop Dispo Units \$15 K - \$500 K											0			0
195.45.30 - Prop Dispo Units over \$500 K											0			0
Total ROW & Excess Land	0	0	0	0	0	0	0	0	0	0	0			0
Utility Relocation														
200.15 - Approved Utility Relocation Plan											0			0
200.20 - Utility Relocation Package											0			0
Total Coordinate Utilities	0	0	0	0	0	0	0	0	0	0	0			0
Permits, Agreements, and Route Adoptions during PS&E Cmpmt														
205.10.05 - US Army Corps 404 Permit	8		16								24			0
205.10.10 - US Forest Service Permit(s)											0			0
205.10.15 - US Coast Guard Permit	8		8								16			0
205.10.20 - DFG 1600 Agreement	8	40	8								56			0
205.10.25 - Coastal Development Permit											0			0
205.10.30 - Local Agency Concurrence/Permit											0			0
205.10.40 - Waste Discharge (NPDES) permit											0			0
205.10.45 - US Fish & Wildlife Service Approval											0			0
205.10.50 - RWOCB 401 Permit	8		8								16			0
205.10.60 - Updated EGR	8	24	20	8							60			0
205.10.65 - Other Permits			8								8			0
205.20.05 - Draft Fwy Agreement											0			0
205.20.10 - Draft Fwy Agree Review											0			0
205.20.15 - Final Fwy Agree											0			0
205.20.20 - Executed Fwy Agreement											0			0
205.40.10 - New Connections & Route Adopt Sbll											0			0
205.55 - NEPA Delegation											0			0
Total Permits, Agreements, and Route Adoptions	40	64	76	8	0	0	0	0	0	0	188			0

Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
Right of Way Interests														
225.55.20 - Right of Way Clearance	0	0	0	0	0	0	0	0	0	0	0			0
Total Right of Way Interests														
Prepare Draft PS&E														
230.05.45 - Noise Barrier Plans											0			0
230.10.05 - Hwy Planting Plans											0			0
230.10.15 - Plant List		1	8								9			0
230.35.10 - Hwy Planting Specs		1	8								9			0
230.35.35 - Water Pollution Ctrl Specs		4	8								12			0
230.35.40 - Erosion Control Specs		4	8								12			0
230.60 - Updated Proj Info for PS&E Package		4	8								12			0
230.60.05 - Updated Storm Water Data Report		4	8				8				8			0
230.60.10 - Other Reviews/Updates Proj Info		4	8								12			0
230.90 - NEPA Delegation		4	18	32	0	0	8	0	0	0	62			0
Total Prepare Draft PS&E														
Mitigate Environmental Impacts and Clean-up Hazardous Waste														
235.05.05 - Hist Structures Mitig											0			0
235.05.10 - Archy & Cult Mitigation											0			0
235.05.15 - Biological Mitigation	20	40	160								220			0
235.05.20 - Env Mitigation R/W work	4	10	20								34			0
235.05.25 - Paleontology Mitigation											0			0
235.05.99 - Other Env Mitigation Products											0			0
235.10.10 - Haz Waste Sites Survey											0			0
235.10.15 - Detailed HW Sites Investigation											0			0
235.15 - HW Management Plan											0			0
235.20 - HW PS&E											0			0
235.25 - HW Clean-up											0			0
235.30 - Certification of Sufficiency (HW)											0			0
235.35 - Long Term Mitigation Monitoring	4	8	200								212			0
235.40 - Updated ECR											0			0
235.45 - NEPA Delegation											0			0
Total Mitigation & HW Clean-up	28	58	380	0	0	0	0	0	0	0	466			0
Permits for Subsurface Geotechnical Exploration														
240.70 - Site Ready for Subsurface Exploration	4	24	24	24	24	0	0	0	0	0	76			0
Total Geotechnical Permit	4	24	24	24	24	0	0	0	0	0	76			0
Circulate, Review and Prepare Final District PS&E Package														
255.05 - Circ & Rev Draft Dist PS&E	8	16	16	16	8	8	16	16	16	0	96			0
255.10.25 - Updated Technical Reports	16	40	40	40	40	40	40	8	8	0	184			0
255.15 - Env Reevaluation											0			0
255.20.05 - Rev Plans for Strds Comp	4	16	4	4	4	4	4	4	4	0	28			0
255.40 - Res Envs Pending File											0			0
255.45 - NEPA Delegation											0			0
Total PS&E	28	72	60	60	8	8	56	24	24	0	308			0

Assigned Unit	Senior	Coord	Biology	Cultural	Haz Waste	Socio-Economic	Storm Water	Noise/Air	Paleo	Sup Svcs	Total	Begin Date	End Date	Duration (days)
Prepare Contract Documents														
260.75 - Env Cert at RTL	4	16									20			0
Total Prepare Contract Documents	4	16	0	0	0	0	0	0	0	0	20			0
Perform Construction Engineering and General Contract Administration														
270.20.60 - Technical Support	16	60	100	100							276			0
270.55 - Final Inspect & Accept Rec														0
270.70 - Update ECR	4	16	8	8							36			0
270.75 - Permit Renewal & Extension			8	8							16			0
270.80 - Long-Term Mitigation Contract	4	8	40	40							92			0
Total Const. Engineering	24	92	156	108	0	0	0	0	0	0	380			0
Prepare and Administer Contract Change Orders														
285.05.05 - Need for COO Determination											0			0
285.10.15 - Other Func Support											0			0
Total COOs	0	0	0	0	0	0	0	0	0	0	0			0
Resolve Contract Claims														
290.35 - Provide Technical Support											0			0
Total Contract Claims	0	0	0	0	0	0	0	0	0	0	0			0
Accept Contract, Prepare Final Construction Estimate & Prepare Final Report														
295.35 - Cert of Env Compliance											0			0
295.40 - Long-Term Mitigation Contract	4	8	200								212			0
Total Final Construction	4	8	200	0	0	0	0	0	0	0	212			0
Total Project Hours	574	2424	2104	1396	140	0	220	224	0	0	7062			

ATTACHMENT H

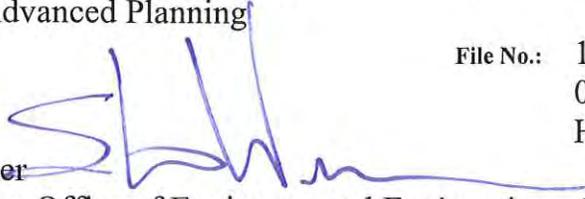
Initial Site Assessment

Memorandum

To: Carlon Schriever, Design Engineer
District 1 Advanced Planning

Date: March 9, 2010

File No.: 1-DN-101-PM 22.7
01-49560K
Hamilton Road Safety

From: Steve Werner 
North Region Office of Environmental Engineering—North

Subject: Initial Site Assessment

An Initial Site Assessment (ISA) for the above-referenced "Hamilton Road Safety" project was conducted after receiving your request dated February 4, 2009.

Based on the undated layouts and cross-sections provided, the ISA found that the project likely has potential hazardous waste issues related to Aerially Deposited Lead (ADL) within the shallow soils in the existing road shoulder areas that will be disturbed during construction. The ISA found that it may be necessary to conduct a consultant study to determine lead levels present, depending on whether – and from where – excess material is generated.

Likely nominal hazardous waste issues include those for Treated Wood Waste (TWW) and lead in existing thermoplastic striping. TWW will be an issue if a retaining wall with timber lagging is constructed as part of one of the project alternatives, or if guardrail is removed. Thermoplastic stripe will be a potential issue if it is removed as a separate operation.

At the minimum, the lead issues present on the project will require that the contractor prepare a Lead Compliance Plan (LCP), therefore we recommend including Item 190110 in the contract. An Earth Material Containing Lead nssp will also be needed for the contract plans. We recommend that the Project Engineer contact this office when the project enters the zero phase so that we can further evaluate the need for an ADL study.

For the purposes of determining the appropriate environmental documents required for the project, the work site(s) should not be considered to be on the *Hazardous Waste and Substances Site List (Cortese List)*.

If there are any changes to the scope of the project, please send an e-mail or letter describing the changes so that they may be evaluated for possible hazardous waste issues that could affect your project. Communications may also be directed to me at (707) 445-6658.

cc: 1-SWerner 2-File
e-mail copies to: Steve Werner, Brandon Larsen

SSW/ks

ATTACHMENT I

Right of Way Data Sheet

Memorandum

*Flex your power!
Be energy efficient!*

To: ILENE POINDEXTER
Senior, Advanced Planning
Department of Transportation, District 3

Attention BRIAN SIMON
Project Engineer

Date: November 15, 2010

File: 01-DN-101-PM 22.5/23.0
E.A. 49560K
Alternate No. 1 of 2 -
Viaduct/Retaining Wall

From: KAREN E. HAWKINS,
North Region Right of Way Manager
Eureka/Redding

Curve Improvement in Del
Norte County Near Crescent
City From 0.2 mi South to 0.3
mi North of Hamilton Road

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on information received from you on November 10, 2010, and the following assumptions and limiting conditions.

Acquisition:

- * One TCE Parcel from DPR.

Permits:

- * 1602, 401 and Coastal Development Permit from County of Del Norte

Mitigation:

- * Preliminary mitigation estimate is for 0.5 acre for wetland mitigation. Estimate is preliminary and may change as more studies are completed.

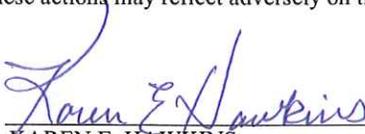
Material Disposal Site:

- * No material disposal site is required for the project.

Right of Way Lead Time will require a minimum of 12 months after we receive project first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 9 months will be required after receiving the last appraisal map to Right of Way for certification. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.

Attachments:

Right of Way Datasheet


KAREN E. HAWKINS

cc: KEVIN CHURCH

North Region Right of Way Manager
Eureka/Redding

REVISED



Date: November 15, 2010

01-DN-101-PM 22.5/23.0
 E.A. 49560K
 Curve Improvement in Del Norte County Near
 Crescent City From 0.2 mi South to 0.3 mi North
 of Hamilton Road

1. Right of Way Cost Estimate: **Alternate No. 1 of 2 - Viaduct/Retaining Wall**

	<u>Current Value Future Use</u>	<u>Escalation Rate</u>	<u>Escalated Value</u>
A. Total Acquisition Cost	\$625	5%	\$785
B. Mitigation acquisition & credits	\$540,000	5%	\$678,044
C. Project Development Permit Fees	\$2,560	5%	\$3,214
Subtotal	\$543,185		\$682,043
D. Utility Relocation (State Share) (Owner's share: <u> \$0</u>)	\$0		\$0
E. Relocation Assistance (RAP)	\$0		\$0
F. Clearance/Demolition	\$0		\$0
H. Title & Escrow	\$1,000	5%	\$1,256
I. Total Estimated Right of Way Cost	\$544,185	Rounded	\$683,000
J. Construction Contract Work	\$0		
2. Current Date of Right of Way Certification	<u>July 15, 2015</u>		

3. Parcel Data:

<u>Type</u>	<u>Dual/Appr</u>	<u>Utilities</u>	<u>RR Involvements</u>
X <u>0</u>		U4 - 1 <u>0</u>	None <u>X</u>
A <u>1</u>		- 2 <u>0</u>	C&M Agrmt <u> </u>
B <u>0</u>		- 3 <u>0</u>	Svc Contract <u> </u>
C <u>0</u>	<u>0</u>	- 4 <u>0</u>	Easements <u> </u>
D <u>0</u>	<u>0</u>	U5 - 7 <u>6</u>	Rights of Entry <u> </u>
		- 8 <u>0</u>	Clauses <u> </u>
Total <u>1</u>		- 9 <u>0</u>	
Areas:			<u>Misc. R/W Work</u>
R/W: <u>N/A</u>			RAP Displ <u>N/A</u>
Excess: <u>N/A</u>		No. Excess Pcls: <u>0</u>	Clear/Demo <u>N/A</u>
Mitigation: <u>0.5 Ac.</u>			Const Permits <u>N/A</u>
			Condemnation <u>0</u>
			USA Involvement <u>No</u>

4. Are there any major items of construction contract work?
Yes _____ No X

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

It is recommended to pursue either an encroachment permit from DPR or a Right of Entry to do the removal of the culvert & re-vegetation work verses a temporary construction easement in which we would appraise and pay DPR. Also we may need to acquire a mitigation parcel for the mitigation bank for this & other DN Co projects.

6. Are any properties acquired for this project expected to be rented, leased, or sold?
Yes _____ No X

7. Is there an effect on assessed valuation? Yes _____ Not Significant _____
No X

8. Are utility facilities or rights of way affected? Yes X No _____

Utility relocations are not anticipated; however, utility verifications will be required.

Verifications required for Blue Star Gas, Pacific Power & Light, Verizon, Charter Communications, County of Del Norte and City of Crescent City. No Relocations are anticipated.

9. Are railroad facilities or rights of way affected? Yes _____ No X
N/A

10. Were any previously unidentified sites with hazardous waste and/or material found?
Yes _____ None Evident X

11. Are RAP displacements required? Yes _____ No X

No. of single family	<u> </u>	No. of business/nonprofit	<u> </u>
No. of multi-family	<u> </u>	No. of farms	<u> </u>

Based on Draft/Final Relocation Impact Statement/Study dated N/A it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

12. Are there material borrow and/or disposal sites required?
Yes _____ No X Optional

13. Are there potential relinquishments and/or abandonments?
Yes _____ No X

14. Are there any existing and/or potential airspace sites?
Yes _____ No X

15. What type of mitigation is required for the project?

According to Brandon Larsen, the need for mitigation will be 1/2 acre or less (wetlands issues). According to Kelly Garrett, estimate \$150,000 for the 1/2 acre and perhaps one parcel could be acquired for a mitigation bank for other projects in the DN Co. area. A tree survey and some biological field study must be completed.

16. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

Right of Way Lead Time will require a minimum of 12 months after we receive first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 9 months will be required after receiving the last appraisal map to Right of way for certification.

17. Is it anticipated that Caltrans will perform all Right of Way work?

Yes X No

Evaluation Prepared By:

Right of Way: Nancy Hueske Date 11/16/10
NANCY HUESKE

Reviewed By:

RW Project Coordinator: Robert Close Date 11/16/10
ROBERT CLOSE

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper, subject to the limiting conditions set forth, and I find this Data Sheet to be complete and current.

RECOMMENDED FOR APPROVAL

Dave McCannless
DAVE McCANLESS,
Senior Right of Way Agent
Project Delivery Branch
Eureka

11/16/10
Date

APPROVED:

Karen E. Hawkins
KAREN E. HAWKINS
North Region Right of Way Manager
Eureka/Redding

11/16/10
Date

M e m o r a n d u m

*Flex your power!
Be energy efficient!*

To: ILENE POINDEXTER
Senior, Advanced Planning
Department of Transportation, District 3

Attention BRIAN SIMON
Project Engineer

Date: November 15, 2010

File: 01-DN-101-PM 22.5/23.0
E.A. 49560K
Alternate No. 2 of 2 -
Retaining Wall

Curve Improvement in Del
Norte County Near Crescent
City From 0.2 mi South to 0.3
mi North of Hamilton Road

From: KAREN E. HAWKINS,
North Region Right of Way Manager
Eureka/Redding

Subject: Current Estimated Right of Way Costs

We have completed an estimate of the right of way costs for the above referenced project based on information received from you on November 10, 2010, and the following assumptions and limiting conditions.

Acquisition:

* One TCE Parcel from DPR.

Permits:

* 1602, 401 and Coastal Development Permit from County of Del Norte

Mitigation:

* Preliminary mitigation estimate is for 0.5 acre for wetland mitigation. Estimate is preliminary and may change as more studies are completed.

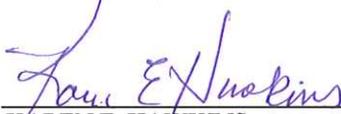
Material Disposal Site:

* No material disposal site is required for the project.

Right of Way Lead Time will require a minimum of 12 months after we receive project first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 9 months will be required after receiving the last appraisal map to Right of Way for certification. Shorter lead times will require either more right of way resources or an increased number of condemnation suits to be filed. Either of these actions may reflect adversely on the District's other programs or our public image generally.

Attachments:

Right of Way Datasheet



KAREN E. HAWKINS
North Region Right of Way Manager
Eureka/Redding

cc: KEVIN CHURCH

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

4. Are there any major items of construction contract work?
Yes _____ No X

5. Provide a general description of the right of way and excess lands required (zoning, use, major improvements, critical or sensitive parcels, etc.).

Majority of the work will be completed within the existing right of way. A small TCE will be required for the removal of the existing pipe extension and revegetate the area. Recommend pursuing either an encroachment permit from DPR, a Right of Entry (DPR) or a Permit to Enter & Construct rather than valuation for a TCE. May also need to acquire a mitigation parcel.

6. Are any properties acquired for this project expected to be rented, leased, or sold?
Yes _____ No X

7. Is there an effect on assessed valuation? Yes _____ Not Significant _____
No X

8. Are utility facilities or rights of way affected? Yes X No _____

Utility Verification required for Blue Star Gas, Charter Communications, County of Del Norte, City of Crescent City, Pacific Power & Light and Verizon. No Utility Relocations are anticipated.

9. Are railroad facilities or rights of way affected? Yes _____ No X

10. Were any previously unidentified sites with hazardous waste and/or material found?
Yes _____ None Evident X

11. Are RAP displacements required? Yes _____ No X

No. of single family	<u> </u>	No. of business/nonprofit	<u> </u>
No. of multi-family	<u> </u>	No. of farms	<u> </u>

Based on Draft/Final Relocation Impact Statement/Study dated N/A
it is anticipated that sufficient replacement housing (will/will not) be available without Last Resort Housing.

12. Are there material borrow and/or disposal sites required?
Yes _____ No X

13. Are there potential relinquishments and/or abandonments?
Yes _____ No X

14. Are there any existing and/or potential airspace sites?
Yes _____ No X

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
RIGHT OF WAY DATA SHEET

15. What type of mitigation is required for the project?

According to Brandon Larsen, the need for mitigation will be 1/2 acre or less (wetlands issues). According to Kelly Garrett, estimate \$150,000 for the 1/2 acre and perhaps one parcel could be acquired for a mitigation bank for other projects in the DN Co. area. A tree survey and some biological field studies must be completed. Vegetation mitigation will be required the cost is for both the land and the "construction costs" of the plants and vegetation.

16. Indicate the anticipated Right of Way schedule and lead time requirements. (Discuss if district proposes less than PMCS lead time and/or if significant pressures for project advancement are anticipated.)

Right of Way Lead Time will require a minimum of 12 months after we receive first appraisal maps, utility conflict maps, and the necessary environmental clearance and freeway agreements have been approved and obtained. Additionally a minimum of 9 months will be required after receiving the last appraisal map to Right of way for certification.

17. Is it anticipated that Caltrans will perform all Right of Way work?

Yes X No

Evaluation Prepared By:

Right of Way:

Nancy Hueske
NANCY HUESKE

Date

11/16/10

Reviewed By:

RW Project Coordinator:

Robert Close
ROBERT CLOSE

Date

11/15/10

I have personally reviewed this Right of Way Data Sheet and all supporting information. I certify that the probable Highest and Best Use, estimated values, escalation rates, and assumptions are reasonable and proper, subject to the limiting conditions set forth, and I find this Data Sheet to be complete and current.

RECOMMENDED FOR APPROVAL:

APPROVED:

David McCannless
DAVID McCANLESS,
Senior Right of Way Agent
Project Delivery Branch
Eureka

Karen E. Hawkins
KAREN E. HAWKINS
North Region Right of Way Manager
Eureka/Redding

11/16/10
Date

11/16/10
Date

ATTACHMENT J

Programming Sheet

PROGRAMMING SHEET

Project Manager:	Kevin Church	01-DN-101-PM 22.5/23.0
Date:	03-Dec-10	EA 01-49560_ 201.010 Curve/Super Elevation Improvements

PROJECT SCHEDULE

MILESTONE	DATE
Begin Environmental Document (M020)	4/1/2011
Begin Project Report (M040) (Begin Design of Project)	2/1/2011
Circulate Environmental Document (M120)	2/1/2013
Project Approval & Environmental Document (M200)	8/1/2013
District Submits Bridge Site Data to Structures (M221)	8/1/2013
Right of Way Maps (M224)	2/1/2013
Draft Structures Plans, Specifications & Estimate (M378)	4/1/2015
Project Plans, Specifications & Estimate (M380)	7/1/2015
Right of Way Certification (M410)	12/15/2015
Ready to List (M460)	12/15/2015
HQ Advertise (M480)	3/1/2016
Approve Construction Contract (M500)	6/15/2016
Contract Acceptance (M600)	4/1/2018

Escalation Factors Used: Capital: 3.5%
Support: 1.5%

2010 COSTS

Const: \$ 7,300
R/W: \$ 545

PROJECT COSTS BY SB45 CATEGORY

Costs are in thousands of dollars

CAPITAL COSTS	10/11	11/12	12/13	13/14	14/15	15/16	FUTURE	TOTAL
Right of Way	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 643	\$ -	\$ 643
Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 8,578	\$ -	\$ 8,578
CAPITAL TOTAL								\$ 9,221

SUPPORT COSTS

Environmental	\$ 213	\$ 567	\$ 562	\$ 88	\$ 46	\$ 21	\$ -	\$ 1,497
Design	\$ -	\$ -	\$ 432	\$ 858	\$ 879	\$ 137	\$ -	\$ 2,307
Right of Way	\$ -	\$ -	\$ 104	\$ 31	\$ 10	\$ 14	\$ 58	\$ 217
Construction	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 39	\$ 1,696	\$ 1,735
SUPPORT COSTS								\$ 5,756

TOTAL PROJECT COSTS \$ 14,976

SUPPORT TO CAPITAL RATIO/% 62%

SUPPORT PY'S by DIVISION

Number of Hours in a PY: 1758

PROJECT SUPPORT IN PYS

	10/11	11/12	12/13	13/14	14/15	15/16	FUTURE	TOTAL
Transportation Planning	0.39	1.15	1.78	0.71	0.45	0.04	0.01	4.5
District Design	1.37	2.08	4.61	2.86	2.85	0.54	1.74	16.1
Right of Way	0.03	0.04	0.07	0.14	0.14	0.05	0.10	0.6
District Construction	0.01	0.02	0.05	0.05	0.25	0.25	4.48	5.1
DES Design	0.22	0.16	0.16	2.33	2.12	0.42	1.05	6.5
DES Construction	0.00	0.00	0.01	0.02	1.35	1.35	2.79	5.5
TOTAL	2.02	3.44	6.69	6.10	7.17	2.65	10.17	38.2

Comments:

ATTACHMENT K

Traffic Index

Memorandum

*Flex your power!
Be energy efficient!*

To: **Carlton Schrieve**
Design Engineer, Advance Planning

Date: 03/01/2010

File: 01-DN-101
EA: 01-49560K

From: **WILLIAM A. DAVIS, Chief** *W.A.*
Office of Travel Forecasting and Modeling

Re: TRAFFIC DATA & DESIGNATION REQUEST

The traffic data that you requested via email on 02/24/2010 is listed below. The Traffic Index (TI) design periods are 10 and 20-year projections.

County	DN
Highway	101
Post Mile	22.7
Annual ADT	
Base Year	2008
	5,100
	2014
	5,410
	2024
	5,920
	2034
	6,430
Peak Hour	
Base Year	2008
	740
	2014
	780
	2024
	860
	2034
	930
Directional %	60
DH Truck %	8.0
10-year TI	9.0
20-year TI	10.0

If you have any questions or need additional information, please contact Steven Vo at (530) 741-5177.

cc: Files

ATTACHMENT L

Landscape Architecture Assessment Sheet



NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET
 03-LAND-0002 (Rev. 3/03)

TO: Carlon Shrieve FROM: Laura Lazzarotto Unit/Senior TE Name: Adv. Planning/ Ilene Poindexter Project Manager: Kevin Church	CO: DN DISTRICT: 01 DATE: Sept. 2, 2010 EA: 01-49560K	RTE: 101	PM: 22.4/23.0
PROJECT SEPARATION: <input checked="" type="checkbox"/> Landscape as part of roadway work EA <input type="checkbox"/> Landscape under separate EA (Follow-up)	PROJECT: Hamilton Road Safety Project TYPE: SHOPP PROJECT MILESTONE: PID		

PROJECT DESCRIPTION: This project proposes to increase radii on two existing curves to the Standard 55 MPH, improve superelevation transitions, and lengthen the right deceleration lane and left turn pocket at Hamilton Lane, south of Crescent City. Alternative 1 would also require a viaduct on the west side and a retaining wall on the east. Alternative 2 would not include a viaduct but would require two retaining walls on the east side and one on the west.

AREA (FT²) FOR HIGHWAY PLANTING: Not known at this time
AREA (FT²) FOR EROSION CONTROL: Not known at this time
PLANT COUNT FOR MITIGATION PLANTING: Not known at this time

LANDSCAPE FREEWAY STATUS: Yes No
HIGHWAY PLANTING IS: Warranted Not Warranted
SCENIC HIGHWAY STATUS: Officially Designated Eligible Not Designated
 World Heritage Site, State Scenic Highway and International Biosphere Reserve

REVEGETATION REQUIRED: Permit Required Offset of Visual Impact Other (Forest Service, BLM, etc.)

BIOLOGIST CONTACT: Not yet assigned
DATE OF CONTACT:
REVEG. SPECIALIST CONTACT: Clare Golec

ADJACENCY TO BILLBOARDS:
 Project area is adjacent to outdoor advertising. Project area is not adjacent to outdoor advertising.

WATER AND POWER AVAILABILITY: No

DESIGN FOR MAINTENANCE SAFETY: Yes

CONTEXT SENSITIVITY:
 It is determined that the project will involve consideration of highway aesthetics and will require further evaluations pertaining to specific roadside enhancements.
 No foreseen issues with highway aesthetics. Other Retaining walls need to match the soldier pile walls at Cushing Creek. See-through barrier rail for southbound viaduct or retaining wall.

COOPERATIVE MAINTENANCE AGREEMENTS:

Project may involve additional tasks indicated	<input checked="" type="checkbox"/> Visual Simulation <input checked="" type="checkbox"/> Highway Planting <input checked="" type="checkbox"/> Contour Grading	<input checked="" type="checkbox"/> Erosion Control <input checked="" type="checkbox"/> Field Visit <input checked="" type="checkbox"/> Cost Estimate	<input checked="" type="checkbox"/> SWPPP/NPDES <input checked="" type="checkbox"/> Context Sensitive Solutions/Aesthetics <input type="checkbox"/> Landscape Evaluation
--	--	---	--



**NORTH REGION
LANDSCAPE ARCHITECTURE ASSESSMENT SHEET**
03-LAND-0002 (Rev. 3/03)

COST INFORMATION:

<input type="checkbox"/> Highway Planting	
<input type="checkbox"/> Irrigation System	
<input type="checkbox"/> _ year Plant Establishment	
<input checked="" type="checkbox"/> Revegetation commitments w/ 3-5 years Plant Establishment	\$ 85,000.00
<input type="checkbox"/> Re-establish Stream Channel (rock cost shown on Eng. Estimate)	
<input checked="" type="checkbox"/> Erosion Control	\$ 25,000.00
<input type="checkbox"/> Slope Protection	
<input checked="" type="checkbox"/> Aesthetic Treatment - architectural treatment for retaining walls and barrier rails (varies with alternatives). See Structures estimate.	

Note: Revegetation Commitments and Re-establish Stream Channel will be in Engineer's Estimate for contract work.

OTHER RELATED INFORMATION:

Landscape Architecture Resource Estimate:

ROADSIDE VEGETATION MANAGEMENT TREATMENT NEEDS:

- Extended Gore Areas
- Guardrails and Signs
- Medians
- Road Edge
- Side Slopes/Embankment Slopes

(See: <http://www.dot.ca.gov/hq/LandArch/roadside/index.htm> for potential treatment measures)

PREPARED BY: Laura Lazzarotto

DATE: 9/03/10

CONCURRED BY: *Kevin Church*

DATE: 12/3/10

APPROVED BY: *[Signature]*

DATE: 11/1/10

(Project Manager)
Kevin Church

(Landscape Architecture or Engineering Services Branch Chief)

ATTACHMENT M

Materials Recommendations

Memorandum

To: Ilene Poindexter
Division Chief,
Advance Planning

Date: March 26, 2010

Attn: Carlon Schrieve

File: 01-DN-101-PM 22.70
01-49560K
Hamilton Road Safety
201.010

From: DEPARTMENT OF TRANSPORTATION - North Region
Wesley D. Johnson - North Region, Eureka Materials

Subject: Preliminary Materials Recommendation

In response to a request for a Materials Recommendation from Carlon Schrieve of your office, dated February 4, 2010, personnel from the Eureka Materials Lab conducted a field review and retrieved soil and water samples from within the project limits. These samples were used to determine the R-value (resistance to deformation); and, pH and resistivity of the native soils. The "R" value of the native soils is used to calculate the structural section of the proposed repair / new construction. The pH and resistivity values are used to calculate the estimated service life of culverts.

New Structural Sections for Mainline & Shoulders:

Based on a tested R-value of 27 (25 used for calculation), and a 20 year traffic index of 10.0 provided by the Office of Traffic Forecasting and Modeling, the following structural section strategies are recommended for mainline traffic and shoulders. Each strategy is structurally equivalent.



Wesley D. Johnson

Strategy	<u>OGFC</u>	<u>HMA (Type A)</u>	<u>AB (Class 2)</u>	<u>AS (Class 2)</u>
1	0.17'	0.50'	0.85'	0.60'
2	0.17'	0.50'	1.40'	----
3	0.17'	1.10'	----	----

New Structural Sections for Mainline & Shoulders with Concrete Viaduct (Proposed Alternative #1):

Place the following HMA layers over a Geosynthetic Pavement Interlayer (GPI) on top of the concrete viaduct slab. The GPI should be placed on top of the concrete slab and followed by the HMA-A layer. This will help prevent reflective cracking from the underlying joint. Please see Attachment "A" for detail.

Strategy	<u>OGFC</u>	<u>HMA (Type A)</u>
1	0.17'	0.17'

Notes:

- Local or imported borrow used to construct embankment, must meet a minimum R-value of 25 when placed within 4 feet of finished grade.
- For structural sections designed to last 20 years, the alternative to use full depth HMA (Type A) should be considered for special situations only. This would include, but not be limited to, narrow widening, shallow utilities coverage, or reducing traffic control periods due to less overall construction time.
- When a widened shoulder or new structural section is constructed to adjoin an existing structural section, geosynthetic pavement interlayer (GPI) should be placed so that it will overlap the new/existing joint by 2 feet on each side. Placement of the GPI should be as low in the HMA as possible and on the same plane for both the existing structural section and the new structural section. This will help prevent reflective cracking from the underlying joint. Please see Attachment "B" for detail.
- For new and reconstructed shoulder widening, Highway Design Manual (HDM) Table 612.2 recommends that for projects with AADT < 150000 and AADTT < 15000; shoulders ≤ 5 feet wide should match the adjacent travelled way structural section thickness. For shoulders > 5 feet wide, only the first 2 feet are required to match the adjacent recommended structural section thickness for travelled way. For ease of construction and the relatively short length of the project, this document recommends that the structural section thickness for shoulder match the recommended structural section thickness for the adjacent travelled way.

Repair and Overlay Existing

Grind and remove the existing OGAC to a depth of 0.17 feet. After the cold planing is complete, a thorough inspection should be made to locate areas of severe pavement failure identified by rutting greater than 1/2 inch and/or loose spalling pavement. Dig out and repair the localized failed areas to a depth of 0.33 feet (mill & fill with HMA (Type A)) and seal all cracks wider than 1/4 inch by route and seal method. After repair of the dig outs and cracks, the existing dense grade AC and new HMA surface (areas of widening or leveling) will be overlaid from edge of pavement to edge of pavement including the Vista Overlook with 0.17 feet of HMA - Open Graded (OGFC), 3/4 inch aggregate.

Notes:

- District 1 has developed a formal Pavement Selection Committee (PSC) to help provide a process for proper and consistent pavement selection in pavement design. District Directive Number DD-07-1 entitled "*District 1 Pavement Selection Committee*" defines and assigns responsibilities for the management of the District's pavement standards, policies, and guidelines. The objective is to have a concurrence or recommendation for pavement selection in pavement design by the Committee as early as possible in the Capital Project Development process, typically in the Advanced Planning/Project Initiation Document (PID) stage. For further guidance and direction, see: http://northregion.dot.ca.gov/pd/d1_district_resources.htm and select *Materials*, then navigate to *Pavement Selection Process Flowchart*. It is the responsibility of the Project Engineer to document approval of pavement strategy by the PSC for Office Engineer at P&E submittal.
- Routing Cracks: Route cracks 1/4 inch wide and wider. The width of the routing should be 1/4 inch wider than the crack width. The depth should be equal to the width of the routing plus 1/4 inch. In order to alleviate the potential bump in the overlay from the crack sealant, leave the crack sealant a minimum of 1/4 inch below grade to allow for expansion. (Please see Attachment "C" for details).

Material Specifications

- Hot Mix Asphalt - Open Graded (OGFC) shall be 3/4 inch aggregate conforming to District 1 Specification for OGFC. This Specification: **39-101_E_A06-05-09.doc** is available at: <http://cap3/oe/oeforum/viewtopic.php?f=6&t=60&sid=6b1c62005a9c016522a73eb3ced8af00>.
- Hot Mix Asphalt (HMA): Shall be Type A (HMA-A), conforming to

Section 39 of the Standard Specifications. See Attachment "D" for a recommendation of grading size versus layer thickness.

- Asphalt Binder: Shall be PG 64-16 for HMA-A and PG 58-34 PM for OGFC. The estimated percentage of asphalt to be added per dry weight of aggregate is 5.0% for 3/4 inch HMA-A, 5.5% for 1/2 inch HMA-A and 6.0% for 3/8 inch HMA-A. The estimated percentage of asphalt to be added per dry weight of aggregate is 5.3% for 3/4 inch OGFC.
- Paint Binder (Tack Coat): Shall conform to Section 39 of the Standard Specifications.
- Aggregate Base (AB): Shall be Class 2, conforming to Section 26 of the Standard Specifications.
- Asphalt Concrete Dike: Hot Mix Asphalt used in the construction of dikes shall be Type A, 3/8 inch, conforming to Section 39 of the Standard Specifications. Please see Attachment "E" for construction details for modified dike installation when open graded friction course is placed.
- Shoulder Backing: Shall conform to the requirements within the Standard Special Provisions for shoulder backing, with the following change: The minimum loose unit weight per California Test Method 212, Compacted Method (by rodding) shall be 105 lb/ft³.

Alternative Pipe Culverts

Alternative Pipe Culvert recommendations are based on soil pH and resistivity testing from soil and water samples taken during the field visit at Post Mile 22.74 Rt. Alternate pipe culverts approved for a 50 year service life and based on data from the results of testing are listed below.

- Reinforced Concrete Pipe may be used with the following addition to Section 65 of the Standard Specifications: Type II modified or Type IP cement shall be used with a maximum water-to-cement ratio of 0.45.
- 0.138" (10 gage) galvanized, corrugated steel pipe conforming to Section 66 of the Standard Specifications.
- 0.079 (14 gage) galvanized, polymeric sheet coated, corrugated steel pipe conforming to Section 66 of the Standard Specifications.
- Plastic pipe - Shall be high density polyethylene (HDPE), conforming to Section 64 of the Standard Specifications. Reference should be made to durability in Section 854.8 of the

Highway Design Manual.

See Attachment "F" or "G" for culvert installation details.

Notes:

- Steel pipe down-drains shall conform to Section 69, "Overside Drains" of the Standard Specifications.

If you have any questions, please call Dave Waterman at (707)445-6355 or Wes Johnson at (707)445-6386.

Attachments

- A. Typical Section (Viaduct) and GPI placement Detail
- B. Typical Section (Widening) and GPI placement Detail
- C. Seal Random Cracks Detail
- D. HMA Layer Thickness Vs Aggregate Size Chart
- E. Placement of HMA Modified Dike on OGFC Detail
- F. Culvert Backfill Detail
- G. Culvert Backfill Detail with Minor Concrete

WJ:wj

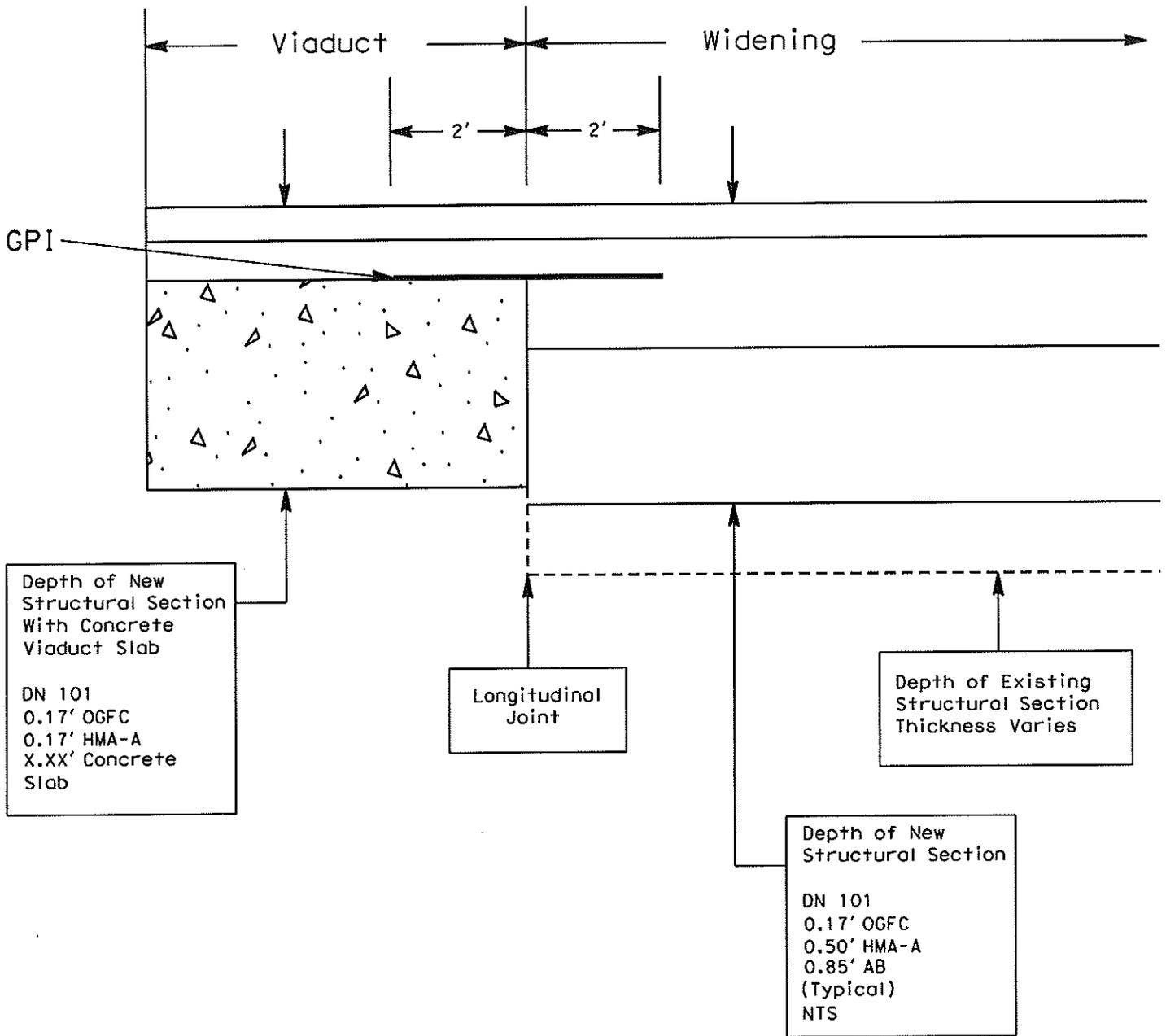
cc: I. Poindexter
C. Schriever
B. Simon
K. Church
Lab Files

ATTACHMENT A

01_DN_101 PM 22.70

01-49560K

Structural Section Adjacent to Viaduct and Geosynthetic Pavement Interlayer (GPI) Detail



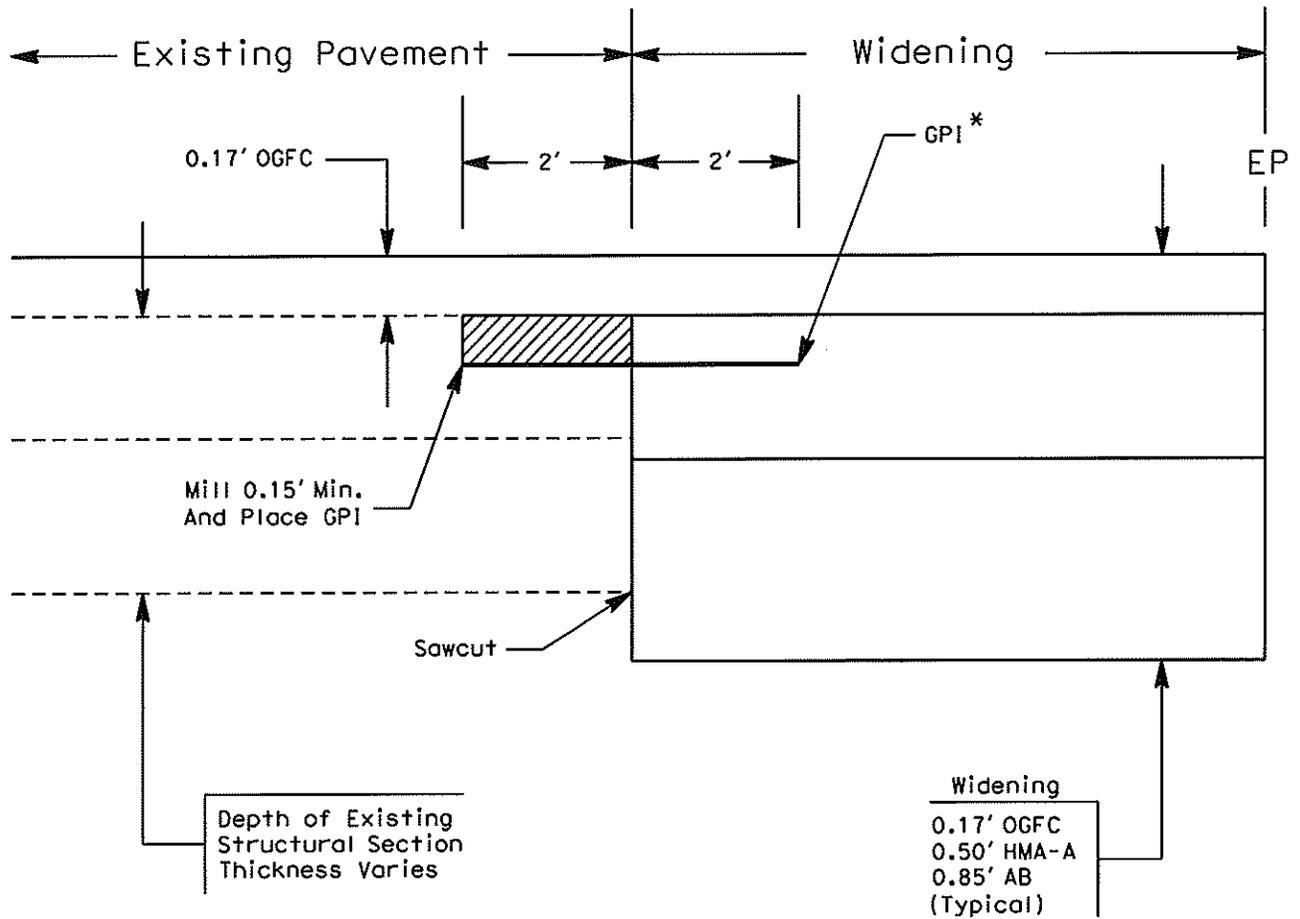
NO SCALE

ATTACHMENT B

01_DN_101 PM 22.70

01-49560K

Structural Section and Geosynthetic Pavement Interlayer (GPI) Detail



* Geosynthetic Pavement Interlayer

NO SCALE

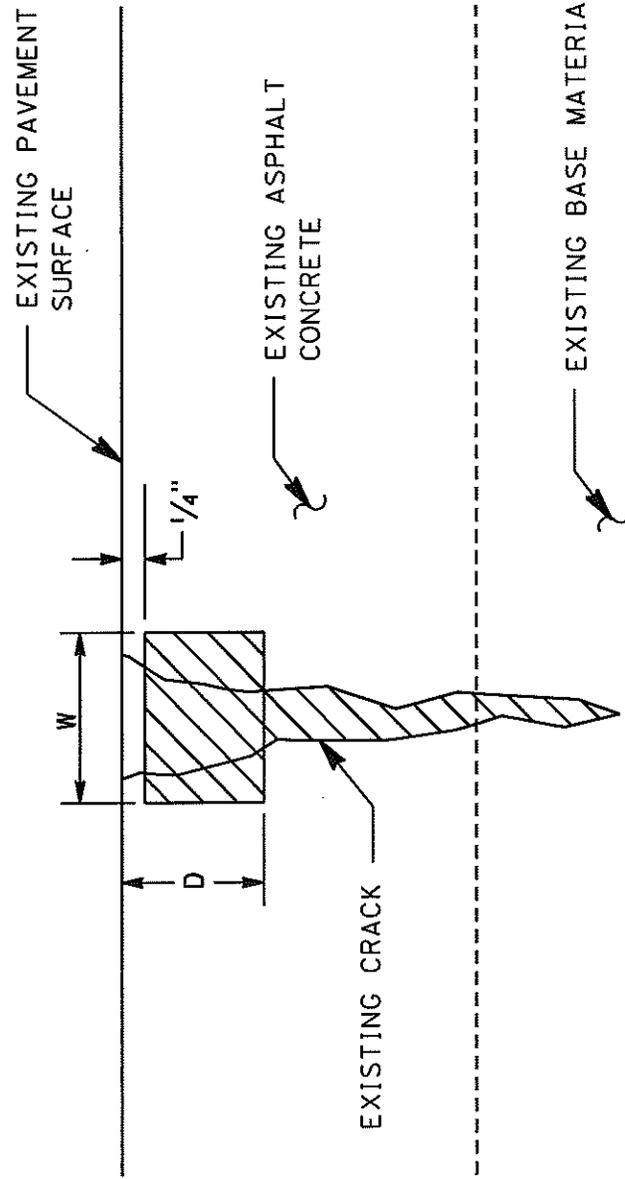
ATTACHMENT C

01-DN-101 PM 22.70

01-49560K

W = WIDTH OF ROUTING = WIDTH OF CRACK + 1/4" MIN

D = DEPTH OF ROUTING = W + 1/4" MIN



NOTES:

1. ALL CRACKS 1/4" WIDE OR GREATER ARE TO BE ROUTED AND SEALED.
2. IF ANY PART OF ANY CRACK IS 1/4" OR WIDER, THEN THE ENTIRE CRACK WILL BE ROUTED AND SEALED.
3. NO SEALANT MATERIAL WILL BE ALLOWED ON HMA PAVEMENT SURFACE.



CRACK SEALANT

SEAL RANDOM CRACKS

TYPICAL CROSS SECTION

Attachment D

01-DN-101 PM 22.70
01-49560K

Aggregate Size and Layer Thickness Hot Mix Asphalt (HMA) Type A

Use the following table to determine the grading:

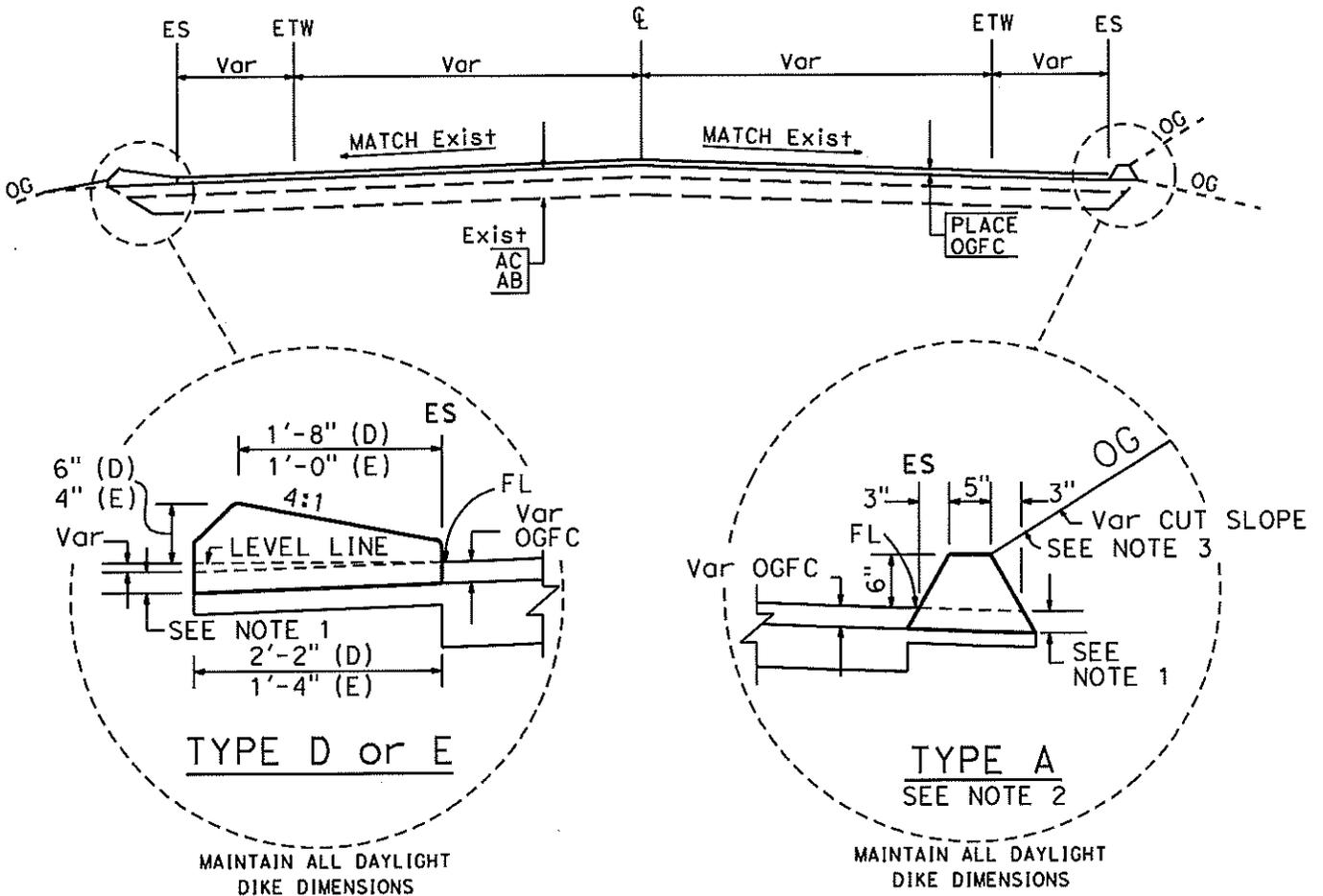
Lift Thickness Range	Grading
0.08 foot – 0.125 foot	3/8 inch
0.125 foot – 0.20 foot	1/2 inch
0.20 foot and above	3/4 inch

ATTACHMENT E

01_DN_101 PM 22.70

01-49560K

MODIFIED HMA DIKE



HOT MIX ASPHALT DIKE TYPICAL WHEN PLACED WITH OGFC

DIKE QUANTITIES

TYPE	CUBIC YARDS PER LINEAR FOOT
A	* 0.0135
C	* 0.0038
D	* 0.0293
F	* 0.0130
F	* 0.0066

QUANTITIES BASED
ON 5% CROSS SLOPE

* ADJUST QUANTITY TO COMPENSATE
FOR OGFC DEPTH/HMA DIKE HEIGHT
EXTENSION

NOTES:

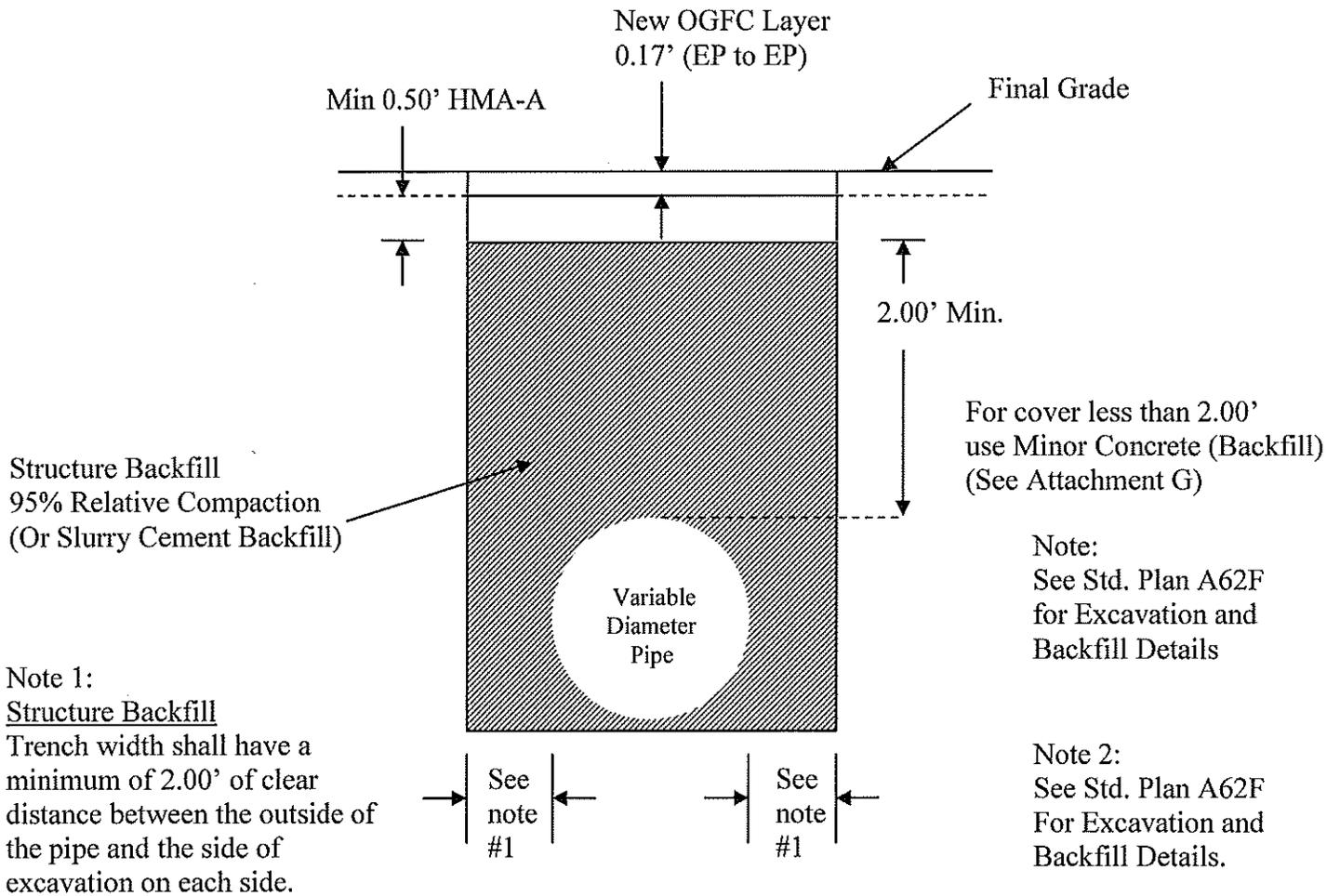
1. THE ADDITIONAL HEIGHT OF DIKE SHALL BE EQUIVALENT TO THE DEPTH OF OGFC.
2. TYPE A DIKE ONLY TO BE USED WHERE RESTRICTIVE SLOPE CONDITIONS DO NOT PROVIDE ENOUGH WIDTH TO USE TYPE D OR TYPE E DIKE.
3. FILL AND COMPACT WITH EXCAVATED MATERIAL TO TOP OF DIKE.

NO SCALE

Attachment F

Structure Backfill, or Slurry Cement Backfill

01-DN-101 PM 22.70
01-49560K



Slurry Cement Backfill

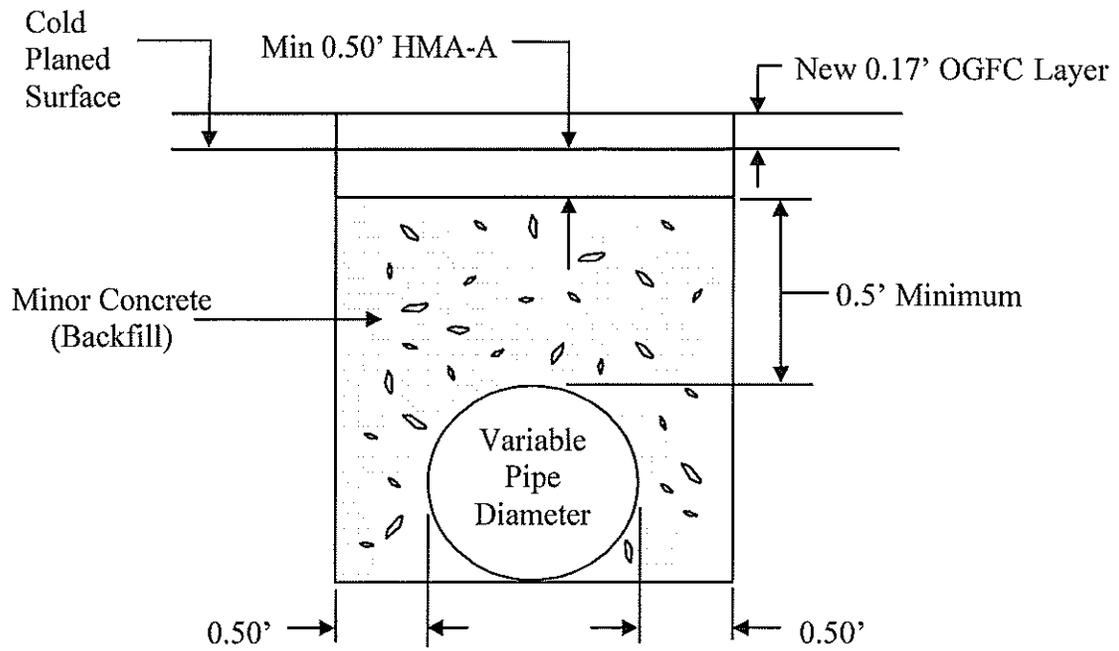
Trench width shall be a minimum of 0.50' beyond outside edge of pipe and the side of excavation on each side for pipe diameters up to and including 42", or 1.00' for pipes over 42" in diameter. See Standard Specifications 19-3.062

NO SCALE

Attachment G

01-DN-101 PM 22.70
01-49560K

Minor Concrete (Backfill)



NO SCALE

ATTACHMENT N

Hydraulic Recommendations

Memorandum

*Flex your power!
Be energy efficient!*

To: CARLON SHRIVEE
District 1, Advance Planning

Date: March 30, 2010

File: DN-1-1-PM 22.7
EA 01-49560K
Hamilton Road Safety

From: KEMSET MOORE 
Hydraulic Project Engineer
North Region Design E-4, Hydraulics-Eureka

Subject: Preliminary Drainage Recommendations

Per your request for Hydraulic Recommendations and Floodplain analysis for the above referenced project, our staff conducted a field review on February 25, 2010. At the current design level, the project has two alternatives, both proposing to increase curve radii; Alternative 1 requires the construction of a viaduct system and a retaining wall, Alternative 2 includes a road realignment and three retaining walls.

Watershed characteristics: The project is located above a coastal bluff at 380 feet elevation on USGS quadrangle map: Sister Rocks, Reference Code 41124-F2-TF-024. For Storm water planning the Hydrologic Unit is Smith River, Hydrologic Area is Lower Smith River, the Sub-Area is Smith River Plain, Unit 103.11. The average maximum temperature is 61 F°; the average minimum temperature is 44.7 F°. Watershed vegetative cover is mixed western hardwoods and redwoods.

Hydrologic characteristics: The average annual rainfall is 70.5 inches, snowfall is rare. IDF-32 spreadsheet with intensity-duration-frequency data is attached.

Culvert Summary:

There are four culverts within the current project limits as delineated on the layouts accompanying the drainage recommendation request, none of which have fish passage concerns.

1. PM 22.68; Redwood National Park Scenic Overlook Exist 8 inch CMP

Existing facility is an 8 inch Corrugated Metal Pipe (CMP) with a type G1 Drainage Inlet (DI) located at the northeast corner of the Redwood National Park Scenic Overlook. This inlet conveys roadway runoff from the mainline superelevation and the paved overlook and does not cross beneath the main roadway. The DI is shallow; the pipe has little cover with erosion at the shotgun type outlet.

Recommendations are as follows:

- Replace the existing DI with a type GO DI, conforming to asphalt concrete dike. Lower invert of culvert to provide additional cover. Reuse grate if feasible.
- Replace existing culvert with an 18 inch APC, length to be determined with survey data.
- Place light gradation RED at outlet.

2. PM 22.69; Exist 36 inch CMP

Existing facility is a 36 inch (CMP) with a metal Flared End Section (FES). The cross drain has been extended at least once in its lifespan and has a kink in the horizontal alignment. At the inlet, the FES and approximately 25 feet of culvert are outside of State Right of Way according to as-built layout sheet. The 60 foot long downdrain, placed in 1984, is anchored by two Cast in Drilled Hole (CIDH) concrete pilings, plus anchorage assembly. This downdrain outlets on the fill prism with flow continuing to Enderts Beach road and a lagoon.

Maintenance records indicate the crossdrain is perforated, and the FES is significantly oxidized.

Roadway surface flow and ditch flow from PM 22.54 moving down gradient toward this facility do not reach the inlet, but pond at the south eastern corner of the DN 101 / Hamilton Road intersection at the location of the change in culvert alignment. Sediment aggradation, vegetative drift line elevation, and sapling growth indicate ponding has occurred at the inlet.

Recommendations are as follows:

- Replace the existing culvert with a 36 inch Alternative Pipe Culvert (ACP) with a straight alignment on a 2% slope.
- Reduce the length of the culvert at the inlet keeping the drainage facility 10 feet inside State Right of Way and providing the opportunity for channel restoration.
- Place FES at the inlet.
- If feasible, re-use the two existing CIDH concrete pilings, with a new cable anchorage system.
- Place new 36 inch elbow and downdrain keeping the current downdrain length (dependent upon surveys). With alternative 1, this cross drain will daylight in the vicinity of a proposed wall, with alternative 2, it will daylight beneath a proposed viaduct. Additional design effort will be required once the preferred alternative is chosen to determine cross drain configuration.
- Place RED at downdrain outlet.
- Add new culvert paddle markers as necessary.

3. PM 22.77; Exist 18 inch CMP

Existing facility is an 18 inch CMP with an type GO DI, in asphalt paved ditch draining the cut-slope and roadway. This inlet is within the proposed wall location for both Alternatives 1 and 2. The outlet is a downdrain with elbow and anchor assembly. At the time of the field review, sediment and vegetation over the grate reduced the drainage inlet capacity.

Recommendations are as follows.

- Replace the existing culvert with an 18 inch APC.
- Replace the existing DI with a type GDO DI. Reuse existing grate plus new bicycle proof grate.
- Place new elbow and downdrain. No anchor mechanisms are necessary.
- Add light RED at outlet.
- Add new culvert paddle markers as necessary.

4. PM 22.83; Exist 18 inch CMP

Existing facility is an 18 inch CMP with a type GO DI, in asphalt paved ditch draining the cut-slope and roadway. This inlet is within the proposed wall location for both Alternatives 1 and 2. The outlet is a downdrain with elbow and anchor assembly. At the time of the field review, sediment and vegetation over the grate reduced the drainage inlet capacity.

Recommendations are as follows.

- Replace the existing culvert with an 18 inch APC.
- Replace the existing DI with a type GDO DI. Reuse existing grate, plus new bicycle proof grate.
- Place new elbow and downdrain. No anchor mechanisms are necessary.
- Add light RED at outlet.
- Add new culvert paddle markers as necessary.

5. Approximate PM 22. 86; new roadway crossdrain and downdrain

For Alternative 1 only, this is a new culvert to capture roadway and hillslope drainage beneath the proposed 500 foot long retaining wall.

Recommendations are as follows.

- Place a 24 inch APC.
- Place a type GDO DI with bicycle proof grates
- Place new elbow and downdrain. No anchor mechanisms are necessary.
- Add light RED at outlet.
- Add new culvert paddle markers.

Roadside Ditches:

Alternative 1: South of Hamilton road, replace the existing ditch along the new deceleration lane, RT, and connect this ditch to the new inlet at PM 22.69. Place an overside drain with an RED at the northern edge of the new viaduct, LT.

Alternative 2: South of Hamilton road, RT, provide high side super elevation ditch with a slope of 1:6 at the face of new 235 foot long retaining wall and connect this ditch to the new inlet at PM 22.69. Longitudinal slotted pipe drains are not recommended at the base of retaining walls due to documented sediment and vegetation accumulation. Place an overside drain with an RED at the northern edge of the new Standard Plan wall, LT.

Floodplain Summary:

The project components, currently in Caltrans Right of Way, lie within FEMA's Floodplain Panel #06015C0335E and are in Zone D. Zone D covers areas with possible but undetermined flood hazards. No flood hazard analysis for this zone has been conducted. However, approximately 1200 feet measured east along Hamilton Road is an area designated zone A; an area with a 1% annual chance of flooding, no depth or base flood elevations are shown within this zone. If contract work is performed in this area more detailed analysis may be necessary. See attached FEMA floodplain location map.

As this safety project is in the PSR phase with complex superelevation design concerns, a supplementary drainage request is appropriate to finalize roadway drainage recommendations once geometric design is confirmed. If you have questions or concerns please call me at 707 445 6526.

Attachment / Enclosure

c: 1 I Poindexter
2 K Church
3 Project files

KKM / kkm /

Intensity-Duration-Frequency Curves from the Caltrans IDF-32 Program

The equation used is: $Int = RP * Dur^E$,
 where RP and E are parameters provided by IDF32.

Calculated by: [Kemset Moore](#)
 Date: [3/1/2010](#)

Project site information:

Description: [DN-101 PM 22.7 EA 0104956K Hamilton Road Safety Project](#)

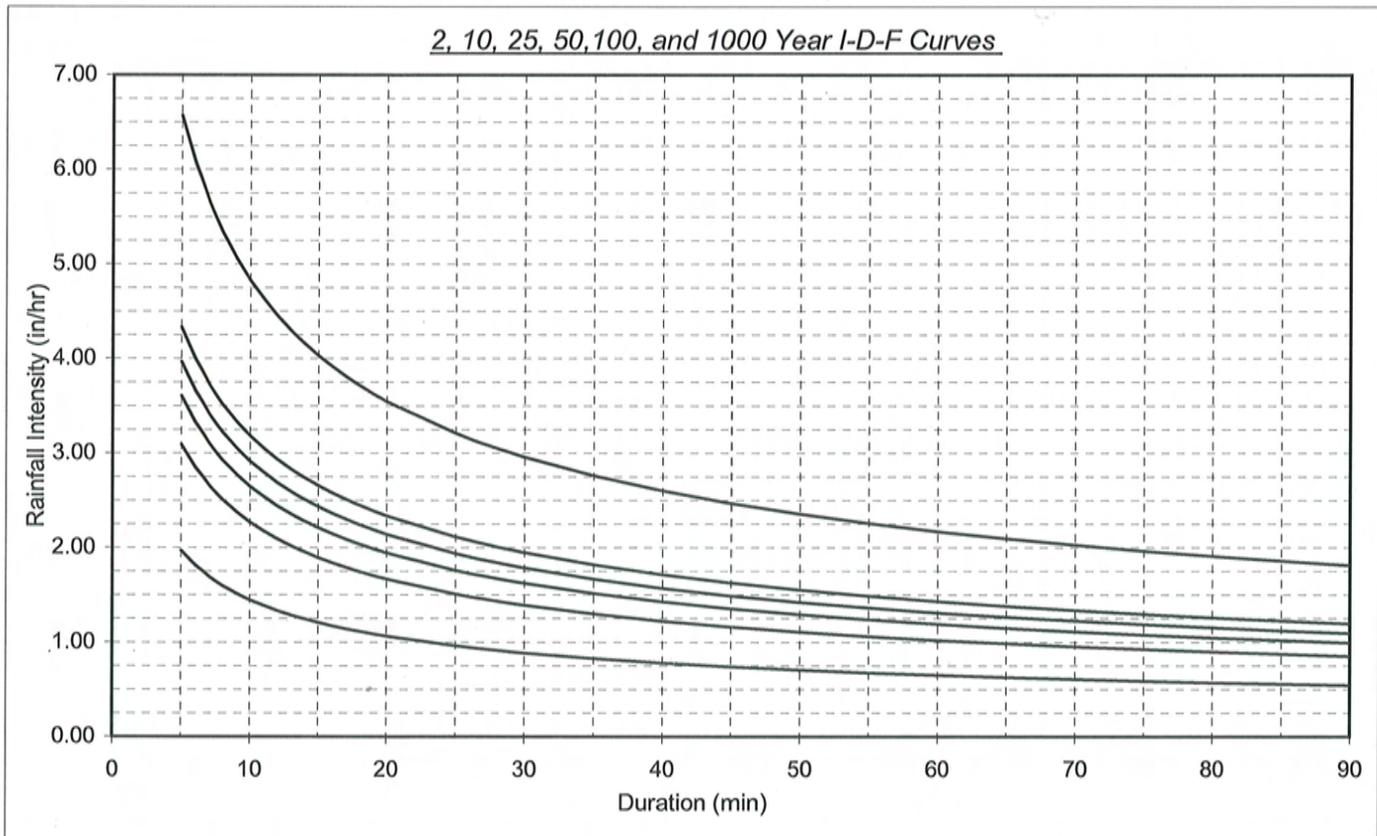
Latitude: [41.7300 deg.](#) or: 41 deg, 43 min, 48.0 sec Coordinates location & notes:
 Longitude: [124.1400 deg.](#) or: 124 deg, 8 min, 24.0 sec [NAD27 is the datum used in the IDF32 database.](#)
 Elevation: [600 ft](#) Datum: [NAD27](#)

Rainfall gaging stations used in the interpolation (up to 3):

Station name:	Klamath	Crescent City
Station index:	425	412
Elevation:	25 ft	50 ft
Latitude:	41.517 deg	41.767 deg
Longitude:	124.033 deg	124.200 deg
Station ID:	F30457700	F00215000
Years of Operation:	1944-1999	1942-1983
Approx. distance to the project site:	25.6 km = 15.9 miles	6.9 km = 4.3 miles

Interpolated Parameters:	RP(2):	RP(10):	RP(25):	RP(50):	RP(100):	RP(1000):	Slope (E):
	0.65	1.02	1.19	1.31	1.43	2.17	-0.446

The resulting 25-year, 10-minutes duration intensity is: 67 mm/hr, or: 2.65 in/hr
 10-year, 1-hr precipitation: 26 mm, or: 1.02 in
 100-year, 1-hr precipitation: 36 mm, or: 1.43 in
 100-year, 3-hr precipitation: 67 mm, or: 2.63 in
 100-year, 6-hr precipitation: 98 mm, or: 3.86 in
 100-year, 24-hr precipitation: 211 mm, or: 8.32 in



Notes:

- IDF32 is a public-domain program developed by Jim Varney (Caltrans), based on rainfall data supplied by the California Department of Water Resources (DWR).
- Underlined values are input data. The datum and elevation values are for reference only, they do not enter the equation or interpolation calculations.
- Spreadsheet developed by Fernando Manzanera (Caltrans District 1 Hydraulics, 10/13/05).

Intensity-Duration-Frequency Table (IDF-32 Program)

DN-101 PM 22.7 EA 0104956K Hamilton Road Safety Project

Latitude: 41.730 deg

Longitude: 124.140 deg

Elevation: 600

Datum: NAD27

Duration (min)	2-yr Intensity		10-yr Intensity		25-yr Intensity		50-yr Intensity		100-yr Intensity		1000-yr Intensity	
	(mm/hr)	(in/hr)	(mm/hr)	(in/hr)	(mm/hr)	(in/hr)	(mm/hr)	(in/hr)	(mm/hr)	(in/hr)	(mm/hr)	(in/hr)
5	50	1.97	78	3.09	92	3.60	101	3.97	110	4.33	167	6.57
6	46	1.82	72	2.85	84	3.32	93	3.66	101	3.99	154	6.06
7	43	1.69	68	2.66	79	3.10	87	3.42	95	3.73	144	5.66
8	41	1.60	64	2.51	74	2.92	82	3.22	89	3.51	135	5.33
9	38	1.51	60	2.38	70	2.77	78	3.05	85	3.33	128	5.06
10	37	1.45	58	2.27	67	2.65	74	2.91	81	3.18	123	4.83
11	35	1.39	55	2.17	64	2.54	71	2.79	77	3.05	117	4.62
12	34	1.33	53	2.09	62	2.44	68	2.69	74	2.93	113	4.45
13	33	1.29	51	2.02	60	2.35	66	2.59	72	2.83	109	4.29
14	32	1.24	50	1.95	58	2.28	64	2.51	70	2.74	105	4.15
15	31	1.21	48	1.89	56	2.21	62	2.43	67	2.65	102	4.03
16	30	1.17	47	1.84	55	2.15	60	2.36	65	2.58	99	3.91
17	29	1.14	45	1.79	53	2.09	58	2.30	64	2.51	97	3.81
18	28	1.11	44	1.75	52	2.04	57	2.24	62	2.45	94	3.71
19	28	1.09	43	1.70	50	1.99	56	2.19	61	2.39	92	3.62
20	27	1.06	42	1.66	49	1.94	54	2.14	59	2.33	90	3.54
25	24	0.96	38	1.51	45	1.76	49	1.94	54	2.11	81	3.21
26	24	0.94	38	1.48	44	1.73	48	1.90	53	2.08	80	3.15
27	24	0.93	37	1.46	43	1.70	48	1.87	52	2.04	79	3.10
28	23	0.91	36	1.43	42	1.67	47	1.84	51	2.01	77	3.05
29	23	0.90	36	1.41	42	1.65	46	1.81	50	1.98	76	3.00
30	22	0.89	35	1.39	41	1.62	45	1.78	49	1.95	75	2.96
35	21	0.83	33	1.30	38	1.51	42	1.67	46	1.82	70	2.76
40	20	0.78	31	1.22	36	1.43	40	1.57	44	1.71	66	2.60
45	19	0.74	29	1.16	34	1.35	38	1.49	41	1.63	63	2.47
50	18	0.71	28	1.11	33	1.29	36	1.42	39	1.55	60	2.35
55	17	0.68	27	1.06	31	1.24	35	1.36	38	1.49	57	2.26
60 (1 hr)	17	0.65	26	1.02	30	1.19	33	1.31	36	1.43	55	2.17
65	16	0.63	25	0.98	29	1.15	32	1.26	35	1.38	53	2.09
70	15	0.61	24	0.95	28	1.11	31	1.22	34	1.33	51	2.03
75	15	0.59	23	0.92	27	1.08	30	1.19	33	1.29	50	1.96
80	15	0.57	23	0.90	27	1.05	29	1.15	32	1.26	48	1.91
85	14	0.56	22	0.87	26	1.02	28	1.12	31	1.22	47	1.86
90	14	0.54	22	0.85	25	0.99	28	1.09	30	1.19	46	1.81
180 (3 hr)	10	0.40	16	0.62	19	0.73	20	0.80	22	0.88	34	1.33
360 (6 hr)	7	0.29	12	0.46	14	0.54	15	0.59	16	0.64	25	0.98
1440 (24 hr)	4	0.16	6	0.25	7	0.29	8	0.32	9	0.35	13	0.53

Notes:
 - IDF32 is a public-domain program developed by Jim Varney (Caltrans), based on rainfall data supplied by the California Department of Water Resources (DWR).
 - Spreadsheet developed by Fernando Manzanera (Caltrans District 1 Hydraulics, 10/14/05).

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0335E

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

PANEL 335 OF 675
 (SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:
 COMMUNITY NUMBER PANEL SUFFIX
 DEL NORTE COUNTY, UNINCORPORATED AREAS 033525 0335 E

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



MAP NUMBER
 06015CG0335E

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



ATTACHMENT O

Storm Water Data Report

Long Form - Storm Water Data Report



Dist-County-Route: 01-DN-101

Post Mile Limits: 22.5/23.0

Project Type: Collision Reduction by curve & super elevation correction

Project ID (or EA): 01 0000 0491 (01-49560k)

Program Identification: SAFETY

Phase: PID
 PA/ED
 PS&E

Regional Water Quality Control Board(s): North Coast

Is the Project required to consider Treatment BMPs? Yes No
 If yes, can Treatment BMPs be incorporated into the project? Yes No

If No, a Technical Data Report must be submitted to the RWQCB at least 30 days prior to the projects RTL date. List RTL Date: 07-15-2015

Total Disturbed Soil Area: 54,000 SF Risk Level: 2

Estimated: Construction Start: Spring 2016 Construction Completion Date: Spring 2018

Notification of Construction (NOC) Date to be submitted: 01-15-2016

Erosivity Waiver Yes Date: _____ No
 Notification of ADL reuse (if Yes, provide date) Yes Date: _____ No
 Separate Dewatering Permit (if yes, permit number) Yes Permit # _____ No

This Report has been prepared under the direction of the following Licensed Person. The Licensed Person attests to the technical information contained herein and the date upon which recommendations, conclusions, and decisions are based. Professional Engineer or Landscape Architect stamp required at PS&E.

Brian S. Simon, Registered Project Engineer _____ Date _____

I have reviewed the stormwater quality design issues and find this report to be complete, current and accurate:

Kevin Church _____ 9/23/10
 Kevin Church, Project Manager Date

Brett Johnson _____ 10/4/2010
 Brett Johnson, Designated Maintenance Representative Date

Laura Lazzarotto _____ 9.24.10
 Laura Lazzarotto, Designated Landscape Architect Representative Date

[Stamp Required for PS&E only] Ted Schultz _____ 9-22-10
 Ted Schultz, District/Regional Design SW Coordinator or Designee Date

STORM WATER DATA INFORMATION

1. Project Description

This project is located in Del Norte County approximately three miles south of Crescent City on Route 101 (see Attachment 1). The project need was identified during a traffic safety investigation. The location has had 25 collisions in the last three-years and is a high priority project for District 1. The traffic safety investigation identified that vehicles are not slowing to the recommended 40 mph speed in the northbound direction (a 7% down-grade entering a 650' radius curve with an existing OGAC overlay) and that roadway geometrics (curve radius, superelevation rate and transitions) are non standard. Collisions are mostly road departure collisions associated with wet pavement and loss of traction. The project passed the standard skid test requested by traffic safety. Hamilton Road serves as the public access for the northern part of Mill Creek State Park and is located on the curve where most off the collisions are occurring. Currently, Hamilton Road does not have a high volume of traffic. However, the Park plans to eventually make Hamilton Road the main and only public access to its facilities. This project proposes two alternatives to address the existing high collision rate and attempts to avoid future problems when the traffic volumes of Hamilton Road increase.

Purpose and Need

The project is needed because it has had 25 collisions within the most recent three-year period and a fatality plus injury collision rate 11 times the statewide average for a similar facility. The purpose of the project is to reduce the frequency and severity of collisions within the project limits.

Alternatives

Alternative 1 proposes to increase curve radii on two existing reversing curves (see Attachment #3) to the Standard for 55 mph, improve superelevation / superelevation transitions, lengthen the right deceleration lane and lengthen the left turn pocket at Hamilton Road intersection. The alternative requires construction of a viaduct system on the down hill (west) side of the road and a retaining wall on the east side of the road. In addition to these improvements, this alternative proposes to replace all culverts and either reset or replace the down drains. A new 24" diameter culvert will be placed at the north end of the retaining wall. The portion of the 36" culvert that extends beyond the highway right of way and into the park will be removed and a bio-engineered channel constructed in place. The portion of this 36" culvert that lies within State ROW will be replaced.

Alternative 2 also proposes to increase curve radii on the same two existing reversing curves (see Attachment #4) to the Standard for 55 mph, improve superelevation / superelevation transitions, lengthen the right deceleration lane and lengthen the left turn pocket at the Hamilton Road intersection. This alternative eliminates the need for a viaduct system by realigning the roadway and adding one uphill retaining wall and one downhill retaining wall (near the location of the Alternative 1 viaduct). A third retaining wall is required at the northernmost curve, similar in height and location, but shorter in length, than the one in Alternative 1. Alternative 2 does not include a new 24" culvert and outfall at the north end



of the project. Other culvert treatments for Alternative 2 are identical to those described in Alternative 1.

The total disturbed area for this project was estimated by calculating the area bounded within the limits of new paving and the retaining wall/viaducts. This area also included the area where the existing 36" culvert will be removed, but excluded any of the staging areas as these areas are paved with either asphalt or gravel. The area within the bounded area described above was reduced by 50 percent because some of the base material under the existing pavement will be left in place to build up the structural section of the new roadway and hence the soil below will not be disturbed. Both of these areas are tabulated below.

The total existing impervious area was estimated by measuring existing paved areas on an aerial photograph. The increase in impervious area was conservatively determined by subtracting the existing impervious area from the above described disturbed area limit. Both of which are tabulated below.

This project is outside of any urban MS4 area.

DISTURBED SOIL AREAS		IMPERVIOUS AREAS	
Total Area within Disturbed Soil Area Limit	108,000 SF	Total Area within Disturbed Soil Area Limit	108,000 SF
50% of Total DSA above	54,000 SF	Pre Project Impervious Area	94,000 SF
		Increased Impervious Area	14,000 SF

2. Site Data and Storm Water Quality Design Issues (refer to Checklists SW-1, SW-2, and SW-3)

The DN 101-Hamilton Road project lies within a tributary area that drains to the Pacific Ocean and prior to release into the ocean, runoff collects in a small, unnamed, beachside lagoon. Concentrated flow travels a distance of approximately 3,600 feet between the project and the lagoon. The slope of the ground and channels immediately downstream of the project is about 3:1. After the first 1,000 feet or so the topography flattens out as it approaches the lagoon. Culverts, channels and streams of this tributary that lie within the project limits do not support fish habitat.

With this project proposing to replace approximately 93' of existing 36" culvert with an open channel, vegetated with native plants and lined with natural materials, a 401 Certification from the Regional Water Quality Control Board is anticipated. As a result, this project is expected to be required to consider permanent treatment best management practices (BMP).

Another water quality consideration with this project is related to the potential for erosion at the outfalls of the culverts and down drains. At these locations where concentrated flow is released from the confines of culverts, the potential for erosion exists and without proper treatments the erosion can expand beyond the immediate area around the outlet. With the exception of the proposed new culvert in Alternative 1, Outfalls are already in place and flow

into established channels. A secondary issue at the outlets of the culverts is related to the volume of flow exiting the pipe. This volume may increase if the impervious area of the area tributary to the pipe increases or if the area tributary to a culvert increases. Outlet controls may be required to minimize downstream effects.

Evaluation of downstream effect will also be required for the placement of the new culvert in Alternative 1.

3. Regional Water Quality Control Board Agreements

There are no negotiated understandings or agreements with the NCRWQCB pertaining to this project. In general, the NCRWQCB has expressed concern of downstream erosion from new culvert installations and may require monitoring of downstream effects.

4. Proposed Design Pollution Prevention BMPs to be used on the Project.

Design Pollution prevention BMPs will be deployed as appropriate and will be determined during the PA&ED phase of this project. Some of the design pollution prevention devices that are expected to be applicable to this project are described below.

- Any increase in tributary area or imperviousness of an existing tributary may result in an increase in runoff. In such circumstances, BMPs such as rock slope protection, energy dissipators, revegetation, jute matting etc can be installed to prevent erosion of soil.
- Cut and fill areas to the existing slopes should be minimized to prevent destabilization of the hillsides. In cases where disturbing these slopes is unavoidable, revegetation of the slopes, placement of matting materials and/or cutting off concentrated flows from these areas are BMPs that can be used in similar conditions.
- Establishing the vegetation or bio-engineering the new channel/stream where the existing 36" culvert will be removed is an erosion control BMP.
- The Hydraulic Specialist recommended installing a new 24" culvert with Alternative #1. If this installation is incorporated into the final design for this project, design features associated with this new system should be incorporated to prevent erosion and downstream effects. Such features may include rock slope protection, energy dissipators, or erosion control matting.
- The retaining walls are Design Pollution Prevention BMP because the construction of these structures reduces the size of the cut slope. Thereby, reducing exposed soils and the probability of these soils eroding.
- Replacement of the nearly 100 feet of 36" culvert with a bio-engineered channel will provide a water quality benefit as runoff in the channel has a longer reach to settle any solids. Concentrated flow in the channel also takes longer to progress down a watershed than water contained in a culvert. This longer travel time reduces the peak runoff and thereby, can reduce erosion potential.



5. Proposed Permanent Treatment BMPs to be used on the Project

Due to the requirements of obtaining a 401 Certification from the Regional Board, permanent treatment BMPs are being considered for this project. Treatment BMPs will be further evaluated during the project design phase; however, due to the steepness of the terrain placement of treatment BMPs may be difficult or found unfeasible.

Maintenance forces have indicated that sand is only applied about once per year at this project location. As such, traction sand traps will not be required for this area.

6. Proposed Temporary Construction Site BMPs to be used on Project

Several temporary construction site best management practices have the potential for inclusion in the construction stage of this project. Cost associated with the installation of these BMP was estimated using Appendix F of the July 2010 Caltrans Storm Water Quality Handbook, Project Planning and Design Guide. The BMPs that appear to be appropriate to this project include:

- Construction Site Management
BMP such as spill prevention and control, material management, waste management, non-storm water management, stockpile management and concrete waste management.
- Straw mulch
- Fiber rolls
- Check dams
- Silt fences
- Storm Water Pollution Prevention Plan (SWPPP)
A SWPPP is expected for this project due to the potential for this site to disturb greater than 1 acre of soil (see Section 1).

7. Maintenance BMPs (Drain Inlet Stenciling)

The majority of the inlets located within this project are along the highway and therefore, passersby will be infrequent and stenciling would not provide significant benefit. However, inlets located at the vista point will require stenciling.

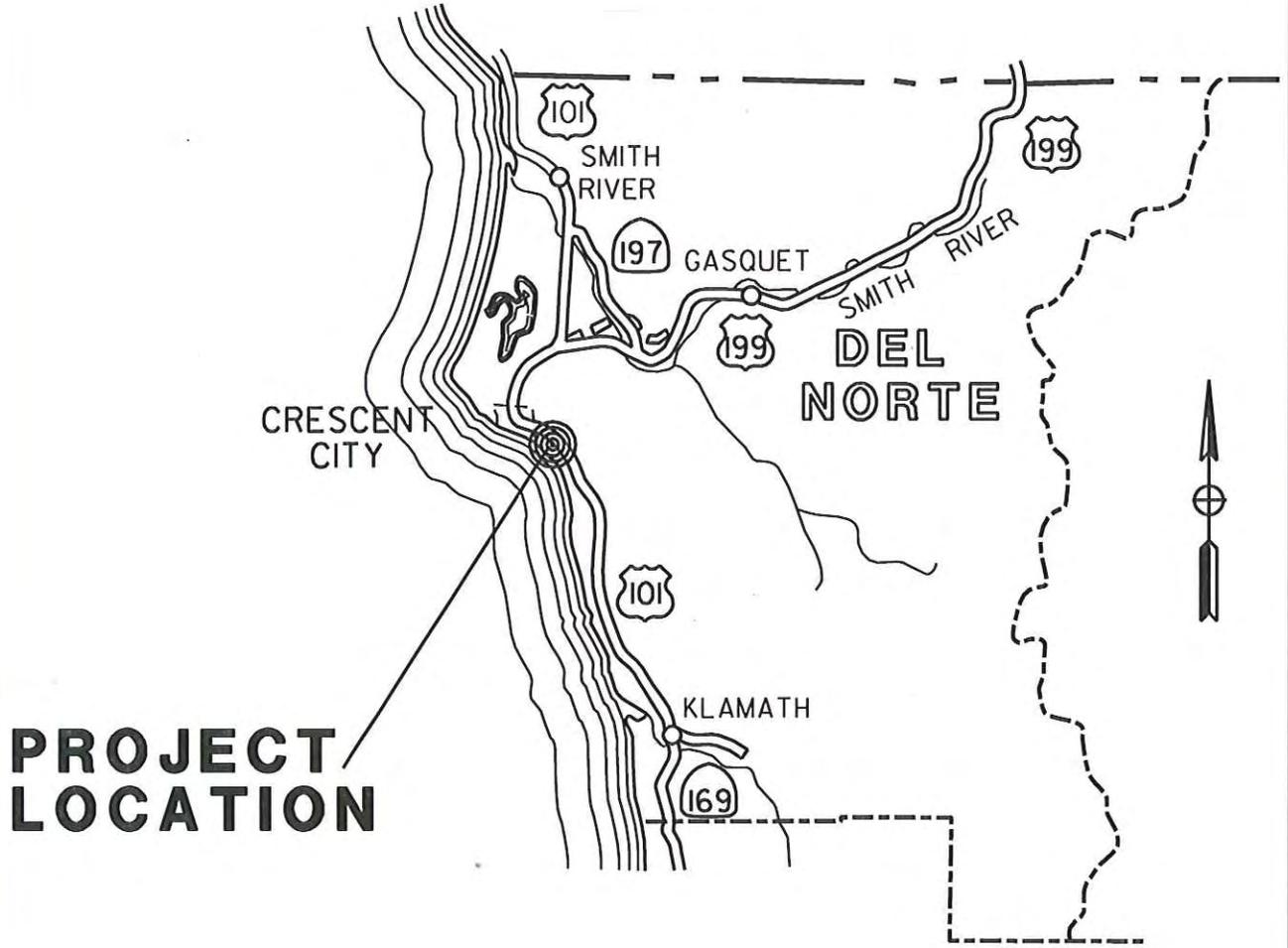
Required Attachments

Attachment 1	Vicinity Map
Attachment 2	Evaluation Documentation Form (EDF)
Attachment 3	Alternative #1 Layout Sheet
Attachment 4	Alternative #2 Layout Sheet
Attachment 5	USGS Map
Attachment 6	Risk Level Assessment



VICINITY MAP

No Scale



**PROJECT
LOCATION**

**VIADUCT / RREALIGNMENT
DN-101-PM 22.5 / 22.9
01380 01-xxxxxx**

**SWDR
ATTACHMENT 1**

Evaluation Documentation Form

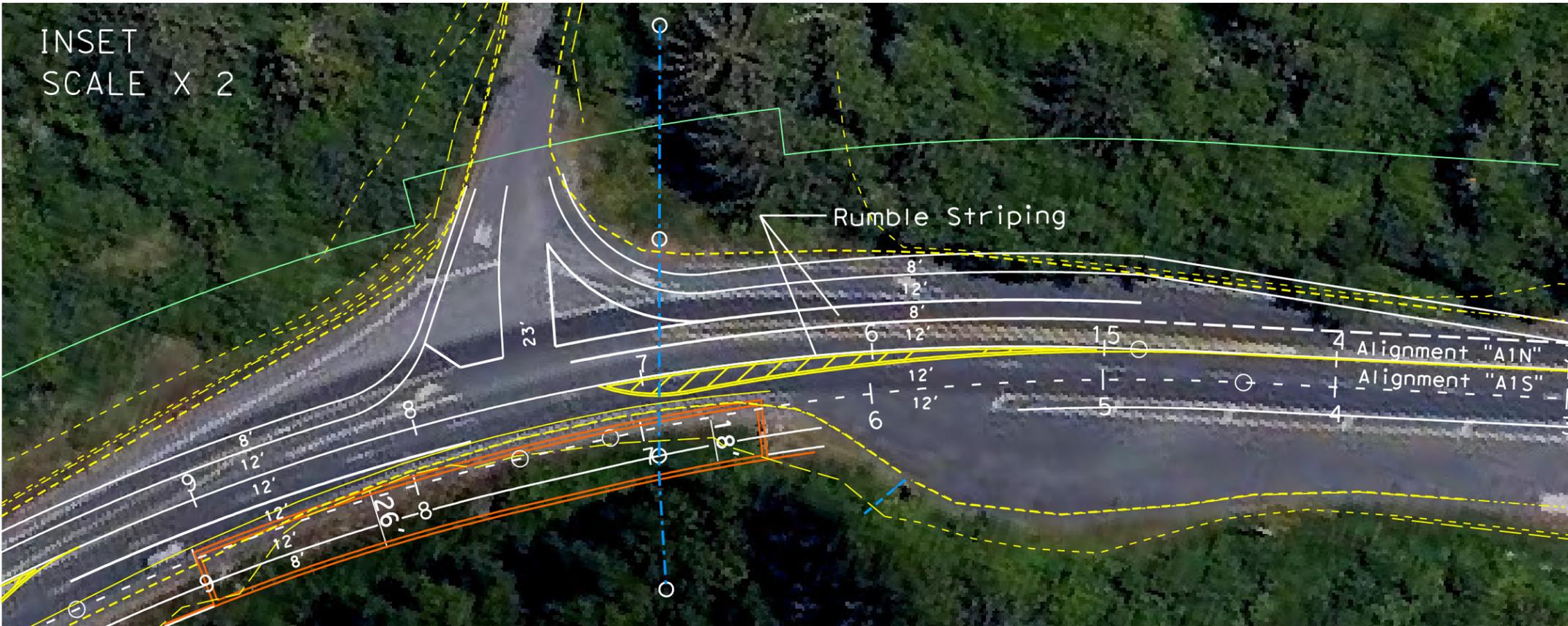
DATE: September 21, 2010
 Project ID (or EA): Hamilton Road
 01-49560k (01-0000-491)
 DN 101, PM 22.5/23.0

NO.	CRITERIA	YES ✓	NO ✓	SUPPLEMENTAL INFORMATION FOR EVALUATION
1.	Begin Project Evaluation regarding requirement for consideration of Treatment BMPs	✓		See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs. Go to 2
2.	Is this an emergency project?		✓	If Yes, go to 10. If No, continue to 3.
3.	Have TMDLs or other Pollution Control Requirements been established for surface waters within the project limits? Information provided in the water quality assessment or equivalent document.		✓	If Yes, contact the District/Regional NPDES Coordinator to discuss the Department's obligations under the TMDL (if Applicable) or Pollution Control Requirements, go to 9 or 4. <u>401 CERT REQUIREMENT</u> <u>TB</u> (Dist./Reg. SW Coordinator initials) If No, continue to 4.
4.	Is the project located within an area of a local MS4 Permittee?			If Yes. (write the MS4 Area here), go to 5. If No, document in SWDR go to 5.
5.	Is the project directly or indirectly discharging to surface waters?			If Yes, continue to 6. If No, go to 10.
6.	Is it a new facility or major reconstruction?			If Yes, continue to 8. If No, go to 7.
7.	Will there be a change in line/grade or hydraulic capacity?			If Yes, continue to 8. If No, go to 10.
8.	Does the project result in a <u>net increase of one acre or more of new impervious surface</u> ?			If Yes, continue to 9. If No, go to 10. (Net Increase New Impervious Surface)
9.	Project is required to consider approved Treatment BMPs.	✓		See Sections 2.4 and either Section 5.5 or 6.5 for BMP Evaluation and Selection Process. Complete Checklist T-1 in this Appendix E.
10.	Project is not required to consider Treatment BMPs. _____(Dist./Reg. Design SW Coord. Initials) _____(Project Engineer Initials) _____(Date)			Document for Project Files by completing this form, and attaching it to the SWDR.

1. See Figure 4-1, Project Evaluation Process for Consideration of Permanent Treatment BMPs

INSET
SCALE X 2

ALTERNATIVE STUDY FOR PSR
DN 101 PM 22.5/23.0
Hamilton Road Intersection
SAFETY IMPROVEMENTS
EA 01-49560K
September, 2010



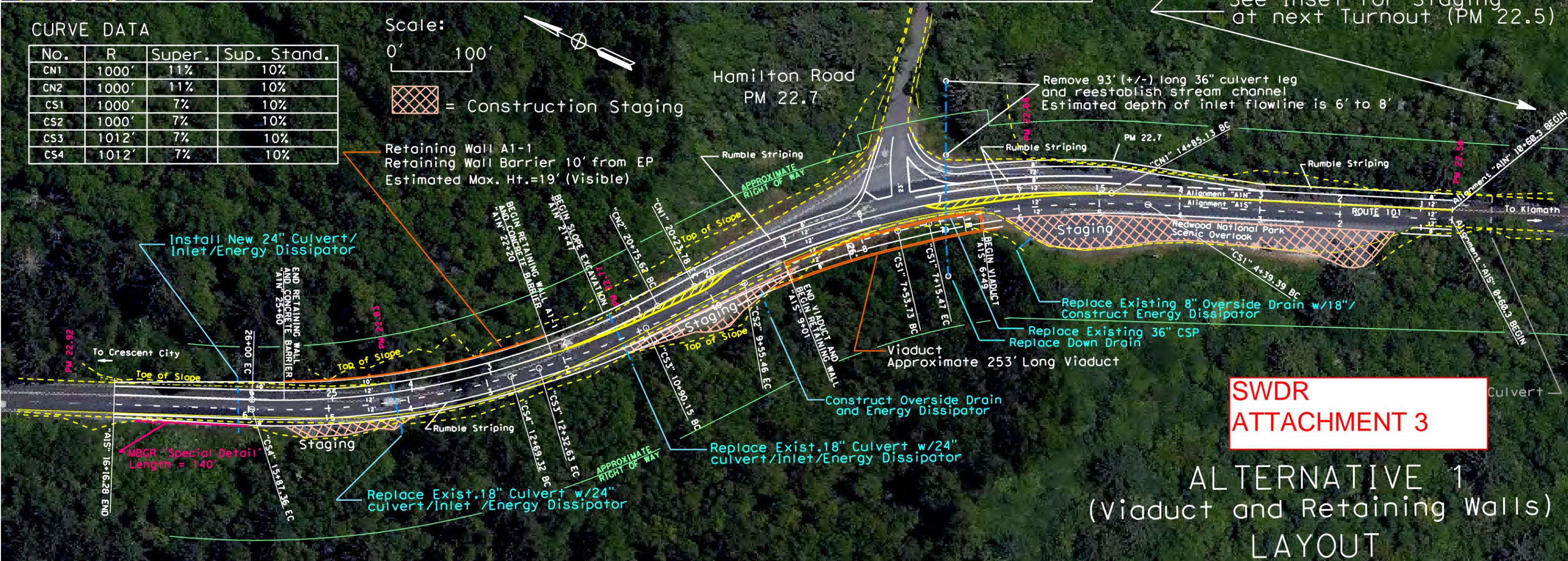
See Inset for Staging
at next Turnout (PM 22.5)

CURVE DATA

No.	R	Super.	Sup. Stand.
CN1	1000'	11%	10%
CN2	1000'	11%	10%
CS1	1000'	7%	10%
CS2	1000'	7%	10%
CS3	1012'	7%	10%
CS4	1012'	7%	10%

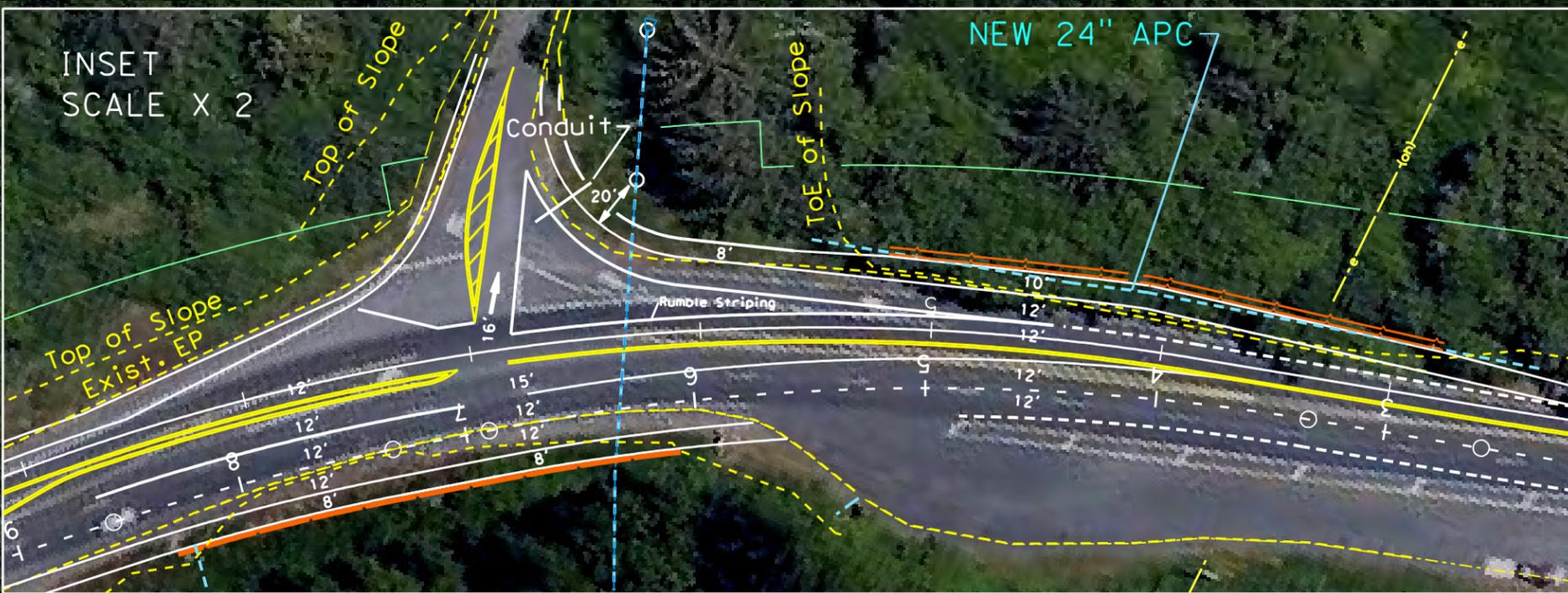
Scale: 0' 100'

= Construction Staging

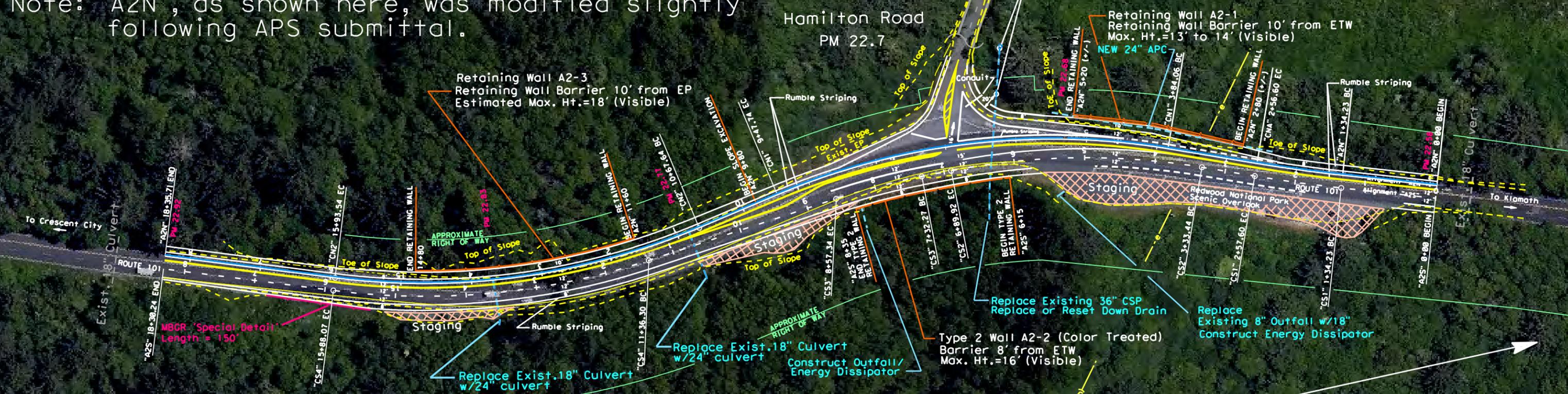


**SWDR
ATTACHMENT 3**

ALTERNATIVE 1
(Viaduct and Retaining Walls)
LAYOUT

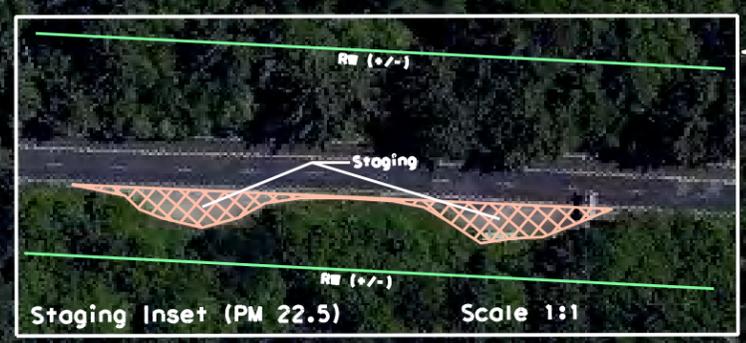


Note: "A2N", as shown here, was modified slightly following APS submittal.



CURVE DATA

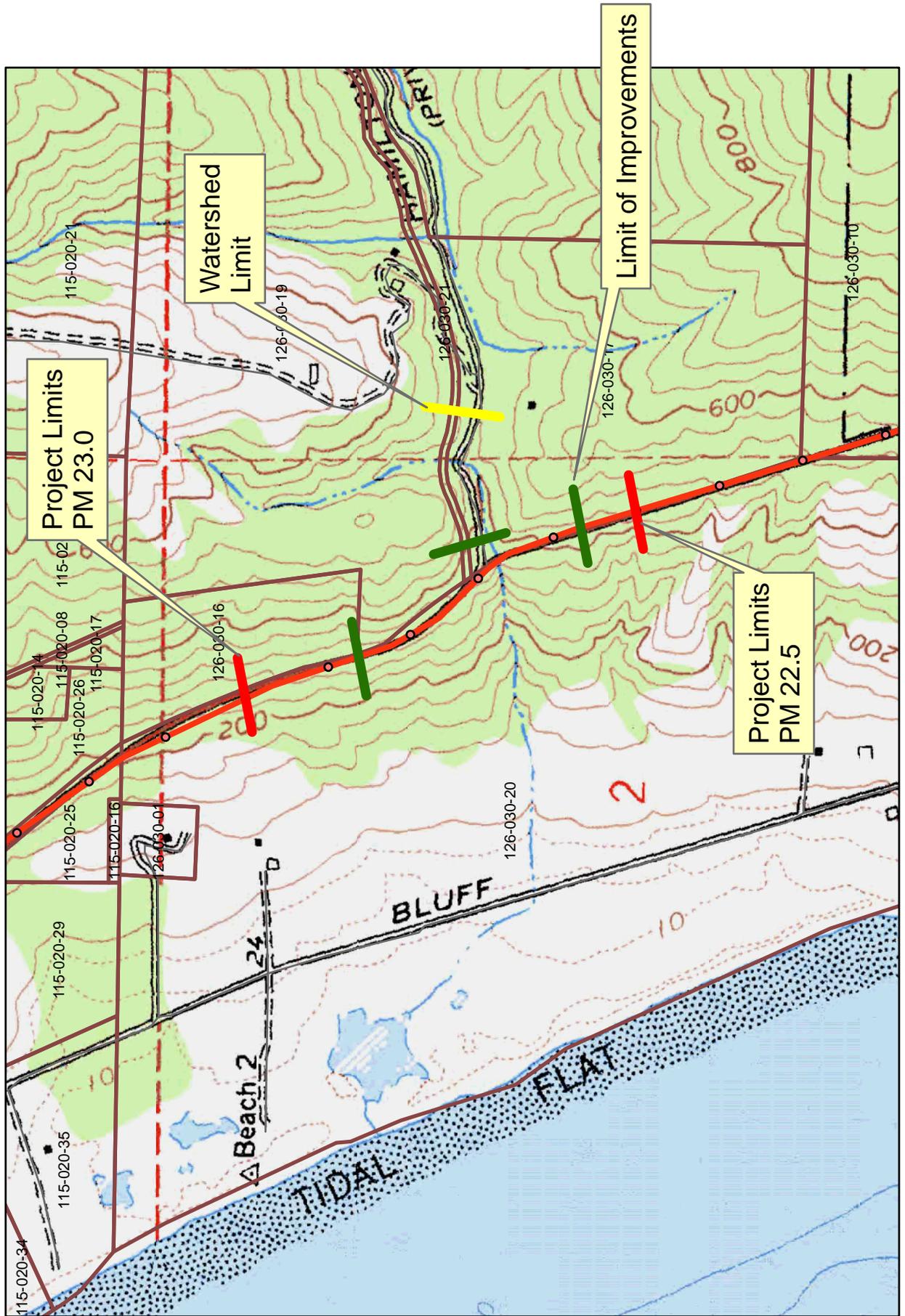
No.	R	Grade	Super.	Sup. Stand.
CNA	2200'	-7%	-5%	5%
CN1	1000'	-7%	+11%	10%
CN2	1000'	-7%	-11%	10%
CS1	2218'	7%	-5%	5%
CS2	1000'	7%	+8%	10%
CS3	1000'	7%	+8%	10%
CS4	1018'	7%	-8%	10%



SWDR ATTACHMENT 4

See Inset for Staging at next Turnout (PM 22.5)

ALTERNATIVE 2
 (Retaining Walls)
 LAYOUT



SWDR MAP Hum_DN_apn_Quad.mxd

		Sediment Risk		
		Low	Medium	High
Receiving Water Risk	Low	Level 1	Level 2	
	High	Level 2		Level 3

Project Sediment Risk: **High**
 Project RW Risk: **Low**
 Project Combined Risk: **Level 2**

01-DN-101-PM 22.5 to 23.0
 SHOPP (201.010)
 01-216 – 49560K
 01 0000 0491

SWDR
ATTACHMENT 6

	A	B	C
1	Sediment Risk Factor Worksheet		Entry
2	A) R Factor		
3	Analyses of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy (E) times the maximum 30-min intensity (I30) (Wischmeier and Smith, 1958). The numerical value of R is the average annual sum of EI30 for storm events during a rainfall record of at least 22 years. "Isoerodent" maps were developed based on R values calculated for more than 1000 locations in the Western U.S. Refer to the link below to determine the R factor for the project site.		
4	http://cfpub.epa.gov/npdes/stormwater/LEW/lewCalculator.cfm		
5		R Factor Value	128.53
6	B) K Factor (weighted average, by area, for all site soils)		
7	The soil-erodibility factor K represents: (1) susceptibility of soil or surface material to erosion, (2) transportability of the sediment, and (3) the amount and rate of runoff given a particular rainfall input, as measured under a standard condition. Fine-textured soils that are high in clay have low K values (about 0.05 to 0.15) because the particles are resistant to detachment. Coarse-textured soils, such as sandy soils, also have low K values (about 0.05 to 0.2) because of high infiltration resulting in low runoff even though these particles are easily detached. Medium-textured soils, such as a silt loam, have moderate K values (about 0.25 to 0.45) because they are moderately susceptible to particle detachment and they produce runoff at moderate rates. Soils having a high silt content are especially susceptible to erosion and have high K values, which can exceed 0.45 and can be as large as 0.65. Silt-size particles are easily detached and tend to crust, producing high rates and large volumes of runoff. Use Site-specific data must be submitted.		
8	Site-specific K factor guidance		
9		K Factor Value	0.21
10	C) LS Factor (weighted average, by area, for all slopes)		
11	The effect of topography on erosion is accounted for by the LS factor, which combines the effects of a hillslope-length factor, L, and a hillslope-gradient factor, S. Generally speaking, as hillslope length and/or hillslope gradient increase, soil loss increases. As hillslope length increases, total soil loss and soil loss per unit area increase due to the progressive accumulation of runoff in the downslope direction. As the hillslope gradient increases, the velocity and erosivity of runoff increases. Use the LS table located in separate tab of this spreadsheet to determine LS factors. Estimate the weighted LS for the site prior to construction.		
12	LS Table		
13		LS Factor Value	13.46
14			
15	Watershed Erosion Estimate (=RxKxLS) in tons/acre		363.302898
16	Site Sediment Risk Factor		High
17	Low Sediment Risk: < 15 tons/acre		
18	Medium Sediment Risk: >=15 and <75 tons/acre		
19	High Sediment Risk: >= 75 tons/acre		
20			
21	01-DN-101-PM 22.5 to 23.0		
22	SHOPP (201.010)		
23	01-216 – 49560K		
24	01 0000 0491		

SWDR
ATTACHMENT 6

Receiving Water (RW) Risk Factor Worksheet	Entry	Score
A. Watershed Characteristics	yes/no	
A.1. Does the disturbed area discharge (either directly or indirectly) to a 303(d)-listed waterbody impaired by sediment ? For help with impaired waterbodies please check the attached worksheet or visit the link below:	no	Low
2006 Approved Sediment-impaired WBs Worksheet		
http://www.waterboards.ca.gov/water_issues/programs/tmdl/303d_lists2006_epa.shtml		
OR		
A.2. Does the disturbed area discharge to a waterbody with designated beneficial uses of SPAWN & COLD & MIGRATORY?		
http://www.ice.ucdavis.edu/geowbs/asp/wbquse.asp		

01-DN-101-PM 22.5 to 23.0

SHOPP (201.010)

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SWDR
ATTACHMENT 6