FOUNDATION REVIEW

DIVISION OF ENGINEERING SERVICES
GEOTECHNICAL SERVICES

To: **Structure Design**
1. Design
2. R.E. Pending File
3. Specifications & Estimates
4. File

Geotechnical Services
1. GD - North ; South ; West
2 GS File Room

Date: 8/30/02

Route 56/15 Sep
Structure Name

11 - 50 - 15 - 31.2
District County Route km Post

District Project Development
District Project Engineer

11-080901 57-1130
E.A. Number Structure Number

Foundation Report By: H Valencia Dated: 8/28/02 ; 7/25/02

Reviewed By: S Inouye (SD) R Price (GS)

General Plan Dated: Foundation Plan Dated: 6/24/02

☒ No changes. ☐ The following changes are necessary.

FOUNDATION CHECKLIST

- ✓ Pile Types and Design Loads
- ✓ Pile Lengths
- — Predrilling
- ✓ Pile Load Test
- ✓ Substitution of H Piles For Concrete Piles ☐ Yes ☒ No
- ✓ Footing Elevations, Design Loads, and Locations
- ✓ Seismic Data
- ✓ Location of Adjacent Structures and Utilities
- ✓ Stability of Cuts or Fills
- ✓ Fill Time Delay
- ✓ Effect of Fills on Abutments and Bents
- ✓ Fill Surcharge
- ✓ Approach Paving Slabs
- ✓ Scour
- ✓ Ground Water
- ✓ Tremie Seals/Type D Excavation

Structure Design Bridge Design Branch No. 12

Geotechnical Services

Rev. 06/02

State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR. KEVIN ROSS
Structures Design
Office of Bridge Design South
Bridge Design Branch 12
MS - 9 - 3/3G

Attention: Kenny Kwong

Date: July 25, 2002

File: 11-SD-15-KP 31.3
11-080901
56/15 Separation (Replace)
Br. No. 57-1130

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design - South MS #5

Subject: Foundation Recommendations

Introduction

This report presents the foundation recommendations for the proposed Route 56/15 Separation, Br. No. 57-1130, which will replace the existing Route 56/15 Separation, Br. No. 57-0945. The Structure Foundations 2, Branch F (SF2BF) of the Office of Geotechnical Design South (OGDS) completed a foundation investigation pursuant to the October 9, 2001 request by the Office of Bridge Design South (OBDS) for a foundation investigation and recommendations for the proposed widening.

The following foundation recommendations are based on the subsurface information gathered during the recent foundation investigation (March 2002) along with a review of the previous foundation reports, "As-Built" records and Log of Test Borings (LOTB) for the existing bridge. Also, information was analyzed from a Foundation Recommendation (August 2000) and foundation investigation (June 2000) for a proposed tie-back walls at this structure site. With regards to the current foundation recommendations given in this report, elevations are based on NAVD 88 vertical datum and horizontal coordinates are based on CCS 83 horizontal datum.

Project / Site Description

The existing structure site is located in the Rancho Penasquitos area where Route 56 and Route 15 intersect. At this location, Route 56 presently consists of a 4 lane highway, which crosses over Route 15, which consists of an 8 lane divided highway. The existing bridge was constructed in 1986 and consists of two-span, cast-in-place, pre-stressed concrete box girder structures supported on Cast-In-Drilled Hole (CIDH) pile foundations.

The proposed bridge, which measures approximately 126.8m in length and 44.7m in width, will replace the existing bridge.

The proposed new bridge will consist of a three span, cast-in-place, pre-stressed concrete box girder structure, which will accommodate the proposed Route 15 managed lanes. The layout of the proposed widened structure is shown on the 56/15 Separation, General Plan No. 1, provided by OBDS and dated March 20, 2002.

Geology

The recent foundation investigation performed for the proposed replacement structure consisted of four mud-rotary, sampled borings advanced with wireline-diamond coring methods to a maximum depth of 27.58 m (90.5 ft). In general, the geology at the proposed bridge site consists of fill earth materials underlain by variably weathered, igneous rock.

The March 2002 foundation investigation revealed that earth materials encountered at the site can be generally separated into two units. At the Bent locations, the upper unit is a thin layer of fill material consisting of silty/clayey sand, sandy clay and lean clay. These fill soils extend from the ground surface to a maximum depth of 2.4 meters (elevation 166.0 m) in Boring B-2-02 and to a minimum depth of 0.9 meters (elevation 167.2 m) in Boring B-4-02. The lower unit consists of variably weathered, variably very soft to very hard igneous rock. This unit is typically decomposed and very soft to an approximate depth of 15.5 m (elevation 162.7). Below this point, the igneous rock is typically moderately soft to soft with moderately hard zones to a maximum depth ranging from 12.2 m to 14.3 m in boring B-1-02, B-2-02 and B-3-02 except in B-4-02 where the rock was predominately moderately hard to hard. Below elevations ranging from 155.6 m and 148.5 m, the igneous rock was typically very hard to hard.

At the Abutment 1 and 4 locations, roadway distress was identified in the bridge embankment fills. Approach slabs at both abutments were saw-cut parallel to the abutment line in order to limit the amount of distress cracks that had developed in the slabs. Side slopes adjacent to the abutments showed evidence of minor slip outs. Review of the subsurface information (June 2000) gathered for the proposed tie-back wall identified poorly compacted embankment fill at both abutments, which consisted of medium dense clayey and silty sand with clay and gravel zones underlain by variably weathered igneous rock.

During the 1983 foundation investigation for the existing structure, similar earth materials were identified at the site and groundwater was measured in Boring B-2 at elevation 159.5 m (523.16 ft-NGVD 29). The borings for the 2002 field investigation were drilled within a lane closure, therefore, subsequent groundwater measurements were not feasible and not measured.

Corrosion

Soil samples collected during the 2002 foundation investigation were combined from one boring (B-3-02) to make two composite samples of native earth materials at depth. The Office of Testing and Technology Services, Corrosive Technology Branch (CTB) tested the composite sample for corrosive potential. The results of the laboratory tests determined that the composite sample was not corrosive. Refer to Table 1 below for specific test results.

Table 1: Corrosion Test Summary-Composite Samples for Boring B-3-02

Support Location/ Corrosion Number	Sample Depth (m)	pH	Minimum Resistivity (Ohm-Cm)	Sulfate Content (PPM)*	Chloride Content (PPM)*	Years To Perforation 18 ga. Galv. Steel Culvert
Bent 3 / 02-0213	0 to 1.6	8.72	2100	N/A	N/A	N/A
Bent 3 / 02-0214	1.6 to 10.8	8.39	1500	N/A	N/A	N/A

*The Corrosion Technology Branch policy states that if the minimum resistivity is greater than 1000ohm-cm the sample is considered to be non-corrosive and testing to determine sulfate and chloride contents are not performed.

Soil samples collected for the proposed tie-back wall subsurface investigation at the existing structure site (August 2000) indicated that abutment fill soils were also not corrosive.

Seismic Data

The site is potentially subject to strong ground motions from nearby earthquake sources during the design life of the new structure. The Newport-Inglewood Rose Canyon Fault/E (NIE, Strike-Slip) fault located approximately 18 km southwest from the site is the controlling fault for this site with a maximum credible earthquake of Mw=7. The Peak Bedrock Acceleration at this site, based on the Caltrans California Seismic Hazard Map, is estimated to be 0.3g. At this site, the liquefaction potential is considered to be minimal..

For site specific seismic data and design recommendations, refer to the memorandum concerning final seismic design recommendations dated July 19, 2002, by Daniel Meyersohn of the Office of Geotechnical Earthquake Engineering.

"As-Built" Information

The original foundation report (1983) and As-Built records (1986) indicate that the bridge foundations for both structures consist of Cast-in-Drilled Hole (CIDH) piles at all support locations. At the Abutment 1 and 4 locations, 400-mm diameter CIDH piles with a design load of 625 kN (70 tons) were used for support. At the Bent 2 location, 2.1 m diameter CIDH shafts with a design load of 18,237 kN (2050 tons) were used for support. The specified tip elevations provided by the Office of Engineering Geology in 1983 for the bridge are listed below in Table 2 and Table 3.

Table 2. "As-built" 400-mm Diameter CIDH Pile Tip Elevations

Location	Specified Pile Tip Elevation	Minimum "As-built" Pile Tip Elevation	Average "As-built" Pile Tip Elevation	Maximum "As-built" Pile Tip Elevation
Abutment 1	162.2 m (532.0 ft)	161.2 m (528.75 ft)	161.8 m (530.8 ft)	163.9 m (537.65 ft)
Abutment 3	163.1 m (535.0 ft)	162.2 m (532.15 ft)	162.8 m (534.0 ft)	163.2 m (535.52 ft)

Table 3. "As-built" 2.1-m Diameter CIDH Pile Tip Elevations

Location	Specified Pile Tip Elevation	"As-built" Pile Tip Elevation*
Bent 2 Left Column	155.1 m (509.0 ft)	154.5 m (506.9 ft)
Bent 2 Center Column	155.1 m (509.0 ft)	154.6 m (507.1 ft)
Bent 2 Right Column	155.1 m (509.0 ft)	154.3 m (506.3 ft)

*Due to a discrepancy between the "As-built" pile tip elevations shown on the General Plan and the CIDH drilling records, "As-built" pile tip elevations shown are the average between the two. The variance between the "As-built" pile tip elevations shown on the General Plan and the CIDH drilling records are: Left Column: 137 mm (5.4 in.); Center Column: 76.2 mm (3.0 in.); Right Column: 290 mm (11.4 in.).

Foundation Recommendations

The following recommendations are for the proposed 56/15 Separation (Br. No. 57-1130), as shown on the General Plan dated March 20, 2002. At the Abutment 1 and 4 locations, spread footing foundations are recommended for support. At the Bent 2 and 3 locations, large diameter CIDH shafts will be used for support.

Bridge Foundations

Based on the Foundation Plan (dated June 24, 2002) received from OBDS, the proposed bottom of footings foundations will be embedded within igneous rock at Abutment 1. At the Abutment 4 location, subsurface information indicates the proposed footing would be partially situated on poorly compacted fill and igneous rock. In order to eliminate differential settlement, sub-excavation of earth materials below the proposed Abutment 4 bottom of footing elevation down to elevation 164.5 m and replacement with Class 4 concrete is recommended. The Gross Allowable Soil Bearing Pressures to be used for design are listed below in Table 4.

Table 4: Spread Footing Data Table (Bridge No. 57-1130)

Support Location	Minimum Footing Width	Bottom of Footing Elevation	Sub-Excavation Elevation	Recommended Soil Bearing Pressures	
				ASD[1]	LFD[2]
				Gross Allowable Soil Bearing Pressure (q_{all})	Ultimate Soil Bearing Pressure (q_{ult}^*)
Abutment 1 (Left Side)	5.5 m	165.00 m	N/A	431 kPa (9.0 ksf)	N/A
Abutment 1 (Right Side)	5.5 m	164.55 m	N/A	431 kPa (9.0 ksf)	N/A
Abutment 4 (Left Side)	5.5 m	165.65 m	164.5 m	359 kPa (7.5 ksf)	N/A
Abutment 4 (Right Side)	5.5 m	165.20 m	164.5 m	359 kPa (7.5 ksf)	N/A

Notes: 1) Allowable Stress Design, (ASD). The Maximum Contact Pressure, (q_{max}), is not to exceed the recommended Gross Allowable Soil Bearing Pressure, (q_{all}). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed 3 times the recommended Gross Allowable Soil Bearing Pressure, (q_{all}).
2) Load Factor Design, (LFD). The Maximum Contact Pressure, (q_{max}), divided by the Strength Reduction Factor, (ϕ), is not to exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*).

The recommended Gross Allowable Soil Bearing Pressures to be used for design for the proposed structure support spread footings, listed above in Table 4, are based on the following criteria:

- At Abutment 1, concrete for the structure support footing shall be placed neat against the undisturbed, igneous rock on the bottom of the footing excavation.
- At Abutment 4 (Left Side), the footing shall be supported on 1.2 meters of Class 4 concrete extending down to elevation 164.5 m. The limits of sub-excavation and replacement with Class 4 concrete shall conforms to the same limits required for relative compaction of engineered fill below retaining wall footings without piles as defined in section 19-5.03 of the Standard Specifications.
- At Abutment 4 (Right Side), the footing shall be supported on 0.7 meters of Class 4 concrete extending down to elevation 164.5 m. The limits of sub-excavation and replacement with Class 4 concrete shall conforms to the same limits required for relative compaction of engineered fill below retaining wall footings without piles as defined in section 19-5.03 of the Standard Specifications.
- Support footings shall have a minimum footing width of 5.5 meters at Abutment 1 and Abutment 4.
- All footings are to be constructed at or below the recommended bottom of footing elevations provided above in Table 4.

If any of the above minimum footing widths or limits of sub-excavation are reduced, the Office of Geotechnical Design South, Structure Foundations 2 - Branch F shall be contacted for reevaluation.

At Bents 2 and 3 support locations, it is possible to utilize 1.8-m Cast-In-Drilled-Hole (CIDH) shafts for support. The specified pile tip elevations, listed below in Tables 5, were developed using information received from OBDS on July 5, 2002. The ultimate geotechnical pile capacity for the CIDH piles will meet or exceed the required nominal resistance in compression listed below in Table 5.

Table 5: Pile Data: Proposed 56/15 Separation Bridge (Br. No. 57-1130)

Support Location	Pile Type	Design Loading	Nominal Resistance		Pile Cut-Off Elevation (m)	Design Tip Elevation (m)	Specified Tip Elevation (m)
			Compression	Tension			
Bent 2 (Left Side)	1.8 m CIDH	N/A	17800 kN	0 kN	166.3	146.1 (1)	146.1
Bent 2 (Right Side)	1.8 m CIDH	N/A	17800 kN	0 kN	165.9	146.1 (1)	146.1
Bent 3 (Left Side)	1.8 m CIDH	N/A	17800 kN	0 kN	166.7	151.1 (1)	151.1
Bent 3 (Right Side)	1.8 m CIDH	N/A	17800 kN	0 kN	166.3	151.1 (1)	151.1

Note: Design tip elevation is controlled by the following demands: (1) Compression

Retaining Wall Foundations

The proposed Type 1 Retaining Wall structures at the bridge Abutment 1 & 4 locations may all be supported with spread footing foundations. The following recommendations are for standard Type 1 Retaining Walls as shown in the "Standard Plans (July 1999)" on sheet B3-1 with Loading Case I.

The Gross Allowable Soil Bearing Pressures that may be used for design are listed below in Table 6 and Table 7.

Table 6. Spread Footing Data: Type 1 - Retaining Walls (Abutment 1)

Support Locations	Approximate Locations (Referenced from " SR56" Line)[3]	Design Height of Wall (m)	Sub-Excavation Elevation (m)	Bottom of Footing Elevation[3] (m)	Recommended Soil Bearing Pressures	
					ASD[1]	LFD[2]
					Gross Allowable Soil Bearing Pressure (q_{all})	Ultimate Soil Bearing Pressure (q_{ult}*)
Abutment 1 (Left Wall)	Begin Wall 23.3 m Lt. Sta. 165+88.7	7.9 m	166.0 m	169.05 m	255 kPa (2.7 tsf)	N/A
Abutment 1 (Left Wall)	End Wall 22.8 m Lt. Sta. 165+99.7	9.7 m	166.0 m	166.90 m	300 kPa (3.1 tsf)	N/A
Abutment 1 (Right Wall)	Begin Wall 22.3 m Rt. Sta.165+55.3	6.1 m	166.0 m	168.80 m	205 kPa (2.1 tsf)	N/A
Abutment 1 (Right Wall)	End Wall 22.3 m Rt. Sta.165+66.8	7.3 m	166.0 m	166.90 m	235 kPa (2.5 tsf)	N/A

Notes: 1) Allowable Stress Design, (ASD). The Maximum Contact Pressure, (q_{max}), is not to exceed the recommended Gross Allowable Soil Bearing Pressure, (q_{all}). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed 3 times the recommended Gross Allowable Soil Bearing Pressure, (q_{all}).
2) Load Factor Design, (LFD). The Maximum Contact Pressure, (q_{max}), divided by the Strength Reduction Factor, (ϕ), is not to exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*).
3) Wall locations and bottom of footing elevations were provided by OBDS via email dated 7-9-02 and 7-22-02, respectively.

Table 7. Spread Footing Data: Type 1 - Retaining Walls (Abutment 4)

Support Locations	Approximate Locations (Referenced from "SR 56" Line)[3]	Design Height of Wall (m)	Sub-Excavation Elevation (m)	Bottom of Footing Elevation[3] (m)	Recommended Soil Bearing Pressures	
					ASD[1]	LFD[2]
					Gross Allowable Soil Bearing Pressure (q_{all})	Ultimate Soil Bearing Pressure (q_{ult}^*)
Abutment 4 (Left Wall)	Begin Wall 22.3 m Lt. Sta.167+31.4	7.3 m	164.5 m	168.0 m	235 kPa (2.5 tsf)	N/A
Abutment 4 (Left Wall)	End Wall 22.3 m Lt. Sta.167+42.2	5.5 m	164.5 m	169.90 m	190 kPa (2.0 tsf)	N/A
Abutment 4 (Right Wall)	Begin Wall 22.3 m Rt. Sta.167+06.2	7.9 m	164.5 m	167.45 m	255 kPa (2.7 tsf)	N/A
Abutment 4 (Right Wall)	End Wall 22.3 m Rt. Sta.167+16.0	6.1 m	164.5 m	169.45 m	205 kPa (2.1 tsf)	N/A

Notes: 1) Allowable Stress Design, (ASD). The Maximum Contact Pressure, (q_{max}), is not to exceed the recommended Gross Allowable Soil Bearing Pressure, (q_{all}). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed 3 times the recommended Gross Allowable Soil Bearing Pressure, (q_{all}).
2) Load Factor Design, (LFD). The Maximum Contact Pressure, (q_{max}), divided by the Strength Reduction Factor, (ϕ), is not to exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*). The Ultimate Soil Bearing Capacity, (q_{ult}), will equal or exceed the recommended Ultimate Soil Bearing Pressure, (q_{ult}^*).
3) Wall locations and bottom of footing elevations were provided by OBDS via email dated 7-9-02 and 7-22-02, respectively.

The recommended Gross Allowable Soil Bearing Pressures, listed above in Table 6 and Table 7, are based on the following criteria:

- At the Abutment 1 location, due to poorly compacted embankment fill soils (described in the geology section), earth materials below the proposed retaining wall bottom of footings will be removed down to elevation 166.0m. The fill material sub-excavated below the proposed bottom of footing elevations shall be replaced with structure backfill compacted to 95% relative compaction (RC).
- At the Abutment 4 location, due to poorly compacted embankment fill soils (described in the geology section), earth materials below the proposed retaining wall bottom of footings will be removed down to elevation 164.5m at Abutment 4 (Left Side) and 164.5m at Abutment 4 (Right Side). The fill material sub-excavated below the proposed bottom of footing elevations shall be replaced with structure backfill compacted to 95% RC.
- The limits of sub-excavation and replacement with structure backfill compacted to 95% RC shall conform to the limits required for relative compaction under retaining wall footings without piles as defined in section 19-5.03 of the Standard Specifications.
- All spread footings are to be positioned such that they have a minimum horizontal footing embedment of 1.2m, measured from the top of footing at the toe to the face of the finished slope (per Bridge Design Specifications 4.4.2.1).
- All spread footings shall have a footing width (W) that corresponds to the specified wall height (H) as show on the "Standard Plans (July 1999)."

If the any of the above minimum footing widths or sub-excavation limits are reduced, the Office of Geotechnical Design South, Structure Foundations 2 - Branch F shall be contacted for reevaluation.

General Notes

1. All support locations are to be plotted on the Log of Test Borings, in plan view, as stated in "Memos to Designers" 4-2. The plotting of the support locations should be made prior to the foundation review.

2. The structure engineer shall show on the plans, in the pile data table, the minimum pile tip elevation required to meet the lateral load demands. If the specified pile tip elevation required to meet lateral load demands exceed the specified pile tip elevation given within this report, the Office of Geotechnical Design South, Structure Foundations 2 Branch F should be contacted for further recommendations.

Construction Considerations

1. At Abutment 1, support footing excavations are to be inspected and approved by a representative of the Office of Geotechnical Design South, Structure Foundations 2 Branch F. The inspections are to be made after the excavation has been completed to the specified bottom of footing elevation and prior to placing any steel or concrete in the excavation.

2. At Abutment 4, support footing excavations are to be inspected and approved by a representative of the Office of Geotechnical Design South, Structure Foundations 2 Branch F. The inspections are to be made after the excavation has been completed to the specified sub-excavation elevation listed above in Table 4 and prior to placing Class 4 concrete in the excavation.

3. At the Abutment 1 and 4 locations, shear keys shall be incorporated into the foundation footing design.

4. At Abutment 4, it is recommended that a shear key, with adequate dimensions to accommodate the proposed shear key as shown in the abutment detail sheets, be formed in the top of the Class 4 concrete.

5. At Bent 2 and 3 locations, the calculated geotechnical capacity of the CIDH piles is based upon Skin Friction and End Bearing. Due to the high end bearing requirements of the CIDH shafts at Bent 2 & 3 locations, the bottom of the drilled holes are to be cleaned out, inspected and approved by the engineer prior to placement of the reinforcement cage and concrete. Also, because of the end bearing requirements for the CIDH piles, if any pile locations are drilled beyond the specified pile tip elevation, the reinforcement cage is to be

extended accordingly. At Bent 2, the specified pile tip elevations (SPTE) were controlled by limiting the calculated shaft settlement to a maximum value of 13mm. The Bent 2 CIDH shaft lengths are approximately 4.6 m longer than Bent 3 CIDH shafts due to highly fractured (low RQD) rock near the SPTE. At Bent 3, the specified pile tip elevations (SPTE) were controlled by penetrating the pile tips 1.5 meters into more competent and slightly fractured (high RQD) rock near the SPTE.

6. Caving conditions may be encountered during CIDH pile construction. Temporary casing may be necessary to control caving during construction. All temporary casing is to be removed during concrete placement.

7. Groundwater was encountered during drilling of 1983 test borings and it is anticipated that groundwater will be encountered during CIDH pile construction. The borings for the 2002 field investigation were drilled within lane closures, therefore, subsequent groundwater measurements were not feasible and not measured. Groundwater surface elevation is subject to seasonal fluctuations and may occur higher or lower depending on the conditions and time of construction.

8. De-watering of drilled shaft excavations is anticipated to be feasible at all support locations where groundwater is encountered. The contractor is required to keep drilled excavations dry, where groundwater is encountered by pumping methods, immediately after the boring has reached the specified pile tip elevation until the time concrete is placed for construction of the shaft.

9. Difficult drilling and pile installation is anticipated due to the presence of very hard igneous rock as described in the geology section. Hard rock drilling should be anticipated to advance the shaft excavations to the specified pile tip elevations.

The recommendations contained in this report are based on specific project information regarding design loads and structure locations that has been provided by OBDS. If any conceptual changes are made during final project design, the Office of Geotechnical Design South, Structure Foundations 2 Branch F should review those changes to determine if these foundation recommendations are still applicable.

56/15 Separation (Replace)
Br. No. 57-1130
11-080901

Any questions regarding the above recommendations should be directed to the attention of Hector Valencia (916) 227-4555 (CALNET 498-4555) or Mark DeSalvatore (916) 227-5391 (CALNET 498-5391), Office of Geotechnical Design South, Structure Foundations 2 Branch F.

Prepared by: Date: 7-25-02

Supervised by: Date: 7/25/02

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State of California

Business, Transportation and Housing Agency

Memorandum

Flex your power!
Be energy efficient!

To: MR.MADWESH RAGHAVENDRACHAR
Structures Design
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Bridge Design Branch 12
MS - 9 - 3/3G

Attention: Kenny Kwong

Date: August 28, 2002

File: 11-SD-15-KP 31.3
11-080901
56/15 Separation (Replace)
Br. No. 57-1130

From: **DEPARTMENT OF TRANSPORTATION**
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design - South MS #5

Subject: Amended Foundation Recommendations

The purpose of the revised foundation recommendations is to correct two errors in the Retaining Wall Foundations section of the original foundation recommendations for the 56/15 Separation, dated July 25, 2002. The identified errors in the section mentioned above include a reference to the "Standard Plans" and a reference station line on Tables 6 & Tables 7. The two items to be changed are as follows.

1. In 1st paragraph on page 6 of the original foundation recommendations, the standard Type 1 Retaining Walls reference only sheet B3-1 of "Standard Plans (July 1999)." However, sheet B3-2 of the "Standard Plan (July 1999) should also be referenced because there is a proposed Type 1 Retaining Wall with a height of 9.7m at this bridge site.

2. In Tables 6 & 7 on pages 6 & 7 of the original foundation recommendations, the proposed Type 1 Retaining Walls are referenced to the "SR56" Line, however, the walls should be referenced to the "56BR" Line.

The revisions contained in this "Amended Foundation Recommendations" are based on specific project information regarding structure locations and structure type that has been provided by OBDS. If any conceptual changes are made during final project design, the Office of Geotechnical Design South, Structure Foundations 2 Branch F should review those changes to determine if these foundation recommendations are still applicable.

Any questions regarding the above recommendations should be directed to the attention of Hector Valencia (916) 227-4555 (CALNET 498-4555) or Mark DeSalvatore (916) 227-5391 (CALNET 498-5391), Office of Geotechnical Design South, Structure Foundations 2 Branch F.

Prepared by: Date: 8-28-02 Supervised by: Date: 8/29/02

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RGES 31