

INFORMATION HANDOUT

For Contract No. 11-405504

At 11-SD-8-6.9/8.2

Identified by

Project ID 1100020122

MATERIALS INFORMATION

Geotechnical Design Report

- Geotechnical Design Report, dated May 2, 2013

Site Investigation Report

- Lead Investigation Report, dated March 1999

Water Source Information

- City of San Diego Water District, dated TBD



GEOTECHNICAL DESIGN REPORT

**Replace Metal Beam Guard Rail with Concrete Barrier
on Interstate 8 from West of Waring Road to West of College Avenue**

11-SD-8-(PM) 6.9/8.2

**EA 11-405501
EFIS 1100020122**

May 2, 2013

Prepared By:

**OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2 BRANCH D
7177 OPPORTUNITY ROAD
SAN DIEGO, CA 92111**

Memorandum

To: Mr. Richard Estrada
Project Design Manager

Date: May 2, 2013

File: 11-SD-8-(PM) 6.9-8.2
EA 11-405501/EFIS 1100020122

From: DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Geotechnical Services
Office of Geotechnical Design – South 2 Branch D

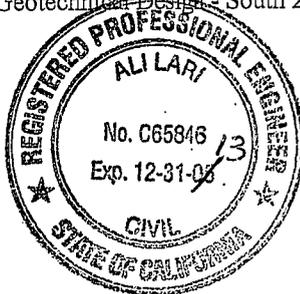
Subject: Geotechnical Design Report for Concrete Barrier on Interstate 8 from west of Waring Road to west of College Avenue.

Pursuant to your request, the Office of Geotechnical Design-South 2 (OGDS2) has prepared this Geotechnical Design Report (GDR) for the proposed Concrete Barrier on Interstate 8 from west of Waring Road to West of College Avenue.

This GDR documents the prevailing site conditions and provides specific recommendations for the project features. The report defines the geotechnical conditions as evaluated from field investigations data and used in the geotechnical analyses and design. This report provides recommendations for project design and construction.

Please ensure that this GDR is included in the District Resident Engineer (RE) Pending File. OGDS2 staff will be available for further assistance. Should you have any questions or comments regarding this report, please contact Ali Lari at (858) 467-6922.

Ali Lari, P.E.
Transportation Engineer (Civil)
Office of Geotechnical Design - South 2



CARBON COPY (CC) LIST

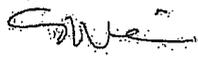
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District Construction R.E. Pending File	It is the responsibility of the Project Design Manager to include this document in the District Construction R.E. Pending File.

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1.0 INTRODUCTION

This Geotechnical Design Report (GDR) has been prepared by the Office of Geotechnical Design South-2 (OGDS2) to address the geotechnical design and construction considerations for the proposed concrete barrier to be constructed along the eastbound median shoulder and along the westbound outside shoulder of Interstate 8 (I-8), from 0.1 mile west of the Waring Road undercrossing to 0.1 mile west of the College Avenue overcrossing in the City of San Diego, San Diego County, California, hereafter referred to as the project. The project location is depicted in Figure 1.

The purpose of this GDR is to document subsurface geotechnical conditions, provide engineering evaluation of site conditions, and provide recommendations relevant to the design and construction of the project features. This report establishes a geotechnical baseline to be used in assessing the existence and scope of changed site conditions. The geotechnical information, evaluations, recommendations, and advisories contained in this GDR supersede any information that may have been previously conveyed through correspondences or documents concerning the project features addressed herein. A Preliminary Geotechnical Design Report was prepared in 2011 for this project.

This GDR is based on site reconnaissance, research of archived resources, subsurface exploration, and engineering analyses.

2.0 EXISTING FACILITIES AND PROPOSED IMPROVEMENT

I-8 is one of the most significant transportation facilities in the region connecting San Diego County to Imperial County, and onward to Arizona. The freeway is heavily travelled and often congested during peak hour traffic.

Project layout plans are presented in Figures 2A through 2E. Within the project area, eastbound and westbound I-8 each consists of five twelve-foot (12 ft) lanes with an eight-foot (8 ft) wide inside shoulder and a ten-foot (10 ft) wide outside shoulder. The grade separation between the eastbound and westbound freeway lanes varies in height from a few feet to approximately sixty feet (60 ft). An existing metal beam guard rail on wood posts borders the eastbound freeway shoulder.

An existing sound berm borders the westbound freeway shoulder. The sound berm begins at the Waring Road off-ramp and ends at about station 541+66.

Construction of the freeway with the current configuration was completed before September 1958.

Directly across eastbound I-8 for much of the proposed concrete barrier alignment, a Light Rail Transit (LRT) facility is located within the freeway right-of-way on the slope above and to the south of the freeway lanes. The elevated LRT facility includes cut slopes, fill slopes, retaining walls, and a bridge. The operation of this LRT segment began in 2005. Residential development is present beyond the right-of-way and slopes above the LRT facility. Residential developments and open space buffers exist in the canyon below westbound I-8.

In the project area, I-8 traverses along the north facing slope of Alvarado Canyon; therefore, eastbound and westbound I-8 are constructed on a grade separated side hill alignment. At locations of minimal shoulder backing and steeply inclined slope between the eastbound and westbound freeway lanes, it will be necessary to construct portions of the concrete median barrier on pile foundations in order to provide the necessary lateral resistance to counteract forces that will act on the barrier. At locations where a sound berm exists along the westbound shoulder the barrier should be embedded at the toe of the sound

berm to provide lateral resistance to both impact forces and active earth pressures that will act on the barrier.

3.0 PERTINENT REPORTS AND INVESTIGATIONS

The following reports and archived documents were reviewed during the investigation conducted for this report:

- Group Delta Consultants, Inc., Draft Geotechnical Design Report, Grantville Segment, Mission Valley East LRT. June 23, 2000.
- As built plans from contract no. 59-11VC12, Construct Six Lane Divided Highway, completed on September 1958.
- Preliminary Geotechnical Design Report prepared by Office of Geotechnical Design South-2 Branch C, May 13, 2011.

4.0 PHYSICAL SETTING

The project lies within a transitional zone of interior inland influence and oceanic influence. The winters are mild and wet and the summers are moderate and dry. The mean yearly rainfall in the project area is 13 inches. Rainfall usually occurs between the months of November and April. Rare tropical storms during summer months can deliver short, intense downpours.

Between Waring Road and College Avenue eastbound I-8 climbs eastward at a mild gradient. However, the south to north topography transverse to the freeway alignment is much more severe. An elevation difference greater than 300 ft separates San Diego Mesa from the base of Alvarado Canyon. The freeway alignment and LRT facility traverse the relatively abrupt transition between the mesa and canyon landforms. Therefore, the terrain hosting the freeway and rail facilities features steep native slopes, steep cut slopes, steep fill slopes, and retaining walls.

Area drainage trends from south to north through arroyos, cross culverts, and roadway drainage systems that are tributary to Alvarado Canyon. Alvarado Canyon drains westward to the San Diego River.

5.0 EXPLORATION

A surface and subsurface investigation was conducted to help characterize the soil conditions present within the project alignment such as the presence of groundwater, depth and quality of artificial fills, and other conditions that could impact the design or construction of the proposed project features.

5.1 Drilling and Sampling

Five exploratory hollow stem auger borings were conducted on December 4 and 5, 2012 along the barrier alignment. The soil borings were advanced into the ground up to a maximum depth of thirty-two feet (32 ft). Standard Penetration Tests (SPT) were performed at five-foot (5 ft) intervals. Additionally, five pot holes were conducted on the median slope adjacent to the proposed concrete barrier. Soil samples were visually identified in the field. Several samples were sent for laboratory testing. The borings and pot holes locations are depicted in Figures 2A-2D.

Boring Records are included in Appendix I.

5.2 Geologic Mapping

No geologic map was prepared for this project; however, a geologic profile is depicted in Figures 3A-3E to present the subsurface soils along the concrete median barrier layout line. The geologic profile is

presented on the as-built profile from Contract No. 59-11VC12. This as-built profile shows notable stations that coincide with the project.

5.3 Geophysical Studies

No geophysical studies were conducted for the preparation of this GDR.

5.4 Instrumentation

No geotechnical instrumentation was installed for this project

5.5 Exploration Notes

- All borings were backfilled with soil cuttings. Asphalt concrete was used at the top section of the holes to reestablish roadway grade.

- No potentially hazardous waste was identified during this study.

- Survey notes are presented in Appendix I. The survey notes present stations, offsets and elevations of the boring locations along the layout line of the proposed concrete barrier.

6.0 GEOTECHNICAL TESTING

The sections below describe the in-situ and laboratory testing program performed for the proposed project.

6.1 In Situ Testing

Standard Penetration Tests (SPT) and Pocket Penetrometer measurements (PP) were performed during the subsurface investigation. SPT were performed using a CME Auto Hammer at five-foot (5 ft) depth intervals during the development of each boring. SPT followed ASTM 1586 utilizing a 140 lbs hammer with a free fall drop of 30 inches. SPT blow counts were used to determine the apparent density of cohesionless soils.

PP measures consistency of cohesive soil (AASHTO 1988 and Bureau of Reclamation 2001).

6.2 Laboratory Testing

Laboratory tests were performed on disturbed samples obtained during the subsurface investigation. Laboratory tests performed included:

- Mechanical Analyses (ASTM D422)
- Atterberg Limits (AASHTO T89, T90)
- Moisture Content (ASTM D2216, AASHTO T265)
- Unit Weight (ASTM D4767)
- Direct Shear (ASTM D3080), remolded
- Resistivity (CTM 643)
- Sulfates (CTM 417)
- Chlorides (CTM 422)
- PH (EPA 9081)

The laboratory test results are presented in the Appendix II.

7.0 GEOTECHNICAL CONDITIONS

The following section describes geotechnical conditions that will affect the project.

7.1 Site Geology

The project area lies within the Peninsular Ranges Geomorphic Province of California. Basement rock of the Jurassic-age Santiago Peak Volcanics underlies the entire area with an irregular contact surface found

at depth beneath sedimentary strata, alluvium, or fill, and found outcropping at the ground surface. Relatively flat lying tertiary-age sedimentary formations of the San Diego embayment overlie much of the basement rock. These formations include the Friar's Formation (Tf) and Stadium Conglomerate (Tst). Quaternary-age colluvium/slopewash and alluvium occupy the surfaces of native slopes, arroyos and canyon bottoms. Artificial fill has been placed atop these natural formations.

7.1.1 Lithology

The following formations, presented from youngest to oldest, are found in the project area.

Artificial Fill (Qf): Artificial fill in the project area appears to be derived from material excavated from nearby cuts in the sandstone and conglomerate. Artificial fill encountered during the field investigation was determined to be engineered fill. The engineered fill is composed of medium dense to very dense sandy silt and stiff to very stiff sandy clay with variable amounts of gravel and cobble.

Alluvium (Qal): The alluvium is located in canyon bottoms and drainages and often underlies engineered fill. The alluvium is comprised primarily of loose to very dense poorly graded sand, silty sand and clayey sand with the presence of little fat clay and sandy fat clay. Abundant alluvium exists within the lowland areas north of the freeway.

Colluvium and Slope Wash (Qc and Qsw): Interbedded hard sandy lean to fat clays (CL/CH) and dense clayey sands (SC) that contain a variable percentage of gravel and cobble.

Stadium Conglomerate (Tst): Massive cobble conglomerate with dark yellowish-brown coarse-grained sandstone matrix deposited by an ancient river as a coastal plain fan/delta. Moderately well sorted rounded volcanic clasts of cobble size predominate but rare boulder size clasts occur. The conglomerate contains dispersed lenses of fossiliferous crossbedded sandstone.

Friar's Formation (Tf): Sandstone with interbeds of claystone. The sandstone is massive, yellowish gray, medium grained, poorly indurated, and caliche-rich. The claystone is dark greenish gray, well indurated, and expansible.

Santiago Peak Volcanics (Jsp): Mildly metamorphosed volcanic, volcanoclastic, and sedimentary rock resistant to weathering and erosion. Greenish gray where fresh and grayish red to dark reddish brown where weathered. Exposures of rock are hard and variably fractured.

7.1.2 Structure

The upper boundary of the Santiago Peak Volcanics is an ancient erosion surface and is therefore topographically irregular. The sedimentary deposits of the Friar's Formation and Stadium Conglomerate were deposited upon this basement rock as relatively flat lying strata. Subsequent coastal terrace and stream erosion has resulted in the current mesa, arroyo, and canyon geomorphology.

7.1.3 Slope Stability

The median slopes adjacent to large portions of the proposed concrete barrier are inclined as steep as one and one half horizontal to one vertical (1.5:1). The project does not propose any alteration to existing median slopes or change in forces acting on the slopes. The existing median slopes have been in place for decades. Field reconnaissance revealed limited sites of surficial slippage and rill erosion; however, overall the median slopes exhibit satisfactory long-term performance. Therefore, no slope stability analysis has been conducted for this project.

7.2 Subsurface Conditions

The following subsections describe geotechnical characteristics of the project site that may influence design and construction.

7.2.1 Soil

The barrier alignment is primarily underlain by cobble conglomerate and embankment fill derived from sandstone and cobble conglomerate. The cobble conglomerate is comprised of inter layered sandstone and conglomerate beds. The sandstone and conglomerate beds are soft to moderately soft. Due to weak induration and ample weathering, the cobble conglomerate has the characteristics of very dense soil.

Embankment fill of varying quality forms the roadway embankments. The embankment fill primarily consists of moist, medium dense to dense sandy silt and stiff to very stiff sandy clay with variable amounts of gravel and cobble. Locations of the fill and cobble conglomerate are presented in the geologic profiles, Figures 3A through 3E.

7.2.2 Groundwater

Groundwater was not encountered during the subsurface exploration program. Known or suspected occurrences of groundwater are located at a significant depth relative to the proposed construction and consequently groundwater is not anticipated to impact the project.

7.3 Surface Water

Surface water is present year-round in San Diego River and Alvarado Creek. Alvarado Creek drains the westward to the San Diego River. Lake Murray reservoir runoff, urban storm runoff and landscape irrigation runoff are primary sources of water in the creek.

7.3.1 Scour

The barrier and adjoining slope are not located along a water course. The project will not be subject to scour.

7.3.2 Erosion

The steeply inclined median slope is generally well vegetated and displays only minor erosion. According to the project layout plans some of the existing down drains will be reconstructed. It is anticipated that slopes will be disturbed and re-graded during construction. Newly graded areas will be prone to erosion.

7.4 Site Seismicity

The project is located in proximity to the Newport Inglewood-Rose Canyon Fault Zone trending in a northwesterly direction and laying west of the project site. Although the project area may be subject to ground motion due to seismic activity on nearby and distant faults, ground motion does not factor into the design of the proposed concrete barrier. Therefore the project site seismicity is not evaluated in this report.

7.5 Corrosion potential

The corrosion potential of the on-site materials was evaluated based on corrosivity tests performed on selected soil samples. A total of two Minimum Resistivity tests, two PH tests, two Chloride Content tests and two Sulfate Content tests were performed.

The results of these tests indicate that the on-site subsurface materials are not potentially corrosive. The corrosion test results are presented in the Appendix II.

8.0 GEOTECHNICAL ANALYSIS AND DESIGN

The following section describes the geotechnical analyses, parameters, and design criteria that should be utilized by project designers in the continued developed of the project.

8.1 Soil Strength Parameters

Direct Shear tests were performed on samples remolded to 95% relative compaction at about optimum moisture content. Test results show unrealistically high values for the soil strength parameters of the tested materials. Based on our experience and engineering judgment the appropriate soil strength parameters that should be utilized for the concrete barrier design and form the basis of the recommendations provided in this report are presented in Table 1.

8.2 Concrete Barriers

The proposed concrete median barrier may be designed and constructed utilizing Caltrans Standard Plan Type 60, Type 60 Modified, and Type 736 SV concrete barriers. A Type 60 barrier is appropriate where 3ft or more of level shoulder backing exists between the barrier and a descending slope inclined no steeper than 2:1. A Type 60 Modified barrier is appropriate at locations where 3ft of level shoulder backing exists adjacent to slopes inclined more steeply than 2:1. A Type 736SV barrier without soundwall is appropriate where little or no shoulder backing exists between the barrier and the descending slope. For the Type 736SV barrier, varying dimensions of barrier stem "He", pile spacing "S", and pile length "L" are appropriate depending on the soil strength and adjoining slope geometry.

A Type 60 modified concrete barrier is similar to a Caltrans Standard Plan Concrete Barrier Type 60 Section B (sheet A76B), except that the embedment depth should be a minimum of 24 inches to provide sufficient lateral resistance to forces that will act on the barrier. Determination of the steel reinforcement requirements for this barrier is beyond the scope of this report. The Project Engineer is responsible for the modification of any Standard Plan barrier.

At the westbound shoulder between Stations 511+30 and 541+66 a Type 60 Modified concrete barrier should be used to retain the sound berm. Two illustrative sketches of a Type 60 modified concrete barrier recommended for use at eastbound and westbound I-8 are provided in Figure 4.

The recommended concrete barriers and design parameters as a function of project station interval are presented in Table 2.

8.3 Excavation

The soils that will be encountered along the barrier alignment may be excavated using standard excavation and drilling equipment. Excavation and drilling equipment should be capable of penetrating both fill and slightly indurated formation containing densely packed cobbles.

9.0 MATERIAL SOURCES

There are no plans to import material for this project.

10.0 MATERIAL DISPOSAL

Material generated during construction should be placed in a suitable location within the projects limits or properly disposed. Excess material should not be placed on slopes. No other locations were identified that would be adversely impacted by the placement of excess material within the project limits.

11.0 RECOMMENDATIONS

1. The design of concrete barriers should follow the design criteria presented in Section 8 of this report.
2. Appropriate erosion control measures should be implemented to protect the newly graded slope faces.
3. Concentrated surface water should not be allowed to pond behind the concrete barriers. Surface water should be contained by appropriate drainage improvements.
4. Concentrated runoff should not be directed to drain over the slopes.

12.0 DESIGN CONSIDERATIONS

1. The material derived from excavations in the conglomerate and fill within the project area will be suitable for use as embankment fill.
2. The subsurface conditions are suitable for Caltrans Standard CIDH pile foundations.
3. The laboratory test results indicate that the on-site subsurface materials are not corrosive.
4. Where a CIDH pile encounters a crossing drainage system or other feature, the pile spacing may be modified to avoid conflicts.

13.0 CONSTRUCTION CONSIDERATIONS

1. The on-site soils may generally be excavated with conventional equipment. It should be anticipated that the presence of cobble may create difficulties during drilling and trenching operations. Excavation and drilling equipment should be capable of penetrating both fill and slightly indurated formation containing densely packed cobbles.
2. Minor caving may occur within shafts drilled in fill. Caving conditions are not anticipated to be widespread. Drilled shafts that tend to cave may be cased or the placed volume of concrete may be increased.
3. Loose soil at the bottom of the drilled shafts should be removed before pouring concrete.
4. Use of a tremie pipe is recommended for pouring concrete.

14.0 ACTUAL VS. REPORTED SITE CONDITIONS

The characterizations of geotechnical conditions along the project alignment and presented in this report are based on the review of the design information provided, proposed project features, as-built plans, geologic maps, geologic literature, archival reports, exploration by OGDS2, and laboratory testing. The evaluations and recommendations contained in this report are based on the information discovered and data gathered. If conditions are encountered during the project that appear to differ from the conditions conveyed in this report, or if construction difficulties related to soil conditions are encountered, a representative of OGDS2 Branch D should be consulted to assist with the assessment of the prevailing geotechnical conditions and to assist in formulating appropriate strategies to facilitate project completion.

Should project design features vary significantly from those described in this report an updated GDR should be prepared by OGDS2 Branch D to address the geotechnical considerations related to those features.

15.0 REFERENCES

- Caltrans Standard Plans 2010
- Kennedy, M.P., and Peterson, G.L., 1975, Geology of San Diego, Metropolitan Area, California: California Division of Mines and Geology Bulletin 200
- Caltrans, Division of Engineering Services, Geotechnical Services, (2010), Soil and Rock Logging, and Presentation Manual.

FIGURES

TABLES

APPENDICES

APPENDIX I
BORING RECORDS AND SITE DATA

APPENDIX II
LABORATORY TEST DATA

LOGGED BY Ali Lari	BEGIN DATE 12/04/12	COMPLETION DATE 12/04/12	BOREHOLE LOCATION (Lat/Long or North/East and Datum) 1864877.28/6304572.34 NAD83 CA Zone 6				HOLE ID: A-12-001	
DRILLING CONTRACTOR CT			BOREHOLE LOCATION (Station, Offset, and Line) 511-00, 3 ft. Lt. SDR1				SURFACE ELEVATION 157.7 ft	
DRILLING METHOD Hollow Stem Auger			DRILL RIG CME 85				BOREHOLE DIAMETER 6.5"	
SAMPLER TYPE(S) AND SIZE(S) [ID] SPT (1.5")			SPT HAMMER TYPE 140 lb. Automatic, 30" Drop				HAMMER EFFICIENCY (ER) 68 %	
BOREHOLE BACKFILL AND COMPLETION Hole Cuttings			GROUNDWATER READINGS		DURING DRILLING Not Encountered		AFTER DRILLING (DATE) NA	TOTAL DEPTH OF BORING 32.0 ft

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS	
157.7			ASPHALT CONCRETE (4") AGGREGATE BASE (6")													
	1		SANDY lean CLAY with GRAVEL and COBBLES (CL); stiff; light brown; moist; little fine SAND; few angular fine to coarse GRAVEL; medium plasticity; 5% IGNEOUS COBBLES, 4-6", hard; PP=1.5 tsf; (FILL).													
	2															
	3															
	4															
	5															
	5.5															
	6															
	6					B - 01	6									
	7						8									
	7						8	16								
	8															
	9															
	10															
	10.5															
	11		PP=1.0 tsf													
	11															
	11															
	12															
	12															
	12															
	13															
	14															
	15															
	15.5															
	16															
	16															
	16															
	17															
	17															
	17															
	18															
	18															
	19															
	19															
	20															
	20		(continued)													

DEPARTMENT OF TRANSPORTATION	REPORT TITLE	GDR	HOLE ID:	A-12-001
DIVISION OF ENGINEERING SERVICES	DISTRICT	11	ROUTE	I-8
GEOTECHNICAL SERVICES	COUNTY	San Diego	POST MILE	6.9/8.2
OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2	PROJECT OR BRIDGE NAME	I-8 Median Concrete Barrier	EA	11-40550
	BRIDGE NUMBER	NA	PREPARED BY	Ali Lari
	DATE	12/10/12	SHEET	1 of 2

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RGD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
20.5			SANDY lean CLAY with GRAVEL and COBBLES (CL) (continued).			17									
21						15									
22						22	37								
23															
24															
25															
25.5															
26						9									
27						11									
28						12	23	50%							
29															
30															
30.5															
31					9										
32					9										
33			Bottom of borehole at 32 ft. Boring terminated at planned depth. Backfilled using soil cuttings.												
34			This Boring Record was prepared in accordance with the Caltrans Soil & Rock Logging, Classification, and Presentation Manual (2010).												
35															
36															
37															
38															
39															
40															

	DEPARTMENT OF TRANSPORTATION	REPORT TITLE	GDR		HOLE ID:	A-12-001	
	DIVISION OF ENGINEERING SERVICES	DISTRICT	COUNTY	ROUTE	POST MILE	EA	
	GEOTECHNICAL SERVICES	11	San Diego	I-8	6.9/8.2	11-40550	
	OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2	PROJECT OR BRIDGE NAME	I-8 Median Concrete Barrier		BRIDGE NUMBER	PREPARED BY	DATE
		NA	Ali Lari	12/10/12	SHEET	2 of 2	

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
	41														
	42														
	43														
	44														
	45														
	46														
	47														
	48														
	49														
	50														
	51														
	52														
	53														
	54														
	55														
	56														
	57														
	58														
	59														
	60														



DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING SERVICES
 GEOTECHNICAL SERVICES
 OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE

GDR

DISTRICT COUNTY
 11 San Diego

PROJECT OR BRIDGE NAME

I-8 Median Concrete Barrier

BRIDGE NUMBER

NA

PREPARED BY

Ali Lari

ROUTE
 I-8

POST MILE
 6.9/8.2

DATE
 12/10/12

HOLE ID: A-12-001

EA
 11-40550

SHEET
 of

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
61															
62															
63															
64															
65															
66															
67															
68															
69															
70															
71															
72															
73															
74															
75															
76															
77															
78															
79															
80															



DEPARTMENT OF TRANSPORTATION
 DIVISION OF ENGINEERING SERVICES
 GEOTECHNICAL SERVICES
 OFFICE OF GEOTECHNICAL DESIGN-SOUTH 2

REPORT TITLE
 GDR
 DISTRICT COUNTY
 11 San Diego
 PROJECT OR BRIDGE NAME
 I-8 Median Concrete Barrier
 BRIDGE NUMBER
 NA
 PREPARED BY
 Ali Lari

ROUTE
 I-8
 DATE
 12/10/12

POST MILE
 6.9/8.2

HOLE ID: A-12-001
 EA
 11-40550

SHEET
 of

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
81															
82															
83															
84															
85															
86															
87															
88															
89															
90															
91															
92															
93															
94															
95															
96															
97															
98															
99															
100															



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ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
101															
102															
103															
104															
105															
106															
107															
108															
109															
110															
111															
112															
113															
114															
115															
116															
117															
118															
119															
120															



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ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
121															
122															
123															
124															
125															
126															
127															
128															
129															
130															
131															
132															
133															
134															
135															
136															
137															
138															
139															
140															



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HOLE ID: A-12-001
 POST MILE EA
 6.9/8.2 11-40550
 SHEET of

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
141															
142															
143															
144															
145															
146															
147															
148															
149															
150															
151															
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153															
154															
155															
156															
157															
158															
159															
160															



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POST MILE
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 11-40550
 SHEET
 of

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
161															
162															
163															
164															
165															
166															
167															
168															
169															
170															
171															
172															
173															
174															
175															
176															
177															
178															
179															
180															



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SHEET
 of

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
181															
182															
183															
184															
185															
186															
187															
188															
189															
190															
191															
192															
193															
194															
195															
196															
197															
198															
199															
200															



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ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
	201														
	202														
	203														
	204														
	205														
	206														
	207														
	208														
	209														
	210														
	211														
	212														
	213														
	214														
	215														
	216														
	217														
	218														
	219														
	220														



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221															
222															
223															
224															
225															
226															
227															
228															
229															
230															
231															
232															
233															
234															
235															
236															
237															
238															
239															
240															



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HOLE ID: A-12-001
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SHEET
 of

PREPARED BY
 Ali Lari

ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
241															
242															
243															
244															
245															
246															
247															
248															
249															
250															
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255															
256															
257															
258															
259															
260															



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ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
261															
262															
263															
264															
265															
266															
267															
268															
269															
270															
271															
272															
273															
274															
275															
276															
277															
278															
279															
280															



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ELEVATION (ft)	DEPTH (ft)	Depth (ft)	DESCRIPTION	Sample Location	Sample Number	Blows Per 6 in	Blows Per 1.0 ft	Recovery (%)	ROD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	REMARKS
281															
282															
283															
284															
285															
286															
287															
288															
289															
290															
291															
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294															
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296															
297															
298															
299															
300															



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 DISTRICT COUNTY
 11 San Diego
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ROUTE
 I-8
 PREPARED BY
 Ali Lari

POST MILE
 6.9/8.2
 DATE
 12/10/12

HOLE ID: A-12-001
 EA
 11-40550
 SHEET
 of

(Note to user -- Click on field and Use F1 for help)

REQUEST FOR SURVEY

California
Department of Transportation
District 11

Request Number:

13-094

Date: 10/23/2012

Co. SD Rte. 8

PM 6. to 8.2.

Pr. ID#: 1100020122

Phase: 1

7.9

EA: 405504

Reporting Code:

Request by: Ali Lari

Division: Geotech

Ph: 8584676922

Project Desc: Construction of Concrete Median Barrier

Job Location: Left shoulder of EB I-8, between Waring Road and College Avenue

Project Mgr: Richard Estrada

Ph:

Units: Feet Meters

Descriptions and Limits of Work:

AND "11908E1"

Please provide stations, offsets, and elevations from the "SDR1" centerline for every 200 feet at left shoulder of EB I-8, between station 507+00 and station 560+00.

Attachments and/or References:

, Site Plan

Desired Completion Date: 11/2/2012

Approved by (Project Engineer or above)

FOR SURVEYS USE ONLY

Date Received:

Sub-Object:

185

Activity

10

Horiz. Datum: Spec.

NAD83 (HPGN)

NAD83 (2007)

Vert. Datum: Spec.

NAVD88 +328.08'

NAVD88

NAVD88 (CGPS)

SR: 2013-094 SD8 / PM 7.5 to 8.2
EA: 405504
Horizontal Datum: NAD83 CA Zone 6
Vertical Datum: NAVD 88

Date: November 1, 2012
Party Chief: M. Hank
Epoch: 1991.35
Units: US Survey Foot

Procedure: RTK Survey (SDSRN), with horizontal and vertical calibration to station 103-7.25. Check shots measured to stations 8-8.09 and 8-10.50.

As-Staked Corridor Points (Alignment Name: " SDR1")

Point Name	Station	Offset	Northing (US survey foot)	Easting (US survey foot)	Elevation (US survey foot)
1000	507+00	5.00 Left	1864877.40	6304172.04	147.57
1001	507+50	5.00 Left	1864879.50	6304221.99	148.71
1002	511+00	5.00 Left	1864877.28	6304572.34	157.71
1003	515+00	5.00 Left	1864837.23	6304970.65	168.55
1004	519+00	5.00 Left	1864771.55	6305365.31	178.81
1005	523+00	5.00 Left	1864705.36	6305759.78	188.87
1006	527+00	5.00 Left	1864639.18	6306154.28	200.98
1007	531+00	5.00 Left	1864572.99	6306548.78	212.90
1008	535+00	5.00 Left	1864506.75	6306943.24	224.93
1009	539+00	5.00 Left	1864440.59	6307337.73	236.93
1010	543+00	5.00 Left	1864376.88	6307732.50	248.90
1011	547+00	5.00 Left	1864330.52	6308129.48	260.98
1012	551+00	5.00 Left	1864304.04	6308528.32	272.99
1013	555+00	7.00 Left	1864299.49	6308927.98	284.75
1014	558+09.36	9.00 Left	1864307.51	6309237.12	294.06

As-Staked Corridor Points (Alignment Name: " 11SD8E1")

Point Name	Station	Offset	Northing (US survey foot)	Easting (US survey foot)	Elevation (US survey foot)
1015	558+09.36	2.00 Left	1864311.49	6309237.06	294.15

11/2/2012 12:45:32 PM	D:\Crew S5\Requests\8\SR2013-094\2013-094.vce	Trimble Business Center
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SR: 2013-094 SD8 / PM 7.5 to 8.2
EA: 405504
Horizontal Datum: NAD83 CA Zone 6
Vertical Datum: NAVD 88

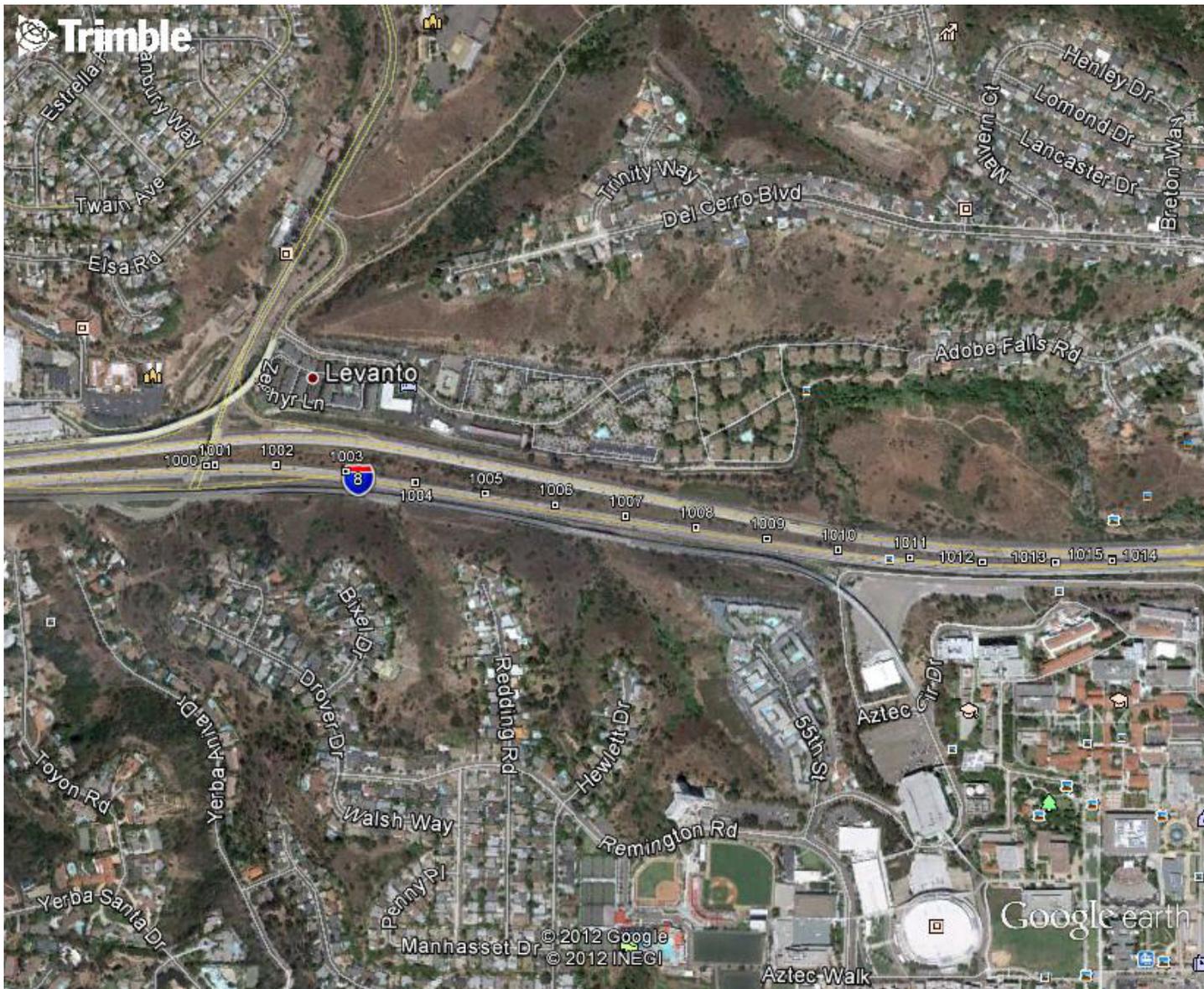
Date: November 1, 2012
Party Chief: M. Hank
Epoch: 1991.35
Units: US Survey Foot

Procedure: RTK Survey (SDSRN), with horizontal and vertical calibration to station 103-7.25. Check shots measured to stations 8-8.09 and 8-10.50.

Point List

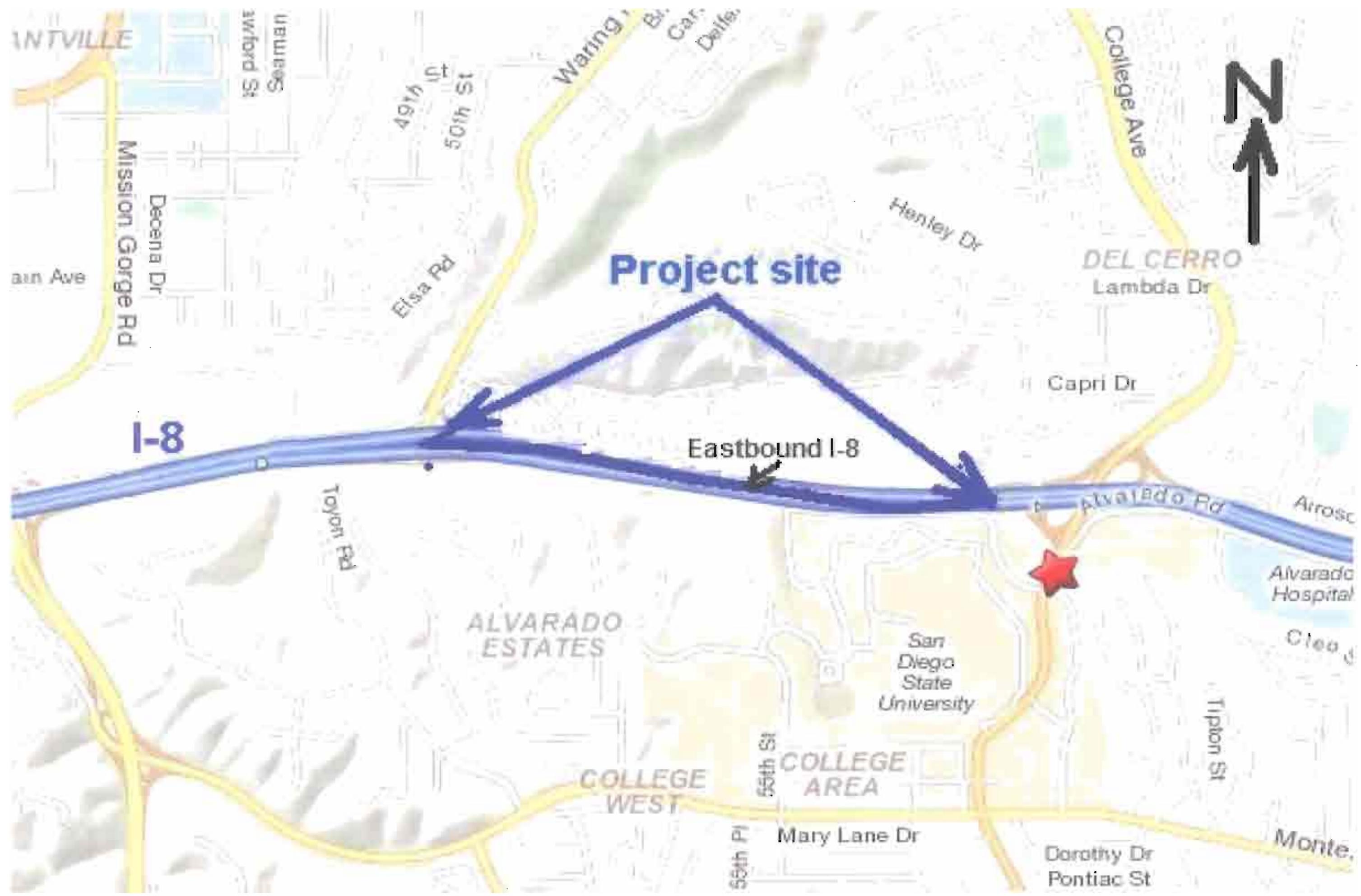
ID	Northing (US survey foot)	Easting (US survey foot)	Elevation (US survey foot)	Feature Code
8-10.50	1862258.19	6321640.45	446.75	110_PMHV
8-8.09	1864228.52	6309424.08	303.70	110_PMHV
15 103 7.25	1866922.04	6295949.17	101.42	110_PMHV
103-7.25_GNS S	1866922.04	6295949.17	101.42	GNSS Calibration Pt
1000	1864877.40	6304172.04	147.57	SDR1
1001	1864879.50	6304221.99	148.71	SDR1
1002	1864877.28	6304572.34	157.71	SDR1
1003	1864837.23	6304970.65	168.55	SDR1
1004	1864771.55	6305365.31	178.81	SDR1
1005	1864705.36	6305759.78	188.87	SDR1
1006	1864639.18	6306154.28	200.98	SDR1
1007	1864572.99	6306548.78	212.90	SDR1
1008	1864506.75	6306943.24	224.93	SDR1
1009	1864440.59	6307337.73	236.93	SDR1
1010	1864376.88	6307732.50	248.90	SDR1
1011	1864330.52	6308129.48	260.98	SDR1
1012	1864304.04	6308528.32	272.99	SDR1
1013	1864299.49	6308927.98	284.75	SDR1
1014	1864307.51	6309237.12	294.06	SDR1
1015	1864311.49	6309237.06	294.15	11SD8E1
OBRC	1852289.48	6255588.65	77.09	GNSS Base Station
SNTE	1882757.39	6340227.49	398.84	GNSS Base Station

11/2/2012 12:23:32 PM	D:\Crew S5\Requests\8\SR2013-094\2013-094.vce	Trimble Business Center
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Google earth





Project site

I-8

Eastbound I-8

ALVARADO ESTATES

San Diego State University

COLLEGE WEST

COLLEGE AREA

DEL CERRO

INTVILLE



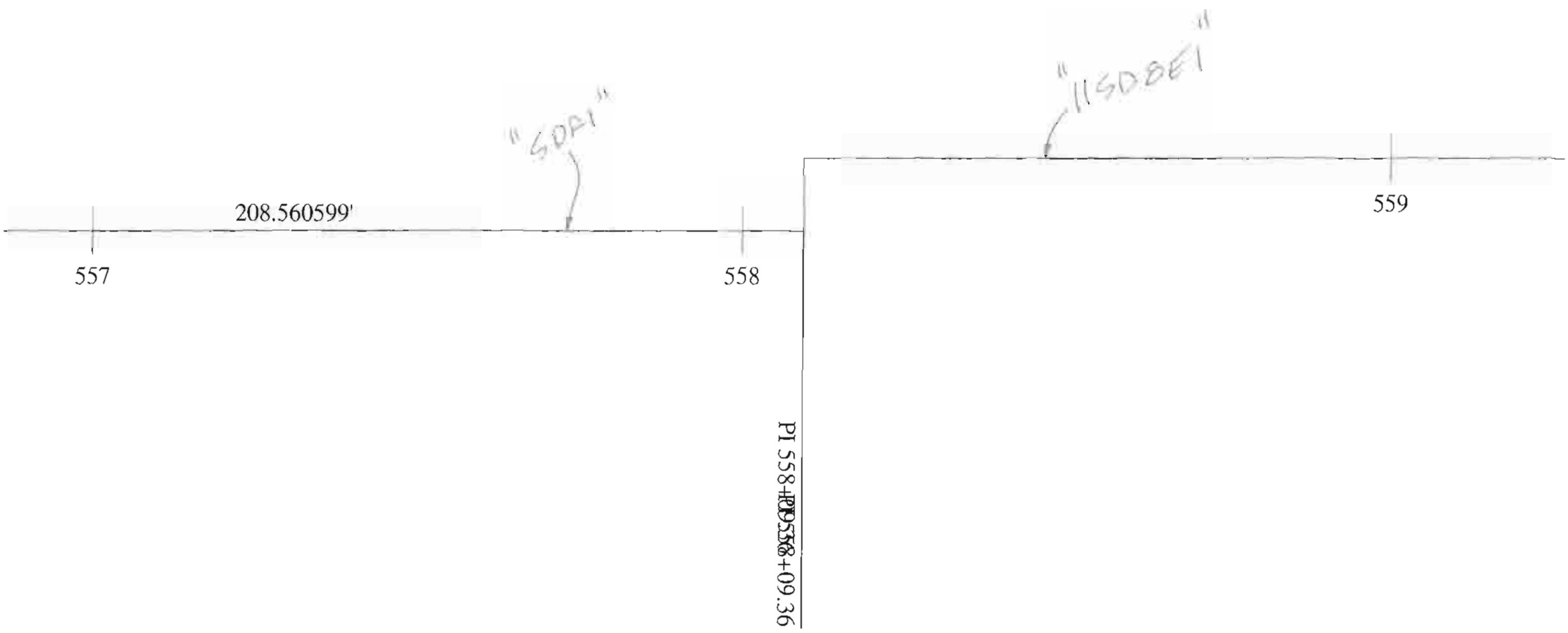


Table 2**Recommended Concrete Barriers
And Design Parameters**

	Begin Station	End Station	Barrier Type	Pile Length (L) Feet	(He) Feet	(S) Feet
Median Concrete Barrier	507+52	513+50	60 Mod.	-	-	-
	513+50	517+60	736 S/SV W/O SW	16	2	10
	517+60	525+50	60 Mod.	-	-	-
	525+50	531+00	736 S/SV W/O SW	16	2	10
	531+00	541+80	60 Mod.	-	-	-
	541+80	545+50	736 S/SV W/O SW	16	2	10
	545+50	548+60	60 Mod.	-	-	-
	548+60	558+00	60	-	-	-
	Westbound Concrete Barrier	511+30	541+66	60 Mod.	-	-

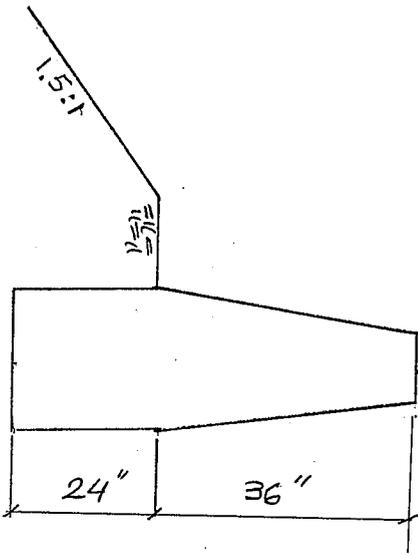
Table 1

SOIL STRENGTH PARAMETERS

Geotechnical Unit	Cohesion (psf)	Angle of Internal Friction (degree)
Engineered Fill	200	35
Stadium Conglomerate	500	38

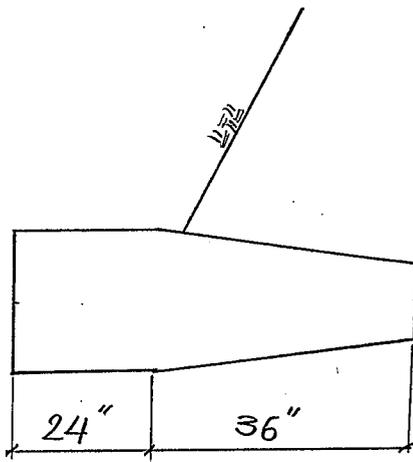
Modified Concrete Barrier

Type 60



Eastbound Median

For Locations See Table 2



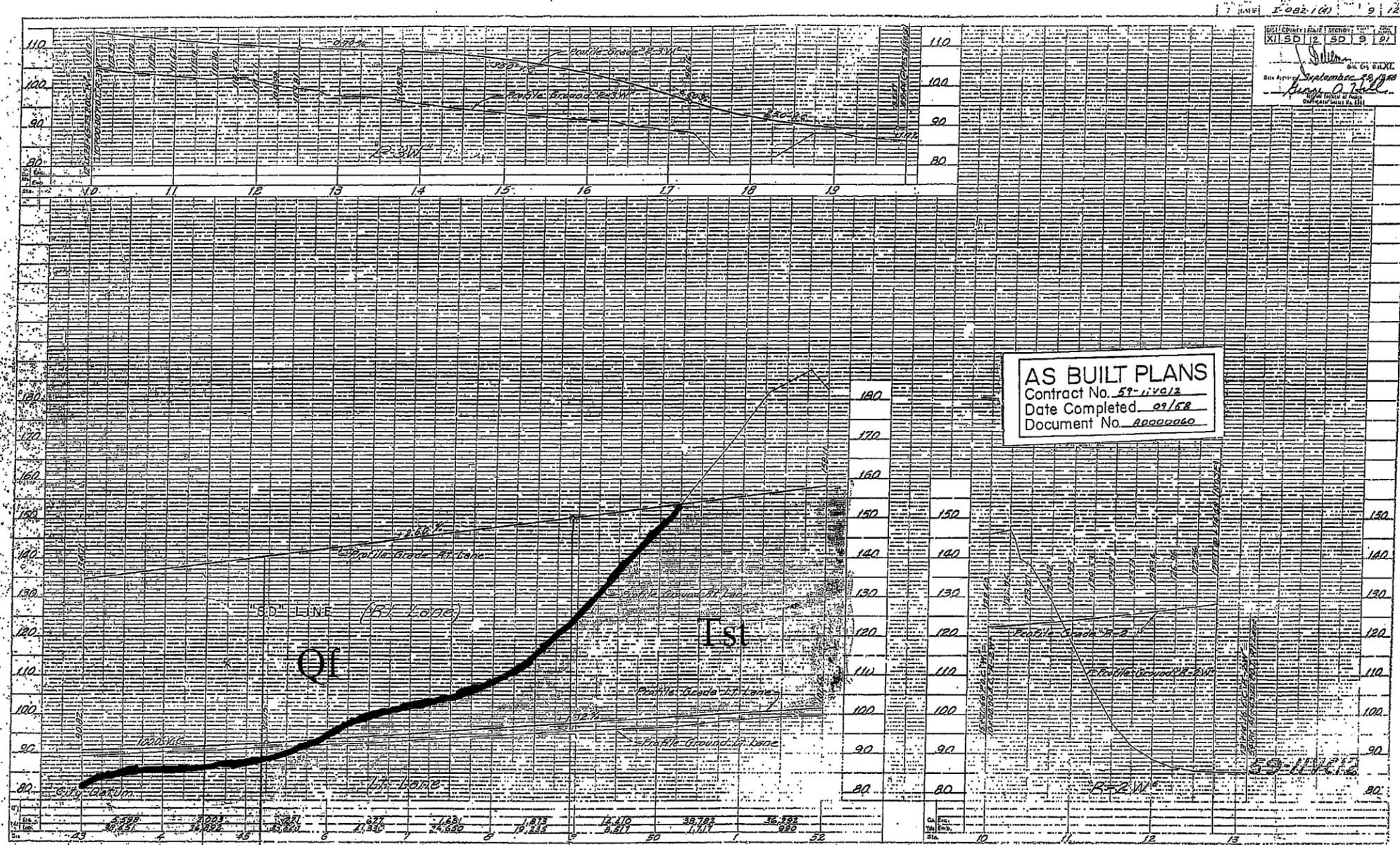
Westbound

Stations: 509+00 to 542+00

Geotechnical Design Report
Replace Existing Median MBGR With Concrete Barrier At I-8
EA 11-405501/EFIS 1100020122

Figure 4

Geologic Profile



WARING ROAD
506+60
BEGIN BARRIER
507+28

Barrier A-12-001
511+00

Qf: Embankment Fill
Tst: Stadium Conglomerate

Figure 3A

Geologic Profile

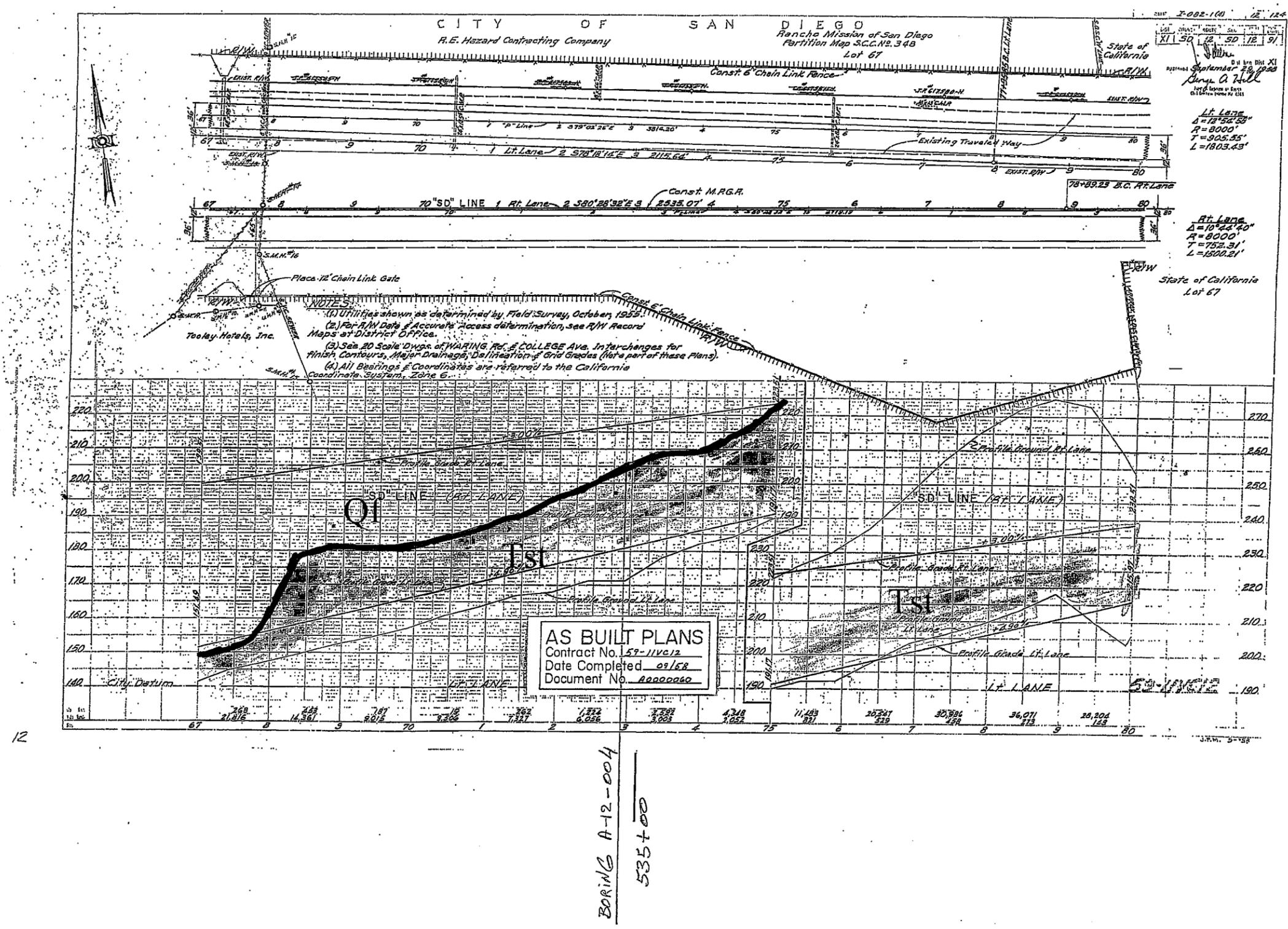
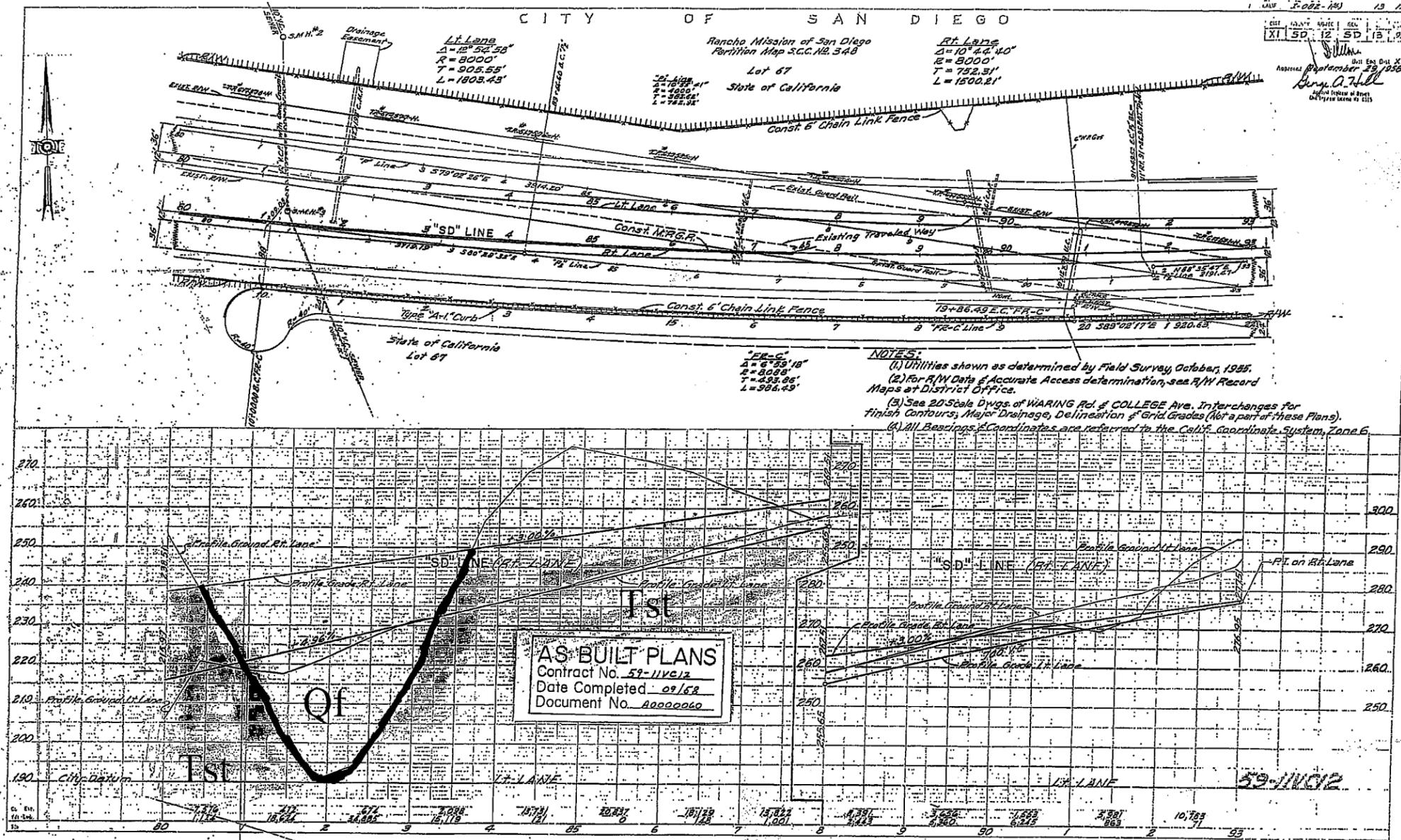


Figure 3C

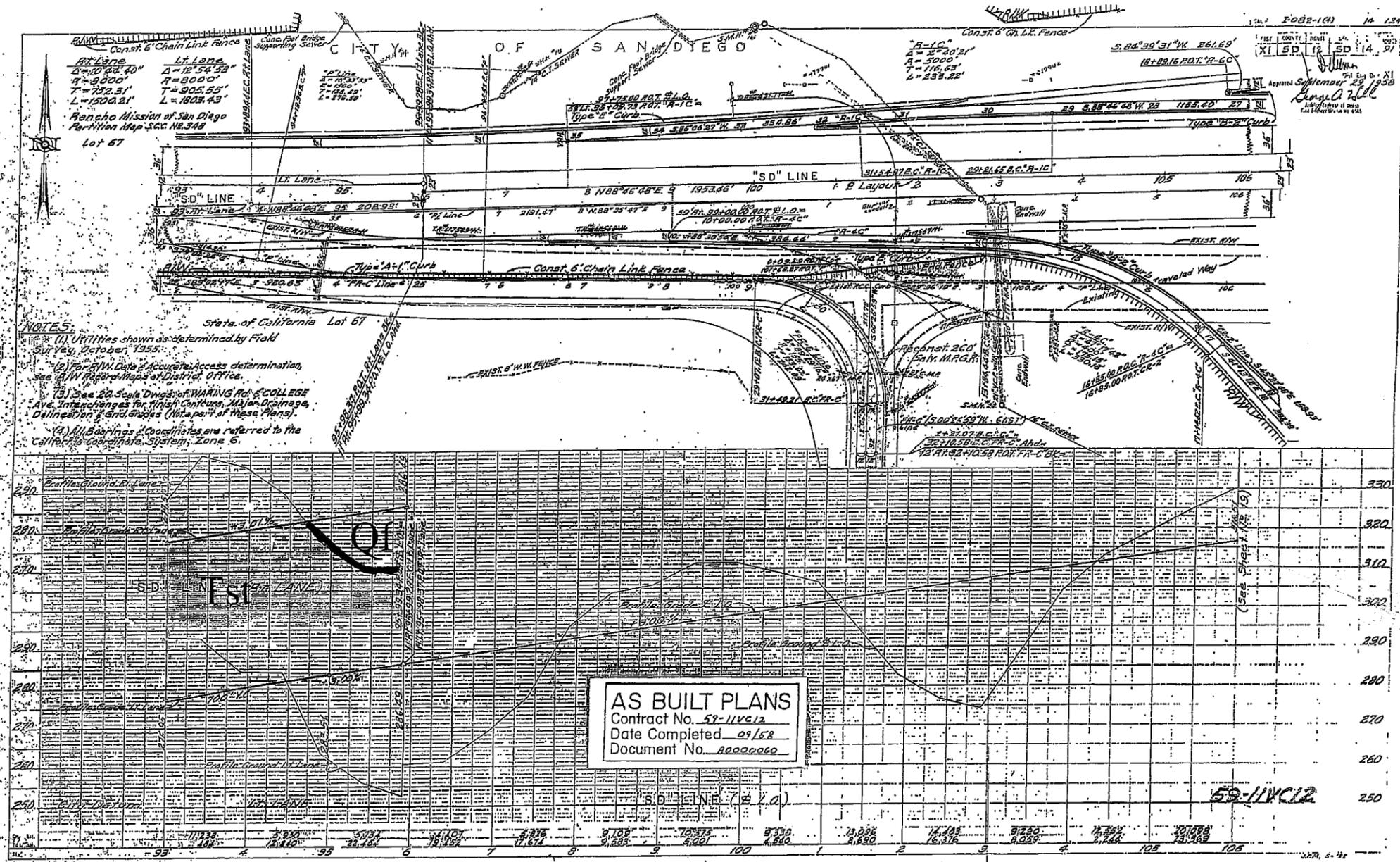
Geologic Profile



BORING A-12-005
543+00

Figure 3D

Geologic Profile



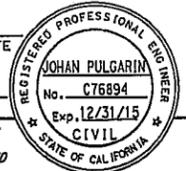
END BARRIER
 565+18.27

Figure 3E

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8	6.9/8.2		

REGISTERED CIVIL ENGINEER	DATE
PLANS APPROVAL DATE	

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

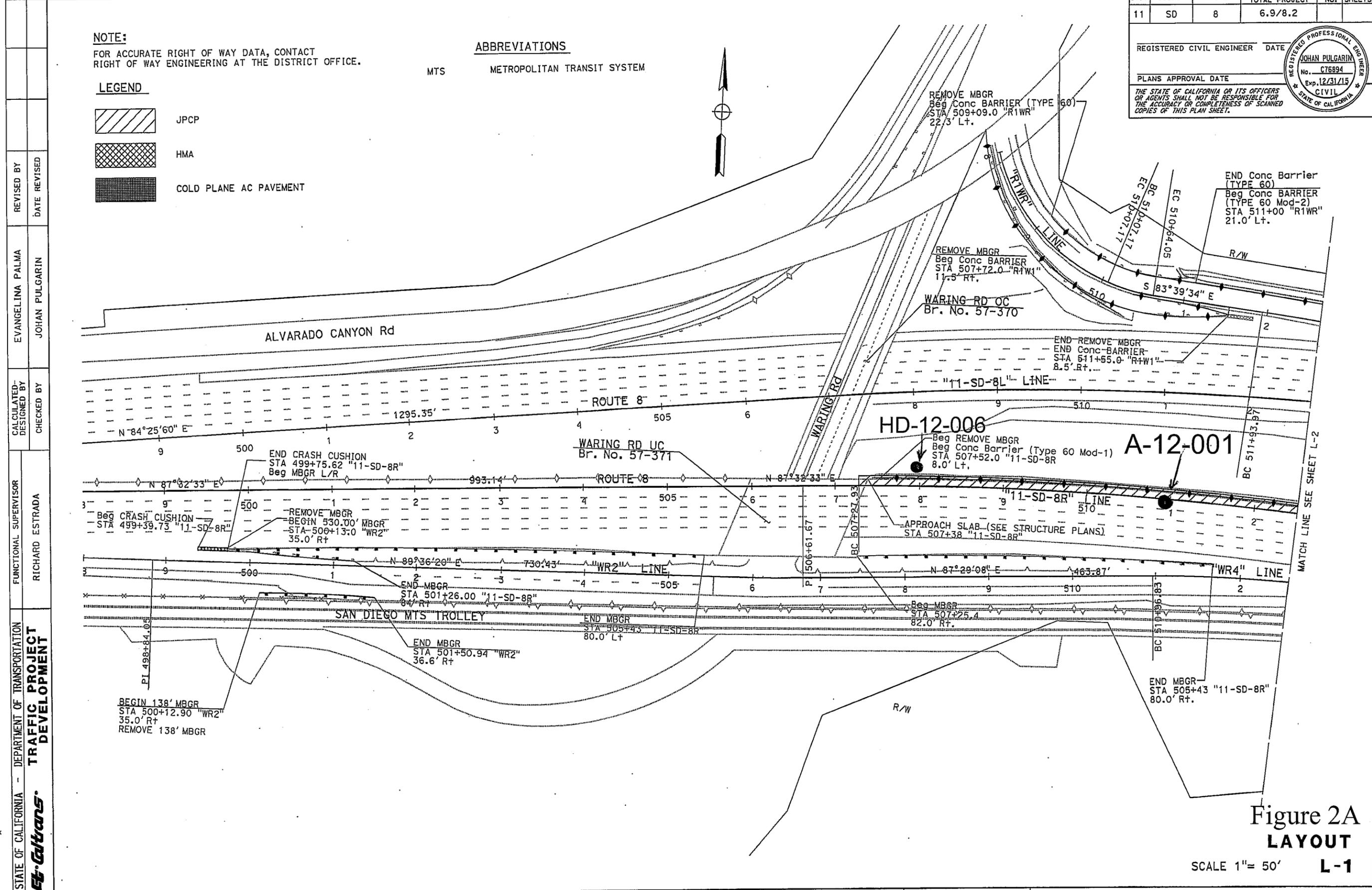


NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

LEGEND

	JPCP
	HMA
	COLD PLANE AC PAVEMENT

ABBREVIATIONS
MTS METROPOLITAN TRANSIT SYSTEM



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
Et-Gittrans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR
RICHARD ESTRADA

CALCULATED-DESIGNED BY
CHECKED BY

REVISOR BY
DATE REVISED

DESIGNED BY
DATE DESIGNED

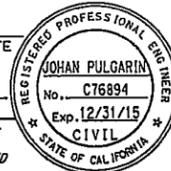
Figure 2A
LAYOUT
SCALE 1" = 50' L-1

DATE PLOTTED => 11-APR-2013
TIME PLOTTED => 14:41

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8	6.9/8.2		

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



NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CALCULATED/DESIGNED BY	REVISOR BY
Caltrans	RICHARD ESTRADA	EVANGELINA PALMA	JOHAN PULGARIN
TRAFFIC PROJECT DEVELOPMENT		CHECKED BY	DATE REVISED

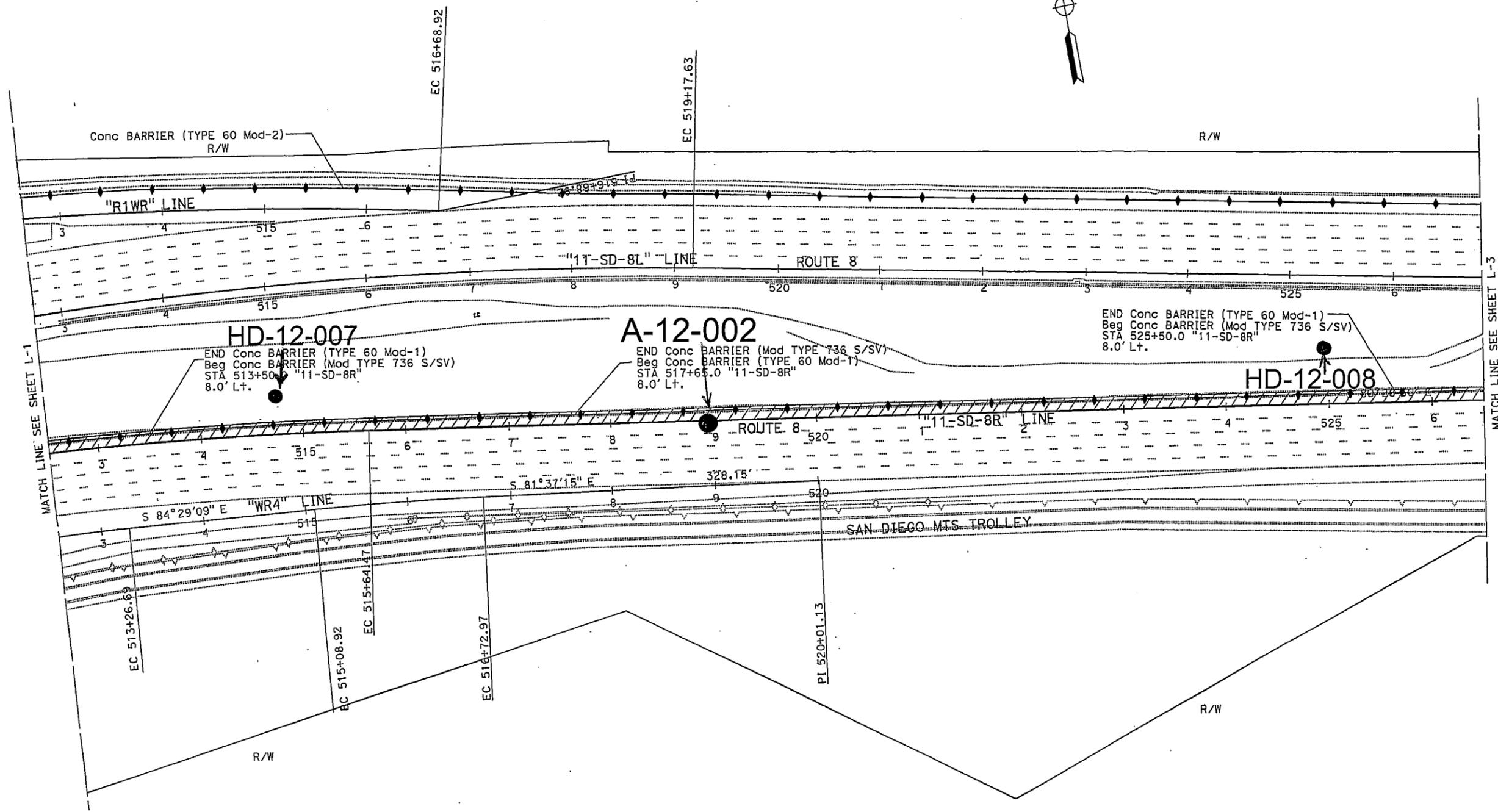


Figure 2B
LAYOUT
L-2
SCALE 1" = 50'

DATE PLOTTED => 11-APR-2013
TIME PLOTTED => 14:42
LAST REVISION 04-09-12

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8	6.9/8.2		

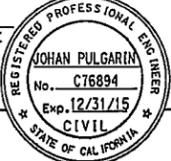
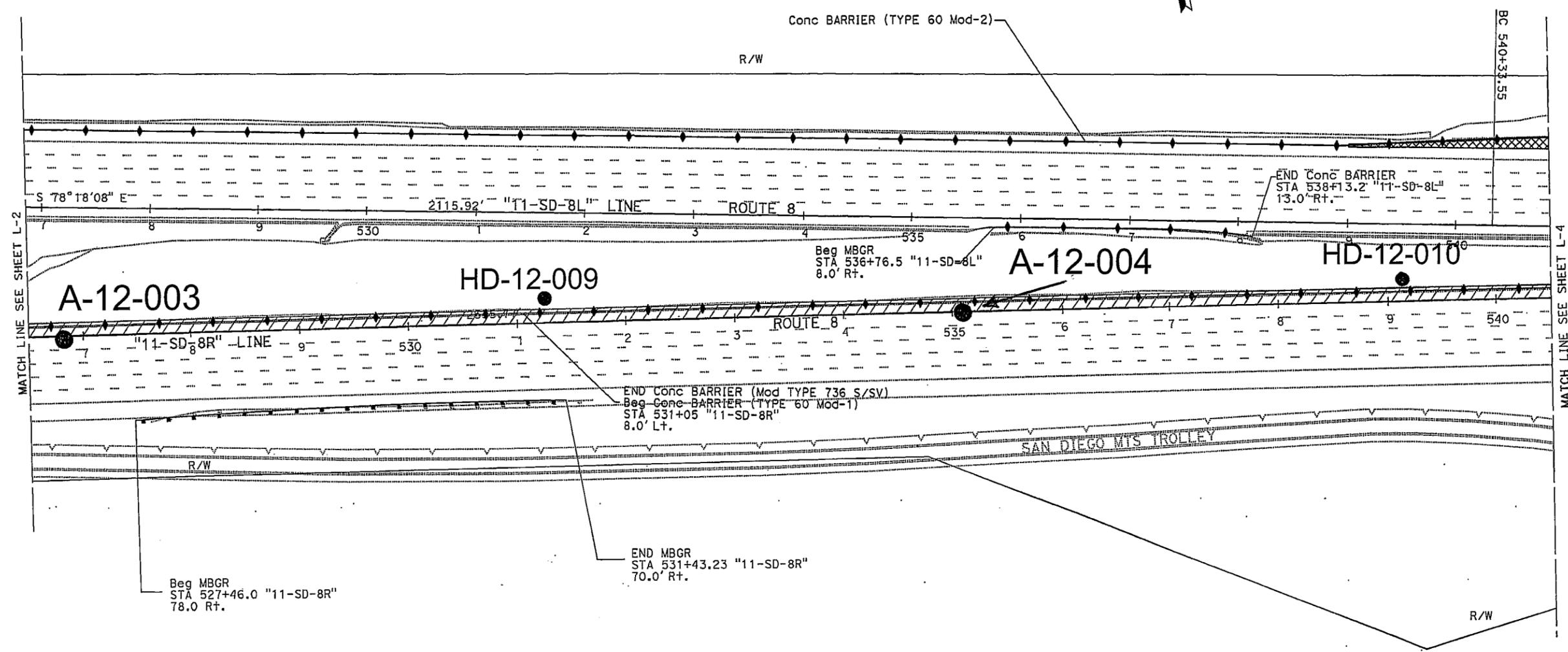
NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St. Gobans TRAFFIC PROJECT DEVELOPMENT

FUNCTIONAL SUPERVISOR: RICHARD ESTRADA

CALCULATED BY: DESIGNED BY: CHECKED BY:

REVISED BY: EVANGELINA PALMA
 DATE REVISED: JOHAN PULGARIN

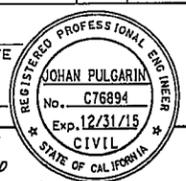
Figure 2C
 LAYOUT

SCALE 1" = 50' L-3

LAST REVISION DATE PLOTTED => 11-APR-2013 04-09-12 TIME PLOTTED => 14:43

DIST	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	8	6.9/8.2		

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



NOTE:

FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION	FUNCTIONAL SUPERVISOR	CHECKED BY	DESIGNED BY	REVISOR
Caltrans	RICHARD ESTRADA	EVANGELINA PALMA	JOHAN PULGARIN	DATE REVISOR
TRAFFIC PROJECT DEVELOPMENT				

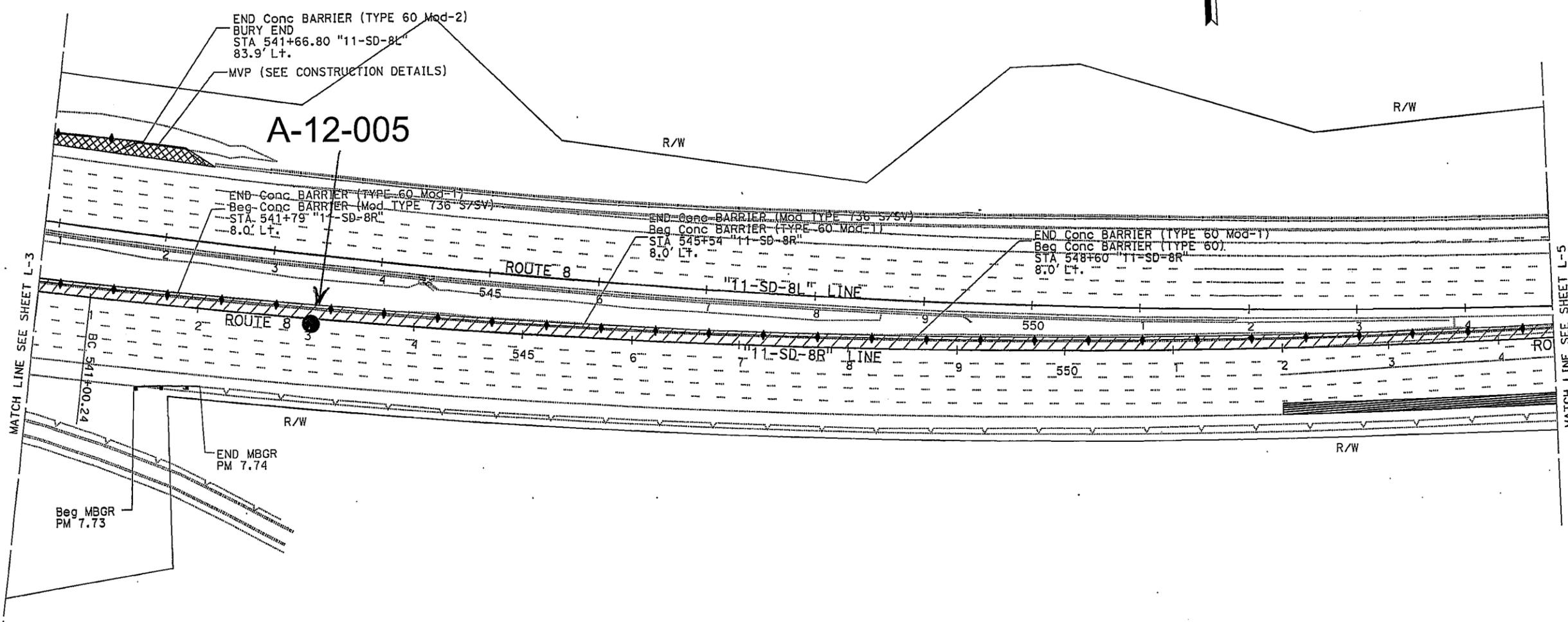


Figure 2D
LAYOUT

SCALE 1" = 50' **L-4**

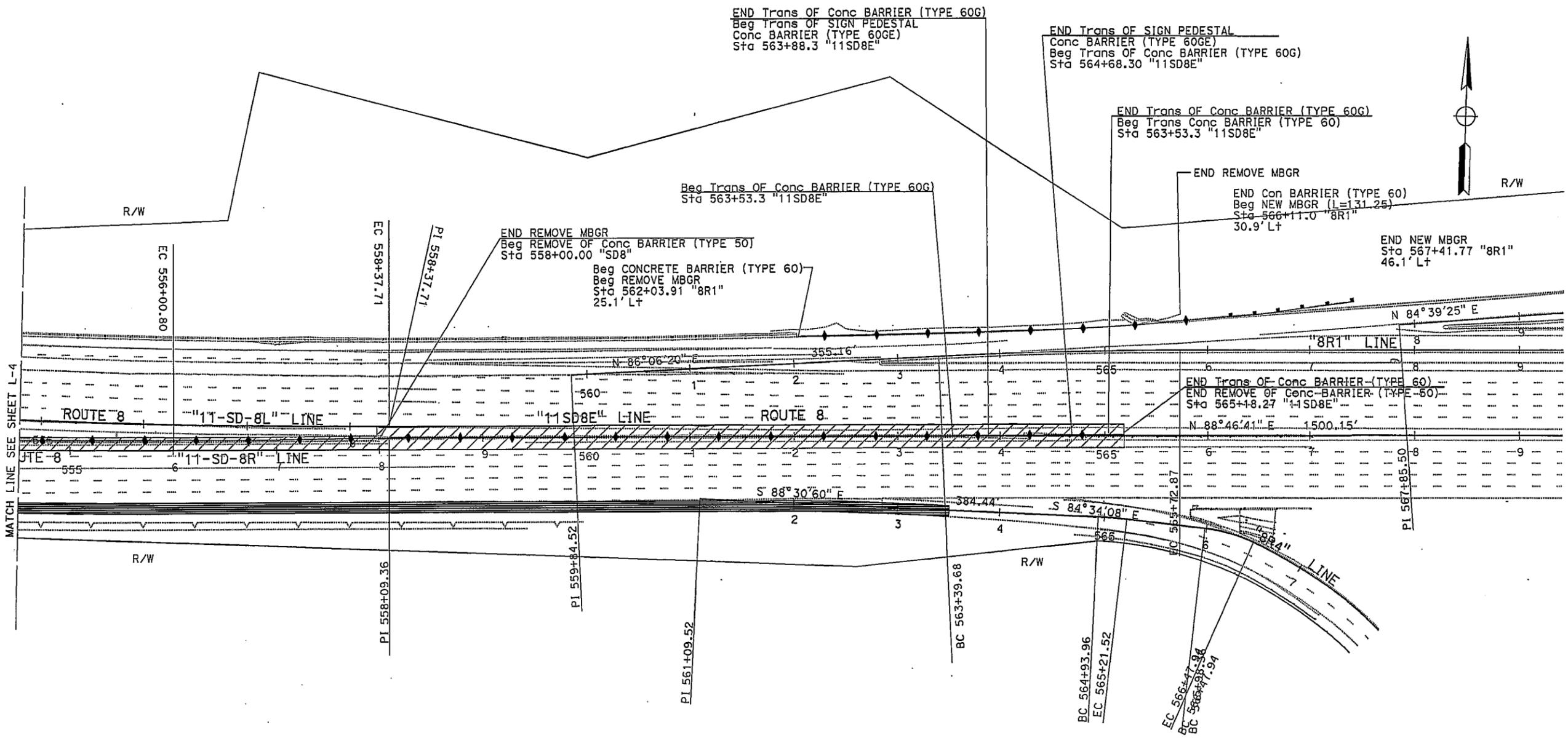
Dis#	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	SD	8	6.9/8.2		

REGISTERED CIVIL ENGINEER	DATE
JOHAN PULGARIN	
No. C76894	
Exp. 12/31/15	
CIVIL	

PLANS APPROVAL DATE

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

NOTE:
FOR ACCURATE RIGHT OF WAY DATA, CONTACT RIGHT OF WAY ENGINEERING AT THE DISTRICT OFFICE.



STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
St-Gilberts
 TRAFFIC PROJECT DEVELOPMENT

MATCH LINE SEE SHEET L-4

FUNCTIONAL SUPERVISOR
RICHARD ESTRADA

CALCULATED/DESIGNED BY
CHECKED BY

REVISOR BY
DATE REVISED

EVANGELINA PALMA
JOHAN PULGARIN

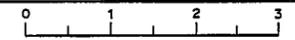
Figure 2E
LAYOUT
 L-5

SCALE 1" = 50'

BORDER LAST REVISED 7/2/2010

USERNAME => S113033
 DGN FILE => 1100020122a005.dgn

RELATIVE BORDER SCALE IS IN INCHES



UNIT 2771

PROJECT NUMBER & PHASE

11000201221

DATE PLOTTED => 11-APR-2013
 TIME PLOTTED => 14:45

STATE OF CALIFORNIA
 DEPARTMENT OF TRANSPORTATION
**PROJECT PLANS FOR CONSTRUCTION ON
 STATE HIGHWAY
 IN SAN DIEGO COUNTY
 IN SAN DIEGO**
**FROM 0.1 MILE WEST OF WARING ROAD UNDERCROSSING
 TO 0.1 MILE WEST OF COLLEGE AVENUE OVERCROSSING**

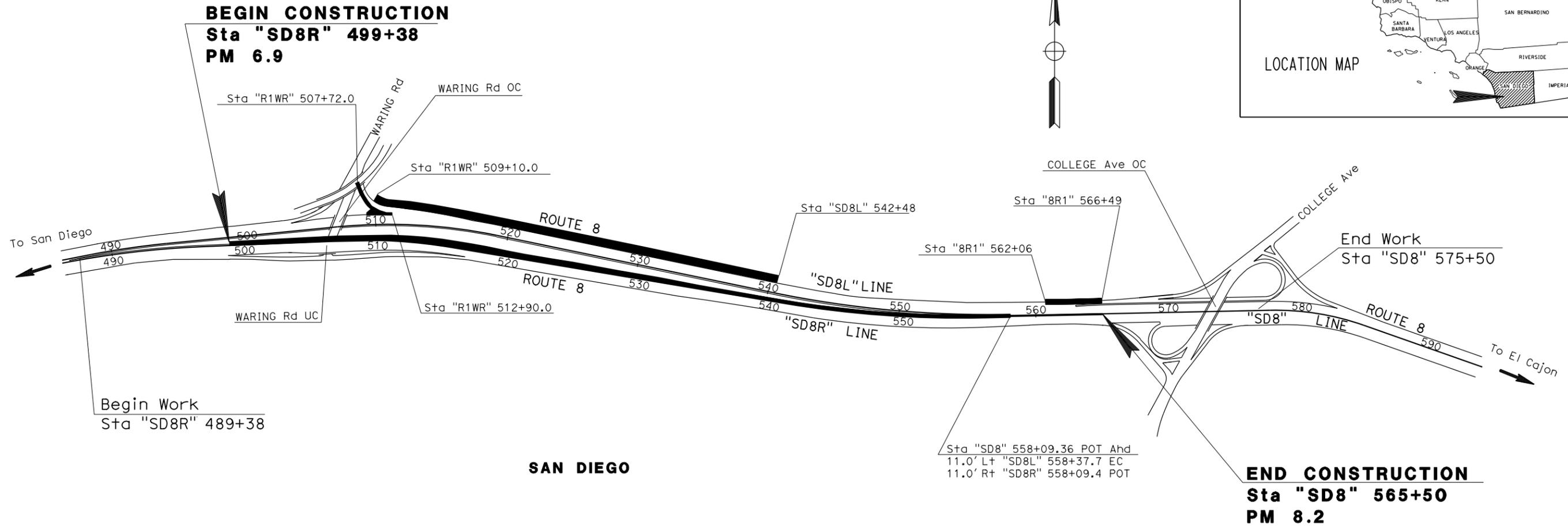
TO BE SUPPLEMENTED BY 2010 STANDARD PLANS.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET NO.	TOTAL SHEETS
11	SD	8	6.9/8.2	1	





LOCATION MAP



PROJECT MANAGER
 RICHARD ESTRADA

 DESIGN ENGINEER
 JOHAN PULGARIN

SAN DIEGO

NO SCALE

FIGURE 1

THE CONTRACTOR SHALL POSSESS THE CLASS (OR CLASSES) OF LICENSE AS SPECIFIED IN THE "NOTICE TO BIDDERS."

DATE PLOTTED => 15-JUL-2014
 TIME PLOTTED => 15:09
 LAST REVISION
 10-17-12

Rte 8 KP9.0-12.7
PA 5.4-7.62

SITE INVESTIGATION REPORT

**LEAD INVESTIGATION ON ROUTE 8,
FROM THE 8/15 SEPARATION TO 0.6
KM WEST OF COLLEGE AVENUE
OVERCROSSING
IN SAN DIEGO, CALIFORNIA
CONTRACT 43A0012
TASK ORDER NO. 11-2264U1-PF
EA 230900**



GEOCON

**GEO TECHNICAL
&
ENVIRONMENTAL
CONSULTANTS**

PREPARED BY

**GEOCON ENVIRONMENTAL CONSULTANTS, INC.
6970 FLANDERS DRIVE
SAN DIEGO, CALIFORNIA 92121
Tel. 619.558.6100
Fax. 619.558.8437
email: environmental@geoconinc.com**

PREPARED FOR

**CALIFORNIA DEPARTMENT
OF TRANSPORTATION
DISTRICT 11
SAN DIEGO, CALIFORNIA**

MARCH 1999

DIST	COUNTY	ROUTE	KILOMETER POST MILE	SHEET NO.	TOTAL SHEETS
11	SD	8.15	RD. 0.912.7	4	4

REGISTERED LANDSCAPE ARCHITECT

DATE: 0-30-99

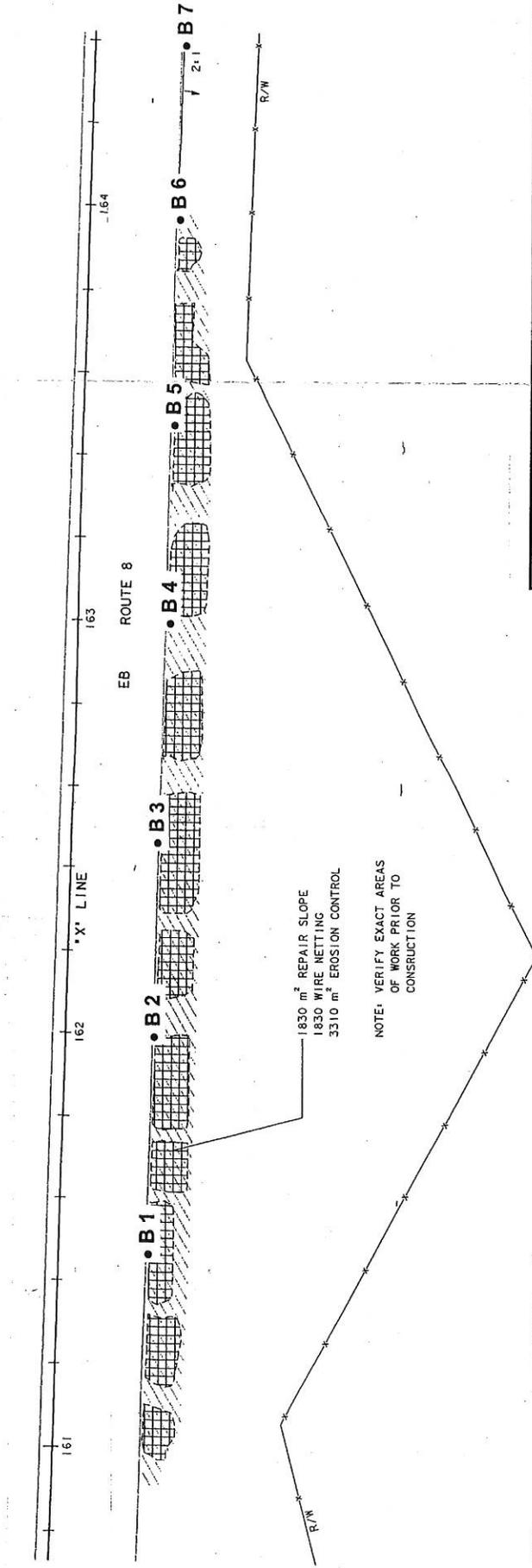
PLANS APPROVAL DATE: 8/23/99

KTU-A
6165 GREENWICH DR., SUITE 200
SAN DIEGO, CA 92122



It is recommended that if the upper 0.6 meters of soil excavated is to be re-used on-site, it should be placed under pavement at least 1.5 meters above the maximum groundwater level in accordance with the Department of Toxic Substances Control (DTSC) variance. Issued to Caltrans. If the soil is to be exported to another Caltrans right-of-way location, it should be re-used in the same manner as described above. Should the soil excavated to a depth of 0.6 meters at the site require disposal, it should be disposed as a hazardous waste with regard to lead concentrations.

SAMPLE IDENTIFICATION	DEPTH IN METERS	TOTAL LEAD EPA TEST METHOD 6010 (mg/kg)	SOLUBLE LEAD - WET EPA TEST METHOD 7420 (mg/l)	SOLUBLE LEAD VIA WET DI WATER (mg/L)	SOIL pH EPA TEST METHOD 9045
B1-1	Surface	333	26	---	---
B1-2	0.30	176	15	---	---
B2-1	Surface	314	40	---	---
B3-1	Surface	147	14	---	---
B4-1	Surface	505	86	0.54	7.5
B4-2	0.30	45	---	---	---
B5-1	Surface	54	---	---	---
B5-2	0.30	32	---	---	---
B5-3	0.60	18	---	---	---
B6-1	Surface	293	24	---	---
B6-2	0.30	126	10	---	---
B7-1	Surface	85	7.2	---	---



BORING LOCATION MAP

ROUTE 8 FROM THE 8/15 SEPARATION TO 0.6 KILOMETERS WEST OF COLLEGE AVENUE OVERCROSSING

DATE: 3-26-99 PROJECT NO.: 08900-06-07 FIGURE 2

NOTE: SEE SHEET C-1 FOR LEGEND AND CONSTRUCTION DETAILS

THIS PLAN ACCURATE FOR EROSION CONTROL WORK ONLY

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SHOWN

SCALE 1:500

GEOCON

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS
6770 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 619 538-6100 - FAX 619 538-8437

Project Name: Route 8 from the 8/15 separation to 0.6 km west of College Ave.
 Project No.: 08900-06-07
 Task Order No.: 11-226U1-PF

Block Diagrams - 95% UCL for Lognormal Distribution

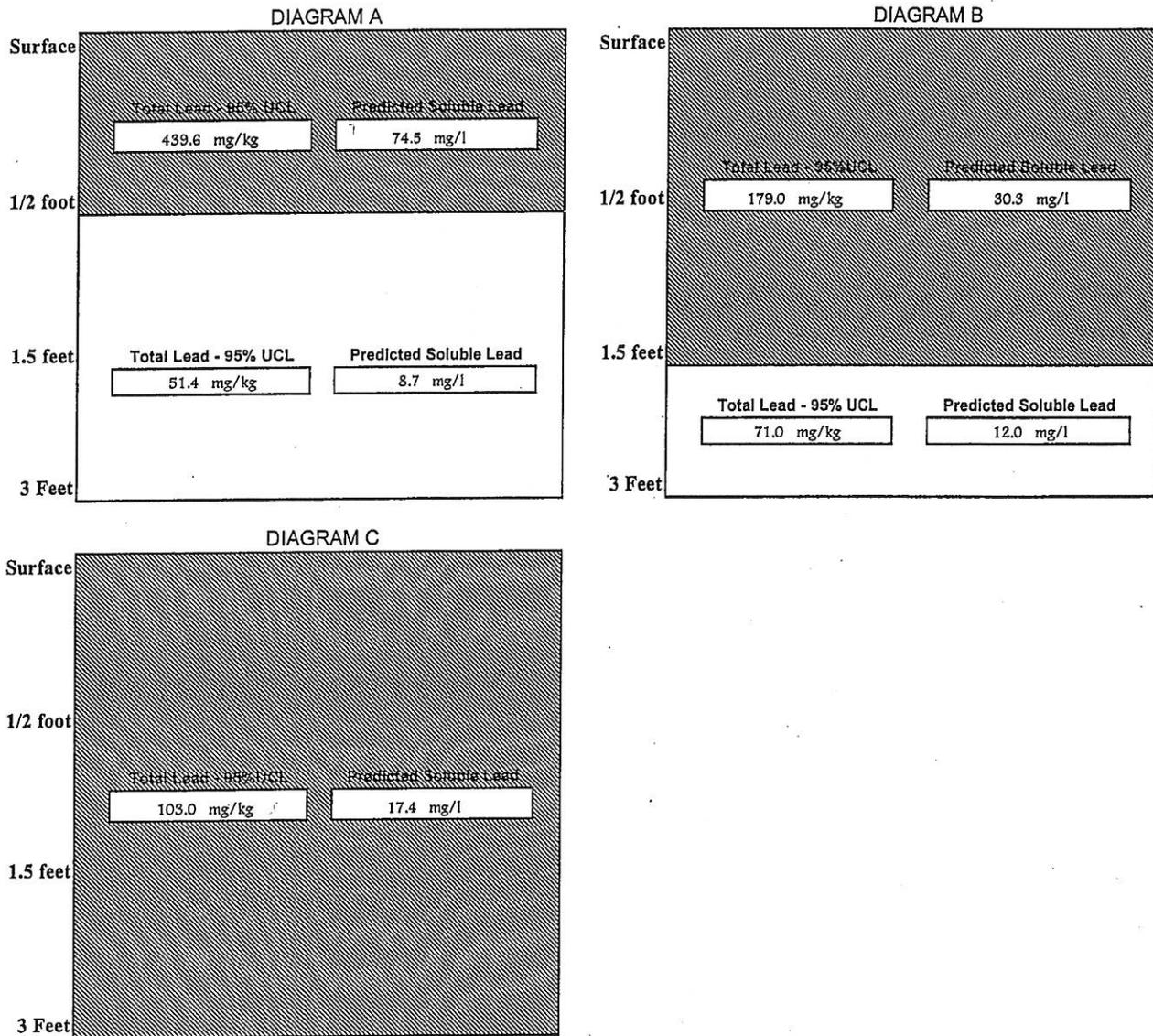


DIAGRAM A -- Separate the top 1/2 foot of soil from the remaining underlying soil
 DIAGRAM B -- Separate the top 1.5 feet of soil from the remaining underlying soil
 DIAGRAM C -- Analysis of the entire 3 Feet as a single unit

The above diagrams show the total and predicted soluble lead concentrations in each grouping of soil depending on how the various levels of soil are segregated. For instance, Diagram A shows a scenario where the top 1/2 foot of soil is excavated and kept separate from the underlying soil. In this case, the top 1/2 foot of soil would be expected to exhibit an average total lead concentration of 439.6 mg/kg and an average (WET-Citric Acid) soluble lead concentration of 74.5 mg/l. The underlying soil would be expected to exhibit an average total lead concentration of 51.4 mg/kg and an average (WET-Citric Acid) soluble lead concentration of 8.7 mg/l.

DEPARTMENT OF TRANSPORTATION

DISTRICT 11
4050 TAYLOR STREET, M.S. 120
SAN DIEGO, CA 92110
PHONE (619) 688-6103
FAX (619) 688-6644
TTY 711
www.dot.ca.gov



*Flex your power!
Be energy efficient!*

VIA EMAIL

July 8, 2014

11-SD-8
P.M. 6.9/8.2
EA 405501

Leonard Wilson
Senior Civil Engineer
City Of San Diego
Development Services Department
Water and Sewer Development Review
1222 First Avenue, MS 401
San Diego, California 92101-4101
LLWilson@sandiego.gov

Dear Mr. Wilson,

Caltrans District 11 contract #11-405501 is scheduled to begin construction in April 2015. The project is located in San Diego on Interstate 8 (I-8) from Waring Road to College Avenue. This project proposes upgrading the existing metal beam guard railing to concrete barrier in the median. The existing inside eastbound shoulder and a portion of the existing inside westbound shoulder will be upgraded from asphalt concrete to concrete pavement. A new concrete barrier will also be constructed on the outside westbound shoulder. As a result, existing drainage systems, pavement delineation, and metal beam guardrail found at other locations within the project limits will also be improved. This construction project is expected to last 260 days and will require approximately 250,000 gallons (0.77 acre-ft) of water.

Please confirm the availability of potable water necessary to complete the construction of the above referenced project. A plan title sheet showing the limits and location of the project is attached for your reference. Please respond in writing that the City will have the estimated water need for the construction of this project.

If you have any questions please contact me at 619-688-6103.

Sincerely,

A handwritten signature in black ink, appearing to read "J. Pulgarin".

Johan Pulgarin, PE
Project Engineer - Caltrans District 11
Johan.Pulgarin@dot.ca.gov

Attachments: Title Sheet

From: [Wilson, Leonard](#)
To: [Pulgarin, Johan M@DOT](#)
Cc: [Estrada, Richard N@DOT](#); [Des Jardins, Bethnay L@DOT](#); [Dodge, Claire F@DOT](#); [Partow, Hooman](#); [Rastakhiz, Mehdi](#)
Subject: FW: Request for Water Availability for Caltrans Project #11-405501
Date: Thursday, July 10, 2014 11:33:57 AM
Attachments: [Water Resource Letter 405501.pdf](#)
[405501 Title Sheet.pdf](#)

Hi Johan,

I'm confirming that we are in receipt of your request. If we have any questions, we will let you know. Please feel free to contact Mehdi Rastakhiz if you have any questions. Mehdi is cc'd on this e-mail. Our review should be complete by the end of next week.

Thank you,
Leonard

Leonard L. Wilson, P.E.
Senior Civil Engineer
City of San Diego
Development Services Department
Water and Sewer Development Review
1222 First Avenue, MS 401
San Diego, CA 92101-4101

(619) 446-5421
LLWilson@sandiego.gov

From: Pulgarin, Johan M@DOT [mailto:johan.pulgarin@dot.ca.gov]
Sent: Tuesday, July 08, 2014 4:36 PM
To: Wilson, Leonard; Partow, Hooman
Cc: Estrada, Richard N@DOT; Des Jardins, Bethnay L@DOT; Dodge, Claire F@DOT
Subject: Request for Water Availability for Caltrans Project #11-405501

Hi Leonard,

I am submitting to you the Water Resource Letter for Caltrans project #11-405501 requesting confirmation of the availability of water necessary to complete the project described within the letter. Per our conversation, since there is no available recycled water along the I-8 corridor, I am making the request for potable water. Also attached is the title sheet of the plan set showing the project location and limits.

Your attention to this request is greatly appreciated. Please give me a call if you have any questions or concerns.

Regards,

Johan Pulgarin, P.E.
Project Engineer
California Department of Transportation
Traffic Operations - District 11
Office: 619.688.6103
Fax: 619.688.6644
johan_pulgarin@dot.ca.gov