

**APPENDIX I**  
**SITE MAP, FIELD EXPLORATION, LOG OF TEST BORINGS**



Wall 349L: Looking south (from southbound lane).



Wall 346L: Looking north (from southbound lane).

**SITE PHOTOGRAPHS**  
(12 Mar 02)

Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California



Wall 357R: Looking east (from southbound lane), wide-angle view.



Wall 357R: Looking north (from southbound lane), close-up view.

### SITE PHOTOGRAPHS

(9 May 02)

Route 15/56 Separation Managed Lanes, Stage 1

Task Order No. 284016

San Diego, California





Wall 357R1 (ascending slope), Wall 357R (center median): Looking south-southeast (from southbound lane).

**SITE PHOTOGRAPH**

(9 May 02)

Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California



Wall 353R: Looking north from north end of wall.



Wall 353R: Looking south at north end of wall.

**SITE PHOTOGRAPH**  
(12 Mar 02)

Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

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Wall 358L

Wall 358L: Looking south-southeast.



Wall 361L1

Wall 361L1: Looking south from crest of slope above wall.

**SITE PHOTOGRAPHS**

(9 May 02)

Route 15/56 Separation Managed Lanes, Stage 1

Task Order No. 284016

San Diego, California





At Wall 361L: Looking north from south end of wall.



At Wall 361L: Looking north along proposed alignment.

**SITE PHOTOGRAPHS**

(12 Mar 02)

Route 15/56 Separation Managed Lanes, Stage 1

Task Order No. 284016

San Diego, California





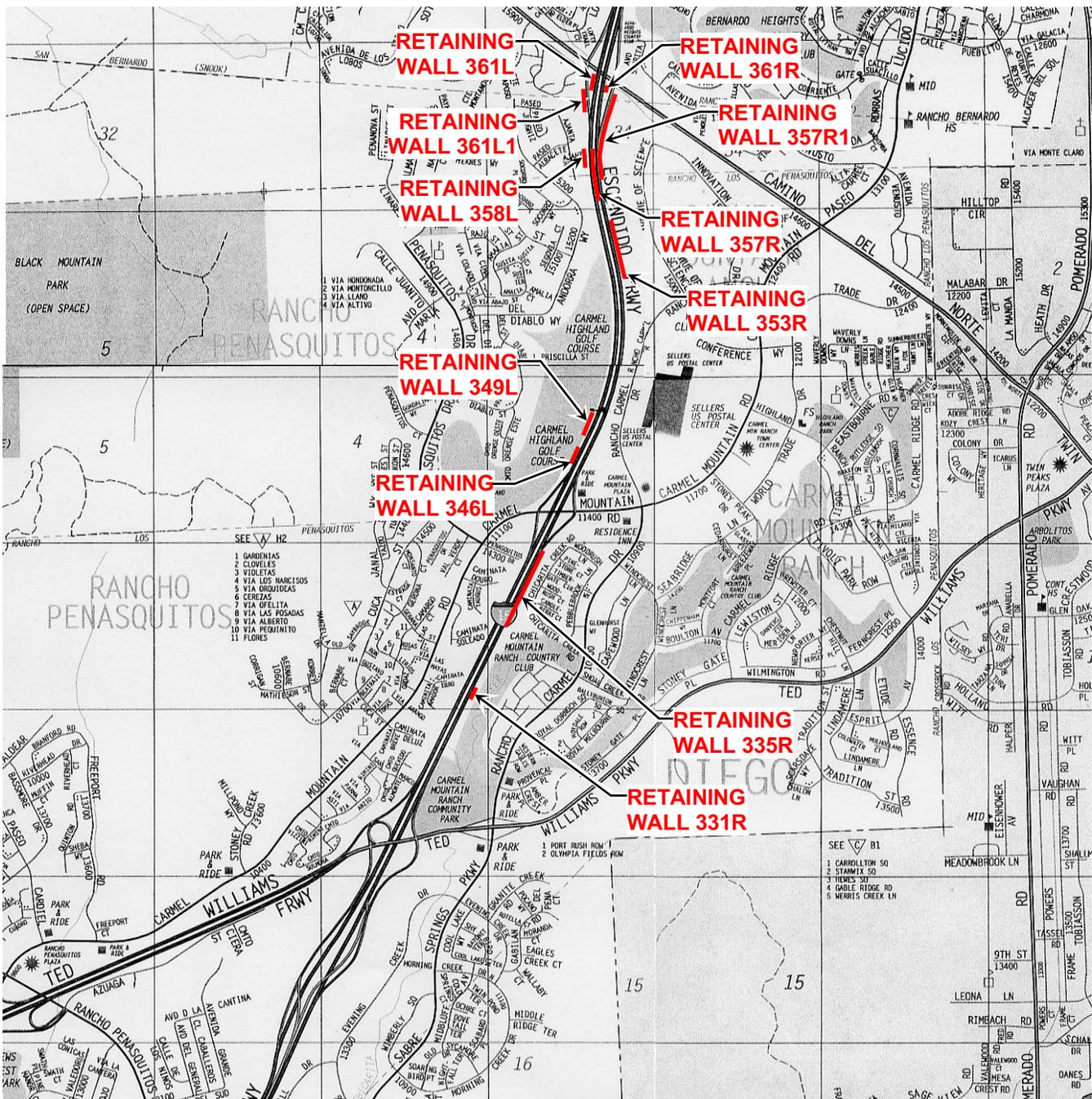
Wall 361R: Looking north.

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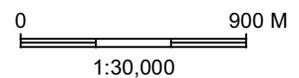
**SITE PHOTOGRAPHS**  
(12 Mar 02)

Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California





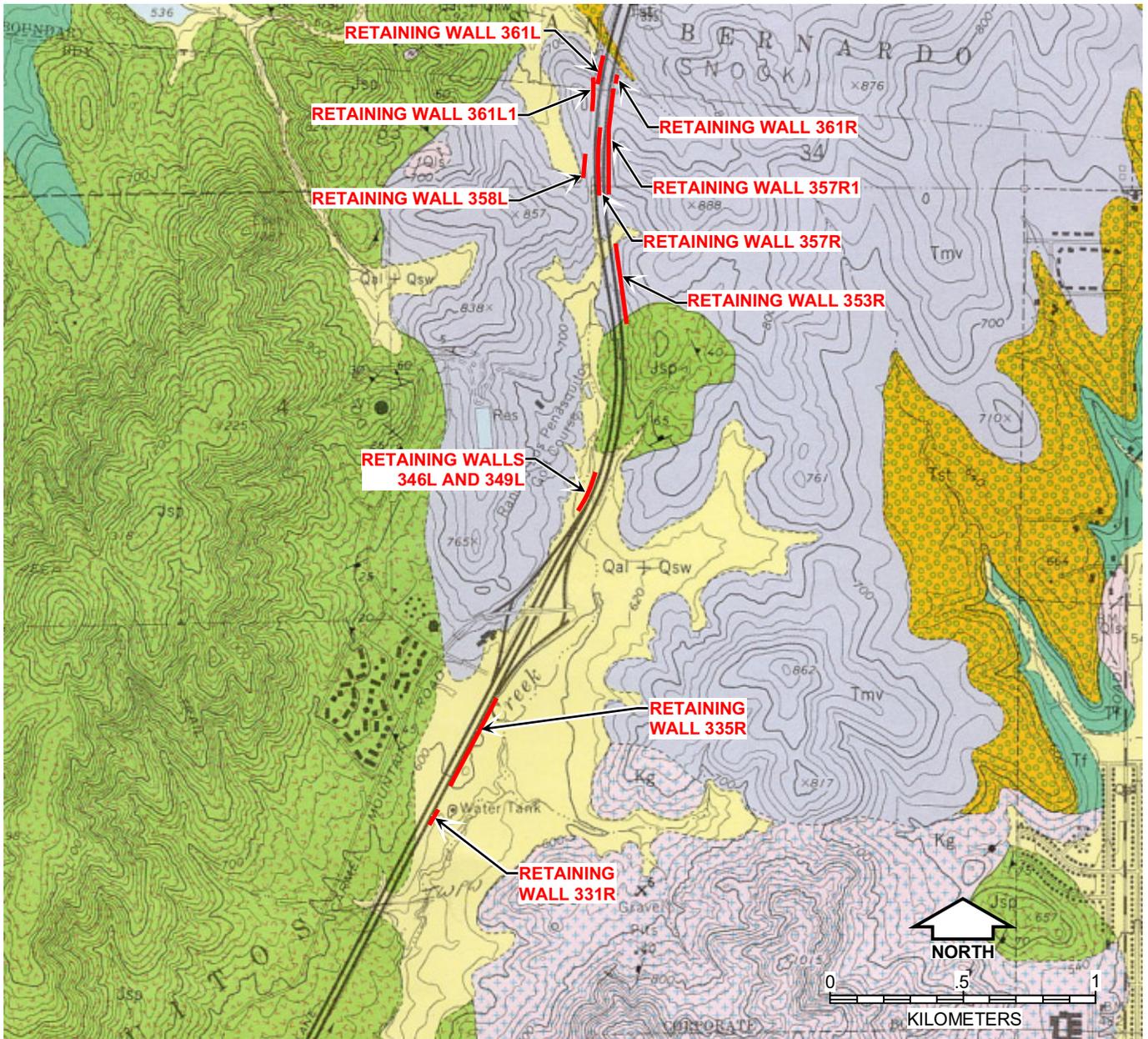
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**VICINITY MAP**  
Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

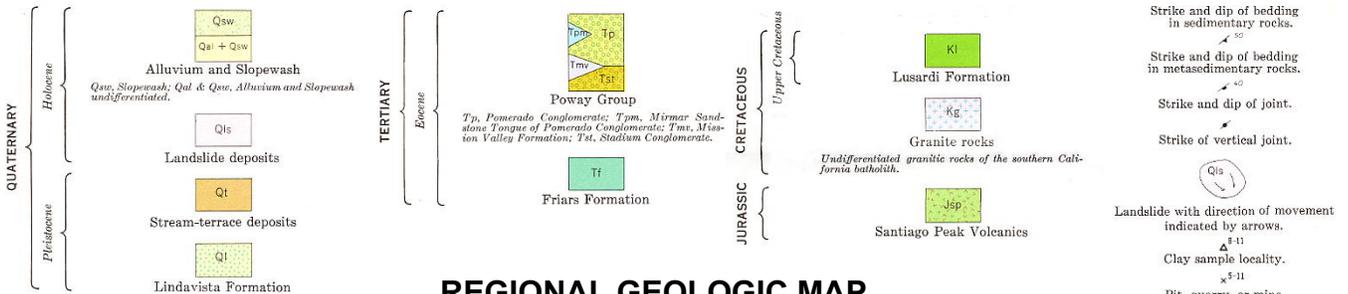
FIGURE I-1





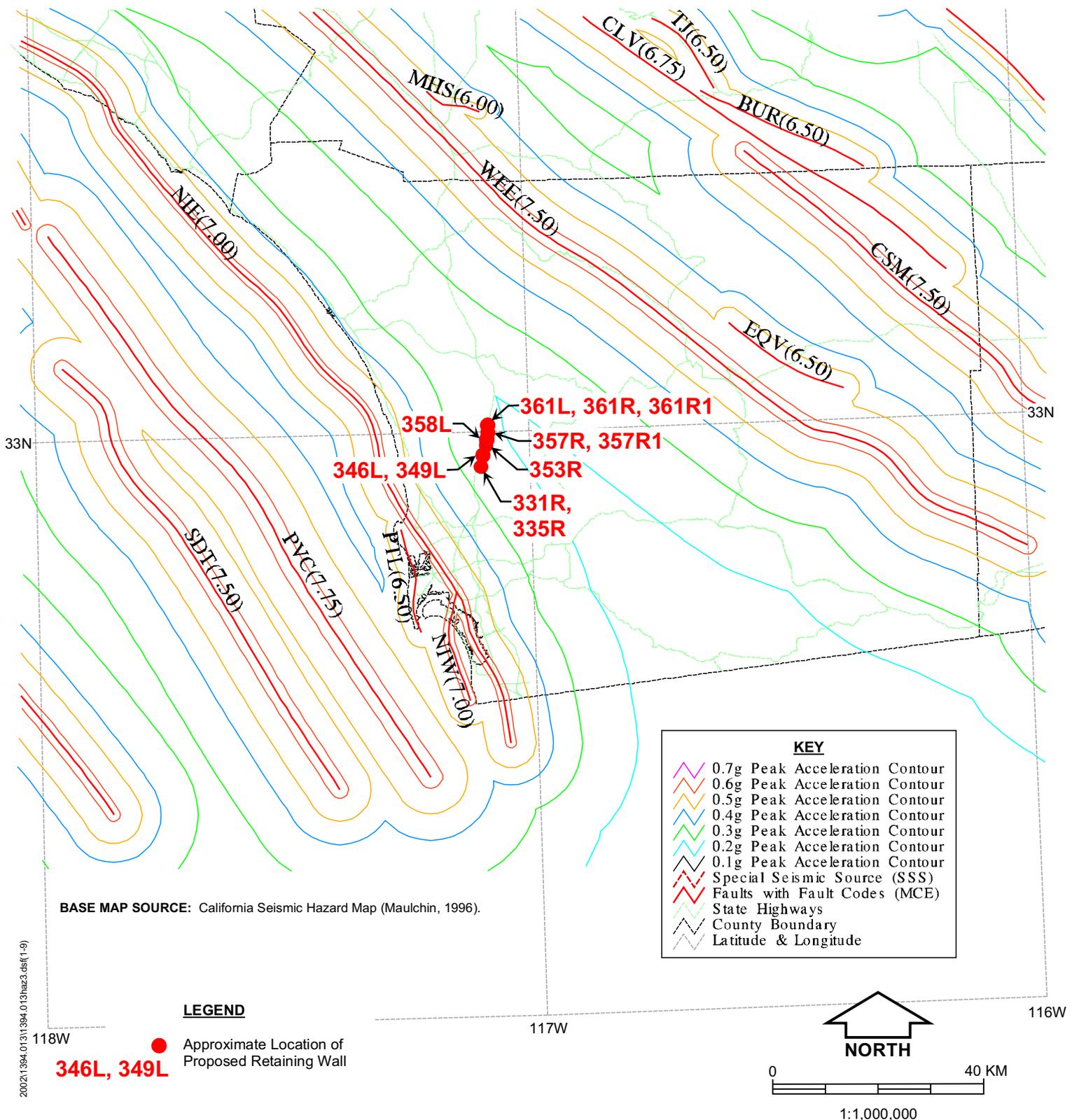
**BASE MAP SOURCE:** CDMG, Geology of the Poway Quadrangle, San Diego County, California by Michael P. Kennedy and G. L. Peterson (1975).

**LEGEND**



**REGIONAL GEOLOGIC MAP**  
Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

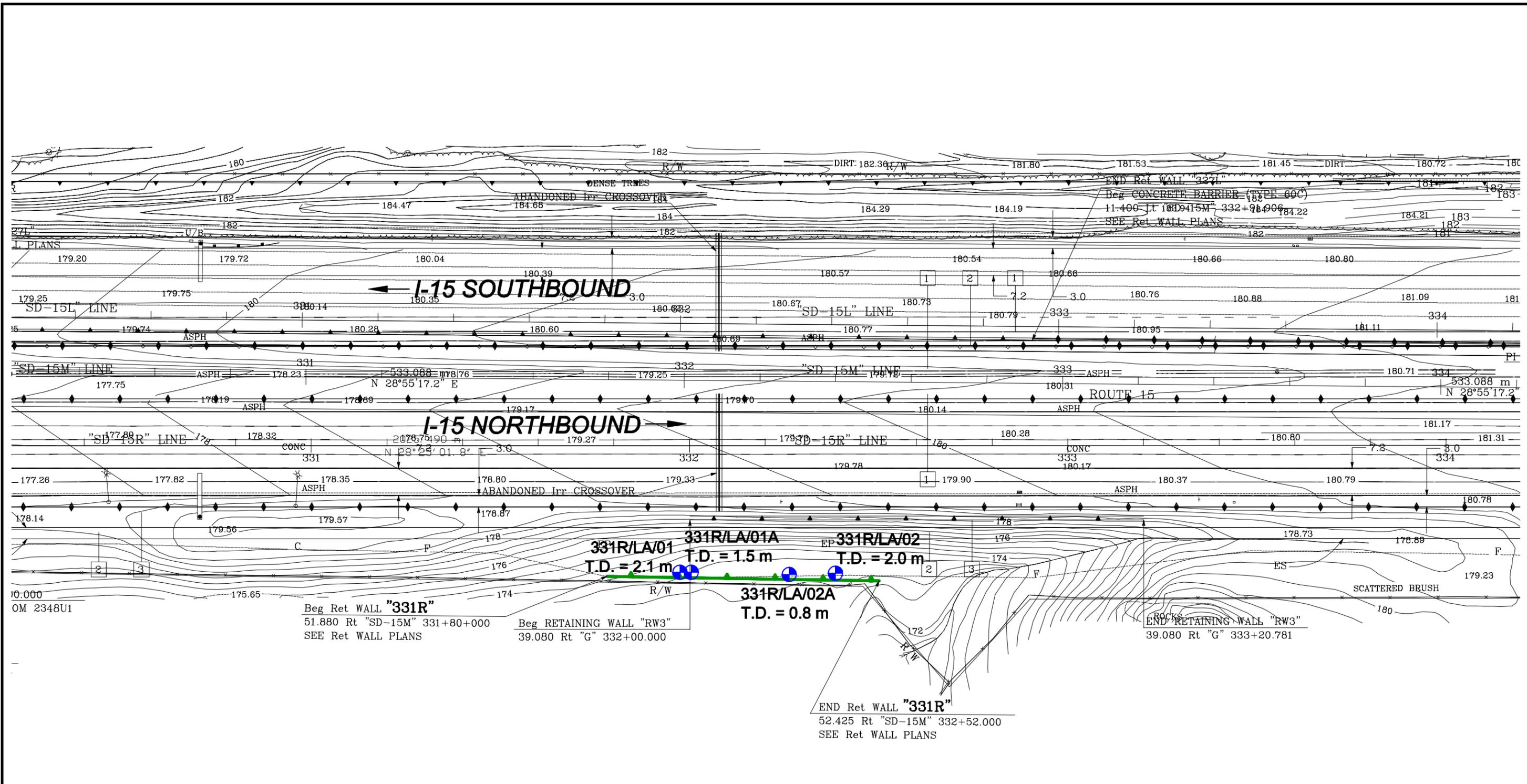




**SEISMIC HAZARD MAP**  
Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

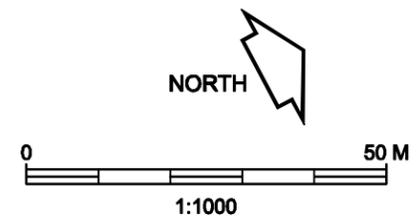
FIGURE I-3





**LEGEND**

-  Approximate Test Boring Location
-  Proposed Retaining Wall
- T.D. = Total Depth (m)
- LA = Limited Access
- HA = Hollow Stem Auger



Reproduced from Caltrans Drawing Layout  
 Sheets L-9 (latest revision 10-03-02) and  
 L-10 (latest revision 10-03-02).



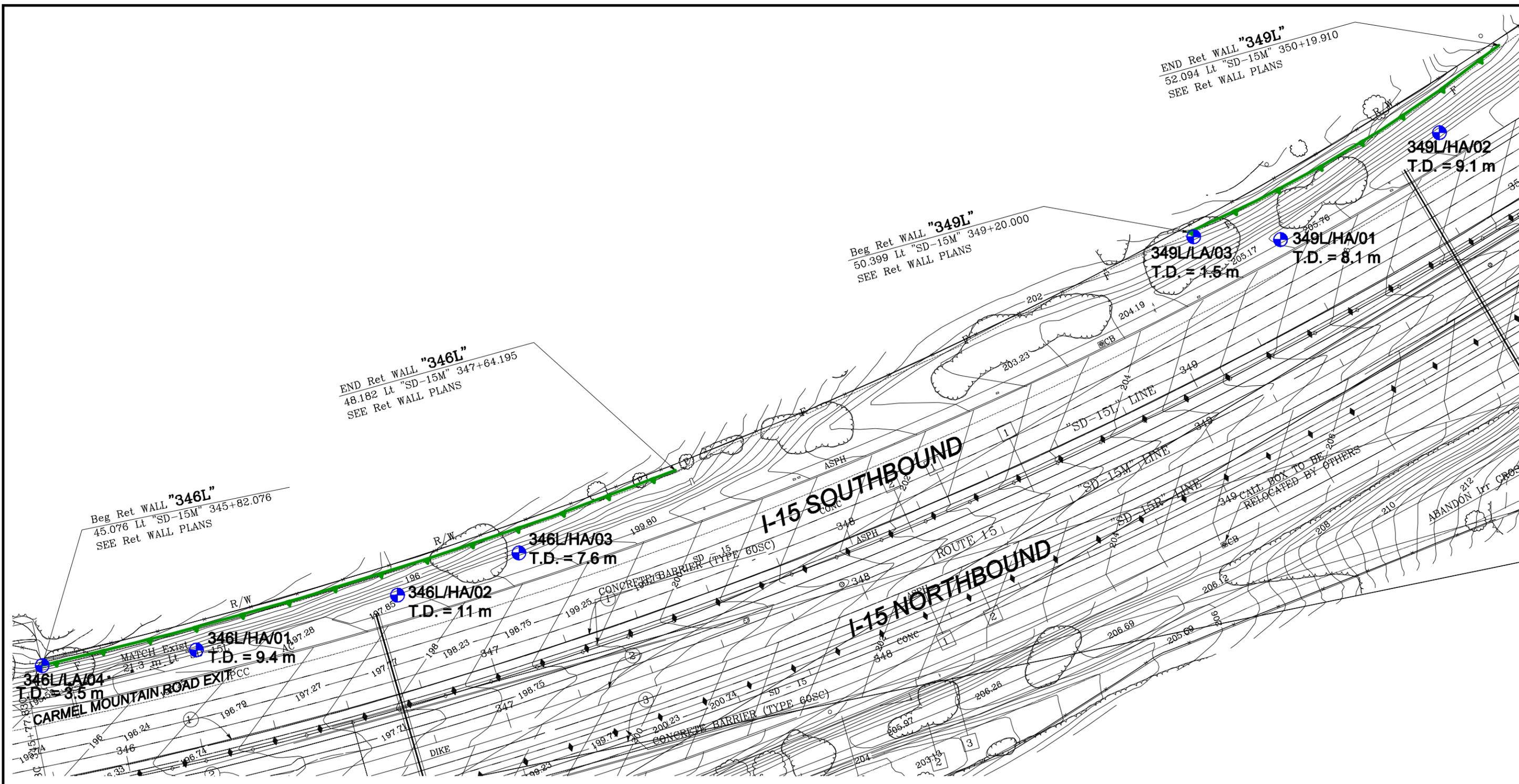
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**TEST BORING LOCATION PLAN**  
**Retaining Wall 331R**  
**Route 15/56 Separation Managed Lanes, Stage 1**  
**Task Order No. 284016**  
**San Diego, California**

1394.013
February 2003
Figure I-4

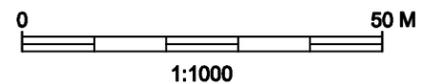
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**LEGEND**

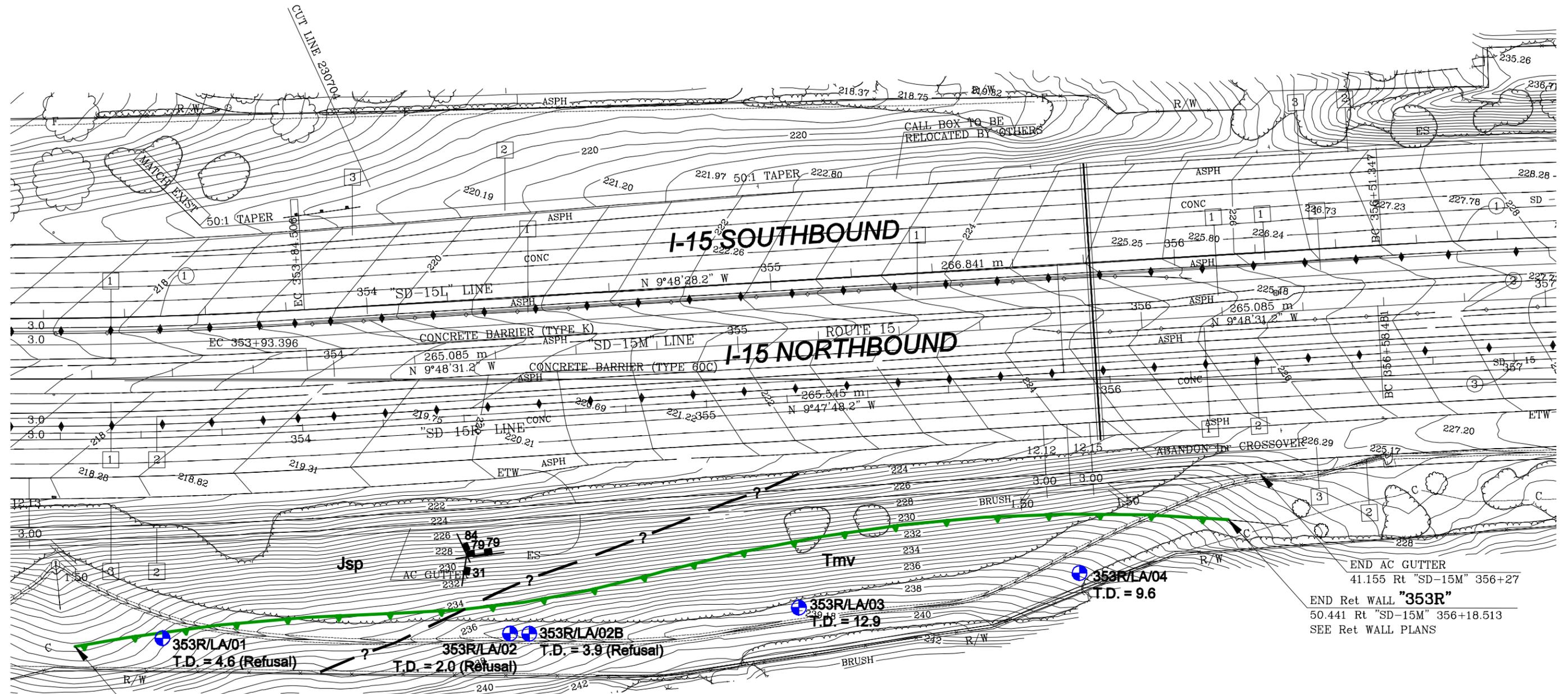
-  Approximate Test Boring Location
-  Proposed Retaining Wall
- T.D. = Total Depth (m)
- HA = Hollow Stem Auger
- LA = Limited Access



	<b>FUGRO WEST, INC.</b> 4820 McGrath St., Suite 100, Ventura, CA 93003 Tel.: (805) 650-7000, Fax: (805) 650-7010	
	<b>TEST BORING LOCATION PLAN</b> <b>Retaining Walls 346L and 349L</b> <b>Route 15/56 Separation Managed Lanes, Stage 1</b> <b>Task Order No. 284016</b> <b>San Diego, California</b>	
1394.013	February 2003	Figure I-6

Reproduced from Caltrans Drawing  
Layout Sheets L-14, L-15 and L-16  
(latest revision 09-01-02).

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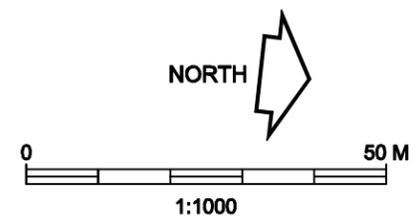
Beg Ret WALL "353R"  
 66.114 Rt "SD-15M" 353+35.101  
 SEE Ret WALL PLANS

END AC GUTTER  
 41.155 Rt "SD-15M" 356+27  
 END Ret WALL "353R"  
 50.441 Rt "SD-15M" 356+18.513  
 SEE Ret WALL PLANS

**LEGEND**

-  Approximate Test Boring Location
-  Proposed Retaining Wall
- T.D. = Total Depth (m)
- LA = Limited Access
- HA = Hollow Stem Auger

-  Mission Valley Formation
-  Santiago Peak Volcanics
-  Approximate Location of Geologic Contact
-  Strike and Dip of Joint



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 Layout Sheets L-17 and L-18 (latest  
 revision 09-01-02).

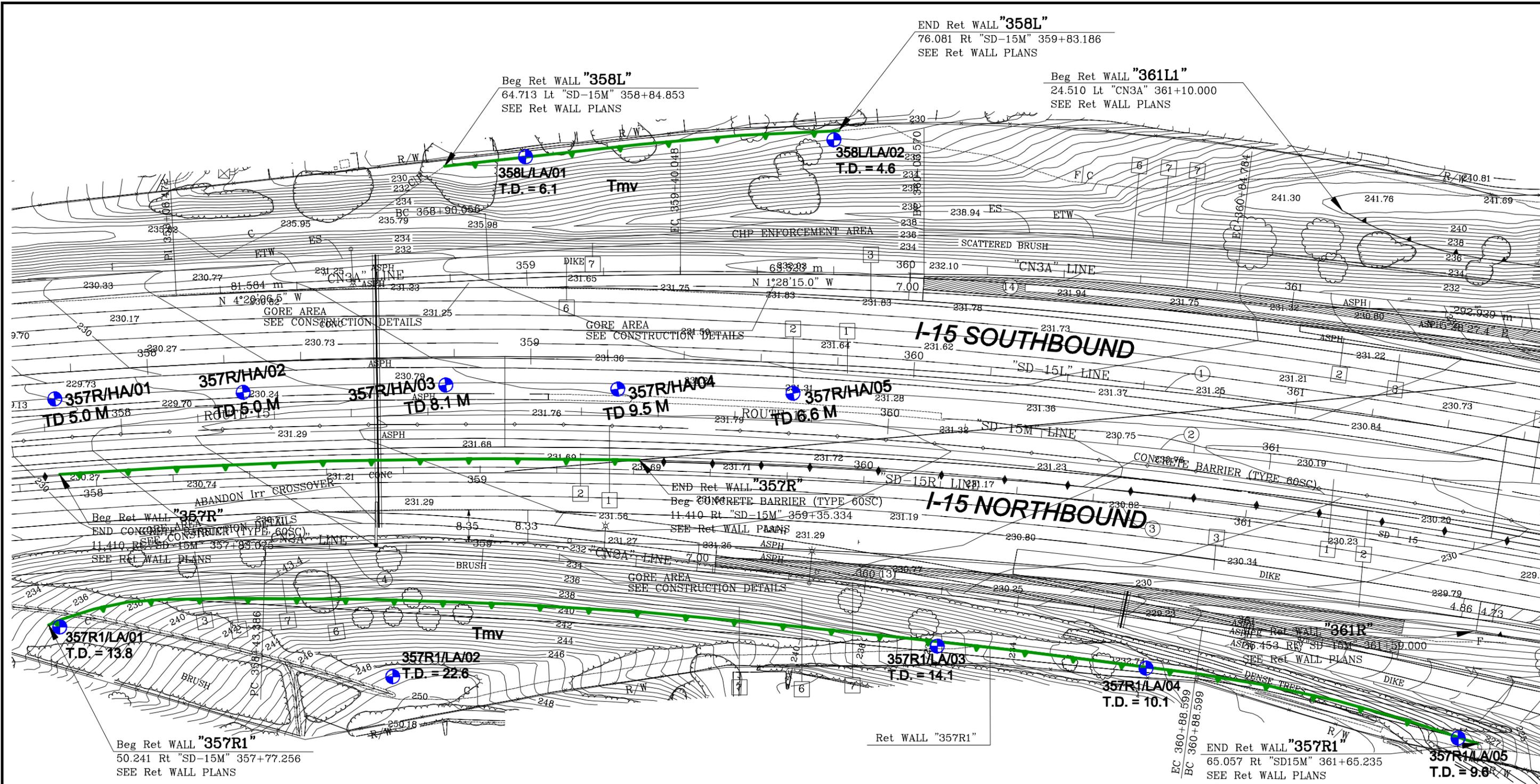


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**TEST BORING LOCATION PLAN**  
**Retaining Wall 353R**  
**Route 15/56 Separation Managed Lanes, Stage 1**  
**Task Order No. 284016**  
**San Diego, California**

1394.013
February 2003
Figure I-7

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Beg Ret WALL "357R1"  
50.241 Rt "SD-15M" 357+77.256  
SEE Ret WALL PLANS

Beg Ret WALL "358L"  
64.713 Lt "SD-15M" 358+84.853  
SEE Ret WALL PLANS

END Ret WALL "358L"  
76.081 Rt "SD-15M" 359+83.186  
SEE Ret WALL PLANS

Beg Ret WALL "361L1"  
24.510 Lt "CN3A" 361+10.000  
SEE Ret WALL PLANS

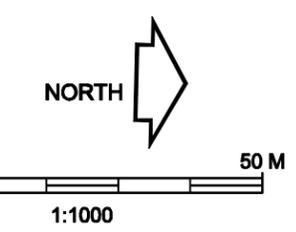
END Ret WALL "357R"  
Beg CONCRETE BARRIER (TYPE 60SC)  
11.410 Rt "SD-15M" 359+35.334  
SEE Ret WALL PLANS

END Ret WALL "361R"  
Beg ASPH Ret WALL "361R"  
ASPH 453 Rt "SD-15M" 361+50.000  
SEE Ret WALL PLANS

END Ret WALL "357R1"  
65.057 Rt "SD15M" 361+65.235  
SEE Ret WALL PLANS

**LEGEND**

-  Approximate Test Boring Location
-  Proposed Retaining Wall
- T.D. = Total Depth (m)
- LA = Limited Access
- HA = Hollow Stem Auger
-  Mission Valley Formation



Reproduced from Caltrans Drawing  
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**TEST BORING LOCATION PLAN**  
**Retaining Walls 357R, 357R1 and 358L**  
**Route 15/56 Separation Managed Lanes, Stage 1**  
**Task Order No. 284016**  
**San Diego, California**

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1394.013 February 2003 Figure I-8

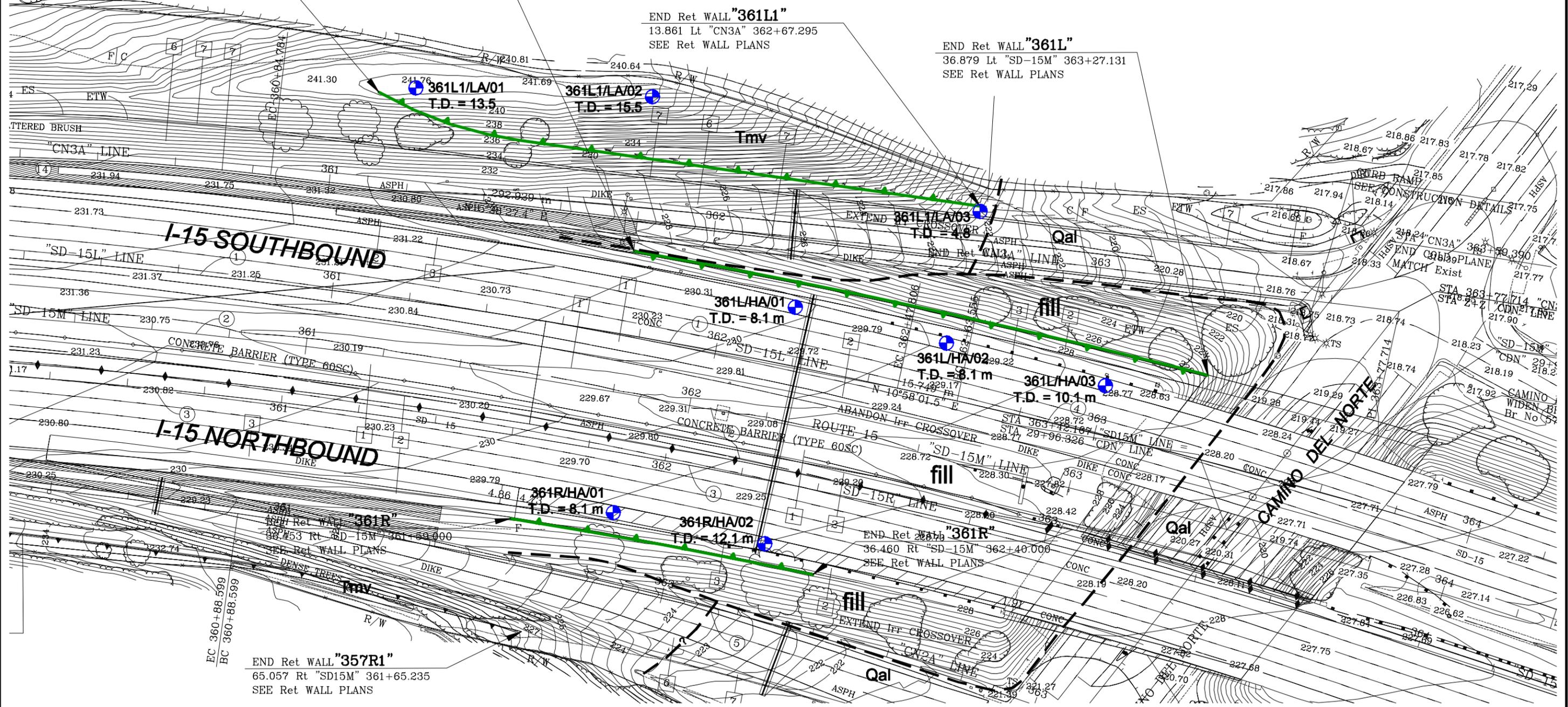
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Beg Ret WALL "361L1"  
24.510 Lt "CN3A" 361+10.000  
SEE Ret WALL PLANS

Beg Ret WALL "361L"  
36.445 Lt "SD-15M" 361+79.225  
SEE Ret WALL PLANS

END Ret WALL "361L1"  
13.861 Lt "CN3A" 362+67.295  
SEE Ret WALL PLANS

END Ret WALL "361L"  
36.879 Lt "SD-15M" 363+27.131  
SEE Ret WALL PLANS



END Ret WALL "357R1"  
65.057 Rt "SD15M" 361+65.235  
SEE Ret WALL PLANS

**LEGEND**

Approximate Test Boring Location

Proposed Retaining Wall

T.D. = Total Depth (m)

LA = Limited Access

HA = Hollow Stem Auger

Fill

Fill

Qal

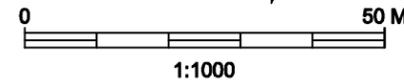
Alluvium

Tmv

Mission Valley Formation

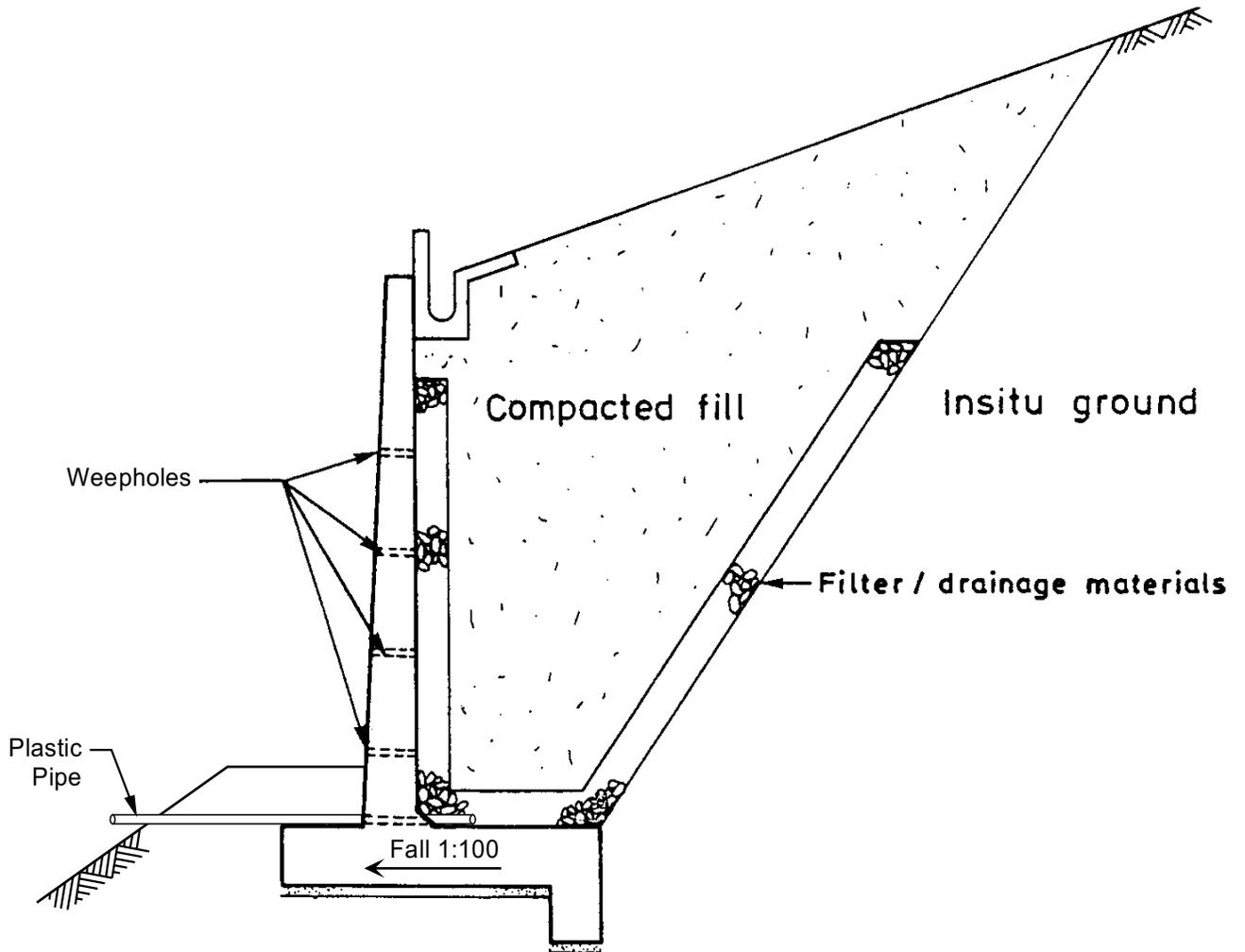
Approximate Location of Geologic Contact

NORTH



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**TEST BORING LOCATION PLAN**  
**Retaining Walls 361L, 361L1 and 361R**  
**Route 15/56 Separation Managed Lanes, Stage 1**  
**Task Order No. 284016**  
**San Diego, California**

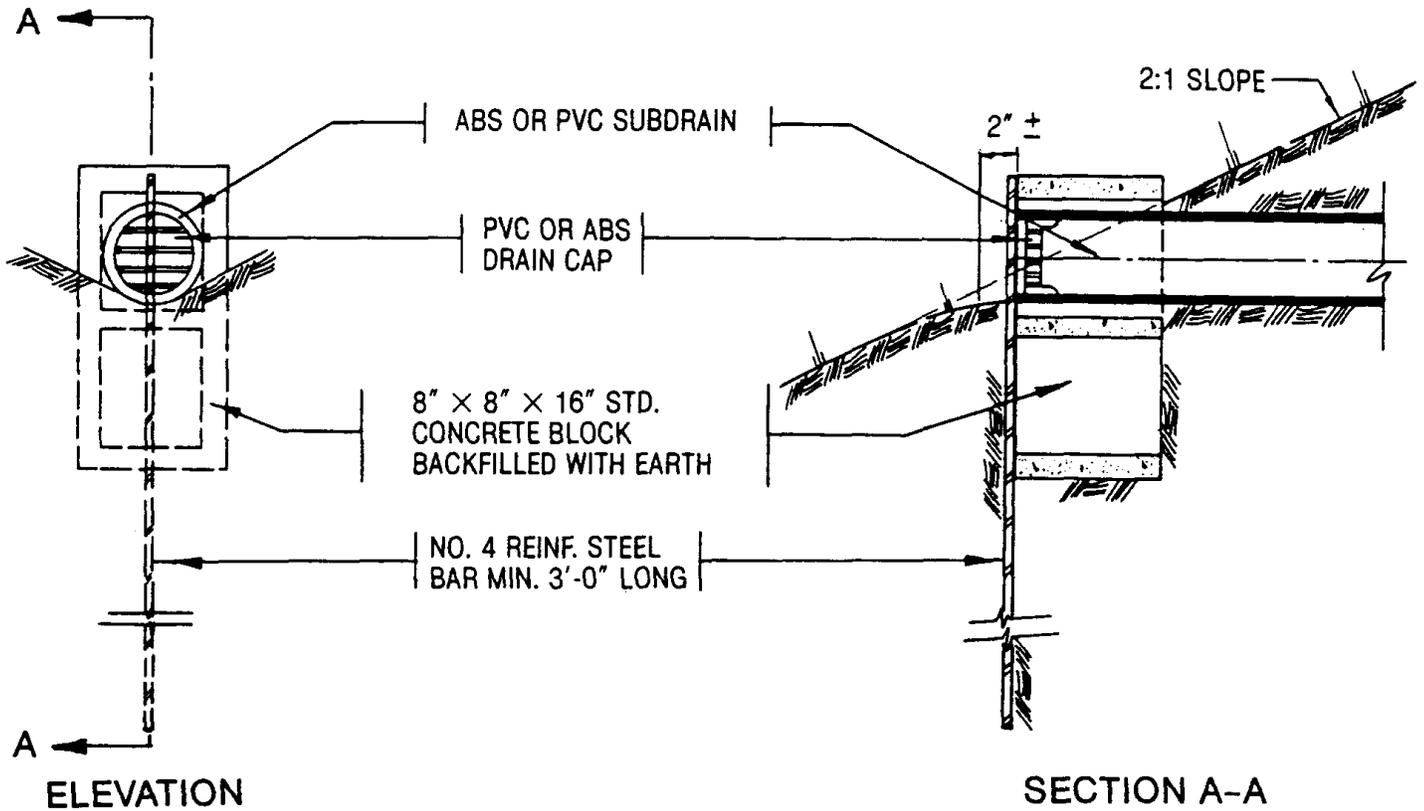


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**ILLUSTRATION OF RETAINING WALL DRAINAGE**  
Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

FIGURE I-10





2002\1394.01\31\1394.013\drainage.dwg ip2

**SUBDRAIN MARKER DETAIL**  
Route 15/56 Separation Managed Lanes, Stage 1  
Task Order No. 284016  
San Diego, California

FIGURE I-11



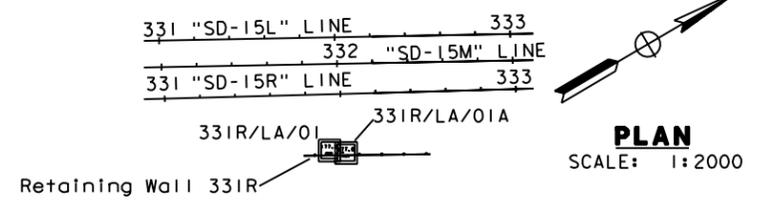


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2		
 GEOTECHNICAL PROFESSIONAL			2/7/03		
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**Boring Nos: 331R/LA/01, 01A**  
 Project Name: I-15 Managed Lanes (Unit 1)  
 Retaining Wall 331R

**NOTES:**

- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
- TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
- LA = LIMITED ACCESS (SOLID STEM AUGER)
- THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical test cone divided by area on tip of cone.  
 Penetration Ratio (kN/m²) vs. Tip Bearing (kN/m²)

**57 mm CONE PENETRATION BORING**  
 No count recorded. Driving rate in mm using a 55mm diameter sampler. Number of blows recorded.

**ROTARY SAMPLE BORING (UR)**  
 Casing of 100 mm diameter. Penetration rate (mm/min) vs. Time (min). Moisture content (w) and void ratio (e) determined. Unconfined material change.

**SAMPLE BORING (UR)**  
 Blows per 300 mm (using 10.2 kg rod, 300 mm drop or at). Description of material (s). Sample taken.

**TEST PIT**  
 Description of material (s).

**DIAMOND CORE BORING**  
 Vane Shear.

**JET BORING**  
 Penetration Ratio (kN/m²) vs. Tip Bearing (kN/m²).

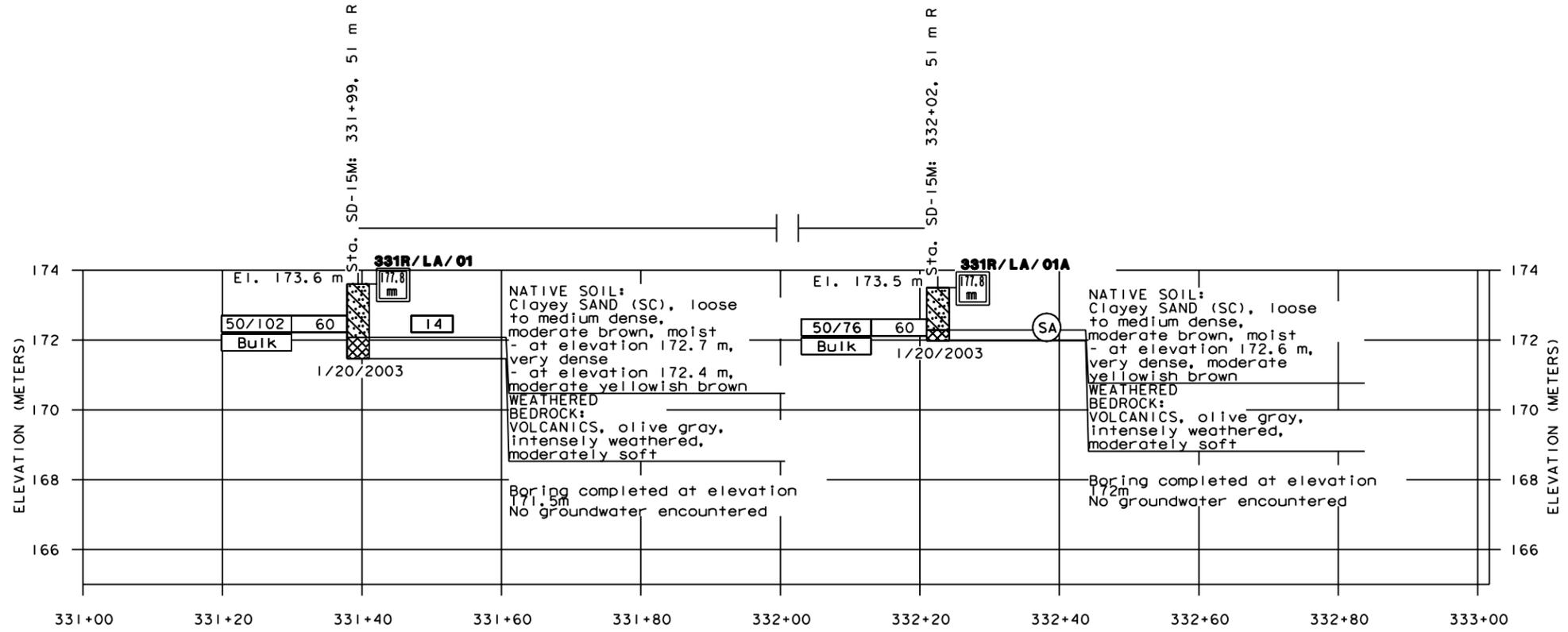
**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MAYER, FILL MATERIAL, CORBBLE, IONICUS ROCK, SEDIMENTARY ROCK, METAMORPHIC.

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/300mm)	0-4	5-10	11-30	31-50	>50
Consistency	Very Loose	Loose	Medium Dense	Dense	Very Dense
SPT (Blows/300mm)	0-4	5-10	11-30	31-50	>50
Consistency	Very Soft	Soft	Firm	Stiff	Very Stiff
SPT (Blows/300mm)	0-4	5-10	11-30	31-50	>50
Consistency	Very Soft	Soft	Firm	Stiff	Very Stiff

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



**PROFILE**  
 SCALE: HORIZ = 1:400  
 VERT = 1:80

DESIGN OVERSIGHT	DRAWN BY: T. McAdam	K. Proffer C.E.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy P.E. PROJECT ENGINEER	BRIDGE NO.: 0	<b>Borings: 331R/LA/01, 01A</b>	
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	DATE: 1/20/03	CU 11277 EA 080901	FILE => ... \j11+tb01331.dgn	KILOMETER POST: 0	<b>LOG OF TEST BORING 1 of 2</b>	
ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100					DISREGARD PRINTS BEARING EARLIER REVISION DATES		
GEOTECHNICAL LOG OF TEST BORINGS SHEET (METRIC) (REV 2/1/00)					SHEET OF		



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2		

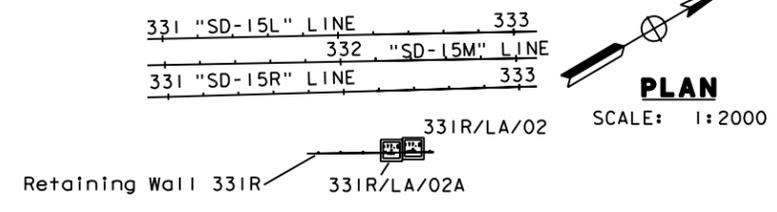
GEOTECHNICAL PROFESSIONAL  
 2/7/03  
 REGISTERED PROFESSIONAL ENGINEER  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

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**Boring Nos: 331R/LA/02, 02A**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 331R

**NOTES:**

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- TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO.      METHOD      BORING NO. (FOR EACH WALL)
- LA = LIMITED ACCESS (SOLID STEM AUGER)
- THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF BORING OPERATIONS**

ELECTRONIC CONE PENETROMETER TEST  
 57 mm CONE PENETRATION BORING  
 ROTARY SAMPLE BORING (URTY)  
 SAMPLE BORING (URTY)  
 TEST PIT  
 DIAMOND CORE BORING  
 JET BORING  
 PENETRATION BORING

Pressure measured along a vertical test area divided by area of tip of cone divided by tip area.  
 Friction Ratio (s) = Tip Bearing (kPa) / Friction Ratio (s)

No count recorded. Driving rate in mm using a 50mm diameter sampler.

Description of material change. Unconformable material change.

Vane Shear.

Blows per 300 mm (using 30 mm drop or at 300 mm drop or at).

Poured Place.

**LEGEND OF EARTH MATERIALS**

GRAVEL  
 SAND  
 SILT  
 CLAY  
 CLAYEY SILT  
 PEAT and/or ORGANIC MATTER  
 FILL MATERIAL  
 COBBLE  
 IGNEOUS ROCK  
 SEDIMENTARY ROCK  
 METAMORPHIC

SPT by (Blow) (0.3m)  
 SPT by (Blow) (0.3m)  
 SPT by (Blow) (0.3m)

According to the Standard Penetration Test  
 Cohesive  
 Very Soft  
 Soft  
 Firm  
 Stiff  
 Very Stiff  
 Hard

SPT by (Blow) (0.3m)  
 SPT by (Blow) (0.3m)  
 SPT by (Blow) (0.3m)

Very Loose  
 Loose  
 Medium Dense  
 Dense  
 Very Dense

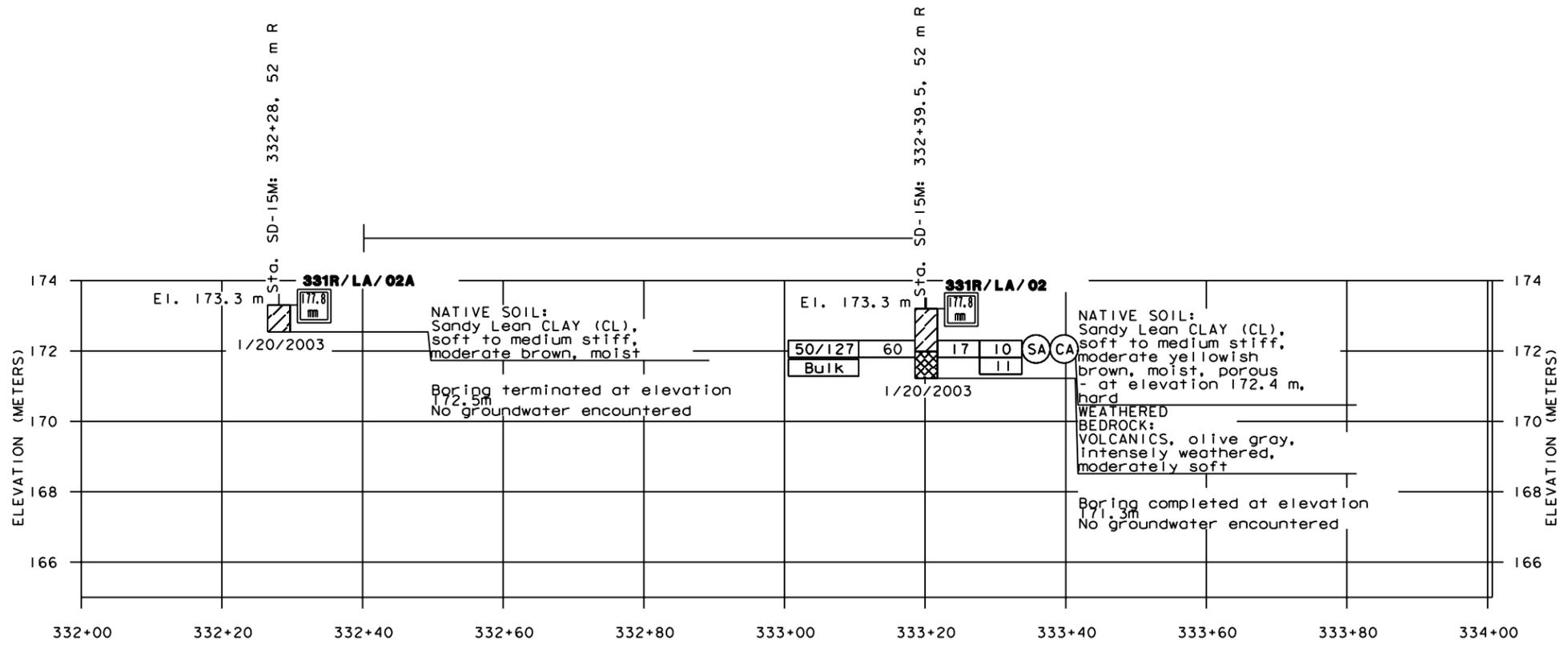
2-4  
 5-8  
 9-15  
 16-30  
 >31

Very Soft  
 Soft  
 Firm  
 Stiff  
 Very Stiff  
 Hard

Very Loose  
 Loose  
 Medium Dense  
 Dense  
 Very Dense

2-4  
 5-8  
 9-15  
 16-30  
 >31

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



**PROFILE**  
 SCALE: HORIZ = 1:400  
 VERT = 1:80

DESIGN OVERSIGHT	DRAWN BY T. McAdam	K. Proffer C.E.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy P.E. PROJECT ENGINEER	BRIDGE NO. 0	<b>Borings: 331R/LA/02, 02A</b>	
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REVISION DATES (PRELIMINARY STAGE ONLY)			SHEET		OF		

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2		

2/7/03  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

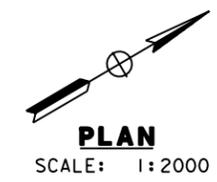
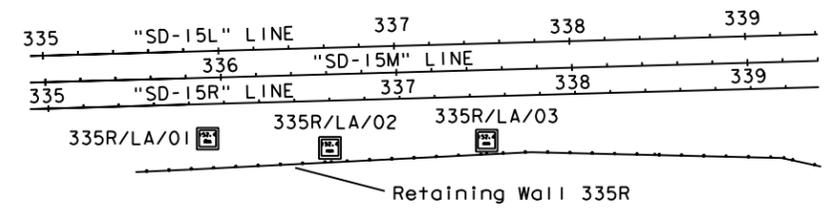
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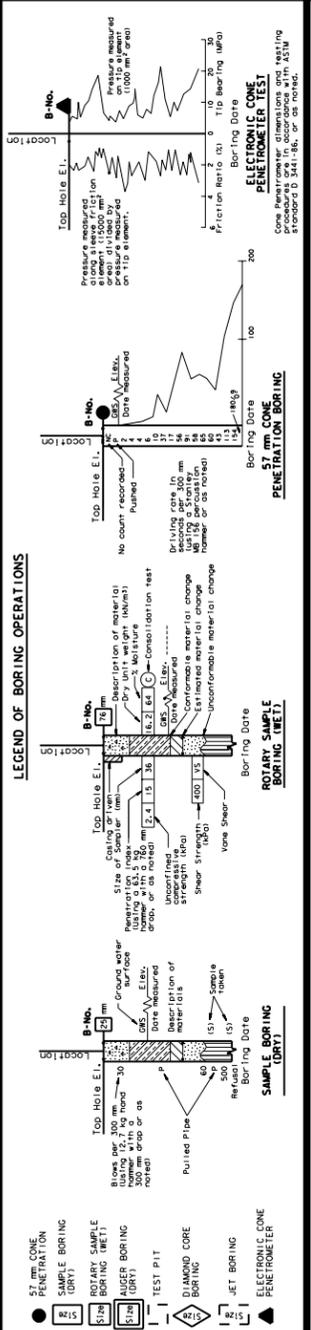
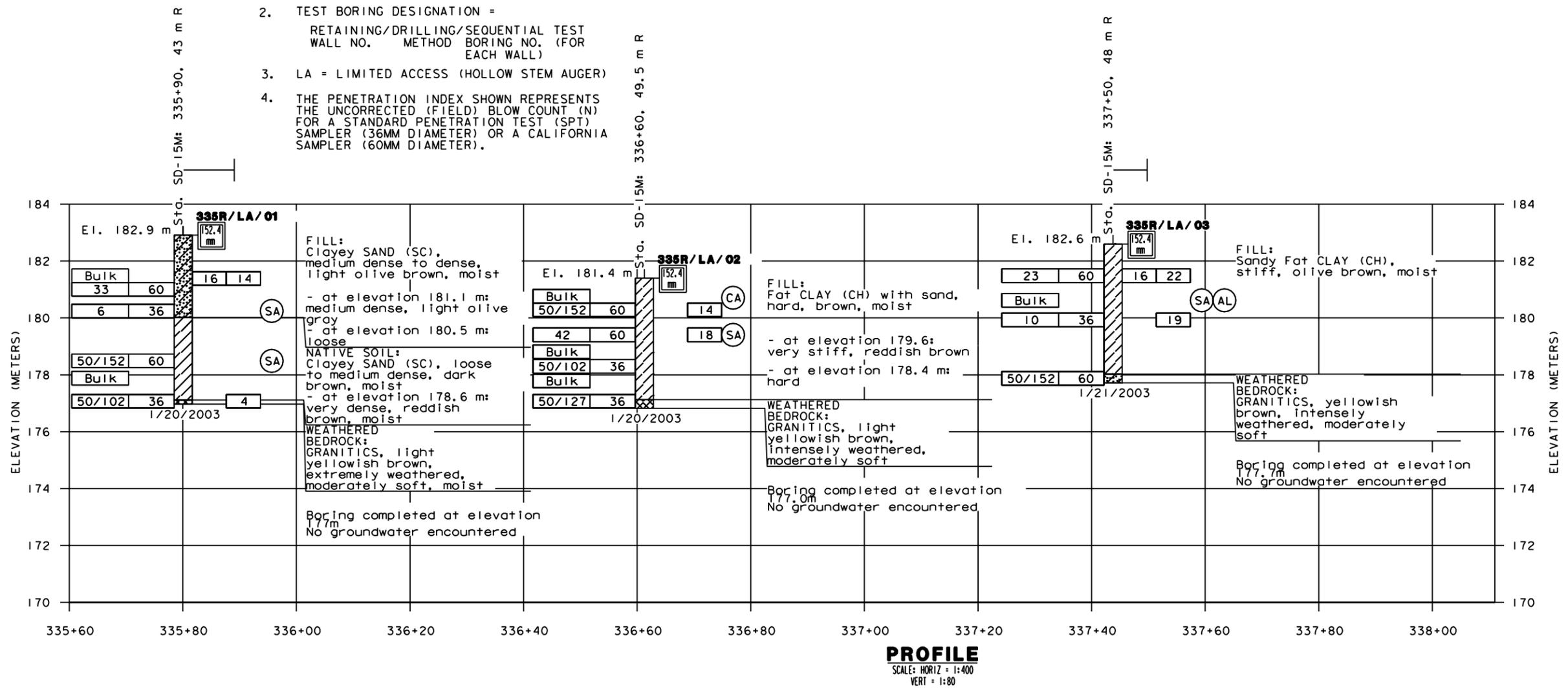
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**Boring Nos: 335R/LA/01, 02, 03**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 335R



- NOTES:**
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF EARTH MATERIALS**

GRAVEL	CLAYEY SILT
SAND	PEAT and/or ORGANIC MAYER
SILT	FILL MATERIAL
CLAY	COBBLE
CLAYEY CLAY or SANDY CLAY	IGNEOUS ROCK
CLAYEY SAND or SILTY SAND	SEDIMENTARY ROCK
SANDY SILT or SILTY CLAY	METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blow/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense
2	Very Soft
3-4	Soft
5-8	Firm
9-15	Stiff
16-30	Very Stiff
>31	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

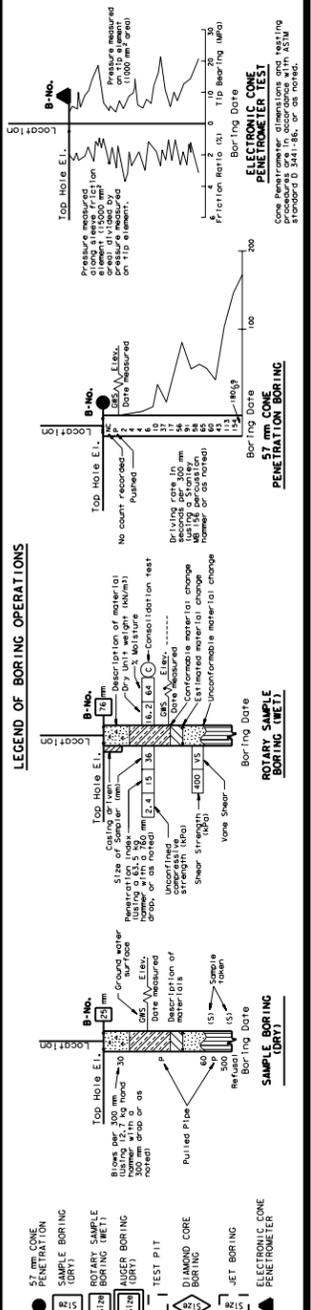
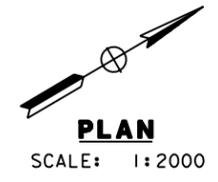
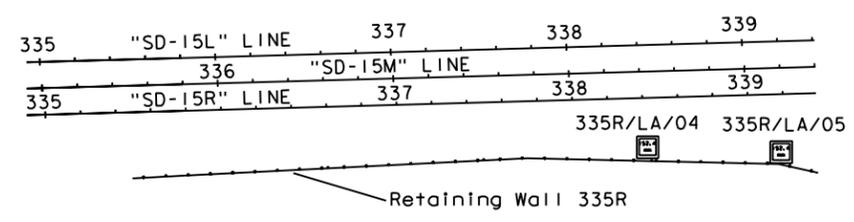
DESIGN OVERSIGHT	DRAWN BY	T. McAdam	K. Proffer C.E.G.
SIGN OFF DATE	CHECKED BY	C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY DATE: 1/20/03

<b>PREPARED FOR THE STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION	H. Ontoy P.E. PROJECT ENGINEER	BRIDGE NO. 0	<b>Borings: 335R/LA/01, 02, 03</b>
CU 11277 EA 080901	KILOMETER POST 0	<b>LOG OF TEST BORING 1 of 2</b>	SHEET OF

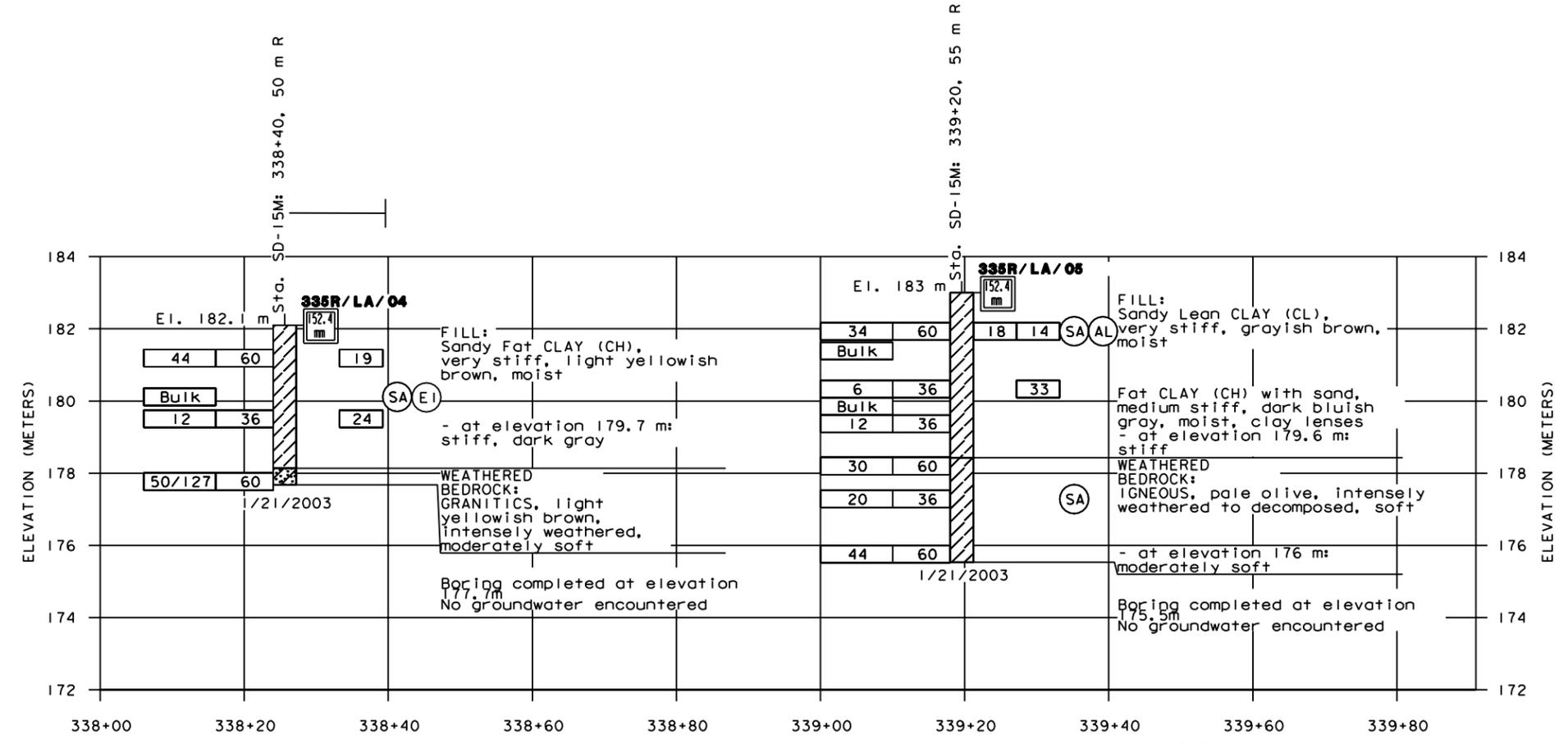


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2		
 GEOTECHNICAL PROFESSIONAL			2/7/03		
PLANS APPROVAL DATE					
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Fugro West, Inc. 4820 McGrath St., Suite 100 Ventura CA 93003					
The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan.					
Caltrans now has a web site! To get to the web site, go to: <a href="http://www.dot.ca.gov">http://www.dot.ca.gov</a>					

**Boring Nos: 335R/LA/04, 05**  
 Project Name: I-15 Managed Lanes (Unit 1)  
 Retaining Wall 335R



CONSISTENCY CLASSIFICATION FOR SOILS	
SPT (Blows/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense
2	Very Soft
2-4	Soft
5-8	Firm
9-15	Stiff
16-30	Very Stiff
>31	Hard



**PROFILE**  
 SCALE: HORIZ = 1:400  
 VERT = 1:80

- NOTES:**
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).

DESIGN OVERSIGHT	DRAWN BY T. McAdam	K. Proffer C.E.G.
SIGN OFF DATE	CHECKED BY C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY DATE: 1/20/03

<b>PREPARED FOR THE STATE OF CALIFORNIA</b> DEPARTMENT OF TRANSPORTATION		H. Ontoy P.E. PROJECT ENGINEER	BRIDGE NO. 0 KILOMETER POST 0
---	--	-----------------------------------	--

<b>Borings: 335R/LA/04, 05</b> <b>LOG OF TEST BORING 2 of 2</b>		DISREGARD PRINTS BEARING EARLIER REVISION DATES	SHEET OF
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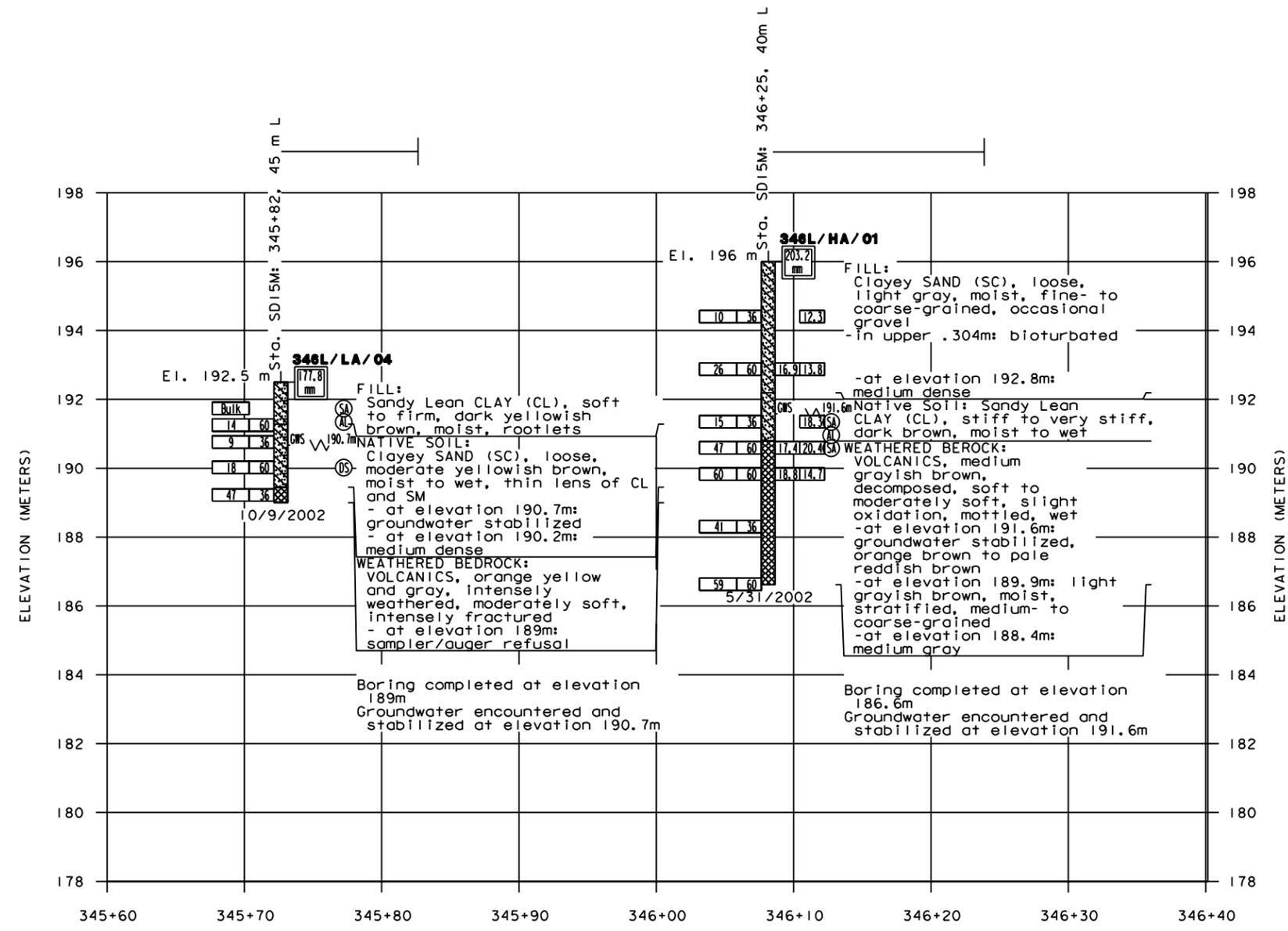
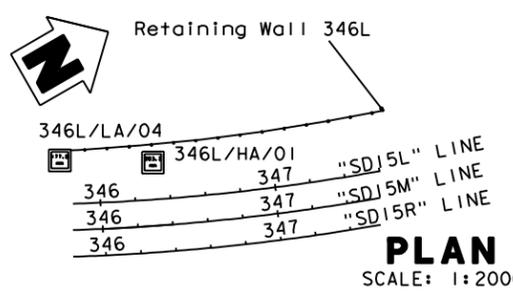


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	2

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**Boring Nos: 346L/LA/04, HA/01**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 346L



- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (SOLID STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).

**PROFILE**  
 SCALE: HORIZ = 1:200  
 VERT = 1:80

**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical test cone divided by area divided by tip bearing area on tip of cone.

**57 mm CONE PENETRATION BORING**  
 No count recorded. Puffed. Driving rate in mm using a 55 lb. number of blows.

**ROTARY SAMPLE BORING (WET)**  
 Description of soil (SI) Dry Unit weight (kN/m<sup>3</sup>) Moisture content (%) Consolidation test (SI) Confirmed material change (SI) Estimated material change (SI) Unconformable material change (SI)

**SAMPLE BORING (DRY)**  
 Description of soil (SI) Moisture content (%) Shear strength (SI) Vane shear (SI)

**TEST PIT**  
 Description of soil (SI)

**DIAMOND CORE BORING**  
 Description of soil (SI)

**JET BORING**  
 Description of soil (SI)

**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, CORBLE, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/30cm)	Classification
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DESIGN OVERSIGHT	DRAWN BY: T. McAdam	C. Welke R.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 346L/LA/04, 346L/HA/01</b>
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	DATE: 10/8/02	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 1 of 2</b>	

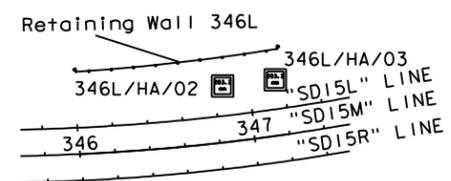


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	2	2

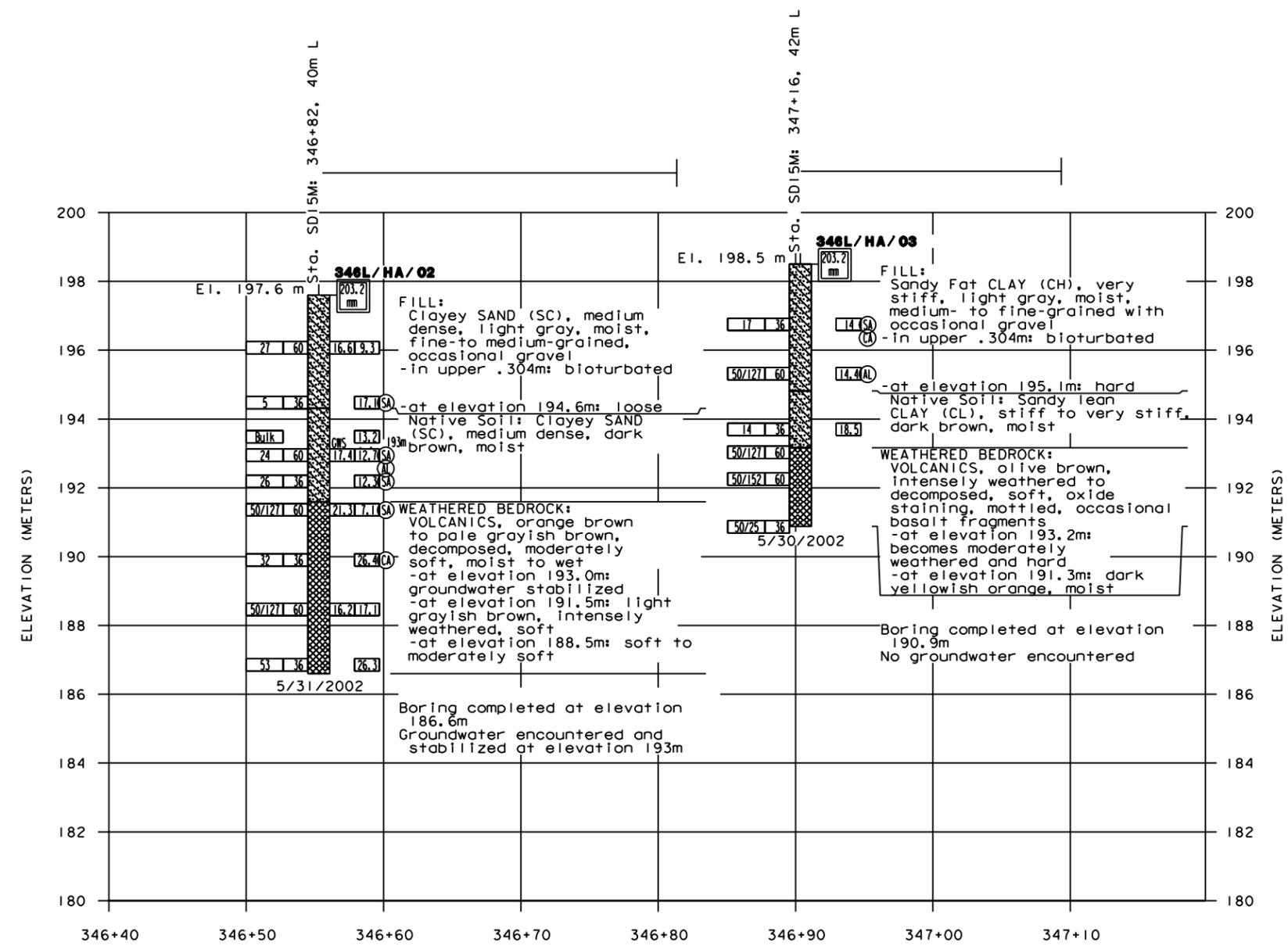
11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER

PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**Boring Nos: 346L/HA/02, 03**  
 Project Name: 1-15 Managed Lanes (Unit 1) Retaining Wall 346L



**PLAN**  
 SCALE: 1:2000



- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
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 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).

**PROFILE**  
 SCALE: HORIZ = 1:200  
 VERT = 1:80

**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical axis equal to the weight of a cone divided by the area of the cone on a tip area.

**ROTIARY SAMPLE BORING (DRY)**  
 No count recorded. Puffed. Driving rate in mm using a 50mm diameter bit. Number of blows recorded.

**ROTARY SAMPLE BORING (WET)**  
 Description of water (if any) in the borehole. Dry Unit weight (kN/m<sup>3</sup>). Moisture content (%). Confirmed to material change. Estimated material change. Unconformable material change.

**TEST PIT**  
 Description of material (if any) in the test pit.

**DIAMOND CORE BORING**  
 Description of material (if any) in the core.

**NET BORING**  
 Description of material (if any) in the net boring.

**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MAYER, FILL MATERIAL, CORBLE, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC.

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense
0-1	Very Soft
2-4	Soft
5-8	Firm
9-15	Stiff
16-30	Very Stiff
>31	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DESIGN OVERSIGHT	DRAWN BY T. McAdam	A. Marro C.E.G.
SIGN OFF DATE	CHECKED BY C.R. Stroop P.E. G.E	FIELD INVESTIGATION BY DATE: 5/31/02

**PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION**

H. Ontoy, P.E.  
 PROJECT ENGINEER

BRIDGE NO. 0  
 KILOMETER POST 0

**Borings: 346L/HA/02, 03**

**LOG OF TEST BORING 2 of 2**

DISREGARD PRINTS BEARING EARLIER REVISION DATES

REVISION DATES (PRELIMINARY STAGE ONLY)

11/13/02



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	1

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

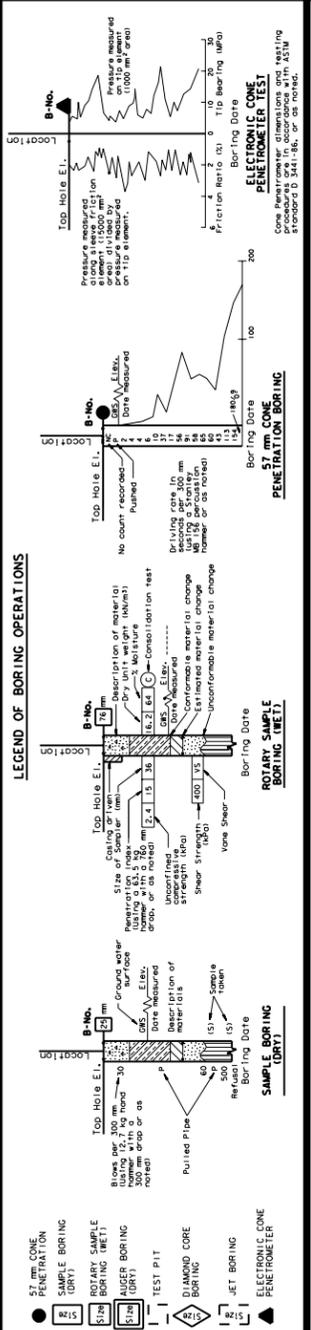
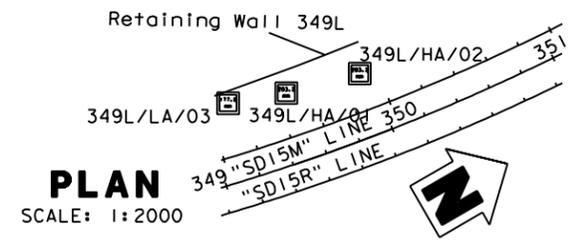
PLANS APPROVAL DATE  
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 Ventura CA 93003

**PROFILE**  
 SCALE: HORIZ = 1:200  
 VERT = 1:80

**Boring Nos: 349L/HA/01, 02, LA/03**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 349L

**NOTES:**

- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
- TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
- HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (SOLID STEM AUGER)
- THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



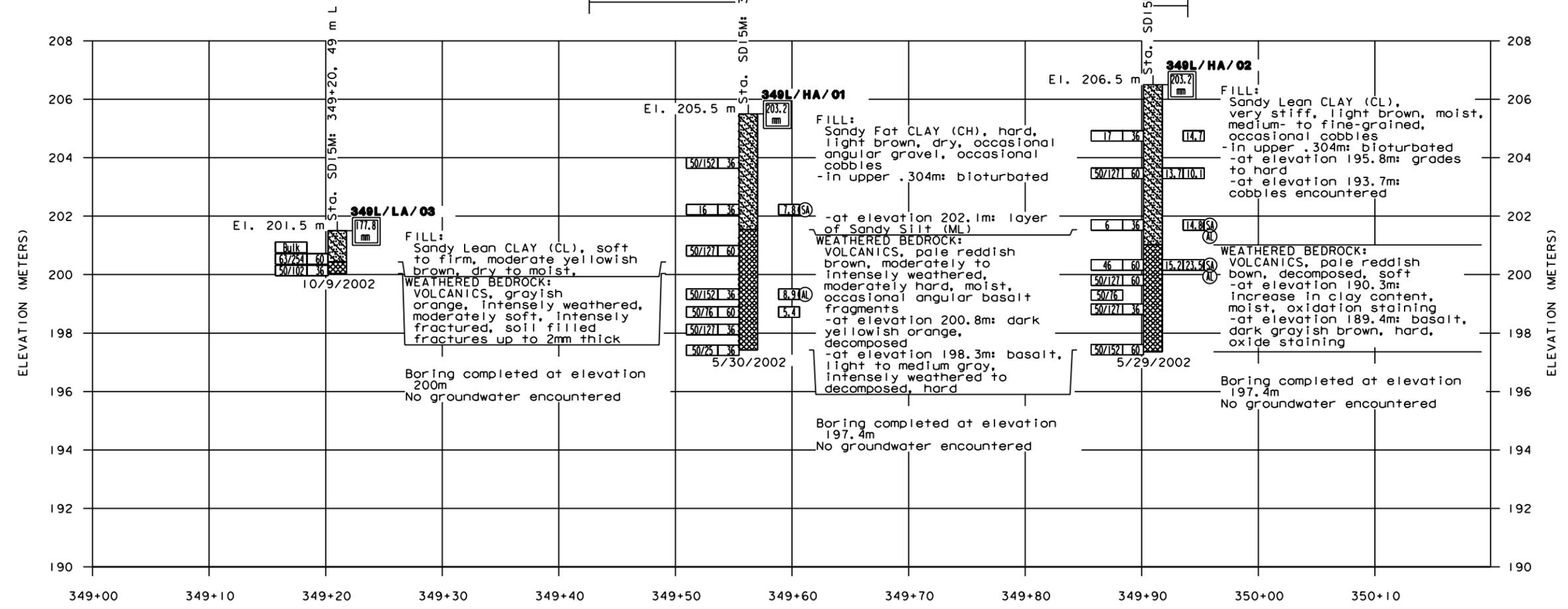
**LEGEND OF EARTH MATERIALS**

GRAVEL	CLAYEY SILT
SAND	PEAT and/or ORGANIC MATERIAL
SILT	FILL MATERIAL
CLAY	COBBLE
SANDY CLAY or CLAYEY SAND	IGNEOUS ROCK
SANDY SILT or SILTY SAND	SEDIMENTARY ROCK
SILTY CLAY	METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blow/30cm)	0-4	Very Loose
SPT (Blow/30cm)	5-10	Loose
SPT (Blow/30cm)	11-30	Medium Dense
SPT (Blow/30cm)	31-50	Dense
SPT (Blow/30cm)	>50	Very Dense

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



DESIGN OVERSIGHT	DRAWN BY: S. Velasco	A. Marro C.E.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	PROJECT ENGINEER	BRIDGE NO. 0	<b>Borings: 349L/HA/01, 02, 349L/LA/03</b>
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	DATE: 5/31/02	CU 11277 EA 080901	DISREGARD PRINTS BEARING EARLIER REVISION DATES	11/13/02	REVISION DATES (PRELIMINARY STAGE ONLY)	<b>LOG OF TEST BORING 1 of 1</b>

DATE PLOTTED => 12/05/2002 10:53:24 AM 1ST SUBMISSION USERNAME => \_USER\_

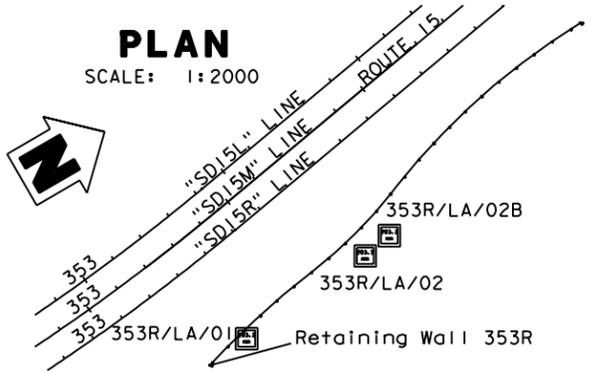


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	2

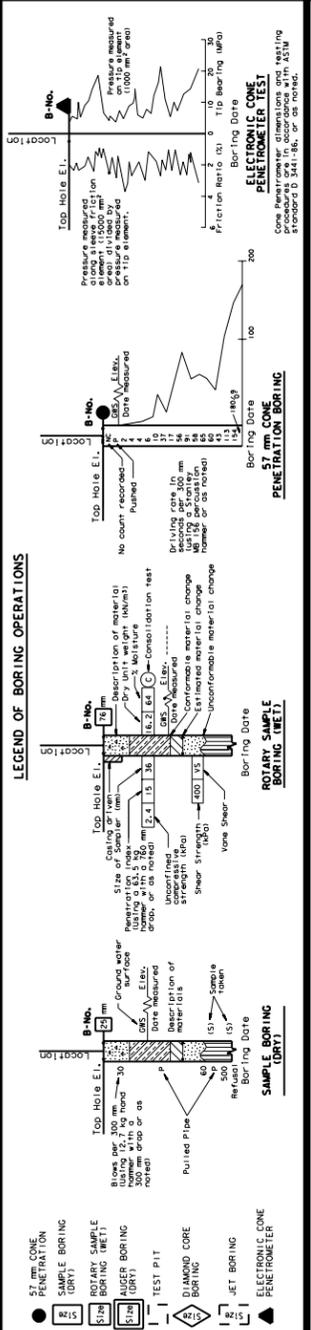
11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**Boring Nos: 353R/LA/01, 02, 2B**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R1



- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
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 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



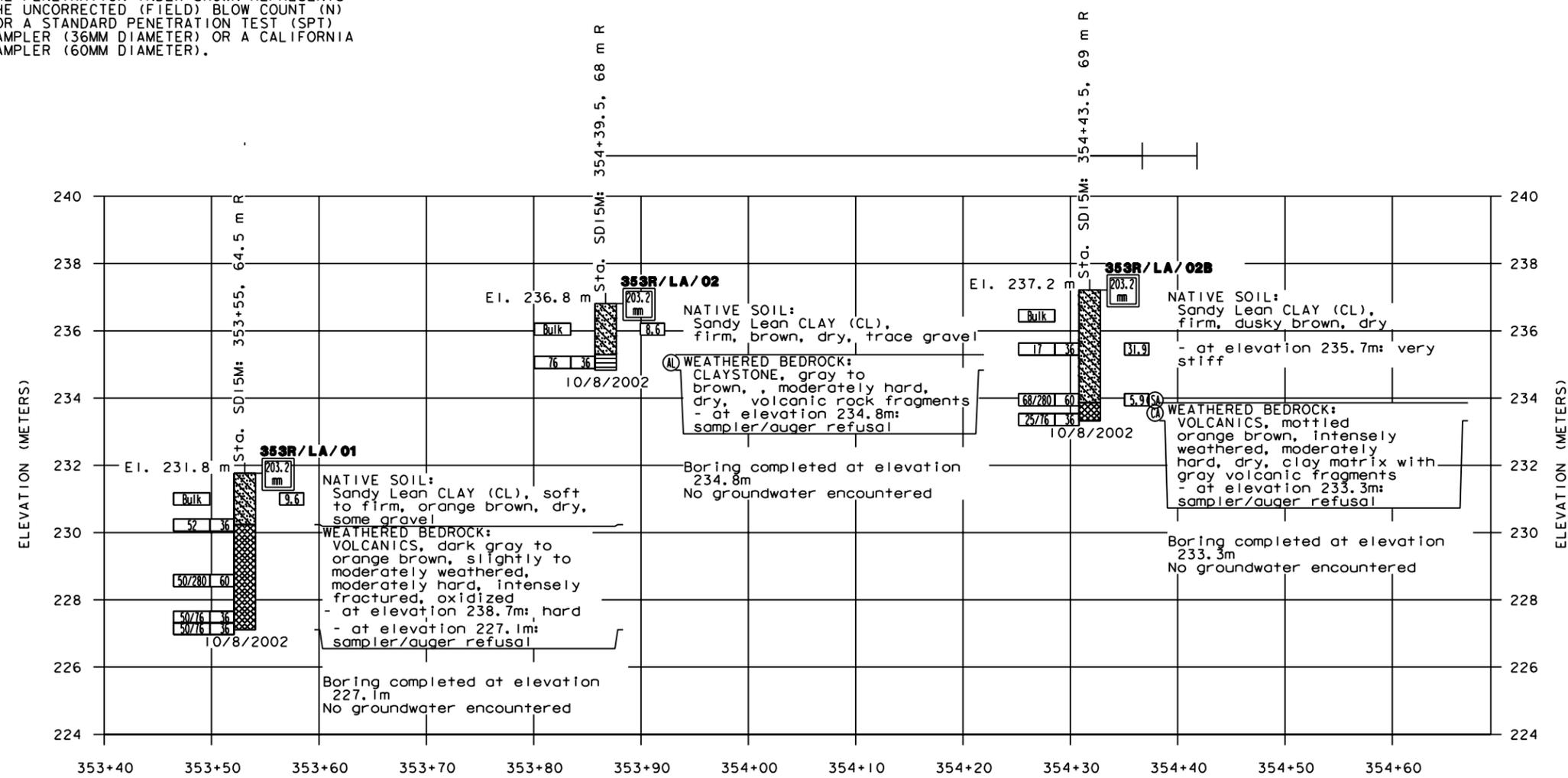
LEGEND OF EARTH MATERIALS

GRAVEL	CLAYEY SILT
SAND	PEAT and/or ORGANIC MATERIAL
SILT	FILL MATERIAL
CLAY	COBBLE
SANDY CLAY or CLAYEY SAND	IGNEOUS ROCK
SANDY SILT or SILTY SAND	SEDIMENTARY ROCK
SILTY CLAY	METAMORPHIC

LEGEND OF SOILS

SPT (Blow/30cm)	Consistency
0-4	Very Soft
5-10	Soft
11-30	Medium Dense
31-50	Dense
>50	Very Dense
2-4	Very Stiff
5-8	Firm
9-15	Stiff
16-30	Very Stiff
>30	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



DESIGN OVERSIGHT	DRAWN BY: T. McAdam	C. Welke R.G.
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 10/8/02

PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E. PROJECT ENGINEER	BRIDGE NO. 0 KILOMETER POST 0
---	------------------------------------	----------------------------------

<b>Borings: 353R/LA/01, 02, 2B</b>	
<b>LOG OF TEST BORING 1 of 2</b>	
CU 11277 EA 080901	REVISION DATES (PRELIMINARY STAGE ONLY)



DATE PLOTTED => 12/05/2002 10:54:15 AM 1ST SUBMISSION USERNAME => \_USER\_ FILE => ... \f11+tb01353.dgn



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	2	2

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER

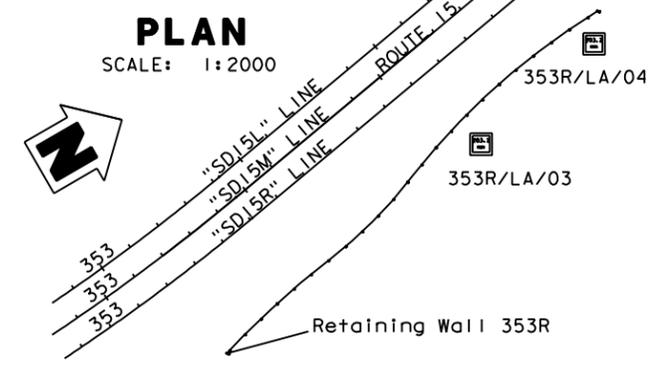
PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**PROFILE**  
 SCALE: HORIZ = 1:200  
 VERT = 1:80

**Boring Nos: 353R/LA/03, 04**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R1

**NOTES:**

- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
- TEST BORING DESIGNATION =  
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 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
- THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a horizontal axis divided by area on a tip bearing.  
 Friction Ratio (s) = Tip Bearing (kPa) / Penetration Ratio (kPa)

**57 mm CONE PENETRATION BORING**  
 No count recorded. Penetration Ratio (kPa) = Driving rate (mm/min) / Penetration Ratio (kPa) = Driving rate (mm/min) / Penetration Ratio (kPa)

**ROTARY SAMPLE BORING (UR)**  
 Description of material change. Unconformable material change. Unconformable material change.

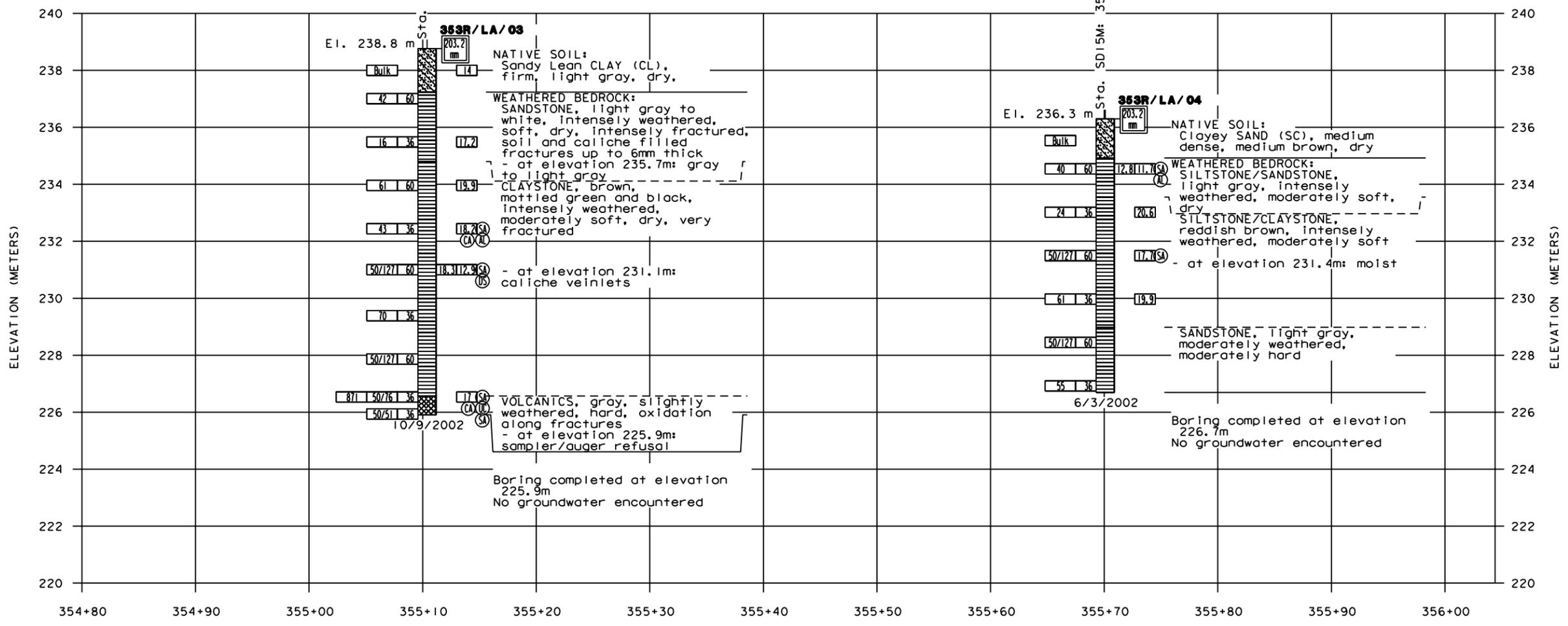
**SAMPLE BORING (UR)**  
 Description of material change. Unconformable material change. Unconformable material change.

**LEGEND OF EARTH MATERIALS**

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/30cm)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

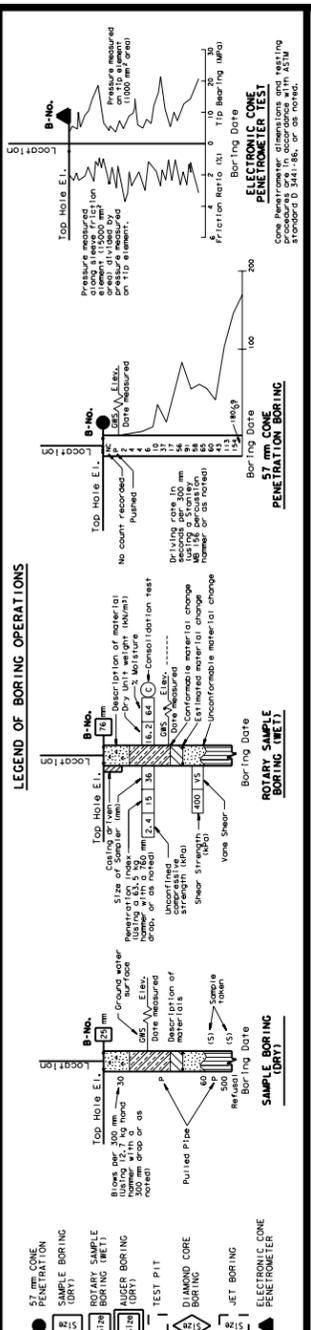
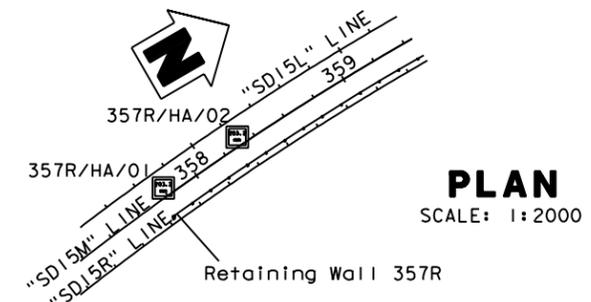


DESIGN OVERSIGHT	DRAWN BY: T. McAdam	C. Welke R.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 353R/LA/03, 04</b>	
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 10/8/02	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 2 of 2</b>		
GEOTECHNICAL LOG OF TEST BORINGS SHEET (METRIC) (REV 2/1/00)			CU 11277 EA 080901	DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 2 OF 2	DATE PLOTTED => 12/05/2002 10:54:38 AM 1ST SUBMISSION



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	2
 GEOTECHNICAL PROFESSIONAL			11/13/02		
PLANS APPROVAL DATE					
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Fugro West, Inc. 4820 McGrath St., Suite 100 Ventura CA 93003					

**Boring Nos: 357R/HA/01, 02**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R



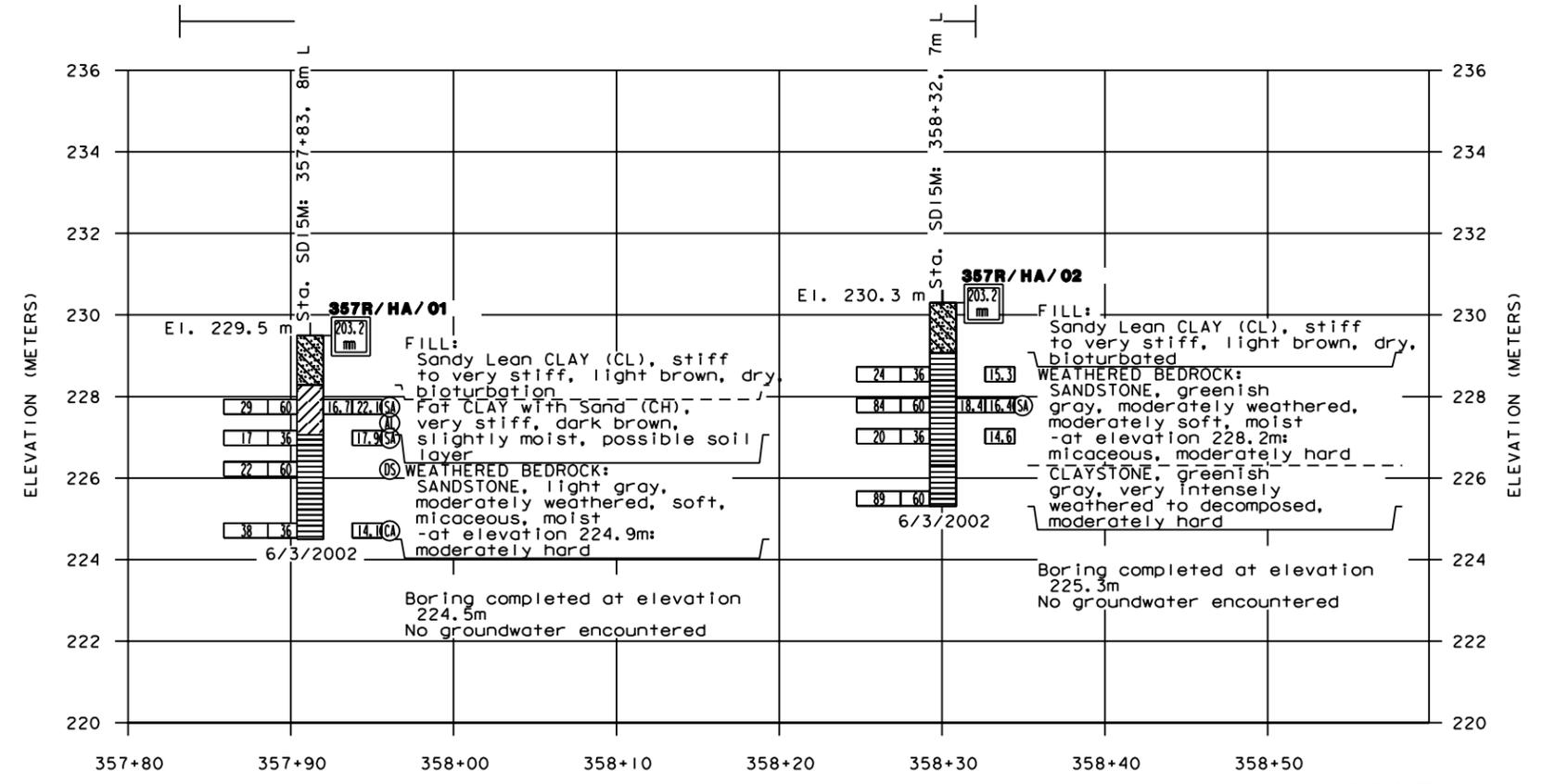
**LEGEND OF EARTH MATERIALS**

GRAVEL	CLAYEY SILT
SAND	PEAT and/or ORGANIC MATERIAL
SILT	FILL MATERIAL
CLAY	COBBLE
SANDY CLAY or CLAYEY SAND	IGNEOUS ROCK
SANDY SILT or SILTY SAND	SEDIMENTARY ROCK
SILT CLAY	METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/30cm)	Classification
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense
0.25	Very Soft
0.5	Soft
1-2	Firm
3-5	Stiff
5-15	Very Stiff
>15	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.



- NOTES:**
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).

DESIGN OVERSIGHT	DRAWN BY: M. Lobley	A. Marro C.E.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 357R/HA/01, 02</b>	
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	DATE: 5/31/02	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 1 of 2</b>		
GEOTECHNICAL LOG OF TEST BORINGS SHEET (METRIC) (REV 2/1/00)			ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS: 0 10 20 30 40 50 60 70 80 90 100		DISREGARD PRINTS BEARING EARLIER REVISION DATES: 11/13/02		SHEET OF

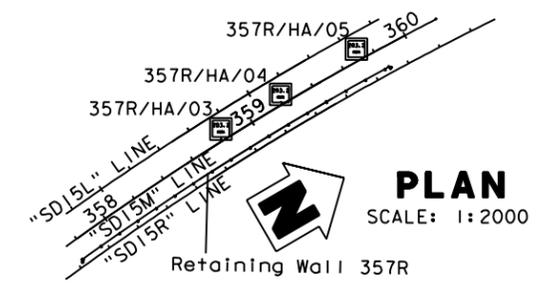


DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	2	2

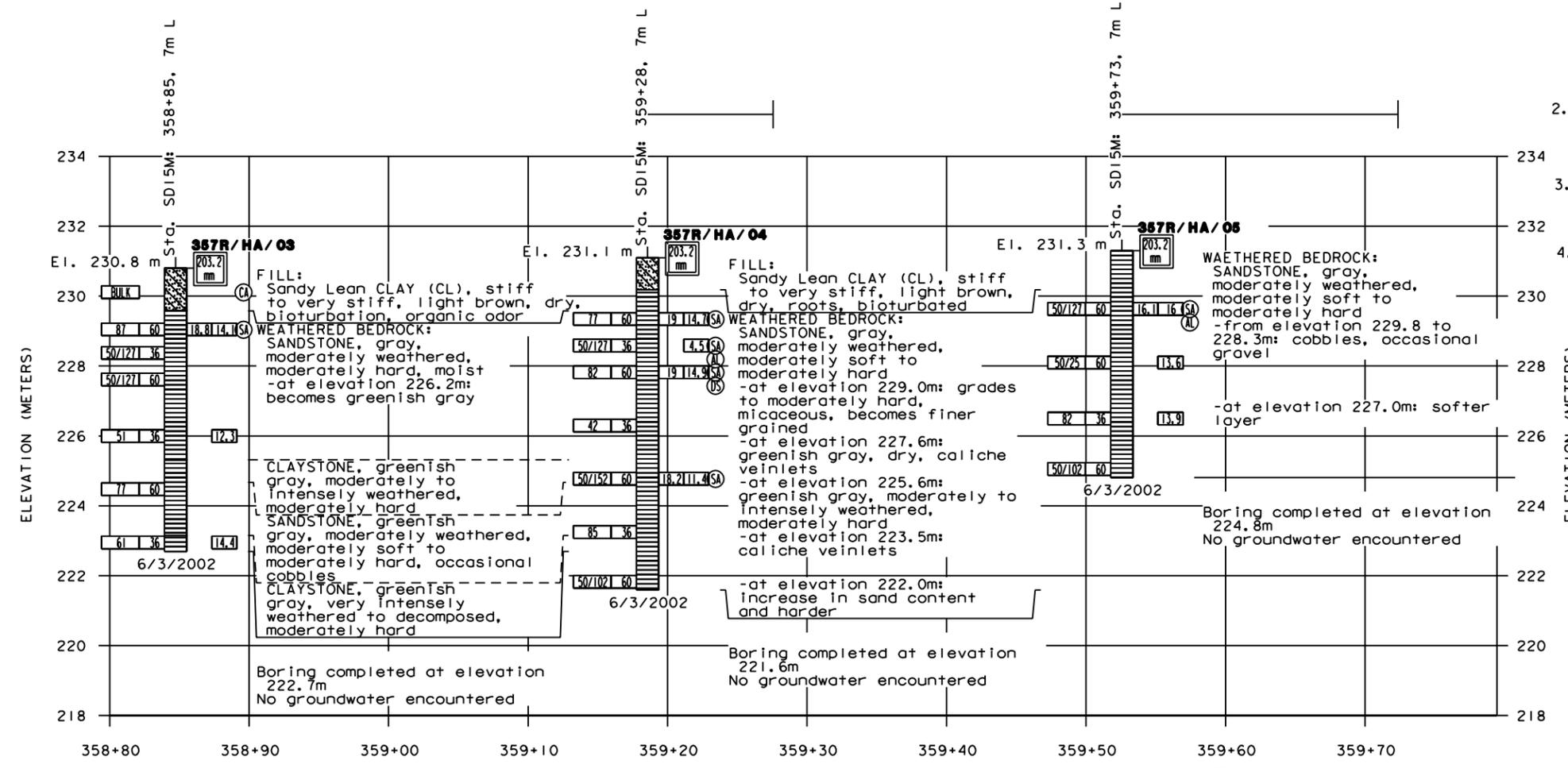
11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**Boring Nos: 357R/HA/03, 04, 05**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R



- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF STRUCTURAL FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION SAMPLE BORING (DRY)**  
 B-15

**ROTARY SAMPLE AUGER BORING (DRY)**  
 B-16

**TEST PIT**  
 B-17

**DIAMOND CORE BORING**  
 B-18

**JET BORING**  
 B-19

**ELECTRONIC CONE PENETROMETER**  
 B-20

**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY, CLAYEY SAND, SILTY SAND, SILTY CLAY, CLAYEY SILT, ORGANIC MATERIAL, FILL MATERIAL, COBBLE, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT Blows/30cm (0.3m)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense

**Standard Penetration Test**

Penetration (mm)	Consistency
0-30	Very Soft
31-60	Soft
61-120	Firm
121-180	Stiff
181-240	Very Stiff
>240	Hard

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DESIGN OVERSIGHT	DRAWN BY: M. Lobley	A. Marro C.E.G.
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 5/31/02

BRIDGE NO. 0	PROJECT ENGINEER: H. Ontoy, P.E.
KILOMETER POST 0	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

<b>Borings: 357R/HA/03, 04, 05</b>	
<b>LOG OF TEST BORING 2 of 2</b>	
DISREGARD PRINTS BEARING EARLIER REVISION DATES	REVISION DATES (PRELIMINARY STAGE ONLY)

DATE PLOTTED => 12/05/2002 TIME PLOTTED => 10:56:05 AM USER => \_USER\_ IST SUBMISSION



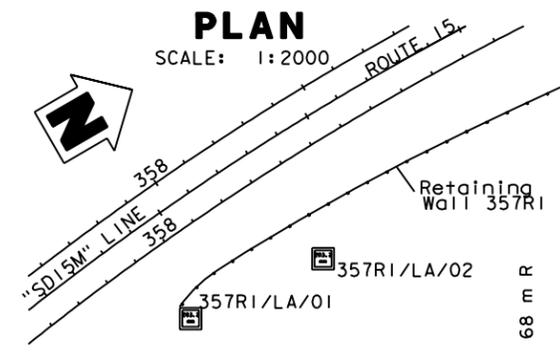
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	2

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER

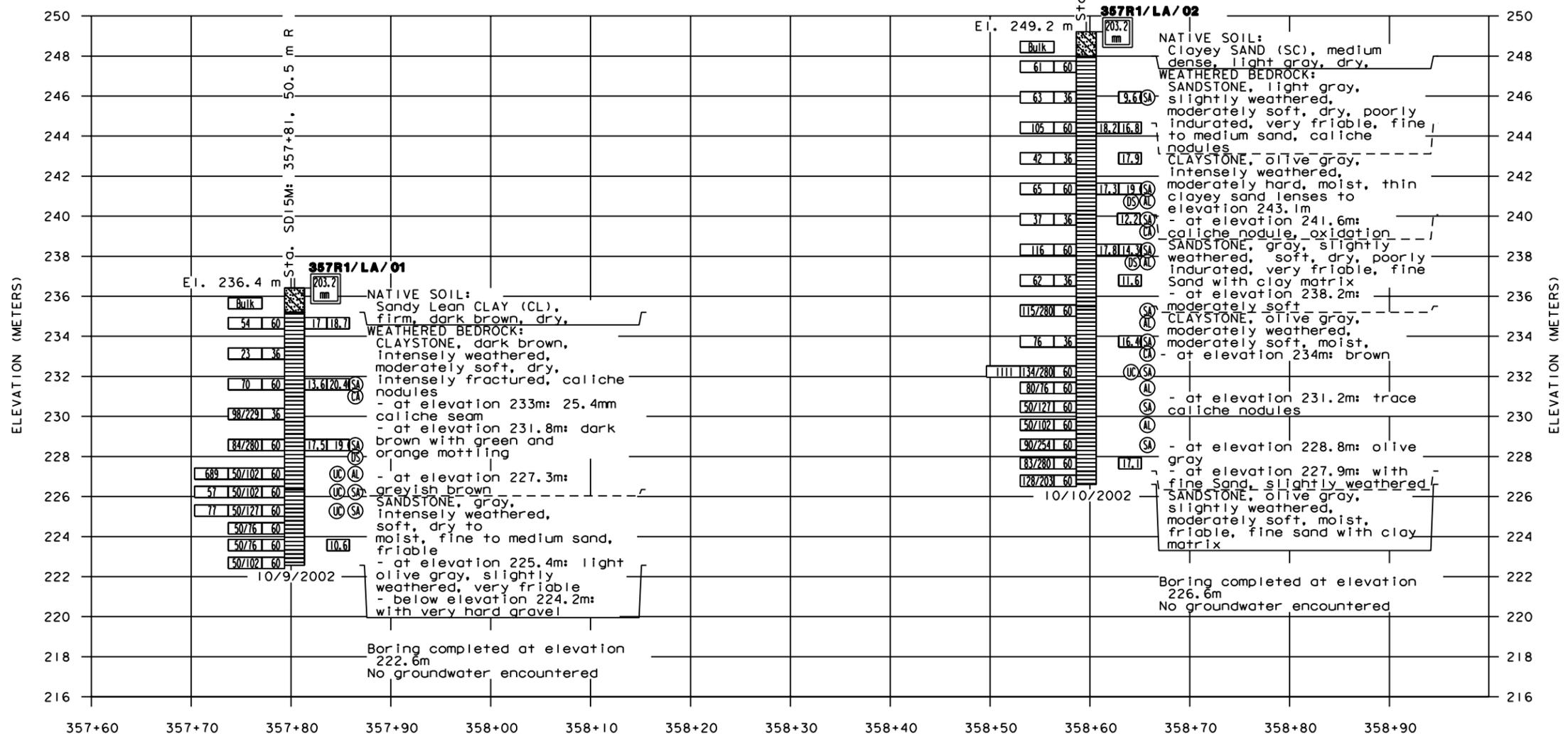
PLANS APPROVAL DATE  
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 4820 McGrath St., Suite 100  
 Ventura CA 93003

**Boring Nos: 357R1/LA/01, 02**  
 Project Name: I-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R1

- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**PROFILE**  
 SCALE: HORIZ = 1:250  
 VERT = 1:125



**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical axis divided by area on a tip of a cone.  
 Friction Ratio (s) = Tip Bearing (kPa) / Friction Ratio (kPa)

**57 mm CONE PENETRATION BORING**  
 No count recorded. Puffed. Driving rate in mm using a 50mm diameter sampler. Number of blows per 300 mm.

**ROTARY SAMPLE BORING (WET)**  
 Casing of 100 mm diameter. Penetration rate (mm/min) or (ft/min). Moisture. Confirmed material change. Estimated material change. Unconfined material change.

**SAMPLE BORING (DRY)**  
 Bore hole 100 mm diameter. Penetration rate (mm/min) or (ft/min). Moisture. Confirmed material change. Estimated material change. Unconfined material change.

**TEST PIT**  
 Bore hole 100 mm diameter. Penetration rate (mm/min) or (ft/min). Moisture. Confirmed material change. Estimated material change. Unconfined material change.

**DIAMOND CORE BORING**  
 Bore hole 100 mm diameter. Penetration rate (mm/min) or (ft/min). Moisture. Confirmed material change. Estimated material change. Unconfined material change.

**JET BORING**  
 Bore hole 100 mm diameter. Penetration rate (mm/min) or (ft/min). Moisture. Confirmed material change. Estimated material change. Unconfined material change.

**ELECTRONIC CONE PENETROMETER**

**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY or CLAYEY SAND, SANDY SILT or SILTY SAND, SILTY CLAY, CLAYEY SILT, PEAT and/or ORGANIC MATTER, FILL MATERIAL, CORBLE, IGNEOUS ROCK, SEDIMENTARY ROCK, METAMORPHIC.

**CONSISTENCY CLASSIFICATION FOR SOILS**

SPT (Blows/300mm)	Cohesive		Non-cohesive	
	Very Soft	Soft	Very Loose	Loose
2-4	2-4	5-8	2-4	5-8
5-10	5-10	9-15	9-15	16-30
11-30	11-30	16-30	16-30	>30
31-50	31-50	>30	>30	>30
>50	>50	>30	>30	>30

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

DESIGN OVERSIGHT	DRAWN BY: T. McAdam	C. Welke R.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 357R1/LA/01, 02</b>	
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 10/8/02	CU 11277 EA 080901	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 1 of 2</b>	
GEOTECHNICAL LOG OF TEST BORINGS SHEET (METRIC) (REV 2/1/00)	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS		0 10 20 30 40 50 60 70 80 90 100	DISREGARD PRINTS BEARING EARLIER REVISION DATES	11/13/02	REVISION DATES (PRELIMINARY STAGE ONLY)	SHEET 1 OF 2



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	2	2

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA  
 REGISTERED PROFESSIONAL ENGINEER

PLANS APPROVAL DATE

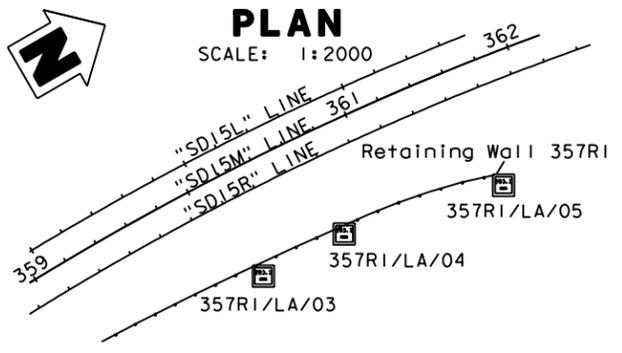
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 Ventura CA 93003

**PROFILE**  
 SCALE: HORIZ = 1:400  
 VERT = 1:80

**Boring Nos: 357R1/LA/03, 04, 05**  
 Project Name: I-15 Managed Lanes (Unit 1)  
 Retaining Wall 357R1

- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION BORING**  
 Penetration Index (PI) = (Blow Count) / (Penetration Depth in m) x 100  
 Pressure measured along a vertical test cone divided by area of cone divided by penetration depth on a test cone.

**57 mm CONE PENETRATION BORING**  
 No count recorded. Penetration Index (PI) = (Blow Count) / (Penetration Depth in m) x 100  
 Driving rate in mm using a 50 kg weight on a 30 mm diameter cone.

**ROTARY SAMPLE BORING (UPT)**  
 Description of soil or rock material change. Unconformable material change. Shear strength. Vane shear.

**SAMPLE BORING (UPT)**  
 Description of soil or rock material change. Unconformable material change. Shear strength. Vane shear.

**LEGEND OF EARTH MATERIALS**

**CONSISTENCY CLASSIFICATION FOR SOILS**

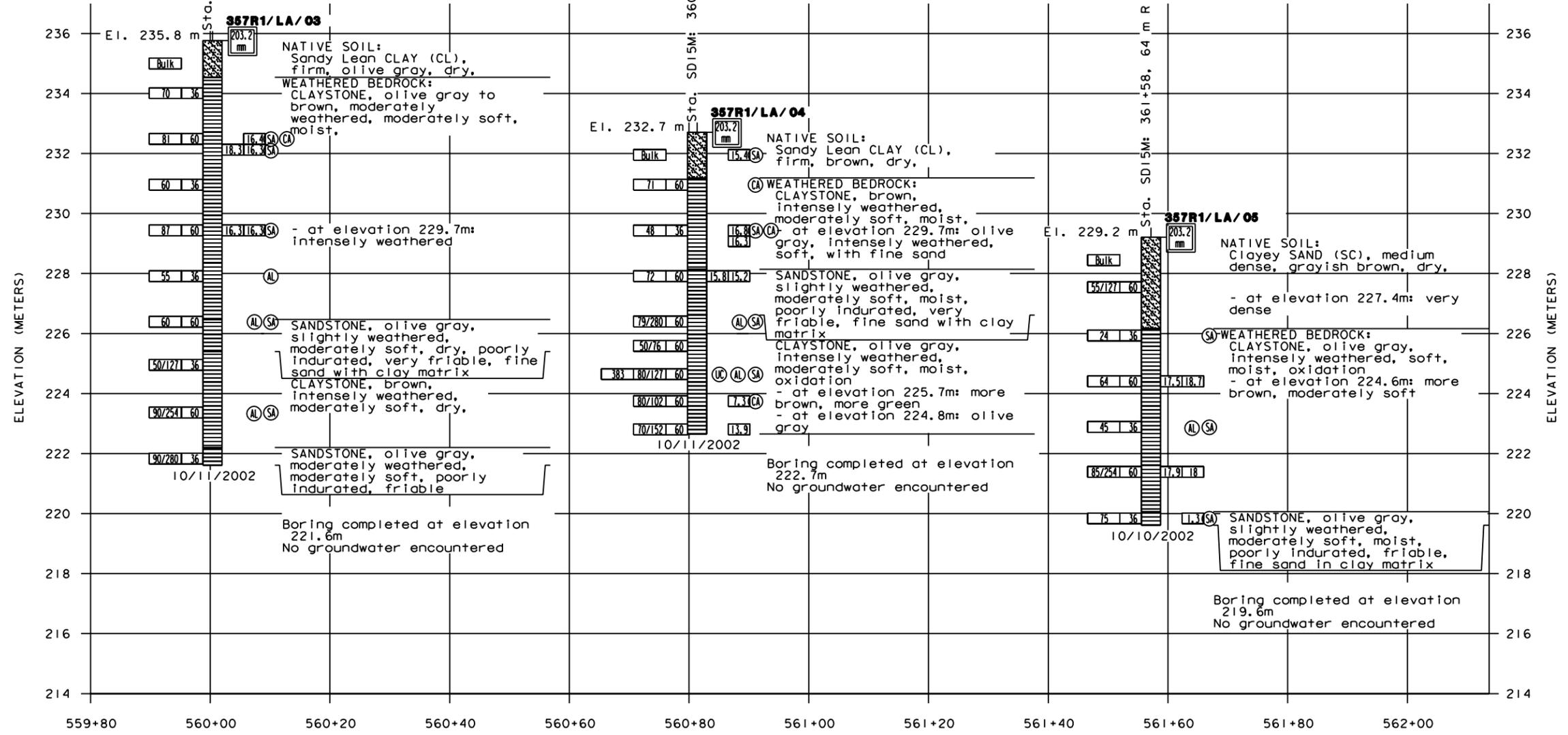
SPT Blows/30cm (0.3m)	Consistency
0-4	Very Loose
5-10	Loose
11-30	Medium Dense
31-50	Dense
>50	Very Dense

**LEGEND OF EARTH MATERIALS**

CLAYEY SILT  
 PEAT and/or ORGANIC MATERIAL  
 FILL MATERIAL  
 COBBLE  
 IGNEOUS ROCK  
 SEDIMENTARY ROCK  
 METAMORPHIC

GRAVEL  
 SAND  
 SILT  
 CLAY  
 SANDY CLAY or CLAYEY SAND  
 SILTY SAND or SANDY SILT  
 SILTY CLAY

NOTE: Classification of earth material as shown on this sheet is based upon field inspection and is not to be construed to imply mechanical analysis.

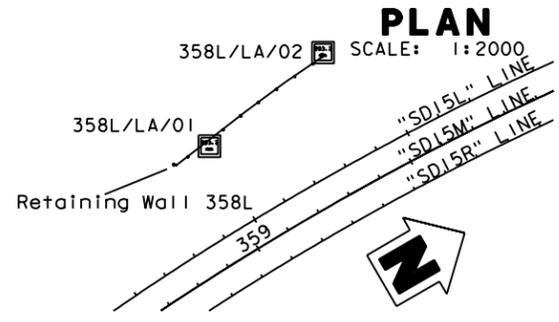


DESIGN OVERSIGHT	DRAWN BY: S. Velasco	C. Welke R.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 357R1/LA/03, 04, 05</b>
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 10/8/02	CU 11277 EA 080901	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 2 of 2</b>
GEOTECHNICAL LOG OF TEST BORINGS SHEET (METRIC) (REV 2/1/00)	ORIGINAL SCALE IN MILLIMETERS FOR REDUCED PLANS		0 10 20 30 40 50 60 70 80 90 100	DISREGARD PRINTS BEARING EARLIER REVISION DATES	11/13/02	REVISION DATES (PRELIMINARY STAGE ONLY)



DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2	1	1

**Boring Nos: 358L/LA/01, 02**  
 Project Name: I-15 Managed Lanes (Unit 1)  
 Retaining Wall 358L



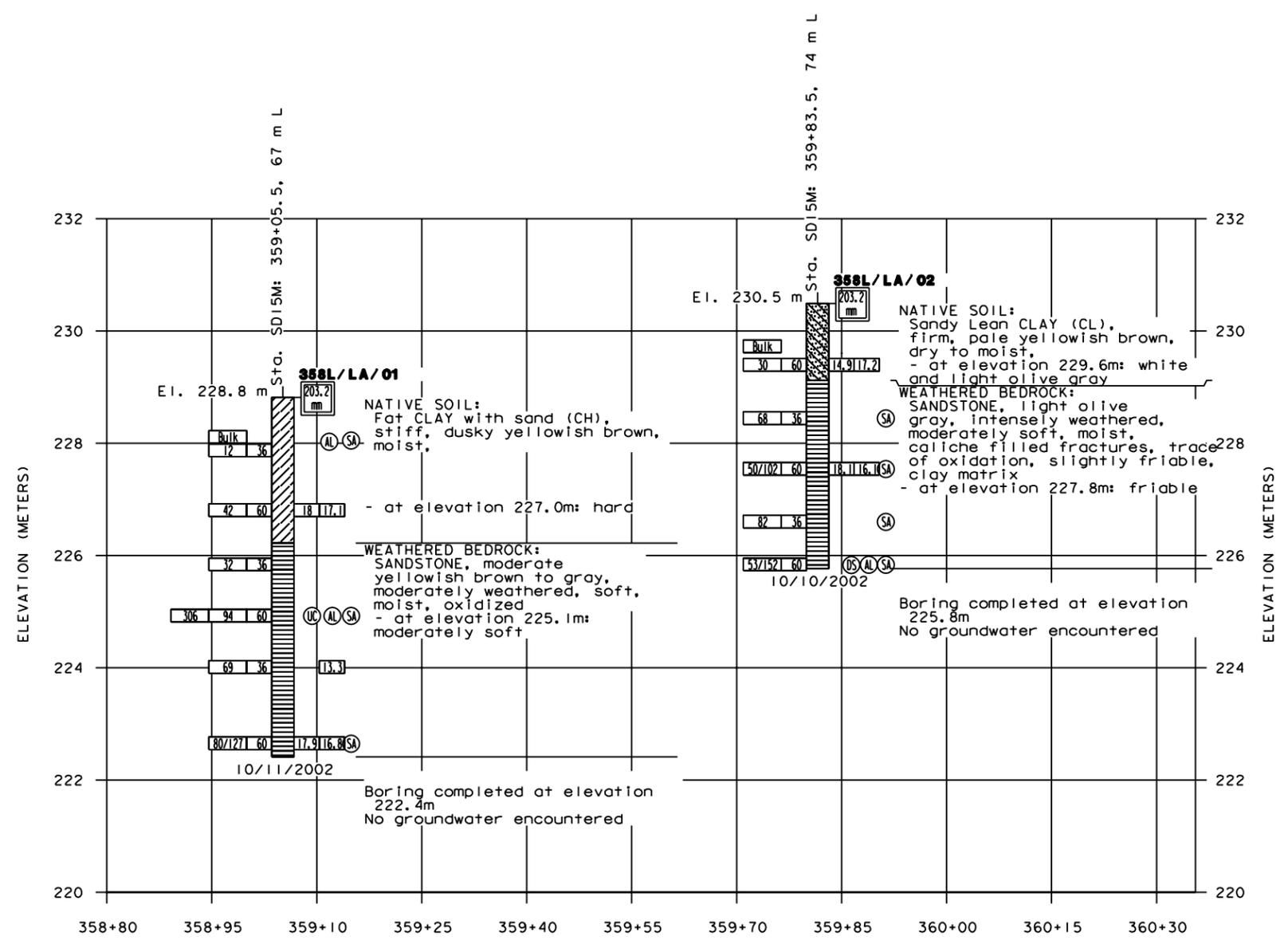
11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE

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- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).



**PROFILE**  
 SCALE: HORIZ = 1:400  
 VERT = 1:50

**LEGEND OF BORING OPERATIONS**

**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical rod (area divided by 100) on a tip bearing. Friction Ratio (s) = Tip Bearing (kPa) / Pressure (kPa)

**57 mm CONE PENETRATION BORING**  
 No count recorded. Driving rate in mm using a 500g hammer. Number of blows recorded.

**ROTARY SAMPLE BORING (WET)**  
 Description of soil (s) confirmed to material change. Estimated material change. Unrecoverable material change.

**SAMPLE BORING (DRY)**  
 Description of soil (s) confirmed to material change. Estimated material change. Unrecoverable material change.

**DIAMOND CORE BORING**  
 Description of soil (s) confirmed to material change. Estimated material change. Unrecoverable material change.

**JET BORING**  
 Description of soil (s) confirmed to material change. Estimated material change. Unrecoverable material change.

**LEGEND OF BORING OPERATIONS (continued):**  
 Casing of 1.5m diameter. Penetration rate (mm/min) (Dry Unit weight (kN/m³)). Moisture content (%). Unrecoverable material change. Estimated material change. Unrecoverable material change. Vane Shear.

**LEGEND OF BORING OPERATIONS (continued):**  
 Pulling Pipe. Blows per 300 mm (using 10.7 kg hammer, 300 mm drop or at normal). Pulled Pipe.

**LEGEND OF BORING OPERATIONS (continued):**  
 Borehole Elevation. Boring Date.

DESIGN OVERSIGHT	DRAWN BY: T. McAdam	C. Welke R.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E.	BRIDGE NO. 0	<b>Borings: 358L/LA/01, 02</b>	
SIGN OFF DATE	CHECKED BY: C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY: DATE: 10/8/02	PROJECT ENGINEER	KILOMETER POST 0	<b>LOG OF TEST BORING 1 of 1</b>		



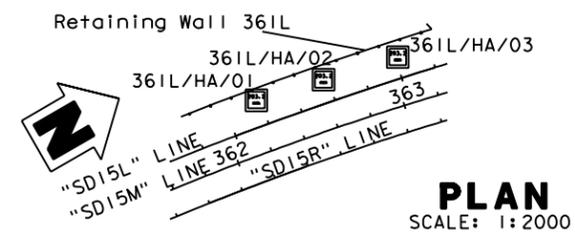
DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No	TOTAL SHEETS
11	SD	15/56	M30.4/M35.4 14.4/15.2		

11/13/02  
 GEOTECHNICAL PROFESSIONAL  
 REGISTERED PROFESSIONAL ENGINEER  
 C.R. Stroop  
 No. 44964  
 Exp. 3/31/06  
 STATE OF CALIFORNIA

PLANS APPROVAL DATE  
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 Ventura CA 93003

**Boring Nos: 361L/HA/01, 02, 03**  
 Project Name: 1-15 Managed Lanes (Unit 1)  
 Retaining Wall 361L



**PLAN**  
 SCALE: 1:2000

- NOTES:
- THE DESCRIPTIONS AND CLASSIFICATIONS OF ROCK AND/OR SOIL INCLUDING CONSISTENCY AND RELATIVE DENSITY DESCRIPTORS, USED BY THE FIELD PERSONNEL FOR THE EXPLORATION TEST HOLES SHOWN ON THIS SHEET ARE BASED ON THE "SOIL AND ROCK LOGGING CLASSIFICATION MANUAL", OFFICE OF MATERIAL AND FOUNDATIONS (FORMERLY OFFICE OF STRUCTURAL FOUNDATIONS), AUGUST 1996. COPIES OF THIS MANUAL ARE AVAILABLE FOR INSPECTION AND/OR REPRODUCTION SUBJECT TO APPLICABLE OFFICE POLICIES, BY ANY BIDDER OR CONTRACTOR UPON WRITTEN REQUEST.
  - TEST BORING DESIGNATION =  
 RETAINING/DRILLING/SEQUENTIAL TEST WALL NO. METHOD BORING NO. (FOR EACH WALL)
  - HA = HOLLOW STEM AUGER  
 RW = ROTARY WASH  
 LA = LIMITED ACCESS (HOLLOW STEM AUGER)
  - THE PENETRATION INDEX SHOWN REPRESENTS THE UNCORRECTED (FIELD) BLOW COUNT (N) FOR A STANDARD PENETRATION TEST (SPT) SAMPLER (36MM DIAMETER) OR A CALIFORNIA SAMPLER (60MM DIAMETER).

**LEGEND OF BORING OPERATIONS**

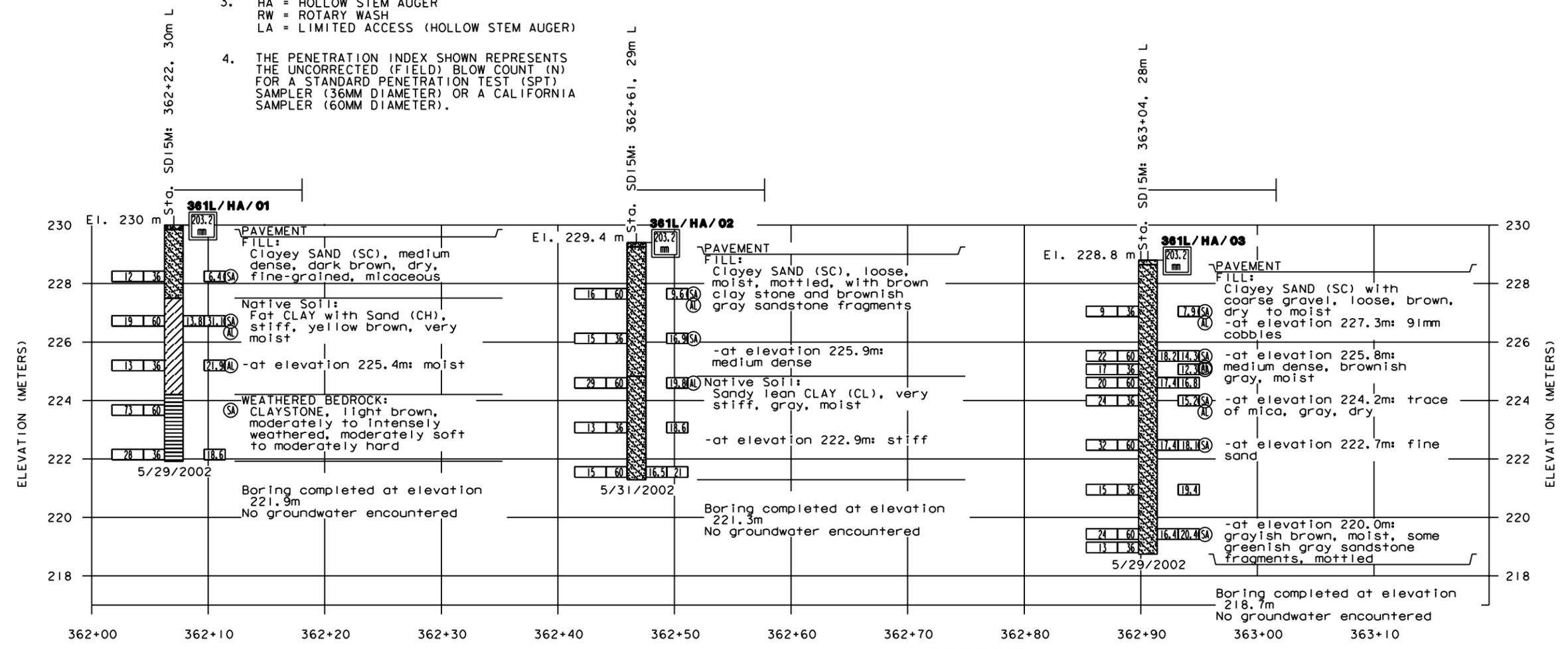
**57 mm CONE PENETRATION TEST**  
 Pressure measured along a vertical test cone divided by area on tip of cone.  
 Friction Ratio (s) = Tip Bearing (kPa) / Cone Resistance (kPa)

**57 mm CONE PENETRATION BORING**  
 No count recorded - Penetration stopped by refusal.  
 Driving rate, in mm using a 55 kg weight, recorded on test log.  
 Estimated material change number of test log.

**ROTARY SAMPLE BORING (SPT)**  
 Casing of 100 mm diameter.  
 Penetration of 300 mm.  
 Blow count recorded on test log.  
 Sample size: 300 mm.  
 Sample depth: 300 mm.  
 Sample diameter: 300 mm.

**LEGEND OF EARTH MATERIALS**

GRAVEL, SAND, SILT, CLAY, SANDY CLAY, CLAYEY SAND, SILTY SAND, SILTY CLAY, METAMORPHIC ROCK, SEDIMENTARY ROCK, IGNEOUS ROCK, COBBLE, FILL MATERIAL, ORGANIC MATERIAL, CLAYEY SILT, PEAT and/or ORGANIC MUD.



DESIGN OVERSIGHT	DRAWN BY M. Lobley	A. Marro C.E.G.	PREPARED FOR THE STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION	H. Ontoy, P.E. PROJECT ENGINEER	BRIDGE NO. 0	<b>Borings: 361L/HA/01, 02, 03</b>
SIGN OFF DATE	CHECKED BY C.R. Stroop P.E. G.E.	FIELD INVESTIGATION BY DATE: 5/31/02	CU 11277 EA 080901	KILOMETER POST 0	LOG OF TEST BORING 1 of 1	

DATE PLOTTED => 12/05/2002 TIME PLOTTED => 10:57:04 AM USER => \_USER\_ 1ST SUBMISSION



