APPEINDIX A

Boring Logs

INDEX OF SHEETS

STATE OF CALIFORNIA

DEPARTMENT OF TRANSPORTATION

PROJECT PLANS FOR CONSTRUCTION ON

STATE HIGHWAY

IN IMPERIAL COUNTY NEAR BRAWLEY ON ROUTE 78 FROM 0.5 km EAST TO 1.2 km EAST OF EAST JUNCTION ROUTE 111 AND ON ROUTE 111 FROM 0.2 km NORTH OF MEAD ROAD TO 0.9 km NORTH OF ROUTE 78

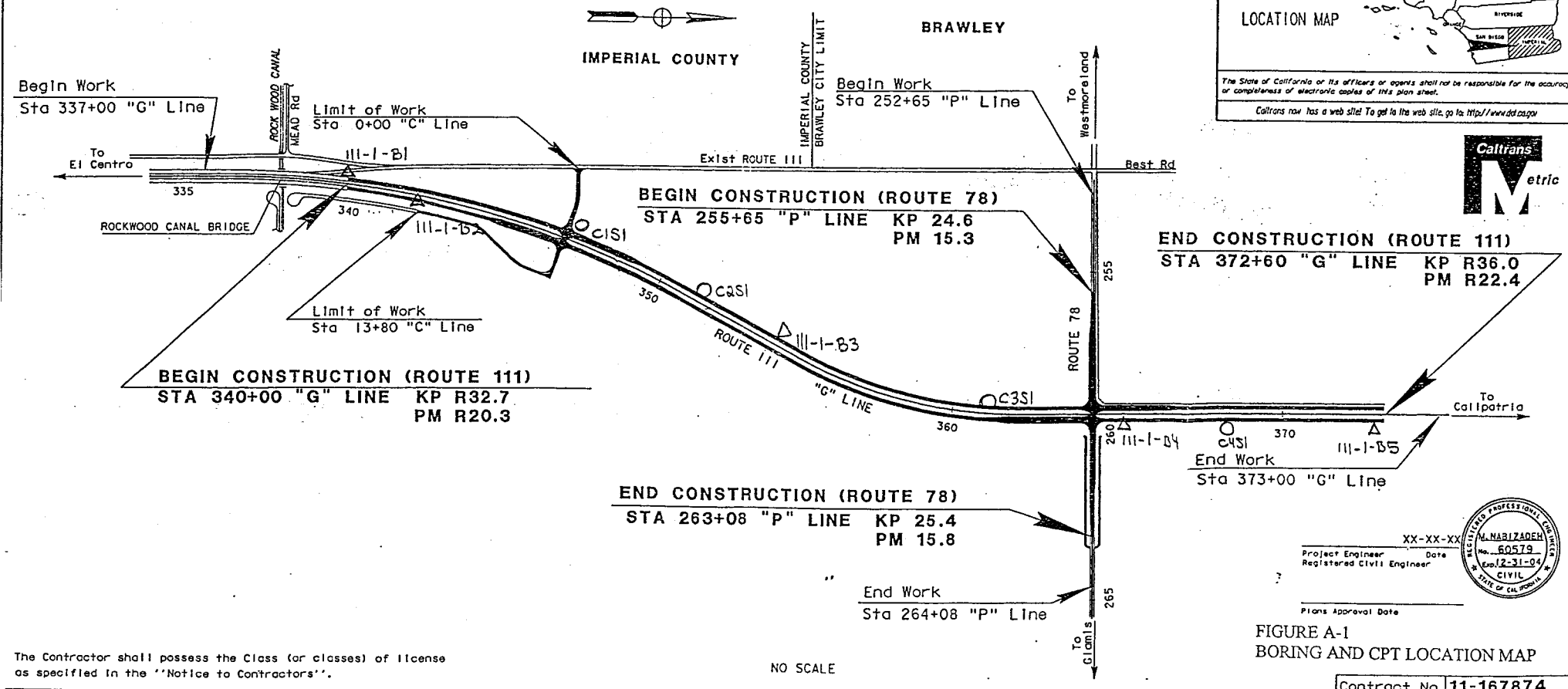
To be supplemented by Standard Plans dated July 1999

DIST	COUNTY	ROUTE	KILOMETER POST TOTAL PROJECT	SHEET No.	TOTAL SHEETS
11	Imp	78, 111	24.6/25.4, R32.7/R36.0	1	

The State of California or its officers or agents shall not be responsible for the accuracy or completeness of electronic copies of this plan sheet.

Caltrans now has a web site! To get to the web site, go to: http://www.dot.ca.gov

△ BORING LOCATION
○ CONE PENETROMETER LOCATION



Caltrans Metric

XX-XX-XX
Project Engineer Date
Registered Civil Engineer

REGISTERED PROFESSIONAL ENGINEER
M. NABIZADEH
No. 60579
Exp. 12-31-04
CIVIL
STATE OF CALIFORNIA

Plans Approval Date

FIGURE A-1
BORING AND CPT LOCATION MAP

The Contractor shall possess the Class (or classes) of license as specified in the "Notice to Contractors".

NO SCALE

Contract No. 11-167874

LAST REVISION 02-22-02 DATE PLOTTED => 25-FEB-2002 TIME PLOTTED => 13:43

-OE-93-PF (REV. 08/00)

FOR REDUCED PLANS ORIGINAL SCALE IS IN MILLIMETERS 0 20 40 60 80

USERNAME => tbnabiza
DGN FILE => b167874001.dgn

CU 11278 EA 167871

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B1	3/19/02	3/19/02	M. Fordham	Brawley Bypass	167871

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
64.017 m	Offset & Station 339+54 40.8 Lt	Ref Line G line	Exploration	11 - IMP - 111 - 20

Groundwater Level: Date Measured: ; Depth to Water:

Total Hole Depth 41.5

Lithological Descriptions
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

CS 2000
mud rotary 3 1/8"

Lat 32° 57 27 N Nad 27
Long 115° 31' 31 W

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter: .15 meter	SPT total	Graphic Log	Lithological Description
1	1	SPT 1								7			Clayey silt, (ML), light brown, moist,
2										4			Firm, loose, medium plastic
3										3	7		
4													Alluvium
5													clay (CH) light brown, stiff
6	2	SPT 2								3			clayey silty (CL), light brown,
7										2			loose, firm
8										3	5		
9													Alluvium
10	3												clay, stiff, Plastic light brown (CL)
11		SPT 3								2			clayey silt (ML)
12										4			
13	4									6	10		Silt (ML)
14													
15													
16	5	SPT 4								3			
17										3			
18										3	6		
19													
20	6												

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B1	3/19/02	3/19/02	Fordham	Brawley Bypass	167[illegible]

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
64.017	Offset & Station 339+54/40.8	Ref Line G-line	Exploration	11-IMP-111-20.3

Groundwater Level: Date Measured | Depth to Water

Total Hole Depth 41.5

Lithological Descriptions
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Alluvium

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter .15 meter	SPT total	Graphic Log	Lithological Descriptions
1		SPT 5								7 6 4	10		Sandy silt, stiff, loose, light brown, no plastic
2													
3	1												
4													clay (CH), stiff, light brown, ~~plastic~~ high plastic
5													
6		MC 1									8 3 4 5 6		
7	2												
8													
9													
10	3												
11		SPT 6								9 12 11	23		Silty sand (SM) light brown, very stiff, medium dense no plastic, fine grain
12													
13	4												
14													
15													
16		SPT 7								2 2 4	6		clayey silt (ML) light brown, loose, firm, elastic
17	5												
18													
19													
20	6												
		SPT 8								6 4 5	9		

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B2	3-19-02	3-19-02	Fordham	Brawley Bypass	167821

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
63.8	Offset & Station 0.890 offset 342+00	Ref Line G-line	Exploration	11-IMP-111

Groundwater Level

Date Measured	Depth to Water
4/15/02	5.7

Total Hole Depth 41.5

Lithological Descriptions

1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Drill CS 2000 mud rot 3 1/8"

Lat 32 57 35 Long 115 30 27 Nad 27

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter .15 meter	SPT total	Graphic Log	Lithological Descriptions
1		SPT 1								4			0-5 Alluvium:
										3			Silty clay (CL), light brown, loose, firm
2										2	5		f[illegible], organics at top, moist, fissured, plastic
3	1												
4													
5													
6		SPT 2								1			
										2			
7	2									2	8		6.5-13 Alluvium
8													Silt (ML), light brown, firm, loose, nonelastic
9													
10	3												
11		SPT 3								1			
										2			
12										4	6		
13	4												13-[illegible] Alluvium
14													Sandy silt (ML), light brown, firm, loose, [illegible]elastic, finegrain
15													
16		SPT 4								2			15
										3			loose
17	5									3	6		
18													
19													
20	6												

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B2	3-19-02	3-19-02	For	Brawley Bypass	167871

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
63.8	Offset & Station 0.99, 342+00	Ref Line 9 G Line	Exploration	11-TMP-111

Groundwater Level

Date Measured	Depth to Water
4/15/02	57

Total Hole Depth 91.5

Lithological Descriptions

1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter .15 meter	SPT total	Graphic Log	Lithological Descriptions
1	1	SPT 5								2, 3, 3	6		20 - 27 Alluvium. Silty clay (CL) firm, loose, light brown Plastic Highly
2													
3													
4													
5													
6	2	SPT 6								3, 3, 4	7		Seams of light gray and brownish red
7													27 - 40 Alluvium Sandy Silt (ML), light brown, stiff medium dense, fine grain, slightly elastic
8													
9													
10	3												
11	4	SPT 7								12, 5, 6	11		
12													
13													
14													
15													
16	5	SPT 8								5, 4, 3	7		
17													Installed: Piezometer #1 to a depth of 40 ft below ground surface, full length screened
18													
19													
20	6												
		SPT 9								6, 5, 6	11		

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B3	3-19-02	3/19/02	Fordham	Brawley Bypass	167871

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
61.468	Offset & Station 0.95 / 355+34	Ref Line "G" line	exploration	11-IMP-111

Groundwater Level

Date Measured	Depth to Water
4/15/02	4.2

Total Hole Depth 36.5

Lithological Descriptions

1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Drill CS2000 mud Rotary 3 1/8"

Lat 32 58 15 Long 115 30 08 Nav 27

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter .15 meter	SPT total	Graphic Log	Lithological Descriptions
1		SPT 1								3 4 3	7		0-2 Alluvium Silty clay (CL) light brown, loose, firm, moist, medium plastic
2													
3	1												2-8 Alluvium clay (CH) light brown, High plastic, firm, stiff fissured at end of core
4													
5													
6		RNC 1									X 2 3 4 5 X		
7	2												
8													
9													8-15 Alluvium clay silt (ML)
10	3												
11		SPT 2								4 3 4	7		
12													
13	4												
14													
15													
16		SPT 3								3 4 5	9		15-27 Alluvium silty sand (SM) light brown, fine grain firm, loose, nonelastic Intermittent layers of fine sand and silty sand, slightly sand slightly elastic
17	5												
18													
19													
20	6												

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B3	3/19/02	3/19/02	Fordham	Brawley Bypass	K7371

Top Hole Elve.	Location		Purpose of work	Dist - Co. - Rte. - PM
61.468	Offset & Station 0.95/355+34	Ref Line "G" line	Exploration	11-IMP-111

Groundwater Level: Date Measured 4/15/02; Depth to Water 4.2

Total Hole Depth 36.5

Lithological Descriptions:
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter: .15 meter	SPT total	Graphic Log	Lithological Descriptions
1	1	SPT 4								1, 2, 3	5		
2													
3													
4													
5													
6	2	SPT 5								8, 10, 8	18		27-32 Alluvium Silt (ML), light brown, loose, firm intermitten micro layers of sandy silt, fine grain, elastic
7													
8													
9													
10	3												
11		SPT 6								3, 3, 4	7		
12													32 - Alluvium clay (CH) silty clay (ML), light brown firm, stiff, plastic
13	4												
14													
15													
16		SPT 7								3, 4, 7	11		
17	5												
18													
19													Install Piezometer #2 depth 35' bgs
20	6												

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SOILS AND GEOLOGICAL EXPLORATION LOG

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Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B4	3-20-02	3/20/02	Fordham	Brawley bypass 1	167871

Top Hole Elev.	Location		Purpose of work	Dist - Co. - Rte. - PM
60.832	Offset & Station 47.0/364.68	Ref Line "G" Line	exploration	11 - IMP - 111

Groundwater Level

Date Measured	Depth to Water
4/15/02	6.62

Total Hole Depth 41.5

Lithological Descriptions

1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Lat 32 58 44 N Nad 27
Lon 115 30 00 W

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter .15 meter	SPT total	Graphic Log	Lithological Descriptions
1	1	SPT 1								3 6 6	12		0 - 14 Alluvium clay (CH), Stiff, Medium dense, light-brown, dry, Some fine sand, highly plastic (* Note: micro beds fissured horizon
2													
3													
4													
5													
6	2	SPT 2								2 3 3	6		Firm, loose
7													
8													
9													
10	3												
11		CM 1									X X X 4 X 5		
12													
13	4	Bag 1		Bag									
14													
15													14 - 19.5 Alluvium silty sand (SM), light brown, loose, Firm, elastic fine grain
16	5	SPT 3								3 3 2	5		
17													
18													
19													
20	6												

State of California - Department of Transportation - Division of Structural Foundations

SOILS AND GEOLOGICAL EXPLORATION LOG

Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1 - B4	3/30/02	3/[illegible]/03	Ford[illegible]	[illegible]	16[illegible]

Top Hole Elev.	Location		Purpose of work	Dist - Co. - Rte. - PM
60.832	Offset & Station [illegible]	Ref Line [illegible] Line	[illegible]	[illegible]

Groundwater Level	
Date Measured	Depth to Water
3/15/02	6.62
Total Hole Depth	41.5

Lithological Descriptions
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter: .15 meter	SPT total	Graphic Log	Lithological Descriptions
1	1	SPT 4								2			19-25 Alluvium
2										2			(SM) Sandy silt, light brown, soft,
										1	3		loose.
3													
4													
5													
6	2	SPT 5								2			25-28.5 Alluvium
7										2	5		clay, silt (CL). Firm, loose,
8										3			light brown, plastic, landslide, and
													hydrostatic stain (or heavy silt)
9													28.5-30.5 Alluvium
10	3												Sandy Silt / Sand (SM), light brown,
													firm, loose
11		SPT 6								1			
12										2	5		
										3			30.5-33 Alluvium
13	4												silty clay (CL) [illegible] brown, firm, loose,
													plastic
14													33 Alluvium
													clay (CH), light brown, soft, loose,
15													moist, plastic (H[illegible]) [illegible]
16	5	SPT 7								3			
17										4	9		
										5			
18		38											
19													Installed piezometer site to 40' bgs
20	6												

[illegible] sandy sand, light brown

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SOILS AND GEOLOGICAL EXPLORATION LOG

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Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
111-1-B5	3-[illegible]		[illegible]	Brawley Bypass 1	167871

Top Hole Elev.	Location		Purpose of work	Dist - Co. - Rte. - PM
59.236	Offset & Station 0 & 373+04	Ref Line [illegible]	[illegible]	11 - IMP - 111

Groundwater Level: Date Measured 4/15/02; Depth to Water 4.98

Total Hole Depth 32

Lithological Descriptions
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Lat 32 59 11 N
Long 115 30 01 W Nad 27

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter (.15 meter)	SPT total	Graphic Log	Lithological Description
1	1	SPT 1	↑		↑					4			0 - 11 Alluvium
2										6			clay (CH), light brown, stiff,
										5	11		medium dense, plastic
3													
4													
5													
6	2	CM 1	↑		↑						X		
7											X		
8											X		
9													
10	3												
11		SPT 2	4							2			
										4	8		
12			4							4			11 - 13 Alluvium
													silty clay (CL), light brown,
13	4												
14													13 - Alluvium (SM)
													sandy silt to silty sand, light brown, soft,
15													laminated, non plastic
16		SPT 3	4							1			
										2			
17	5		4							1	3		
18													
19													
20	6												

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SOILS AND GEOLOGICAL EXPLORATION LOG

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Boring No.	Date Started	Date Ended	Geologist & Crew	Project Name	EA
III-1-B5	3/20/02		Fordham	Brawley Bypass	167E71

Top Hole Elev.	Location		Purpose of work	Dist - Co. - Rte. - PM
59.236	Offset & Station 0\ 373+14	Ref Line "G" line	Exploration	11-IMP-111

Groundwater Level: Date Measured 4/15/02; Depth to Water 4.98

Total Hole Depth 32

Lithological Descriptions
1. Group Name
2. Group Symbol
3. Consistancy/Relative Density
4. Color
5. Moisture
6. Partical Size & Shape
7. Gradation
8. Plasticity
9. Structure
10. Cementation
11. Organics
12. Fill Material
13. Other

Boring Depth (ft)	Boring Depth (meter)	Sample Number	SPT	CA Modified	Coring	Total Recovery	% Recovery	RQD	Lab Work Assigned	SPT Blows per .3 meter: .15 meter	SPT total	Graphic Log	Lithological Descriptions
1	1	SPT 1								2			20 - Alluvium
										2			Clay (CH), light medium brown,
2										4	6		firm, loose, Highly plastic
3													
4													
5													
6	2	SPT 5								2			
										3			
7										5	8		
8													
9													
10	3												
11		CM 2									X		
											X		Installed Piezometer #4 to
12											X		32' bgs.
13	4												
14													
15													
16													
17	5												
18													
19													
20	6												