Caltrans | EXPLORATION BORING FIELD LOG | Date 12-18-07 | Boring No. DNB-R5

Location Doyle Drive Realignment | Lab No. | EA No. 163701 | Page 1 of 5

Dist. 04 Co. SF Rt. 101 P.M. | Br. No. | Purpose of Work Geotechnical Investigation

Ft., Rt./Lt. | Line, Sta. | Northings. | Eastings. | Elev.

Ground Water Data: Date | Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew : W Becker

Drill rig : Frontic Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion : 12-19-07

Depth	Sample Interval	Tool	Blows/ROD	Sample I.D.	% Rec.	Strength	Graphic Log	Description	Remarks
1								← Drilled thru AC pavement	
2									
3			7						
			9	b					MC
4			9	a					Calibrating Energy
			5					← FILL - Poorly graded Silty Sand (SP)	
5			4					loose, dark brn, grey, moist, fine sand	SPT
			4					with gravel/g up to 1"	
6									
7									
			2						
8			2	b				← Poorly graded gravel (GP), loose,	MC
			1	a				dark grey, gravel/g 3/8" to 2"	
9								←	
10									Shelby - No processing
11									
12									
			1						
13			2	b					MC
			5	a					
14			4					← Poorly graded Silty Sand (SP-SM)	
15			11					medium/dense, dark grey, fine to medium	SPT
			11					Sand	
16									
17									
			14						
18			19						MC
			15	a					
19									
			4					← Same	
20			9						SPT
			19						
21									
22									

Caltrans | EXPLORATION BORING FIELD LOG | Date 12-18-07 | Boring No. DNB-R5

Location Doyle Drive Replacement | Log No. | EA No. 163701 | Page 2 of 6

Dist. 04 Co. SF Rt. 101 P.M. Br. No. Purpose of Work Geotechnical Investigation

Rt. Ft., Lt. Line, Sta. Northings. Eastings. Elev.

Ground Water Data: Date/Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew :

Drill rig : Fratic Multidrill XL | Hammer Type and Weight :

Drilling Method : | Casing :

Hole Completion :

Depth	Sample Interval / Tool	Blows / ROD	Sample I.D.	% Rec.	Strength	Graphic Log	Description	Remarks
22								
23		0					← Sandy lean Clay (CL), soft, dark gray, low to med. plasticity with marine shells	MC
		1					q_u = 0.5 Ton/ft²	
24		6	a					
		2					← Poorly graded silty Sand (SP-SM), med. dense? dark gray, fine to med Sand	SPT
25		6						
		19						
26								
27								
28		12						MC
		11						
29		14	a					
		3					← Same but dense and marine shells	SPT
30		12						
		21						
31								
32								
33		11						MC
		18						
34		32	a					
		13					← Uniformly graded Sand (SP), very dense?, dark brown, med. Sand (Colma Sand)	SPT
35		21						
		34						
36								
37								
38		20						MC
		27						
39		45	a					
		12					← Same	SPT
40		38						
		50	6"					
41								
42								

Caltrans | EXPLORATION BORING FIELD LOG | Date 12-18-07 | Boring No. DNB-R5

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 3 of 6

Dist. Co. Rt. P.M. Br. No. Purpose of Work

Ft., Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data: Date/Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew :

Drill rig : Fratic Multidrill XL | Hammer Type and Weight :

Drilling Method : | Casing :

Hole Completion :

Depth	Sample Interval	Tool	Blows	RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
42												
43			26									MC
			46									
44			55	a								
			15						← Same			SPT
45			21									
			36									
46												
47												
48			26									MC
			37									
49			44	a								
			18						← Same			SPT
50			26									
			43									
51												
52												
53			20									MC
			28									
54			43	a								
			15						← Same, but dense			SPT
55			21									
			26									
56												
57												
58			13									MC
			36									
59			46	a								
			13						← Same			SPT
60			16									
			22									
61												
62												
63												

Caltrans

EXPLORATION BORING FIELD LOG

Date 12-15-07 | Boring No. DNB-KS

Location Doyle Drive Replacement | Lab No. | EA No. 167787 | Page 4 of 5

Dist. | Co. | Rt. | P.M. | Br. No. | Purpose of Work

Ft. Rt. Lt. | Line. Sta. | Northings. | Eastings. | Elev.

Ground Water Data

Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew :

Drill rig : | Hammer Type and Weight :

Drilling Method : | Casing :

Hole Completion :

Depth	Sample Interval	Tool	Blows / RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
63											
			27					Same			SPT
64			37								
			43								
65											
66											
67											
68			27								MC
			44								
69			47	a							
			12					Lean Clay (CL), Hard, dark gray,			SPT
70			18					low to med plasticity			
			17					$q_u = 3.5-4$ Ton/ft²			
71											
72											
											12-19-07
73			19								MC
			21	b							
74			28	a							
			13					Same but very stiff			SPT
75			13					$q_u = 1.25-1.5$ Ton/ft²			
			12								
76											
77											
78			14								MC
			16								
79			21	a							
			5					Sandy lean Clay (CL), very stiff			SPT
80			6					low plasticity, with marine shells			
			10					$q_u = 1.25-1.5$ Ton/ft²			
81											
82											
83			14								MC
			17								
84			13	a							

Caltrans

EXPLORATION BORING FIELD LOG

Date 12-19-07 | Boring No. DNB-R5

Location Doyle Drive Replacement | Lab No. | EA No. 165701 | Page 5 of 6

Dist. 04 Co. SF Rt. 101 P.M. Br. No. Purpose of Work Geotechnical Investigation

Ft., Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By : E. Ortega | Drill Crew :

Drill rig : | Hammer Type and Weight :

Drilling Method : | Casing :

Hole Completion :

Depth	Sample Interval Tool	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
84										
		5					Same but very stiff			
85		8								
		22								
86										
87										
88		18								
		27								
89		50	3.5" a							
		12					Same but hard			
90		17					$q_u = 3.5 - 4.0$ Ton/ft^2			
		22								
91										
92										
93		17					Same			
		26								
94		40								
95										
96										
97										
98		20					Same			
		31					$q_u > 4.5$ Ton/ft^2			
99		45								
100										
101										
102										
103		20					Same (with coarser sand)			
		34								
104		44								
105										
106										
107										
108										
109										
110										
111										

Caltrans

EXPLORATION BORING FIELD LOG

Date 12-19-07 | Boring No. DDB3-R5

Location

Lab No. | EA No. 163701 | Page 6 of 6

Dist. | Co. | Rt. | P.M. | Br. No. | Purpose of Work

Ft., Rt. Lt. | Line. Sta. | Northings. | Eastings. | Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By :

Drill Crew :

Drill rig :

Hammer Type and Weight :

Drilling Method :

Casing :

Hole Completion :

Depth	Sample Interval Log	Blows / RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
111										Change of soil @ 111
112										
113		24					SEDIMENTARY ROCK (SHALE)			
		39					dark gray, very intensely fracture			
114		50	5"				to decompose, soft, not healed			
							(Clean Clay (CL), low plasticity)			
							Bottom of Boring @ 114' on 12-19-07			

DNB-RG

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-08-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 1 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. Purpose of Work Geotechnical Investigation

Rt. Ft.. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data: Date / Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Soil Type & Consistency	Blows per 6" / Blows per foot	RQD	Sample I.D.	% Rec.	Structure	Graphic Log	Description	Remarks
1								← Drilled through AC pavement	
2									← Fill
3									
4									
5								← Poorly graded Silty Sand (SP), very loose, dark gray, wet, sand,	MC
6		0	a					with marine shells, weak cementation, over	← Clay
7								Sandy Clay (CH) very soft, dark gray,	
8								wet & high plasticity.	
9								(12" SP over 6" CH)	
10									Shelby
11									
12									
13		50	per 1"						← Sand
14									
15		3							
16		4							MC
17		12	a						
18		8						← Poorly graded Silty Sand (SP), med.	
19		11						dense, dark gray, wet, sand, with	SPT
20		17						marine shells, weak cementation.	
21									
22		15							
23		23							MC
24		27	a						
25		6							
26		10						← Same	SPT
27		11							
28									
29									
30		1							MC
31		3							
32		13	a						

DNB-R6

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-08-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 2 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval (Tool)	Blows / RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
27		3					Same but dense			SPT
		12								
28		21								
29										
30		3								
		3								
31		6	a							
32		3					Same but med. dense			
		11								
33		17								
34										
35		9								
		22								
36		23	a							
37		10					COLMA SAND: Poorly graded			
		18					Silty Sand (SP), dark Brown,			
38		24					med sand, weak cementation and			
39							some oxidation spots			
40		14								
		30								
41		38	a							
42		8					Same but very dense			
		19								
43		38								
44										
45		23								
		31								
46		42								
47		10								
		21								
48		38								
49										
50		12					Same but dense			
		18								
51		24								

DNB-R6

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-08-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 3 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval Tool	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
52										
53										
54										
55		10					← Same but med. dense and			SPT
56		12					dark grey			
		14								
57										
58										
59										
60		9					← Same			SPT
61		11								
		18								
62										
63										
64										
65		10					← Same			SPT
66		14								
		19								
67										
68										← Clay
69										
70										Shelby
71										
72										
73										
74										
75		6					← Sandy fat Clay with gravel			SPT
76		7					to 1/4" (CL), Very stiff, med to high pls			
		10					q_u = 4.5 Ton/ft²			
77										
78										
79										
80										

DNB-R6

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-9-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 4 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data

Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval (ft)	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
80		50	2"				SEDIMENTARY ROCK (Sandstone), olive yellow, moderately to slightly fractured moderately soft, slightly weathered healed with Clay			SPT (2") Cored 80'2" to 85' Munsell Hue 5Y 6/6 Time 8:03 - 9:19
81										
82										
83										
84							RQD = 9+15+17+10/60 = 85%			
85										
86							Same			
87							RQD = $\frac{7+5.5+9.25+13.5+15+5}{60}$ =	92%		Time 9:38 - 9:57
88										
89										
90							Same but very intensely fractured			Time 10:09 - 10:35
91										
92										
93										
94										
95							Shale, bluish gray, very intensely to intensely fractured moderately soft, slightly weathered healed with Clay			Time 10:46 - 11:03 Munsell Chart 2 for Gley 5/1
96										
97										
98										

Bottom of Boring @98' on 1-09-08

DNB-R7

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-9-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 3 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft.. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval Tool	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
52		10					Same but dense			SPT
		17								
53		25								
54										
55		9					Same but dark grey			SPT
56		14								
		21								
57										
58										
59										
60		9					Sandy lean Clay (CL), very stiff, dark grey, low pls			SPT
61		12					q_u = 11.0 Ton/ft²			
		15								
62										
63										
64										
65		14					Same			SPT
66		13					q_u = 4.25 Ton/ft²			
		13								
67										
68										
69										
70										Shelby (Picture)
71										cut with rock
72										fragments to 1"
73										
74										
75		40					SEDIMENTARY Rock (Sandstone) pale olive, moderately to slightly fractured, soft, slightly weathered healed with clay			Rock SPT Cored 75' 7" – 78' 1-10-08 Munsell Hue 5Y 6/4
76		50	1"							
77										
78							RQD = 22+8.5/32 = 95.3%			

DNB-R7

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-9-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 2 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data: Date / Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval Tool	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
27		3					Lean Clay with sand (CL),			SPT
		4					stiff, dark gray, low pls.			
28		6								
29										
30		4								MC
31		4								
		4	a							
32		4					Poorly graded sand with Clay			SPT
		4					(SP-SC), med dense, dark gray,			
33		7					med sand with marine shells			
34										
35		9								MC
36		12								
		33	a							
37		7					Colma Sand, poorly graded Sand			SPT
		13					(SP), dense, reddish brown,			
38		21					med sand, with oxidation spots			
39							weak cementation			
40		16								MC
41		26								
		40	a							
42		14					Same but very dense			SPT
		34								
43		40								
44										
45		20								MC
46		30								
		40	a							
47		12					Same			SPT
		27								
48		42								
49										
50		20								MC
51		29								
		23	a							

DNB-R7

Caltrans EXPLORATION BORING FIELD LOG

Date 1-09-08 | Boring No.

Location Doyle Drive Replacement | Loc No. | EA No. 162701 | Page 1 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. Purpose of Work Geotechnical Investigation

Rt. Ft. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data: Date / Time | Water Level | Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion : 1-10-08

Depth	Sample Interval	Lost Blows	RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description	Remarks
1								Drilled thru AC Pavement.	
2								Sand and Bay Mud	
3									← Sand
4									← Bay Mud
5									
6		1						← Fat Clay with sand (CH), soft	MC
		1						dark gray, med to high pls	
		2	a						
7									
8									
9									Shelby
10									
11									
12		1						← Poorly graded, Silty Sand (SP),	SPT
		4						med dense, dark gray, med sand,	
14		9						weak cementation	
15									
		9							MC
16		11							
		30	a						
17		5						← Same	SPT
		12							
18		16							
19									
20									
		13							MC
21		16							
		13	a						
22		5						← Same but dense and with	SPT
		14						marine shells	
23		17							
24									
25									
		1							MC
26		0							
		2	a						

DNB-R7

Caltrans

EXPLORATION BORING FIELD LOG

Date 1-10-08 | Boring No.

Location Doyle Drive Replacement | Lab No. | EA No. 163701 | Page 4 of 4

Dist. 04 Co. SF Rt. 101 P.M. Br. No. | Purpose of Work Geotechnical Investigation

Ft. Rt. Lt. Line. Sta. Northings. Eastings. Elev.

Ground Water Data	Date / Time	Water Level	Bot. of Boring

Logged By : E Ortega | Drill Crew : R Medina

Drill rig : Fraste Multidrill XL | Hammer Type and Weight :

Drilling Method : Wet Rotatory | Casing :

Hole Completion :

Depth	Sample Interval (oa)	Blows RQD	Sample I.D.	% Rec.	Strength	Graphic Log	Description			Remarks
78										
79							Same			
80							RQD = 23+13.5+12.5+4.5/58 = 92.2%			
81										
82										
83										
84							Same but intensely to			
85							very intensely fractured			
86							RQD = 11+9.5+10+5.5+6.5+5+4.5/62 = 83.9%			
87										
88										
89							Shale, bluish gray, slightly to			Munsell 2 for Gley
90							moderately fractured, moderately soft			5/1
91							moderately weathered,			
92							healed with clay			
93							RQD = 7.5+11.5+12.5+8+13.5+6/60 = 98.3%			
94							Same but intensely to very intensely			
95							fractured			
96							RQD = 15.5+7+6.5+5/53 = 64.1%			
97										
98							Bottom of boring @ 97.5			
							on 1-10-08			