

LOGGED BY T. Carroll	BEGIN DATE 3-26-08	COMPLETION DATE 3-28-08	BOREHOLE LOCATION (Lat/Long or North/East and Datum) N2120559.949 / E5994521.542 (NAD83)	HOLE ID BTNB-R6-PZ-D
DRILLING CONTRACTOR Gregg Drilling and Testing, Inc.		BOREHOLE LOCATION (Offset, Station, Line) Offset 222ft R Sta 81+67 NB Alignment		SURFACE ELEVATION 83.591 ft (NAVD88)
DRILLING METHOD Mud Rotary		DRILL RIG Fraste Multi-drill (track)		BOREHOLE DIAMETER 5 in. (soil); 4 in. (rock)
SAMPLER TYPE(S) AND SIZE(S) (ID) MC (2.4"), SPT (1.4"), HQ-Core		SPT HAMMER TYPE Automatic, 140 lbs., 30-inch drop		HAMMER EFFICIENCY, ERI 72.9%
BOREHOLE BACKFILL AND COMPLETION 2" standpipe Piezo from 60' to 80'		GROUNDWATER DURING DRILLING AFTER DRILLING (DATE) READINGS		TOTAL DEPTH OF BORING 98 ft

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 In	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
	0		CLAYEY GRAVEL (GC), poorly compacted, reddish brown, moist, gravel is subangular, trace roots (1/4" diameter). [FILL]												
81.59	2		Poorly graded SAND (SP), poorly compacted, yellowish brown, moist, fine, trace fines, trace medium sand.												
	3			S1	7	18	61								
	4		Grades dark brown, grades without medium SAND, with increase in fines content, with pockets of black organic material (up to 1/8" diameter).												
79.59	4			S2	4	5	44								
	5				2										
	6				3										
77.59	6														
	7														
75.59	8		Poorly graded SAND with CLAY (SP-SC), moderately compacted, reddish brown, moist, fine, with shell fragments.							14.7	108.4			PA	
	9		9.1', grades with yellowish brown mottling.												
	10		9.7', 1/4" diameter root.												
	11														
71.59	12														
	13		SILT (ML), stiff, yellowish brown and grayish brown, moist, mottled, trace fine to medium sand, with black oxidized nodules (up to 1/8" diameter). [COLMA FORMATION]												
	14		Grades to SILT with SAND, with black specks, rootlets.							20.5	107.3	PP = 1.5, 1.4 UU = 1.22		PI, LL	
69.59	14														
	15														
	16														
67.59	16														
	17														
65.59	18		Grades to SANDY SILT, light yellowish brown, moist, with thin horizontal laminations.							18	113.6	PP = 1.4, 1.8, 2.1, 1.9		PA	
	19		19.0', grades with slight iron-oxide mottling, without rootlets.												
	20														
	21														
63.59	20														
	21														
	22														
61.59	22														
	23		SILTY SAND (SM), very dense, yellowish brown, moist, fine to medium, with trace rock fragments up to 1/4" diameter, rock fragments are subangular SILTSTONE and SERPENTINITE, with SANDY CLAY partings, with black specks. [COLMA SAND]							15.7	117.8			PA	
59.59	24														
	24														
	25														

(continued)

CALTRANS FORMAT ARUPLOGS 11-2-08.GPJ ARUP LIBRARY CALTRANS FORMAT.GLB 11/3/08



Department of Transportation
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REPORT TITLE BORING RECORD				HOLE ID BTNB-R6-PZ-D	
DIST. 4	COUNTY S.F.	ROUTE 101	POSTMILE 8.3/9.4	EA 163701	
PROJECT OR BRIDGE NAME Doyle Drive Replacement Project					
BRIDGE NUMBER 34-0161R		PREPARED BY T. Carroll		DATE 11-3-08	SHEET 1 of 4

Figure

CALTRANS FORMAT ARUPLOGS 11-2-08.GPJ ARUP LIBRARY CALTRANS FORMAT.GLB 11/3/08

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 in	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
57.59	25		SILTY SAND (SM), very dense, yellowish brown, moist, fine to medium, with trace rock fragments up to 1/4" diameter, rock fragments are subangular SILTSTONE and SERPENTINITE, with SANDY CLAY partings, with black specks. [COLMA SAND]			17									
	26						27								
	27						32								
55.59	28		Poorly graded SAND with SILT (SP-SM), very dense, yellowish brown, moist, fine to medium, with trace rock fragments up to 1/4" diameter, rock fragments are subangular SILTSTONE and SERPENTINITE.	✱	S11	40	50/5"	73		14.9	108.3				PA, CU
	29			✱	S12	29		66	83						
	30						32								
53.59	31					34									
51.59	32		METAMORPHIC ROCK (Serpentine), dark greenish gray and very dark bluish gray, moderately weathered, very soft, moderately fractured (intensely crushed), fractures are planar to sub-planar 20° from horizontal, highly sheared throughout, with micro-slickensided surfaces throughout, light brown iron-oxide staining throughout, local sub-horizontal foliation. 33.5', grades soft, decreased iron-oxide staining.	✱	S13										Rig chatter at 31.5'
	33				C14			100	N/A						
	34				C15			80	N/A						
49.59	35														
47.59	36														
	37														
	38														
45.59	39														
	40														
	41														
41.59	42														
	43														
	44														
39.59	45														
	46														
	47														
	48														
35.59	49														
	50														
	51														
	52														
	53														
29.59	54														
	55														

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Figure

CALTRANS FORMAT DOYLEDRIVE ARUPLOGS 11-2-08.GPJ ARUP LIBRARY CALTRANS FORMAT.GLB 11/3/08

ELEVATION (ft)	DEPTH (ft)	Material Graphics	Description	Sample Location	Sample Number	Blows per 6 in	Blows per Foot	Recovery (%)	RQD (%)	Moisture Content (%)	Dry Unit Weight (pcf)	Shear Strength (tsf)	Drilling Method	Casing Depth	Remarks
27.59	55		55.3', mechanized fracture dips ~45°.												
	56		55.8', grades with abundant iron-oxide staining, indirect fractures are sub-horizontal, continued internally sheared polished surfaces.												
	57														
25.59	58		METAMORPHIC ROCK (Greenstone), dark greenish gray, slightly weathered, moderately hard to hard, intensely fractured with very intensely to intensely fractured zones, fractures fringing from horizontal to 20° dip. Open and healed fractures with filling and staining of black magnesium oxide. Subrounded vitreous crystals predominant throughout mass (pyroxene/olivine?), localized black vugular zones (maximum 0.2' thick).		C24			60							
	59														
23.59	60		60.0' - 60.8', intensely fractured (open and closed, internal shearing characterized by microstriations on plane surfaces). 60.4', dip 40°.		C25			91	2.4/3.5'						
	61														
21.59	62		60.8, intensely fractured, moderately hard. Grades less crystalline (micro crystalline). 62.4', dip 70°.												
	63		62.9', dip 70°.												
19.59	64		63.4' - 65.6', very intensely fractured, very soft (with hard pieces, crumbles to 1/16" to 1" pieces, moderately weathered, with abundant iron-oxide staining).		C26			69	0.5/4.5'						
	65														
17.59	66		65.6', moderately weathered.												
	67														
15.59	68		68.0', intensely fractured, moderately hard, moderately weathered, fractures horizontal to 45°, filled (vertical at 70.5'), fracture with similar appearance to rest of rock, scattered fibrous minerals at random orientations (asbestos?), few apparent unique crystals.		C27			73	1.5/4'						
	69														
13.59	70		69.6' - 70.4', very intensely fractured.												
	71														
11.59	72		72.0', fractures infilled with fibrous mineral (asbestos?)		C28			89	0						
	73		72.3', moderately weathered with abundant iron-oxide staining throughout, very soft, very intensely fractured.												
	74		73.0', moderately to slightly fractured, hard, moderately weathered.												
9.59	75														
	76														
7.59	76		76.0' - 77.4' and 78.0' - 78.4', crushed zones (very soft, severely weathered, with abundant iron-oxide staining).		C29			73	0.8/4'						
	77														
5.59	78		SEDIMENTARY ROCK (Greywacke), fine grained to aphanitic, yellowish brown, slightly weathered, hard, healed very thin fractures.												
	79		METAMORPHIC ROCK (Serpentine), green and yellowish brown, moderately weathered, soft.												
3.59	80		Recovery is dark greenish gray and dark gray pieces of serpentine and greenstone, moderately hard - not representative of rock layer.		C30			33	N/A						
	81														
1.59	82														
	83		Very dark gray, intensely fractured, moderately hard, severely weathered, talc/chlorite in fractures.		C31			72	0.7/2.5'						
-0.41	84		83.5' - 84.3', slightly fractured, veinettes of fibrous minerals.												
	85														

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Figure

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85			METAMORPHIC ROCK (Serpentine), green and yellowish brown, moderately weathered, soft.		C32			100	N/A						
-2.41	86		85.0', very intensely fractured and sheared (crushed), soft to very soft, moderately weathered.												
	87														
-4.41	88				C33			72	N/A						
	89														
-6.41	90		89.1', very soft with zones of moderately hard, common green vitreous appearance (chlorite?).												
	91				C34			100	0						
-8.41	92		91.1', moderately fractured, moderately hard, slightly weathered at 90.0', platy secondary mineral formation (chlorite?) pervasively throughout.							14.9	140.4	UU = 0.44			
	93		91.2', fibrous, light green, translucent minerals oriented parallel to dip.		C35			100	0						
-10.41	94		92.3', internally sheared/crushed, very soft to soft, moderately weathered, platy secondary mineral formation pervasively throughout (chlorite?) portions of core - one locally micro-fractured with chlorite? filling.												
	95				C36			100	0						
-12.41	96		94.5', very dark gray, intensely fractured, moderately hard, slightly weathered.												
	97		95.0', internally sheared/crushed.												
-14.41	98		97.0' - 97.5', very intensely to intensely fractured.												
	99		Borehole terminated at a depth of 98 feet on 3/28/2008.												
	100		See Boring Record Legend for soil classification chart and key to test data and sampler type.												
-16.41	101		Additional Notes:												
	102		1. Oriented rock coring performed.												
-18.41	103														
	104														
-20.41	105														
	106														
-22.41	107														
	108														
-24.41	109														
	110														
-26.41	111														
	112														
-28.41	113														
	114														
-30.41	115														



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Figure