R-234

WEBER

Memorandum

UTAH DEPARTMENT OF TRANSPORTATION

FOUNDATIONS

T.5N. R.1W. SEC.8H 1014

DATE: September 14, 1983

TO : James L. Deaton, P.E., District 1 Director

FROM : Heber Vlam, P.E., Engineer of Materials and Research H.V.

SUBJECT: NM-2037(4); SR-89 Washington Blvd.
44th South St. to 27th South St.
Slope Stability and Settlement Investigation
Approximate Station 48+00 to 53+00

500' south of Burch Creek Crossing

As requested by the District One Materials Engineer, we are in the process of investigating stability and settlement problems in the north bound lane of Washington Boulevard near Burch Creek.

Three test holes, varying in depth from 17 to 120 feet were drilled in the area for the stability and settlement study. Correlation of subsoils between holes is good. The test holes show that the ground water is approximately 6 to 10 feet below natural ground. In general the subsoils in hole number 2 may be described as follows: from the ground surface to a depth of 14 feet - dark tan silty fine sand; from 14 feet to 38 feet - dark tan silty clay with thin lenses of sandy silt; from 38 feet to 96 feet - grayish light brown silty clay with lenses of sandy silt; from 96 feet to 100 feet - interbedded silty clay and sandy silt; from 100 feet to 108 feet - grayish light brown silty clay; from 108 feet to the maximum depth of exploration - interbedded sandy silt and silty clay. Drill hole number 3, located approximately 166 feet northeasterly from hole number 2, in the section of the road which has settled, shows a good correlation of soil layers but approximately 10 to 12 feet deeper up to a depth of 90 feet. The subsoils correlate at nearly the same elevation thereafter. Because the soil bedding is relatively flat, we therefore believe this is evidence of a probable high angle shear plane to a depth of 90 feet, somewhere between holes number 2 and 3 generally parallel to Washington Blvd. Also, soil samples from 96 feet depth in Drill Hole 2 show evidence of shear failure with disoriented bedding planes and the appearance of low angle slippage (nearly parrallel the bedding planes). See Drilling Logs (attached). These shear plane may have occurred some time prior to the settlement.

The ground water table was found to be at approximately 6 to 10 feet deep. Subsurface water from several possible sources, in the shallower permeable layers, has percolated through the silty sand materials and caused major settlement in the north bound lane of the Washington Boulevard, by removal of fine grained material.

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Date Begun 8-5-83
Date Completed 8-5-83
Hole Diameter 3"
Hole No. 1
Sheet 1 of 1
Total Depth 17'

Project No. NH-2037(4)
Project Name Washington Blvd. 27th St. to 42nd St. Weber Co.
Soil Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure Hole Sta. 52+08 Rt. 8 Ft., Lt. — Ft., of ℄ Wash. Blvd.
Collar Elevation 100' (Assumed Elev.) Reference Method Used Tape
Field Party Powell, Worwood & Winter Rig Failing

Ground Water Table					
Depth in Ft.	5.9'				
Time	1400				
Date	8-8-83				

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
								Call every thing ML
RB			Air	0				Asphalt
				1				Road Base: Dk tan sand and gravel with some silt
				2				
				3				Dk tan clayey silt with fine sand to sandy silt with some clay (Damp)
				4				Dk tan fine sand with silt. (Moist)
				5				Drove casing to 5'
Pen								5/6 4/6 5/6 6/6 —Loose—
"		9		6				Dk tan fine sand with silt to some silt. (Moist to wet)
"			1-7	7				
RB								Drove casing to 10'
				8				
				9				Dk tan fine sand and silt with trace clay (Moist)
Pen				10				5/6 4/6 5/6 7/6 —Loose—
"		9		11				Dk tan clayey silt with fine sand (Damp)
"			1-12					
RB				12				
				13				
				14				Dk tan sand with silt (Wet)
			Water					Drove casing to 15'
Pen				15				3/6 3/6 5/6 7/6 —Medium—
"		8		16				Dk tan silty clay with trace fine sand. A 1/8" lense rusty dk tan sandy silt every 3"—6". (Damp)
"			1-17	17				Blew out cased drill hole with air
								TD — 17 8-5-83
								Inserted perforated plastic pipe to 17' 8-8-83

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Date Begun 8-8-9?
Date Completed 8-12-8?
Hole Diameter 3"
Project No. NM-2037(4)
Project Name Washington Blvd 2?th St to ??nd St Weber Co.
Soil Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 52+08 Rt. 5 Ft., Lt. — Ft., of ℄ Wash. Bldg
Collar Elevation 100' (Assumed Elev) Reference
Method Used
Field Party Powell, ?????? & ??????
Rig Failing

Hole No. 2
Sheet 1 of 6
Total Depth 120'

Ground Water Table

Depth in Ft.	6.9'	5.9'			
Time	1330	1000			
Date	8-?-83	8-15-83			

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION: Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
RB			Air	0				Asphalt
				1				Road Base: Dk tan sand and gravel with some silt
				2				Dk tan clayey silt with fine sand to sandy silt with some clay (Damp)
				3				
				4				
				5				Drove casing to 5'
				6				Dk tan fine sand with silt to some silt (Moist to wet)
				7				
				8				
				9				Dk tan fine sand and silt with trace clay (Moist)
			Water	10				Drove casing to 10'
				1				Dk tan clayey silt with fine sand (Damp)
				2				
				3				Dk tan sand with silt (Wet)
				4				
				15				Drove casing to 15'
Shelby								
"				6				Dk tan silt clay with trace fine sand. A 1/8" lense rusty dk tan sandy silt every 3"-6" (Damp) (Bedding Horiz)
"								
"			2-17	7				
RB								
				8				
				9				
				20				

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 2
Sheet 2 of 6
Total Depth 120'

Begun 8-8-92
Date Completed 8-12-92
Hole Diameter
Project No. NM-1037(4)
Project Name Washington Blvd 30th St to 42nd St
Soil Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 52+08
Rt. 5 Ft., Lt. — Ft., of ℄ Wash. Blvd
Collar Elevation
Reference
Method Used
Field Party Powell, Warnock & Winters
Rig Failing

Ground Water Table

Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				0				4/6 5/6 6/6 9/6 — Stiff —
"		11		1				Dk tan silty clay with a 1/8" lense rusty dk tan
"			2-22	2				sandy silt curvy 3"-12". (Damp) (Bedding Horiz)
RP								
				3				
				4				
Shelby				5				
				6				Dk tan silty clay with a few thin lenses rusty
"			2-27					dk tan sandy silt (Damp) (Bedding Horiz)
RB				7				
				8				
				9				
Pen				0				4/6 4/6 7/6 8/6 — Stiff —
"		11		1				Dk tan silty clay with a 1/8" lense sandy silt
"			2-32	2				curvy 2"-12" (Damp) (Bedding Horiz)
RB								
				3				
				4				
Shelby				5				
"				6				Dk tan silty clay with a few to some thin
"			2-37					lenses sandy silt (Damp) (Bedding Horiz)
RB				7				
				8				
				9				Grayish lt brown silty clay with a few thin lens sandy silt
				40				

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Begun 8-4-90 | Hole No. 2
Date Completed 8/8-90 | Sheet 2 of 6
Hole Diameter | Total Depth 150'

Project No. NM-2027 (4)

Project Name Washington Blvd 27th St. to 43rd St
Soil Stability Study

Equation Project Line Sta. / Other Line Sta.

Type of Structure

Sta. of Structure | Hole Sta. 52+08 | Rt. 5 Ft., Lt. — Ft., of ℄ Wash Blvd

Collar Elevation | Reference | Method Used

Field Party Powell, Mannes & Wheeler | Rig Failing

Ground Water Table					
Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.
Pen				40				3/6 4/6 6/6 7/6 — Stiff —
"		13		1				
"								Grayish lt brown silty clay. A 1/8" lense gray
"			2-42	2				sandy silt every 1"–6". (Damp) (Bedding Hori
RB								
↓				3				
				4				
↓								8-8-90 / 8-9-90
Shelby				45				
				6				Grayish lt. brown silty clay with a thin coating
"			2-47					of sand on bedding plane every 1/4"–1". A few
RB				7				thin lenses sandy silt. (Damp) (Bedding Horiz)
↓				8				
				9				
Pen				50				3/6 4/6 5/6 7/6 — Stiff —
"		9		1				
"								Grayish lt. brown silty clay with a thin coating
"			2-52	2				of sand on bedding plane every 1/4"–1". A few
RB								thin lenses sandy silt. (Damp) (Bedding Horiz)
↓				3				
				4				
Shelby				55				
"				6				
"								Grayish lt brown silty clay with a thin coating of
"			2-57	7				sand on bedding plane every 1/4"–1". A few thin lenses
RB								sandy silt (Damp) (Bedding Horiz)
				8				
				9				
↓				60				

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Begun 8-8-83
Completed 8-12-83
Diameter
Project No. NM-20??(9)
Project Name Washington Blvd 27th St to [illegible]
Soils Stability Study
Type of Structure
Location of Structure
Collar Elevation
Field Party Powell, Warwood & Wilson

Hole No. 2
Sheet 4 of 6
Total Depth 130'

Equation: Project Line Sta. / Other Line Sta.

Hole Sta. 52+05 Rt. 5 Ft., Lt. — Ft., of ℄ Wash Blvd
Reference
Method Used
Rig Failing

Ground Water Table

Depth in Ft.					
Time					
Date					

DESCRIPTION: Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Description
Pen				60	3/6 4/6 5/6 7/6 — Stiff —
"		9		1	Grayish lt brown silty clay with a thin coating of sand to a 1/8" lense sandy silt every 1/4"-1"
"			2-62	2	(Damp) (Bedding Horiz)
RB				3	
↓				4	
Shelby				65	Grayish lt brown silty clay with a thin coating of sand to a 1/8" lense sandy silt every 1/4"-1" (Damp) (Bedding Horiz)
			2-67	7	weight of drill rods
3 ↓				8	
				9	
Pen				70	5/6 6/6 10/6 12/6 — Very stiff —
"		16		1	Grayish lt brown silty clay with a thin coating of sand to a 1/8" lense sandy silt every 1/4"-1" 8-10-83
"			2-72	2	(Damp) (Bedding Horiz) 8-11-83
RB				3	Dk tan sandy silt
↓				4	Grayish lt brown silty clay with some 1/16-1/2" lenses sandy silt
Shelby				75	
"				6	Grayish lt brown silty clay with some 1/16-1/2" lenses sandy silt
"			2-77	7	weight of drill rods.
RB				8	
				9	
				80	

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Begun: 8-8-83
Date Completed: 8-12-83
Hole Diameter:
Project No.: NM-1057(9)
Project Name: Washington Blvd 27th St to 42nd St
Soils Stability Study
Type of Structure:
Sta. of Structure:
Collar Elevation:
Field Party: Powell, Wormwood & Winters

Hole No.: 2
Sheet 5 of 6
Total Depth: 120'

Equation: Project Line Sta. / Other Line Sta.

Hole Sta.: 52+08 Rt. 5 Ft., Lt. — Ft., of ℄ Wash Blvd
Reference:
Method Used:
Rig: Failing

Ground Water Table

Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				80	3/6 5/6 6/6 8/6 — Stiff —
"		11		1	Grayish lt. brown silty clay with a thin coating of sand on bedding plane to a 1/4" lense sandy silt every 1/4"-1" (Damp) (Bedding Horiz)
"			2-82	2	
RB				3	
↓				4	Dk tan fine sand with some silt
Shelby				85	
				6	Grayish lt. brown silty clay with a few thin lenses sandy silt (Damp) (Bedding Horiz)
			2-87	7	Weight of drill rods
B				8	
↓				9	
Pen				90	4/6 6/6 8/6 9/6 — Stiff —
"		14		1	Grayish lt. brown silty clay to silty clay with a thin coating of sandy silt every 1"-3" (Damp) (Bedding Horiz)
"			2-92	2	
RB				3	
↓				4	
Pen				95	5/6 18/6 33/6 28/6 — Very stiff to Dense —
"		23		6	Distorted layers of grayish lt. brown silty clay and sand with some silt. Probable slip plane zone
"		61	2-97	7	Dk tan sand with silt to some silt. A few thin lenses clayey silt. Clayey silt lenses have horiz bedding
RB				8	
				9	1/8"-1/4" lenses grayish lt. brown silty clay and sandy silt
				100	

Used air to blow drilling water out of drill hole. 8-11-83

Form R-353

Begun 8-8-83
Completed 8-12-83
Diameter

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 2
Sheet 6 of 6
Total Depth 120'

Project No. NM-2073(4)
Project Name Washington Blvd 27th St to 42nd St. Soils Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 52+05 Rt. 5 Ft., Lt. — Ft., of ℄ Wash Blvd
Collar Elevation
Reference
Method Used
Field Party Powell, Warwood & Winters
Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
								1/8"-1/4" lenses grayish lt brown silty clay and sandy silt (Bedding Horiz)
Pen				0				4/6 5/6 8/6 9/6
"		13		1				
"								Grayish brown silty clay with an occasional thin lense sandy silt (Bedding Horiz)
"			2-102	2				
RB				3				
				4				
Pen				5				5/6 6/6 9/6 10/6 —Very stiff—
"		15		6				
			2-107	7				Grayish brown silty clay with a few thin coating of sand to 1/8" lense sandy silt. (Bedding Horiz)
RB				8				
				9				
Pen				10				6/6 9/6 13/6 15/6 —Very stiff—
"		21		1				
"								1/8"-1/2" Lenses dk tan to lt brown silty clay and sandy silt (Bedding just slight inclined from Horiz)
"			2-112	2				
RB				3				
				4				
Pen				5				5/6 7/6 9/6 10/6 —Very Stiff—
"		16		6				1/8"-1/2" Lenses dk tan silty clay interbedded with 1/8"-1/4" Lenses dk tan sandy silt
"			2-117	7				
RB				8				
				9				
				10				

Ground Water Table

Depth in Ft.					
Time					
Date					

Grouted drill hole - 8-15-83

TD - 120'
8-12-83

Form R-353

Begun 8-15-83
Completed 8-18-83
Diameter 3'

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 3
Sheet 1 of 6
Total Depth 107'

Project No. NM-2037(4)
Project Name Washington Blvd 27th St to 43rd St. Weber Co.
Soils Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure Hole Sta. 50 + 45 Rt. — Ft., Lt. 33 Ft., of ℄ Wash. Blvd
Collar Elevation 92' (Assumed Elev) Reference Method Used
Field Party Powell, Worwood & Winters Rig Failing

Ground Water Table					
Depth in Ft.	* Dry	7.7'	10.0'		
Time	1000	1000	1000		
Date	8-16-83	8-17-83	8-18-83		

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
RB				0				
				1				Asphalt
				2				
				3				
				4				
				5				
				6				Road Base: Dk tan sand and gravel with some silt
				7				Drove casing to 10'
				8				(7'-17' possible fill material)
				9				Dk tan sand with some silt and gravel
Pen				10				6/6 5/6 4/6 5/6 — Loose —
"		9		1				Dk tan sand with some silt and gravel
"								
"			3-12	2				
RB								Dk tan fine sand with silt to some silt (Damp)
				3				Dk tan sand with some silt and gravel (Moist
				4				
				5				Drove casing to 15'
								No penetration sample taking, couldn't keep circulation to clean out drill hole. 8-15-83
				6				Drove casing to 20' 8-16-83
				7				
				8				
				9				Dk tan silty clay with a few thin lenses sandy silt
				20				

*-Caved in at 6'

Form R-353

Date 8-15-83
Completed 8-18-83
Diameter
Project No. NM-2037(4)
Project Name Wash Blvd 27th St to 43rd St
Soils Stability Study
Type of Structure
Name of Structure
Collar Elevation
Field Party Powell, Worwood & Winters

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 3
Sheet 2 of 6
Total Depth 107'

Equation Project Line Sta. / Other Line Sta.
Hole Sta. 50+45 Rt. — Ft., Lt. 33 Ft., of ℄ Wash Blvd
Reference
Method Used
Rig Failing

Ground Water Table					
Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				20				3/6 4/6 4/6 5/6 — Stiff —
		8		1				Dk tan silty clay with a thin lense of rusty brown sandy silt every 2"–10". An occasional piece of gravel. (Moist) (Bedding Horiz)
"			3-22	2				
RB				3				
				4				
Shelby				25				
"				6				Dk tan silty clay with a thin lense of rusty brown sandy silt every 1½"–6". An occasional piece of gravel. (Damp) (Bedding Horiz)
"			3-27	7				
RB				8				
				9				
Pen				30				3/6 4/6 5/6 7/6 — Stiff —
"		9		1				Dk tan silty clay with a thin coating of sand to ⅛" lense sandy silt every 1"–6" (Damp) (Bedding Horiz)
"			3-32	2				
RB				3				
				4				
Shelby				35				
"				6				Dk tan silty clay with a thin coating of sand to ⅛" lense sandy silt every ½"–6" (Damp) (Bedding Horiz)
"			3-37	7				
RB				8				
				9				
				40				

Form R-353

Begun 8-15-83
Completed 8-15-83
Diameter
Project No. NM-2037(4)
Project Name Wash. Blvd 27th St. to 43rd St.
Soils Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 50 + 45
Rt. — Ft., Lt. 33 Ft., of ℄ Wash Blvd
Collar Elevation
Reference
Method Used
Field Party Powell, Worwood & Winters
Rig Failing

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 3
Sheet 3 of 6
Total Depth 107

Ground Water Table

Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				40				3/6 4/6 6/6 8/6 — Stiff —
"		10		1				Dk tan silty clay with a thin coating of sand
"			3-42	2				to 1/8" lense sandy silt every 1/4"–1"
RB								(Damp) (Bedding Horiz)
				3				
				4				
Pen				45				3/6 3/6 6/6 7/6 — Stiff —
"		9		6				Grayish lt brown silty clay with a thin coating
			3-47	7				of sand to 1/4" lense sandy silt every 1/4"–1"
RB								(Damp) (Bedding Horiz to slightly inclined from hori
				8				
				9				
Shelby				50				
"				1				Grayish lt brown silty clay with thin lenses sandy
"			3-52	2				silt every 1/4"–1" (Damp) (Bedding Horiz).
RB								
				3				
				4				
Pen				55				3/6 3/6 5/6 6/6 — Stiff —
"		8		6				
"								Grayish lt brown silty clay with thin lenses
"			3-57	7				sandy silt every 1/4"–1". 8-16-83
RB								(Damp) (Bedding Horiz) 8-17-83
				8				
				9				
				60				

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Begun 8-15-83
Completed 8-18-83
Hole Diameter
Project No. NM-2037(4)
Project Name Wash Blvd: 27th St to 42nd St
Soils Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 50 + 45 Rt. — Ft., Lt. 33 Ft., of ℄ Wash Blvd
Collar Elevation
Reference
Method Used
Field Party Powell, Warwood & Winters
Rig Failing

Hole No. 3
Sheet 4 of 6
Total Depth 107'

Ground Water Table: Depth in Ft. / Time / Date

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				60				3/6 4/6 6/6 7/6 — Stiff —
"		10		1				Grayish Lt brown silty clay with 1/16"-1/8" lenses
"			3-62	2				sandy silt every 1/4"-1" (Damp) (Bedding Horiz)
R.B								
				3				
				4				
Pen				65				3/6 4/6 6/6 7/6 — Stiff —
"		10		6				Grayish Lt brown silty clay with 1/16"-1/8" lenses
"			3-67	7				sandy silt ever 1/8"-1"
R.B								(Damp) (Bedding Horiz)
				8				
				9				
Pen				70				4/6 5/6 6/6 7/6 — Stiff —
"		11		1				Grayish Lt brown silty clay with a thin coating
"			3-72	2				of sand to a 1/8" lense sandy silt every 1/4"-1"
R.B								(Damp) (Bedding Horiz)
				3				
				4				
Pen				75				4/6 4/6 6/6 8/6 — Stiff —
"		10		6				Grayish Lt. brown silty clay with 1/16"-1/8" lenses sand
"			3-77	7				silt every 1/4"-1" (Mostly 1/8")
R.B								(Damp) (Bedding Horiz)
				8				
				9				Grayish Lt brown silty clay with an occasional
				80				thin lense sandy silt

Form R-353

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Begun 8-15-83
Date Completed 8-18-83
Hole Diameter
Project No. NM-2037(4)
Project Name Wash. Blvd 27th St to 13th St
Soils Stability Study
Type of Structure
Sta. of Structure
Collar Elevation
Field Party Powell, Worwood & Winters

Hole No. 3
Sheet 5 of 6
Total Depth 107'

Equation Project Line Sta. / Other Line Sta.
Hole Sta. 50 + 45 Rt. — Ft., Lt. 33 Ft., of ℄ Wash Blvd
Reference
Method Used
Rig Failing

Ground Water Table

Depth in Ft.					
Time					
Date					

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				8 0				4/6 5/6 7/6 8/6 — Stiff —
"				1				
"		12						Grayish Lt brown silty clay with an occasional thin coating of sand or 1/8" lense sandy silt (Damp) (Redding Horiz)
"			3-82	2				
RB				3				
				4				
Pen				8 5				4/6 6/6 8/6 10/6 — Very Stiff —
		16		6				Grayish dk tan silty clay with an occasional thin coating of sand or 1/8" lense sandy silt (Redding Horiz)
			3-87	7				
RB				8				Grayish dk tan silty clay with 1/8"-1/4" lenses of sandy silt every 1/2"-1". (Damp) (Redding slightly inclined from Horiz)
				9				
Pen				9 0 A				10/6 11/6 11/6 13/6 — Very Stiff —
"				B1				Interbedded 1/8"-3/8" lenses silty clay and sandy silt (Damp) (Redding Horiz)
"		22		C D				
"			3-92	E2				
RB				3				Grayish dk tan sand with silt. Some thin lenses clayey silt. (Clayey silt lenses slightly inclined) Trace organic material
				4				
Pen				9 5				4/6 6/6 7/6 9/6 — Stiff —
"				6				
"		13						Grayish Lt brown silty clay with an occasional very thin lense sandy silt (Damp) (Redding Horiz)
"			3-97	7				
RB				8				
				9				
				10 0				

Form R-353

Begun 8-15-83
Completed 8-18-83
Diameter

UTAH DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS SECTION
DRILLING LOG

Hole No. 3
Sheet 6 of 6
Total Depth 107'

Project No. NM-2037(4)
Project Name Wash Blvd. 27th St to 42nd St.
Soils Stability Study
Equation Project Line Sta. / Other Line Sta.
Type of Structure
Sta. of Structure
Hole Sta. 50+45 Rt. — Ft., Lt. 33 Ft., of ℄ Wash Blvd
Collar Elevation
Reference
Method Used
Field Party Powell, Wormwood & Winters
Rig Failing

Drilling Method	Casing Depth	Blows per Foot	Sample Number	Depth in Feet	Sampling	Sample Recovery	Soil Graph	DESCRIPTION (Soil type, color, texture, consistency, sampler driving notes, blows per foot on casing, depths circulation lost, observed fluctuations in water level, notes on drilling ease, bits used, etc.)
Pen				100				5/6 7/6 10/6 12/6 — Very Stiff —
"		17		A				Grayish Lt brown silty clay with an occasional thin
"				B				coating of sand or 1/8" lense sandy silt. (Damp) (Bedding Horiz
"			3-102	C D				
RB				2				Grayish Lt brown sandy silt with thin lenses silty clay
				3				(Bedding Horiz. to slightly inclined from horiz)
				4				
Pen				105				11/6 14/6 18/6 20/6 — Hard to Dense —
"		32		6				Interbedded 1/8"-3/8" grayish Lt brown sandy silt and silt
			3-107	107				clay. (Bedding Horiz. to slightly inclined from horiz)
								TD-107'
								Grouted drill hole Aug 18, 1983
				8				
				9				
				0				
				1				
				2				
				3				
				4				
				5				
				6				
				7				
				8				
				9				
				0				

Ground Water Table

Depth in Ft.					
Time					
Date					

AREA [illegible] LOCATION= 4157360N, 4559550E UTM coordinates

BORING NUMBER 1
BORING DEPTH= 17.00 ft. GROUND WATER DEPTH= 6.00 ft.

DEPTH (ft.)	CRITICAL ACCELERATION (a/g)	SOIL TYPE	N	N1	SILT CORRECTION
10.50	0.2579	ML	9.0	12.7	7.5
15.50	0.1692	ML	6.0	7.4	7.5

MINIMUM CRITICAL ACCELERATION FOR BORING= 0.1692

BORING NUMBER 2
BORING DEPTH=120.00 ft. GROUND WATER DEPTH= 6.00 ft.

DEPTH (ft.)	CRITICAL ACCELERATION (a/g)	SOIL TYPE	N	N1	SILT CORRECTION
0.00- 9.50	SM	SOIL BELOW WATER TABLE NOT TESTED			
9.50-13.00	ML	SOIL BELOW WATER TABLE NOT TESTED			
13.00-15.00	SM	SOIL BELOW WATER TABLE NOT TESTED			
83.50-84.00	SM	SOIL BELOW WATER TABLE NOT TESTED			
96.00	0.3924	SM	51.0	27.8	6.5

MINIMUM CRITICAL ACCELERATION FOR BORING= 0.3924

MINIMUM CRITICAL ACCELERATION FOR AREA= 0.1692

$a = 0.1692\ g$

Boring = 120 ft

W.T. = 6 ft