

USER NOTES, ABBREVIATIONS AND DEFINITIONS - Additional information available in Geotechnical Manual.

This boring was made by ordinary and conventional methods and with care deemed adequate for the Department's design purposes. Since this boring was not taken to gather information relating to the construction of the project, the data noted in the field and recorded may not necessarily be the same as that which a contractor would desire. While the Department believes that the information as to the conditions and materials reported is accurate, it does not warrant that the information is necessarily complete. This information has been edited or abridged and may not reveal all the information which might be useful or of interest to the contractor. Consequently, the Department will make available at its offices, the field logs relating to this boring.

Since subsurface conditions outside each borehole are unknown, and soil, rock and water conditions cannot be relied upon to be consistent or uniform, no warrant is made that conditions adjacent to this boring will necessarily be the same as or similar to those shown on this log. Furthermore, the Department will not be responsible for any interpretations, assumptions, projections or interpolations made by contractors, or other users of this log.

Water levels recorded on this log should be used with discretion since the use of drilling fluids in borings may seriously distort the true field conditions. Also, water levels in cohesive soils often take extended periods of time to reach equilibrium and thus reflect their true field level. Water levels can be expected to vary both seasonally and yearly. The absence of notations on this log regarding water does not necessarily mean that this boring was dry or that the contractor will not encounter subsurface water during the course of construction.

- WH** Weight of Hammer
- WR** Weight of Rod
- Mud** Drilling Fluids in Sample
- CS** Continuous Sample

SOIL/CORE TESTS

- SPT N₆₀** ASTM D1586 Modified Blows per foot with 140 lb. hammer and a standard energy of 210 ft-lbs. This energy represents 60% of the potential energy of the system and is the average energy provided by a Rope & Cathead system.
- MC** Moisture Content
- COH** Cohesion
- γ** Sample Density
- LL** Liquid Limit
- PI** Plasticity Index
- Φ** Phi Angle
- REC** Percent Core Recovered
- RQD** Rock Quality Description (Percent of total core interval consisting of unbroken pieces 4 inches or longer)
- ACL** Average Core Length (Average length of core that is greater than 4 inches long)
- Core Breaks** Number of natural core breaks per 2-foot interval.

- very loose 0-4
- loose 5-10
- medium dense 11-24
- dense 25-50
- very dense >50

Consistency - Cohesive Soils BPF

- very soft 0-1
- soft 2-4
- firm 5-8
- stiff 9-15
- very stiff 16-30
- hard 31-60
- very hard > 60

COLOR

- blk** Black
- grn** Green
- org** Orange
- dk** Dark
- IOS** Iron Oxide Stained
- wht** White
- brn** Brown
- yel** Yellow
- lt** Light

GRAIN SIZE / PLASTICITY

- VF** Very Fine
- F** Fine
- Cr** Coarse
- pl** Plastic
- slpl** Slightly Plastic

SOIL/ROCK TERMS

- C** Clay
- L** Loam
- S** Sand
- Si** Silt
- G** Gravel (No. 10 Sieve to 3 inches)
- Bldr** Boulder (over 3 inches)
- T** till (unsorted, nonstratified glacial deposits)
- Lmst** Limestone
- Sst** Sandstone
- Dolo** Dolostone
- wx** weathered

DISCONTINUITY SPACING

- | Fractures | Distance | Bedding |
|------------|--------------|-----------|
| Very Close | <2 inches | Very Thin |
| Close | 2-12 inches | Thin |
| Mod. Close | 12-36 inches | Medium |
| Wide | >36 inches | Thick |

DRILLING SYMBOLS

WATER MEASUREMENT

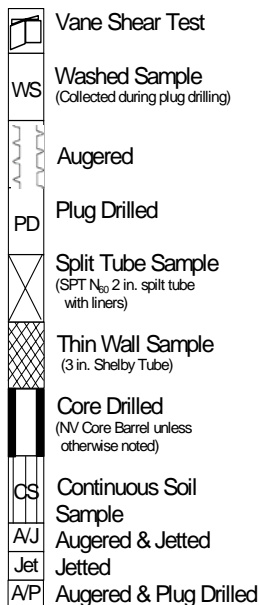
- AB** After Bailing
- AC** After Completion
- AF** After Flushing
- w/C** with Casing
- w/M** with Mud
- WSD** While Sampling/Drilling
- w/AUG** with Hollow Stem Auger

MISCELLANEOUS

- NA** Not Applicable
- w/** with
- w/o** with out
- sat** saturated

DRILLING OPERATIONS

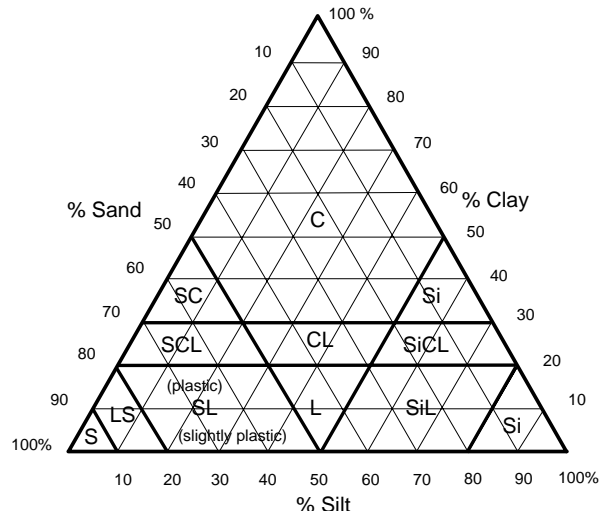
- AUG** Augered
- CD** Core Drilled
- DBD** Disturbed by Drilling
- DBJ** Disturbed by Jetting
- PD** Plug Drilled
- ST** Split Tube (SPT test)
- TW** Thinwall (Shelby Tube)
- WS** Wash Sample
- NSR** No Sample Retrieved



RELATIVE DENSITY

Compactness - Granular Soils BPF

Mn/DOT Triangular Textural Soil Classification System



MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67838
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T01		Ground Elevation 891.0 (from Plan)		
Location TH 169 NB, 868+71.37, 75.3'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
Hennepin Co. Coordinate: X=496701 Y=213915 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 4/4/06		
Latitude (North)=45°06'12.72" Longitude (West)=93°23'45.99"								Other Tests Or Remarks		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.2 886.8	slpl SL w/ a few pebbles, dk brn & moist				11				
5	7.0 884.0	pl SL w/ a fe pebbles, lt gray-brn & moist			13	14				
10		LFS w/ a little G, brn & moist			34	12				
15	14.5 876.5	slpl FSL w/ a few pebbles, brn & moist			22	14			high Silt content	
20	20.0 871.0	LFS w/ a little G, brn & damp			55	12				
25	25.5 865.5				45	7				
Bottom of Hole - 25.5' No water encountered or measured during drilling										
Index Sheet Code 3.0						Soil Class:DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ				

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UNIQUE NUMBER 67244
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T02		Ground Elevation 884.1 (from Plan)		
Location TH 169 NB, 873+20.95, 146.3'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=496912 Y=214364 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 11/17/04		
Latitude (North)=45°06'17.15" Longitude (West)=93°23'43.06"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 880.1	slorg spl SL w/ a few pebbles, brn & moist				12				
5	6.7 877.4	spl SL w/ a few pebbles, brn & lt gray, moist			13	9				
	7.6 876.5	slorg spl L w/ roots, blk & moist			12	47				
10	11.0 873.1	SCL w/ layers roots & tree branches, lt gray & moist				21				
	13.0 871.1	pl SL w/ some pebbles, lt gray & moist			9	16				
15	15.0 869.1	LS w/ a little G, brn & moist				22				
	18.0 866.1	mixed C & CL, brn & moist			20	24				
20		S w/ a little G, brn, damp to wet			20	3				
					20	6				
25					37	16				
	26.0									

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 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67244
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T02		Ground Elevation 884.1 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Rock
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		
	858.1	S & G, gray-brn & wet			40	9				
	27.5 856.6									
	30	LS w/ a little G, gray-brn & moist			44	9				
	30.5 853.6									

Bottom of Hole - 30.5'
 Water measured at 24.0' while sampling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67839
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R23		Trunk Highway/Location US Highway 169		Boring No. T03		Ground Elevation 885.0 (Survey)		
Location TH 169 NB, 876+56.36, 54.3'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497285 Y=214462 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 2/16/06		
Latitude (North)=45°06'18.12" Longitude (West)=93°23'37.85"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
						15				
5		pl SL, org on top, w/ a few pebbles; dk gray-brn to gray-brn; moist			6	16				
10					11	14				
12.0	873.0									
15		LS, brn & sat			5	11				
17.0	868.0									
20		S, lt brn & sat			9	11				
				PD						
					10	22				
				PD						
25	25.0									

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LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



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Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

State Project		Bridge No. or Job Desc.		Trunk Highway/Location		Boring No.		Ground Elevation		
2750-57		27R23		US Highway 169		T03		885.0 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	Y	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
	860.0	[Symbol: Small circles in a pattern]	LS & G, gray & sat	PD					Soil	
	30.0			[Symbol: Square with X]	69	10				
30	855.0	[Symbol: Small dots in a pattern]	LS w/ some G, brn & Vmoist	PD					Rock	
				[Symbol: Square with X]	46	12				
				PD						
				[Symbol: Square with X]	45	12				
35				PD						
				[Symbol: Square with X]	37	11				
40				PD						
				[Symbol: Square with X]	35	10				
45		PD								
				[Symbol: Square with X]						
50				PD						

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 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67839
 U.S. Customary Units

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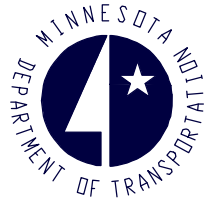
SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R23	Trunk Highway/Location US Highway 169	Boring No. T03	Ground Elevation 885.0 (Survey)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
				PD						
				⊗	34	10				
55			LS w/ some G, brn & Vmoist (continued)	PD						
				⊗	47	10				
60				PD						
				⊗	12/5 36/5 50/4	11				
65	65.0 820.0		S, lt gray-brn & sat	PD						
				⊗	81	17				
	68.5 816.5									

Bottom of Hole - 68.5'
 No water encountered or measured during drilling

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 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67840
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R23		Trunk Highway/Location US Highway 169		Boring No. T04		Ground Elevation 885.0 (Survey)		
Location TH 169 NB, 878+33.23, 79'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497418 Y=214587 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 2/13/06		
Latitude (North)=45°06'19.36" Longitude (West)=93°23'36.00"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	1.0 884.0	slorg pl SL, blk & moist								
	4.0 881.0	LS, brn & damp				7				
	5.0 879.0	org slpl SL, dk brn & wet			2	47				
	9.1 875.9				5	6				
	15.0				16	5				
	20.0	S, brn to lt brn to lt gray-brn, moist to sat			12	12				
	25.0			PD	8	24				

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UNIQUE NUMBER 67840
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R23		Trunk Highway/Location US Highway 169		Boring No. T04		Ground Elevation 885.0 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
			S, brn to lt brn to lt gray-brn, moist to sat (continued)							
30	31.0 854.0				1	NSR				
			S & G, gray & sat	PD						
	33.0 852.0				62	10				
35				PD						
			LS w/ a little G, brn & wet		27	15				
40				PD						
	43.0 842.0				18	13				
45				PD						
			S, gray-brn & sat		23	NSR				
50				PD						
					30	19				
				PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

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State Project 2750-57	Bridge No. or Job Desc. 27R23	Trunk Highway/Location US Highway 169	Boring No. T04	Ground Elevation 885.0 (Survey)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
55		S, gray-brn & sat (continued)		PD						
				⊗	46	15				
60				PD						
				⊗	50	17				
65				PD						
				⊗	90	16				
70				PD						
				⊗	62	16				
75			PD							
			⊗	37	13					

78.5
806.5

Bottom of Hole - 78.5'
 Water measured at 23.8' with auger

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UNIQUE NUMBER 67841
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R23		Trunk Highway/Location US Highway 169		Boring No. T05		Ground Elevation 886.7 (Survey)		
Location TH 169 NB, 880+37.56, 94.9'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497552 Y=214750 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/29/06		
Latitude (North)=45°06'20.96" Longitude (West)=93°23'34.12"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 882.7	LS w/ a little G, dk brn & moist				9				
5	7.0 879.7	S & G, dk brn & moist		X	43	8				
10	12.0 874.7	S w/ a little G, brn & moist		X	9	11				
15				X	15	4				
20		S, lt gray-brn & damp		X	35	3				

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State Project 2750-57		Bridge No. or Job Desc. 27R23		Trunk Highway/Location US Highway 169		Boring No. T05		Ground Elevation 886.7 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
25	26.5 860.2	S, lt gray-brn & damp (continued)		X	22	3			Soil	
				PD	22	18				
30		S w/ a little G, seam CrS; brn & sat		PD				Soil		
				X	21	14				
35	36.0 850.7	S, brn & sat		PD				Soil		
				X	92	13				
40		S, brn & sat		PD				Soil		
				X	68	15				
45	46.0			PD				Soil		

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State Project 2750-57	Bridge No. or Job Desc. 27R23	Trunk Highway/Location US Highway 169	Boring No. T05	Ground Elevation 886.7 (Survey)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		REC (%)
	840.7	○ ○ ○ ○ ○	S & G, brn & sat	PD						
50				X	61	9				
	51.0 835.7	○ ○ ○ ○ ○	S w/ a little G, brn & sat	PD						
55				X	57	11				
	56.0 830.7	○ ○ ○ ○ ○	S, brn & sat	PD						
	59.0 827.7			X	79	14				

Bottom of Hole - 59.0'
 Water level assumed to be at saturated granular layer

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UNIQUE NUMBER 67245
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R19		Trunk Highway/Location US Highway 169		Boring No. T07		Ground Elevation 885.1 (from Plan)		
Location TH 169 NB, 876+94.60, 23.3'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497251 Y=214542 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 12/1/04		
Latitude (North)=45°06'18.91" Longitude (West)=93°23'38.33"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
		pl SL w/ some grass, brn & moist				15				
5	6.0 879.1				25	12				
		slpl SL w/ a few pebbles, layer LS; gray-brn & brn; moist			13	15				
10	11.0 874.1				5	16				
		LS w/ a little G, seam pl SL; gray-brn w/ gray; moist			5	17				
15	13.5 871.6				30	8				
		LS, lt gray-brns & moist			52	7				
20	16.0 869.1				25	5				
		S, brns & lt brns, moist to wet			12	5				
25					10	14				
	26.0									

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UNIQUE NUMBER 67245
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

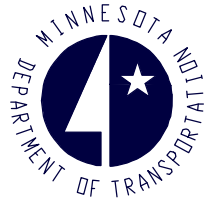
SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R19		Trunk Highway/Location US Highway 169		Boring No. T07		Ground Elevation 885.1 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Rock
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		
	859.1	S, lt gray-brn & sat		[Drilling symbols]	32	22			Soil	
30	31.0 854.1				23	20				
35		spl SL w/ some pebbles, some layers LS; bms & wet		[Drilling symbols]	33	9			Rock	
					22	10				
					PD					
40				[Drilling symbols]	19	10				
					PD					
					46	NSR				
45				[Drilling symbols]	85	N/A				
					PD					
					27	12				
50	47.5 837.6	S, lt brn & wet		[Drilling symbols]	PD					
					42	NSR				
				[Drilling symbols]						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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State Project 2750-57	Bridge No. or Job Desc. 27R19	Trunk Highway/Location US Highway 169	Boring No. T07	Ground Elevation 885.1 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
				PD						
				X	60	18				
55				PD						
			S, lt brn & wet (continued)	X	56	15				
60				PD						
				X	92	15				
65	66.0 819.1			PD						
				X	56	14				
70			S w/ layer CrS, brn & sat	PD						
				X	62	14				
	74.5 810.6									

Bottom of Hole - 74.5'
 Water measured at 25.8' with auger

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67259
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R19		Trunk Highway/Location US Highway 169		Boring No. T09		Ground Elevation 884.0 (from Plan)		
Location TH 169 NB, 880+25.80, 22.4'Lt					Drill Machine 92730 Failing 1500 4x4			SHEET 1 of 3		
Hennepin Co. Coordinate: X=497448 Y=214804 (ft.)					Hammer Mobile Auto Calibrated			Drilling Completed 2/8/05		
Latitude (North)=45°06'21.50" Longitude (West)=93°23'35.58"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.5 879.5	slorg LS w/ pockets pl SL, dk brn & brn, moist				13				
5					11	8				
10					10	8				
15		S w/ a few seams spl SL, brn to lt brn & some lt gray, damp			14	5				
20					18	3				
	22.0 862.0	S, lt brn & lt gray, wet to sat								

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67259
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS										SHEET 2 of 3	
State Project 2750-57		Bridge No. or Job Desc. 27R19		Trunk Highway/Location US Highway 169			Boring No. T09		Ground Elevation 884.0 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member	
25		S, lt brn & lt gray, wet to sat (continued)		X	13	24					
30					X	84	20				
					PD						
35					X	54	18				
				PD							
40				X	47	16					
				PD							
45				X	68	16					
				PD							

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67259
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R19	Trunk Highway/Location US Highway 169	Boring No. T09	Ground Elevation 884.0 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
50		S, lt brn & lt gray, wet to sat (continued)		PD						
					X	53	16			
	53.0 831.0			PD						
55		mixed S & CrS w/ a little G below 60.0', brn & sat		X	39	13				
					PD					
60					X	48	14			
					PD					
65				X	45	15				
	66.5 817.5									

Bottom of Hole - 66.5'
 Water measured at 26.6' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67844
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 28R19		Trunk Highway/Location US Highway 169		Boring No. T10		Ground Elevation 886.8 (Survey)		
Location TH 169 NB, 881+51.77, 25.7'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497556 Y=214885 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/27/06		
Latitude (North)=45°06'22.30" Longitude (West)=93°23'34.07"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
5		slorg spl SL w/ a few seams S, dk brn w/ brn, moist			14					
9.5	877.3				30	13				
10		S to FS, brn, damp to moist			8	6				
15					10	5				
20					15	8				
22.0	864.8									
25		S w/ a few thin seams spl SL, gray-brns & moist			12	11				
28.0										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67844
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 28R19		Trunk Highway/Location US Highway 169		Boring No. T10		Ground Elevation 886.8 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Rock
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		
	858.8									
30		S, gray-brn & sat		X	11	21				
	32.0									
	854.8									heave to 33.0'
35		S & G, brn & sat		X	42	N/A				
	36.5									
	850.3			PD						
40		spl SL w/ a few pebbles, brn & Vmoist		X	24	10				
	43.0									
	843.8									
45				PD						
50		mixed S & CrS, brn & sat		X	47	12				
				PD						
55				X	45	11				
	56.0			PD						

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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67844
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57		Bridge No. or Job Desc. 28R19		Trunk Highway/Location US Highway 169		Boring No. T10		Ground Elevation 886.8 (Survey)			
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member	
	830.8	FS, brn & sat		PD							
				⊗	69	18					
60	61.0 825.8	S w/ a few seams CrS, brn & sat		PD							
				⊗	47	16					
				PD							
				⊗	41	19					
65				PD							
				⊗	56	19					
70				PD							
				⊗							
75				PD							
				⊗							
	79.0 807.8			⊗	37	12					

Bottom of Hole - 79.0'
 Water measured at 27.2' while sampling and/or drilling

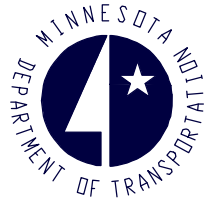
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67246
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T11		Ground Elevation 884.8 (from Plan)		
Location TH 169 NB, 877+32.89, 116.9'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497202 Y=214630 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 12/7/04		
Latitude (North)=45°06'19.78" Longitude (West)=93°23'39.00"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 880.8	slorg spl SL, dk brn & moist				17				
5	6.7 878.1	pl L w/ seam LS, grays & damp			18	18				
10	12.5 872.3	S w/ layer pl SL, lt brn w/ brn, damp			19	6				
15	17.0 867.8	spl SL, gray to brn, moist			8	7				
20	23.0 861.8	S w/ a little G, few thin seams spl SL; brn w/ gray-brn; moist		PD	2	19				
25	25.5 859.3	LS, brn & wet			15	6				
		S, lt brn to lt gray-brn, sat			10	13				
					86	8				
					26	13				
					36	17				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67246
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T11		Ground Elevation 884.8 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
			S, lt brn to lt gray-brn, sat (continued)	PD	5/5 9/5 11/0.0	20				ST refusal @ 29.5'
30	30.5 854.3			PD	20	N/A				rough drilling 29.5'-30.5' boulder
			LS w/ some G, brn & wet	PD	20	11				
35				PD	24	10				
				PD	30	12				
40				PD	20	11				
	43.0 841.8		S w/ a little G, brn & sat	PD	32	16				
45				PD						
				PD	50	14				
50				PD						

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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67246
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R18	Trunk Highway/Location US Highway 169	Boring No. T11	Ground Elevation 884.8 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
55		S w/ a little G, brn & sat (continued)		X	42	13				
				PD						
60					X	38	16			
				PD						
65					X	51	17			
				PD						
70				X	78	16				
			PD							
75	75.0 809.8			X	72	13				

Bottom of Hole - 75.5'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67247
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T12		Ground Elevation 883.8 (from Plan)		
Location TH 169 NB, 878+82.84, 51'Lt					Drill Machine 92730 Failing 1500 4x4			SHEET 1 of 3		
Hennepin Co. Coordinate: X=497344 Y=214705 (ft.)					Hammer Mobile Auto Calibrated			Drilling Completed 12/15/04		
Latitude (North)=45°06'20.52" Longitude (West)=93°23'37.03"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	7.0 876.8		S w/ a little G, slorg on top; dk brn to brn; damp			9				
5					17	9				
10					12	5				
15			S, lt brn to lt gray-brn, moist to damp		23	5				
20					20	3				
25					11	30				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67247
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T12		Ground Elevation 883.8 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			S, lt brn to lt gray-brn, moist to damp (continued)							
30	30.0 853.8			X	79	20				
			S & G, lt gray & sat	PD						2.0' heave @ 30.5'
	32.0 851.8									
35				X	28	10				
				PD						
40				X	33	10				
			LS w/ a little G, brn & wet	PD						
45				X	25	10				
				PD						
50				X	40	9				
				PD						
	52.0									

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67247
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R18	Trunk Highway/Location US Highway 169	Boring No. T12	Ground Elevation 883.8 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
	831.8		S, gray-bm & sat	PD						
	54.0			X	28	12				
55	829.8		LS w/ a little G, bm & wet	PD						
	59.5			X	21	16				
60	824.3		slpl SL w/ a few pebbles, bm & wet	PD						
	62.0			PD						
	821.8			X	41	13				
65			S, gray-bm & sat	PD						
				X	63	17				
70				PD						
	72.0		CrS w/ a little G, gray-bm & sat	X	52	13				
	811.8									
75	75.0			X						
	808.8									

Bottom of Hole - 75.0'
 Water measured at 24.3' with auger

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67260
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T13		Ground Elevation 883.9 (from Plan)		
Location TH 169 NB, 880+71.67, 111.7'Lt					Drill Machine 92730 Failing 1500 4x4			SHEET 1 of 3		
Hennepin Co. Coordinate: X=497398 Y=214890 (ft.)					Hammer Mobile Auto Calibrated			Drilling Completed 1/31/05		
Latitude (North)=45°06'22.35" Longitude (West)=93°23'36.28"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 879.9	LS w/ a little G, dk brn & damp				6				
	5 7.0 876.9	S w/ a few pockets pl SL, brn & moist			14	8				
	10				10	4				
	15	S w/ seam LS, brns & moist			8	5				
	20				8	5				
	24.0			PD						

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67260
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R18		Trunk Highway/Location US Highway 169		Boring No. T13		Ground Elevation 883.9 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
	859.9									
25		LS, gray-bm & sat		PD						
					X	10	22			
					PD					
30				X	4	NSR				
	33.0									
	850.9			PD						rough drilling @ 33.0'
35		S & G, gray-bm & sat		X	99	9				
					PD					
	38.0									
	845.9			PD						
40		mixed S & LS w/ layer S & G @ 45.0', layer CrS @ 60.0'; bm; sat to wet		X	43	16				
					PD					
					X	59	16			
45				PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67260
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

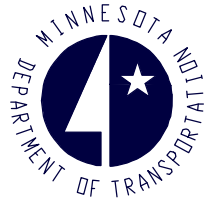
SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R18	Trunk Highway/Location US Highway 169	Boring No. T13	Ground Elevation 883.9 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC
					(%)	(%)	(ft)			
50		mixed S & LS w/ layer S & G @ 45.0', layer CrS @ 60.0'; brn; sat to wet (continued)		PD						
				X	55	14				
				PD						
55				X	87	17				
				PD						
60			X	48	15					
			PD							
65			X	55	15					
	66.5 817.4									

Bottom of Hole - 66.5'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67251
 U.S. Customary Units

State Project		Bridge No. or Job Desc.		Trunk Highway/Location		Boring No.		Ground Elevation		
2750-57		Ret Wall		US Highway 169		T133		880.6 (from Plan)		
Location TH 169 NB, 894+89.78, 320.9'Lt						Drill Machine 84486 Mobile Track		SHEET 1 of 1		
Hennepin Co. Coordinate: X=497626 Y=216188 (ft.)						Hammer Rope & Cathead		Drilling Completed 11/22/04		
Latitude (North)=45°06'35.16" Longitude (West)=93°23'33.10"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT N60	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
	Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			LS, brn & moist			7				
5	5.5 875.1				10	9				
			FS, brn & moist		11	13				
	8.0 872.6				11	8				
10					9	6				
			S, lt brn w/ some lt gray-brn, moist		24	6				
					29	4				
					14	4				
20	20.5 860.1				11	16				
			S, brn & sat		12	NSR				
25	25.0 855.6									3.0' heave @ 25.0'
Bottom of Hole - 25.0' Water measured at 21.7' while sampling and/or drilling										
Index Sheet Code 3.0						Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67248
 U.S. Customary Units

<i>State Project</i> 2750-57		<i>Bridge No. or Job Desc.</i> 27R24		<i>Trunk Highway/Location</i> US Highway 169		<i>Boring No.</i> T16		<i>Ground Elevation</i> 884.4 (from Plan)		
<i>Location</i> TH 169 NB, 879+21.02, 145.2'Lt						<i>Drill Machine</i> 92730 Failing 1500 4x4		SHEET 1 of 3		
<i>Hennepin Co. Coordinate:</i> X=497289 Y=214790 (ft.)						<i>Hammer</i> Mobile Auto Calibrated		<i>Drilling Completed</i> 12/9/04		
<i>Latitude (North)</i> =45°06'21.36" <i>Longitude (West)</i> =93°23'37.79"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			S w/ a little G, lt brn & moist			6				
5					10	15				
	7.0 877.4									
			FS, gray-brn & moist		9	9				
10										
	12.0 872.4									
					10	7				
15										
			S, brn to gray-brn, moist to sat		7	11				
20										
					15	19				
25										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67248
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS										SHEET 2 of 3	
State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169				Boring No. T16		Ground Elevation 884.4 (from Plan)	
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC	RQD	ACL	Core	Rock	Formation	
					(%)	(%)	(ft)	Breaks		or Member	
			S, brn to gray-brn, moist to sat (continued)		44	19					
30	31.0 853.4				30	15					
			LS w/ some G, brn & sat		27	12					
40					34	12					
			S, gray-brn & sat		36	19					
45	46.0 838.4										
50											

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67248
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R24	Trunk Highway/Location US Highway 169	Boring No. T16	Ground Elevation 884.4 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
					37	NSR				
55										
					55	14				
60		S, gray-brn & sat (continued)								
					66	14				
65										
					99	16				
69.0	815.4									

Bottom of Hole - 69.0'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67261
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169		Boring No. T17		Ground Elevation 882.6 (from Plan)		
Location TH 169 NB, 881+08.44, 167.9'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497369 Y=214950 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 1/26/05		
Latitude (North)=45°06'22.94" Longitude (West)=93°23'36.68"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
	4.0 878.6		slorg LS w/ a little G, dk brn & damp			8				
5					13	4				
			S, lt brn, damp to moist							
10					16	4				
			LFS, lt gray-brn & Vmoist							
15					15	10				
			S, lt gray & moist							
20					12	6				
				PD						
21.5	861.1									
			LS, lt gray-brn, wet to sat							
25					50	16				
				PD						

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67261
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169		Boring No. T17		Ground Elevation 882.6 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
				PD						
			LS, lt gray-brn, wet to sat (continued)	X	11	22				
30	30.0 852.6			PD						
			S w/ a little G, brn & sat	X	53	13				
35	36.0 846.6			PD						
				X	56	12				
40			LS w/a little G, brn & sat	PD						
				X	34	10				rough drilling-boulders 40.5'-42.5'
45	46.0 836.6			PD						
			S, brn & sat	X	30	14				
50				PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67261
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R24	Trunk Highway/Location US Highway 169	Boring No. T17	Ground Elevation 882.6 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
				PD						
				X	54	15				
55				PD						
				X	31	16				
60				PD						
			S, brn & sat (continued)	X	45	14				
65				PD						
				X	47	15				
70				PD						
				X	48	18				
	74.0									
	808.6									

Bottom of Hole - 74.0'
 Water level assumed to be at saturated granular layer

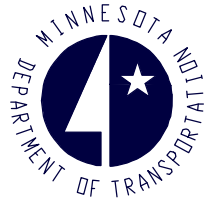
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67634
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169		Boring No. T18		Ground Elevation 884.5 (Survey)		
Location TH 169 NB, 881+98.32, 170.9'Lt						Drill Machine 205120		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497410 Y=215024 (ft.)						Hammer		Drilling Completed 3/9/06		
Latitude (North)=45°06'23.67" Longitude (West)=93°23'36.11"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.5 880.0	LS w/ some G, brn & moist				8				
5	7.0 877.5	spl SL w/ a few pebbles, dk brn & moist			17	11				
10					6	8				
15					9	8				
20		S, brn, moist to wet			6	7				
				PD						
25					7	19				
				PD						
▼	28.0									

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67634
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169		Boring No. T18		Ground Elevation 884.5 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	856.5			PD						
30			S w/ a little G, brn & sat	X	11	16				
	32.0 852.5			PD						
35			CrS & G, brn & sat	X	26	10				
	37.0 847.5			PD						
40			S, brn & sat	X	41	16				
	42.0 842.5			PD						
45				X	42	11				
				PD						
50			S w/ a little G, brn & sat	X	34	12				
				PD						
55				X	51	14				
	56.0			PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67634
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R24	Trunk Highway/Location US Highway 169	Boring No. T18	Ground Elevation 884.5 (Survey)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC	RQD	ACL	Core	Formation		
					(%)	(%)	(ft)	Breaks	Rock	or Member	
	828.5	S, gray-bm & sat		PD							
60				X	60	16					
				PD							
65				X	45	18					
	67.0 817.5	CrS, bm & sat		PD							
70				X	36	17					
	72.0 812.5	S, gray-bm & sat		PD							
75				X	36	12					
				PD							
80				X	51	17					
	80.5 804.0										

Bottom of Hole - 80.5'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 68256
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T200		Ground Elevation 885.2 (survey)		
Location , , ft. LT Hennepin Co. Coordinate: X=496827 Y=214286 (ft.) Latitude (North)=45°06'16.38" Longitude (West)=93°23'44.24"						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
						Hammer Mobile Auto Calibrated		Drilling Completed 10/25/06		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
	Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks		Rock
	4.5 880.7		LS w/ G, some straw on top; brn & damp			7				
	8.8 876.4		pl SiL w/ some LVFS, brn & moist			21				
	10		mixed pl & slpl SL w/ a few pebbles & layers SCL, brn w/ gray streak 11.0'-13.0', moist			22	1290	126		
	15					17	1570	132		
	18.5 866.7					17	1420	133		
	20.5 864.7		LS w/ a little G, brn & moist		30	7				TW refusal @ 17.0' rough drilling 17.0'-18.0'
Bottom of Hole - 20.5' No water encountered or measured during drilling										
Index Sheet Code 3.0						Soil Class:DSB Rock Class: Edit: Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 68257
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T201		Ground Elevation 887.2 (survey)			
Location , , ft. LT Hennepin Co. Coordinate: X=496752 Y=214219 (ft.) Latitude (North)=45°06'15.72" Longitude (West)=93°23'45.28"					Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1				
					Hammer Mobile Auto Calibrated		Drilling Completed 10/25/06				
DEPTH		Depth	Lithology	Classification	Drilling Operation	SPT N60	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
		Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
5		6.0 881.2	LS w/ G, some straw on top; brn & damp				9				
10			pl SL w/ some pebbles, seams slpl SL & SCL, pocket CrS @ 15.5'; brn to 16.7', gray to gray-brn; moist				11	1300	135		
15							13	2160	138		
17.5		869.7					15	2640	135		
20			S w/ a little g, brn & moist				18	1870	132		
		20.8 866.4					16				TW refusal @ 17.6'
							14				TW refusal @ 19.3'
							38	13			

Bottom of Hole - 20.8'
 No water encountered or measured during drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 68258
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T202		Ground Elevation 886.9 (survey)		
Location , , ft. LT Hennepin Co. Coordinate: X=496803 Y=214181 (ft.) Latitude (North)=45°06'15.35" Longitude (West)=93°23'44.57"						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
						Hammer Mobile Auto Calibrated		Drilling Completed 10/30/06		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Rock
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
5		LS w/ G, brn & damp				9				TW refusal @ 5.2'
						9				TW refusal @ 7.5'
10						10				
	12.5 874.4									
		slpl SL w pebbles, brn & moist								
15						15				
	16.5 870.4									
	17.1 869.8		LS w/ some G, gray-brn & moist			6				TW refusal @ 17.2'
			S to LS w/ a little G, brn & damp			5				
20						5				TW refusal @ 19.5'
	21.0 865.9					32	6			
Bottom of Hole - 21.0' No water encountered or measured during drilling										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 68259
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T203		Ground Elevation 884.5 (survey)		
Location , , ft. LT Hennepin Co. Coordinate: X=496948 Y=214322 (ft.) Latitude (North)=45°06'16.74" Longitude (West)=93°23'42.55"						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
						Hammer Mobile Auto Calibrated		Drilling Completed 10/24/06		
DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil Rock	Other Tests Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
			LS w/ G, brn & damp			9				
5						12				TW refusal @ 4.3'
	6.8 877.7		mixed spl & pl SL w/ some pebbles, gray-brn & damp			17				
	9.2 875.3		seams & layers SCL & pl SL w/ a few pebbles, grays & moist			19				
10						18	1720	132		
	15.0 869.5		CL, brn & moist			17	1420	132		
15						NSR				
	19.6 864.9		S w/ some G, brn & damp			20				TW refusal @ 19.6'
20						40	2			
	23.0 861.5									
Bottom of Hole - 23.0' No water encountered or measured during drilling										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67249
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T24		Ground Elevation 884.8 (from Plan)		
Location TH 169 NB, 885+61.44, 132.8'Lt					Drill Machine 84486 Mobile Track			SHEET 1 of 1		
Hennepin Co. Coordinate: X=497598 Y=215315 (ft.)					Hammer Rope & Cathead			Drilling Completed 11/23/04		
Latitude (North)=45°06'26.54" Longitude (West)=93°23'33.48"									Other Tests Or Remarks	
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
	Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
5						9				
					11	5				
					11	7				
10					16	4				
		S w/ layer FS @ 4.0', lt brns & damp			13	5				
					15	5				
15					14	3				
					17	4				
20					30	3				
	23.0 861.8									
		S & G, gray-brn & wet			33	7				
25	25.0 859.8									
Bottom of Hole - 25.0' No water encountered or measured during drilling										
Index Sheet Code 3.0					Soil Class:DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ					

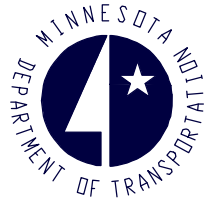
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67250
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T25		Ground Elevation 886.8 (from Plan)		
Location TH 169 NB, 889+73.06, 163.3'Lt					Drill Machine 84486 Mobile Track			SHEET 1 of 1		
Hennepin Co. Coordinate: X=497698 Y=215694 (ft.)					Hammer Rope & Cathead			Drilling Completed 11/23/04		
Latitude (North)=45°06'30.29" Longitude (West)=93°23'32.10"									Other Tests Or Remarks	
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
	4.2 882.6		S w/ a little G, seam S & G; brns & damp			5				
5					18	8				
					20	2				
10					15	3				
					13	3				
15			S w/ layer FS, brns & lt brns, damp		18	2				
					20	2				
20					23	3				
					20	2				
25	25.0 861.8				29	4				
Bottom of Hole - 25.0' No water encountered or measured during drilling										
Index Sheet Code 3.0					Soil Class:DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ					

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67262
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R21		Trunk Highway/Location US Highway 169		Boring No. T26		Ground Elevation 874.4 (from Plan)		
Location TH 169 NB, 891+19.49, 63.6'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497952 Y=215780 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 4/13/05		
Latitude (North)=45°06'31.14" Longitude (West)=93°23'28.55"								Other Tests Or Remarks		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil	Other Tests Or Remarks
	Elev.				REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
						7				
5			S, loamy on top; brn & damp		11	8				
					7	5				
					6	5				
10					12	4				
	13.0 861.4		CrS, brn & wet		10	17				
	14.0 860.4									
15			S w/ G, gray-brn to brn, wet to sat		12	N/A				
	18.0 856.4		S, brn & sat		14	13				
20										
	20.5 853.9		CrS & FG, brn & sat		58	11				
25					34	11				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67262
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R21		Trunk Highway/Location US Highway 169		Boring No. T26		Ground Elevation 874.4 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
		CrS & FG, brn & sat (continued)								
	29.0 845.4			X	19	17				
30				PD						
		mixed pl SL & SCL w/ pebbles, gray & Vmoist		X	15	15				
35				PD						
				X	30	17				
40				PD						
	43.0 831.4			X	99	15				
45		S w/ some G, gray-brn & sat		PD						
				X						
50	49.0 825.4	LS w/ a little G, brn & wet		PD						hard drilling @ 49.0' - boulder

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67262
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R21	Trunk Highway/Location US Highway 169	Boring No. T26	Ground Elevation 874.4 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil Rock	Other Tests Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
				X	78	10				
				PD						
				X	84	9				
55				PD						
			LS w/ a little G, brn & wet (continued)							
				X	50/5	14				
60				PD						
				X	40/5 50/3	9				

Bottom of Hole - 63.3'
 Water measured at 15.0' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67263
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R21		Trunk Highway/Location US Highway 169		Boring No. T28		Ground Elevation 877.4 (from Plan)		
Location TH 169 NB, 893+35.84, 4.7'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497933 Y=216006 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/23/05		
Latitude (North)=45°06'33.37" Longitude (West)=93°23'28.82"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N60	(%)	(psf)	(pcf)		
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.5 872.9	spl FSL, brn & moist				18				
5					9	4				
	10	S, lt brn & damp			10	4				
	14.0 863.4				6	3				
	15				11	4				
	17.5 859.9	CrS w/ a little G, brn & moist			11	3				
	19.0 858.4	S, brn & sat			16	20				
	20				15	9				
				PD						
	25	S & G, brn & sat			20	16				
				PD						
					52	NSR				
				PD						
	29.0 848.4	SCL w/ pebbles, gray & moist			18	NSR				
30										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67263
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS										SHEET 2 of 3	
State Project 2750-57		Bridge No. or Job Desc. 27R21		Trunk Highway/Location US Highway 169			Boring No. T28		Ground Elevation 877.4 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member	
				PD							
				X	17	18					
				PD							
				X	16	17					
				PD							
				X	17		2570	136			
			SCL w/ pebbles, gray & moist (continued)	X	16	16				TW refusal @ 37.5'	
				PD							
				X			1940	137			
				X	22	15					
				PD							
				X							
	47.0 830.4			X	61	19				TW refusal @ 47.0'	
				PD							
			S w/ a few seams S & G, brn & sat	X	42	14					
				PD							
				X	62	13					
				PD							
	57.0 820.4			X							
			LS & G to S & G, a few stone chips; brn & sat	X	75	9					
				X							

(Continued Next Page)

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67263
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R21	Trunk Highway/Location US Highway 169	Boring No. T28	Ground Elevation 877.4 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	Rock	or Member
				PD						
			LS & G to S & G, a few stone chips; brn & sat (continued)	⊗	62	11				
65	67.0 810.4			PD						
			CrS, brn & sat	⊗	7	14				
70	72.0 805.4			PD						
				⊗	52	15				
75				PD						
			S w/ a little G, brn, sat to wet	⊗	59	14				
80				PD						
				⊗	100	15				
85	85.0 792.4									

Bottom of Hole - 85.0'
 Water measured at 17.7' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67842
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R20		Trunk Highway/Location US Highway 169		Boring No. T29		Ground Elevation 879.8 (Survey)		
Location TH 169 NB, 893+09.50, 147.3'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497778 Y=216002 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/28/06		
Latitude (North)=45°06'33.33" Longitude (West)=93°23'30.97"										
DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
5			LS to S, moist to damp to moist			12				
10					6	7				
15					3	8				
20	22.0 857.8				12	10				
25			CrS w/ G, seam horg pl SL @ 24.5'; brn w/ blk; sat	PD	24	16				heave to 22.0'
30	32.0 847.8			PD	21	12				
35				PD	18	15				
40				PD	16	15				
45			mixed SCL & pl SL w/ some pebbles, gray & moist	PD	25	14	1330	138		TW refusal @ 43.5'
50				PD	45	14				
55	55.0 824.8			PD	50/3	N/A				
60			S w/ seam S & G, brn & sat	PD	25/5 50/5	15				
65				PD	32/5 50/5	13				
68.5	811.3		Bottom of Hole - 68.5'	PD	30/5 50/5	16				

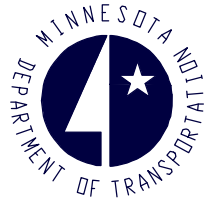
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67842
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS						SHEET 2 of 2				
State Project		Bridge No. or Job Desc.		Trunk Highway/Location		Boring No.	Ground Elevation			
2750-57		27R20		US Highway 169		T29	879.8 (Survey)			
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		
					REC	RQD	ACL	Core	Rock	Formation or Member
					(%)	(%)	(ft)	Breaks		
					Water measured at 21.2' while sampling and/or drilling					

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67264
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T30		Ground Elevation 875.7 (from Plan)		
Location TH 169 NB, 896+00.33, 57.6'Rt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
Hennepin Co. Coordinate: X=498011 Y=216267 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/24/05		
Latitude (North)=45°06'35.94" Longitude (West)=93°23'27.74"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
5		S, brn & damp				4				
	10.5 865.2				12	3				
		CrS, brn & moist			8	3				
					10	3				
10					11	4				
	15.5 860.2				14	2				
15					18	10				
		CrS & G, brn & sat			28	10				
20										
	24.0 851.7 25.0 850.7				14	16				
25		SCL w/ pebbles, gray & moist								
Bottom of Hole - 25.0' Water measured at 16.5' while sampling and/or drilling										
Index Sheet Code 3.0						Soil Class:DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67265
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T31		Ground Elevation 881.3 (from Plan)		
Location TH 169 NB, 896+94.78, 145.7'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497811 Y=216367 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/28/05		
Latitude (North)=45°06'36.93" Longitude (West)=93°23'30.52"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 877.3	S w/ a little G, brn & damp				8				
5					18	4				
10		S, brn to lt brn, damp				5				
					10					
15					7	3				
20						8				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67265
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T31		Ground Elevation 881.3 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
	22.2 859.1	S, brn to lt brn, damp (continued)								
25		S w/ G, brn & sat			15	10				
	27.0 854.3	S & G, gray-brn & sat								
30	30.5 850.8				38	10				

Bottom of Hole - 30.5'
 Water measured at 22.2' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67266
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T32		Ground Elevation 881.6 (from Plan)		
Location TH 169 NB, 900+98.82, 123.6'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 1		
Hennepin Co. Coordinate: X=497837 Y=216769 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 3/28/05		
Latitude (North)=45°06'40.90" Longitude (West)=93°23'30.15"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
5		LS to S, brn to lt brn, damp				5				
						9	2			
						5	4			
10						8	4			
						14	3			
						13	3			
15						18	3			
						20	3			
20										
	23.0									
	858.6		S & G, brn & sat		10	16				
	24.5									
	857.1		SCL w/ pebbles, gray & moist							
30					15		2510	138		
	32.0				24	15				
	849.6									

Bottom of Hole - 32.0'
 Water measured at 23.0' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67267
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R20		Trunk Highway/Location US Highway 169		Boring No. T33		Ground Elevation 886.3 (from Plan)		
Location TH 169 NB, 890+63.96, 177.4'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497705 Y=215780 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 7/26/05		
Latitude (North)=45°06'31.14" Longitude (West)=93°23'32.00"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 882.3		slorg FS w/ a little G, brn & damp			5				
5	7.0 879.3		S w/ some G, brn & damp		14	5				
10	12.0 874.3		FS, lt brn & damp		8	5				
15					11	2				
20			S w/ a little G, lt brn & damp		13	3				
25					17	3				
▼	27.0			PD						

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67267
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R20		Trunk Highway/Location US Highway 169		Boring No. T33		Ground Elevation 886.3 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Rock
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		
	859.3			PD						
	30		S w/ a little G, brn & sat	X	10	17				
	31.0			PD						
	855.3			X	23	13				
	35		CrS & G w/ seam S, brn w/ lt brn, sat	PD						
	40			X	44	11				
	41.0			PD						
	845.3			X	14	16				
	45		SCL w/ a few pebbles, gray & moist	PD						
	50			X	36	15				
	52.6			PD						
	833.7			X	50/4	N/A				
	54.0		S & G, stone chips; gray-brn & sat	PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67267
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R20	Trunk Highway/Location US Highway 169	Boring No. T33	Ground Elevation 886.3 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC	RQD	ACL	Core	Formation		
					(%)	(%)	(ft)	Breaks	Rock	or Member	
	832.3										
55		LS w/ a little G, gray-brn & wet		PD							
				⊗	86	9					
60				PD							
				⊗	42/5 50/4	10					
65		S, gray-brn & sat		PD							
	66.0			⊗	33/5 50/3	19					
	820.3										
	68.3										
	818.0										

Bottom of Hole - 68.3'
 Water level assumed to be at saturated granular layer

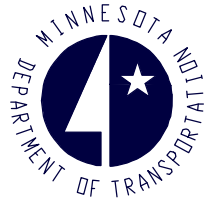
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67252
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T34		Ground Elevation 884.9 (from Plan)		
Location TH 169 NB, 898+37.20, 216.8'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497741 Y=216509 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 11/17/04		
Latitude (North)=45°06'38.33" Longitude (West)=93°23'31.49"								Other Tests Or Remarks		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks
	Elev.				N60	(%)	(psf)	(pcf)		
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	3.5 881.4	LS, brns & moist				4				
5	5.5 879.4	S w/ a little G, thin seam spl SL; lt brn w/ dk brn; damp			7	9				
					6	9				
					11	4				
10										
					11	6				
		S, lt brns & damp								
					12	4				
					12	3				
					16	3				
20	20.5 864.4	CrS & FG, brns & moist								
	23.0				24	4				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67252
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57	Bridge No. or Job Desc. Ret Wall	Trunk Highway/Location US Highway 169	Boring No. T34	Ground Elevation 884.9 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
	861.9	[Dotted pattern]	S w/ a little G, lt brn & moist	[Wavy pattern]	24	2			Soil	
25					7	NSR				
	32.0 852.9	[Diagonal hatching]	SCL, gray & moist	[Wavy pattern]	15	16			Rock	
35	849.9									

Bottom of Hole - 35.0'
 Water measured at 26.0' while sampling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67253
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T35		Ground Elevation 886.0 (from Plan)		
Location TH 169 NB, 902+42.28, 199.8'Lt					Drill Machine 92730 Failing 1500 4x4			SHEET 1 of 2		
Hennepin Co. Coordinate: X=497763 Y=216914 (ft.)					Hammer Mobile Auto Calibrated			Drilling Completed 11/16/04		
Latitude (North)=45°06'42.33" Longitude (West)=93°23'31.20"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 882.0	slorg LS w/ a little G, a few roots; dk brn & moist				8				
5						18	5			
		S, lt brn & damp				10	4			
10						10	6			
						12	3			
15						8	3			
						5	4			
20						16	3			
	22.0									

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67253
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project		Bridge No. or Job Desc.		Trunk Highway/Location		Boring No.		Ground Elevation		
2750-57		Ret Wall		US Highway 169		T35		886.0 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Formation	
					(%)	(%)	(ft)	Breaks	or Member	
	864.0	○ ○ ○ ○	S & G, brn & damp	X	27	3				
	23.5 862.5									
	25	○ ○ ○ ○	S w/ a little G, lt brn & moist	X	17	4				
	26.0 860.0									
	28.5	○ ○ ○ ○	S & G, brn & sat	X	11	10				
	857.5									
	30	X X X X	pl SL w/ some pebbles, gray & moist	X	12	16				
	20									
	35	X X X X		X	17	14				
	35.5 850.5									

Bottom of Hole - 35.5'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67254
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T36		Ground Elevation 887.3 (from Plan)		
Location TH 169 NB, 906+34.54, 186.7'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497786 Y=217314 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 11/16/04		
Latitude (North)=45°06'46.28" Longitude (West)=93°23'30.86"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 883.3	slorg LS, brn & damp				7				
5					2	7				
					3	7				
10					2	11				
					1	7				
15		S w/ pockets & seam spl SL, lt brn w/ brn, moist			2	5				
					2	4				
20					4	4				
					14	3				
25					10	4				
	26.0									

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67254
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57	Bridge No. or Job Desc. Ret Wall	Trunk Highway/Location US Highway 169	Boring No. T36	Ground Elevation 887.3 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	861.3		S w/ G, brn & sat							
	27.5 859.8				11	14				
30					14	14				
			pl SL w/ some pebbles, gray & moist		20	15				
					17	15				
35					26	15				
	38.5 848.8		SCL w/ a few pebbles, gray & moist		20	17				
40					16	17				
	43.0 844.3									

Bottom of Hole - 43.0'
 Water measured at 26.3' while sampling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67255
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T37		Ground Elevation 886.0 (from Plan)		
Location TH 169 NB, 910+13.77, 193.5'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497815 Y=217705 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 11/15/04		
Latitude (North)=45°06'50.14" Longitude (West)=93°23'30.47"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 882.0	slorg LS w/ a little G, straw & grass; dk brn & damp				7				
5					13	5				
					15	6				
10		Seams & layers S & FS, lt brn & damp			8	2				
					16	3				
15					10	3				
	17.5 868.5	S & G, dk brn & moist			13	2				
	18.5 867.5	S w/ a little G, lt gray-brn & moist			12	4				
20										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67255
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57	Bridge No. or Job Desc. Ret Wall	Trunk Highway/Location US Highway 169	Boring No. T37	Ground Elevation 886.0 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
			S w/ a little G, lt gray-brn & moist (continued)		10	14				
	23.5 862.5									
	25		LS w/ some G, gray & gray-brn, wet		10	20				
	26.0 860.0									
			pl SL w/ some pebbles, gray & moist		15	15				
	30 30.5 855.5				17	14				

Bottom of Hole - 30.5'
 Water measured at 24.5' while sampling and/or drilling

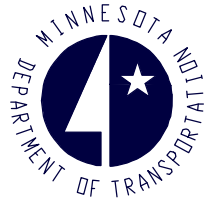
MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67256
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T38		Ground Elevation 883.3 (from Plan)		
Location TH 169 NB, 96+59.83, 196.9'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497874 Y=218097 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 11/10/04		
Latitude (North)=45°06'54.01" Longitude (West)=93°23'29.65"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 879.3	slorg spl SL, dk brn & moist				12				
5		S w/ few seams LS, lt brns & lt grays w/ brn, moist			10	5				
					9	4				
10					12	8				
					10	4				
15					10	3				
					12	5				
20					10	4				
	21.0									

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67256
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS										SHEET 2 of 2	
State Project		Bridge No. or Job Desc.		Trunk Highway/Location			Boring No.		Ground Elevation		
2750-57		Ret Wall		US Highway 169			T38		883.3 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests Or Remarks	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Formation or Member	
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock		
	862.3	[Dotted pattern]	S w/ a little G, brn & sat	[Drilling symbol]	17	18					
25					14	NSR					
	27.0 856.3	[Diagonal hatched pattern]	SCL w/ a few pebbles, gray & Vmoist	[Drilling symbol]	19	17					
30	30.5 852.8										
Bottom of Hole - 30.5' Water level assumed to be at saturated granular layer											

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67257
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T40		Ground Elevation 884.5 (from Plan)		
Location TH 169 NB, 884+30.19, 646.1'Lt						Drill Machine 93165 GEFCO F6 6x6		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497084 Y=215423 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 6/16/05		
Latitude (North)=45°06'27.61" Longitude (West)=93°23'40.66"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			slorg LS w/ a little G, dk brn & moist			7				
5	5.0 879.5				7	7				
					6	9				
10					13	7				
					16	3				
15			FS w/ layer horg pl L w/ roots & straw @ 6.5', lt brn & lt gray-brn, damp		14	9				
					9	3				
20					9	3				
					10	2				
	23.5 861.0									
25			S, brn & sat		39	16				
	27.0			PD						

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67257
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T40		Ground Elevation 884.5 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	857.5			PD						
30			S w/ a little G, layer FG @ 34.5'; brn to gray-brn; sat	⊗	14	16				
				PD						
				⊗	20	20				
				PD						
35				⊗	8/5 50/5	8				small boulders 35.0'-36.0'
	37.5 847.0			PD						
40			LS w/ a little G, layer S & G; dk brn & sat	⊗	56	9				
				PD						
45				⊗	39	10				
				PD						
50	50.0 834.5		LS w/ some G, layer CrG; dk brn & sat	⊗	46	12				
				PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67257
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R22	Trunk Highway/Location US Highway 169	Boring No. T40	Ground Elevation 884.5 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil Rock	Other Tests Or Remarks
					N ₆₀	(%)	(psf)	(pcf)		REC (%)
55		[Dotted pattern]	LS w/ some G, layer CrG; dk brn & sat (continued)	PD	57	13				
				PD						
60	60.5 824.0	[Dotted pattern]	S, brn & sat	PD	81	12				
				PD						
65		[Dotted pattern]	FS w/ seam G, lt gray-brn & sat	PD	90	13				
				PD						
70	70.4 814.1			PD	36/5 50/4	18				

Bottom of Hole - 70.4'
 Water measured at 25.3' while sampling and/or drilling with
 augers

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67635
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T41		Ground Elevation 885.8 (Survey)		
Location TH 169 NB, 891+81.56, 473.1'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497438 Y=215945 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 1/31/06		
Latitude (North)=45°06'32.77" Longitude (West)=93°23'35.72"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			S w/ a little G, seam LS & G @ 5.0'; lt brn w/ brn; damp w/ moist			5				
5	6.0 879.8		S to FS, lt brn & damp		16	17				
10	11.0 874.8		S w/ a few layers LS, lt brn w/ lt gray-brn, damp		13	5				
15					16	7				
20					7	4				
					8	6				
					10	7				
					10	4				
					16	4				
25	23.5 862.3		S w/ a little G, brn & moist		19	6				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67635
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T41		Ground Elevation 885.8 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
	27.2 858.6	S w/ a little G, brn & moist (continued)		X						
30		S & G w/ some stone pieces, brn & wet		X	16	13				heave to 28.0'
	32.0 853.8			PD						
35		S w/ a little G, lt brn & sat		X	29	17				
	36.0 849.8			PD						
40		S & G, brn & sat		X	32	11				
	41.0 844.8			PD						
	43.2 842.6	SCL, gray & Vmoist		X	54	20				
45		FS to S w/ seam CL @ 49.4, brn w/ dk brn, sat w/ moist		PD						
				X	77	18				
50				PD						

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67635
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T41		Ground Elevation 885.8 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	52.0 833.8	FS to S w/ seam CL @ 49.4, brn w/ dk brn, sat w/ moist <i>(continued)</i>		PD						
				⊗	50/5	N/A				hard drilling 51.0'-53.0'
	55			PD						boulder 54.0'-55.0'
		S & G w/ stone chips & pieces, dk brn & sat		⊗	50/4	N/A				rough drilling 55.0'-62.2'
	60			PD						
	62.3 823.5			⊗	50/5	12				smoother drilling 62.2'-63.0'
	63.5 822.3	slpl SL w/ a few pebbles, dk brn & wet		⊗						

Bottom of Hole - 63.5'
 Water measured at 27.2' while sampling and/or drilling

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67636
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T42		Ground Elevation 886.7 (Survey)		
Location TH 169 NB, 891+08.86, 554.1'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497346 Y=215903 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 2/1/06		
Latitude (North)=45°06'32.35" Longitude (West)=93°23'37.00"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	1.0 885.7	pl SL, dk brn & moist								
			LS w/ a little G, dk brn & moist			7				
5	5.0 881.7				10	14				
			S, lt brn & moist							
10					13	5				
	12.0 874.7		varved FS, lt brn & lt gray, moist							
15					18	13				
	17.0 869.7		S, lt brn & moist							
20					14	3				
	22.0 864.7		S & G, lt brns & lt grays, moist							

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67636
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project		Bridge No. or Job Desc.		Trunk Highway/Location		Boring No.		Ground Elevation			
2750-57		27R22		US Highway 169		T42		886.7 (Survey)			
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
								Rock	Formation or Member		
								REC	RQD	ACL	Core Breaks
								(%)	(%)	(ft)	
25			S & G, lt brns & lt grays, moist (continued)	X	32	7					
	27.0										
	859.7										
30			CrS & G, brn & sat	X	15	13					
										4.0' heave @ 35.5'	
35				X	35	14					
	37.0			PD							
	849.7		LS, lt gray-brn & sat	X	18	24					
40											
	41.0			PD							
	845.7									rough drilling 41.0'-48.0'	
45			Driller's Note: S & G, brn & sat	X	50/3	N/A					
	48.0			PD							

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67636
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS							SHEET 3 of 3			
State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T42		Ground Elevation 886.7 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
	838.7 48.5 838.2		S, brn & sat	X	36	15				
50				PD						
			CrS w/ a little G, brn & sat	X	24	19				
55				PD						
	56.0 830.7			X	30	13				
60				PD						
			S & G, a few stone pieces; brn & sat	X	50/5	N/A				rougher drilling 62.0'-63.0'
65				PD						
	68.3 818.4			X	50/3	N/A				vary hard rough drilling 63.0'-67.5'
Bottom of Hole - 68.3' Water measured at 27.5' with auger										
Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08 G:\GINT\PROJECTS-ACTIVE\2750-57.GPJ										

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67258
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T43		Ground Elevation 888.8 (from Plan)		
Location TH 169 NB, 888+90.75, 607'Lt						Drill Machine 93165 GEFCO F6 6x6		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497251 Y=215747 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 7/20/05		
Latitude (North)=45°06'30.81" Longitude (West)=93°23'38.32"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 884.8	org slpl SL, dk brn & moist				13				
	5 7.0 881.8	LS w/ a little G, a few seams slpl SL; dk brn & moist			14	12				
	10				8	7				
	15	S w/ a thin seam slpl SL, brn & gray-brn layers w/ gray, moist to damp			14	11				
	20				12	2				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67258
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T43		Ground Elevation 888.8 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	Formation
					(%)	(%)	(ft)	Breaks		or Member
25			S w/ a thin seam spl SL, brn & gray-brn layers w/ gray, moist to damp (continued)		13	4				
	27.0 861.8									
30			CrS, brn & moist		28	4				
	32.0 856.8									
35			CrS w/ some G, brn & sat		22	10				
40					58	13				
	42.0 846.8		SCL w/ a few pebbles, gray & moist							
	44.5 844.3				42	15				
45			S, brn & sat							
	48.0									

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67258
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R22	Trunk Highway/Location US Highway 169	Boring No. T43	Ground Elevation 888.8 (from Plan)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC	RQD	ACL	Core	Formation		
					(%)	(%)	(ft)	Breaks	Rock	or Member	
	840.8										
50		LCrS w/ a little G, a few stone chips; dk brn & sat			38	11					
55					36	11					
60					49	NSR					
	64.8					35/5 50/3	N/A				

Bottom of Hole - 64.8'
 Water level assumed to be at saturated granular layer

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67637
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T44		Ground Elevation 885.0 (Survey)		
Location TH 169 NB, 886+55.70, 672.1'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497130 Y=215594 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 12/21/05		
Latitude (North)=45°06'29.30" Longitude (West)=93°23'40.02"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	2.0 883.0	slorg spl SL, dk brn & moist				8				
5					9	8				
10					8	10				
15		mixed S & LS w/ layer LFS @ 14.0', brn to lt brn, moist			5	6				
20					13	4				
	24.0									

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67637
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 3

State Project 2750-57		Bridge No. or Job Desc. 27R22		Trunk Highway/Location US Highway 169		Boring No. T44		Ground Elevation 885.0 (Survey)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
▼25	861.0	S w/ a little G, brn & sat		⊗	47	13				
30				⊗	30	18				
	31.5 853.5	S & G, brn & sat		PD						
35				⊗	40	12				
	36.0 849.0	S & G w/ stone chips, gray & sat		PD						
40				⊗	40/5 50/5	N/A				
	40.5 844.5	S w/ some G, brn & sat		PD						
45				⊗	65	15				
	46.0 839.0	FS w/ stone piece, brn & sat		PD						
				⊗	40/5					

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Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67637
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

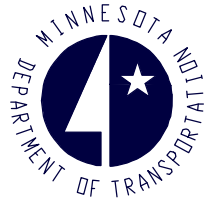
SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R22	Trunk Highway/Location US Highway 169	Boring No. T44	Ground Elevation 885.0 (Survey)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation or Member	
50	50.5 834.5	FS w/ stone piece, brn & sat 	(continued)	⊗	50/5	19			Soil	
				PD						
55		S & G, brn & sat 		⊗	50/5	N/A			Rock	
				PD						
	58.0 827.0			⊗	50/5	N/A				

Bottom of Hole - 58.0'
 Water measured at 25.0' with auger

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67638
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169		Boring No. T45		Ground Elevation 884.0 (from Plan)		
Location TH 169 NB, 876+19.16, 152.7'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 3		
Hennepin Co. Coordinate: X=497105 Y=214571 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 12/13/05		
Latitude (North)=45°06'19.19" Longitude (West)=93°23'40.36"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
			LS w/ a little G, gray & damp							
	5.0 879.0				27	8				
	7.0 877.0		slpl SL, dk brn & moist		9	7				
			S w/ a little G, brns & moist		8	15				
	11.0 873.0				5	7				
			S, brns & lt brns, moist to wet		8	11				
					7	10				
					9	13				
	21.0 863.0		S, lt brn & lt gray-brn, sat		15	16				
					18	19				

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67638
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS										SHEET 2 of 3	
State Project 2750-57		Bridge No. or Job Desc. 27R24		Trunk Highway/Location US Highway 169			Boring No. T45		Ground Elevation 884.0 (from Plan)		
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests	
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks	
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member	
	30			X	17	NSR					
				PD							
				X	46	16					
				PD							
	35										
			S, lt brn & lt gray-brn, sat (continued)	PD							
				X	46	18					
				PD							
	40										
				X	42	15					
				PD							
	45										
				X	43	14					
				PD							
	50										

(Continued Next Page)

Soil Class: DSB Rock Class: Edit: DMS Date: 5/22/08
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MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67638
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 3 of 3

State Project 2750-57	Bridge No. or Job Desc. 27R24	Trunk Highway/Location US Highway 169	Boring No. T45	Ground Elevation 884.0 (from Plan)
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DEPTH	Depth Elev.	Lithology	Classification	Drilling Operation	SPT N ₆₀	MC (%)	COH (psf)	γ (pcf)	Soil Rock	Other Tests Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks		Formation or Member
				PD						
				X	40	14				
55				PD						
				X	76	16				
60			S, lt brn & lt gray-brn, sat (continued)	PD						
				X	78	12				
65				PD						
				X	62	15				
68.5	815.5									

Bottom of Hole - 68.5'
 Water measured at 26.5' with auger

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67843
 U.S. Customary Units

State Project 2750-57		Bridge No. or Job Desc. Ret Wall		Trunk Highway/Location US Highway 169		Boring No. T46		Ground Elevation 882.3 (Survey)		
Location TH 169 NB, 882+24.42, 533.5'Lt						Drill Machine 92730 Failing 1500 4x4		SHEET 1 of 2		
Hennepin Co. Coordinate: X=497107 Y=215225 (ft.)						Hammer Mobile Auto Calibrated		Drilling Completed 12/6/05		
Latitude (North)=45°06'25.66" Longitude (West)=93°23'40.33"										
DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N60	(%)	(psf)	(pcf)		Or Remarks
					REC (%)	RQD (%)	ACL (ft)	Core Breaks	Rock	Formation or Member
	4.0 878.3	slorg slpl SL w/ a few pebbles, dk brn & moist				9				
5	6.0 876.3	LS w/ a little G, pocket pl SL; brn w/ dk brn; moist			6	10				
					4	6				
10		FS, lt brn to lt gray-brn, damp			8	12				
					12	5				
15	13.5 868.8	S w/ a little G, lt brn & damp			15	4				
					16.0 866.3					
		FS, lt gray-brn & damp			18	4				
					18.5 863.8					
20		mixed S & LS, brns & moist			17	14				
					22.0					

MINNESOTA DEPARTMENT OF TRANSPORTATION - GEOTECHNICAL SECTION
 LABORATORY LOG & TEST RESULTS - SUBSURFACE EXPLORATION



UNIQUE NUMBER 67843
 U.S. Customary Units

Mn/DOT GEOTECHNICAL SECTION - LOG & TEST RESULTS

SHEET 2 of 2

State Project 2750-57	Bridge No. or Job Desc. Ret Wall	Trunk Highway/Location US Highway 169	Boring No. T46	Ground Elevation 882.3 (Survey)
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DEPTH	Depth	Lithology	Classification	Drilling Operation	SPT	MC	COH	γ	Soil	Other Tests
	Elev.				N ₆₀	(%)	(psf)	(pcf)		Or Remarks
					REC	RQD	ACL	Core	Rock	
					(%)	(%)	(ft)	Breaks	Formation	
					or Member					
	860.3	[Dotted pattern]	S w/ a little G, brn to gray-brn, sat	[Drilling symbol]					Soil	
25					24	5				
30				[Drilling symbol]	65	16			Rock	
	30.5									
	851.8									

Bottom of Hole - 30.5'
 Water level assumed to be at saturated granular layer