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CASE #PL2020-112



● DENOTES APPROXIMATE LOCATION OF
STANDARD PENETRATION TEST BORING



60' 0 120'

SCALE: 1"= 120'

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Drawing Information

Project No:
B2004036

Drawing No:
B2004036

Drawn By: JAG
Date Drawn: 5/4/20
Checked By: AS
Last Modified: 6/4/20

Project Information

Seagate Technology
Normandale Campus
Expansion

7801 Computer Avenue

Bloomington, Minnesota

**Soil Boring
Location Sketch**

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-101		
					LOCATION: See attached sketch		
					NORTHING: 125512	EASTING: 509934	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/21/20	END DATE: 05/21/20		
SURFACE ELEVATION: 822.3 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt		WEATHER: Overcast	
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
821.3		PAVEMENT, 4 inches of bituminous over 8 inches of apparent aggregate base					
1.0		FILL: SILTY SAND (SM), fine to medium-grained, with Gravel, contains seams of Clay, dark brown, moist		3-4-2 (6) 14"		16	
818.3							
4.0		PEAT (PT), with shells, semi-fibrous, black, moist (SWAMP DEPOSIT)	5	2-1-1 (2) 16"		120	
815.3							
7.0		ORGANIC SOIL (OL/OH), trace black fibers, gray, moist (SWAMP DEPOSIT)		1-1-2 (3) 16"			
			10	1-1-1 (2) 18"			
810.3							
12.0		POORLY GRADED SAND (SP), fine-grained, trace Gravel, gray, wet, loose (ALLUVIUM)		4-4-4 (8) 18"			
808.3							
14.0		SILTY SAND (SM), fine to medium-grained, trace Gravel, gray, wet, very loose (ALLUVIUM)	15	2-2-2 (4) 12"			
804.3							
18.0		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, trace Gravel, gray, wet, medium dense (GLACIAL OUTWASH)	20	8-6-6 (12) 0"			No recovery
			25	8-5-7 (12) 3"			
			30	4-3-2 (5) 9"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-101		
					LOCATION: See attached sketch		
					NORTHING: 125512	EASTING: 509934	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/21/20	END DATE: 05/21/20		
SURFACE ELEVATION: 822.3 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt	WEATHER: Overcast		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
783.3 39.0		POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, trace Gravel, gray, wet, medium dense (GLACIAL OUTWASH) <i>With LEAN CLAY layer at 35 feet</i>	35	8-7-7 (14) 10"			
		POORLY GRADED SAND (SP), fine to coarse- grained, with Gravel, gray, wet, medium dense to loose (GLACIAL OUTWASH)	40	8-7-7 (14) 2"			
			45	5-5-6 (11) 12"			
			50	6-4-4 (8) 10"			
			55	4-4-4 (8) 0"			No recovery
763.3 59.0		SILTY SAND (SM), fine to medium-grained, trace Gravel, with LEAN CLAY layers, brown, moist, medium dense (GLACIAL TILL)	60	8-9-12 (21) 5"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-101		
					LOCATION: See attached sketch		
					NORTHING: 125512	EASTING: 509934	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/21/20	END DATE: 05/21/20		
SURFACE ELEVATION: 822.3 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt		WEATHER: Overcast	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to medium-grained, trace Gravel, with LEAN CLAY layers, brown, moist, medium dense (GLACIAL TILL)	65	6-7-8 (15) 16"			
			70	6-4-8 (12) 16"		10	
			75	7-8-16 (24) 16"			
744.3		CLAYEY SAND (SC), trace Gravel, brown, moist, very stiff (GLACIAL TILL)	80	8-8-15 (23) 16"			
78.0			85	9-11-16 (27) 16"			
			90	9-12-16 (28) 16"			
			95	13-13-12 (25) 16"		10	
Driller noted apparent Boulder at 87 feet							

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-101	
					LOCATION: See attached sketch	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		NORTHING: 125512	EASTING: 509934	
SURFACE ELEVATION: 822.3 ft		RIG: 7520	METHOD: 3 1/4" HSA	START DATE: 05/21/20	END DATE: 05/21/20	
SURFACING: Asphalt		WEATHER: Overcast				

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
721.3		CLAYEY SAND (SC), trace Gravel, brown, moist, very stiff (GLACIAL TILL)					
101.0		END OF BORING		11-14-15 (29) 16"			Water observed at 12.0 feet while drilling.
		Boring then grouted					

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-102		
					LOCATION: See attached sketch		
					NORTHING: 125511	EASTING: 510208	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/26/20		END DATE: 05/26/20	
SURFACE ELEVATION: 822.5 ft		RIG: 7519		METHOD: 3 1/4" HSA		SURFACING: Bituminous WEATHER: Sunny/cloudy	
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
821.7		PAVEMENT, 3 1/2 inches of bituminous over 6 inches of apparent aggregate base				5	
0.8							
820.5		FILL: SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, moist		6-7-16 (23) 12"			
2.0		FILL: SILTY SAND (SM), fine to coarse-grained, with Gravel, gray, moist		12-10-13 (23) 10"			
		Layer of PEAT at 3 feet	5	5-2-2 (4) 4"		8	P200=13%
813.5		PEAT (PT), semi-fibrous, black, moist (SWAMP DEPOSIT)	10	2-2-2 (4) 8"			
810.5		POORLY GRADED SAND with SILT (SP-SM), gray, wet, medium dense (GLACIAL OUTWASH)	15	2-6-7 (13) 16"			
				6-6-8 (14) 15"			
803.5		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)	20	6-6-5 (11) 17"			
			25	10-7-3 (10) 18"			
			30	13-5-6 (11) 18"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-102		
					LOCATION: See attached sketch		
					NORTHING: 125511	EASTING: 510208	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/26/20	END DATE: 05/26/20		
SURFACE ELEVATION: 822.5 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
788.5		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)					
34.0		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, stiff to hard (GLACIAL TILL)	35	6-7-7 (14) 17"			
			40	6-7-9 (16) 10"			
			45	5-35-27 (62) 17"	11		
			50	17-19-22 (41) 6"			
			55	11-12-14 (26) 14"			
763.5		SILTY SAND (SM), fine to coarse-grained, trace Gravel, contains seams of Sand, brown, moist, dense to medium dense (GLACIAL TILL)	60	14-17-17 (34) 12"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-102	
					LOCATION: See attached sketch	
					NORTHING: 125511	EASTING: 510208
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/26/20	END DATE: 05/26/20	
SURFACE ELEVATION: 822.5 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy	

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to coarse-grained, trace Gravel, contains seams of Sand, brown, moist, dense to medium dense (GLACIAL TILL)	65	11-7-9 (16) 17"			
			70	8-9-9 (18) 18"			
			75	4-9-10 (19) 16"			
743.5		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, very stiff to hard (GLACIAL TILL)	80	17-11-17 (28) 18"			
79.0			85	18-10-9 (19) 16"			
			90	11-12-12 (24) 17"			
			95	17-14-15 (29) 16"			

Continued on next page

LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-102		
					LOCATION: See attached sketch		
					NORTHING: 125511	EASTING: 510208	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/26/20	END DATE: 05/26/20		
SURFACE ELEVATION: 822.5 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous		WEATHER: Sunny/cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
721.5 101.0		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, very stiff to hard (GLACIAL TILL)		18-11-20 (31) 18"			Water observed at 12.0 feet while drilling. Water observed at 16.5 feet at end of drilling.
		END OF BORING Boring then grouted					

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-103	
					LOCATION: See attached sketch	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		NORTHING: 125438	EASTING: 510046	
SURFACE ELEVATION: 820.9 ft		RIG: 7520	METHOD: 3 1/4" HSA	START DATE: 05/20/20	END DATE: 05/20/20	
				SURFACING: Asphalt	WEATHER: Partly cloudy	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
820.1		PAVEMENT, 3 1/2 inches of bituminous over 6 inches of apparent aggregate base				5	
0.8							
818.9		FILL: SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, moist		3-1-2 (3)		69	OC=20%
2.0		FILL: SILTY SAND (SM), fine to coarse-grained, brown, moist <i>With Clay seams and a layer of PEAT at 3 feet</i>		16"			
			5	5-10-17 (27)		6	
				14"			
813.9							
7.0		PEAT (PT), with shells, semi-fibrous, black to dark gray, moist (SWAMP DEPOSIT)		0-1-1 (2)			
				14"			
			10	0-1-1 (2)			
				16"			
				0-1-1 (2)			
				18"			
805.9			15	0-0-3 (3)			
15.0		ORGANIC SOIL (OL/OH), with SAND layers, gray, moist (SWAMP DEPOSIT)		18"			
801.9							
19.0		SILTY SAND (SM), fine to coarse-grained, with Gravel, gray, wet, medium dense (GLACIAL OUTWASH)	20	11-7-7 (14)			
				2"			
			25	15-8-7 (15)			
				10"			
791.9							
29.0		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)	30	9-7-8 (15)			
				10"			

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-103		
					LOCATION: See attached sketch		
					NORTHING: 125438	EASTING: 510046	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 820.9 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt	WEATHER: Partly cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, loose to medium dense (GLACIAL OUTWASH)					
			35	8-5-5 (10) 9"			
			40	10-10-12 (22) 5"			
776.9							
44.0		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, stiff to very stiff (GLACIAL TILL)					
			45	10-8-7 (15) 10"			
			50	4-5-4 (9) 18"			
			55	5-5-6 (11) 18"		12	
			60	6-7-10 (17) 18"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-103		
					LOCATION: See attached sketch		
					NORTHING: 125438	EASTING: 510046	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 820.9 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt		WEATHER: Partly cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
751.9		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, stiff to very stiff (GLACIAL TILL)	65	7-10-10 (20) 16"			
69.0		SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist, medium dense (GLACIAL TILL)	70	13-7-10 (17) 9"			
			75	6-8-9 (17) 0"			No recovery
			80	9-6-7 (13) 10"			
736.9		CLAYEY SAND (SC), trace Gravel, with SAND layers and seams, brown, moist, stiff to medium (GLACIAL TILL)	85	11-5-7 (12) 14"			
84.0			90	7-6-8 (14) 14"			
			95	6-4-3 (7) 16"			

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036						BORING:		ST-103
Geotechnical Evaluation						LOCATION: See attached sketch		
Seagate Technology - Normandale Campus Expansion						NORTHING:	125438	EASTING: 510046
7801 Computer Avenue						START DATE:	05/20/20	END DATE: 05/20/20
Bloomington, Minnesota						SURFACING:	Asphalt	WEATHER: Partly cloudy
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg						
SURFACE ELEVATION: 820.9 ft		RIG: 7520	METHOD: 3 1/4" HSA					
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks	
719.9		CLAYEY SAND (SC), trace Gravel, with SAND layers and seams, brown, moist, stiff to medium (GLACIAL TILL)		3-5-4 (9) 16"			Water observed at 19.0 feet while drilling.	
101.0		END OF BORING Boring then grouted						
			100					
			105					
			110					
			115					
			120					
			125					

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-104	
					LOCATION: See attached sketch	
					NORTHING: 125355	EASTING: 509916
DRILLER: D. Nash	LOGGED BY: A. Schulzetenberg		START DATE: 05/18/20	END DATE: 05/18/20		
SURFACE ELEVATION: 819.8 ft	RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt	WEATHER: Overcast		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
819.5		PAVEMENT, 3 1/2 inches of bituminous				7	
0.3		FILL: SILTY SAND (SM), with Gravel, dark brown, moist					
817.8		PEAT (PT), fibrous, to semi-fibrous, dark brown to black, moist (SWAMP DEPOSIT)		2-1-2 (3) 10"		122	
2.0			5	1-1-1 (2) 14"		487	
				0-0-1 (1) 14"			
			10	0-0-1 (1) 18"			
806.8				0-0-0 WOH/18" 18"			
13.0		ORGANIC SILT (OH), with shells, gray, moist (SWAMP DEPOSIT)		0-0-0 WOH/18" 18"		116	OC=7%
800.8			15				
19.0		SILTY SAND (SM), gray, wet, very loose (ALLUVIUM) <i>With Gravel seam at 20 feet</i>	20	3-1-1 (2) 18"			Switched to mud rotary drilling at 21 feet
796.8							
23.0		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, medium to stiff (GLACIAL TILL)	25	3-3-5 (8) 16"			
			30	5-5-6 (11) 15"			

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-104		
					LOCATION: See attached sketch		
					NORTHING: 125355	EASTING: 509916	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/18/20	END DATE: 05/18/20		
SURFACE ELEVATION: 819.8 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt		WEATHER: Overcast	

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
781.8		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, brown, moist, medium to stiff (GLACIAL TILL)	35	4-5-8 (13) 16"			
38.0		SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, wet, medium dense (GLACIAL TILL)	40	6-7-8 (15) 10"			
		With GRAVEL layers from 44 to 54 feet	45	8-8-8 (16) 0"			No recovery
			50	12-9-11 (20) 0"			Little to no recovery
765.8		SANDY LEAN CLAY (CL), trace Gravel, contains seams of Sand, brown, moist, very stiff (GLACIAL TILL)	55	10-10-10 (20) 16"			
54.0			60	10-8-9 (17) 14"			
755.8							
64.0							

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-104		
					LOCATION: See attached sketch		
					NORTHING: 125355	EASTING: 509916	
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		START DATE: 05/18/20	END DATE: 05/18/20		
SURFACE ELEVATION: 819.8 ft		RIG: 7520	METHOD: 3 1/4" HSA	SURFACING: Asphalt		WEATHER: Overcast	

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
745.8 74.0		SILTY SAND (SM), fine to coarse-grained, little Gravel, brown, moist, medium dense (GLACIAL OUTWASH)	65	7-8-9 (17) 10"		10	
			70	8-8-8 (16) 10"			
			75	10-7-7 (14) 16"			
			80	9-9-8 (17) 16"			
			85	10-10-15 (25) 9"			
		CLAYEY SAND (SC), fine to medium-grained, trace Gravel, brown, moist, stiff to very stiff (GLACIAL TILL)	90	8-9-9 (18) 16"			
			95	8-9-8 (17) 16"			

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-104		
					LOCATION: See attached sketch		
DRILLER: D. Nash		LOGGED BY: A. Schulzetenberg		NORTHING: 125355	EASTING: 509916		
SURFACE ELEVATION: 819.8 ft		RIG: 7520	METHOD: 3 1/4" HSA	START DATE: 05/18/20	END DATE: 05/18/20		
				SURFACING: Asphalt	WEATHER: Overcast		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
718.8		 CLAYEY SAND (SC), fine to medium-grained, trace Gravel, brown, moist, stiff to very stiff (GLACIAL TILL)					
101.0							
		END OF BORING		7-8-10 (18) 16"			Water observed at 19.0 feet while drilling.
		Boring then grouted					

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-105	
					LOCATION: See attached sketch	
					NORTHING: 125354	EASTING: 510196
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20	
SURFACE ELEVATION: 820.9 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy	

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
820.1		PAVEMENT, 4 inches of bituminous over 6 inches of apparent aggregate base				24	
0.8		FILL: SILTY SAND (SM), fine to coarse-grained, with Gravel, brown, moist		3-2-1 (3) 18"		14	
817.9		PEAT (PT), fibrous, to semi-fibrous, dark brown to black, moist (SWAMP DEPOSIT)		1-1-2 (3) 16"			
3.0			5	1-1-1 (2) 17"		355	
			10	1-1-2 (3) 17"			
808.9		ORGANIC SOIL (OL/OH), trace shells, fibrous, gray, moist (SWAMP DEPOSIT)		2-1-1 (2) 18"			
12.0				2-1-6 (7) 18"			
806.9		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet (GLACIAL OUTWASH)	15				
14.0				22-30-31 (61) 0"			No recovery - blows influenced by rock Switched to mud rotary drilling at 20 feet
			20				
				3-3-4 (7) 16"			
			25				
				7-7-9 (16) 16"			
			30				

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-105		
					LOCATION: See attached sketch		
					NORTHING: 125354	EASTING: 510196	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 820.9 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
786.9		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet (GLACIAL OUTWASH)					
34.0		SILTY SAND (SM), fine to coarse-grained, with Gravel, with Sand and Clay seams and layers, brown, moist to wet, medium dense to very dense (GLACIAL TILL)	35	6-7-9 (16) 18"			
			40	10-9-14 (23) 16"			
			45	12-13-12 (25) 0"			No recovery
			50	13-9-13 (22) 18"		11	
			55	9-11-12 (23) 17"			
			60	9-13-20 (33) 0"			No recovery

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-105		
					LOCATION: See attached sketch		
					NORTHING: 125354	EASTING: 510196	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20		END DATE: 05/20/20	
SURFACE ELEVATION: 820.9 ft		RIG: 7519	METHOD: 3 1/4" HSA		SURFACING: Bituminous		WEATHER: Sunny/cloudy
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to coarse-grained, with Gravel, with Sand and Clay seams and layers, brown, moist to wet, medium dense to very dense (GLACIAL TILL)	65	8-10-11 (21) 10"			
			70	10-49-13 (62) 11"			
			75	10-9-12 (21) 11"			
			80	8-11-11 (22) 12"			
			85	12-12-14 (26) 16"			
			90	18-20-21 (41) 18"			
			95	14-19-24 (43) 17"			

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LOG OF BORING

See Descriptive Terminology sheet for explanation of abbreviations

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-106		
					LOCATION: See attached sketch		
					NORTHING: 125394	EASTING: 510634	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 823.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
822.7		PAVEMENT, 5 inches of bituminous over 7 inches of apparent aggregate base				4	
1.0		FILL: SILTY SAND (SM), fine to coarse-grained, trace Gravel, brown, moist		3-2-2 (4)		9	
821.7		FILL: POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, moist					
2.0							
819.7		ORGANIC SOIL (OL/OH), trace fibers, black, moist (SWAMP DEPOSIT)	5	2-2-2 (4)		33	
4.0							
				1-1-5 (6) 0"			No recovery
814.7		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, contains lenses of Silt, brown, wet, medium dense to loose (GLACIAL OUTWASH)	10	17-10-10 (20) 10"			
9.0				9-10-12 (22) 9"			
			15	21-9-6 (15) 14"			
			20	4-4-3 (7) 14"			
799.7		SILTY SAND (SM), fine to coarse-grained, trace Gravel, contains seams of Sand, and Clay, brown and gray, moist, medium dense to loose (GLACIAL TILL)	25	14-5-9 (14) 13"			
24.0				4-4-5 (9) 18"		12	Switched to mud rotary drilling at 30 feet
			30				

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-106		
					LOCATION: See attached sketch		
					NORTHING: 125394	EASTING: 510634	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 823.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
784.7		SILTY SAND (SM), fine to coarse-grained, trace Gravel, contains seams of Sand, and Clay, brown and gray, moist, medium dense to loose (GLACIAL TILL) <i>Layer of LEAN CLAY at 35 feet</i>	35	3-4-6 (10) 11"			
39.0		POORLY GRADED SAND (SP), fine to coarse- grained, with Gravel, brown, wet, medium dense (GLACIAL OUTWASH)	40	6-6-7 (13) 12"			
			45	6-8-8 (16)			
			50	11-12-16 (28) 0"			No recovery
			55	11-13-15 (28) 0"			No recovery
764.7		SILTY SAND (SM), fine to medium-grained, trace Gravel, contains seams of Clay, brown, moist, medium dense (GLACIAL TILL)	60	10-8-11 (19)			

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-106		
					LOCATION: See attached sketch		
					NORTHING: 125394	EASTING: 510634	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 823.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
754.7		SILTY SAND (SM), fine to medium-grained, trace Gravel, contains seams of Clay, brown, moist, medium dense (GLACIAL TILL)	65	6-6-7 (13)		11	
69.0		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, grayish brown, wet, medium dense (GLACIAL OUTWASH)	70	6-7-8 (15) 11"			
			75	7-7-8 (15) 14"			
744.7		SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, moist, medium dense to very dense (GLACIAL TILL)	80	10-8-11 (19) 14"			
79.0			85	11-12-16 (28) 0"			No recovery
			90	9-9-14 (23)			
			95	18-10-21 (31) 13"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-106		
					LOCATION: See attached sketch		
					NORTHING: 125394	EASTING: 510634	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/20/20	END DATE: 05/20/20		
SURFACE ELEVATION: 823.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
722.7		SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, moist, medium dense to very dense (GLACIAL TILL)					
101.0		With GRAVEL layer at 100 feet	100	18-30-36 (66) 9"			Water observed at 8.5 feet while drilling.
		END OF BORING					Water observed at 8.5 feet at end of drilling.
		Boring then grouted					
			105				
			110				
			115				
			120				
			125				

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-107		
					LOCATION: See attached sketch		
					NORTHING: 125221	EASTING: 510637	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20		
SURFACE ELEVATION: 820.8 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		

Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
819.8		PAVEMENT, 4 1/2 inches of bituminous over 7 inches of apparent aggregate base					
1.0							
818.8		FILL: SILTY SAND (SM), fine to medium-grained, trace Gravel, dark brown, moist		2-2-2 (4) 18"		16	
2.0		FILL: CLAYEY SAND (SC), trace Gravel, dark brown, moist					
			5	2-2-4 (6) 14"		12	
813.8							
7.0		PEAT (PT), fibrous, dark brown to black, moist (SWAMP DEPOSIT)		2-1-2 (3) 18"			
			10	2-2-2 (4) 3"			Poor recovery
808.8							
12.0		ORGANIC SOIL (OL/OH), with shells, trace fibers, dark gray to gray, moist (SWAMP DEPOSIT)		0-0-0 WOH/18" 18"			
			15	0-0-0 WOH/18" 18"		152	Switched to mud rotary drilling at 15 feet
			20	0-0-0 WOH/18" 18"			
796.8							
24.0		POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, gray, wet, medium dense (ALLUVIUM)		9-7-7 (14) 18"			
			25				
			30	7-6-5 (11)			
		With Silt Seams at 30 feet					

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-107		
					LOCATION: See attached sketch		
					NORTHING: 125221	EASTING: 510637	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20		END DATE: 05/15/20	
SURFACE ELEVATION: 820.8 ft		RIG: 7519	METHOD: 3 1/4" HSA		SURFACING: Bituminous		WEATHER: Sunny/cloudy
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
786.8		POORLY GRADED SAND (SP), fine to medium-grained, with Gravel, gray, wet, medium dense (ALLUVIUM)					
34.0		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, gray, wet, loose (GLACIAL OUTWASH)	35	5-3-3 (6) 12"			
			40	4-3-3 (6) 10"			
776.8		SILTY SAND (SM), fine to coarse-grained, with Gravel, contains seams of Sand, and Clay, gray and brown, moist, medium dense (GLACIAL TILL)	45	5-7-8 (15) 16"			
44.0			50	9-10-10 (20) 17"			
			55	8-8-11 (19) 18"			
761.8		SILTY SAND (SM), fine to medium-grained, trace Gravel, with CLAY layers, brown, moist, dense to medium dense (GLACIAL TILL)	60	14-17-15 (32) 11"			
59.0							

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-107		
					LOCATION: See attached sketch		
					NORTHING: 125221	EASTING: 510637	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20		
SURFACE ELEVATION: 820.8 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to medium-grained, trace Gravel, with CLAY layers, brown, moist, dense to medium dense (GLACIAL TILL)	65	9-10-12 (22) 14"			
			70	10-15-17 (32) 16"			
			75	8-11-13 (24) 18"			
			80	9-14-15 (29) 18"			
			85	10-13-17 (30) 18"			
			90	13-14-16 (30) 17"			
			95	10-10-14 (24) 18"			

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See Descriptive Terminology sheet for explanation of abbreviations

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-108	
					LOCATION: See attached sketch	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		NORTHING: 125306	EASTING: 510807	
SURFACE ELEVATION: 819.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	START DATE: 05/15/20	END DATE: 05/15/20	
SURFACING: Bituminous				WEATHER: Sunny/cloudy		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
818.6		PAVEMENT, 5 inches of bituminous over 8 inches of apparent aggregate base					
1.1		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, dark brown, moist		4-2-4 (6) 8"		7	P200=11%
815.7		FILL: LEAN CLAY (CL), trace Gravel, brown and dark brown, moist		2-2-1 (3) 15"			
4.0		PEAT (PT), fibrous, dark brown and black, moist (SWAMP DEPOSIT)		0-0-1 (1) 14"			
814.7				0-1-1 (2) 16"			
5.0				0-0-0 WOH/18" 17"		150	
805.7		ORGANIC SOIL (OL/OH), with shells, gray, moist to wet (SWAMP DEPOSIT)		0-0-0 WOH/18" 18"			Switched to mud rotary drilling at 15 feet
14.0				0-0-0 WOH/18" 16"			
795.7		LEAN CLAY (CL), fine-grained, contains lenses of Silt, gray, wet, soft (ALLUVIUM)		0-0-4 (4) 17"		24	
24.0		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, gray, wet, medium dense to loose (ALLUVIUM)		3-5-7 (12) 18"			
791.7							
28.0							

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-108		
					LOCATION: See attached sketch		
					NORTHING: 125306	EASTING: 510807	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20		END DATE: 05/15/20	
SURFACE ELEVATION: 819.7 ft		RIG: 7519	METHOD: 3 1/4" HSA		SURFACING: Bituminous		WEATHER: Sunny/cloudy

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		POORLY GRADED SAND (SP), fine to medium-grained, trace Gravel, gray, wet, medium dense to loose (ALLUVIUM)					
			35	5-4-3 (7) 0"			No recovery
			40	8-6-5 (11) 0"			No recovery
776.7 43.0		CLAYEY SAND (SC), fine to medium-grained, trace Gravel, contains seams of Sand, gray, moist, stiff (GLACIAL TILL)					
			45	7-4-5 (9) 14"			
771.7 48.0		LEAN CLAY (CL), trace Gravel, contains lenses of Silt, gray, moist, very stiff (GLACIAL TILL)					
			50	7-7-11 (18) 0"			No recovery
			55	10-10-13 (23) 12"			
761.7 58.0		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, contains seams of Silt, brown, wet, medium dense (GLACIAL OUTWASH)					
			60	10-8-12 (20) 13"			
756.7 63.0		CLAYEY SAND (SC), with Sand seams and					

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-108		
					LOCATION: See attached sketch		
					NORTHING: 125306	EASTING: 510807	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20		
SURFACE ELEVATION: 819.7 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
746.7 73.0		CLAYEY SAND (SC), with Sand seams and lenses, brown and gray, moist, very stiff (GLACIAL TILL)	65	9-9-11 (20)			
			70	11-9-13 (22)			
			75	15-17-13 (30) 8"			
			80	7-9-9 (18)			
			85	8-5-6 (11)			
			90	6-6-10 (16) 0"			No recovery
			95	9-10-18 (28) 0"			No recovery

Continued on next page

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036						BORING:		ST-108			
Geotechnical Evaluation						LOCATION: See attached sketch					
Seagate Technology - Normandale Campus Expansion						NORTHING:		125306	EASTING:	510807	
7801 Computer Avenue						START DATE:		05/15/20	END DATE:		05/15/20
Bloomington, Minnesota						SURFACING:		Bituminous	WEATHER:		Sunny/cloudy
DRILLER:		J. Chermak		LOGGED BY:		A. Schulzetenberg					
SURFACE ELEVATION:		819.7 ft		RIG:		7519		METHOD:		3 1/4" HSA	
Elev./ Depth ft		Water Level		Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)		Sample		Blows (N-Value) Recovery		q _p tsf	
										MC %	
										Tests or Remarks	
718.7				SILTY SAND (SM), fine to medium-grained, trace Gravel, brown, moist, medium dense (GLACIAL TILL)		100		8-8-10 (18) 18"			
101.0				END OF BORING						Water observed at 28.0 feet while drilling.	
				Boring then grouted						Water observed at 20.0 feet at end of drilling.	
						105					
						110					
						115					
						120					
						125					

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-109		
					LOCATION: See attached sketch		
					NORTHING: 125393	EASTING: 510980	
DRILLER: J. Chermak	LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20			
SURFACE ELEVATION: 821.6 ft	RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy			
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
820.6		PAVEMENT, 4 1/2 inches of bituminous over 8 inches of apparent aggregate base				3	
1.0		FILL: SILTY SAND (SM), fine to medium-grained, trace Gravel, light brown, moist		4-2-1 (3) 14"			
818.6		PEAT (PT), trace shells, fibrous, black, moist (SWAMP DEPOSIT)		2-2-2 (4) 15"		302	
3.0			5	2-1-1 (2) 17"			
			10	1-1-2 (3) 17"			
			15	2-1-1 (2) 18"			
				1-1-2 (3) 16"			
802.6		ORGANIC SILT (OL), contains lenses of Sand, gray, wet (SWAMP DEPOSIT)	20	1-1-5 (6) 17"		18	LL=22, PL=16, PI=6
797.6		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, medium dense to loose (GLACIAL OUTWASH)	25	11-12-13 (25)			
24.0			30	6-5-4 (9)			

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-109	
					LOCATION: See attached sketch	
					NORTHING: 125393	EASTING: 510980
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20	
SURFACE ELEVATION: 821.6 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy	

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
783.6		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, medium dense to loose (GLACIAL OUTWASH)	35	6-6-8 (14) 16"			
38.0		POORLY GRADED SAND with SILT (SP-SM), fine to medium-grained, trace Gravel, gray, wet, medium dense (GLACIAL OUTWASH)	40	8-12-12 (24) 17"		19	P200=8%
778.6		LEAN CLAY (CL), trace Gravel, gray, moist (GLACIAL TILL)	45	9-10-11 (21) 18"			
43.0		SILTY SAND (SM), trace Gravel, contains seams of Clay, and Sand, brown, moist, medium dense (GLACIAL TILL)	50	12-9-7 (16) 16"			
773.6			55	8-7-5 (12) 17"			
48.0			60	7-7-9 (16) 18"			

Continued on next page

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-109		
					LOCATION: See attached sketch		
					NORTHING: 125393	EASTING: 510980	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20	END DATE: 05/15/20		
SURFACE ELEVATION: 821.6 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), trace Gravel, contains seams of Clay, and Sand, brown, moist, medium dense (GLACIAL TILL)	65	7-7-9 (16) 0"			No recovery
			70	10-13-17 (30) 0"			No recovery
			75	9-14-16 (30) 9"			
			80	7-7-7 (14) 18"			
738.6		CLAYEY SAND (SC), trace Gravel, with SAND and CLAY layers, brown, moist to wet (GLACIAL TILL)	85	9-17-13 (30) 17"			
83.0			90	8-12-12 (24) 18"			
			95	16-23-23 (46) 16"			

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-109		
					LOCATION: See attached sketch		
					NORTHING: 125393	EASTING: 510980	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/15/20		END DATE: 05/15/20	
SURFACE ELEVATION: 821.6 ft		RIG: 7519		METHOD: 3 1/4" HSA		SURFACING: Bituminous WEATHER: Sunny/cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
720.6		CLAYEY SAND (SC), trace Gravel, with SAND and CLAY layers, brown, moist to wet (GLACIAL TILL)		18-25-27 (52) 17"			Water observed at 19.0 feet at end of drilling.
101.0		END OF BORING Boring then grouted					

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-110		
					LOCATION: See attached sketch		
					NORTHING: 125229	EASTING: 510981	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/13/20	END DATE: 05/13/20		
SURFACE ELEVATION: 818.3 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous		WEATHER: Sunny/cloudy	
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
817.4		PAVEMENT, 3 inches of bituminous over 8 inches of apparent aggregate base				6	
0.9		FILL: SILTY SAND (SM), fine to medium-grained, dark brown, wet		2-2-1 (3) 10"		15	
814.3		PEAT (PT), fibrous, dark brown, wet (SWAMP DEPOSIT)	5	1-1-2 (3) 14"		507	
4.0				1-1-1 (2) 12"			
			10	1-1-1 (2) 8"			
806.3		ORGANIC SOIL (OL/OH), with shells, dark gray, wet (SWAMP DEPOSIT)		0-0-0 WOH/18" 17"		189	
12.0			15	0-0-0 WOH/18" 15"			
			20	0-0-0 WOH/18" 18"			
794.3		ORGANIC SOIL (OL/OH), no inclusions, dark brown and black, wet (SWAMP DEPOSIT)	25	0-0-0 WOH/18" 18"		190	
24.0							
788.8		SILTY SAND (SM), fine to coarse-grained, with Gravel, gray, wet, loose to medium dense (ALLUVIUM)	30	0-0-10 (10) 16"			
29.5							

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-110		
					LOCATION: See attached sketch		
					NORTHING: 125229	EASTING: 510981	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/13/20	END DATE: 05/13/20		
SURFACE ELEVATION: 818.3 ft		RIG: 7519	METHOD: 3 1/4" HSA	SURFACING: Bituminous	WEATHER: Sunny/cloudy		

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q_p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), fine to coarse-grained, with Gravel, gray, wet, loose to medium dense (ALLUVIUM)					
			35	6-7-10 (17) 11"			
			40	9-5-5 (10) 18"			
776.3 42.0		SANDY LEAN CLAY (CL), trace Gravel, brown and gray, moist, stiff (GLACIAL TILL)					
			45	5-5-7 (12) 18"			
769.3 49.0		SILTY SAND (SM), with waterbearing Sand seams, brown, moist to wet, medium dense to dense (GLACIAL TILL)					
			50	5-9-11 (20) 15"			
			55	7-12-13 (25) 10"			
			60	11-11-13 (24) 10"		13	

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Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-110		
					LOCATION: See attached sketch		
					NORTHING: 125229	EASTING: 510981	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/13/20		END DATE: 05/13/20	
SURFACE ELEVATION: 818.3 ft		RIG: 7519		METHOD: 3 1/4" HSA		SURFACING: Bituminous WEATHER: Sunny/cloudy	
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
		SILTY SAND (SM), with waterbearing Sand seams, brown, moist to wet, medium dense to dense (GLACIAL TILL)	65	50/0" (REF) 0"			Driller noted apparent Boulder at 65 feet - blows influenced by Boulder
			70	9-10-15 (25) 16"			
			75	8-9-11 (20) 14"			
			80	7-10-12 (22) 17"			
			85	9-9-11 (20) 4"			
			90	11-11-13 (24) 10"			Driller noted apparent Cobbles at 85 feet
724.3							
94.0		CLAYEY SAND (SC), trace Gravel, contains seams of Sand, dark brown, moist, very stiff (GLACIAL TILL)	95	10-10-19 (29) 15"			

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See Descriptive Terminology sheet for explanation of abbreviations

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See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2004036 Geotechnical Evaluation Seagate Technology - Normandale Campus Expansion 7801 Computer Avenue Bloomington, Minnesota					BORING: ST-111		
					LOCATION: See attached sketch		
					NORTHING: 125340	EASTING: 510436	
DRILLER: J. Chermak		LOGGED BY: A. Schulzetenberg		START DATE: 05/18/20		END DATE: 05/18/20	
SURFACE ELEVATION: 824.0 ft		RIG: 7519		METHOD: 3 1/4" HSA		SURFACING: Bituminous WEATHER: Sunny/cloudy	
Elev./Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock-USACE EM 1110-1-2908)	Sample	Blows (N-Value) Recovery	q _p tsf	MC %	Tests or Remarks
823.2		PAVEMENT, 4 inches of bituminous over 6 inches of apparent aggregate base					
0.8							
822.0		FILL: SILTY SAND (SM), fine to coarse-grained, with Gravel, dark brown, moist		6-6-8 (14) 7"			
2.0		FILL: POORLY GRADED SAND with SILT (SP-SM), fine to coarse-grained, with Gravel, light brown, moist		7-6-7 (13) 9"		4	P200=8%
817.0			5				
7.0		POORLY GRADED SAND (SP), fine to coarse-grained, with Gravel, brown, wet, loose (GLACIAL OUTWASH)		4-4-4 (8) 7"		10	P200=5%
			10	8-5-5 (10) 13"			
812.0							
12.0		SILTY SAND (SM), fine to medium-grained, trace Gravel, contains seams of Clay, with waterbearing Sand seams, brown, moist to wet, very loose to loose (GLACIAL TILL)		5-3-3 (6) 18"		10	P200=25%
			15	3-3-3 (6) 12"			
			20	2-1-2 (3) 10"			
			25	3-3-4 (7) 0"			No recovery
798.0							Water observed at 8.5 feet while drilling.
26.0		END OF BORING					
		Boring then grouted					Water observed at 7.3 feet when rechecked 72 hours after drilling.
			30				