



Stantec Consulting Services Inc.
10200 Alliance Road Suite 300, Cincinnati OH 45242

January 29, 2024
File: 175578516

Attention: Alec Sadowski, PE
Ohio Department of Transportation, District 8
505 South SR 741
Lebanon, Ohio 45036

Reference: Geotechnical Exploration Logs
GRE-68-12.65, PID 115388
Greene County, Ohio

Dear Mr. Sadowski,

Stantec Consulting Services Inc. (Stantec) has completed the geotechnical exploration and boring logs for the proposed pedestrian bridge connecting the Little Miami Scenic Trail and the new Shawnee Interpretive Education Center located at GRE-68-12.65 in Greene County, Ohio. The bridge will cross US 68 and Oldtown Creek. Enclosed are the completed boring logs and laboratory results completed by UES (formerly Geotechnology) to assist in design of the proposed bridge.

Regards,

Stantec Consulting Services Inc.

James Samples EI
Project Engineer in Training

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Eric Kistner PE
Geotechnical Project Manager

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Attachment: GRE-68-12.65 Boring Logs, UES Lab Report

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 1/29/24 08:49 - \\US0268-PPFSS01\SHARED_PROJECTS\175578516\TECHNICAL_PRODUCTION\FIELD_DATA\LOGS\GRE-68-12.65

PID: 115388		SFN: N/A		PROJECT: GRE-68-12.65		STATION / OFFSET: TBD		START: 1/2/24		END: 1/3/23		PG 2 OF 2		B-001-0-23									
MATERIAL DESCRIPTION AND NOTES			ELEV. 811.5	DEPTHS		SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED		
											GR	CS	FS	SI	CL	LL	PL	PI					
MEDIUM DENSE TO DENSE, BROWN TO LIGHT GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND, LITTLE SILT, TRACE CLAY, MOIST TO WET (continued)			808.0	27																			
MEDIUM DENSE TO DENSE, BROWNISH GRAY, GRAVEL AND STONE FRAGMENTS, SOME SAND, TRACE SILT, TRACE CLAY, WET				30	8																		
				15	42	83	SS-11	-	53	27	8	8	4	18	17	1	12						
				13																			
				32																			
				33																			
				34																			
				35																			
				9																			
				11	30	78	SS-12	-	53	27	8	8	4	18	17	1	15						
				36																			
				37																			
				38																			
				39																			
				40																			
				7																			
				15	36	72	SS-13	-	-	-	-	-	-	-	-	-	11						
				41																			
				42																			
				43																			
				44																			
				45																			
				7																			
				50/5"	-	100	SS-14	-	-	-	-	-	-	-	-	-	12						
COBBLES ENCOUNTERED FROM 46.0 to 47.0 FEET				46																			
				47																			
				48																			
				49																			
			788.0	50																			
HARD, GRAY, SANDY SILT, TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP			786.5	13																			
				21	74	100	SS-15	4.50	-	-	-	-	-	-	-	-	11						
				28																			
				51																			

EOB

NOTES: GPS COORDINATES DETERMINED BY CELL PHONE. ELEVATION ESTIMATED USING GPS COORDINATES AND GOOGLE EARTH TOPOGRAPHIC DATA.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE; AUGER CUTTINGS MIXED WITH BENTONITE POWDER

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH.DOT.GDT - 1/29/24 08:49 - \\US0268-PPFSS01\SHARED_PROJECTS\175578516\TECHNICAL_PRODUCTION\FIELD_DATA\LOGS\GRE-68-12.65

PROJECT: <u>GRE-68-12.65</u>	DRILLING FIRM / OPERATOR: <u>UES / TG</u>	DRILL RIG: <u>UES CME 55</u>	STATION / OFFSET: <u>TBD</u>	EXPLORATION ID <u>B-002-0-23</u>
TYPE: <u>STRUCTURE FOUNDATION</u>	SAMPLING FIRM / LOGGER: <u>STANTEC / JS</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>US 68</u>	PAGE 1 OF 2
PID: <u>115388</u> SFN: <u>N/A</u>	DRILLING METHOD: <u>3.25" HSA</u>	CALIBRATION DATE: <u>7/17/23</u>	ELEVATION: <u>835.0 (MSL)</u> EOB: <u>51.5 ft.</u>	
START: <u>1/3/23</u> END: <u>1/3/23</u>	SAMPLING METHOD: <u>SPT / ST</u>	ENERGY RATIO (%): <u>90*</u>	LAT / LONG: <u>39.729607, -83.936608</u>	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				ODOT CLASS (GI)	HOLE SEALED		
								GR	CS	FS	SI	CL	LL	PL	PI	WC				
GRAY, GRAVEL , 2 INCHES STIFF, LIGHT BROWN TO BROWN, SILT AND CLAY , TRACE GRAVEL, SOME SAND, DAMP TO MOIST	835.0																			
	834.8	1	3	3	9	72	SS-1	1.25	1	8	24	41	26	35	20	15	25	A-6a (8)		
		2																		
MEDIUM DENSE TO DENSE, LIGHT BROWN TO GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND AND SILT , TRACE TO LITTLE CLAY, MOIST VERY DENSE AT SS-3	831.0	3	3	4	15	56	SS-2	2.75	1	8	24	41	26	35	20	15	20	A-6a (8)		
		4				100	ST-1	-	42	20	10	18	10	23	22	1	13	A-2-4 (0)		
		5																		
		6	12	20	18	57	33	SS-3	-	-	-	-	-	-	-	-	-	3	A-2-4 (V)	
		7																		
		8	9	7	8	23	67	SS-4	-	-	-	-	-	-	-	-	-	7	A-2-4 (V)	
		9																		
		10																		
		11	6	13	14	41	78	SS-5	-	-	-	-	-	-	-	-	-	4	A-2-4 (V)	
		12																		
		13	6	6	10	24	78	SS-6	-	-	-	-	-	-	-	-	-	5	A-2-4 (V)	
	14																			
	15																			
	16	11	10	12	33	72	SS-7	-	-	-	-	-	-	-	-	-	8	A-2-4 (V)		
	17																			
MEDIUM DENSE TO DENSE, GRAY, GRAVEL AND STONE FRAGMENTS , SOME SAND, TRACE SILT, TRACE CLAY, MOIST TO WET VERY DENSE AT SS-8	818.0	18	15	28	28	84	94	SS-8	-	-	-	-	-	-	-	-	5	A-1-a (V)		
		19																		
		20																		
		21	18	16	15	47	78	SS-9	-	61	22	6	8	3	18	18	NP	12	A-1-a (0)	
		22																		
		23	9	11	16	41	100	SS-10	-	61	22	6	8	3	18	18	NP	16	A-1-a (0)	
		24																		
		25																		
		26	4	5	11	24	100	SS-11	-	-	-	-	-	-	-	-	-	13	A-1-a (V)	

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT. GDT - 1/29/24 08:49 - \\US0268-PFSS01\SHARED_PROJECTS\175578516\TECHNICAL_PRODUCTION\FIELD_DATA\LOGS\GRE-68-12.65

PID: 115388		SFN: N/A		PROJECT: GRE-68-12.65		STATION / OFFSET: TBD		START: 1/3/23		END: 1/3/23		PG 2 OF 2		B-002-0-23							
MATERIAL DESCRIPTION AND NOTES			ELEV. 808.5	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED	
										GR	CS	FS	SI	CL	LL	PL	PI				
MEDIUM DENSE TO DENSE, GRAY, GRAVEL AND STONE FRAGMENTS , SOME SAND, TRACE SILT, TRACE CLAY, MOIST TO WET (continued)			805.0	27																	
				28																	
				29																	
HARD, GRAY, SANDY SILT , LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP			805.0	30																	
				31	19 27 39	99	100	SS-12	4.50	11	21	22	20	26	21	13	8	9	A-4a (2)		
				32																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	33																	
				34																	
				35																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	36	15 30 36	99	100	SS-13	4.50	11	21	22	20	26	21	13	8	9	A-4a (2)		
				37																	
				38																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	39																	
				40	8 18 20	57	100	SS-14	-	0	1	32	60	7	20	20	NP	25	A-4b (6)		
				41																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	42																	
				43																	
				44																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	45																	
				46	10 19 30	74	100	SS-15	-	0	1	32	60	7	20	20	NP	17	A-4b (6)		
				47																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	48																	
				49																	
				50																	
HARD, GRAY, SILT , SOME SAND, TRACE CLAY, GLACIAL TILL, MOIST TO WET			795.0	51	9 26 28	81	100	SS-16	4.50	-	-	-	-	-	-	-	-	13	A-4b (V)		
				EOB																	

NOTES: GPS COORDINATES DETERMINED BY CELL PHONE. ELEVATION ESTIMATED USING GPS COORDINATES AND GOOGLE EARTH TOPOGRAPHIC DATA.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE; AUGER CUTTINGS MIXED WITH BENTONITE POWDER

PROJECT: <u>GRE-68-12.65</u>	DRILLING FIRM / OPERATOR: <u>UES / TG</u>	DRILL RIG: <u>UES CME 55</u>	STATION / OFFSET: <u>TBD</u>	EXPLORATION ID: <u>B-003-0-23</u>
TYPE: <u>STRUCTURE FOUNDATION</u>	SAMPLING FIRM / LOGGER: <u>STANTEC / JS</u>	HAMMER: <u>CME AUTOMATIC</u>	ALIGNMENT: <u>US 68</u>	
PID: <u>115388</u> SFN: <u>N/A</u>	DRILLING METHOD: <u>3.25" HSA</u>	CALIBRATION DATE: <u>7/17/23</u>	ELEVATION: <u>828.0 (MSL)</u> EOB: <u>51.5 ft.</u>	PAGE: <u>1 OF 2</u>
START: <u>1/3/23</u> END: <u>1/3/23</u>	SAMPLING METHOD: <u>SPT</u>	ENERGY RATIO (%): <u>90*</u>	LAT / LONG: <u>39.729652, -83.935831</u>	

MATERIAL DESCRIPTION AND NOTES	ELEV.	DEPTH	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG				WC	ODOT CLASS (GI)	HOLE SEALED	
								GR	CS	FS	SI	CL	LL	PL	PI					
DARK BROWN, TOPSOIL , 3 INCHES STIFF, DARK BROWN TO BROWN, SILTY CLAY , LITTLE GRAVEL, TRACE SAND, DAMP	828.0																			
	827.7	1	3	9	56	SS-1	1.00	-	-	-	-	-	-	-	-	-	21	A-6b (V)		
		2																		
		3	4	3	12	50	SS-2	4.50	-	-	-	-	-	-	-	-	-	23	A-6b (V)	
MEDIUM DENSE, BROWN TO GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND , LITTLE SILT, TRACE CLAY, MOIST	823.0	4	5																	
		5	5	4	14	56	SS-3	-	-	-	-	-	-	-	-	-	14	A-1-b (V)		
		6																		
		7																		
DENSE TO VERY DENSE, BROWN TO GRAY, GRAVEL AND STONE FRAGMENTS WITH SAND , LITTLE SILT, TRACE CLAY, MOIST TO WET	819.0	8	6	6	17	61	SS-4	-	52	17	9	18	4	21	21	NP	12	A-1-b (0)		
		9	6	5																
		10	6	10	53	67	SS-5	-	52	17	9	18	4	21	21	NP	8	A-1-b (0)		
		11	16	14	38	61	SS-6	-	47	17	13	16	7	18	17	1	8	A-1-b (0)		
		12	9	11																
		13	23	39	93	56	SS-7	-	47	17	13	16	7	18	17	1	10	A-1-b (0)		
		14																		
		15	13	28	93	56	SS-8	-	-	-	-	-	-	-	-	-	-	13	A-1-b (V)	
		16	34																	
		17																		
HARD, GRAY, SANDY SILT , TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP	808.0	18	11	14	42	56	SS-9	-	-	-	-	-	-	-	-	-	7	A-1-b (V)		
		19																		
		20	16	16	56	61	SS-10	4.50	10	11	21	32	26	22	15	7	12	A-4a (5)		
		21	21																	
		22																		
		23	12	16	54	78	SS-11	4.50	10	11	21	32	26	22	15	7	11	A-4a (5)		
		24	20																	
		25																		
		26	8	25	90	100	SS-12	4.50	-	-	-	-	-	-	-	-	-	13	A-4a (V)	

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT. GDT - 1/29/24 08:49 - \\US0268-PPFSS01\SHARED_PROJECTS\175578516\TECHNICAL_PRODUCTION\FIELD_DATA\LOGS\GRE-68-12.65

PID: 115388		SFN: N/A		PROJECT: GRE-68-12.65		STATION / OFFSET: TBD		START: 1/3/23		END: 1/3/23		PG 2 OF 2		B-003-0-23														
MATERIAL DESCRIPTION AND NOTES				ELEV. 801.5	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED							
											GR	CS	FS	SI	CL	LL	PL	PI										
HARD, GRAY, SANDY SILT, TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP (continued)					27																							
					28																							
					29																							
					30																							
					31	10 18 21	59	100	SS-13	4.50	-	-	-	-	-	-	-	-	-	-	-	12	A-4a (V)					
					32																							
					33																							
					34																							
					35																							
					36	12 20 29	74	100	SS-14	4.50	-	-	-	-	-	-	-	-	-	-	-	11	A-4a (V)					
					37																							
					38																							
	39																											
	40																											
	41	19 44 37	122	94	SS-15	4.50	-	-	-	-	-	-	-	-	-	-	-	11	A-4a (V)									
	42																											
	43																											
	44																											
	45																											
	46	8 14 20	51	100	SS-16	4.50	5	11	23	33	28	23	22	1	12	A-4a (5)												
	47																											
	48																											
	49																											
	50																											
	51	9 16 18	51	100	SS-17	4.50	5	11	23	33	28	23	22	1	13	A-4a (5)												
			776.5		EOB																							

NOTES: GPS COORDINATES DETERMINED BY CELL PHONE. ELEVATION ESTIMATED USING GPS COORDINATES AND GOOGLE EARTH TOPOGRAPHIC DATA.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE; AUGER CUTTINGS MIXED WITH BENTONITE POWDER

STANDARD ODOT SOIL BORING LOG (8.5 X 11) - OH DOT GDT - 1/29/24 08:49 - \\US0268-PPFSS01\SHARED_PROJECTS\175578516\TECHNICAL_PRODUCTION\FIELD_DATA\LOGS\GRE-68-12.65

PID: 115388		SFN: N/A		PROJECT: GRE-68-12.65		STATION / OFFSET: TBD		START: 1/2/24		END: 1/2/24		PG 2 OF 2		B-004-0-23						
MATERIAL DESCRIPTION AND NOTES			ELEV. 804.5	DEPTHS	SPT/ RQD	N ₆₀	REC (%)	SAMPLE ID	HP (tsf)	GRADATION (%)					ATTERBERG			WC	ODOT CLASS (GI)	HOLE SEALED
										GR	CS	FS	SI	CL	LL	PL	PI			
DENSE TO VERY DENSE, GRAY, GRAVEL AND STONE FRAGMENTS , TRACE SILT, TRACE CLAY, WET <i>(continued)</i>			796.0	27																
				28																
				29																
				30																
				31	14 17 14	47	72	SS-14	-	69	14	7	8	2	18	17	1	15	A-1-a (0)	
HARD, GRAY, SANDY SILT , TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP VERY DENSE, GRAY, GRAVEL AND STONE FRAGMENTS , TRACE SILT, TRACE CLAY, GLACIAL TILL, WET			795.3	35																
				36	15 25 42	101	100	SS-15	4.50	-	-	-	-	-	-	-	14	A-4a (V)		
				37																
				38																
				39																
HARD, GRAY, SANDY SILT , TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP			781.0	40																
				41	18 29 50	119	100	SS-16	-	-	-	-	-	-	-	-	12	A-1-a (V)		
				42																
				43																
				44																
HARD, GRAY, SANDY SILT , TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP			779.5	45																
				46	15 21 22	65	100	SS-17	-	-	-	-	-	-	-	-	11	A-1-a (V)		
				47																
				48																
				49																
HARD, GRAY, SANDY SILT , TRACE TO LITTLE GRAVEL, SOME CLAY, GLACIAL TILL, DAMP			779.5	50																
				51	11 16 26	63	100	SS-18	2.25	-	-	-	-	-	-	-	18	A-4a (V)		
				EOB																

NOTES: GPS COORDINATES DETERMINED BY CELL PHONE. ELEVATION ESTIMATED USING GPS COORDINATES AND GOOGLE EARTH TOPOGRAPHIC DATA.
 ABANDONMENT METHODS, MATERIALS, QUANTITIES: BENTONITE; AUGER CUTTINGS MIXED WITH BENTONITE POWDER



TABULATION OF LABORATORY TESTS

Boring No.	Sample No.	Depth (ft.)		Moisture Content (%)	Dry Unit Weight (pcf)	Atterberg Limits (%)			Gradation Analysis (%)					AASHTO Classification	Unconfined Compressive Strength (psf)
		From	To			LL	PL	PI	Gravel	Coarse Sand	Fine Sand	Silt	Clay		
B-001	S-1	0.0	1.5	18.1											
B-001	ST-2	2.0	4.0	19.1	110.6	33	17	16	0.2	4.8	16.5	40.6	37.9	A-6b	4,280
B-001	S-3	5.0	6.5	14.6											
B-001	S-4	7.5	9.0	21.4											
B-001	S-5	10.0	11.5	6.2											
B-001	S-6	12.5	14.0	5.0		18	17	1	49.2	22.1	10.0	13.8	4.9	A-1-b	
B-001	S-7	15.0	16.5	4.3											
B-001	S-8	17.5	19.0	5.8											
B-001	S-9	20.0	21.5	7.7											
B-001	S-10	22.5	24.0	10.7											
B-001	S-11	25.0	26.5	9.1											
B-001	S-12	30.0	31.5	12.0		18	17	1	52.8	27.3	7.6	8.1	4.2	A-1-a	
B-001	S-13	35.0	36.5	14.6											
B-001	S-14	40.0	41.5	11.3											
B-001	S-15	45.0	46.5	11.5											
B-001	S-16	50.0	51.5	10.9											
B-002	S-1	0.0	1.5	25.2											
B-002	S-2	2.5	4.0	20.3		35	20	15	1.8	7.6	23.5	41.2	25.9	A-6a	
B-002	ST-3	4.0	4.4	12.8		23	22	1	42.4	19.8	9.9	17.7	10.2	A-2-4	
B-002	S-4	5.0	6.5	3.3											
B-002	S-5	7.5	9.0	6.7											
B-002	S-6	10.0	11.5	4.0											
B-002	S-7	12.5	14.0	4.6											
B-002	S-8	15.0	16.5	7.6											
B-002	S-9	17.5	19.0	5.2											
B-002	S-10	20.0	21.5	11.8		18	18	0	60.9	21.9	6.3	8.2	2.7	A-1-a	
B-002	S-11	22.5	24.0	16.0											
B-002	S-12	25.0	26.5	13.4											
B-002	S-13	30.0	31.5	8.7											
B-002	S-14	35.0	36.5	8.8		21	13	8	10.2	21.4	22.0	20.4	26.0	A-4a	
B-002	S-15	40.0	41.5	24.6											
B-002	S-16	45.0	46.5	17.0		20	20	0	0.9	1.1	31.5	59.8	6.7	A-4b	
B-002	S-17	50.0	51.5	12.6											
B-003	S-1	0.0	1.5	21.0											
B-003	S-2	2.5	4.0	23.2											



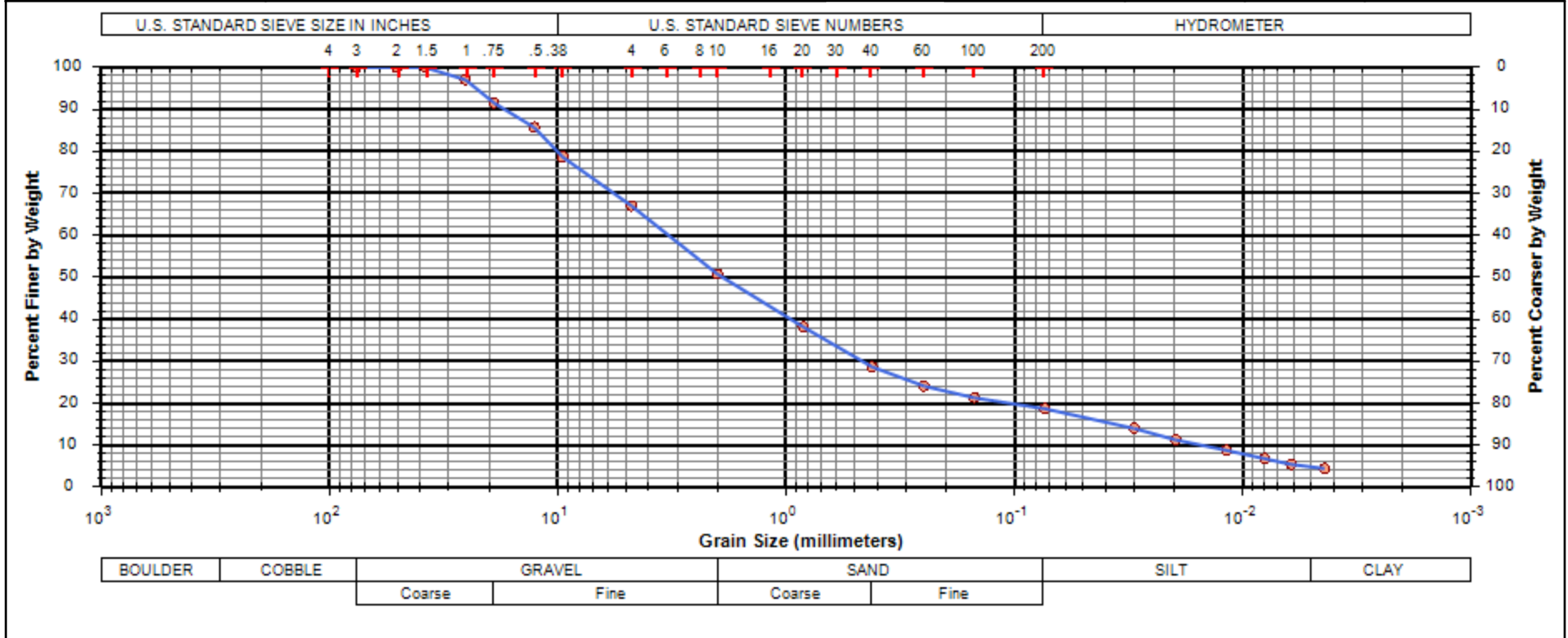
TABULATION OF LABORATORY TESTS

Boring No.	Sample No.	Depth (ft.)		Moisture Content (%)	Dry Unit Weight (pcf)	Atterberg Limits (%)			Gradation Analysis (%)					AASHTO Classification	Unconfined Compressive Strength (psf)
		From	To			LL	PL	PI	Gravel	Coarse Sand	Fine Sand	Silt	Clay		
B-003	S-3	5.0	6.5	13.7											
B-003	S-4	7.5	9.0	11.8		21	21	0	51.9	17.5	8.8	18.0	3.8	A-1-b	
B-003	S-5	9.0	10.5	7.7											
B-003	S-6	10.5	12.0	8.0		18	17	1	47.2	16.7	12.7	16.0	7.4	A-1-b	
B-003	S-7	12.0	13.5	9.5											
B-003	S-8	15.0	16.5	13.4											
B-003	S-9	17.5	19.0	7.1											
B-003	S-10	20.0	21.5	11.5		22	15	7	9.4	11.4	20.9	32.3	26.0	A-4a	
B-003	S-11	22.5	24.0	11.3											
B-003	S-12	25.0	26.5	13.4											
B-003	S-13	30.0	31.5	11.9											
B-003	S-14	35.0	36.5	10.6											
B-003	S-15	40.0	41.5	10.6											
B-003	S-16	45.0	46.5	12.1		23	22	1	5.5	10.9	22.8	32.7	28.1	A-4a	
B-003	S-17	50.0	51.5	12.7											
B-004	S-1	0.0	1.5	18.8											
B-004	S-2	2.5	4.0	26.6		52	28	24	1.9	3.9	11.9	39.2	43.1	A-7-6	
B-004	S-3	5.0	6.5	25.6											
B-004	S-4	7.5	9.0	17.1											
B-004	S-5	10.0	11.5	6.0		41	23	18	1.5	3.8	18.4	48.6	27.7	A-7-6	
B-004	S-6	11.5	13.0	8.3											
B-004	S-7	13.0	14.5	11.1		18	16	2	49.9	21.9	13.3	8.8	7.0	A-1-b	
B-004	S-8	14.5	16.0	12.3											
B-004	S-9	16.0	17.5	13.5		17	16	1	50.0	23.2	12.9	7.5	6.4	A-1-a	
B-004	S-10	17.5	19.0	12.0											
B-004	S-11	20.0	21.5	9.7											
B-004	S-12	22.5	24.0	9.9											
B-004	S-13	25.0	26.5	8.1		18	17	1	68.7	14.3	6.6	8.0	2.4	A-1-a	
B-004	S-14	30.0	31.5	15.3											
B-004	S-15	35.0	36.5	13.5											
B-004	S-16	40.0	41.5	11.7											
B-004	S-17	45.0	46.5	10.8											
B-004	S-18	50.0	51.5	17.6											



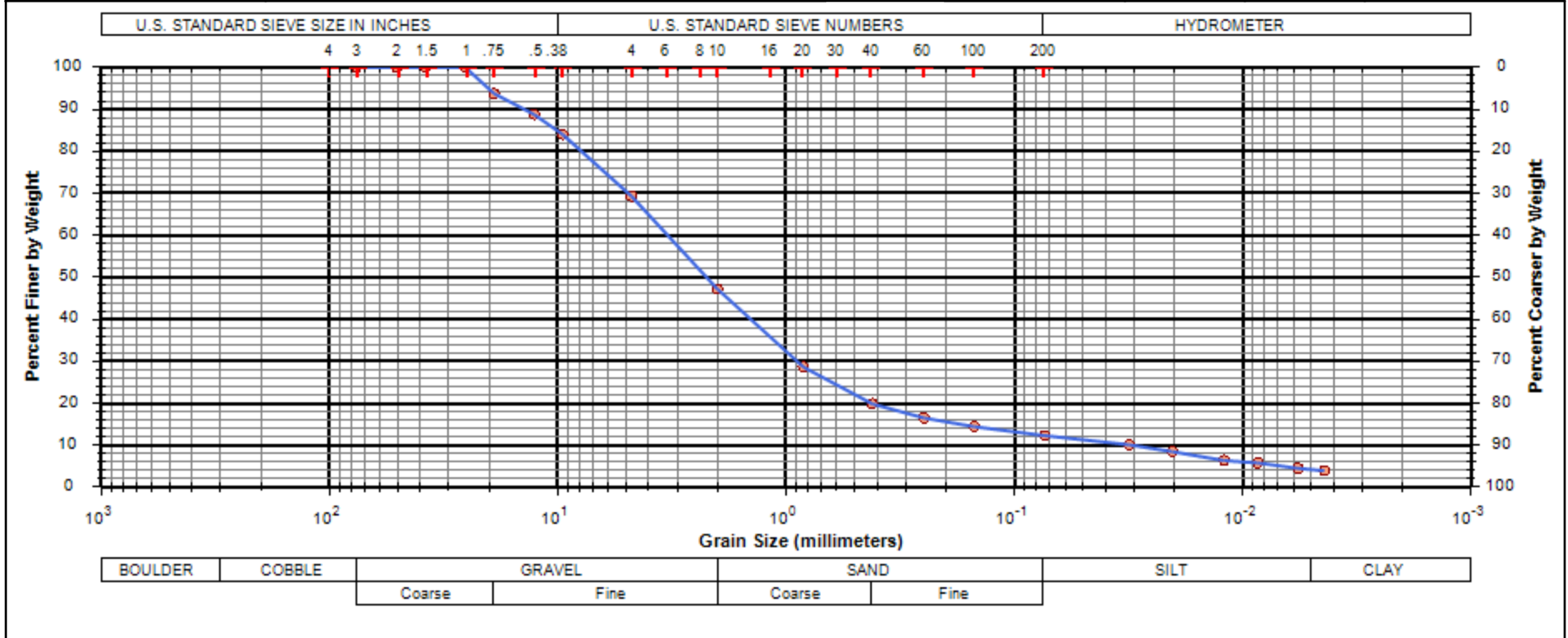
PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-001	Sample No.:	S-5 & 6	Depth (ft.):	10.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments with Sand					49.2	22.1	10.0	13.8	4.9	A-1-b
						LL	PL		PI	Group Index	WC (%)
						18	17		1	0	



PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

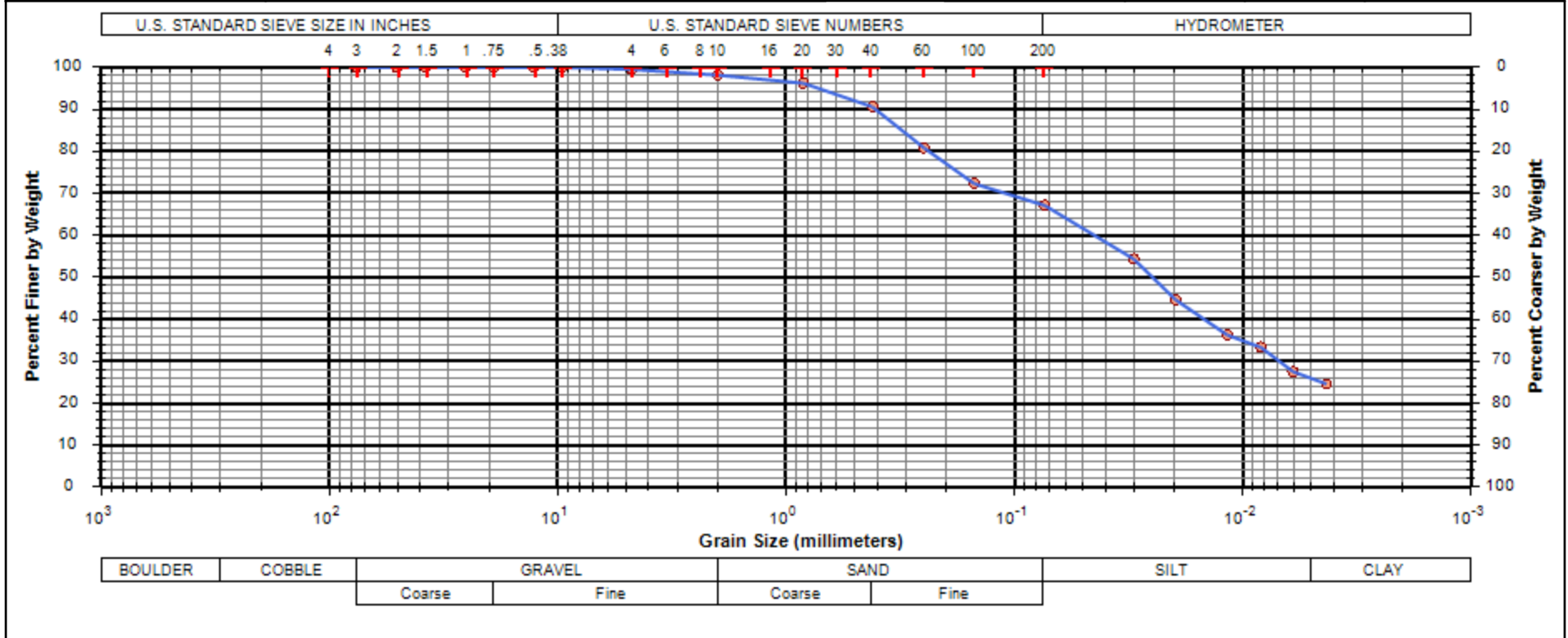
Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-001	Sample No.:	S-12 & 13	Depth (ft.):	30.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments					52.8	27.3	7.6	8.1	4.2	A-1-a
						LL	PL		PI	Group Index	WC (%)
						18	17		1	0	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

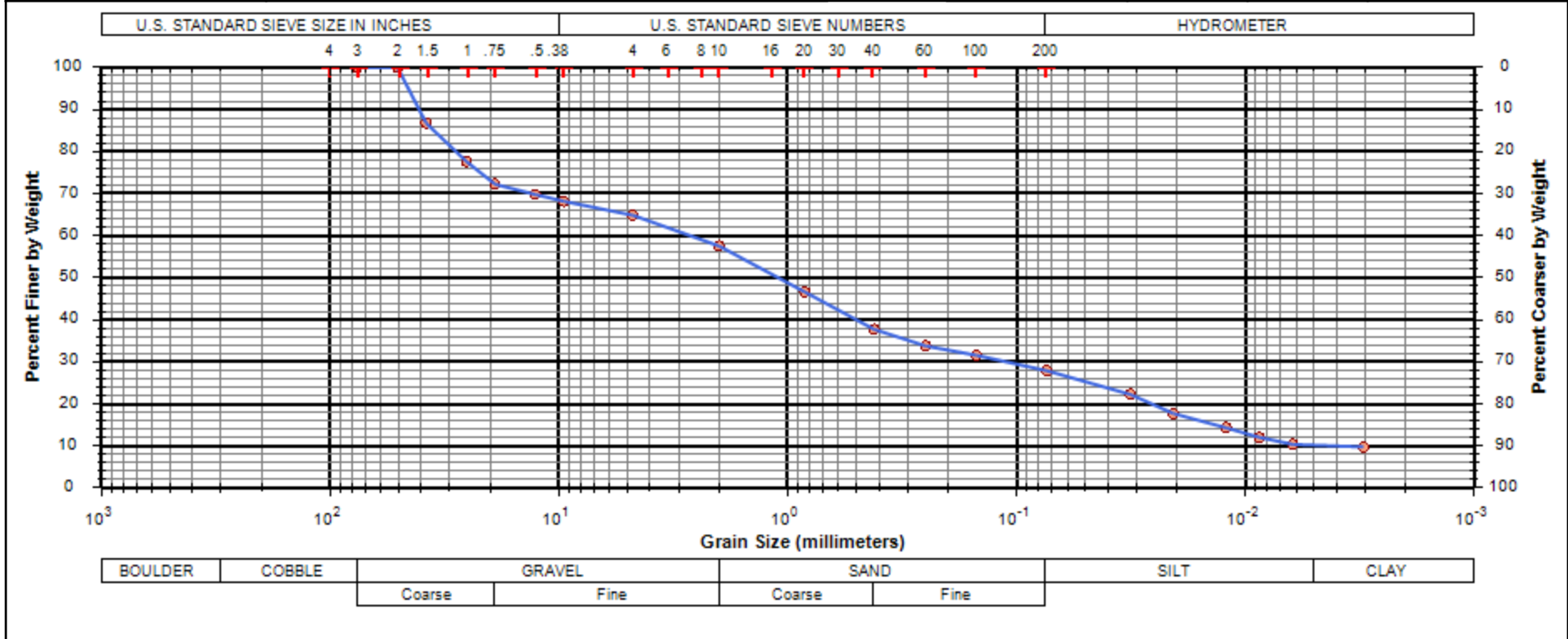
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-002	Sample No.:	S-1 & 2	Depth (ft.):	0.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Silt and Clay					1.8	7.6	23.5	41.2	25.9	A-6a
						LL	PL		PI	Group Index	WC (%)
						35	20		15	8	





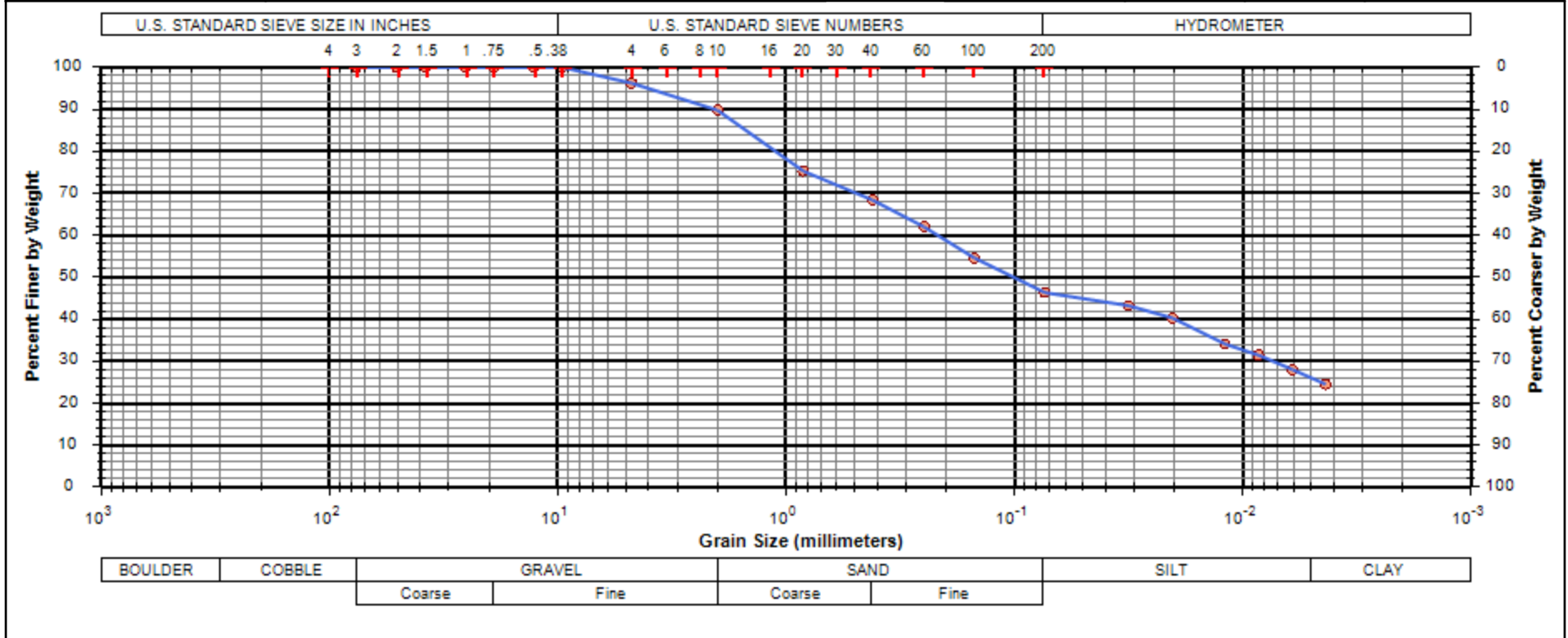
PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.					Project No.:		J039684.02			
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:		01/17/2024			
Boring No.:	B-002	Sample No.:	ST-3	Depth (ft.):	4.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel & Stone Frags. with Sand & Silt					42.4	19.8	9.9	17.7	10.2	A-2-4
						LL	PL		PI	Group Index	WC (%)
						23	22		1	0	12.8



PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

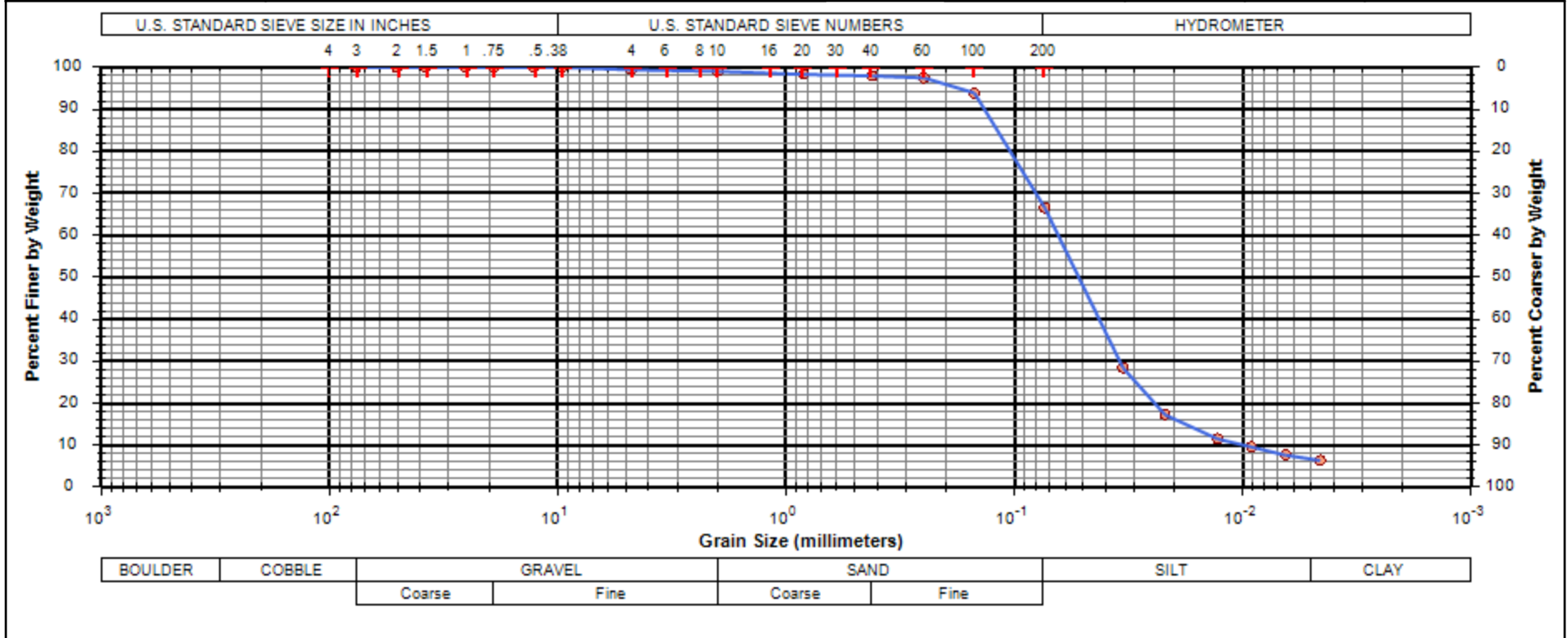
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-002	Sample No.:	S-13 & 14	Depth (ft.):	30.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Sandy Silt					10.2	21.4	22.0	20.4	26.0	A-4a
						LL	PL		PI	Group Index	WC (%)
						21	13		8	2	





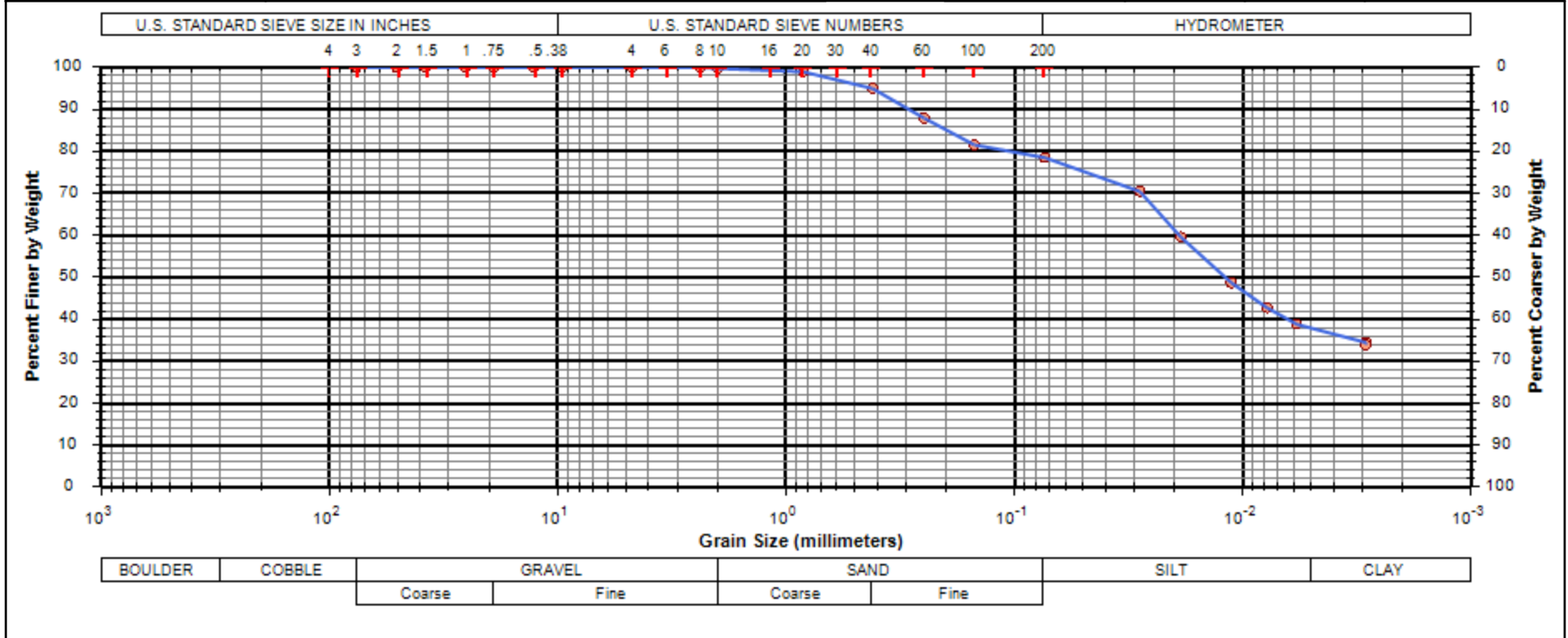
PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-002	Sample No.:	S-15 & 16	Depth (ft.):	40.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Silt					0.9	1.1	31.5	59.8	6.7	A-4b
						LL	PL		PI	Group Index	WC (%)
						20	20			6	



PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

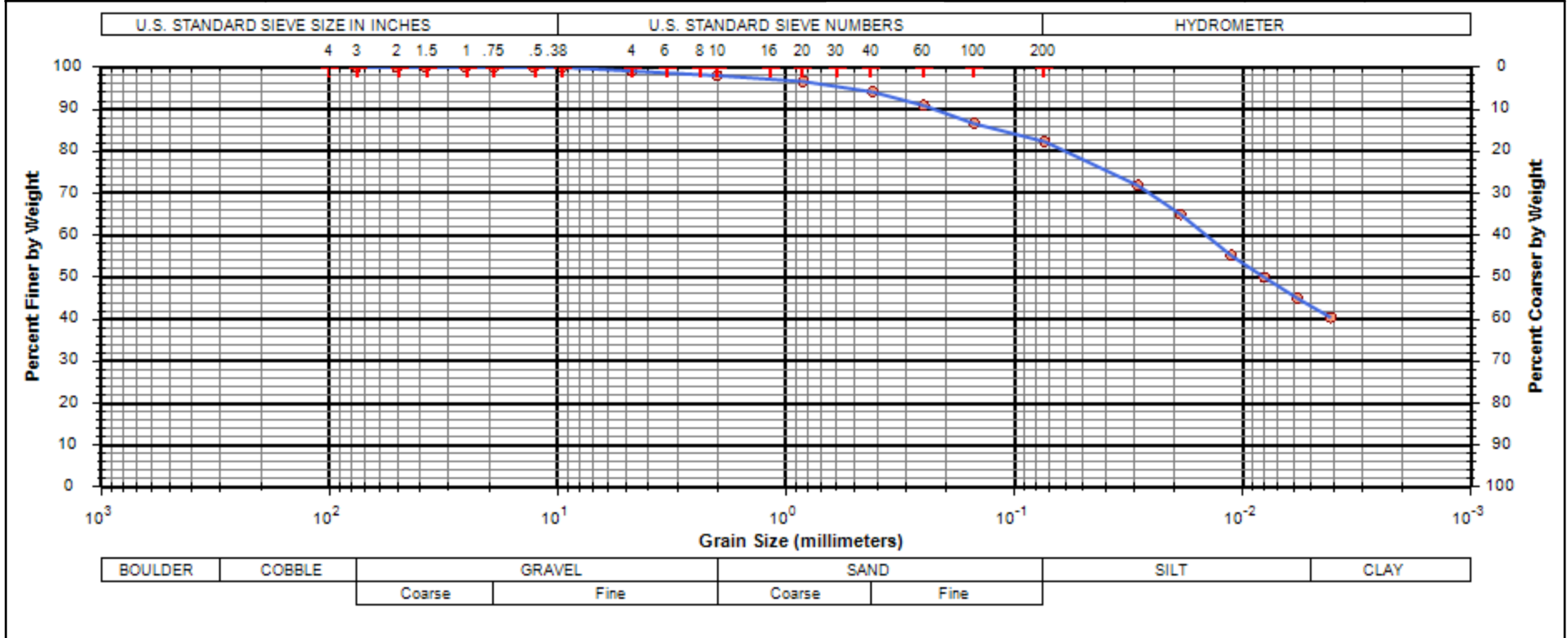
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-001	Sample No.:	ST-2	Depth (ft.):	2.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Silty Clay					0.2	4.8	16.5	40.6	37.9	A-6b
						LL	PL		PI	Group Index	WC (%)
						33	17		16	10	19.1





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

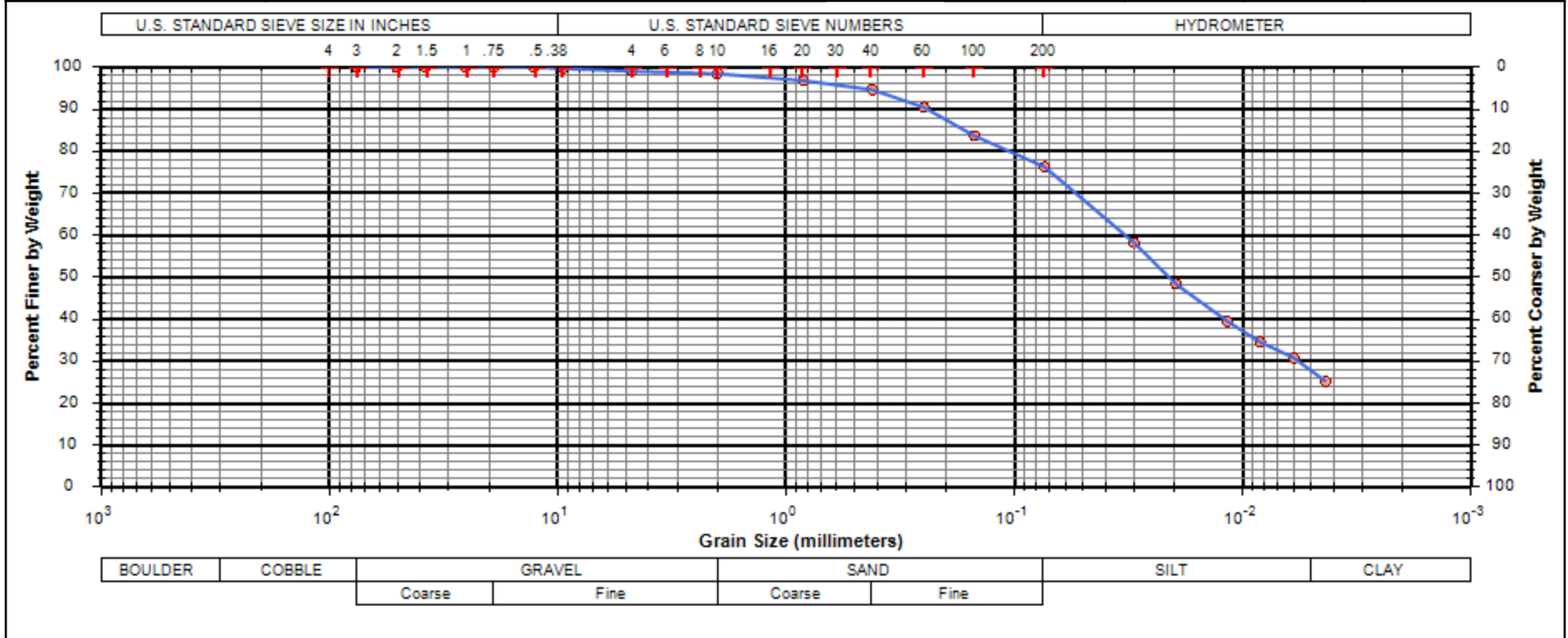
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-004	Sample No.:	S-2 & 3	Depth (ft.):	2.5	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Clay					1.9	3.9	11.9	39.2	43.1	A-7-6
						LL	PL		PI	Group Index	WC (%)
						52	28		24	16	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

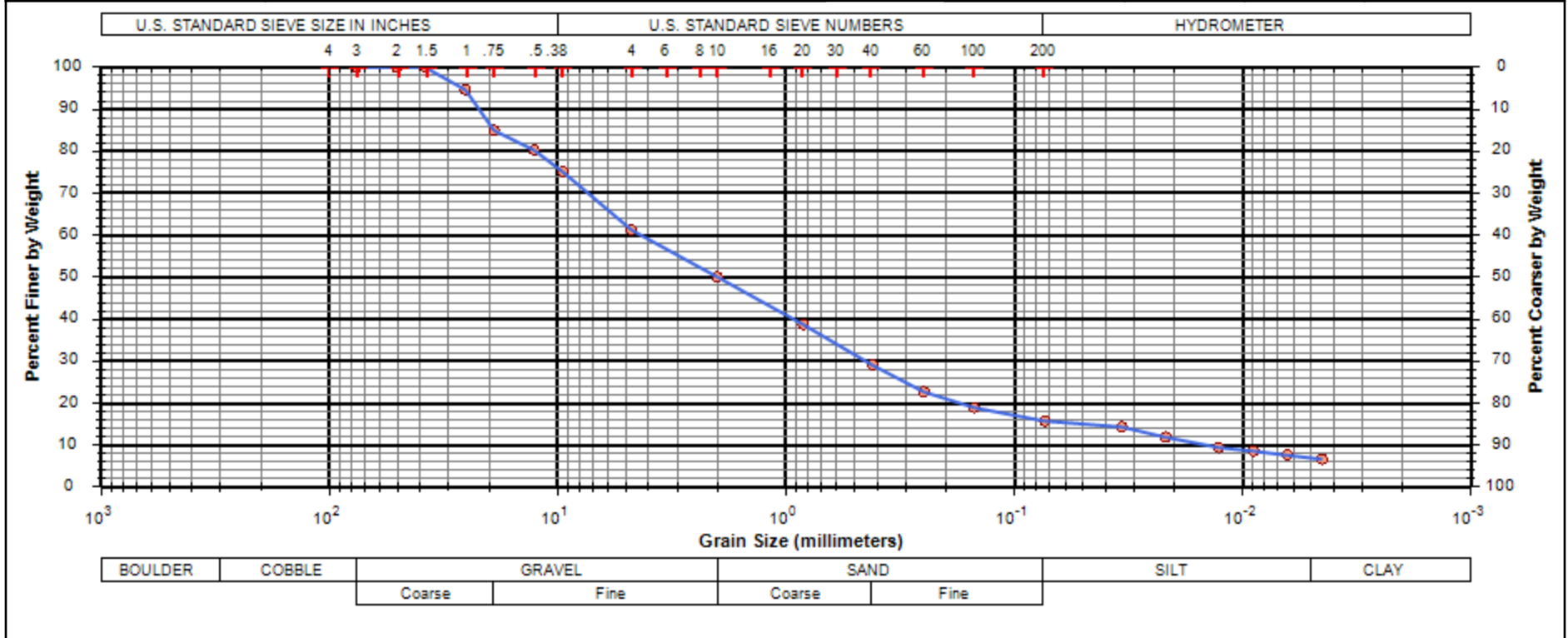
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-004	Sample No.:	S-5 & 6	Depth (ft.):	10.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Clay					1.5	3.8	18.4	48.6	27.7	A-7-6
						LL	PL		PI	Group Index	WC (%)
						41	23		18	11	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

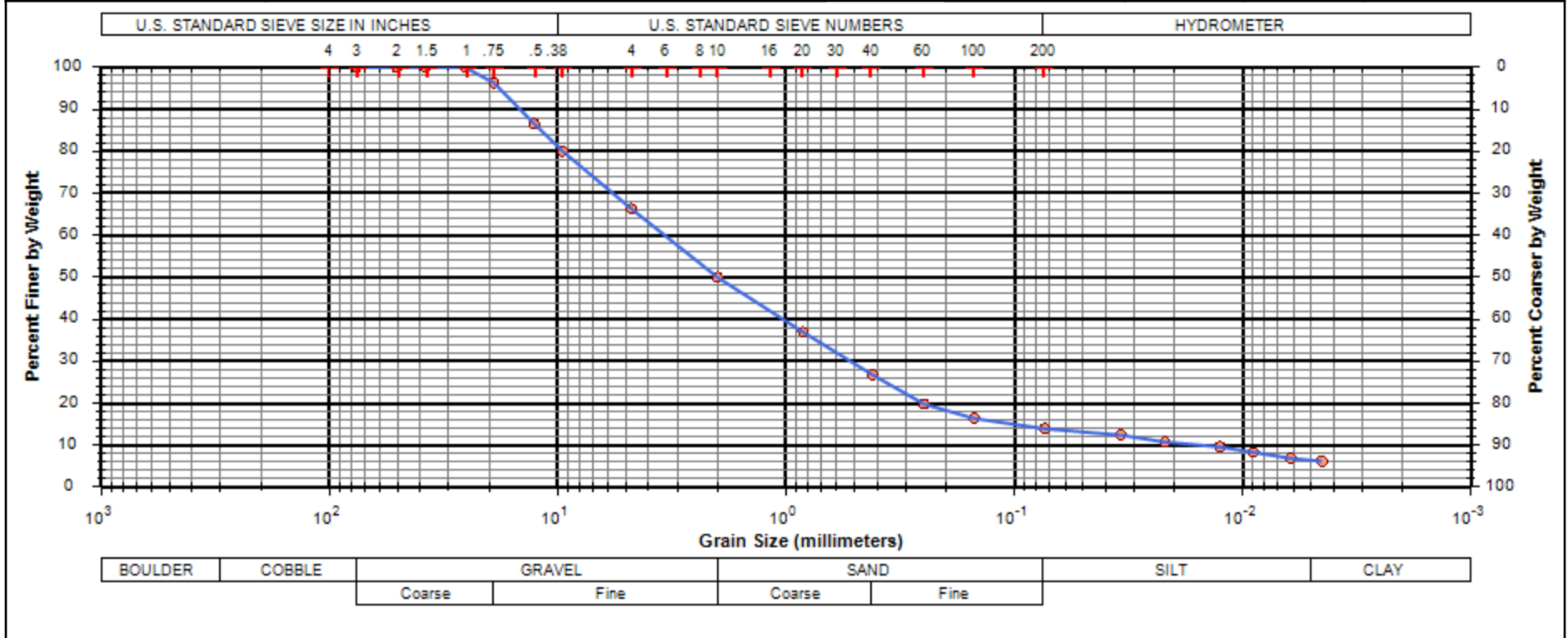
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-004	Sample No.:	S-7 & 8	Depth (ft.):	13.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments with Sand					49.9	21.0	13.3	8.8	7.0	A-1-b
						LL	PL		PI	Group Index	WC (%)
						18	16		2	0	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

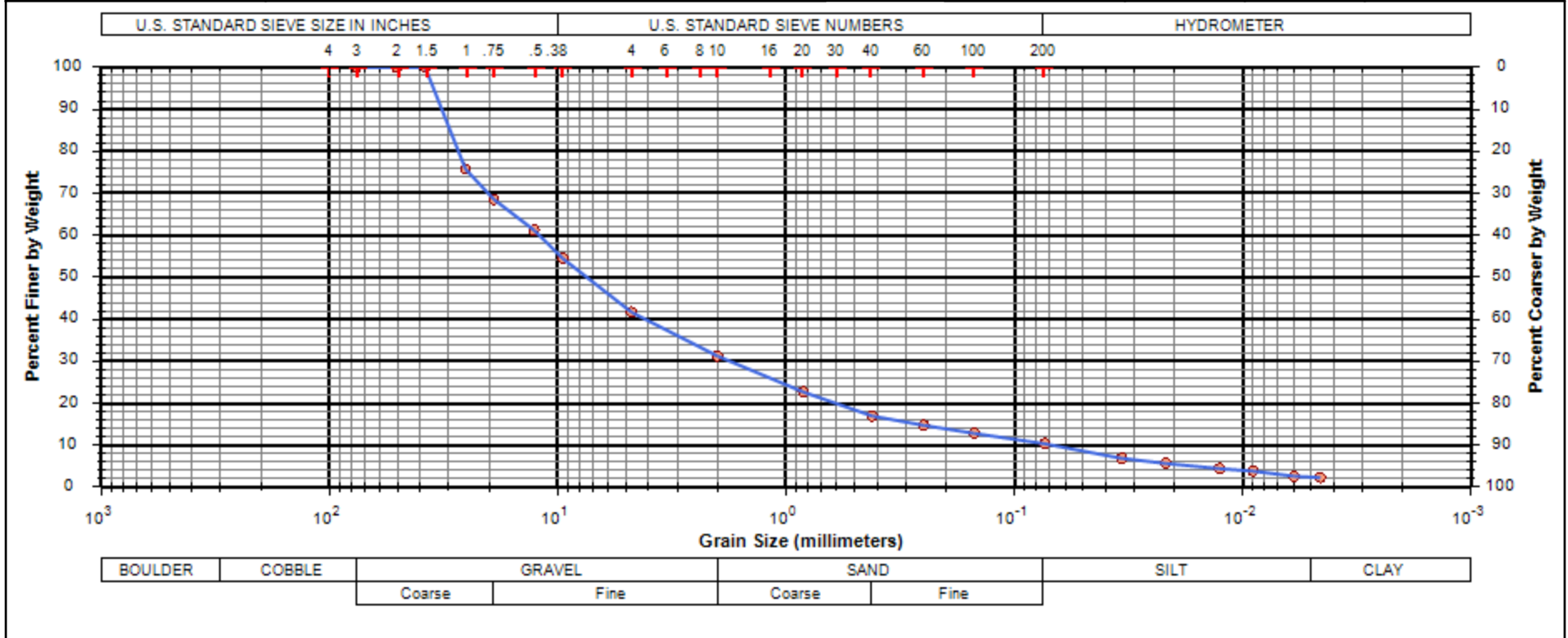
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-004	Sample No.:	S-9 & 10	Depth (ft.):	16.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments					50.0	23.2	12.9	7.5	6.4	A-1-a
						LL	PL		PI	Group Index	WC (%)
						17	16		1	0	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

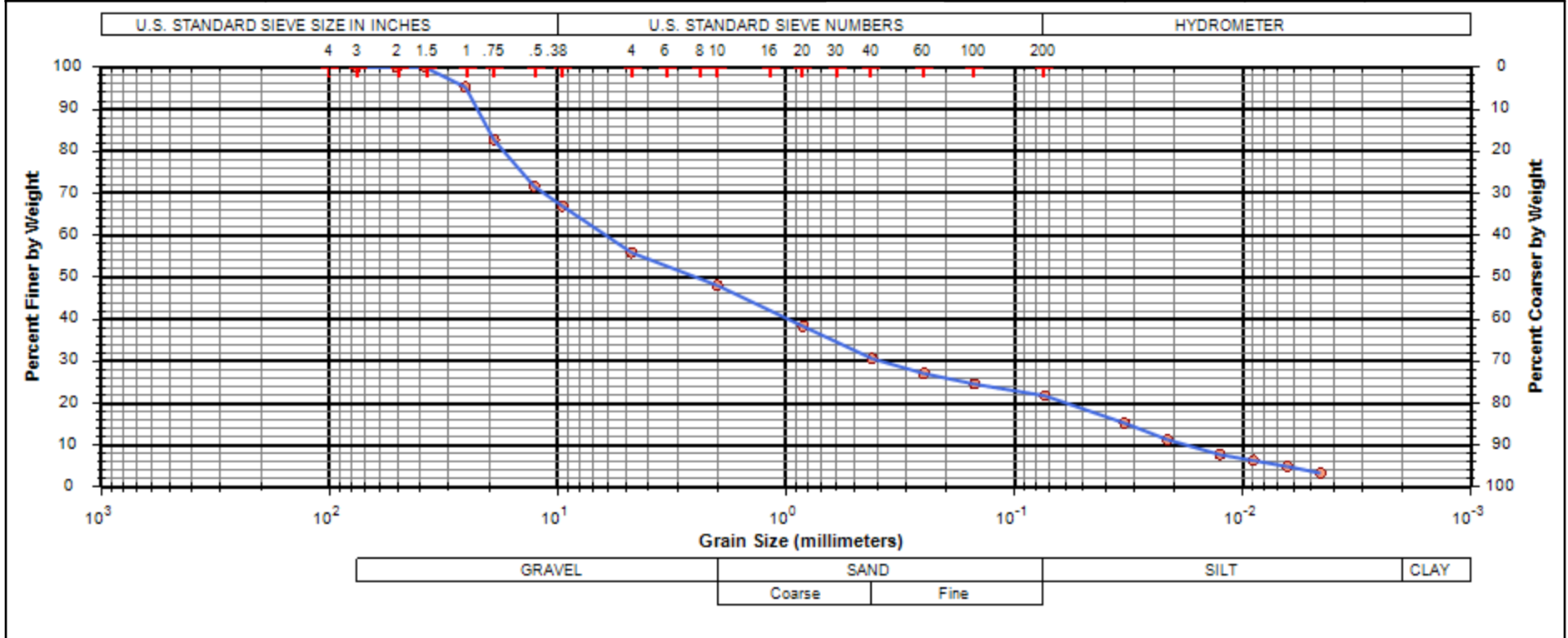
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Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-004	Sample No.:	S-13 & 14	Depth (ft.):	25.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments					68.7	14.3	6.6	8.0	2.4	A-1-a
						LL	PL		PI	Group Index	WC (%)
						18	17		1	0	

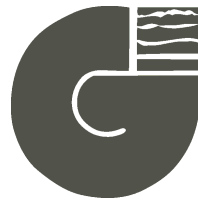




PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.						Project No.:	J039684.02			
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH						Date:	01/17/2024			
Boring No.:	B-003	Sample No.:	S-4 & 5	Depth (ft.):	7.5		Gravel (%)	Sand (%)	Silt (%)	Clay (%)	AASHTO
Sample Description:	Gravel and Stone Fragments with Sand						51.9	26.3	21.8	0.0	A-1-b
							LL	PL	PI	Group Index	WC (%)
							21	21		0	



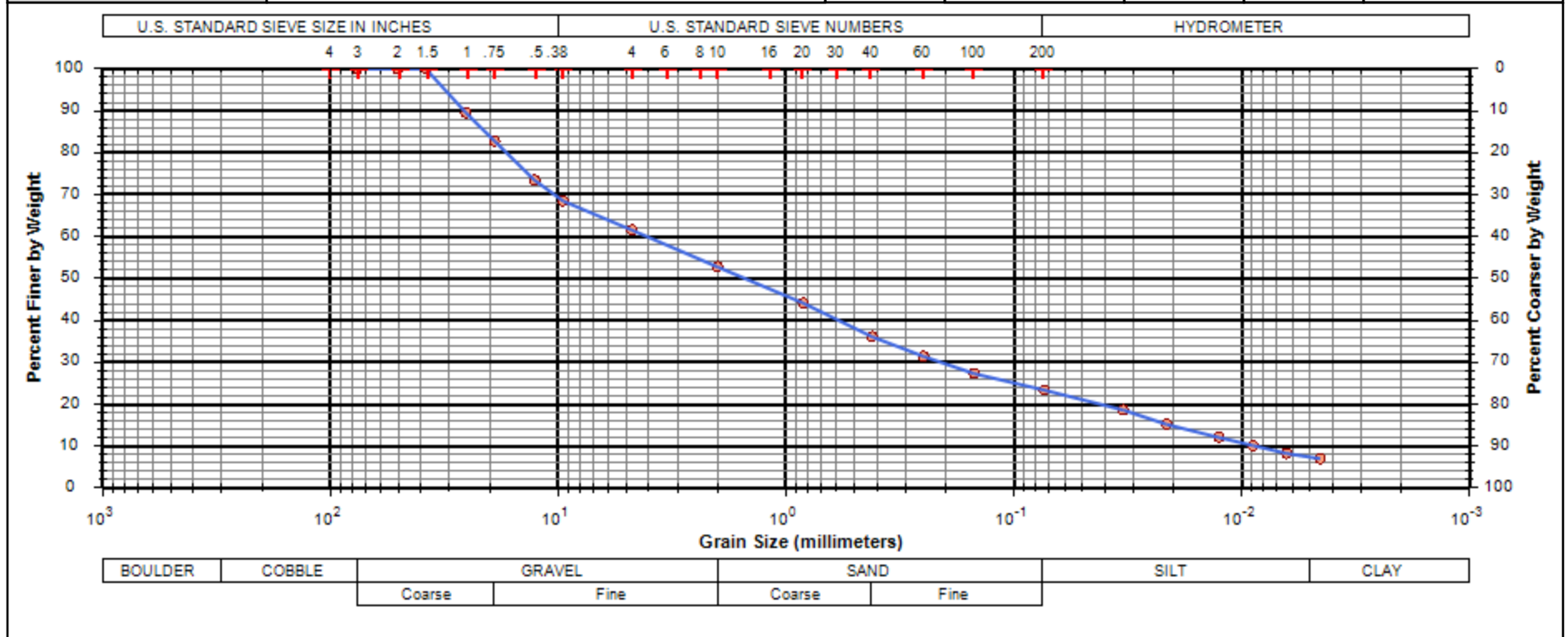


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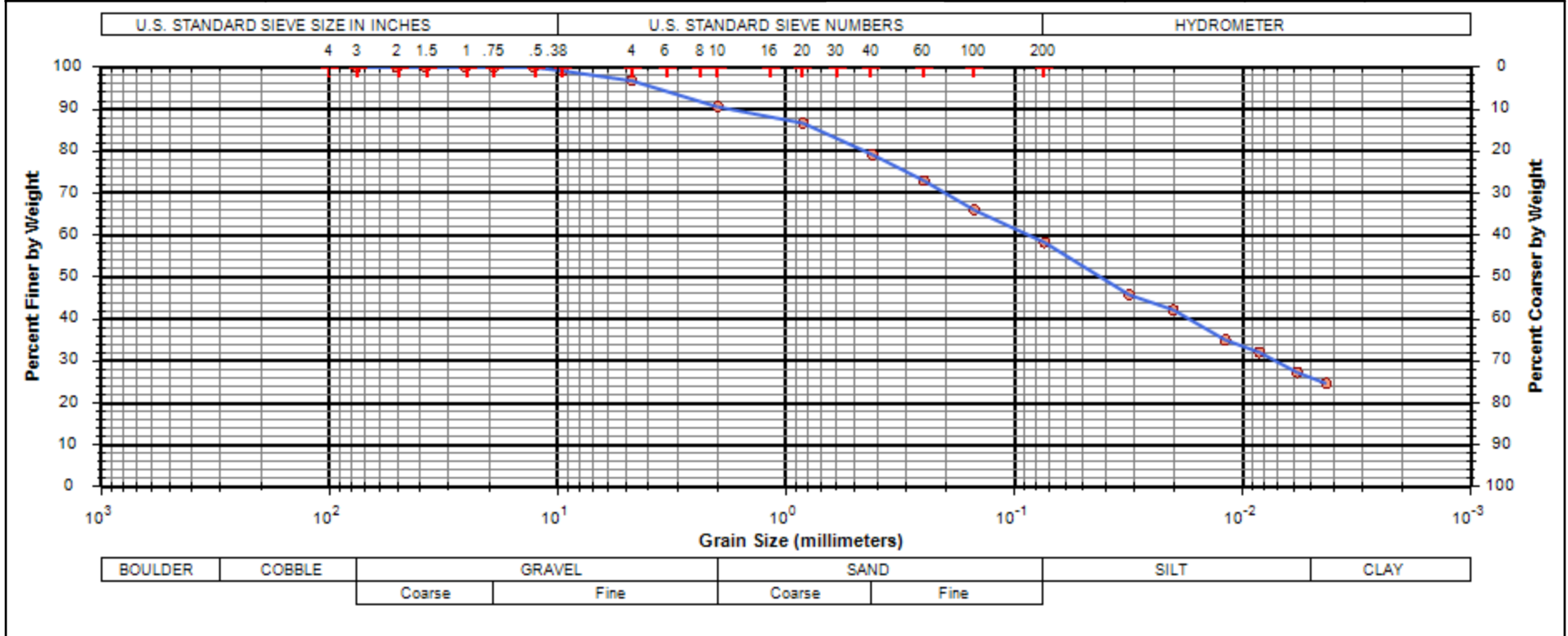
PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-003	Sample No.:	S-6 & 7	Depth (ft.):	10.5	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Gravel and Stone Fragments with Sand					47.2	16.7	12.7	16.0	7.4	A-1-b
						LL	PL		PI	Group Index	WC (%)
						18	17		1	0	



PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

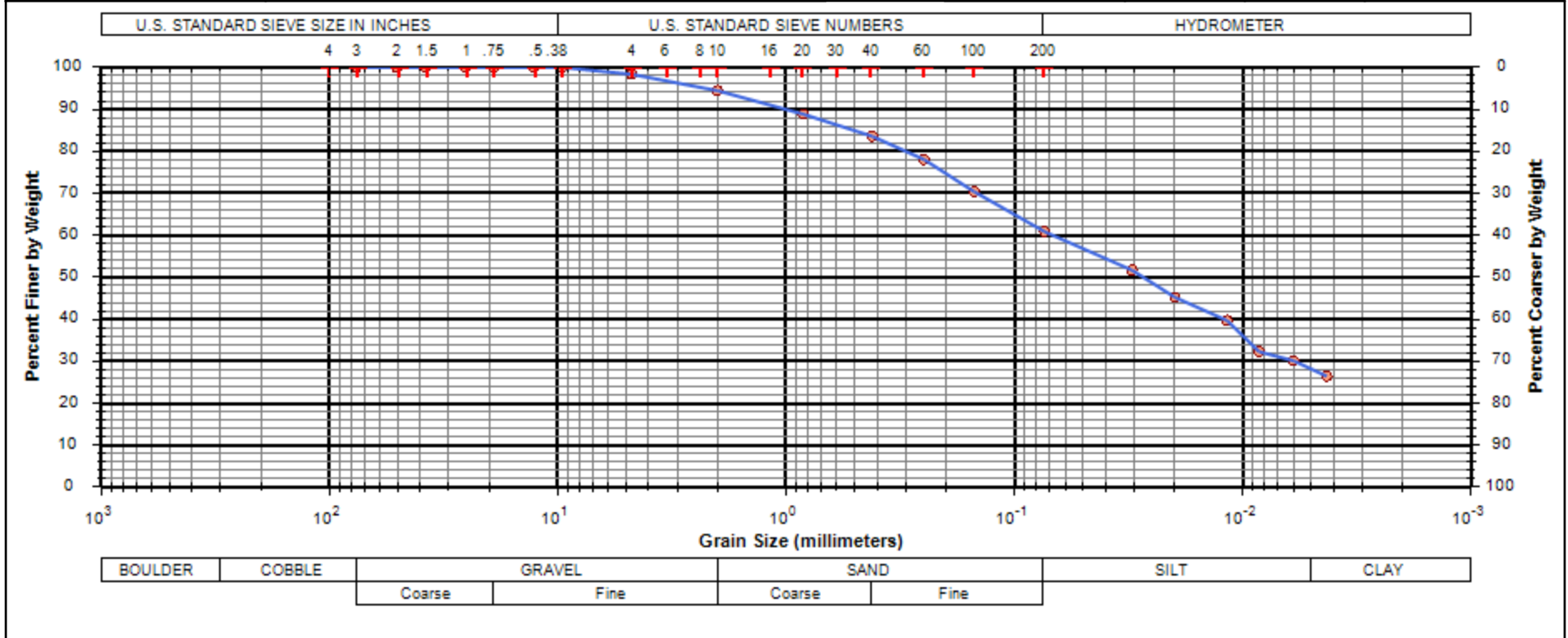
Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-003	Sample No.:	S-10 & 11	Depth (ft.):	20.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Sandy Silt					9.4	11.4	20.9	32.3	26.0	A-4a
						LL	PL		PI	Group Index	WC (%)
						22	15		7	5	





PARTICLE-SIZE ANALYSIS OF SOILS AASHTO T88

Client:	Stantec Consulting Services, Inc.					Project No.:	J039684.02				
Project:	Laboratory Testing Services, GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order, Oldtown, OH					Date:	01/17/2024				
Boring No.:	B-003	Sample No.:	S-16 & 17	Depth (ft.):	45.0	Gravel (%)	Coarse Sand (%)	Fine Sand (%)	Silt (%)	Clay (%)	ODOT
Sample Description:	Sandy Silt					5.5	10.9	22.8	32.7	28.1	A-4a
						LL	PL		PI	Group Index	WC (%)
						23	22		1	5	



**UNCONFINED COMPRESSIVE STRENGTH OF COHESIVE SOILS
AASHTO T 208**

CLIENT : Stantec Consulting Services, Inc.
PROJECT NO.: J039684.02
PROJECT: GRE-68-12.65 PID115388, ODOT Dist 7/8 Task Order
LOCATION: Oldtown, Ohio

DATE: 1/16/2024

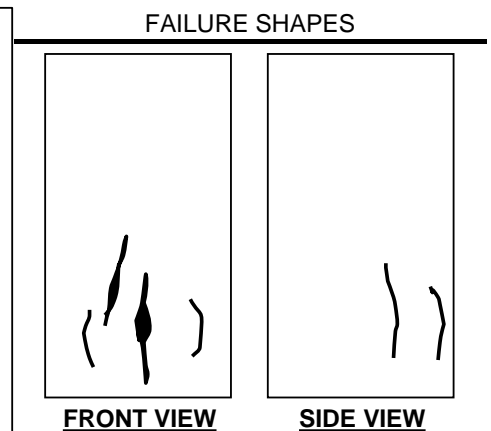
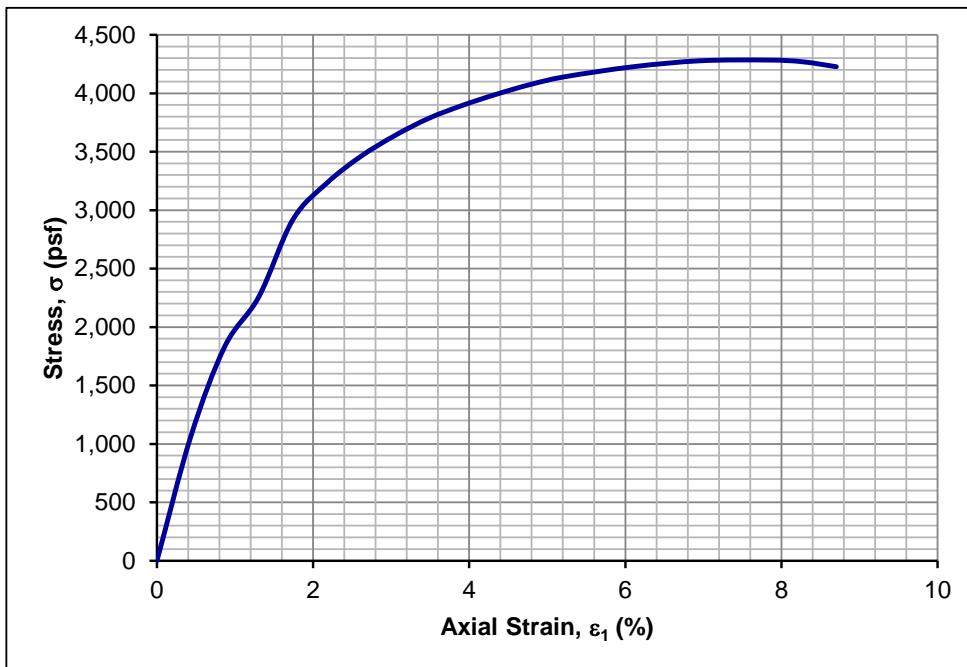
BORING NO.: B-001
SAMPLE OBTAINED BY: Shelby Tube
SAMPLE DESCRIPTION: Silty Clay

SAMPLE NO.: ST-2
CONDITION: Undisturbed

DEPTH (ft.): 2.0-4.0

LIQUID LIMIT (%): 33	PLASTIC LIMIT (%): 17	PLASTICITY INDEX (%): 16	ODOT: A-6b
GRAVEL (%): 0.2	SAND (%): 21.3	SILT (%): 40.6	CLAY (%): 37.9
SPECIFIC GRAVITY OF SOLIDS: 2.75 (Assumed)			LOAD CELL NO.: 1059

SAMPLE DATA		FAILURE DATA	
DIAMETER (in.):	2.84	AVERAGE RATE OF AXIAL STRAIN TO FAILURE (%/min.):	1.1
HEIGHT (in.):	5.75	AXIAL STRAIN AT FAILURE (%):	7.8
HEIGHT TO DIAMETER RATIO:	2.02	TIME TO FAILURE (min.):	8.2
WET UNIT WEIGHT (pcf):	131.7	UNCONFINED COMPRESSIVE STRENGTH, q_u (psf):	4,280
DRY UNIT WEIGHT (pcf):	110.6	UNDRAINED SHEAR STRENGTH, s_u (psf):	2,140
VOID RATIO:	0.55	SENSITIVITY, S_r :	-
MOISTURE CONTENT (%)*:	19.1		
DEGREE OF SATURATION (%):	95		



REMARKS :

*Moisture content determined after shear from entire sample.