

**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

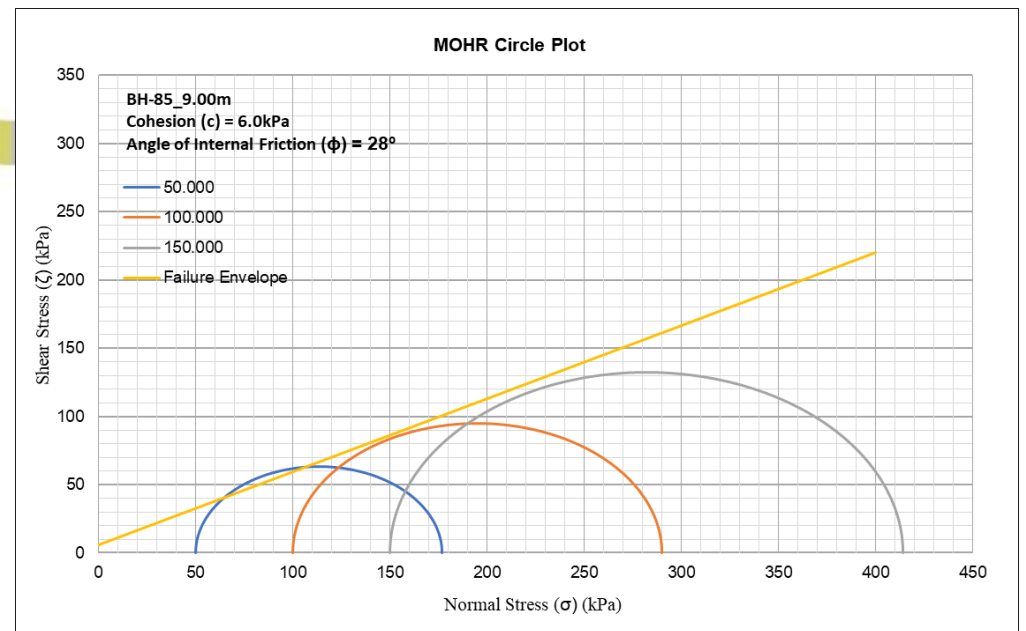
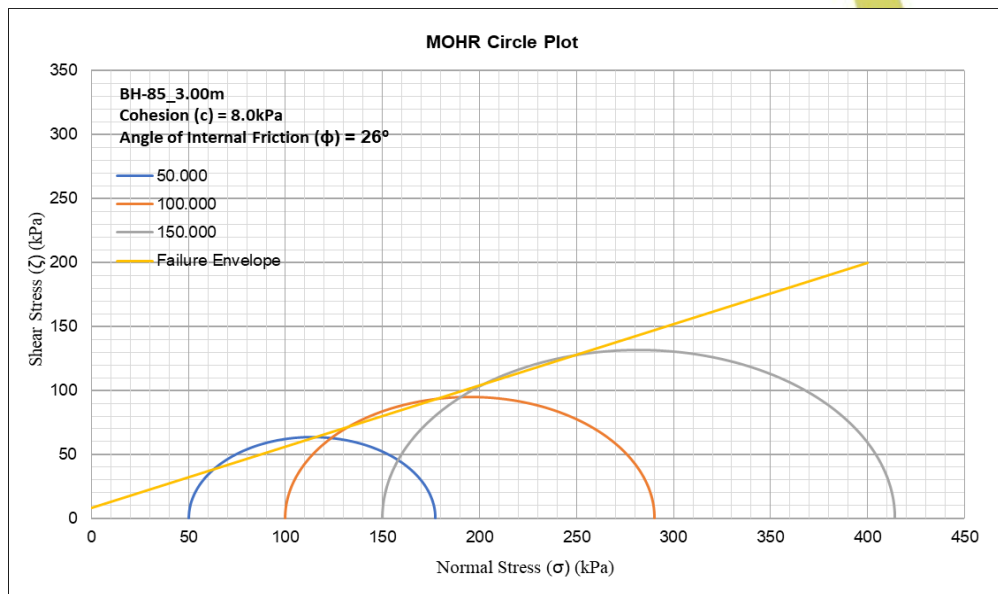
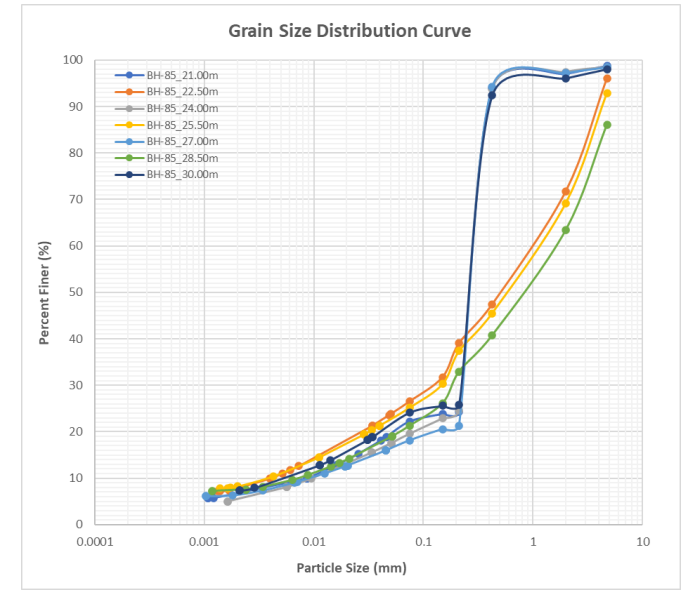
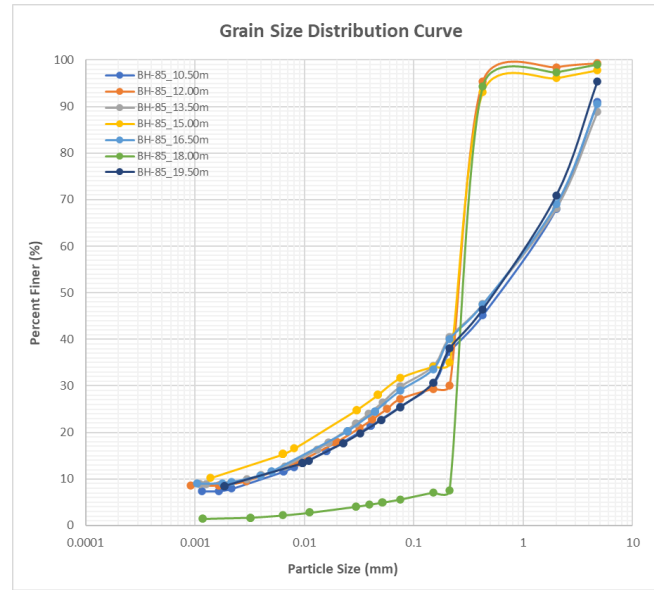
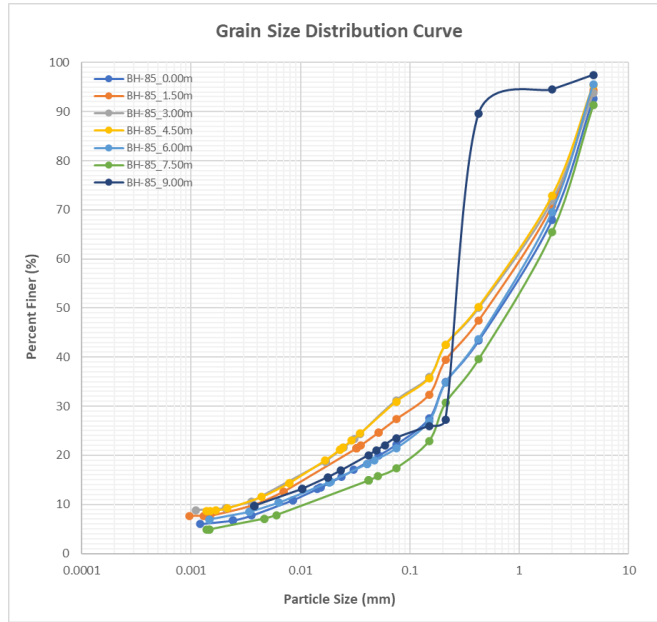
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

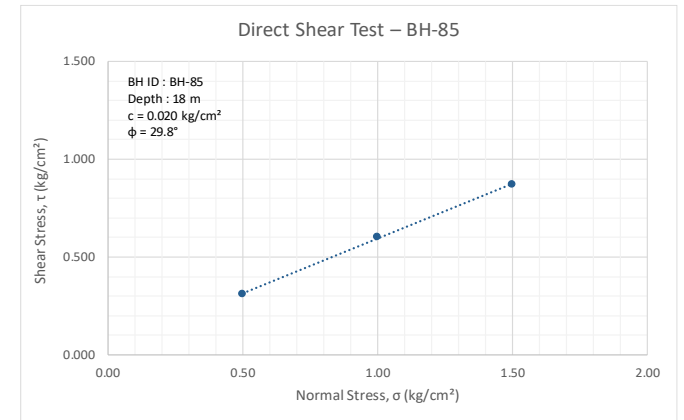
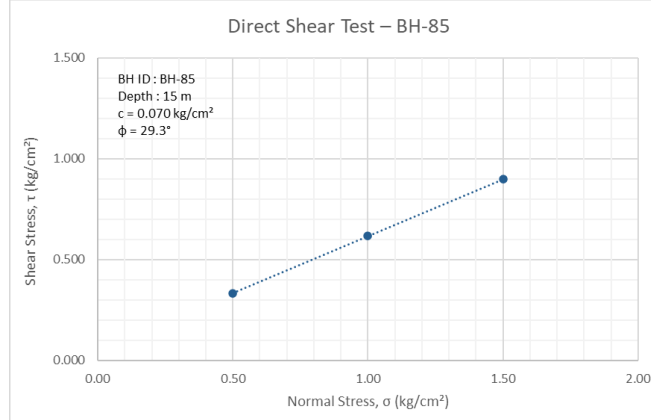
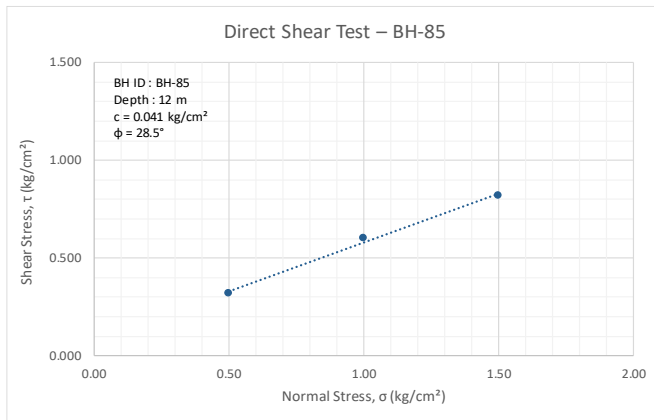
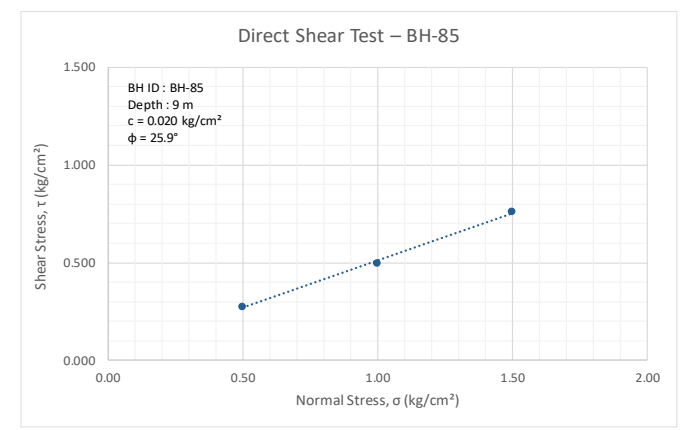
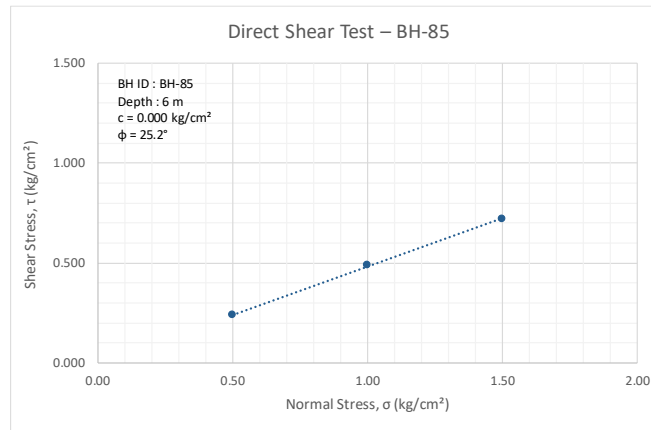
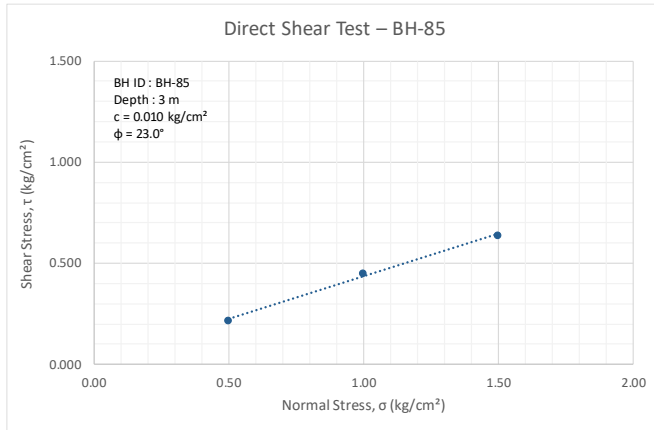


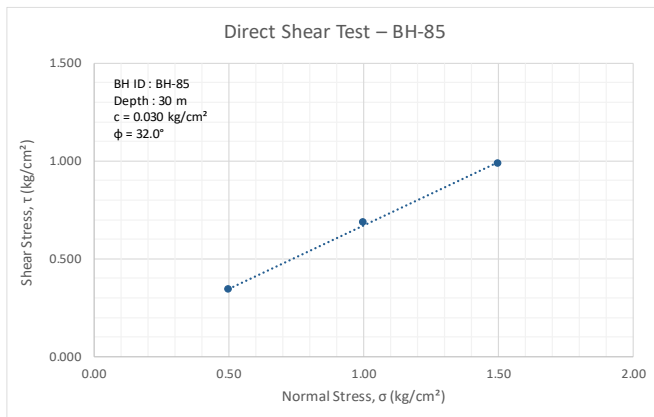
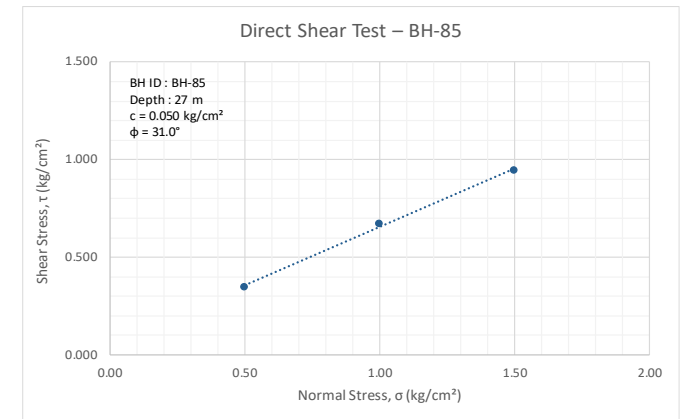
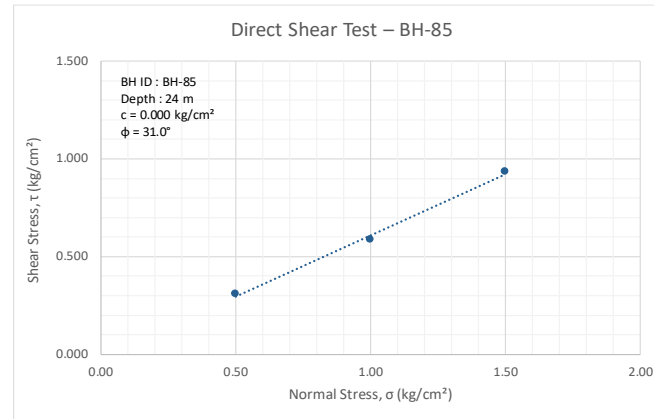
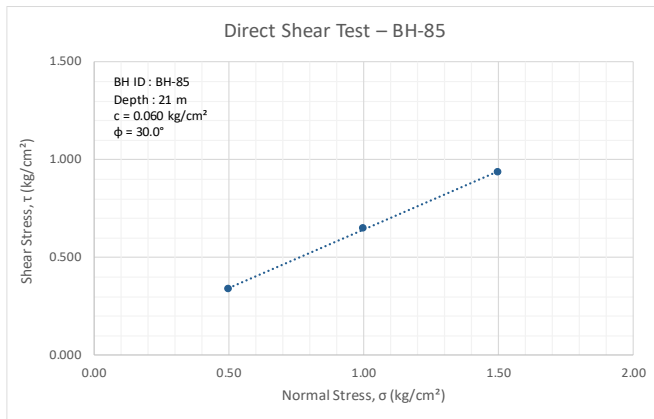
Project		Borehole Details		Drilling Details	
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-85	<b>Contractor:</b>	Goma Engineering & Consultancy
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	9+024	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	09-02-2026
<b>Project Code:</b>	158_R10_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	196.9	<b>End Date:</b>	10-02-2026
		<b>Water table Level [m]:</b>	16.00	<b>Location:</b>	Lat: 28.513565 , Long: 77.384855

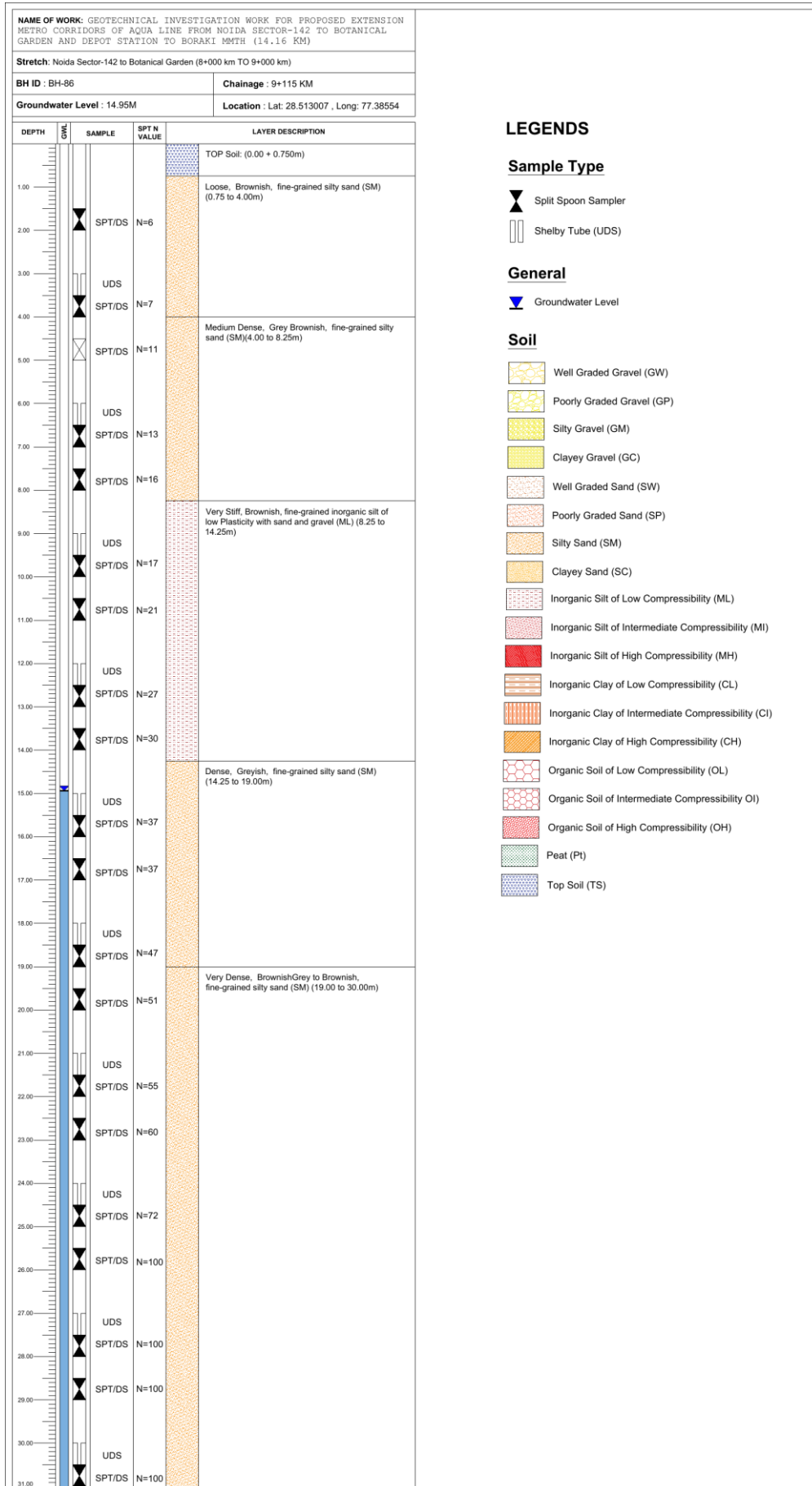
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						7.4	70.4	15.7	6.5	22	NP	NP													
1.50	SPT/DS	Loose, Brownish to Whiteish Grey, fine-grained silty sand (SM)	2	3	3	6	8	5.7	67.0	19.0	8.4	25	NP	NP													
3.00	UDS							6.3	62.5	22.1	9.2	22	NP	NP	21.87	1.87	1.53	2.64	F	0.01	23	UU	8	26			
3.50	SPT/DS		2	4	4	8	9																				
4.50	SPT/DS	Medium Dense, Brownish Grey, fine-grained silty sand with Gravel (SM)	3	5	7	12	12	4.6	64.5	21.8	9.1	26	NP	NP													
6.00	UDS							4.5	74.1	13.9	7.5	28	NP	NP	24.3	1.9	1.53	2.65	F	0	25	UU	6	28			
6.50	SPT/DS		5	7	10	17	16																				
7.50	SPT/DS		6	9	12	21	19	8.7	73.9	11.9	5.5	21	NP	NP													
9.00	DS							2.5	73.9	17.2	6.3	28	NP	NP	23.14			2.73	F	0.02	26						
9.50	SPT/DS		9	13	15	28	24																				
10.50	SPT/DS	Dense, Brownish, fine-grained silty sand(SM)	12	14	17	31	25	9.0	65.4	17.8	7.8	24	NP	NP													
12.00	DS							0.8	72.1	18.3	8.9	23	NP	NP	19.87			2.66	F	0.04	29						
12.50	SPT/DS		14	16	19	35	26																				
13.50	SPT/DS		18	26	30	56	40	11.2	59.0	20.4	9.4	27	NP	NP													
15.00	DS							2.2	66.1	20.2	11.5	23	NP	NP	11.38			2.68	F	0.07	29						
15.50	SPT/DS		17	21	22	43	28																				
16.50	SPT/DS	Very Dense, Brownish Grey, fine-grained silty sand and Gravel(SM)	21	24	30	56	25	9.4	61.6	19.8	9.2	24	NP	NP													
18.00	DS							1.0	93.4	4.0	1.6	26	NP	NP	9.11			2.70	F	0.02	30						
18.50	SPT/DS		20	26	30	56	25																				
19.50	SPT/DS		24	29	32	61	26	4.6	70.0	16.7	8.7	27	NP	NP													
21.00	DS							1.2	76.6	15.4	6.7	29	NP	NP	9.57			2.66	F	0.06	30						
21.50	SPT/DS		25	30	35	65	27																				
22.50	SPT/DS		22	33	36	69	28	3.9	69.5	18.6	7.9	23	NP	NP													
24.00	DS							1.5	79.0	14.1	5.5	25	NP	NP	8.10			2.63	F	0.00	31						
24.50	SPT/DS		29	37	39	76	29																				
25.50	SPT/DS		35 (50/7 CM)	-	100	35	35	7.1	67.7	17.0	8.2	26	NP	NP													
27.00	DS							1.5	80.3	11.7	6.4	24	NP	NP	6.55			2.67	F	0.05	31						
27.50	SPT/DS		40 (50/9 CM)	-	100	34	34																				
28.50	SPT/DS	45 (50/10 CM)	-	100	33	33	13.9	64.8	13.8	7.5	21	NP	NP														
30.00	DS						1.9	73.9	18.4	5.8	22	NP	NP	8.32			2.68		0.03	32							
30.50	SPT/DS	49 (50/4 CM)	-	100	32	32																					

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









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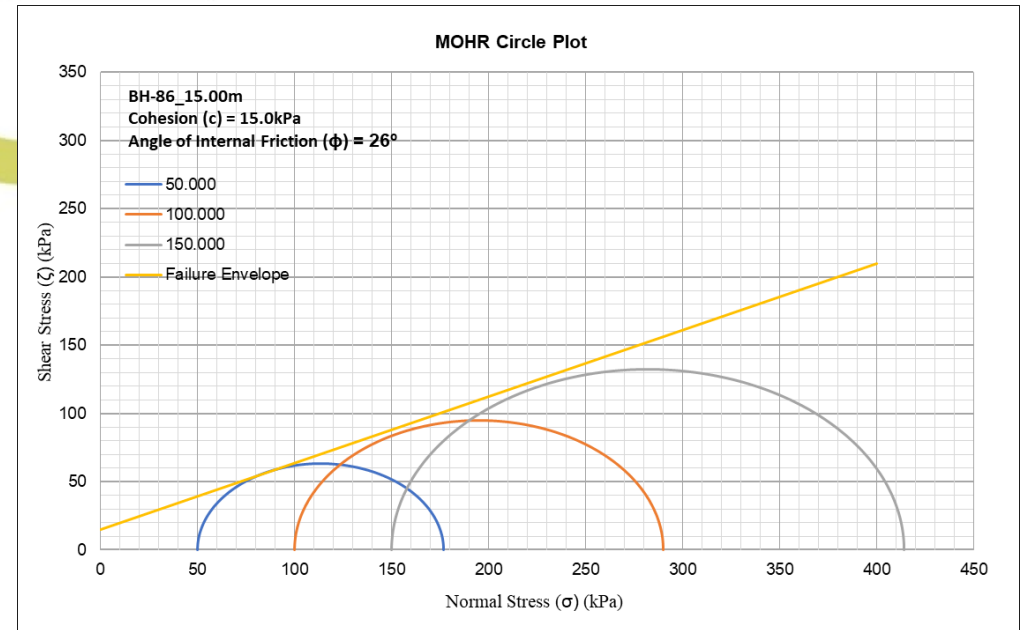
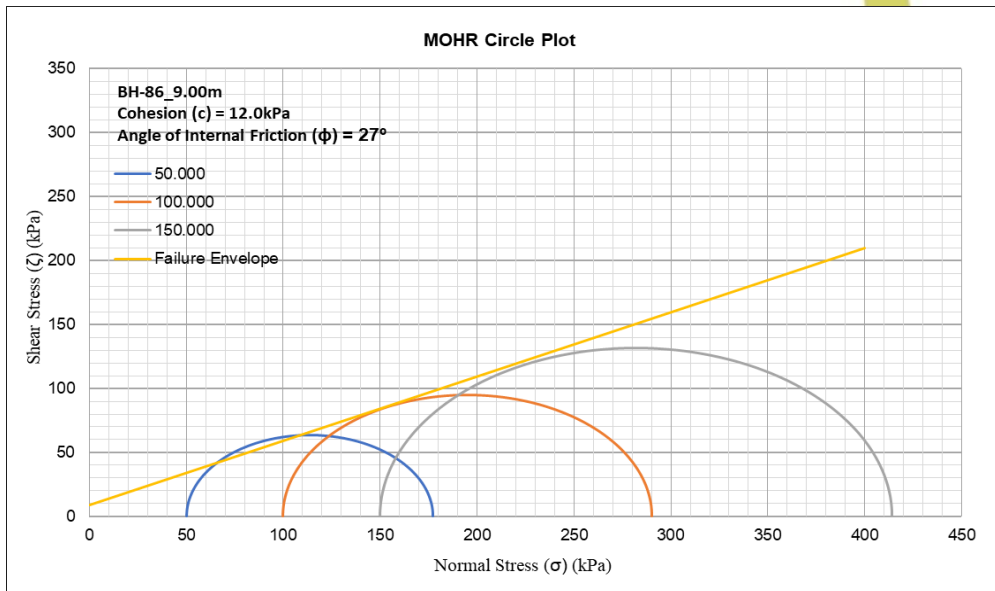
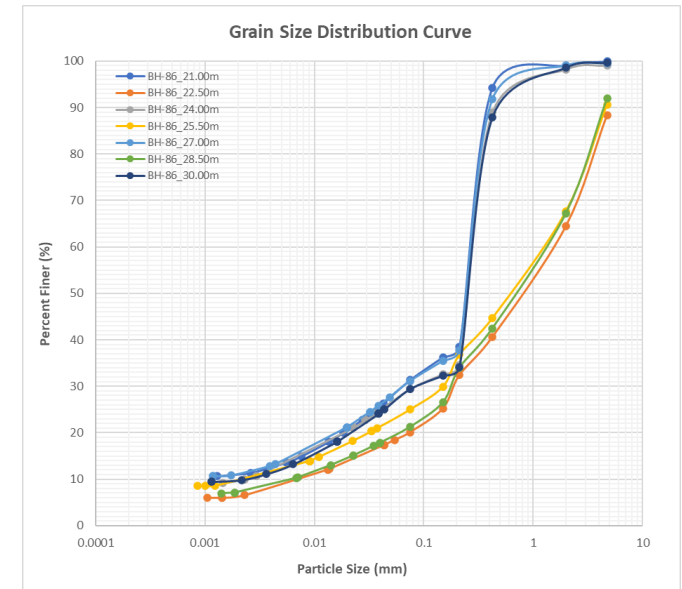
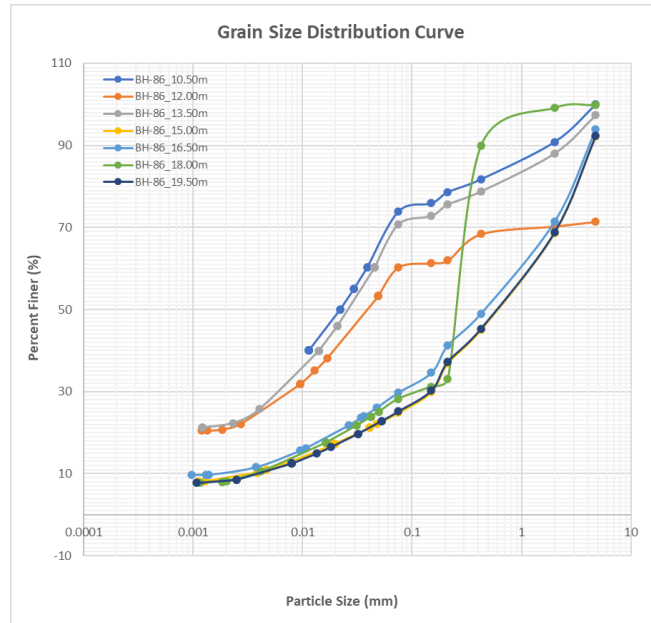
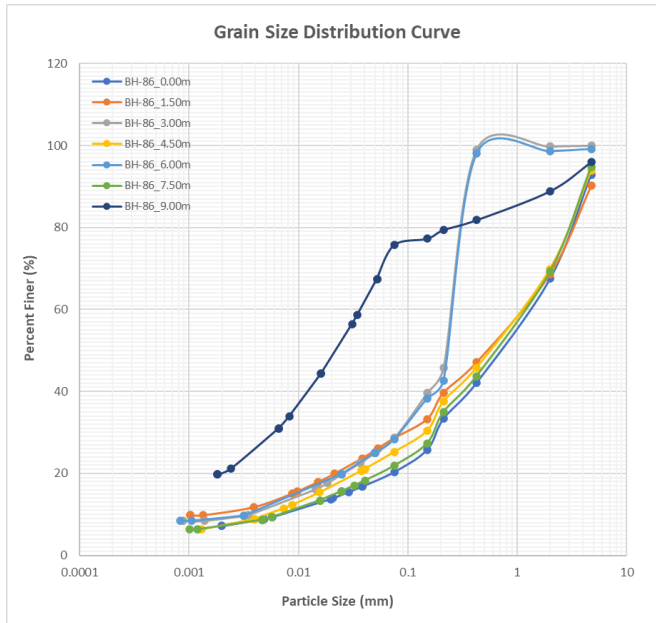
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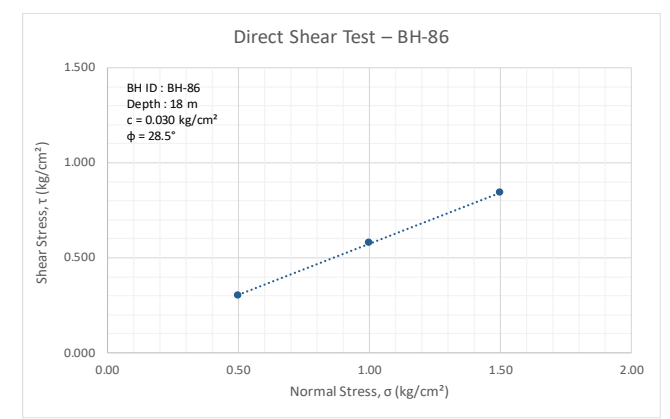
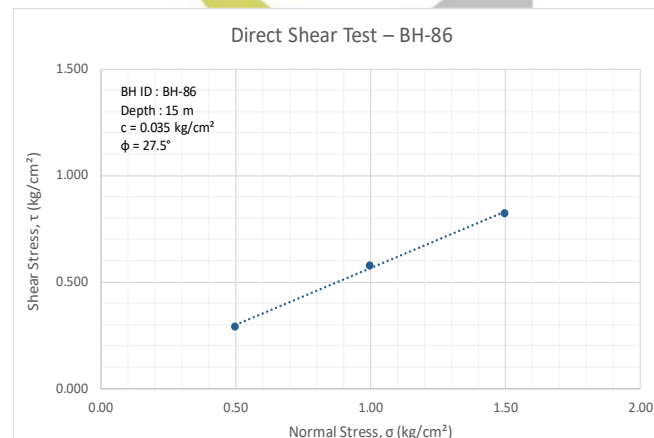
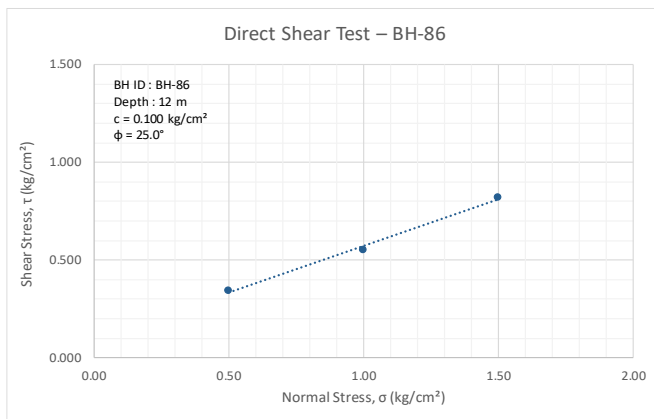
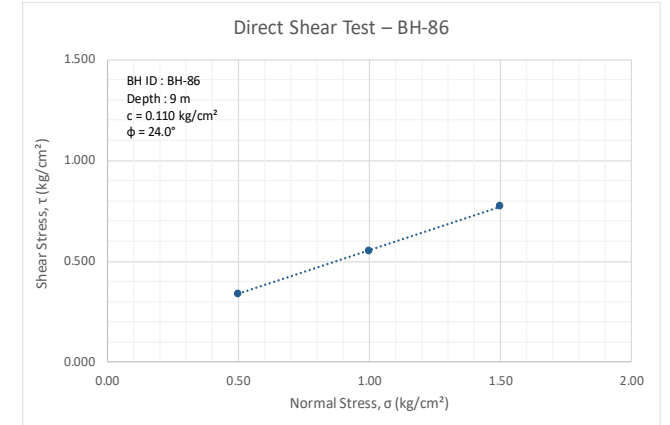
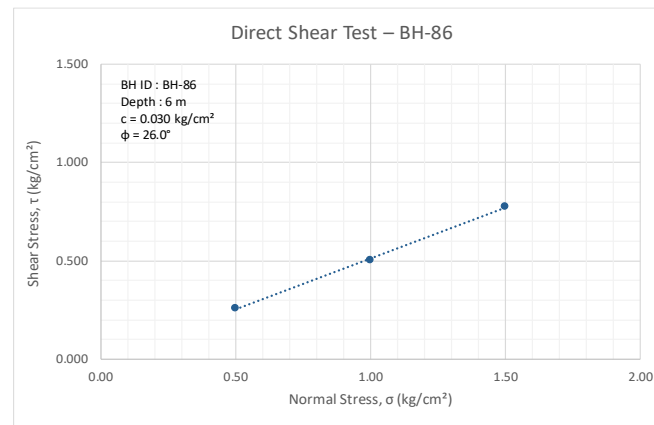
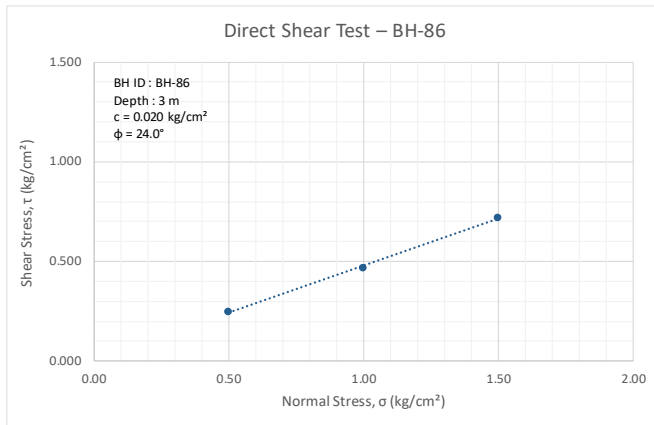


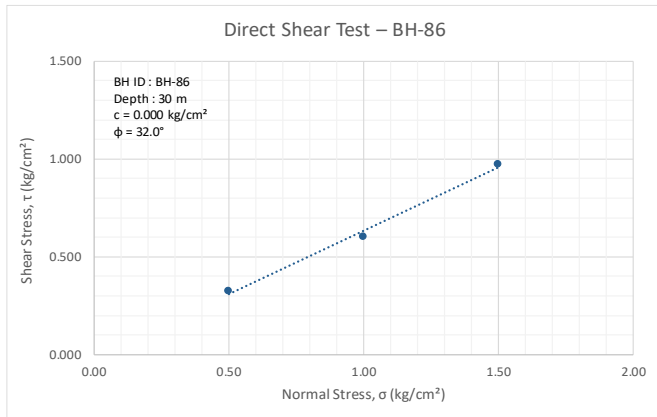
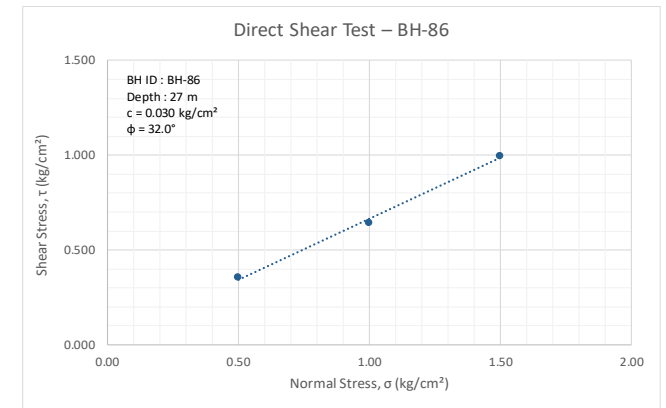
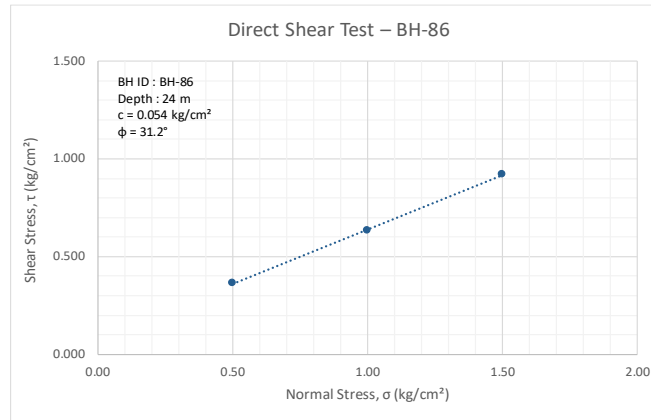
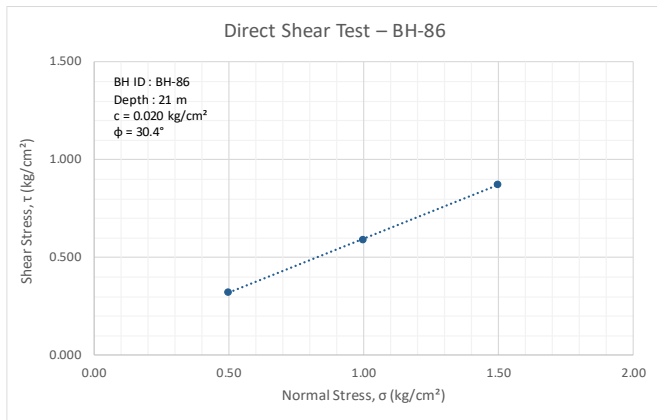
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<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	9+115	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	09-02-2026
<b>Project Code:</b>	158_R10_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	198.1	<b>End Date:</b>	09-02-2026
		<b>Water table Level [m]:</b>	14.95	<b>Location:</b>	Lat: 28.513007 , Long: 77.38554

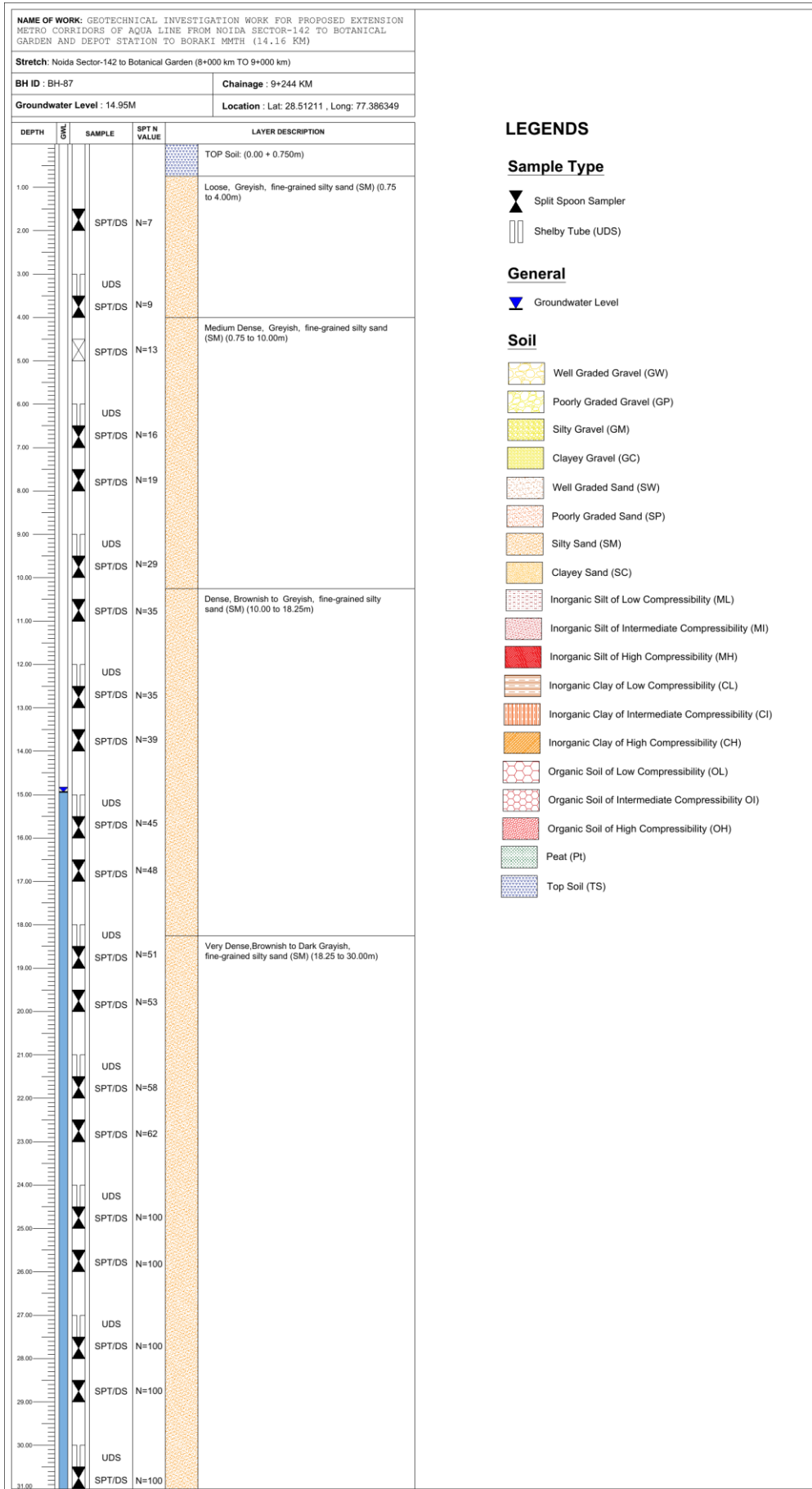
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			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						7.1	72.6	13.2	7.2	22	NP	NP													
1.50	SPT/DS	Loose, Brownish, fine-grained silty sand (SM)	2	3	3	6	8	9.8	61.5	18.1	10.6	26	NP	NP													
3.00	UDS							0.0	71.4	19.6	9.0	24	NP	NP	7.52	1.75	1.63	2.65	F	0.02	24						
3.50	SPT/DS		3	3	4	7	8																				
4.50	SPT/DS	Medium Dense, Grey Brownish, fine-grained silty sand (SM)	4	5	6	11	11	6.1	68.7	17.9	7.3	25	NP	NP													
6.00	UDS							0.8	70.8	19.2	9.1	27	NP	NP	22.79	1.78	1.45	2.70	F	0.03	26						
6.50	SPT/DS		4	6	7	13	12																				
7.50	SPT/DS	5	7	9	16	15	5.2	72.9	14.6	7.2	26	NP	NP														
9.00	UDS	Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand and gravel (ML)						4.0	20.2	55.5	20.2	24	NP	NP	11.48	1.89	1.70	2.64	F	0.11	24	UU	12	27			
9.50	SPT/DS		6	7	10	17	15																				
10.50	SPT/DS		7	9	12	21	17	0.0	26.0	46.1	27.9	21	NP	NP													
12.00	UDS							28.6	11.1	39.3	21.0	26	NP	NP	14.86	1.93	1.68	2.72	F	0.10	25						
12.50	SPT/DS		9	12	15	27	20																				
13.50	SPT/DS	8	13	17	30	21	2.7	26.5	48.7	22.1	25	NP	NP														
15.00	DS	Dense, Greyish, fine-grained silty sand (SM)						7.8	67.4	15.8	9.1	26	NP	NP	13.20	1.92	1.70	2.64	F	0.04	28	UU	15	26			
15.50	SPT/DS		12	17	20	37	20																				
16.50	SPT/DS		12	17	20	37	20	6.1	64.1	19.4	10.4	26	NP	NP													
18.00	DS							0.2	71.6	20.0	8.2	24	NP	NP	15.27			2.60	F	0.03	29						
18.50	SPT/DS		17	21	26	47	22																				
19.50	SPT/DS	19	23	28	51	23	7.6	67.2	16.9	8.3	23	NP	NP														
21.00	DS						0.1	68.6	20.3	11.1	22	NP	NP	15.93			2.63	F	0.02	30							
21.50	SPT/DS	22	26	29	55	24																					
22.50	SPT/DS	24	28	32	60	25	11.6	68.2	13.7	6.4	27	NP	NP														
24.00	DS						0.9	69.6	19.7	9.7	26	NP	NP	16.76			2.72	F	0.05	31							
24.50	SPT/DS	29	33	39	72	28																					
25.50	SPT/DS	35	41	(50/4 CM)	100	36	9.4	65.6	15.1	9.9	22	NP	NP														
27.00	DS						0.4	68.4	20.0	11.1	23	NP	NP	16.92			2.62	F	0.03	32							
27.50	SPT/DS	38	(50/10 CM)	-	100	35																					
28.50	SPT/DS	46	(50/8 CM)	-	100	34	8.0	70.8	14.0	7.3	24	NP	NP														
30.00	DS						0.3	70.3	19.6	9.8	29	NP	NP	18.24			2.67	F	0.00	32							
30.50	SPT/DS	(50/8 CM)	-	-	100	33																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









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**Sample Type**

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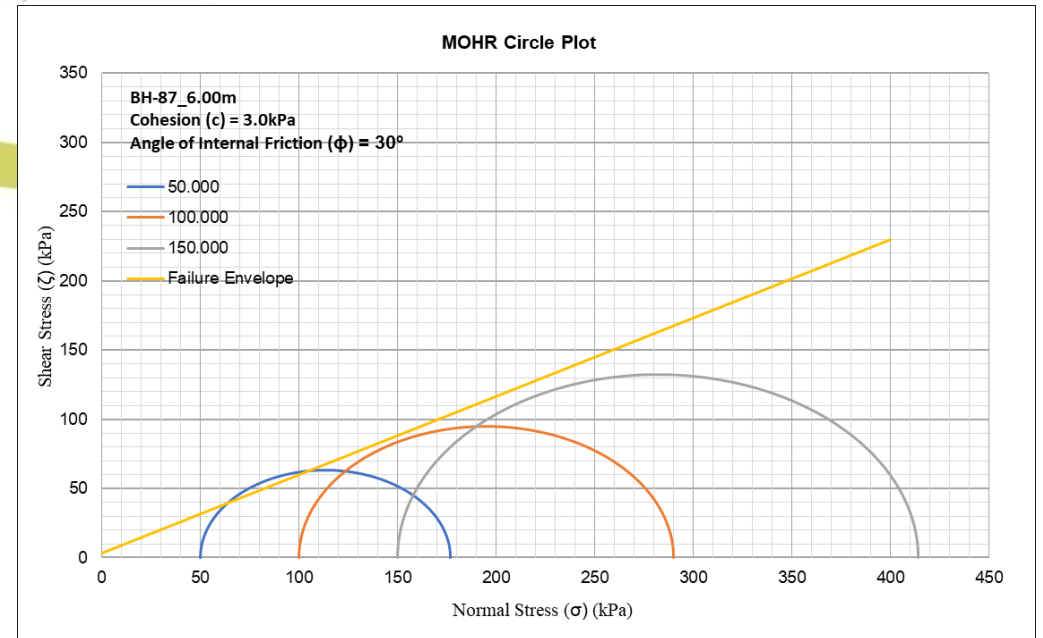
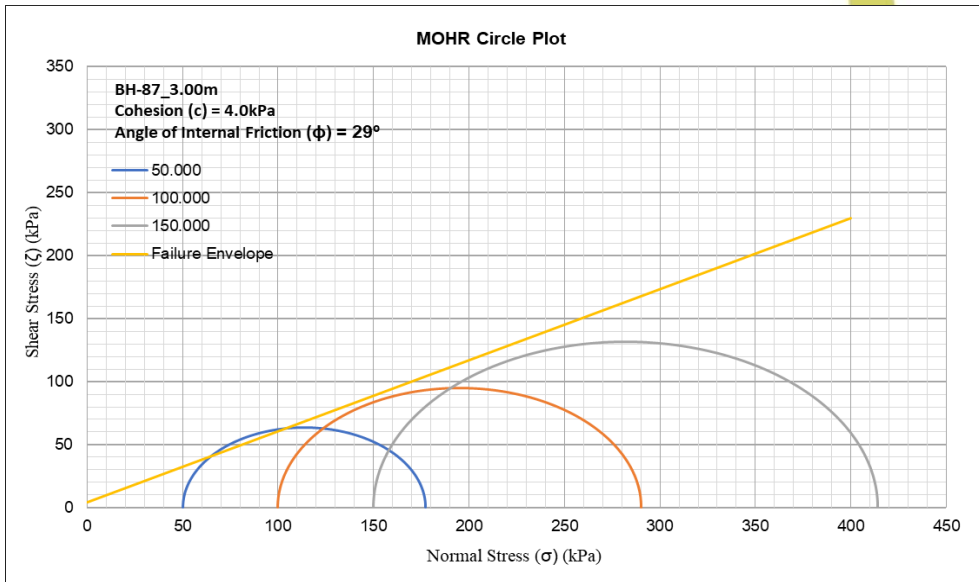
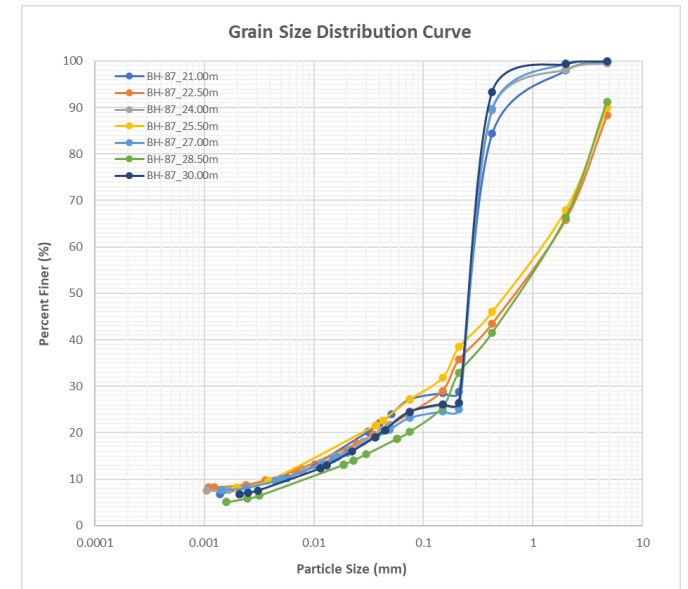
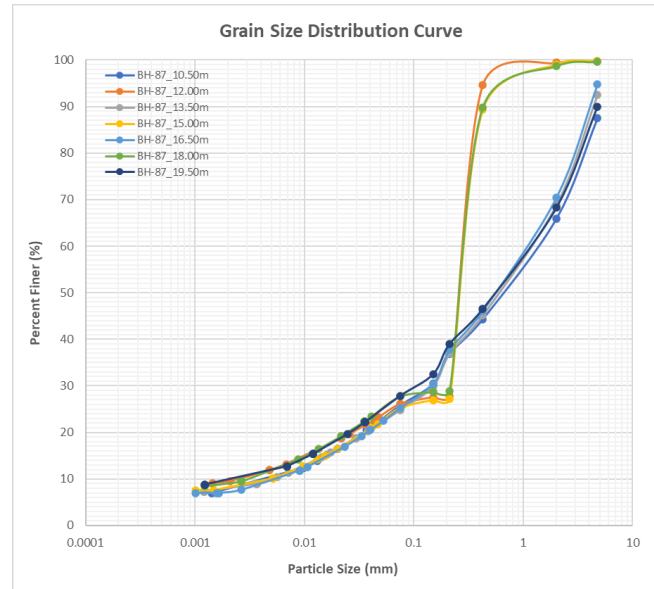
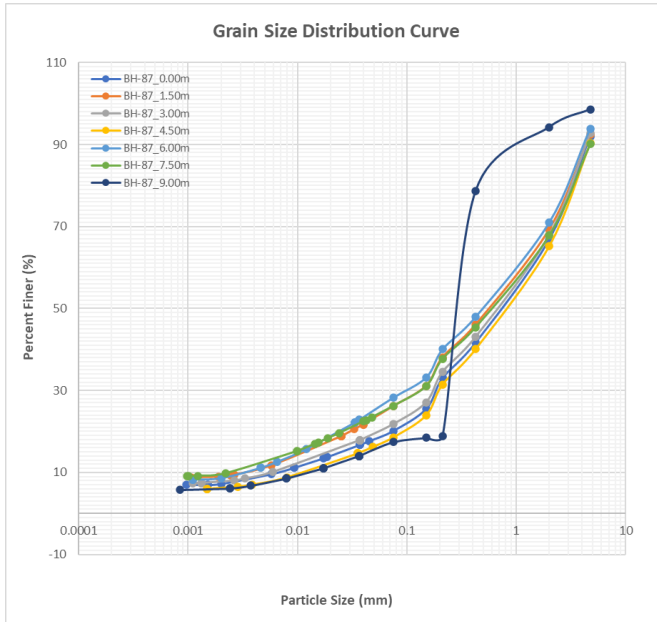
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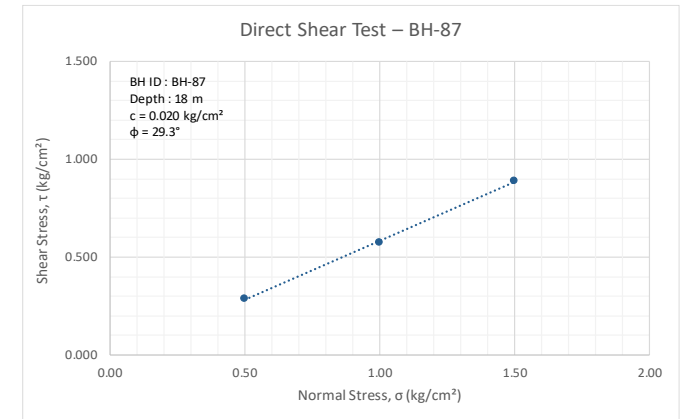
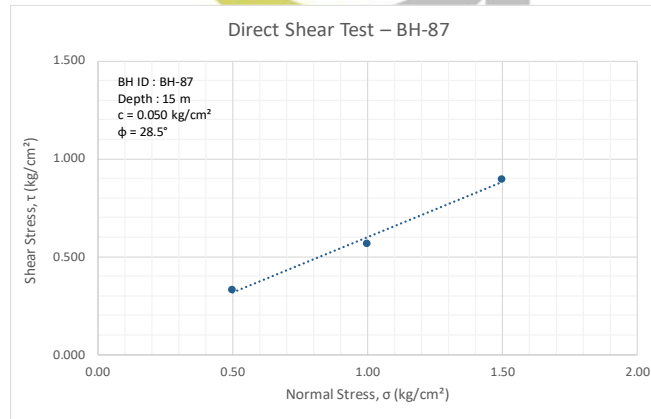
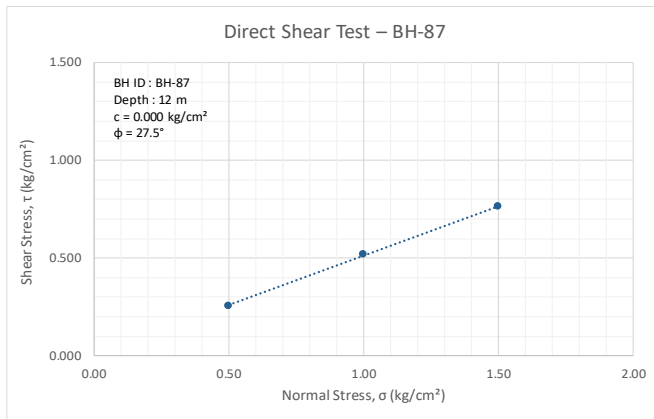
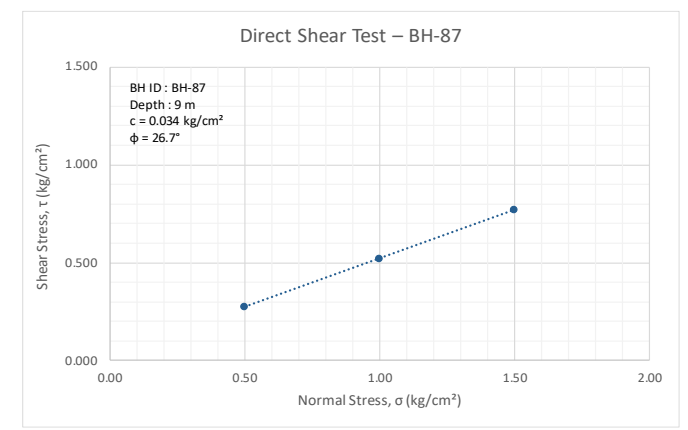
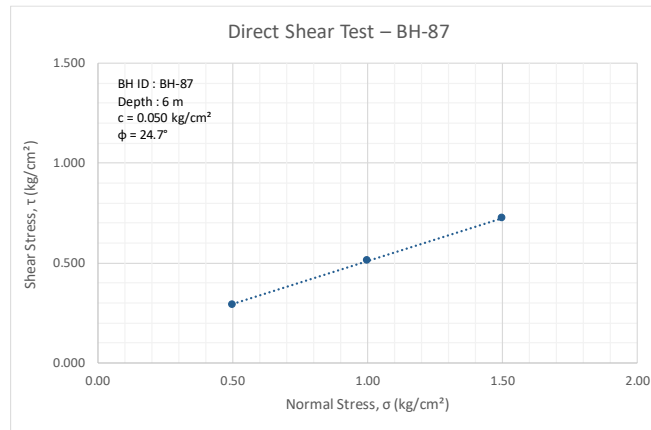
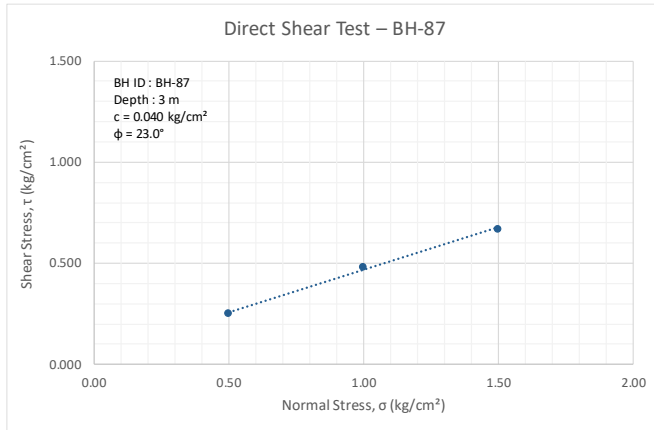


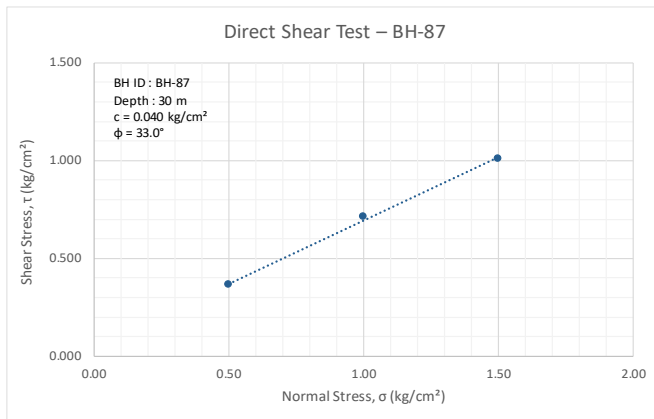
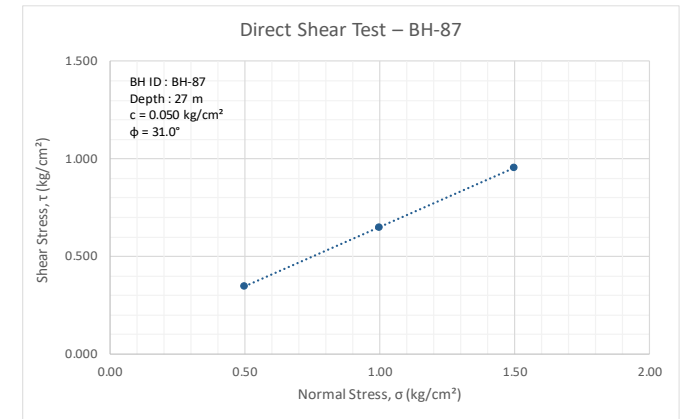
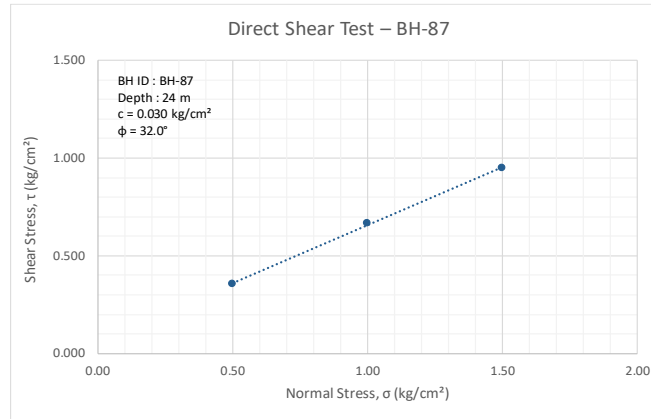
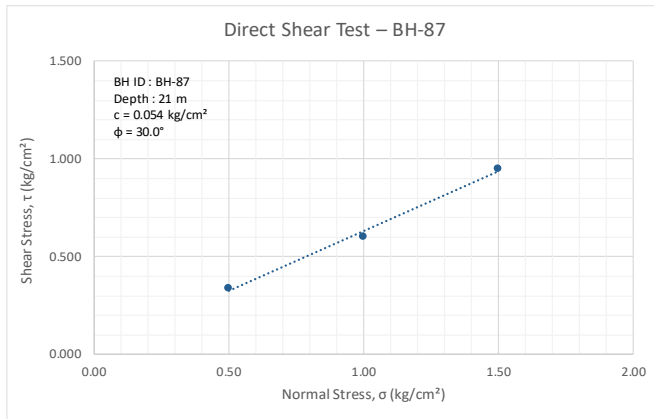
Project		Borehole Details		Drilling Details	
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-87	Contractor:	Goma Engineering & Consultancy
		Chainage [km]:	9+244	Method of Drilling:	Rotary Drilling
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00	Start Date:	11-02-2026
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	200.5	End Date:	11-02-2026
Project Code:	158_R10_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	14.95	Location:	Lat: 28.51211 , Long: 77.386349

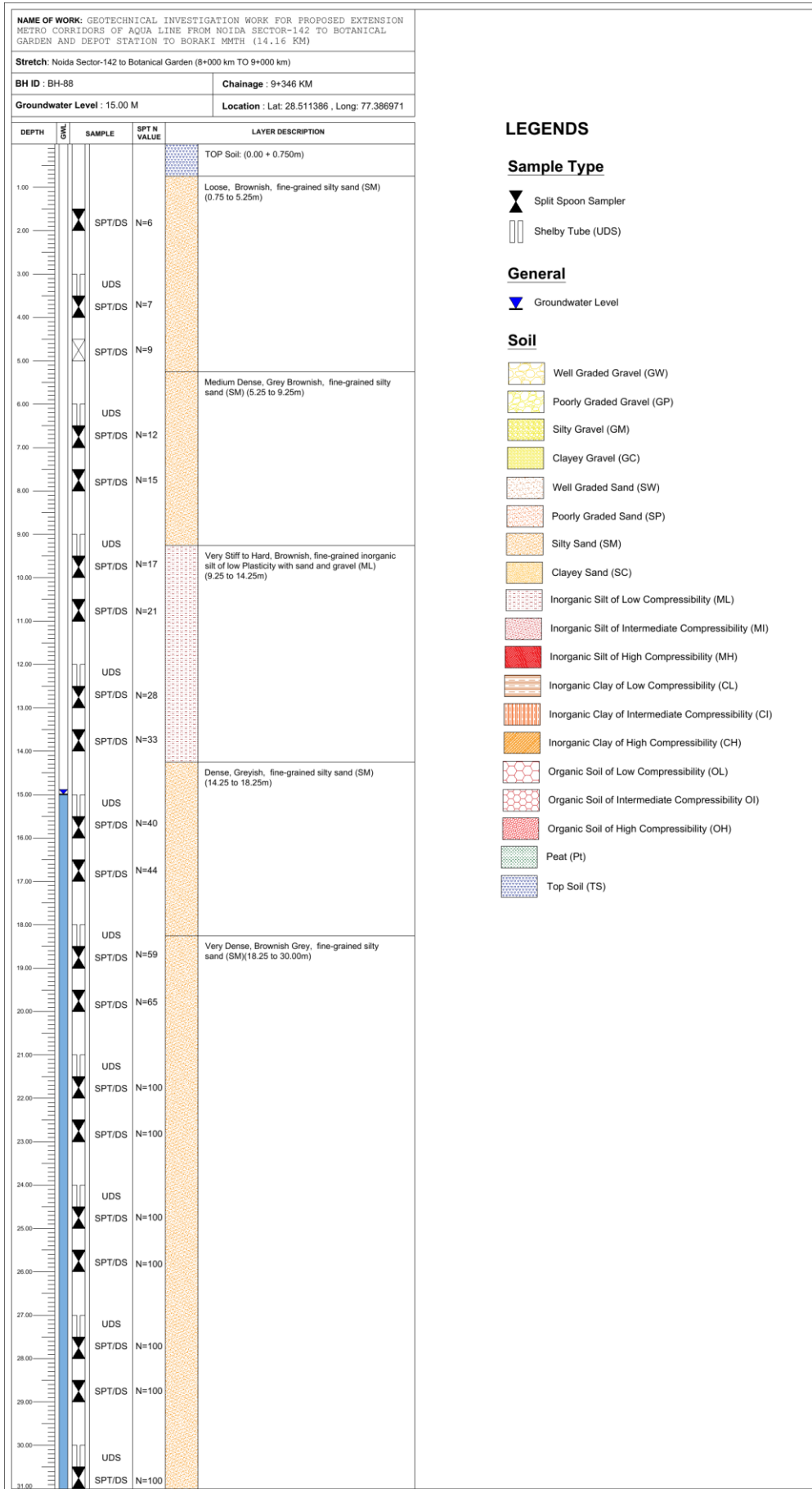
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						8.1	71.8	12.9	7.3	22	NP	NP													
1.50	SPT/DS	Loose, Greyish, fine-grained silty sand (SM)	2	3	4	7	10	7.5	66.4	17.1	9.0	27	NP	NP													
3.00	UDS							7.3	71.0	14.0	7.8	28	NP	NP	8.96	1.85	1.70	2.67	F	0.04	23	UU	4	29			
3.50	SPT/DS		3	4	5	9	10																				
4.50	SPT/DS	Medium Dense, Greyish, fine-grained silty sand (SM)	4	6	7	13	13	9.7	71.8	12.3	6.3	23	NP	NP													
6.00	UDS							6.1	65.7	19.6	8.6	28	NP	NP	10.25	1.88	1.71	2.70	F	0.05	25	UU	3	30			
6.50	SPT/DS		5	7	9	16	16																				
7.50	SPT/DS		6	8	11	19	17	9.8	63.9	16.6	9.6	21	NP	NP													
9.00	UDS							1.4	81.2	11.4	6.1	25	NP	NP	9.62	1.88	1.71	2.66	F	0.03	27						
9.50	SPT/DS		12	14	15	29	25																				
10.50	SPT/DS	Dense, Brownish to Greyish, fine-grained silty sand (SM)	13	16	19	35	26	12.5	61.7	17.9	7.9	26	NP	NP													
12.00	DS							0.3	73.6	16.6	9.5	28	NP	NP	22.20			2.78	F	0.00	28						
12.50	SPT/DS		13	16	19	35	26																				
13.50	SPT/DS		15	18	21	39	28	7.5	67.7	16.8	8.0	29	NP	NP													
15.00	DS							0.2	74.6	17.0	8.2	24	NP	NP	16.61			2.69	F	0.05	29						
15.50	SPT/DS		17	21	24	45	23																				
16.50	SPT/DS		19	22	26	48	23	5.2	69.6	17.9	7.3	29	NP	NP													
18.00	DS							0.3	71.9	18.7	9.1	25	NP	NP	19.98			2.61	F	0.02	29						
18.50	SPT/DS	Very Dense, Brownish to Dark Grayish, fine-grained silty sand (SM)	21	24	27	51	24																				
19.50	SPT/DS		22	23	30	53	24	10.0	62.1	17.9	9.9	24	NP	NP													
21.00	DS							0.1	72.7	19.5	7.7	26	NP	NP	19.68			2.75	F	0.05	30						
21.50	SPT/DS		23	25	33	58	25																				
22.50	SPT/DS		24	27	35	62	26	11.7	64.1	15.6	8.6	21	NP	NP													
24.00	DS							0.5	75.0	16.5	8.0	29	NP	NP	18.00			2.63	F	0.03	32						
24.50	SPT/DS		26	37	39	100	36																				
25.50	SPT/DS		35	45	(50/9 CM)	100	36	10.0	62.9	19.0	8.1	24	NP	NP													
27.00	DS							0.1	76.6	15.3	8.0	26	NP	NP	16.83			2.76	F	0.05	31						
27.50	SPT/DS		48	(50/10 CM)	-	100	35																				
28.50	SPT/DS		(50/13 CM)	-	-	100	34	8.8	71.1	14.7	5.5	27	NP	NP													
30.00	DS							0.0	75.5	18.4	6.1	23	NP	NP	17.82			2.64	F	0.04	33						
30.50	SPT/DS	(50/9 CM)	-	-	100	33																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

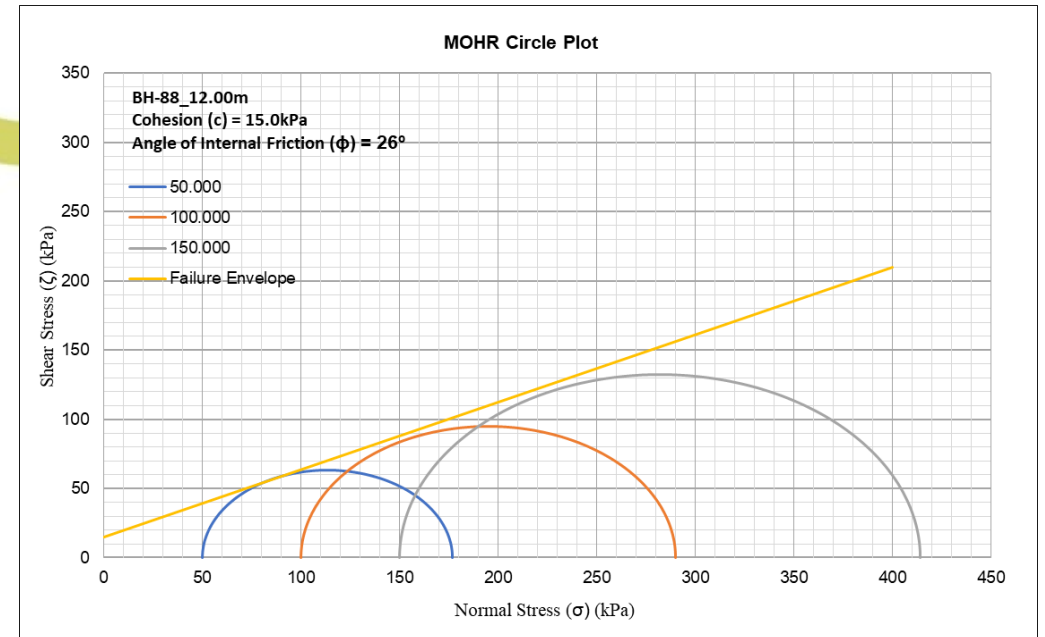
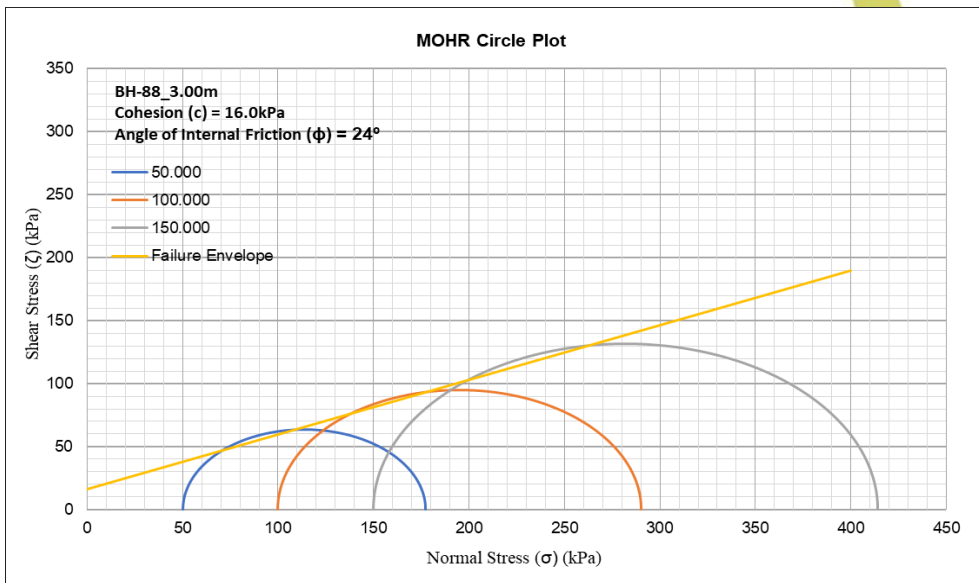
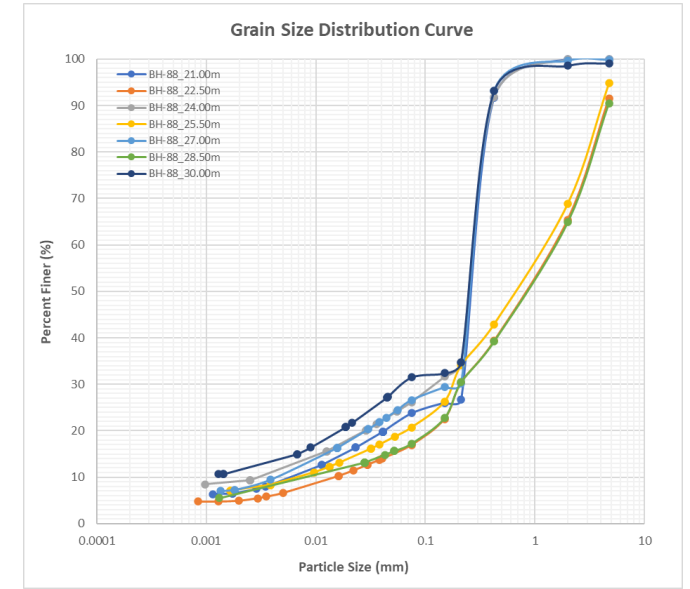
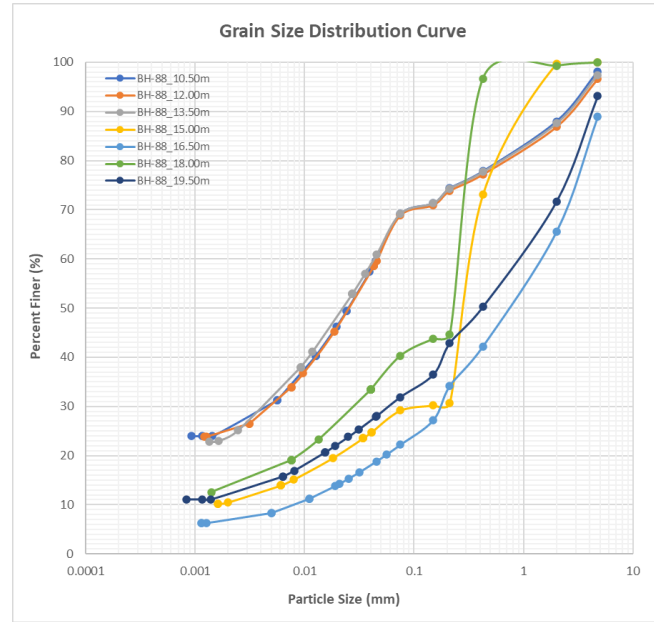
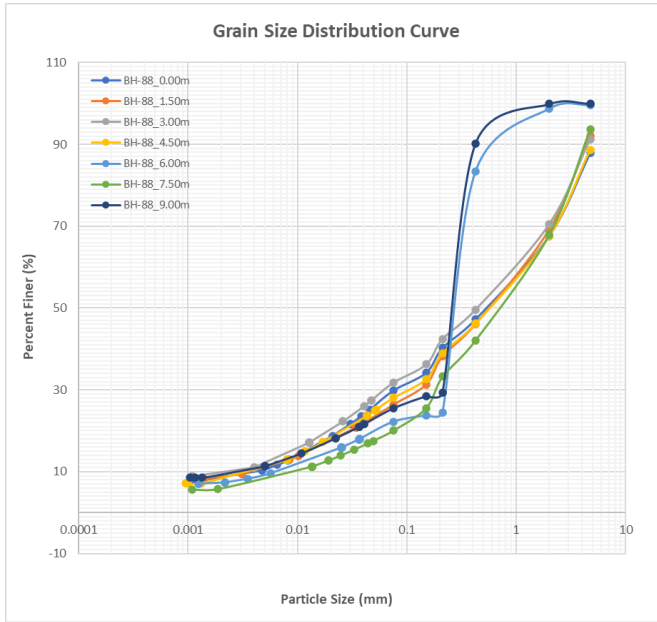
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- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

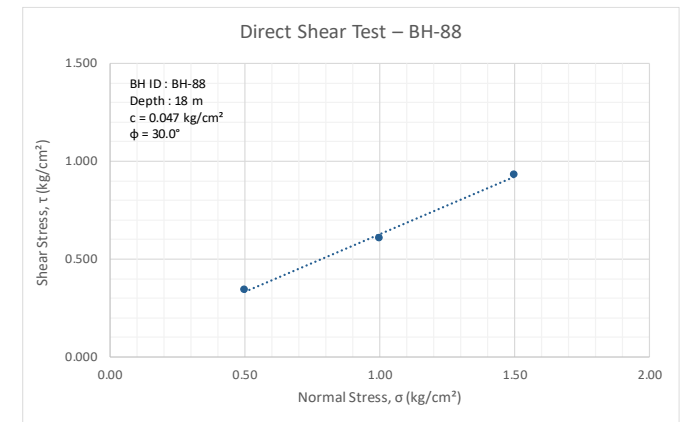
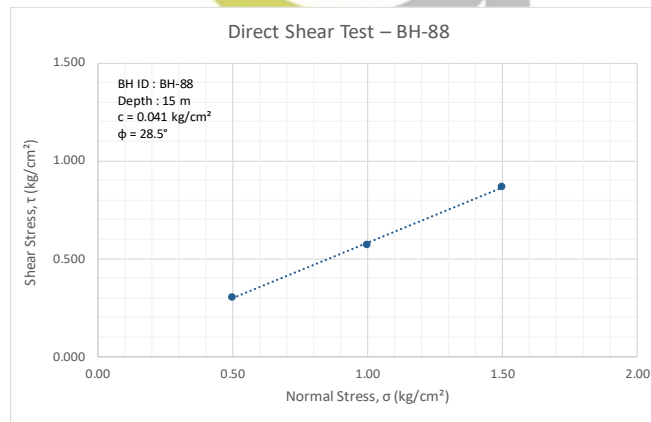
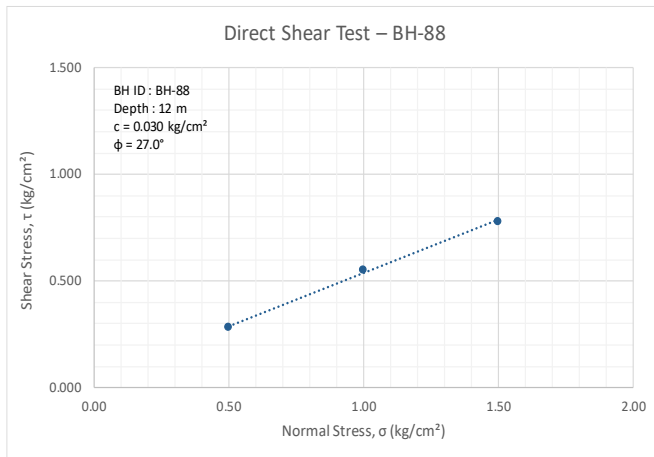
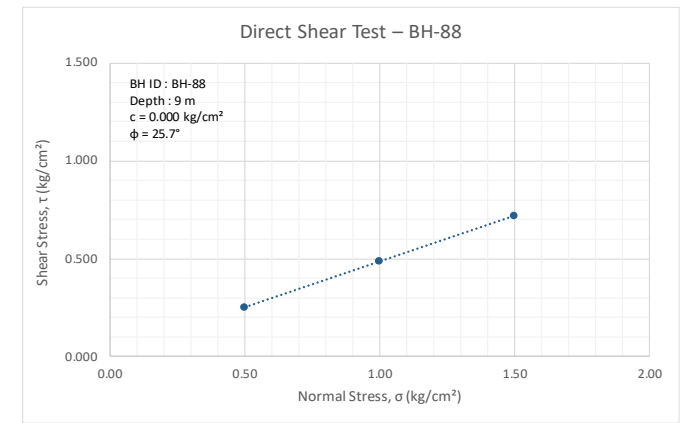
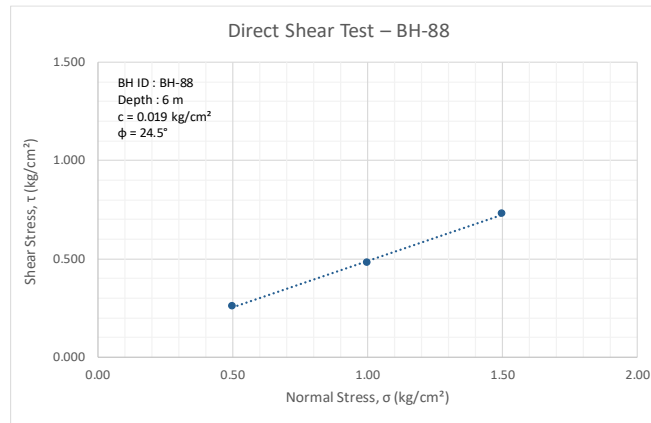
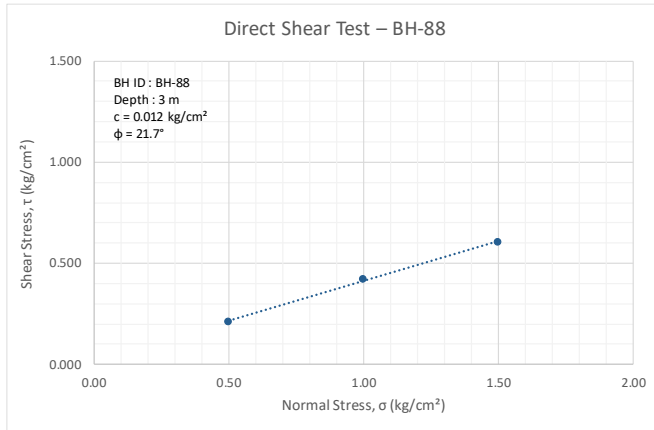


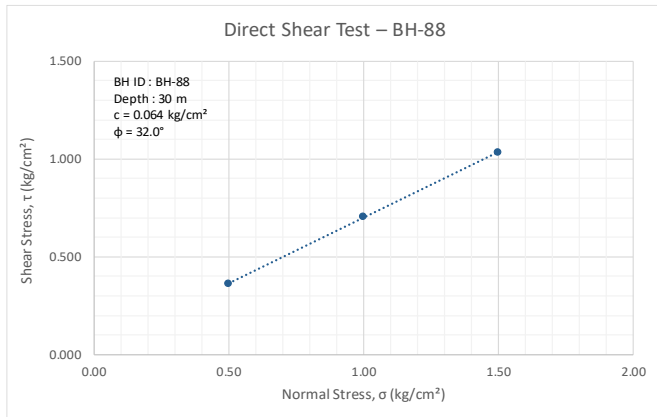
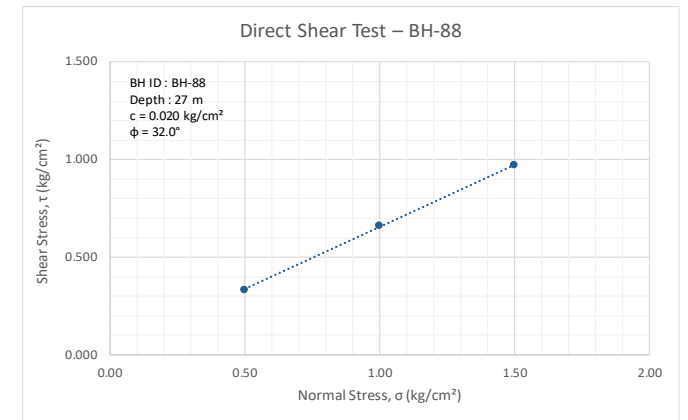
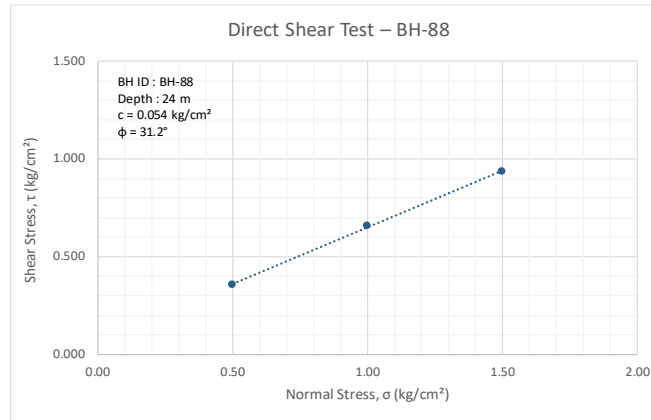
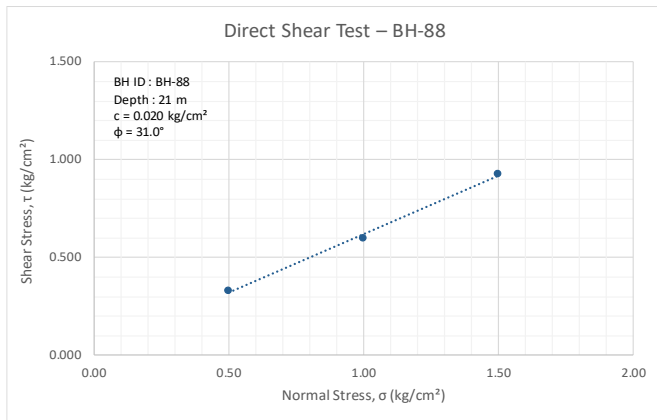
Project		Borehole Details		Drilling Details	
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-88	Contractor:	Goma Engineering & Consultancy
		Chainage [km]:	9+346	Method of Drilling:	Rotary Drilling
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00	Start Date:	12-02-2026
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	198.9	End Date:	12-02-2026
Project Code:	158_R10_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	15.00	Location:	Lat: 28.511386 , Long: 77.386971

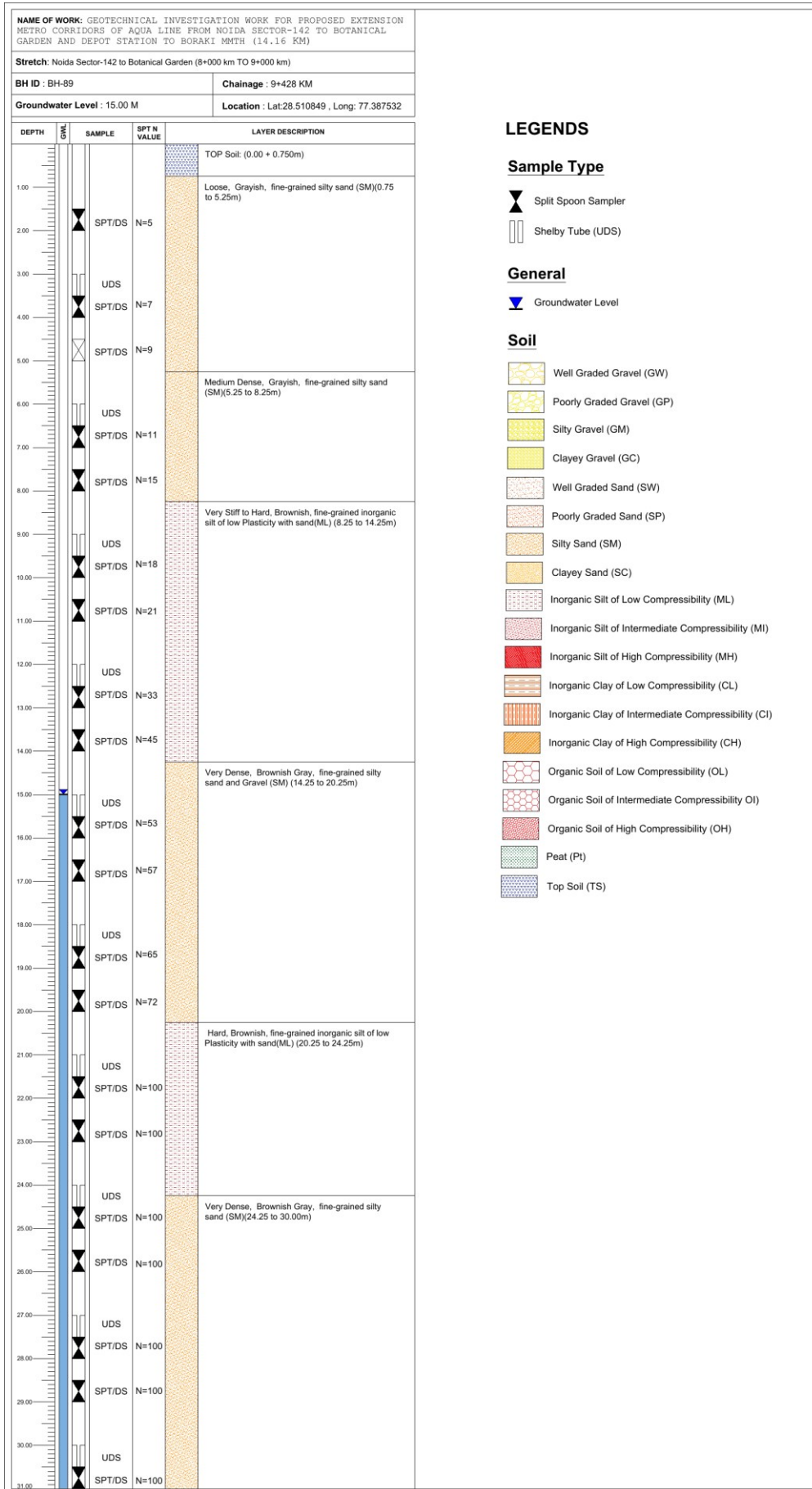
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						12.1	58.1	21.1	8.7	21	NP	NP													
1.50	SPT/DS	Loose, Brownish, fine-grained silty sand (SM)	2	3	3	6	8	7.9	65.8	17.5	8.8	28	NP	NP													
3.00	UDS							8.7	59.5	21.8	9.9	27	NP	NP	16.1	1.87	1.61	2.65	F	0.01	22	UU	16	24			
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	3	6	9	9	11.4	60.6	19.5	8.5	23	NP	NP													
6.00	UDS	Medium Dense, Grey Brownish, fine-grained silty sand (SM)						0.3	77.5	14.9	7.3	29	NP	NP	20.55	1.72	1.43	2.79	F	0.02	25						
6.50	SPT/DS		4	5	7	12	11																				
7.50	SPT/DS		4	6	9	15	14	6.4	73.6	14.1	5.9	25	NP	NP													
9.00	DS						0.0	74.5	16.1	9.4	26	NP	NP	18.51			2.61	F	0.00	26							
9.50	SPT/DS	Very Stiff to Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand and gravel (ML)	5	7	10	17	15																				
10.50	SPT/DS		7	9	12	21	17	1.9	29.0	43.4	25.8	27	NP	NP													
12.00	UDS							3.4	27.7	43.7	25.2	26	NP	NP	19.23	1.91	1.60	2.61	F	0.03	27	UU	15	26			
12.50	SPT/DS		10	13	15	28	21																				
13.50	SPT/DS						12	15	18	33	24	2.6	28.2	45.2	24.1	24	NP	NP									
15.00	DS	Dense, Greyish, fine-grained silty sand (SM)						0.0	70.8	18.7	10.5	23	NP	NP	20.40			2.65	F	0.04	29						
15.50	SPT/DS		13	18	22	40	21																				
16.50	SPT/DS		15	20	24	44	22	11.1	66.7	15.2	7.0	21	NP	NP													
18.00	DS						0.1	59.6	26.4	14.0	23	NP	NP	20.19			2.71	F	0.05	30							
18.50	SPT/DS	Very Dense, Brownish Grey, fine-grained silty sand (SM)	20	27	32	59	26																				
19.50	SPT/DS		24	30	35	65	28	6.9	61.2	19.7	12.2	28	NP	NP													
21.00	DS							0.0	76.2	17.0	6.8	29	NP	NP	18.05			2.65	F	0.02	31						
21.50	SPT/DS		29	34	40	100	38																				
22.50	SPT/DS		35	42	48	100	37	8.5	74.6	12.0	4.9	23	NP	NP													
24.00	DS							0.0	73.8	17.1	9.1	27	NP	NP	18.70			2.74	F	0.05	31						
24.50	SPT/DS		40	(50/4 cm)	-	100	37																				
25.50	SPT/DS		50	-	-	100	36	5.2	74.1	13.3	7.4	23	NP	NP													
27.00	DS							0.1	73.2	19.1	7.5	28	NP	NP	18.78			2.66	F	0.02	32						
27.50	SPT/DS		47	(50/6 cm)	-	100	35																				
28.50	SPT/DS		48	(50/8 cm)	-	100	34	9.5	73.3	10.7	6.5	29	NP	NP													
30.00	DS							0.9	67.6	19.9	11.6	26	NP	NP	19.22			2.62	F	0.06	32						
30.50	SPT/DS		(50/4 cm)	-	-	100	33																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

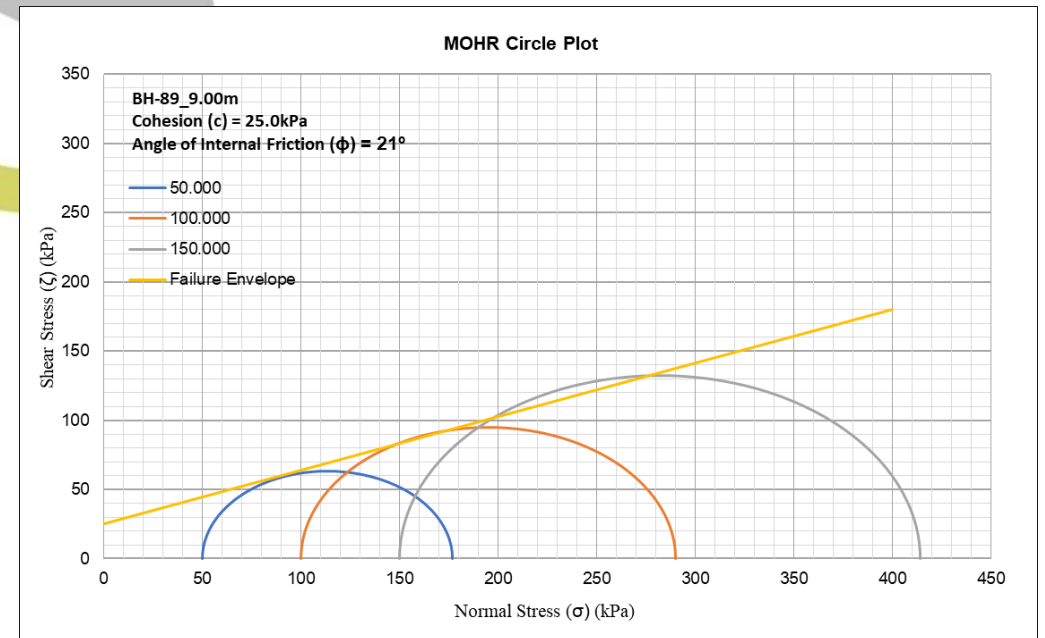
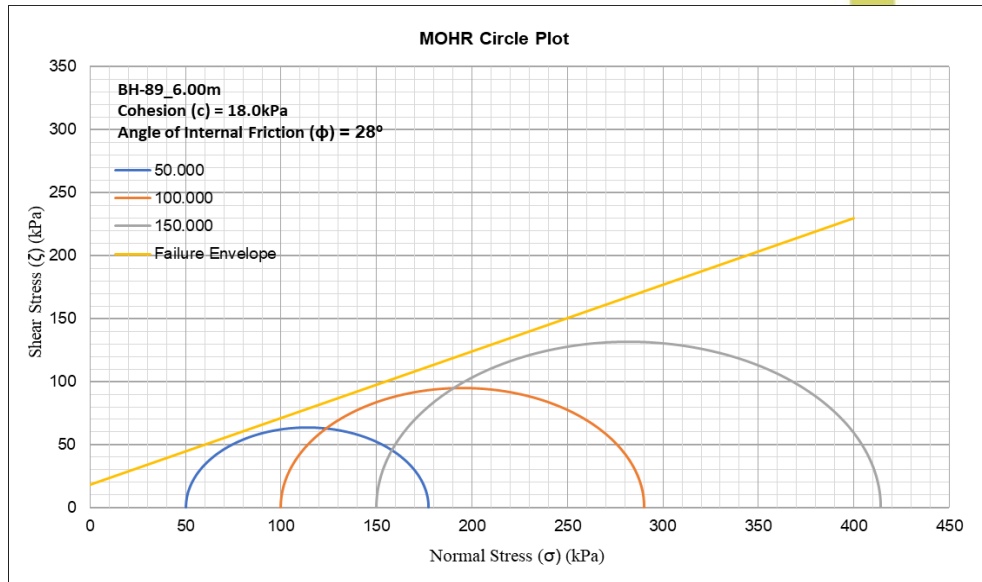
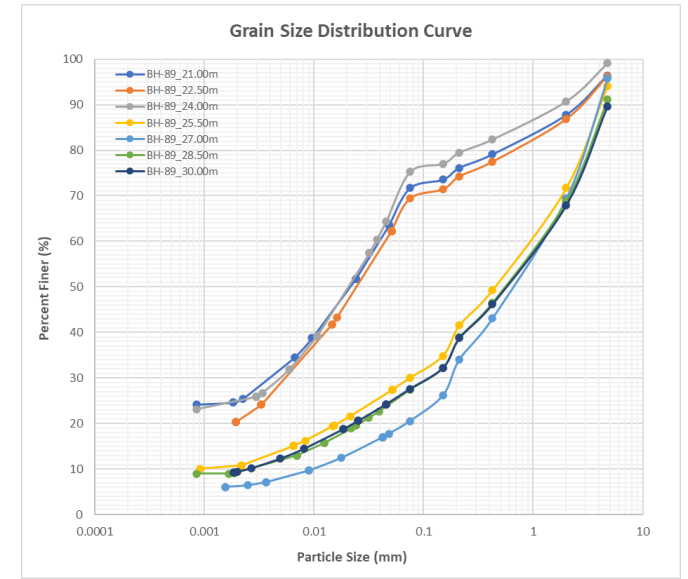
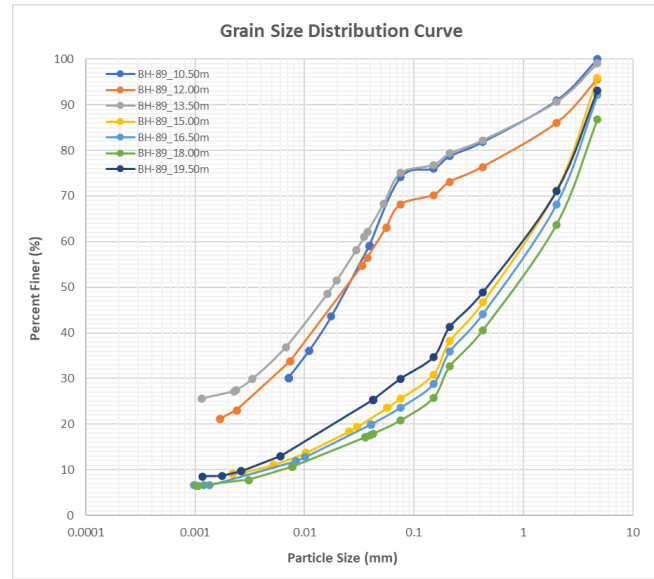
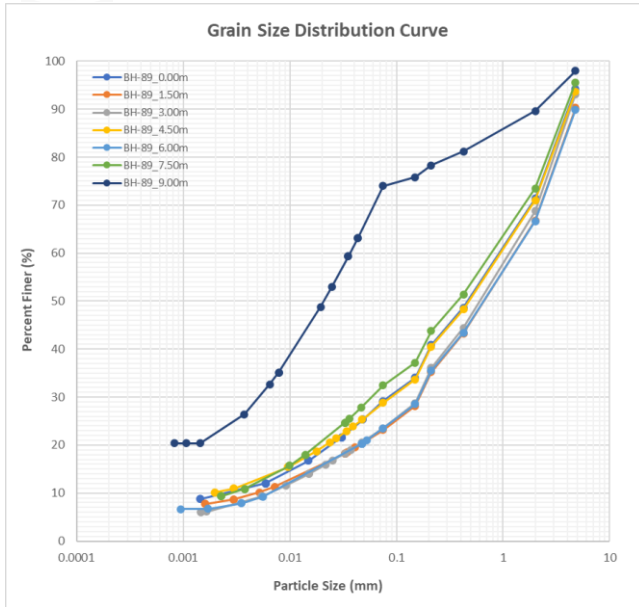
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- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

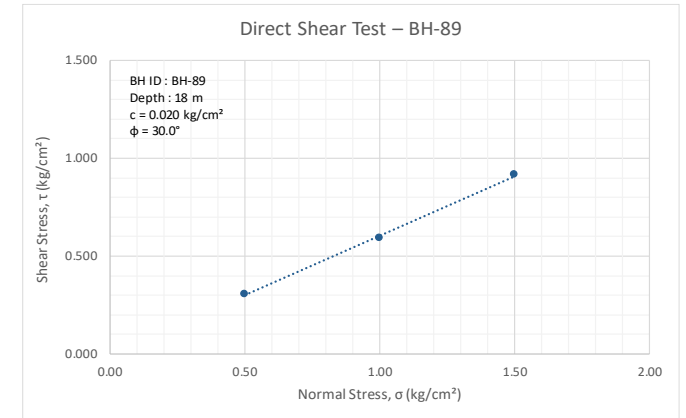
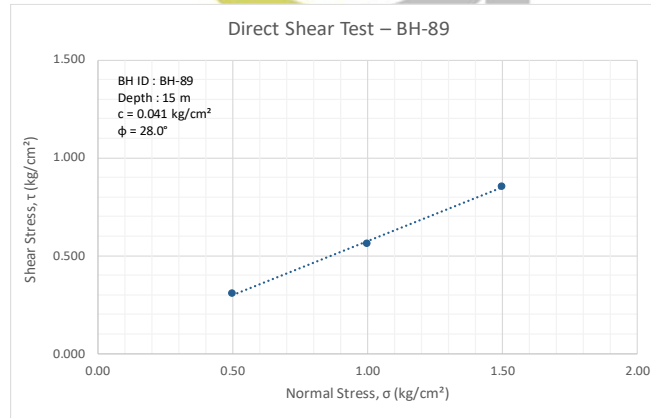
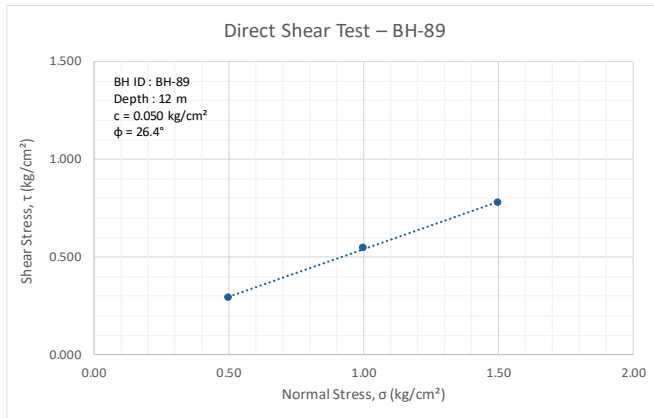
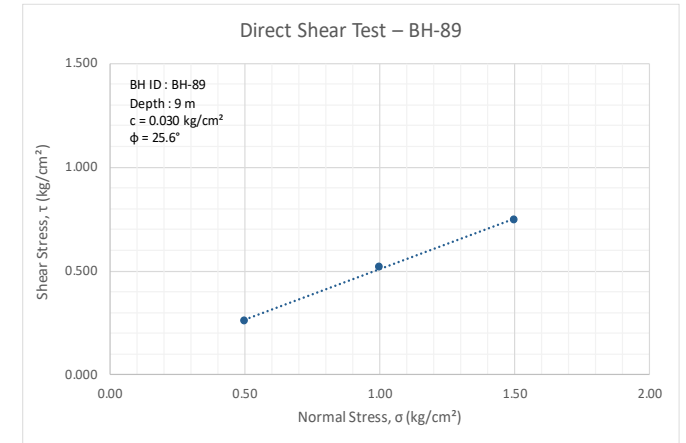
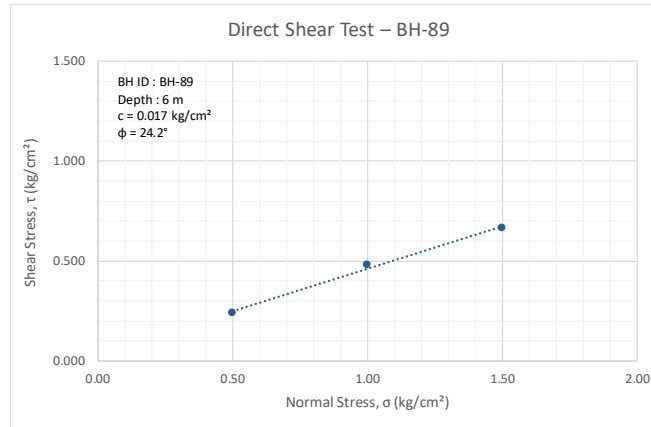
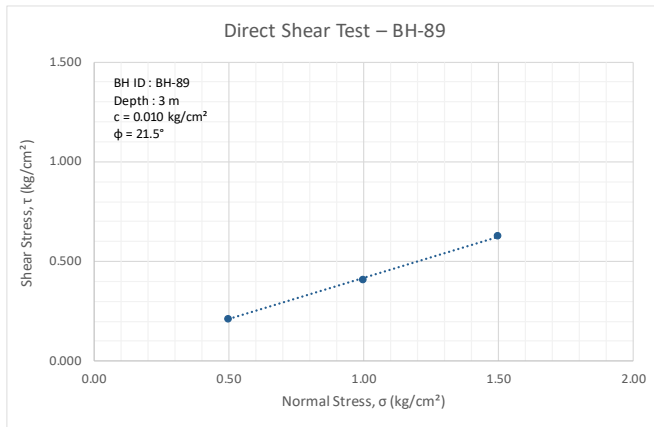


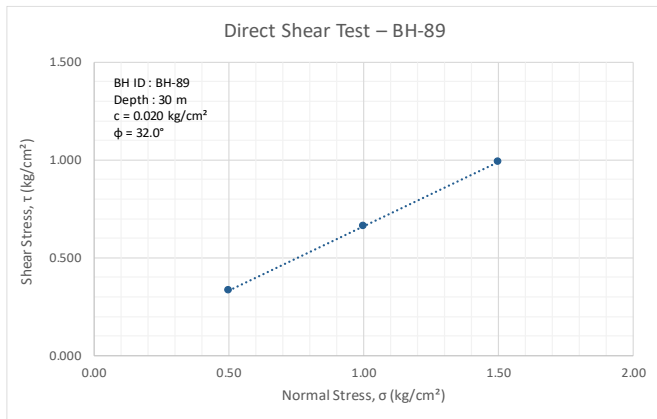
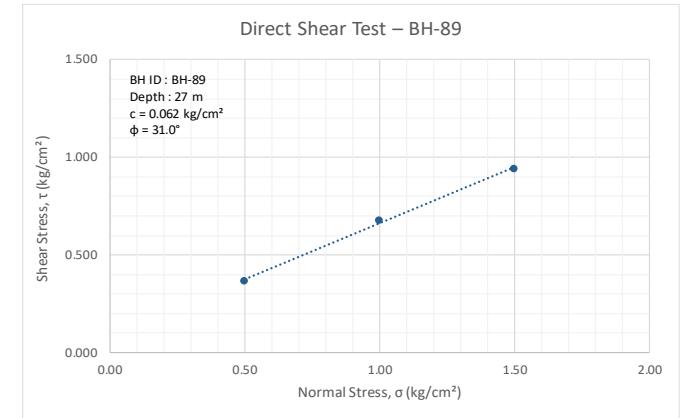
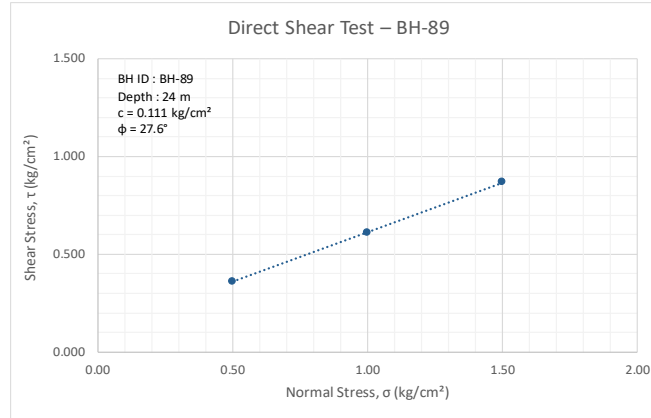
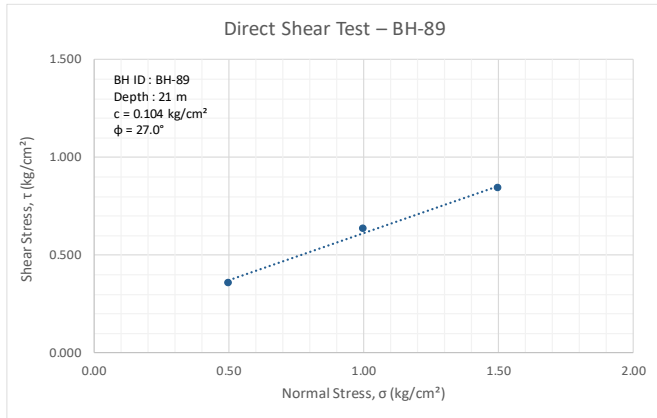
Project		Borehole Details		Drilling Details	
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-89	Contractor:	Goma Engineering & Consultancy
		Chainage [km]:	9+428	Method of Drilling:	Rotary Drilling
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00	Start Date:	11-02-2026
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	198.1	End Date:	11-02-2026
Project Code:	158_R10_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	15.00	Location:	Lat:28.510849 , Long: 77.387532

Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test			
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]	
0.00	DS	Top Soil						5.8	65.0	19.7	9.5	25	NP	NP														
1.50	SPT/DS	Loose, Grayish, fine-grained silty sand (SM)	2	2	3	5	7	9.7	67.2	15.1	8.1	26	NP	NP														
3.00	UDS							6.9	69.6	16.9	6.6	21	NP	NP	13.55	1.66	1.46	2.63	F	0.01	22							
3.50	SPT/DS							2	3	4	7	8																
4.50	SPT/DS							3	4	5	9	9	6.3	64.9	18.7	10.2	27	NP	NP									
6.00	UDS	Medium Dense, Grayish, fine-grained silty sand (SM)						10.1	66.4	16.5	7.0	22	NP	NP	11.43	1.84	1.65	2.60	F	0.02	24	UU	18	28				
6.50	SPT/DS							4	5	6	11	10																
7.50	SPT/DS							4	6	9	15	14	4.4	63.2	20.1	12.3	26	NP	NP									
9.00	UDS	Very Stiff to Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)						2	24.0	51.5	22.5	27	NP	NP	15.01	1.88	1.63	2.66	F	0.03	26	UU	25	21				
9.50	SPT/DS							6	8	10	18	15																
10.50	SPT/DS							7	9	12	21	17	0.0	25.9	55.2	18.9	23	NP	NP									
12.00	DS							4.4	27.4	46.1	22.1	22	NP	NP	17.40			2.60	F	0.05	26							
12.50	SPT/DS							10	14	19	33	25																
13.50	SPT/DS							15	20	25	45	32	1.0	24.0	48.1	26.9	28	NP	NP									
15.00	DS	Very Dense, Brownish Gray, fine-grained silty sand and Gravel (SM)						4.1	70.3	18.8	6.8	26	NP	NP	18.19			2.61	F	0.04	28							
15.50	SPT/DS							20	24	29	53	25																
16.50	SPT/DS							22	26	31	57	26	7.9	68.5	15.9	7.8	24	NP	NP									
18.00	DS							13.2	66.0	13.5	7.3	26	NP	NP	18.05			2.66	F	0.02	30							
18.50	SPT/DS							25	30	35	65	28																
19.50	SPT/DS							27	33	39	72	30	6.8	63.3	20.9	9.0	25	NP	NP									
21.00	DS	Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)						3.5	24.8	46.7	25.0	29	NP	NP	18.73			2.61	F	0.10	27							
21.50	SPT/DS							30	35	40	100	38																
22.50	SPT/DS							35	42	48	100	37	3.7	26.9	48.9	20.5	24	NP	NP									
24.00	DS						0.9	23.9	50.3	25.0	23	NP	NP	15.78			2.62	F	0.11	28								
24.50	SPT/DS	Very Dense, Brownish Gray, fine-grained silty sand (SM)	40	(50/12 cm)	-	100	36																					
25.50	SPT/DS		48	(50/6 cm)	-	100	36	5.8	64.2	19.3	10.7	24	NP	NP														
27.00	DS							4.3	75.2	14.3	6.2	26	NP	NP	17.23			2.65	F	0.06	31							
27.50	SPT/DS		46	(50/5 cm)	-	100	35																					
28.50	SPT/DS		(50/12 cm)	-	-	100	34	8.9	63.7	18.1	9.3	23	NP	NP														
30.00	DS							10.3	62.1	18.2	9.4	22	NP	NP	16.21			2.68	F	0.02	32							
30.50	SPT/DS		(50/10 cm)	-	-	100	33																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.

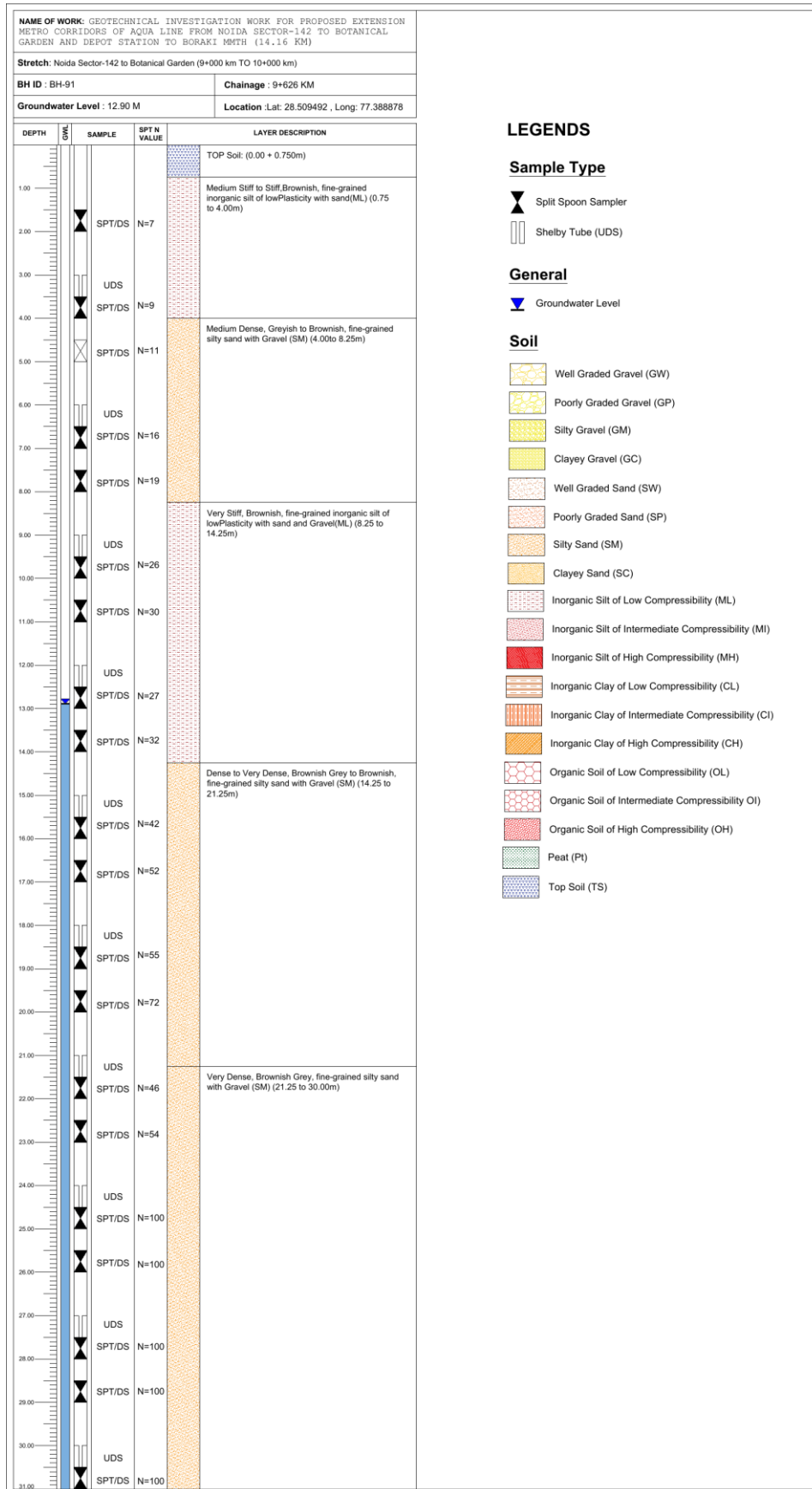








### C.11. Zone 11: CH: 9+430 km to 10+540 km (BH-91 to BH-100)

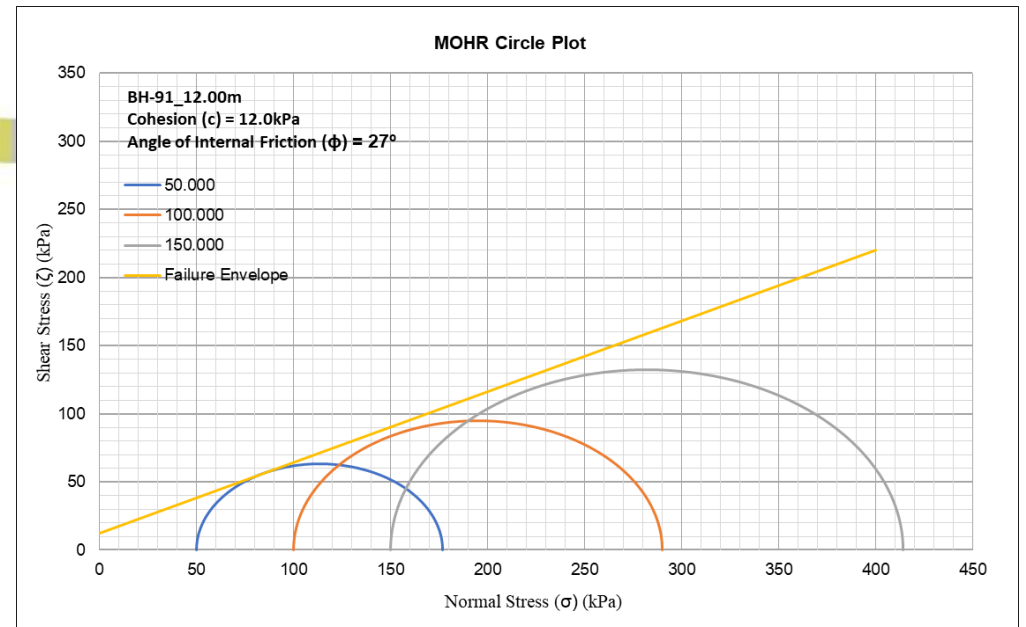
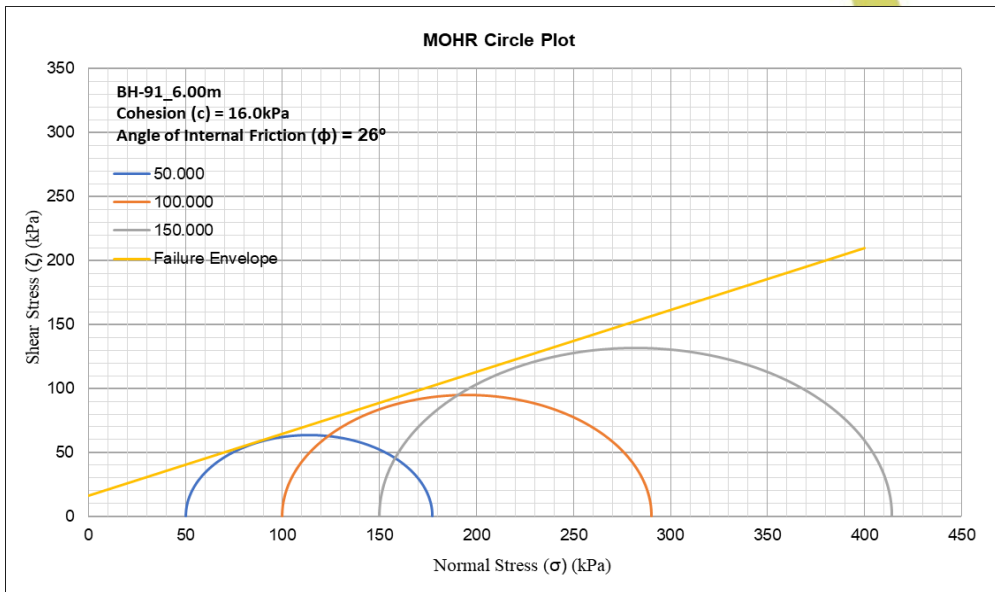
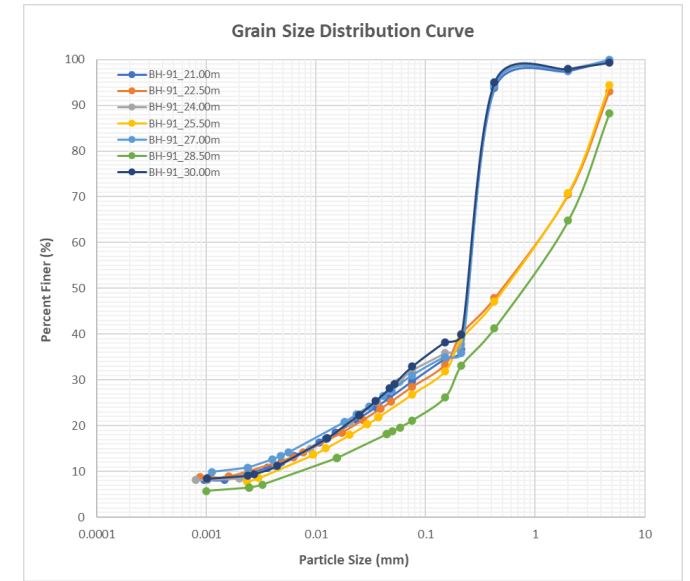
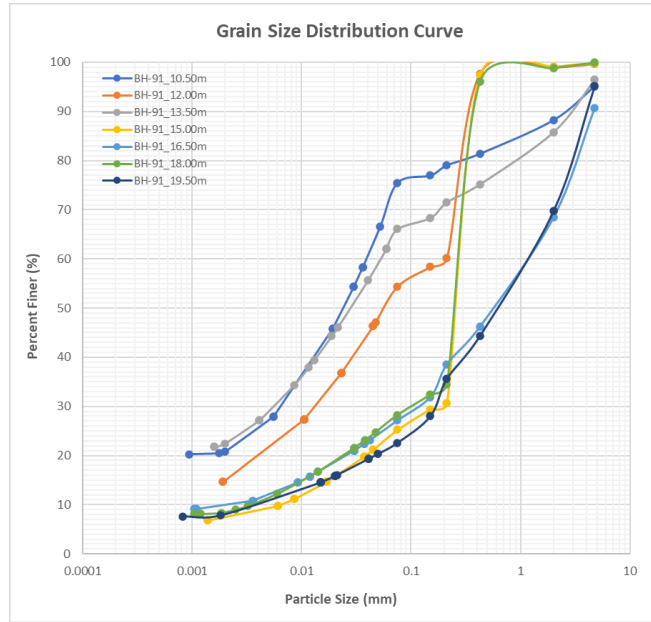
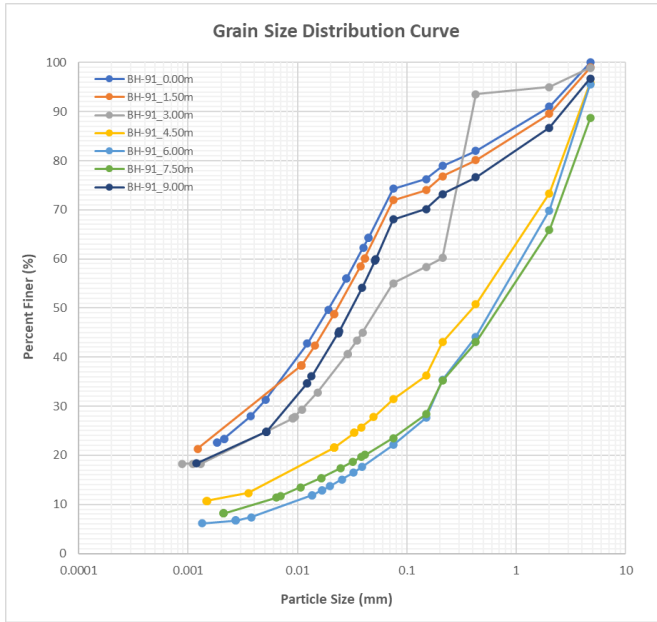


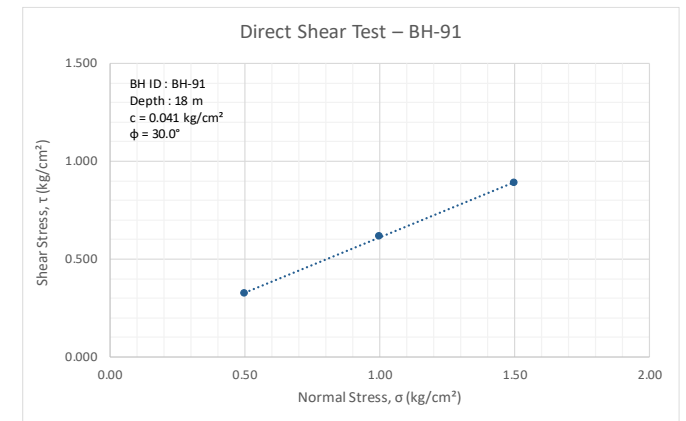
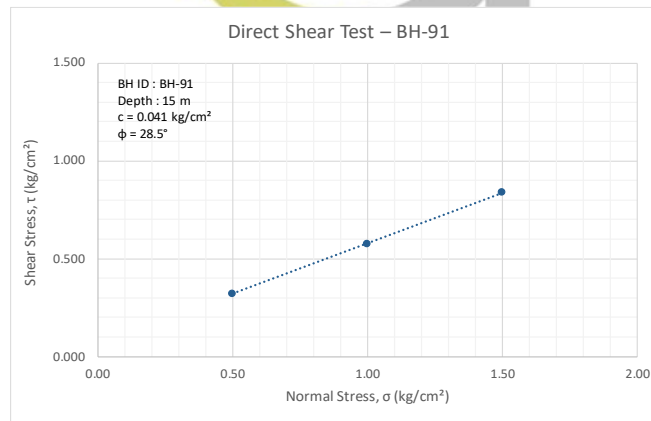
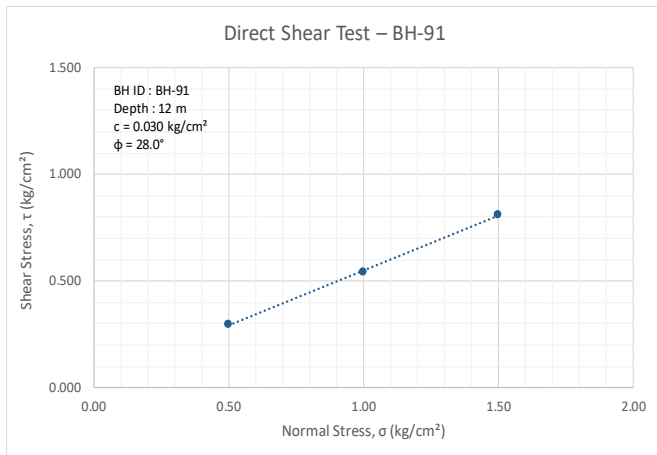
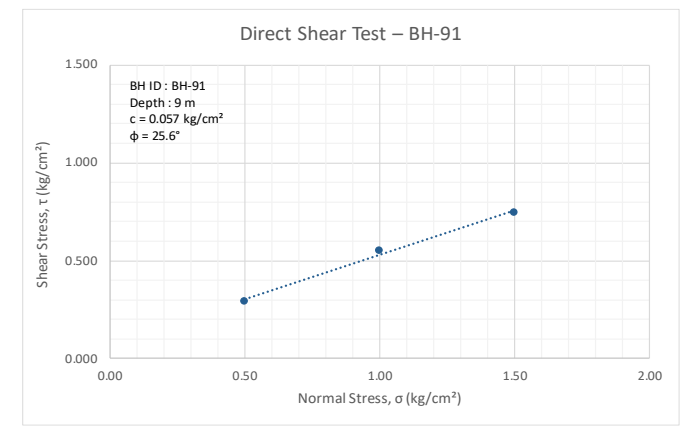
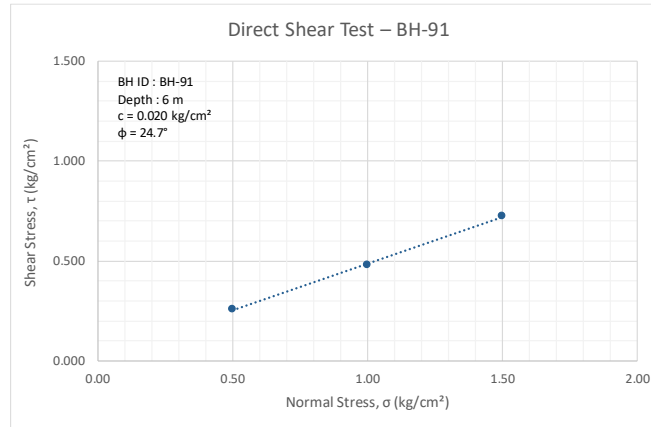
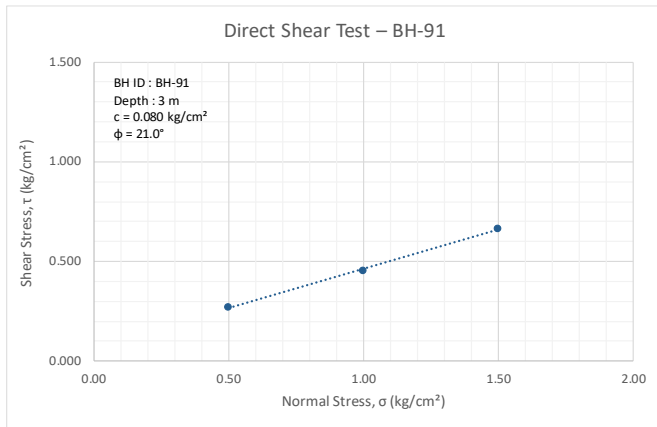


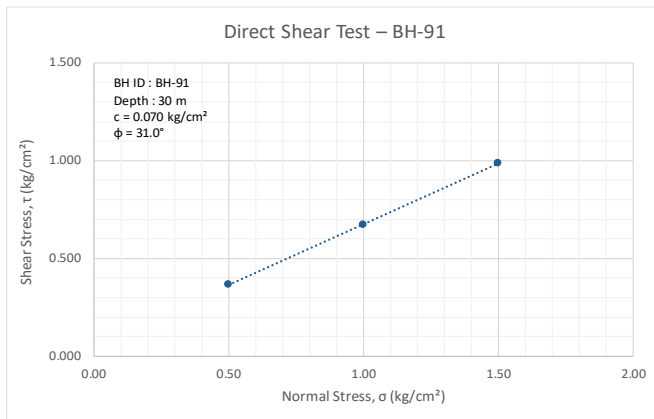
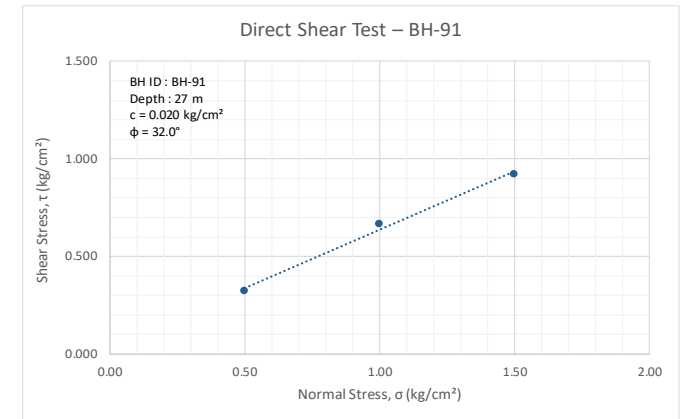
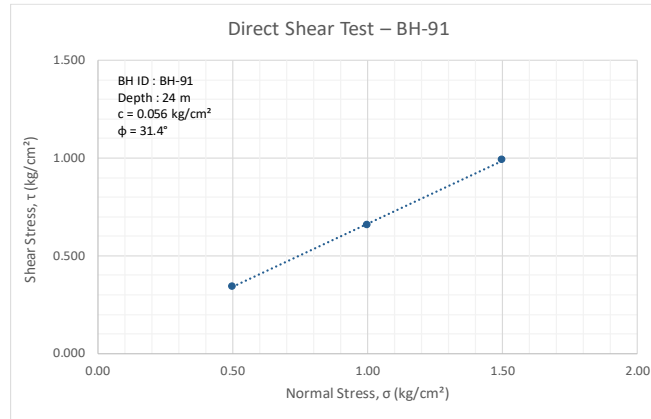
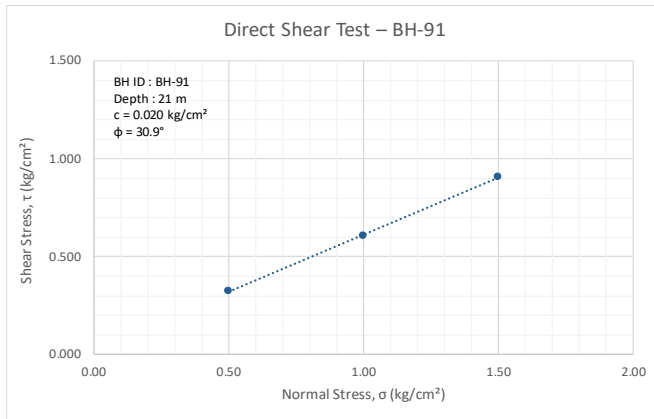
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-91		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	9+626		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	10-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	196.30		End Date:	10-02-2026	
Project Code:	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	13.10		Location:	Lat: 28.509492 , Long: 77.388878	

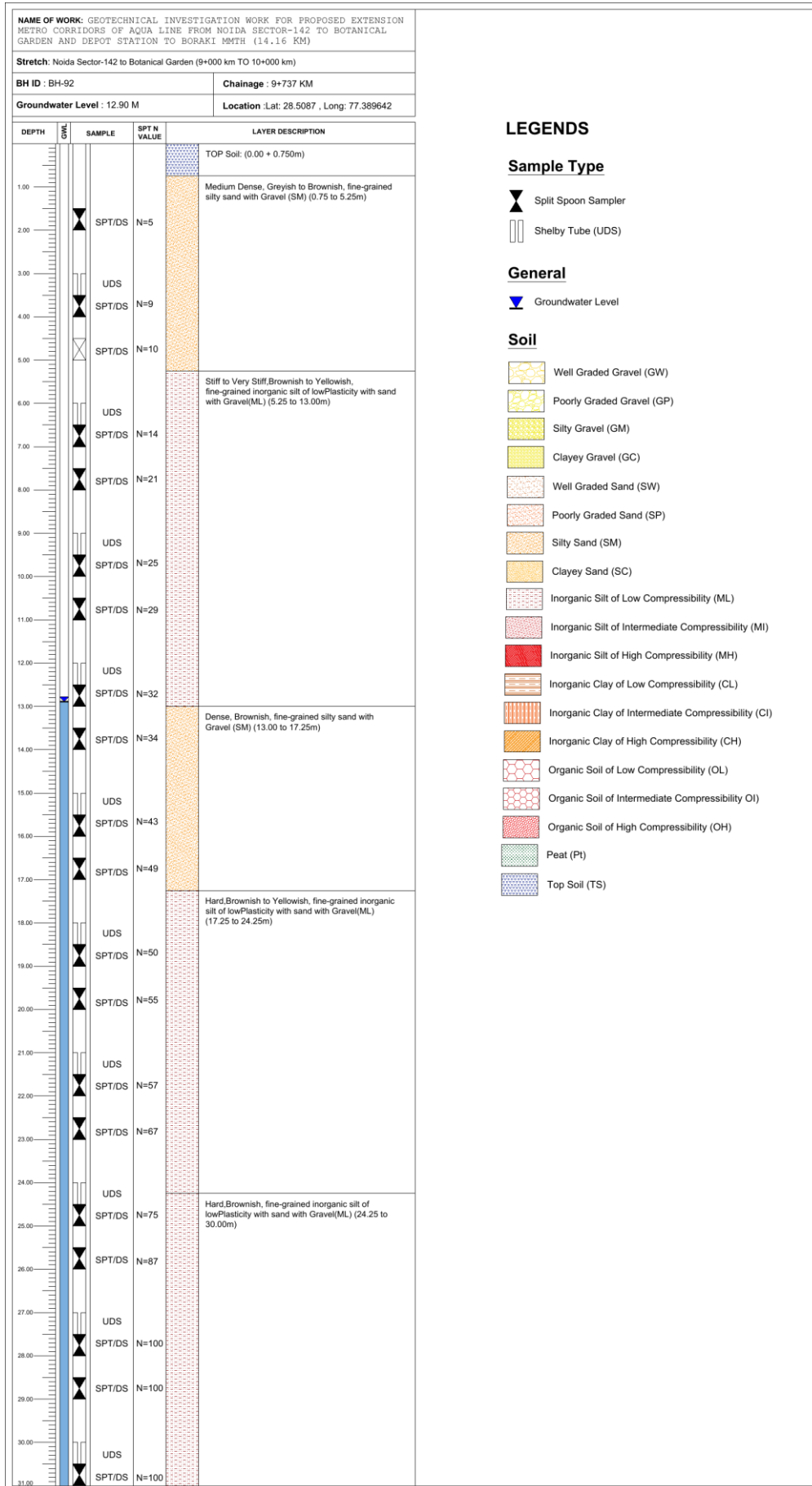
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						0.0	25.7	51.3	23.0	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Stiff to Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand (ML)	3	3	4	7	10	1.0	27.0	46.8	25.2	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							1.1	43.9	34.8	20.3	28	NP	NP	4.76	1.64	1.57	2.72	F	0.08	21	-	-	-	-	-	-
3.50	SPT/DS		3	4	5	9	10																				
4.50	SPT/DS	Medium Dense, Greyish to Brownish, fine-grained silty sand with Gravel (SM)	4	5	6	11	11	4.1	64.5	20.1	11.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							4.4	73.5	15.7	6.5	23	NP	NP	5.42	1.88	1.78	2.61	F	0.02	25	UU	16	26	-	-	-
6.50	SPT/DS		5	7	9	16	15																				
7.50	SPT/DS		7	9	10	19	17	11.4	65.2	17.2	6.3	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS	Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand and Gravel (ML)						3.3	28.7	47.4	20.6	24	NP	NP	17.19	1.84	1.57	2.60	F	0.06	26	-	-	-	-	-	-
9.50	SPT/DS		9	11	15	26	22																				
10.50	SPT/DS		10	13	17	30	25	4.9	19.6	54.7	20.8	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS							0.4	45.3	39.4	15.0	24	NP	NP	8.63	1.9	1.75	2.60	F	0.03	28	UU	12	27	-	-	-
12.50	SPT/DS		10	12	15	27	20																				
13.50	SPT/DS	12	15	17	32	23	3.6	30.4	43.5	22.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
15.00	DS	Dense to Very Dense, Brownish Grey to Brownish, fine-grained silty sand with Gravel (SM)						0.2	74.6	17.7	7.6	28	NP	NP	19.85	-	-	2.61	F	0.04	29	-	-	-	-	-	-
15.50	SPT/DS		15	19	23	42	21																				
16.50	SPT/DS		18	23	29	52	24	9.3	63.6	17.2	10.0	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.0	71.7	19.8	8.5	23	NP	NP	21.68	-	-	2.72	F	0.04	30	-	-	-	-	-	-
18.50	SPT/DS		22	25	30	55	25																				
19.50	SPT/DS		27	33	39	72	30	4.8	72.6	14.5	8.1	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS						0.2	70.2	20.6	9.1	27	NP	NP	20.71	-	-	2.66	F	0.02	31	-	-	-	-	-	-	
21.50	SPT/DS	17	21	25	46	21																					
22.50	SPT/DS	20	24	30	54	24	6.9	64.6	18.9	9.6	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS						0.3	67.7	23.5	8.5	23	NP	NP	20.37	-	-	2.63	F	0.06	31	-	-	-	-	-	-	
24.50	SPT/DS	35	44	(50/4 cm)	100	36																					
25.50	SPT/DS	42	(50/10 cm)	-	100	36	5.6	67.6	18.3	8.5	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS						0.1	68.9	20.4	10.6	28	NP	NP	20.68	-	-	2.73	F	0.02	32	-	-	-	-	-	-	
27.50	SPT/DS	43	(50/8 cm)	-	100	35																					
28.50	SPT/DS	48	(50/7 cm)	-	100	34	11.7	67.2	14.8	6.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS						0.7	66.4	23.9	8.9	23	NP	NP	20.96	-	-	2.67	F	0.07	31	-	-	-	-	-	-	
30.50	SPT/DS	(50/13cm)	-	-	100	33																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.











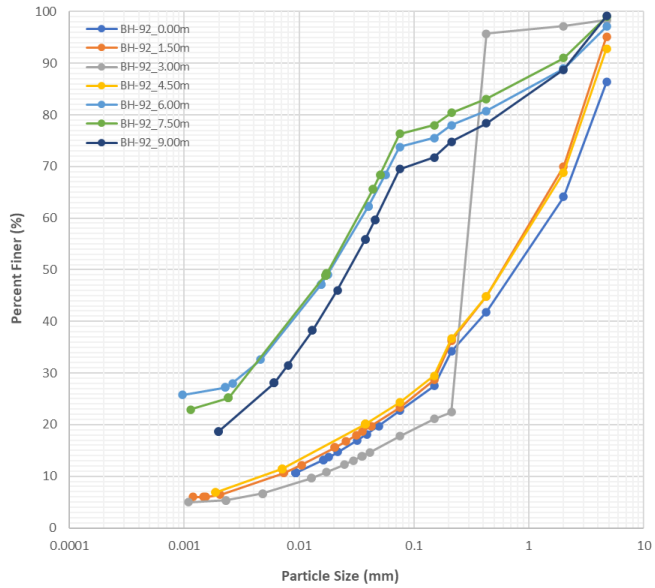
Project		Borehole Details		Drilling Details	
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-92	<b>Contractor:</b>	Goma Engineering & Consultancy
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	9+737	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	12-02-2026
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	191.80	<b>End Date:</b>	12-02-2026
		<b>Water table Level [m]:</b>	12.85	<b>Location:</b>	Lat: 28.5087 , Long: 77.389642

Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						13.6	63.6	17.6	5.1	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Dense, Greyish to Brownish, fine-grained silty sand with Gravel (SM)	2	2	3	5	7	4.9	71.9	16.9	6.4	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							1.7	80.5	12.5	5.3	23	NP	NP	10.47	1.69	1.53	2.70	F	0.01	22	-	-	-	-	-	-
3.50	SPT/DS		3	4	5	9	10																				
4.50	SPT/DS		3	4	6	10	10	7.2	68.5	17.2	7.1	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS	Stiff to Very Stiff, Brownish to Yellowish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						2.9	23.3	46.8	27.0	22	NP	NP	12.18	1.83	1.63	2.63	F	0.04	24	UU	12	24	-	-	-
6.50	SPT/DS		5	6	8	14	13																				
7.50	SPT/DS		7	9	12	21	19	1.0	22.7	51.7	24.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							0.9	29.7	50.7	18.8	25	NP	NP	19.6	1.86	1.56	2.69	F	0.07	26	UU	10	27	-	-	-
9.50	SPT/DS		10	12	13	25	21																				
10.50	SPT/DS		11	14	15	29	24	4.0	21.0	52.2	22.8	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							1.1	45.5	34.2	19.3	28	NP	NP	21.49	-	-	2.74	F	0.09	27	-	-	-	-	-	-
12.50	SPT/DS		12	15	17	32	24																				
13.50	SPT/DS	Dense, Brownish, fine-grained silty sand with Gravel (SM)	13	16	18	34	24	10.0	66.4	16.2	7.4	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	64.7	23.4	11.9	27	NP	NP	19.17	-	-	2.67	F	0.04	29	-	-	-	-	-	-
15.50	SPT/DS		18	21	22	43	22																				
16.50	SPT/DS	19	24	25	49	23	7.6	66.1	17.3	9.0	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS	Hard, Brownish to Yellowish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						2.8	41.2	39.9	16.1	28	NP	NP	21.22	-	-	2.70	F	0.08	28	-	-	-	-	-	-
18.50	SPT/DS		21	23	27	50	23																				
19.50	SPT/DS		22	25	30	55	25	1.0	31.1	48.0	20.0	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.1	36.5	43.5	19.9	23	NP	NP	22.79	-	-	2.70	F	0.10	28	-	-	-	-	-	-
21.50	SPT/DS		23	27	30	57	25																				
22.50	SPT/DS		25	32	35	67	27	1.9	26.0	54.8	17.3	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS						5.6	29.4	52.9	12.2	22	NP	NP	20.57	-	-	2.70	F	0.05	29	-	-	-	-	-	-	
24.50	SPT/DS	Hard, Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)	32	35	40	75	29																				
25.50	SPT/DS		33	42	45	87	32	0.0	19.6	52.6	27.8	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							1.0	38.2	42.7	18.1	26	NP	NP	19.34	-	-	2.67	F	0.10	30	-	-	-	-	-	-
27.50	SPT/DS		40	(50/7 cm)	-	100	35																				
28.50	SPT/DS		45	(50/8 cm)	-	100	34	2.2	26.9	52.4	18.6	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							2.0	36.8	39.9	21.3	23	NP	NP	21.40	-	-	2.77	F	0.14	29	-	-	-	-	-	-
30.50	SPT/DS	47	(50/6cm)	-	100	33																					

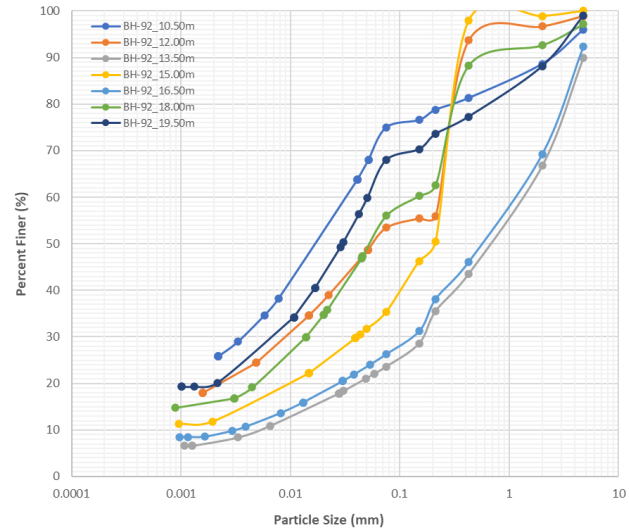
**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.



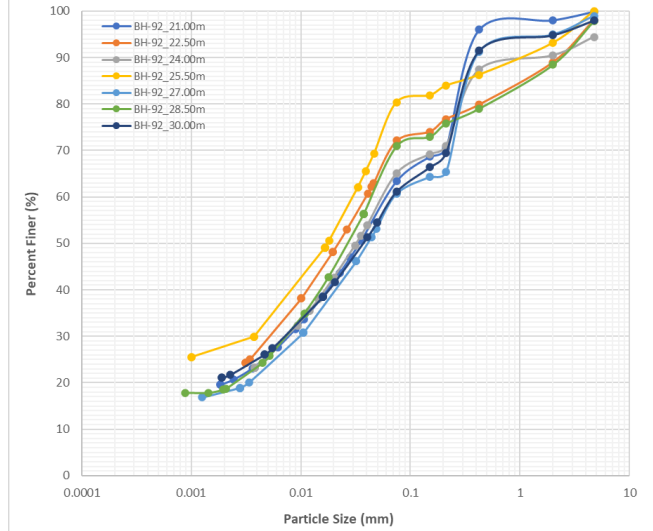
Grain Size Distribution Curve



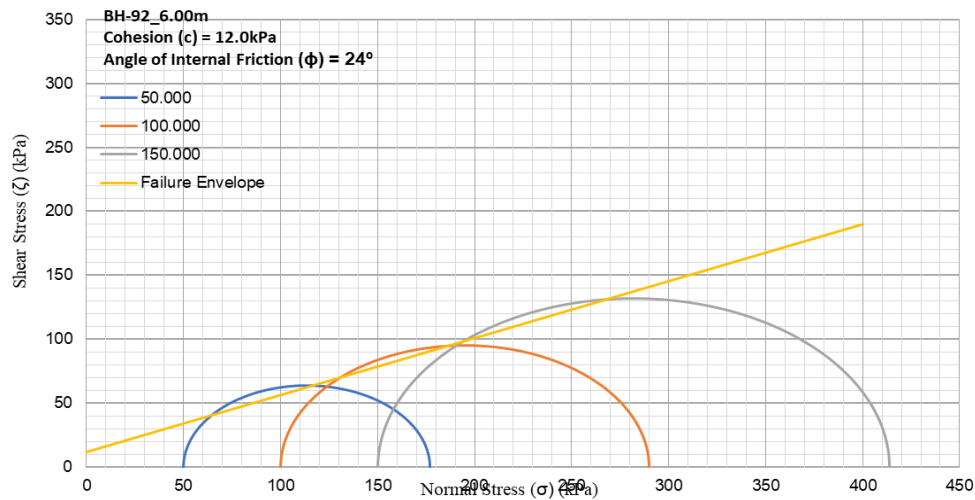
Grain Size Distribution Curve



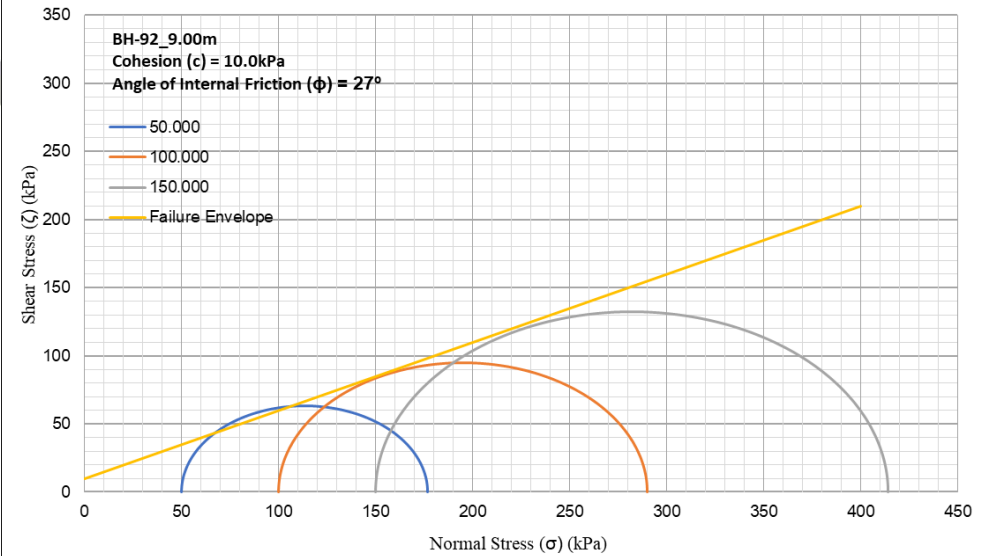
Grain Size Distribution Curve

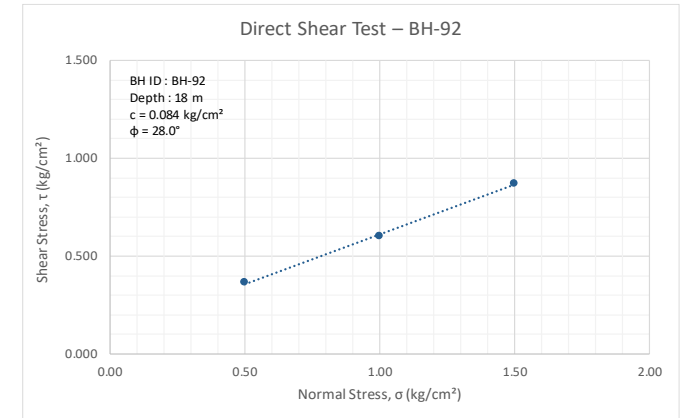
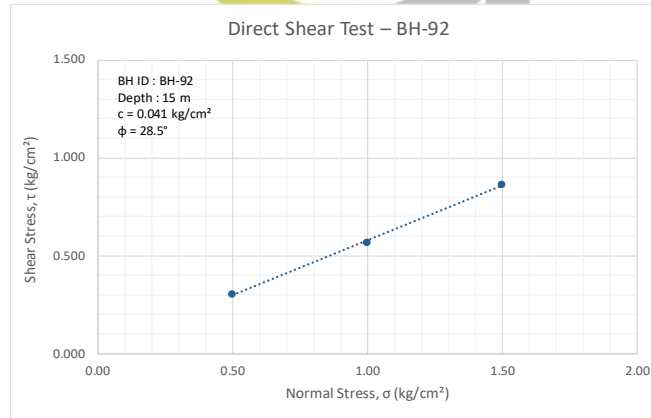
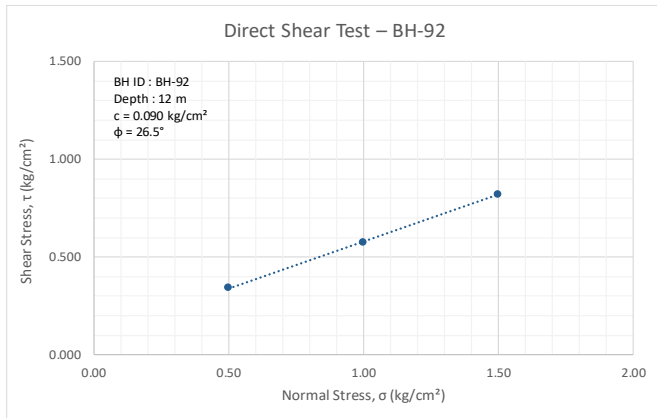
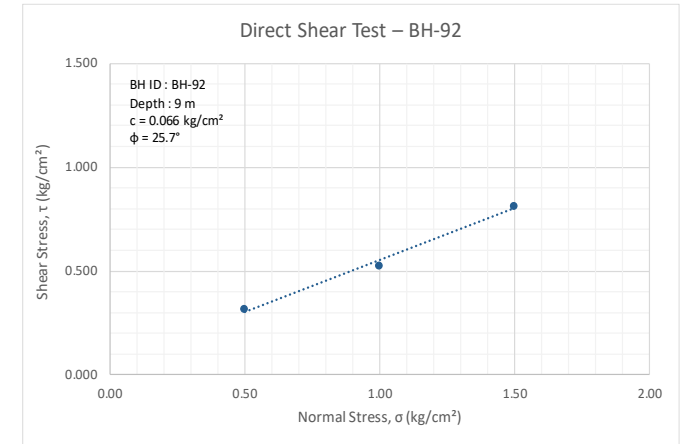
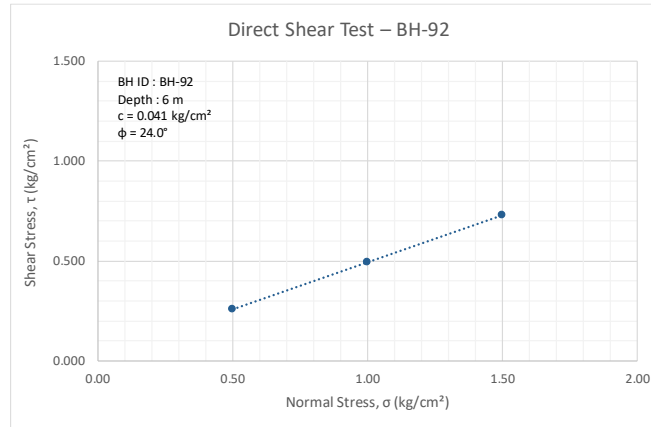
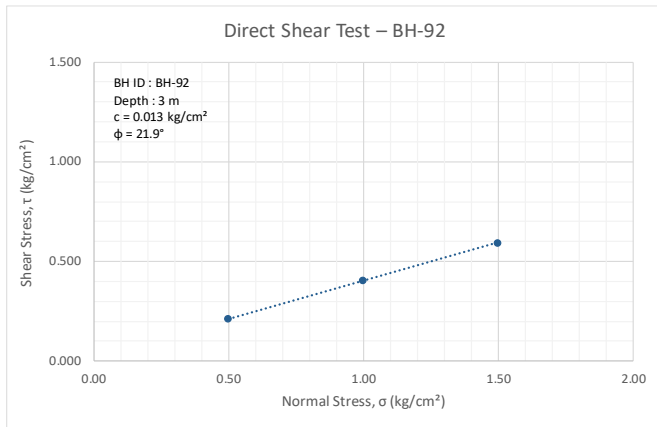


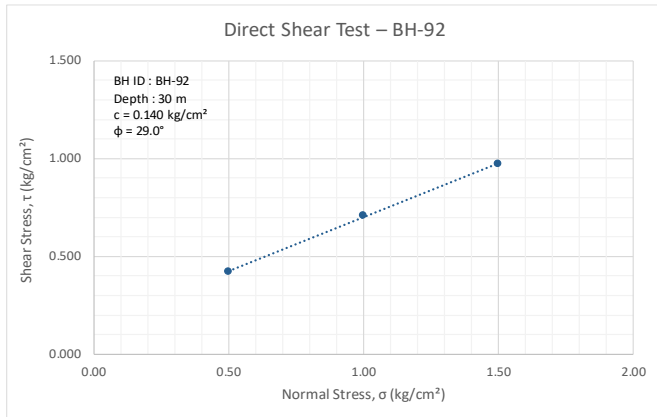
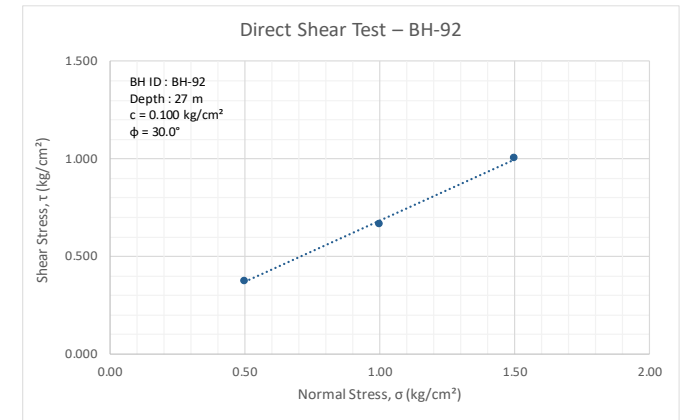
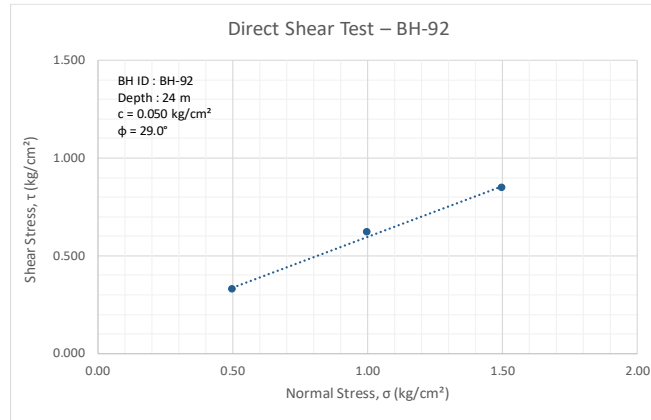
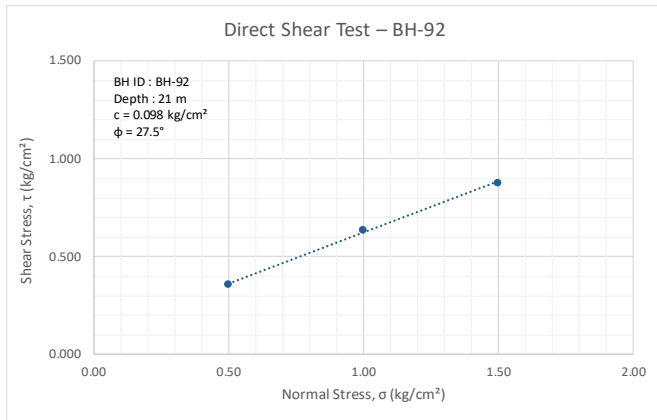
MOHR Circle Plot

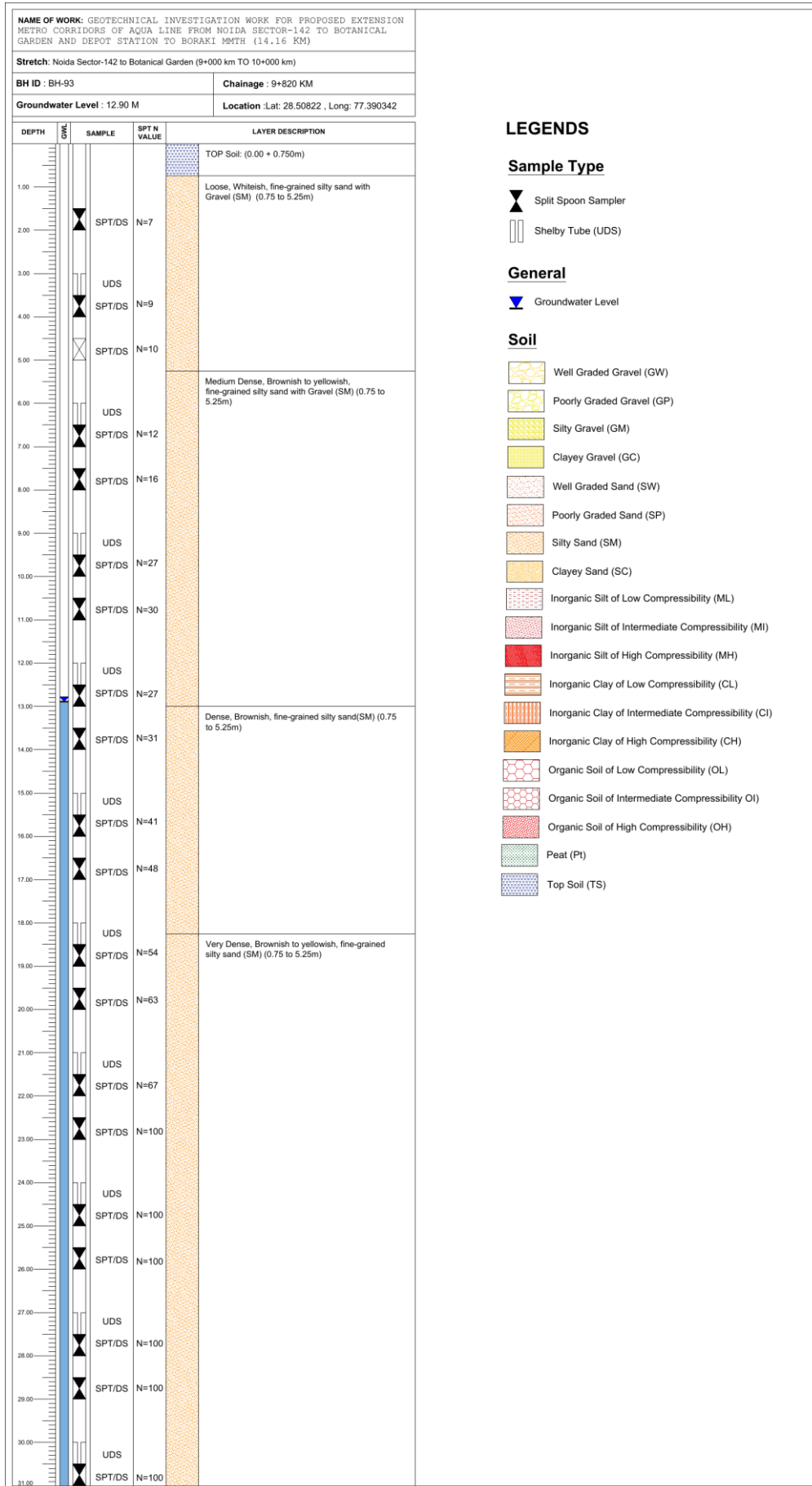


MOHR Circle Plot







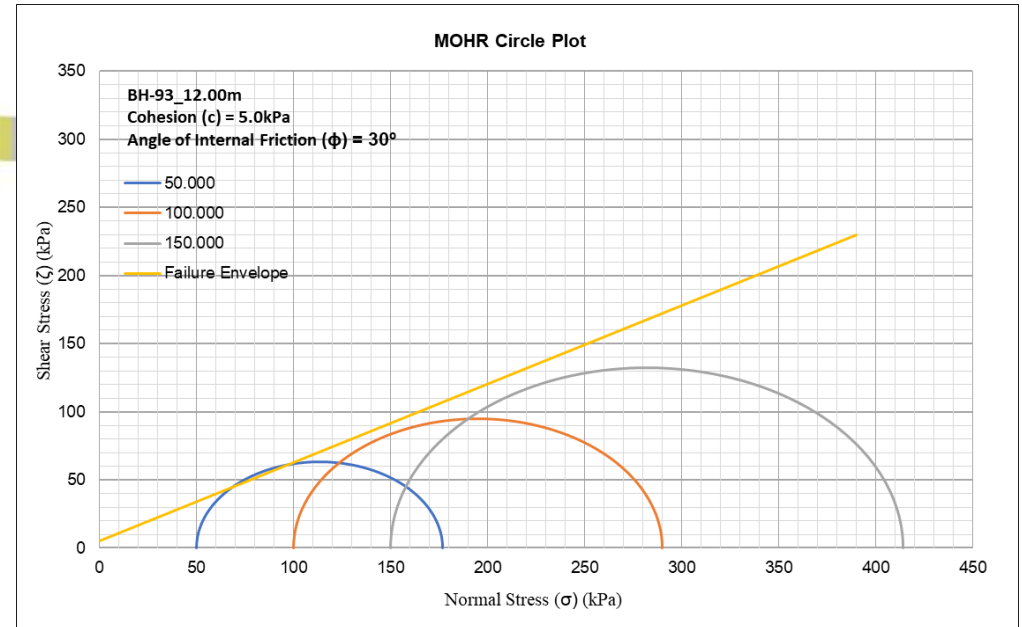
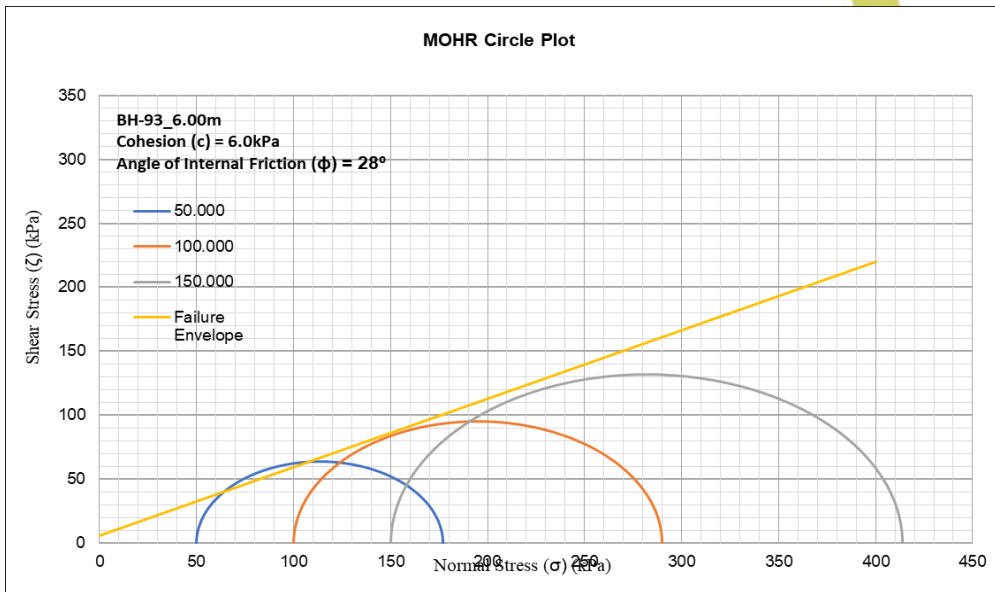
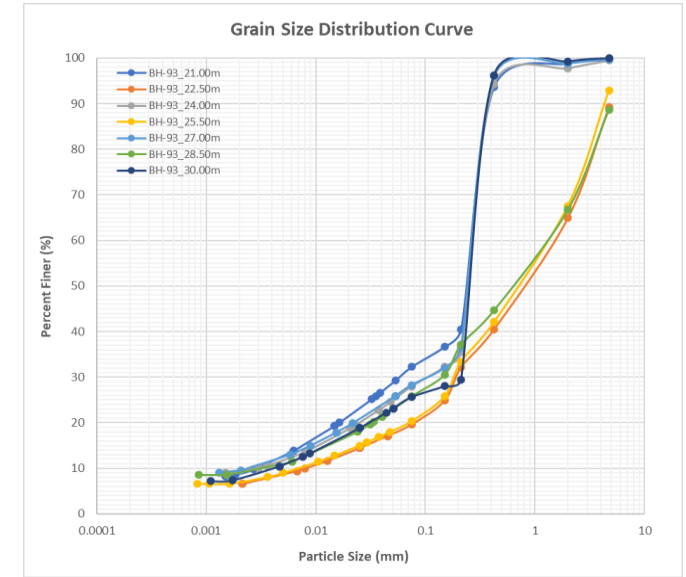
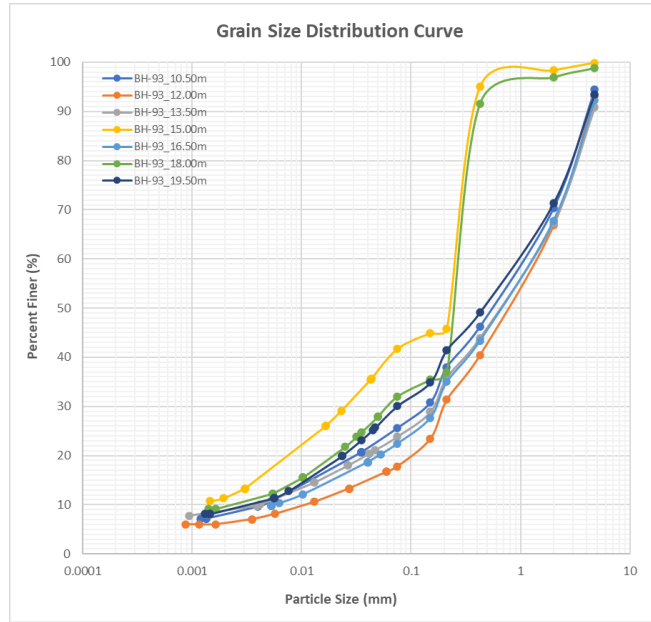
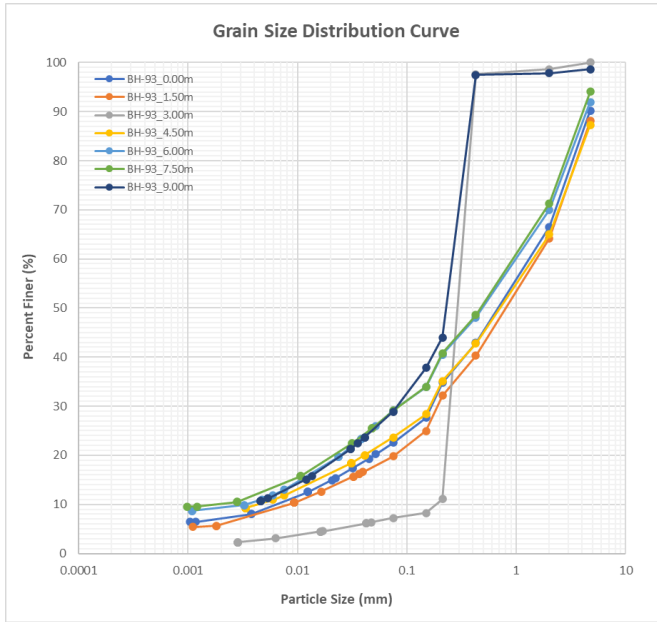


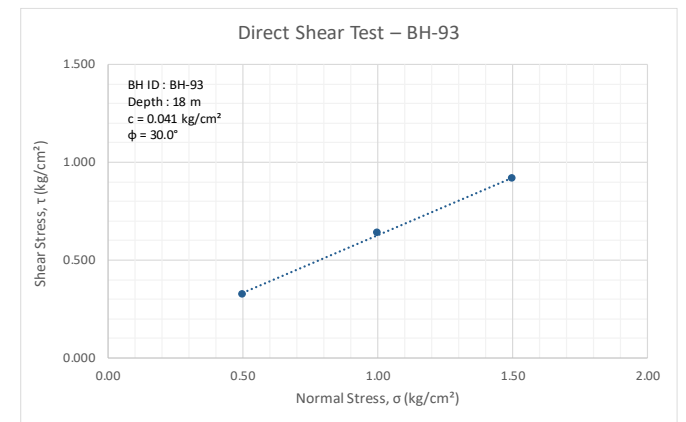
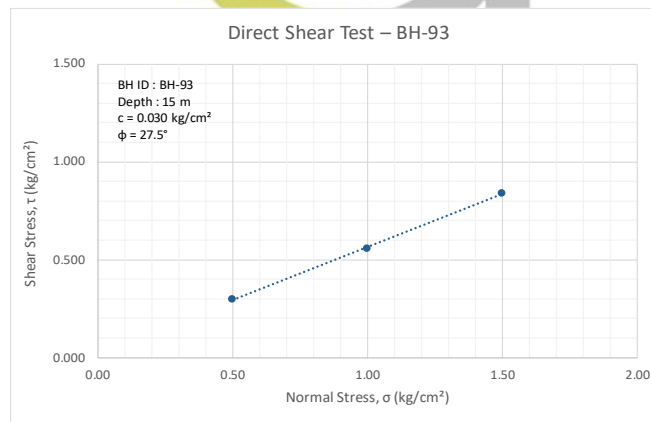
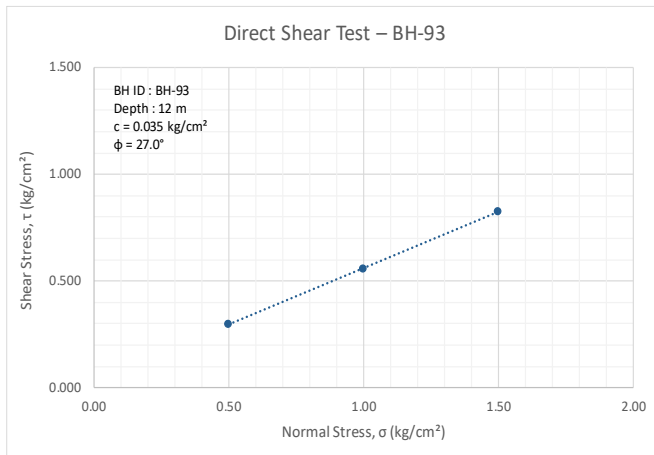
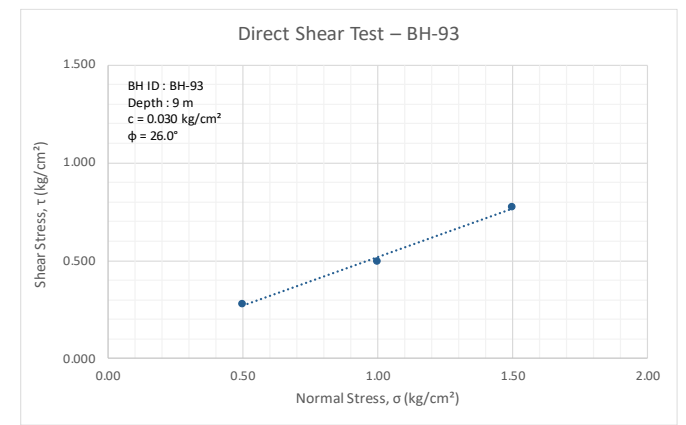
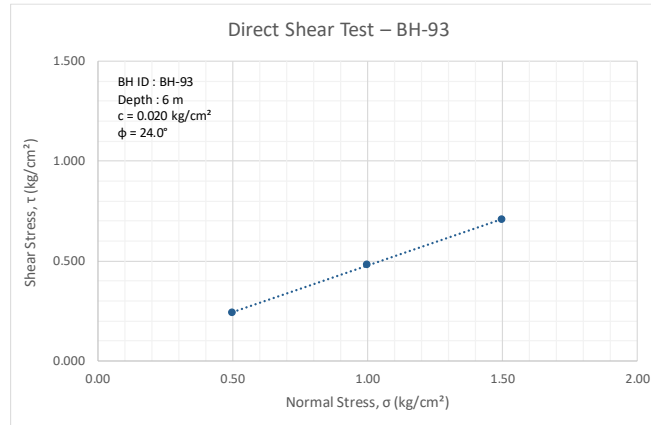
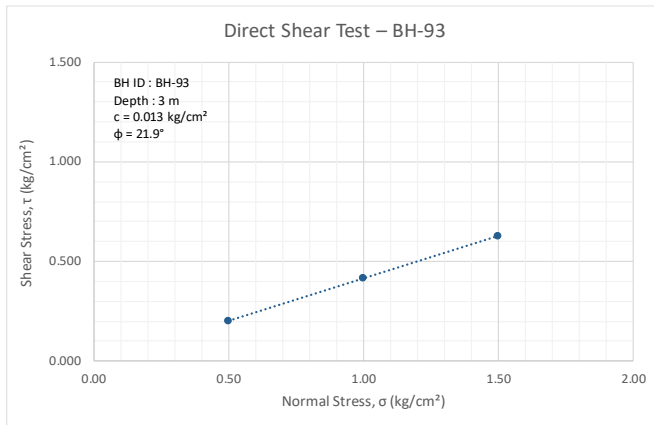


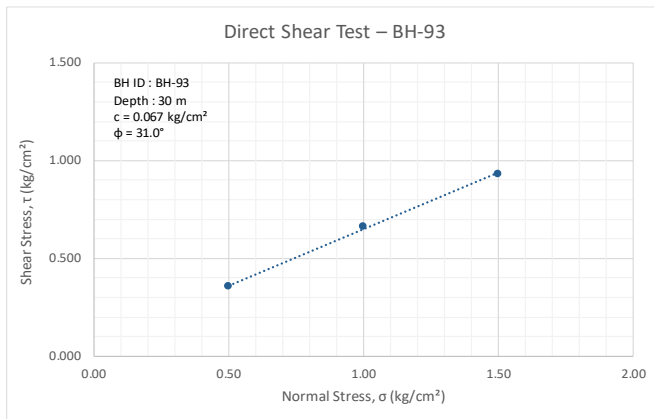
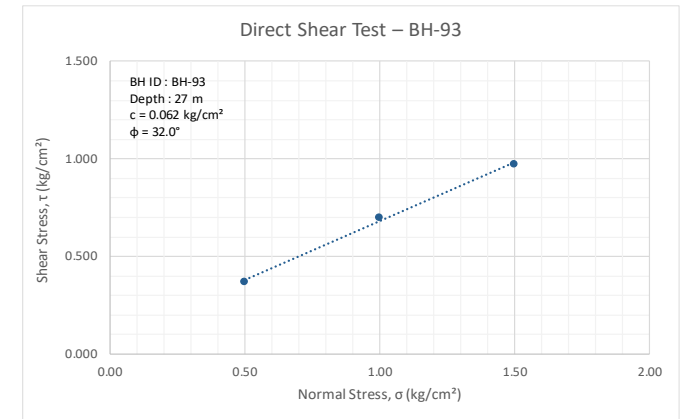
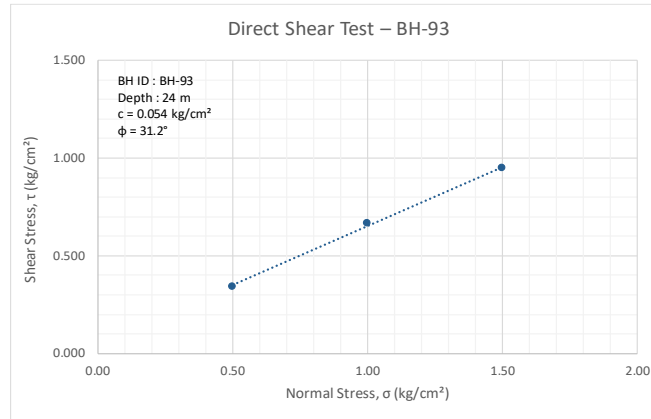
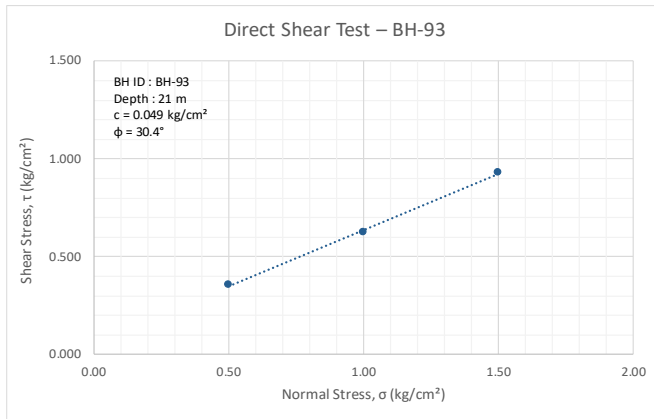
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-93		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	9+820		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	13-02-2026		
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	196.50		<b>End Date:</b>	13-02-2026		
		<b>Water table Level [m]:</b>	14.20		<b>Location:</b>	Lat: 28.50822 , Long: 77.390342		

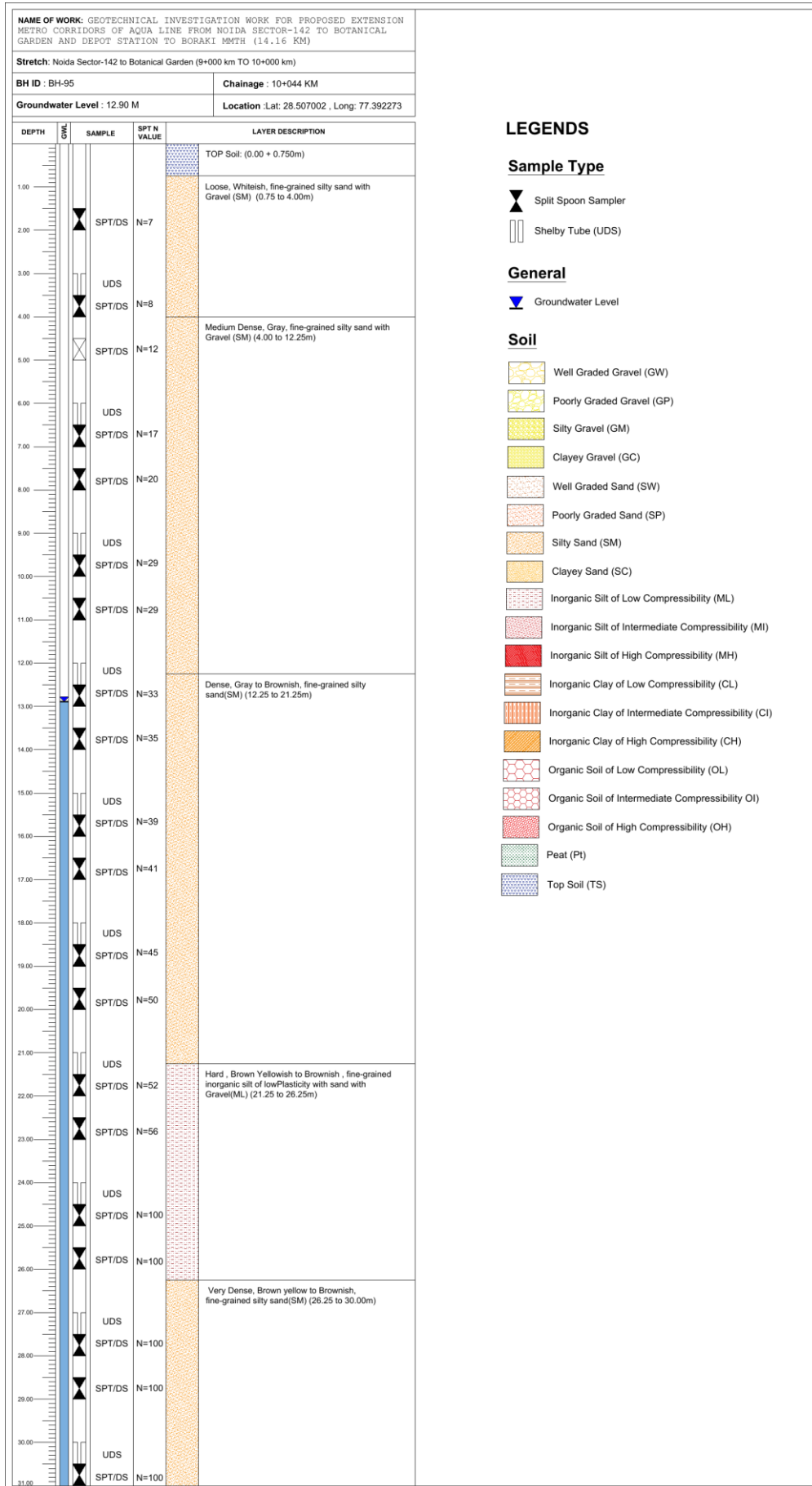
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.8	67.7	15.4	7.2	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Whiteish, fine-grained silty sand with Gravel (SM)	2	3	4	7	10	11.9	68.3	13.9	5.9	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							0.0	92.7	7.3	0.0	23	NP	NP	23.89	1.72	1.39	2.61	F	0.01	22	-	-	-	-	-	-
3.50	SPT/DS		2	4	5	9	10																				
4.50	SPT/DS	3	5	5	10	10	12.7	63.6	15.9	7.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
6.00	UDS	Medium Dense, Brownish to yellowish, fine-grained silty sand with Gravel (SM)						8.0	62.8	19.9	9.3	28	NP	NP	17.45	1.84	1.57	2.67	F	0.02	24	UU	6	28	-	-	-
6.50	SPT/DS		4	6	6	12	11																				
7.50	SPT/DS		5	7	9	16	15	6.0	64.9	19.0	10.1	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							1.3	69.8	20.0	8.9	26	NP	NP	21.85	1.80	1.48	2.75	F	0.03	26	-	-	-	-	-	-
9.50	SPT/DS		9	12	15	27	23																				
10.50	SPT/DS		10	13	17	30	25	5.6	68.8	17.5	8.1	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS						6.8	75.4	11.5	6.3	21	NP	NP	20.2	1.87	1.56	2.62	F	0.04	27	UU	5	30	-	-	-	
12.50	SPT/DS	9	12	15	27	20																					
13.50	SPT/DS	Dense, Brownish, fine-grained silty sand(SM)	11	14	17	31	22	9.2	66.9	15.0	8.9	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	58.2	30.3	11.4	29	NP	NP	23.08	-	-	2.69	F	0.03	28	-	-	-	-	-	-
15.50	SPT/DS		15	18	23	41	21																				
16.50	SPT/DS		17	21	27	48	23	7.8	69.8	15.2	7.2	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS						1.2	66.8	22.3	9.7	21	NP	NP	17.77	-	-	2.79	F	0.04	30	-	-	-	-	-	-	
18.50	SPT/DS	Very Dense, Brownish to yellowish, fine-grained silty sand (SM)	2	24	30	54	25																				
19.50	SPT/DS		23	29	34	63	27	6.5	63.4	21.2	8.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.4	67.4	23.4	8.9	27	NP	NP	19.77	-	-	2.63	F	0.00	30	-	-	-	-	-	-
21.50	SPT/DS		25	30	37	67	28																				
22.50	SPT/DS		28	35	41	100	37	10.8	69.6	14.1	5.5	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.5	71.5	18.5	9.4	28	NP	NP	21.76	-	-	2.75	F	0.05	31	-	-	-	-	-	-
24.50	SPT/DS		40	(50/4 cm)	-	100	36																				
25.50	SPT/DS		(50/7 cm)	-	-	100	36	7.1	72.6	13.3	7.0	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.3	71.5	18.8	9.5	25	NP	NP	19.16	-	-	2.64	F	0.06	32	-	-	-	-	-	-
27.50	SPT/DS		43	(50/8 cm)	-	100	35																				
28.50	SPT/DS	47	(50/6 cm)	-	100	34	11.3	62.9	16.7	9.1	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS						0.0	74.4	17.8	7.8	23	NP	NP	28.97	-	-	2.65	F	0.07	31	-	-	-	-	-	-	
30.50	SPT/DS	48	(50/9 cm)	-	100	33																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

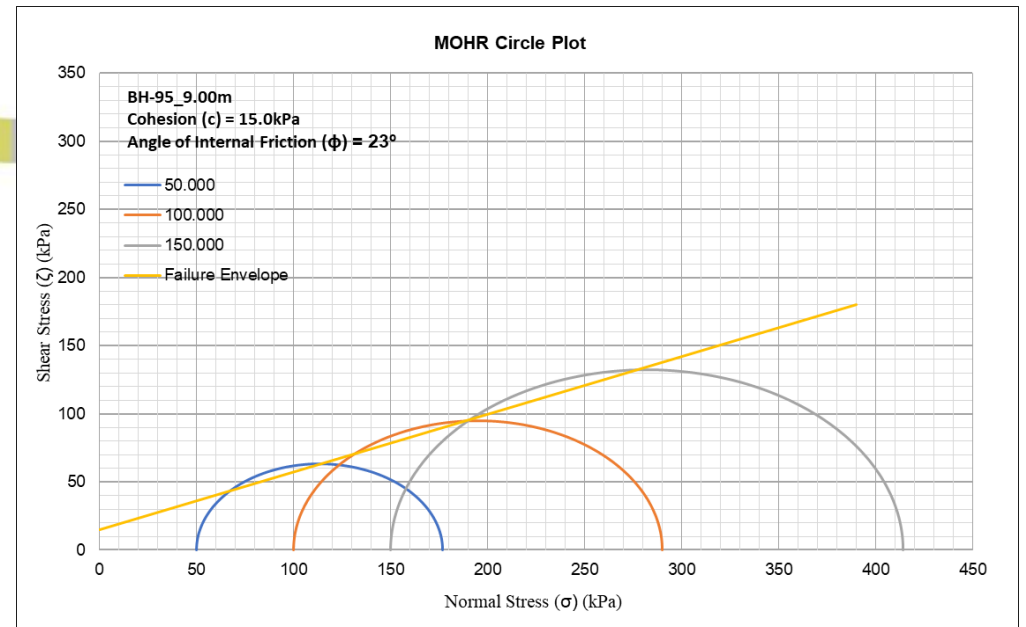
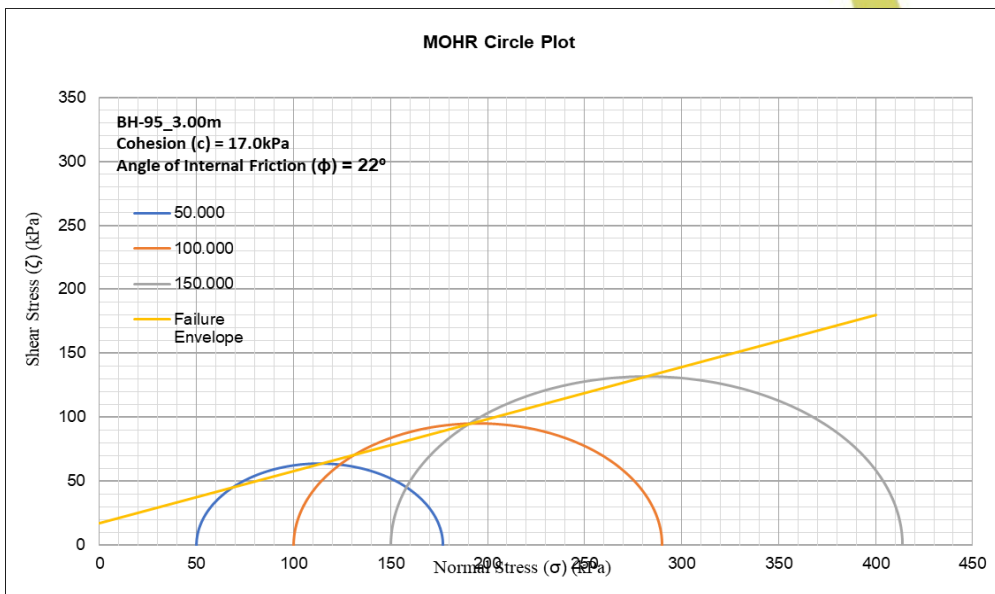
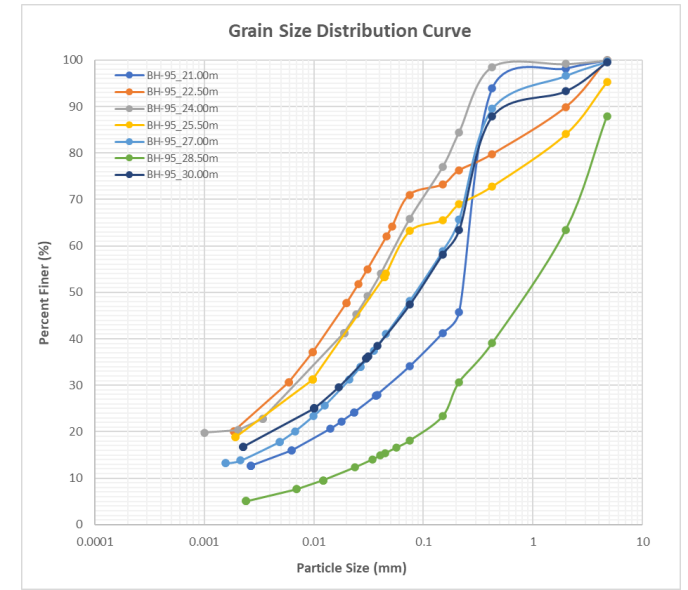
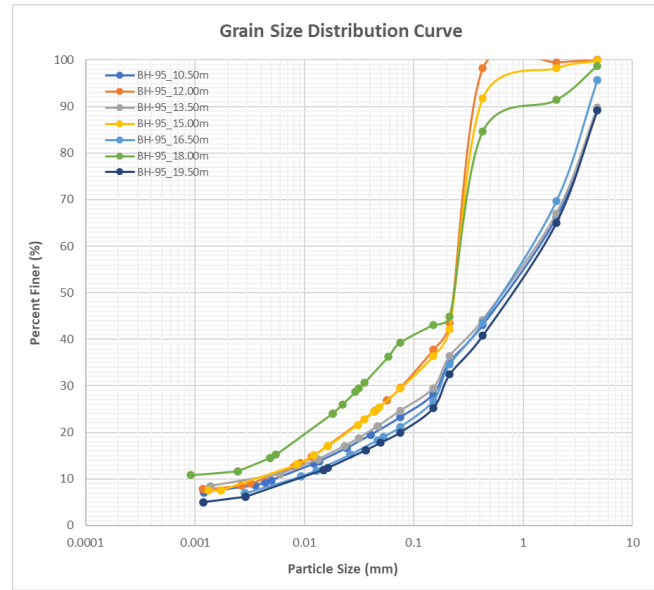
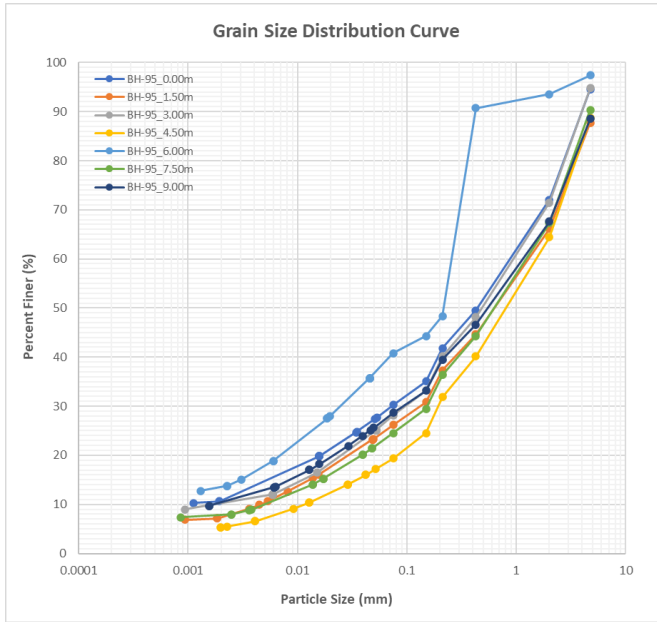
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

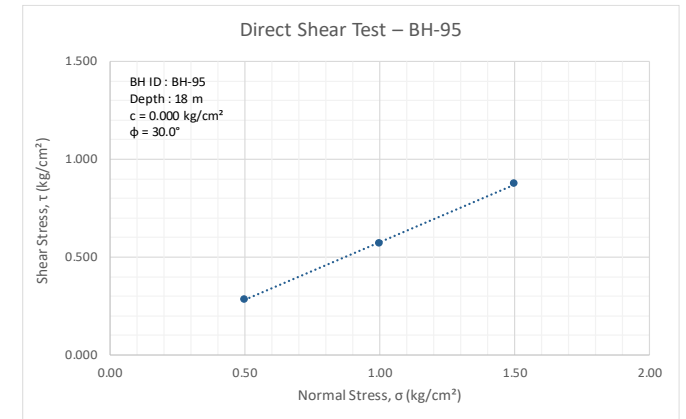
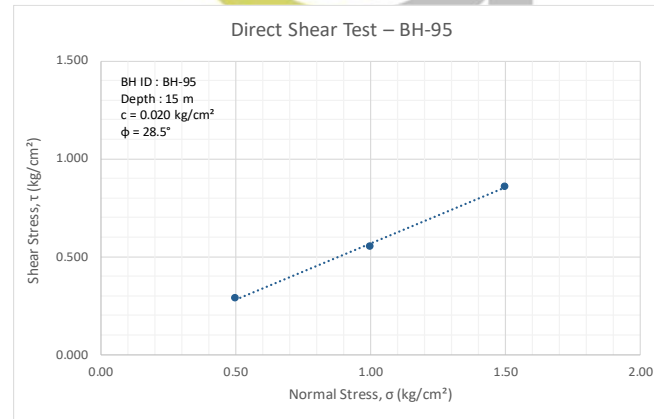
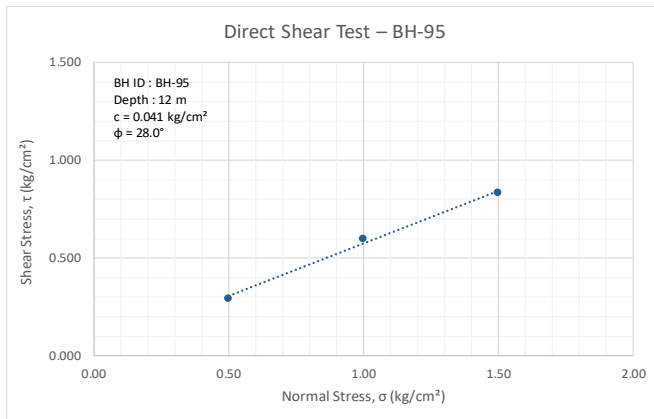
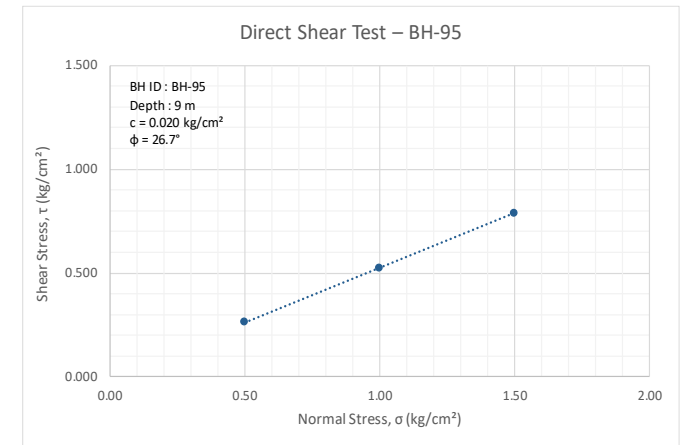
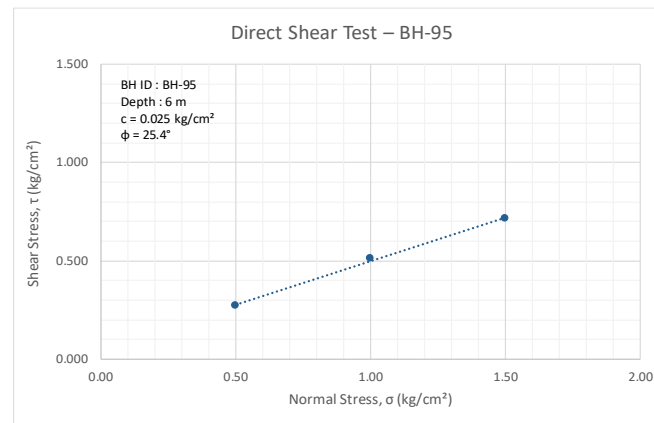
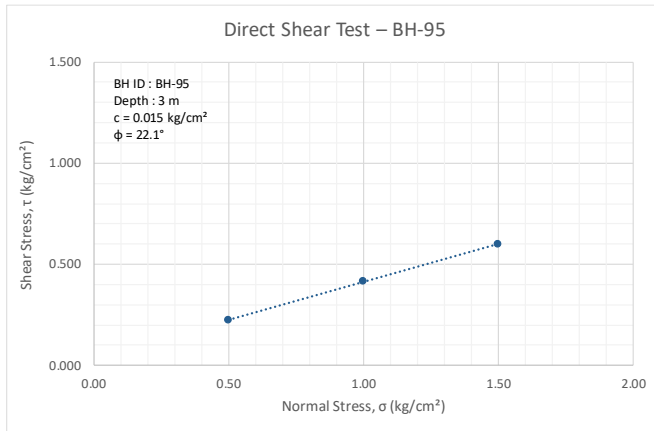


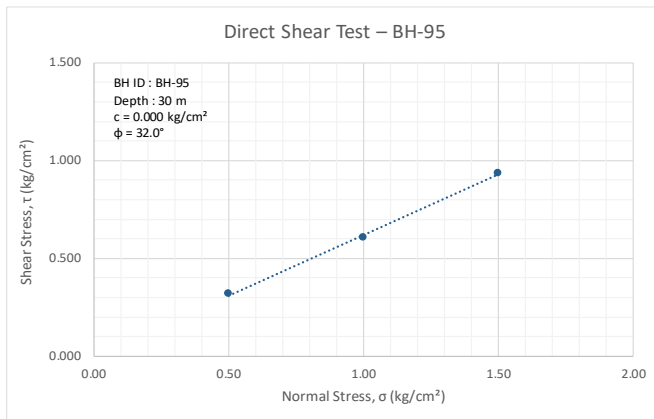
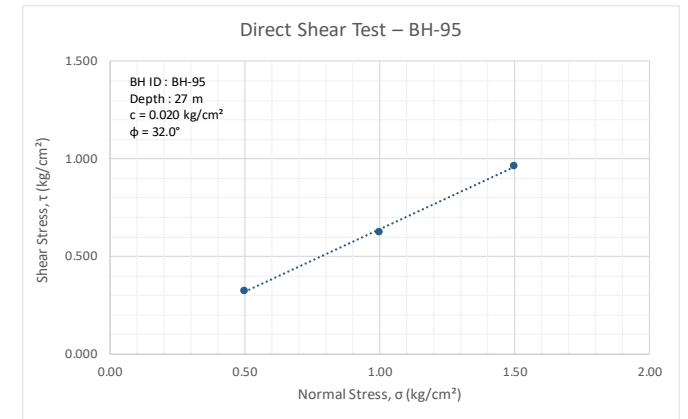
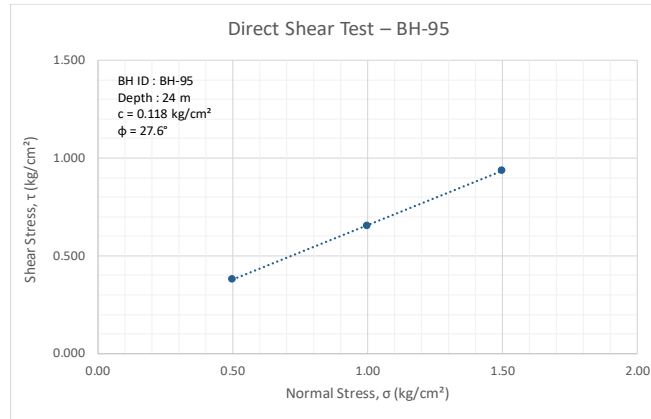
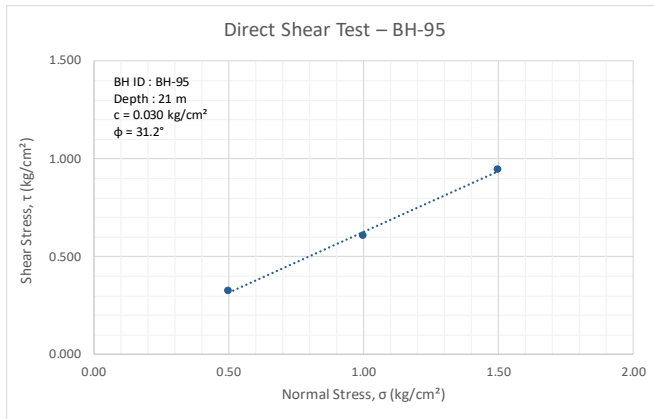
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-95		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+044		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	13-02-2026		
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	200.30		<b>End Date:</b>	13-02-2026		
		<b>Water table Level [m]:</b>	13.20		<b>Location:</b>	Lat: 28.507002 , Long: 77.392273		

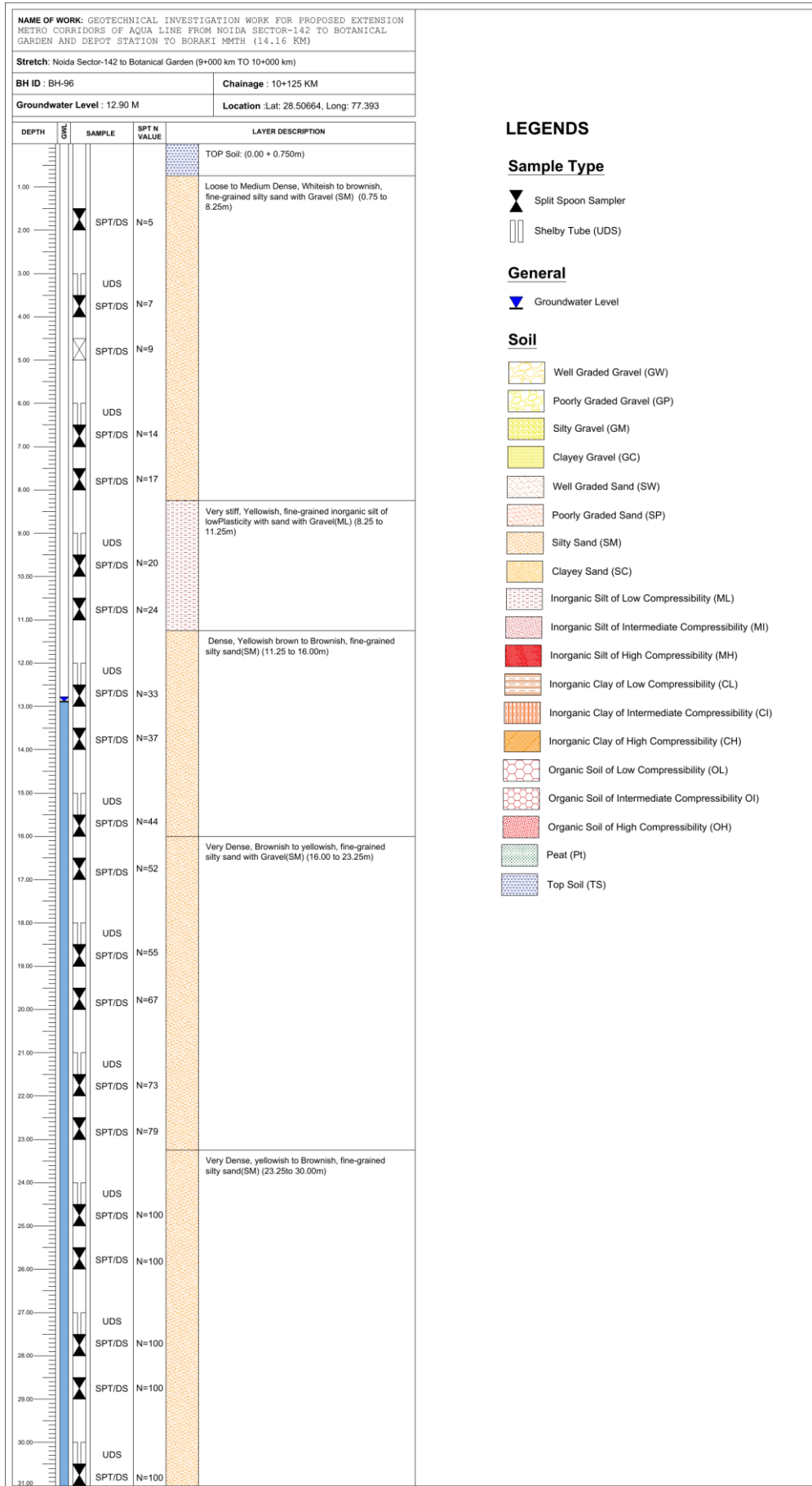
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						5.4	64.3	19.4	10.8	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Whiteish, fine-grained silty sand with Gravel (SM)	2	3	4	7	10	12.3	61.5	18.8	7.4	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							5.2	66.7	17.9	10.3	28	NP	NP	8.72	1.86	1.71	2.69	F	0.02	22	UU	17	22	-	-	-
3.50	SPT/DS		3	3	5	8	9																				
4.50	SPT/DS	Medium Dense, Gray, fine-grained silty sand with Gravel (SM)	4	5	7	12	12	11.3	69.4	14.1	5.3	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							2.6	56.6	27.3	13.6	26	NP	NP	10.20	1.71	1.55	2.66	F	0.03	25	-	-	-	-	-	-
6.50	SPT/DS		6	8	9	17	16																				
7.50	SPT/DS		7	9	11	20	18	9.7	65.8	16.7	7.8	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							11.5	59.8	18.3	10.4	25	NP	NP	13.48	1.9	1.67	2.68	F	0.02	27	UU	15	23	-	-	-
9.50	SPT/DS		12	14	15	29	25																				
10.50	SPT/DS		12	13	16	29	24	10.7	66.1	15.4	7.8	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.0	70.4	21.3	8.3	26	NP	NP	20.03	-	-	2.73	F	0.04	28	-	-	-	-	-	-
12.50	SPT/DS	Dense, Gray to Brownish, fine-grained silty sand(SM)	13	15	18	33	25																				
13.50	SPT/DS		14	16	19	35	25	10.1	65.2	15.5	9.1	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	70.4	21.3	8.1	24	NP	NP	16.02	-	-	2.64	F	0.02	29	-	-	-	-	-	-
15.50	SPT/DS		15	18	21	39	20																				
16.50	SPT/DS		17	19	22	41	21	4.2	74.6	16.4	4.8	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							1.2	59.5	27.8	11.5	24	NP	NP	18.54	-	-	2.62	F	0.00	30	-	-	-	-	-	-
18.50	SPT/DS		21	22	23	45	22																				
19.50	SPT/DS		22	24	26	50	23	10.8	69.2	14.3	5.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS						0.0	65.9	21.9	12.2	29	NP	NP	17.62	-	-	2.72	F	0.03	31	-	-	-	-	-	-	
21.50	SPT/DS	Hard , Brown Yellowish to Brownish , fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)	23	25	27	52	23																				
22.50	SPT/DS		24	26	30	56	24	0.0	29.0	50.3	20.7	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.1	34.1	45.5	20.3	28	NP	NP	25.19	-	-	2.69	F	0.12	28	-	-	-	-	-	-
24.50	SPT/DS		32	35	36	100	36																				
25.50	SPT/DS	33	37	39	100	36	4.7	32.1	44.1	19.1	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS						0.3	51.5	34.5	13.7	21	NP	NP	17.80	-	-	2.67	F	0.02	32	-	-	-	-	-	-	
27.50	SPT/DS	Very Dense, Brown yellow to Brownish, fine-grained silty sand(SM)	35	45	(50/8 cm)	100	35																				
28.50	SPT/DS		40	(50/9 cm)	-	100	34	12.1	69.8	12.8	5.3	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.5	52.1	31.4	15.9	29	NP	NP	19.14	-	-	2.64	F	0.00	32	-	-	-	-	-	-
30.50	SPT/DS		48	(50/6 cm)	-	100	33																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

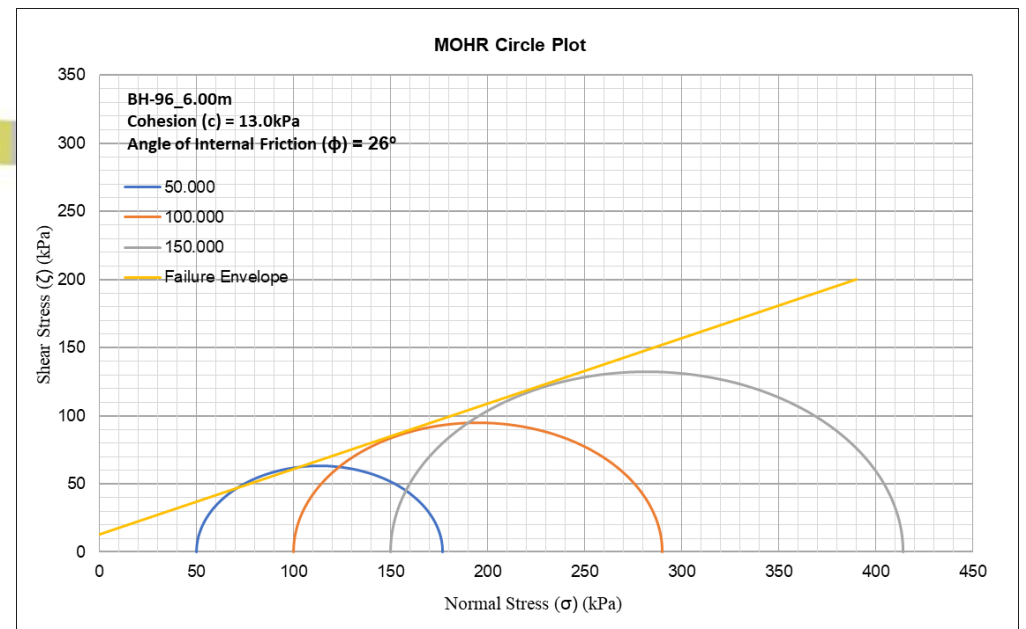
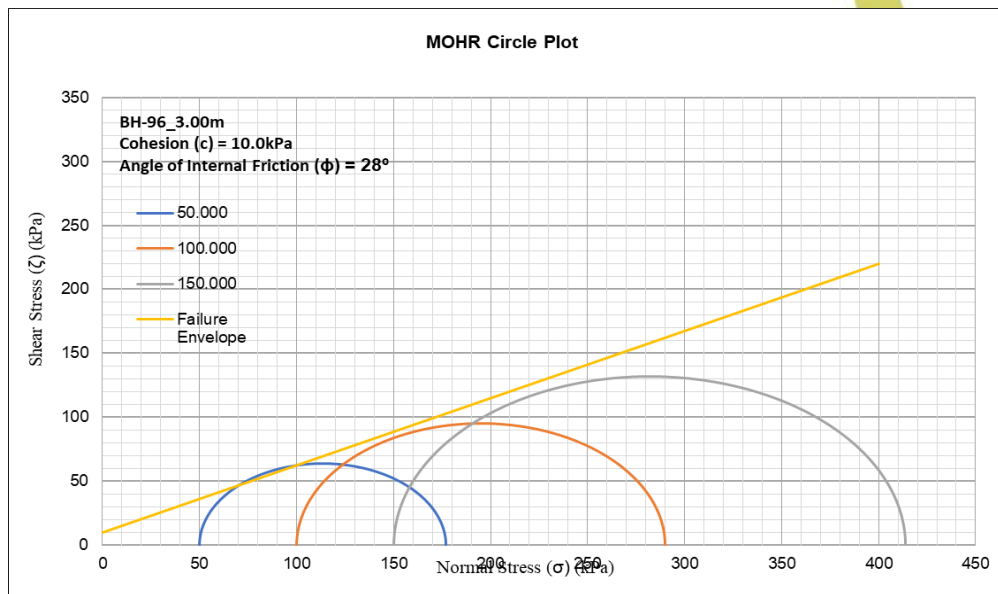
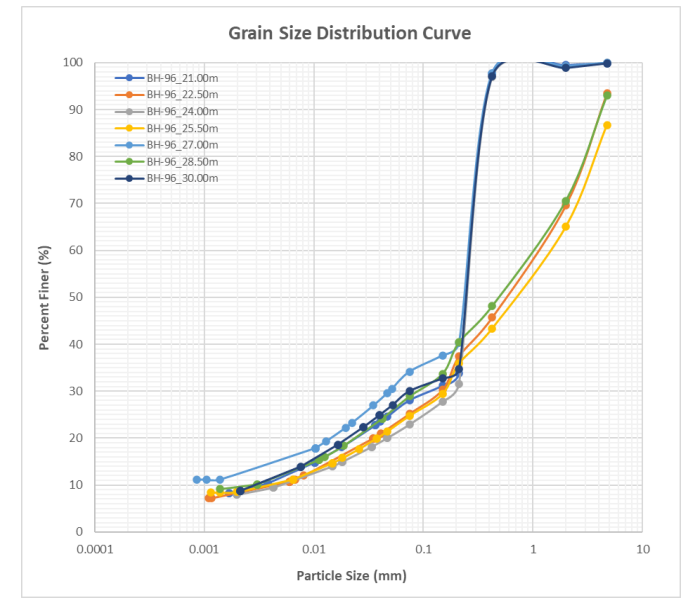
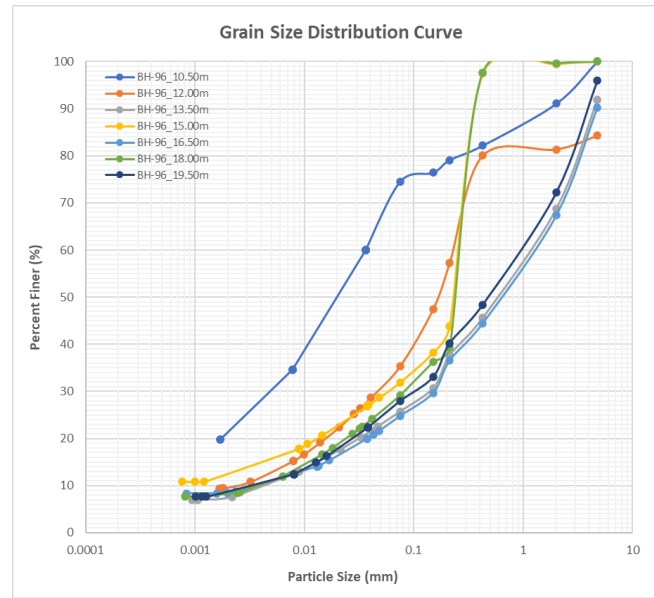
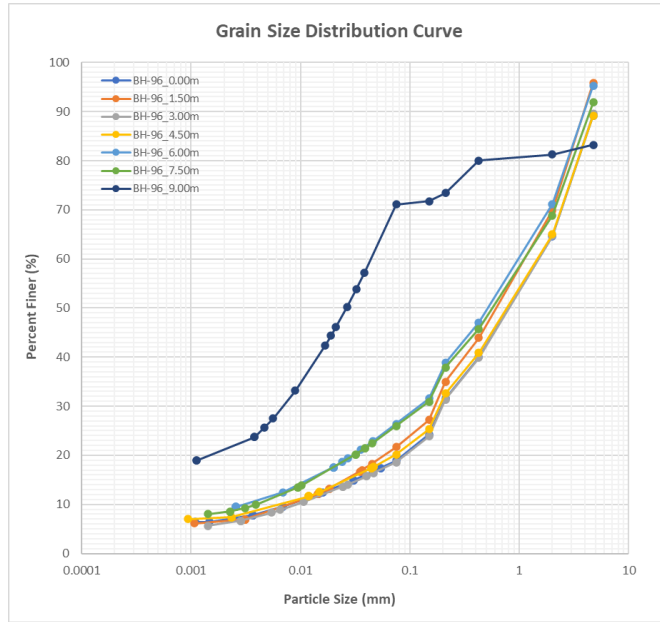
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

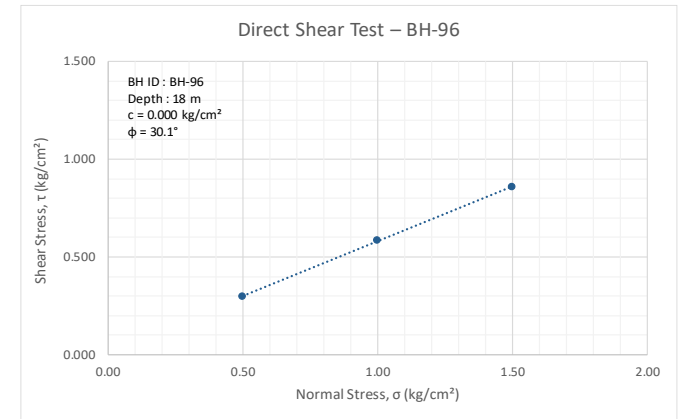
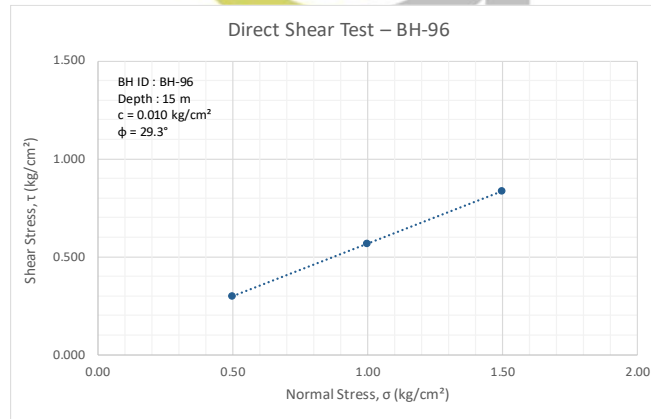
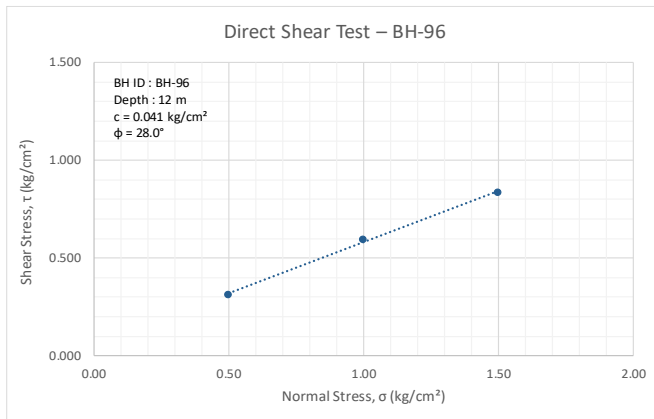
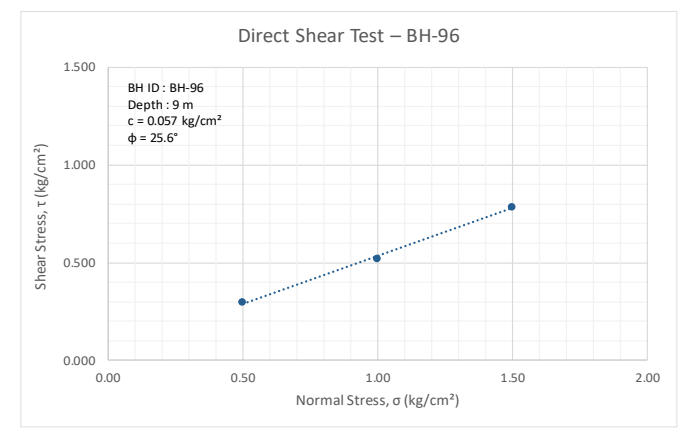
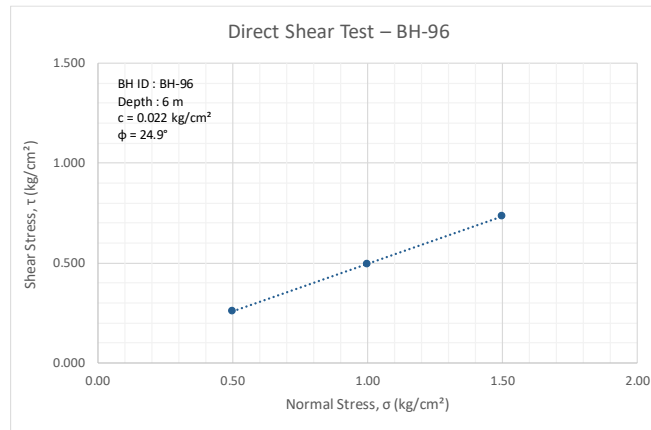
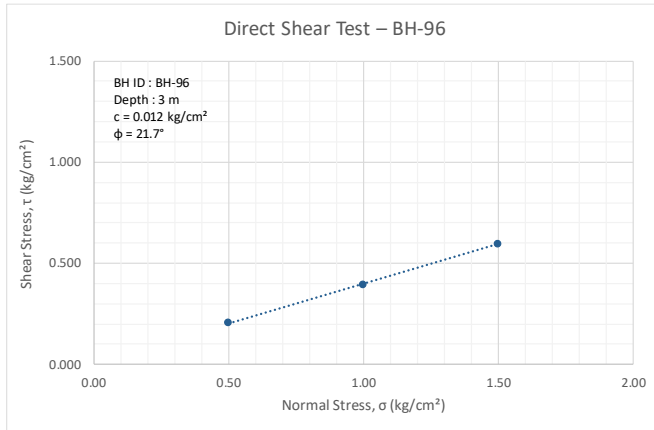


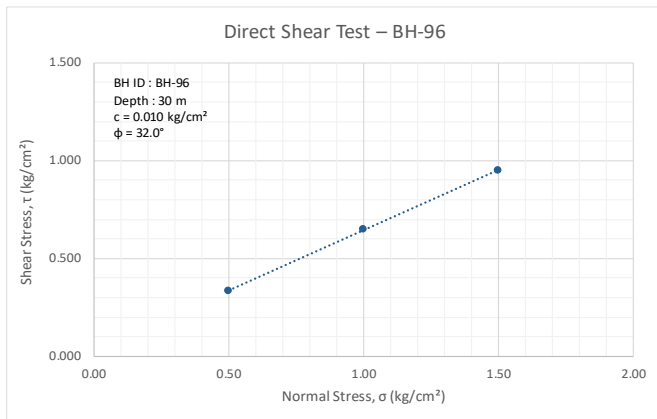
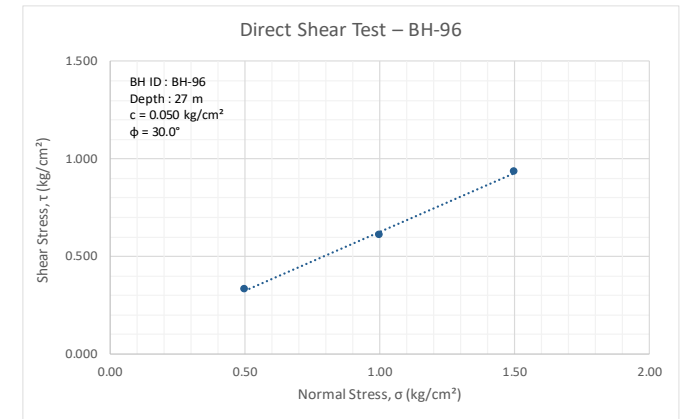
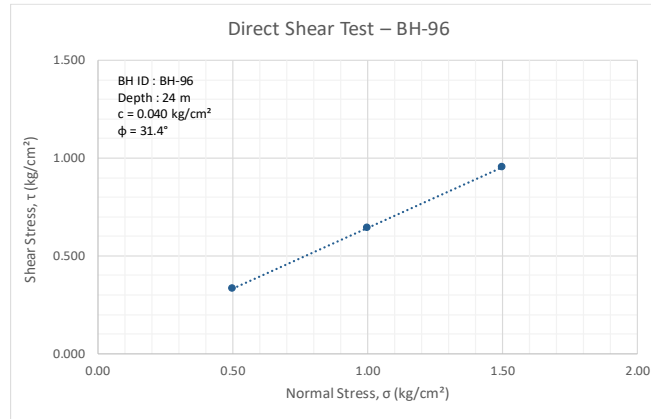
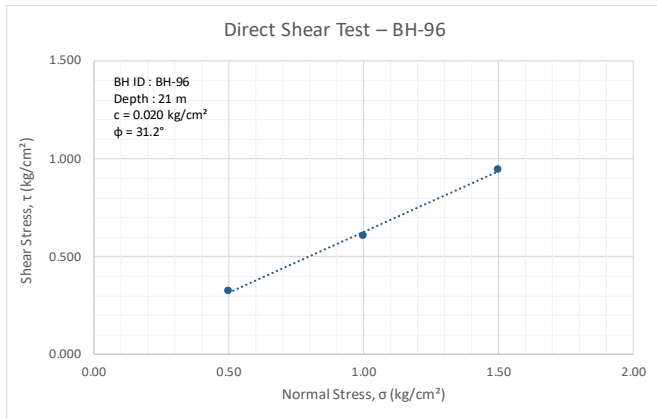
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-96		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+125		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	14-02-2026		
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	200.9		<b>End Date:</b>	14-02-2026		
		<b>Water table Level [m]:</b>	12.90		<b>Location:</b>	Lat: 28.50664, Long: 77.393		

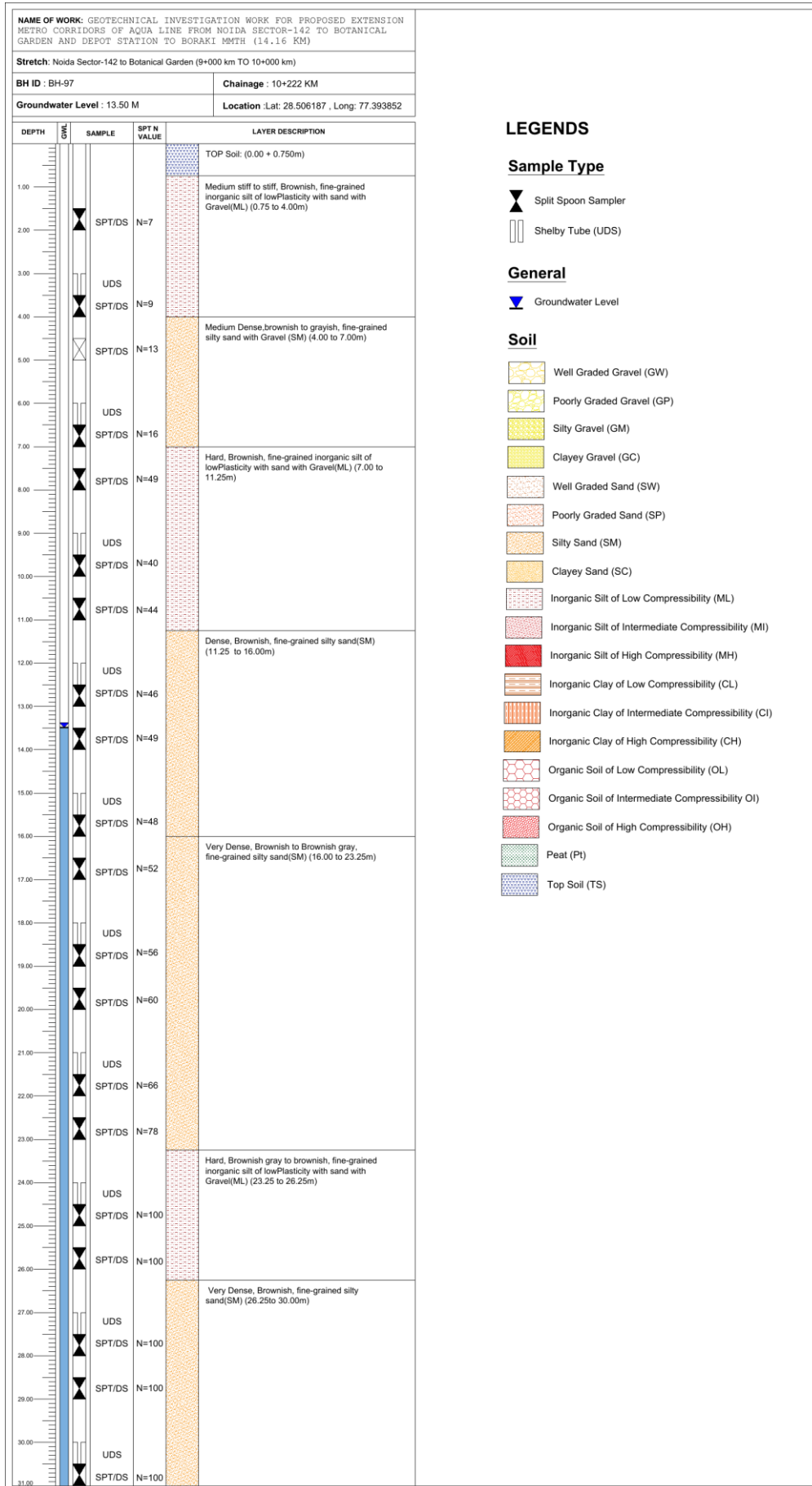
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil	-	-	-	-	-	10.8	70.3	12.0	6.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Whiteish to brownish, fine-grained silty sand with Gravel (SM)	2	2	3	5	7	4.2	74.2	15.1	6.6	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							10.5	71.0	12.4	6.1	24	NP	NP	16.89	1.86	1.59	2.66	F	0.01	22	UU	10	28	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	3	6	9	9	10.9	69.0	12.8	7.3	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							4.7	68.9	26.4	0.0	26	NP	NP	12.8	1.89	1.68	2.66	F	0.02	25	UU	13	26	-	-	-
6.50	SPT/DS		5	7	7	14	13																				
7.50	SPT/DS	5	8	9	17	15	8.1	65.9	17.6	8.4	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.00	UDS	Very stiff, Yellowish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						16.8	12.1	49.9	21.2	26	NP	NP	19.26	1.78	1.49	2.71	F	0.06	26	-	-	-	-	-	-
9.50	SPT/DS		6	9	11	20	17																				
10.50	SPT/DS		7	10	14	24	20	0.0	25.5	53.2	21.4	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS						15.7	48.9	25.7	9.7	28	NP	NP	13.50	1.85	1.63	2.63	F	0.04	28	-	-	-	-	-	-	
12.50	SPT/DS	Dense, Yellowish brown to Brownish, fine-grained silty sand(SM)	10	15	18	33	25																				
13.50	SPT/DS		12	17	20	37	21	8.1	66.2	18.2	7.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	68.1	19.3	12.6	23	NP	NP	22.79	-	-	2.66	F	0.01	29	-	-	-	-	-	-
15.50	SPT/DS						15	20	24	44	23																
16.50	SPT/DS	Very Dense, Brownish to yellowish, fine-grained silty sand with Gravel(SM)	17	23	29	52	25	9.7	65.5	16.3	8.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.0	70.8	20.9	8.3	21	NP	NP	20.46	-	-	2.73	F	0.00	30	-	-	-	-	-	-
18.50	SPT/DS		20	25	30	55	26																				
19.50	SPT/DS		24	31	36	67	29	4.0	68.0	19.2	8.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.2	71.8	19.4	8.7	27	NP	NP	18.11	-	-	2.69	F	0.02	31	-	-	-	-	-	-
21.50	SPT/DS		26	33	40	73	30																				
22.50	SPT/DS	30	37	42	79	32	6.5	68.2	16.8	8.4	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS						0.0	77.1	15.0	7.9	23	NP	NP	18.82	-	-	2.76	F	0.04	31	-	-	-	-	-	-	
24.50	SPT/DS	40	(50/2 cm)	-	100	38																					
25.50	SPT/DS	42	(50/6 cm)	-	100	37	13.3	61.9	16.2	8.6	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS	Very Dense, yellowish to Brownish, fine-grained silty sand(SM)						0.0	65.8	21.8	12.4	21	NP	NP	22.00	-	-	2.62	F	0.05	30	-	-	-	-	-	-
27.50	SPT/DS		48	(50/7 cm)	-	100	36																				
28.50	SPT/DS		47	(50/9 cm)	-	100	36	7.0	64.1	19.3	9.6	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.1	69.9	17.8	12.2	24	NP	NP	19.82	-	-	2.62	F	0.01	32	-	-	-	-	-	-
30.50	SPT/DS		50	(50/5 cm)	-	100	35																				

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

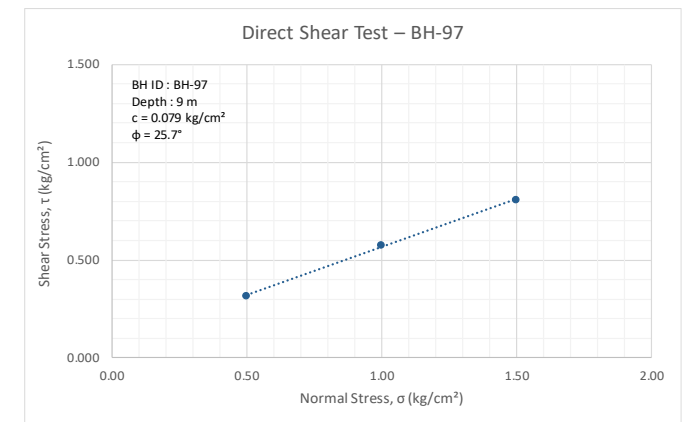
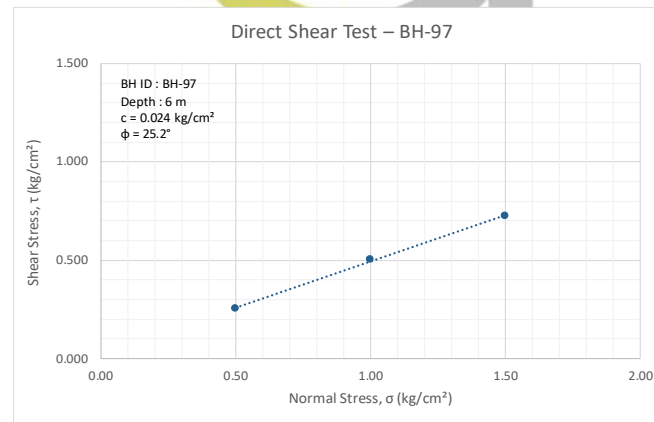
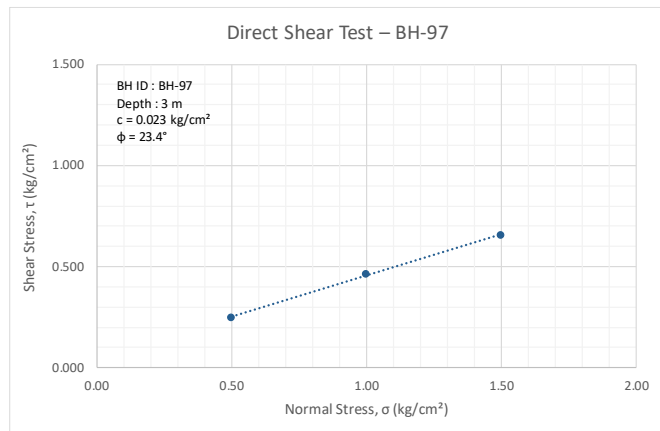
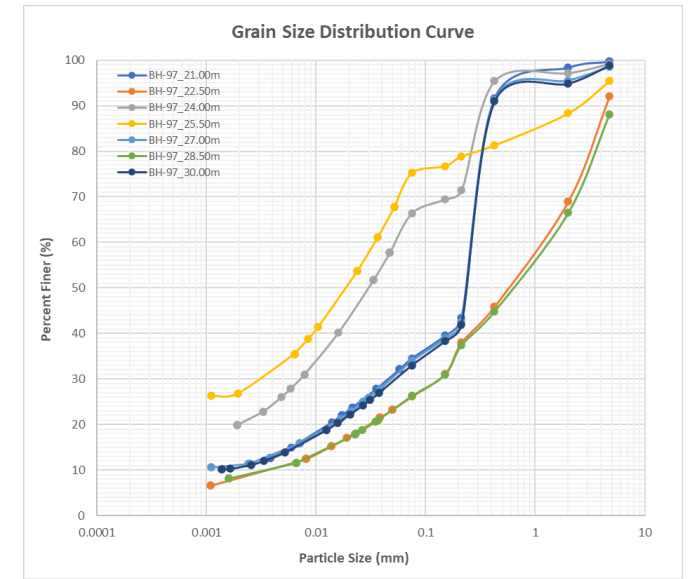
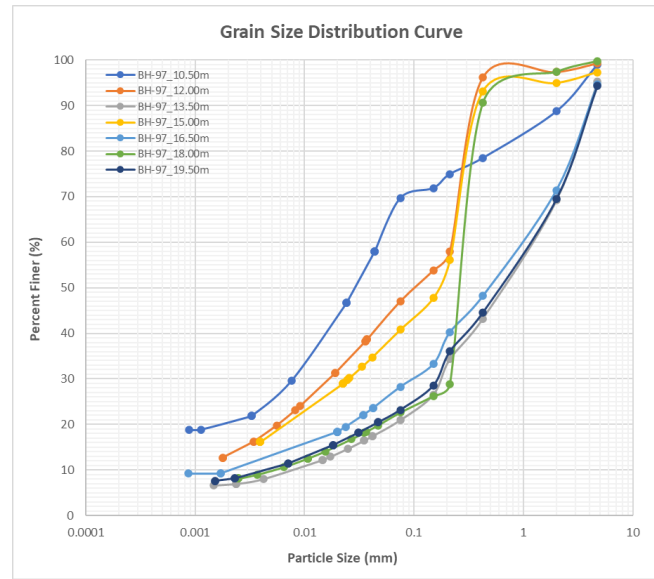
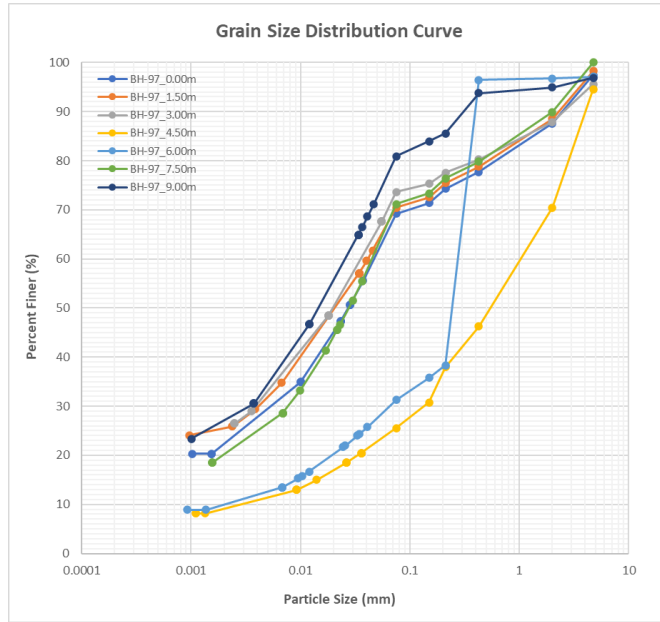
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

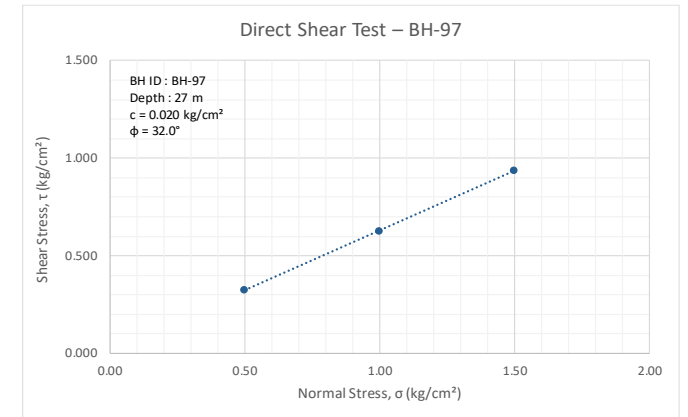
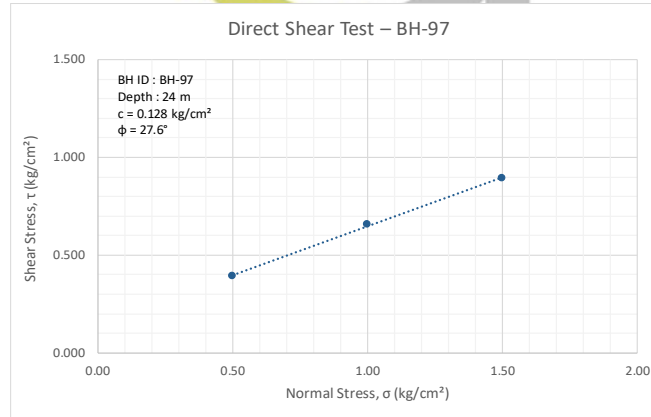
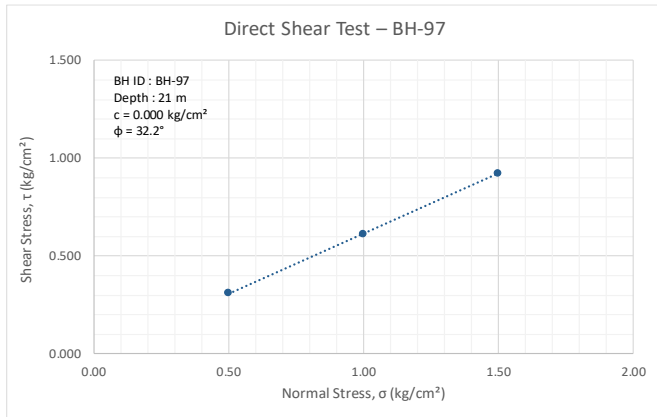
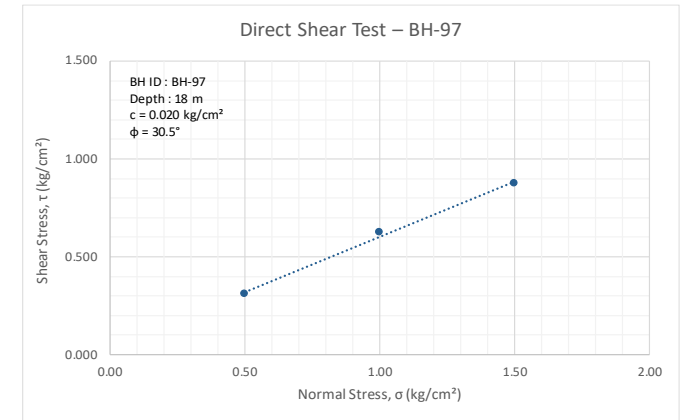
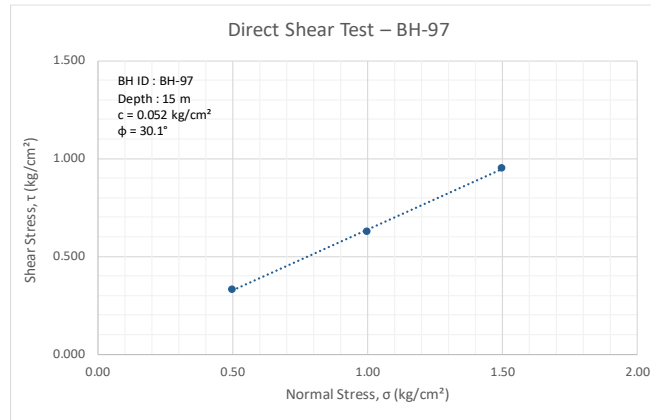
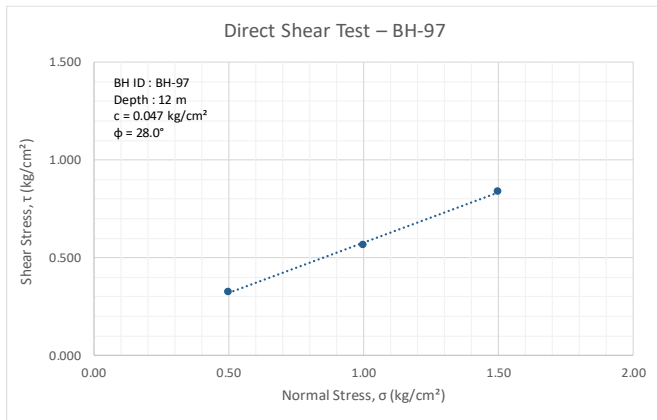


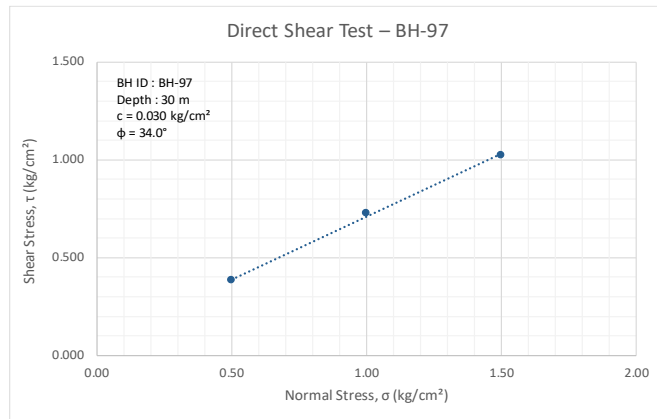
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-97		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	10+222		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	14-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	198.00		End Date:	14-02-2026	
Project Code:	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	13.50		Location:	Lat: 28.506187 , Long: 77.393852	

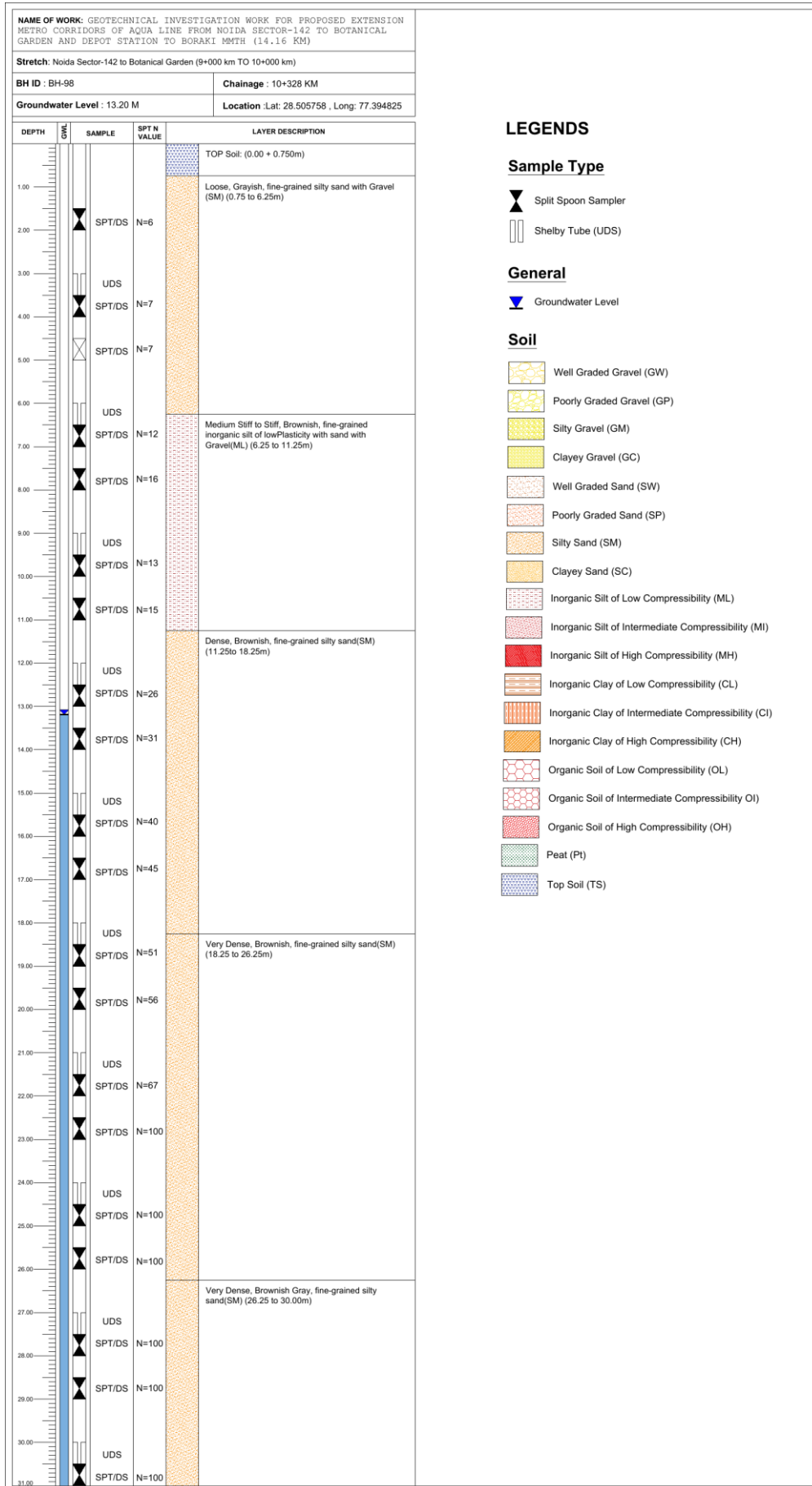
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil	-	-	-	-	-	2.6	28.2	46.9	22.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium stiff to stiff, Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)	2	3	4	7	10	1.7	27.8	44.9	25.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS		4.4	22.0	73.6	0.0	28	NP	NP	21.8	-	-	2.60	F	0.02	23	-	-	-	-	-	-	-	-	-		
3.50	SPT/DS		3	4	5	9	10																				
4.50	SPT/DS	Medium Dense,brownish to grayish, fine-grained silty sand with Gravel (SM)	4	6	7	13	13	5.4	69.0	16.4	9.2	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	DS		2.9	65.8	21.3	10.0	29	NP	NP	22.10	-	-	2.78	F	0.02	25	-	-	-	-	-	-	-	-	-		
6.50	SPT/DS		5	7	9	16	15																				
7.50	SPT/DS	Hard, Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)	13	22	27	49	45	0.0	28.8	51.0	20.2	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS		3.2	16.0	53.7	27.2	21	NP	NP	18.58	-	-	2.62	F	0.08	26	-	-	-	-	-	-	-	-	-		
9.50	SPT/DS		16	19	21	40	34																				
10.50	SPT/DS		15	21	23	44	36	1.0	29.3	49.2	20.5	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS	Dense, Brownish, fine-grained silty sand(SM)						0.7	52.2	33.7	13.3	22	NP	NP	17.92	-	-	2.66	F	0.05	28	-	-	-	-	-	-
12.50	SPT/DS		17	22	24	46	35																				
13.50	SPT/DS		18	23	26	49	25	4.8	74.3	14.1	6.8	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS		2.7	56.5	25.2	15.6	26	NP	NP	16.73	-	-	2.62	F	0.05	30	-	-	-	-	-	-	-	-	-		
15.50	SPT/DS		19	23	25	48	24																				
16.50	SPT/DS	Very Dense, Brownish to Brownish gray, fine-grained silty sand(SM)	21	25	27	52	25	5.3	66.4	18.4	9.8	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS		0.2	77.2	16.0	6.6	24	NP	NP	16.35	-	-	2.68	F	0.02	31	-	-	-	-	-	-	-	-	-		
18.50	SPT/DS		22	26	30	56	26																				
19.50	SPT/DS		24	27	33	60	27	5.6	71.2	15.3	7.9	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS		0.3	65.2	26.0	8.5	28	NP	NP	17.05	-	-	2.65	F	0.00	32	-	-	-	-	-	-	-	-	-		
21.50	SPT/DS		25	30	36	66	28																				
22.50	SPT/DS		27	33	45	78	31	7.9	65.9	17.8	8.4	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS	Hard, Brownish gray to brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						0.8	32.8	46.3	20.1	24	NP	NP	17.49	-	-	2.64	F	0.13	28	-	-	-	-	-	-
24.50	SPT/DS		30	35	46	100	37																				
25.50	SPT/DS		33	42	(50/16 cm)	100	37	4.6	20.2	48.1	27.1	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS	Very Dense, Brownish, fine-grained silty sand(SM)						1.5	64.5	22.8	11.2	26	NP	NP	18.11	-	-	2.61	F	0.02	32	-	-	-	-	-	-
27.50	SPT/DS		36	45	(50/5 cm)	100	36																				
28.50	SPT/DS		42	(50/10 cm)	-	100	35	11.9	61.9	17.6	8.7	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS		1.2	65.8	22.4	10.6	29	NP	NP	17.36	-	-	2.67	F	0.03	34	-	-	-	-	-	-	-	-	-		
30.50	SPT/DS		47	(50/8 cm)	-	100	34																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.







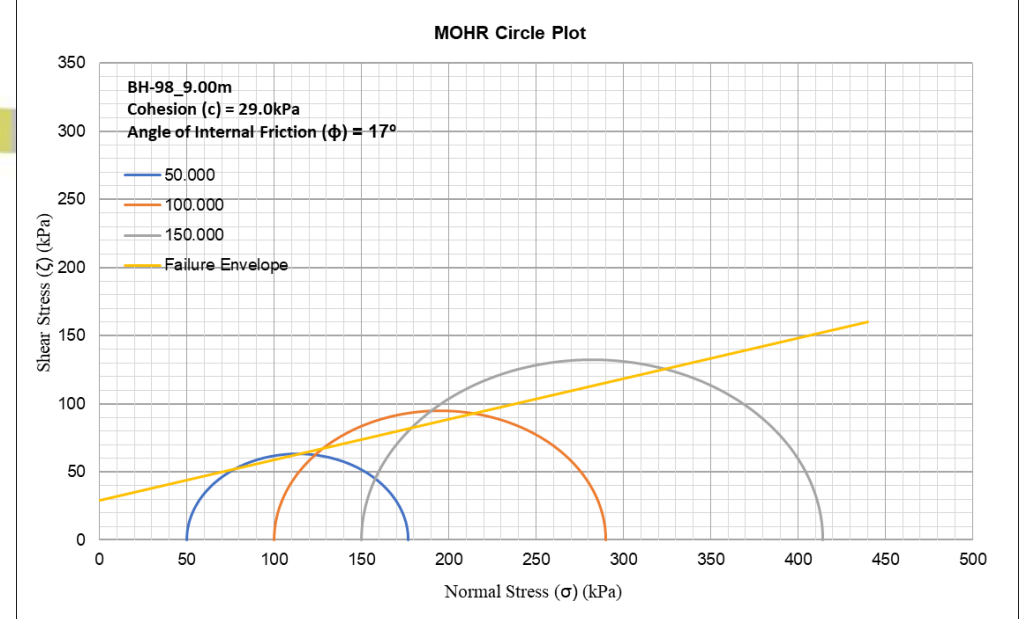
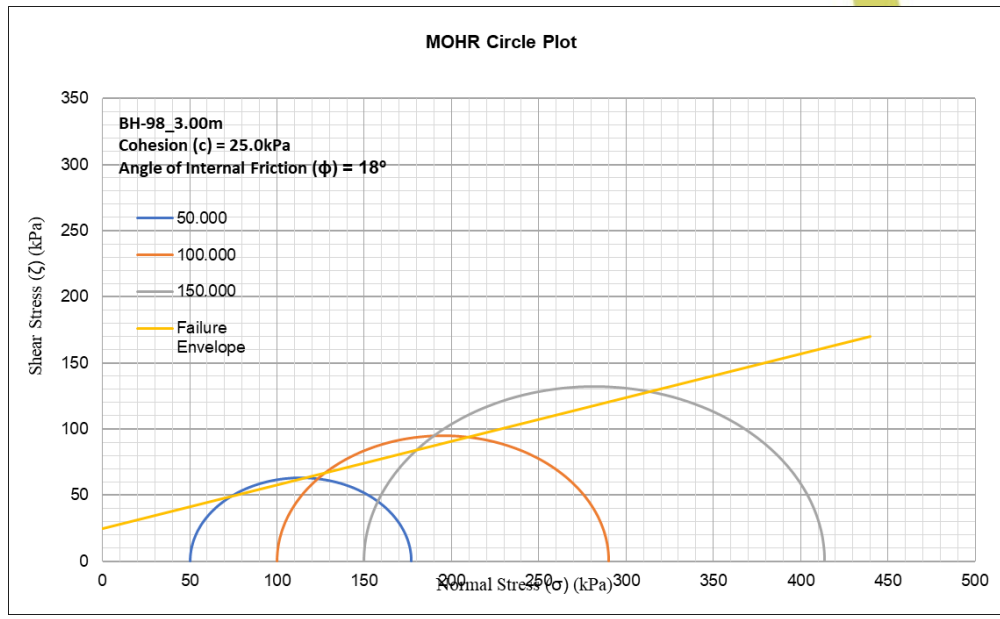
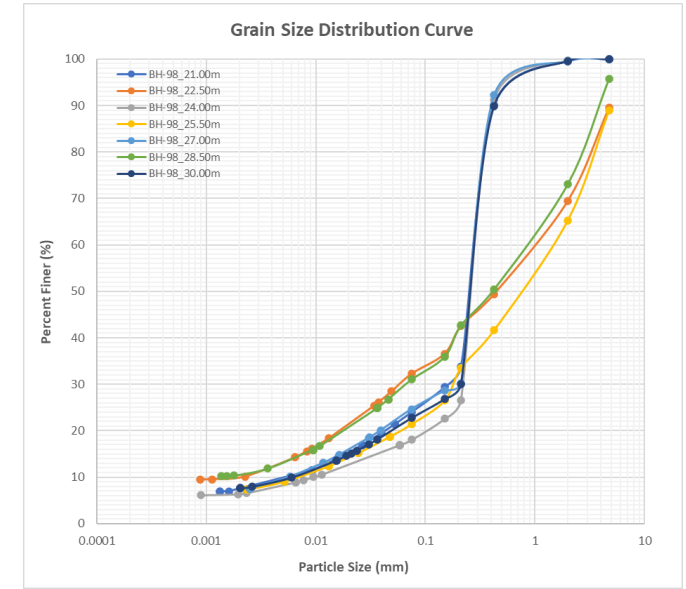
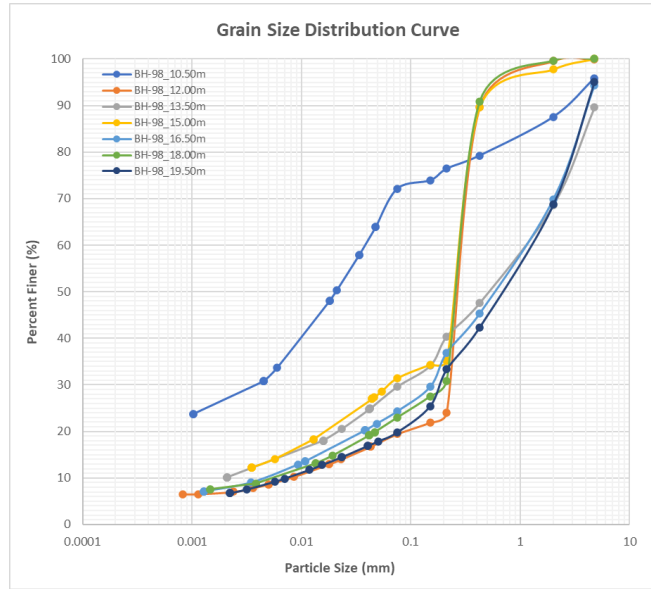
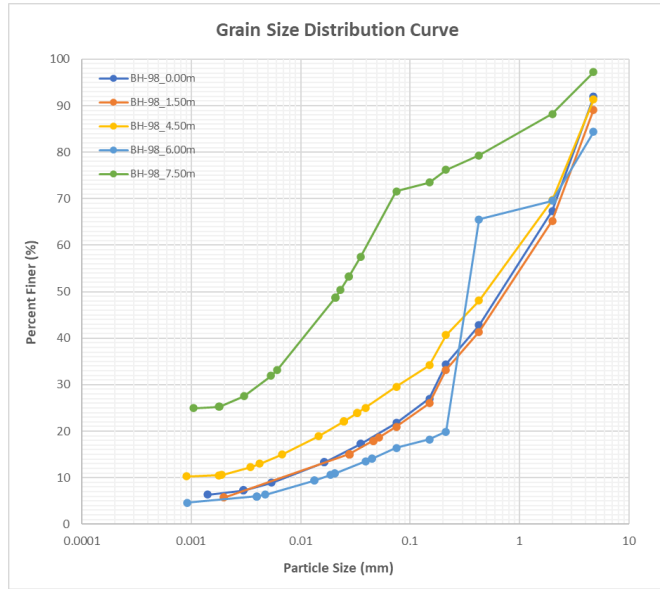


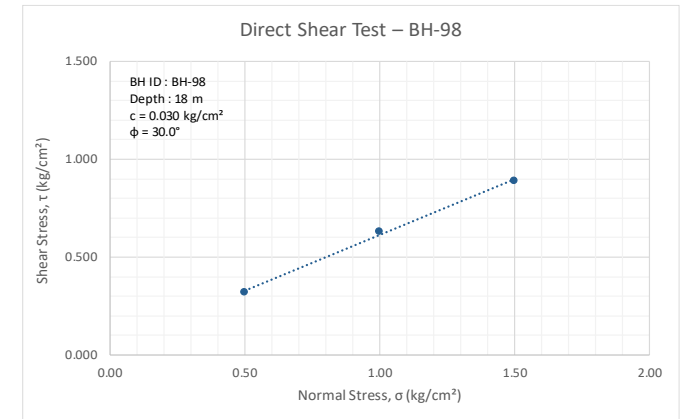
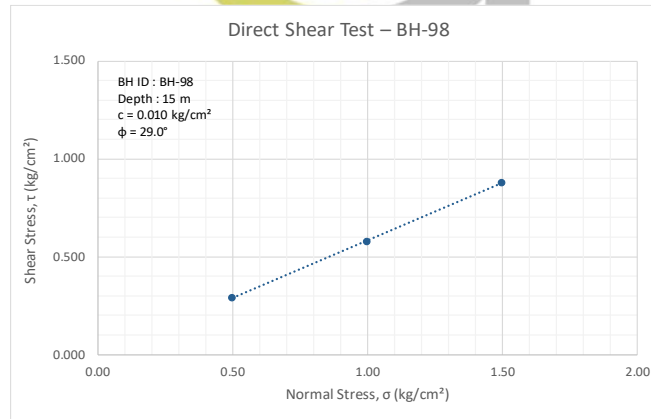
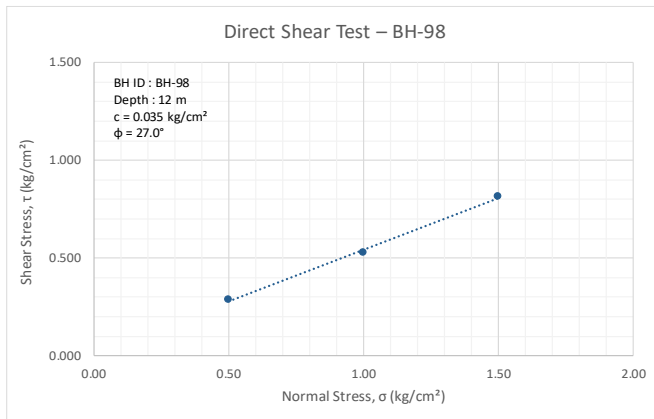
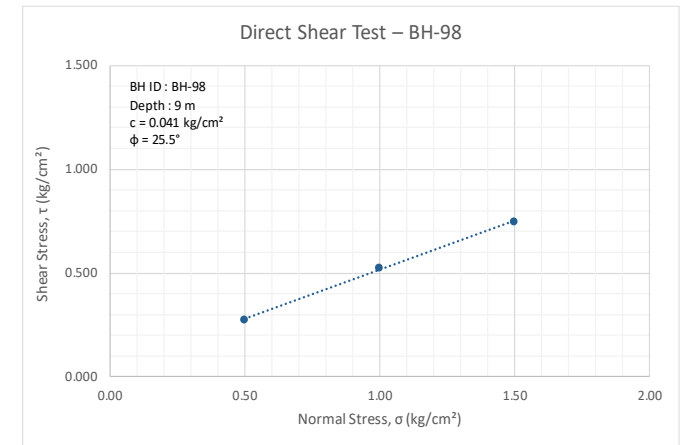
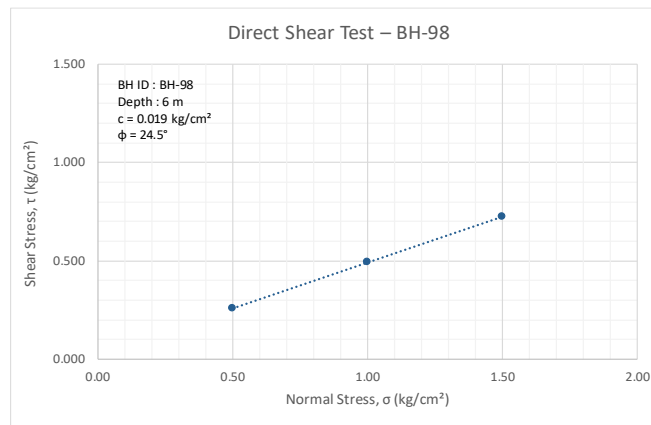
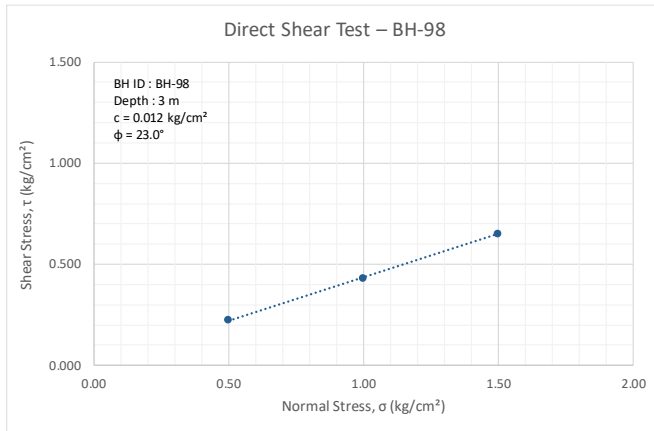


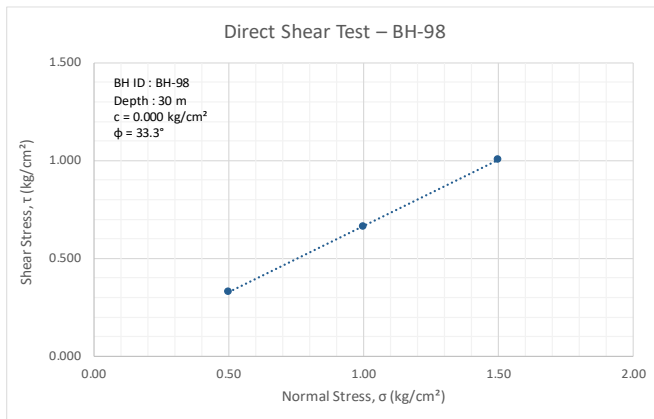
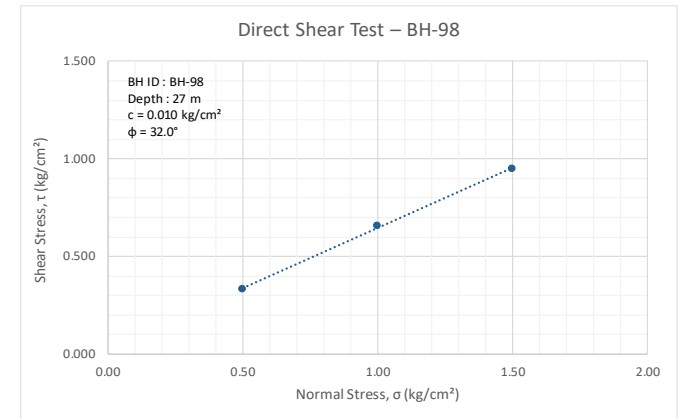
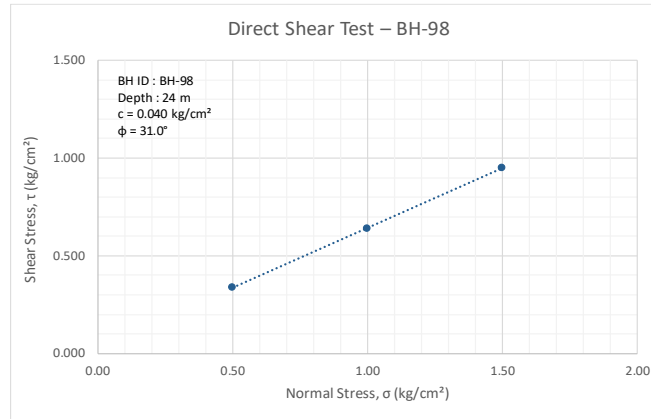
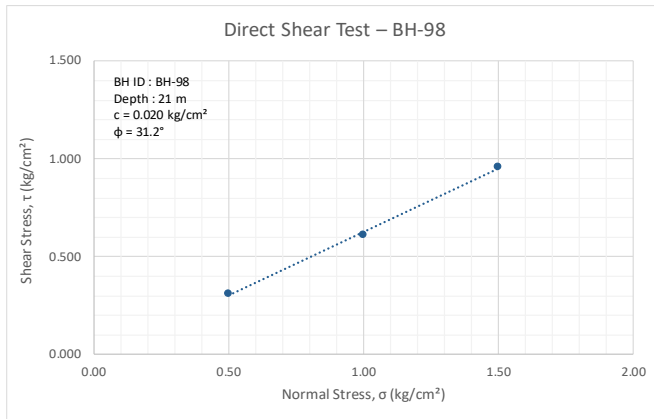
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-98		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+328		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	15-02-2026		
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	194.40		<b>End Date:</b>	15-02-2026		
		<b>Water table Level [m]:</b>	13.20		<b>Location:</b>	Lat: 28.505758 , Long: 77.394825		

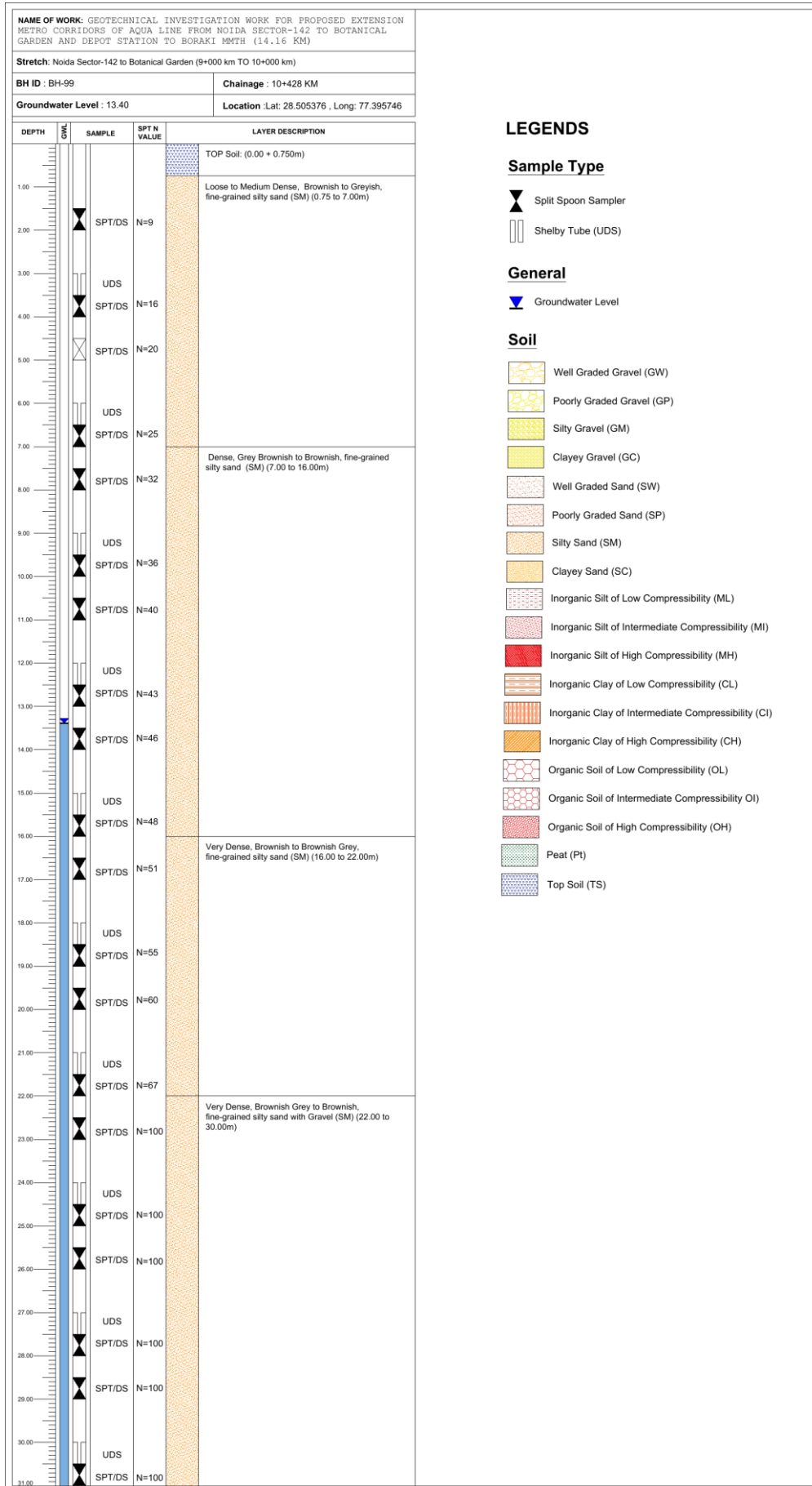
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil	-	-	-	0	0	8.1	70.2	15.0	6.8	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Grayish, fine-grained silty sand with Gravel (SM)	2	3	3	6	8	10.9	68.2	15.1	5.8	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							4.8	64.3	19.8	11.1	22	NP	NP	12.8	1.91	1.69	2.64	F	0.01	23	UU	25	18	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	3	4	7	7	8.7	61.7	18.8	10.7	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							15.7	68.0	11.1	5.3	26	NP	NP	15.00	1.65	1.43	2.70	F	0.02	25	-	-	-	-	-	-
6.50	SPT/DS	Medium Stiff to Stiff, Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)	4	5	7	12	11																				
7.50	SPT/DS		5	7	9	16	15	2.8	25.7	45.9	25.7	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							0.0	24.0	48.2	27.8	26	NP	NP	17.41	1.93	1.64	2.64	F	0.04	27	UU	29	17	-	-	-
9.50	SPT/DS		5	6	7	13	11																				
10.50	SPT/DS		5	7	8	15	12	4.1	23.7	45.2	26.9	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS	Dense, Brownish, fine-grained silty sand(SM)						0.1	80.4	12.5	6.9	22	NP	NP	20.12	-	-	2.69	F	0.04	27	-	-	-	-	-	-
12.50	SPT/DS		9	11	15	26	20																				
13.50	SPT/DS		10	14	17	31	19	10.4	60.0	22.4	7.2	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	68.6	23.1	8.3	28	NP	NP	18.3	-	-	2.64	F	0.01	29	-	-	-	-	-	-
15.50	SPT/DS		13	18	22	40	21																				
16.50	SPT/DS	15	20	25	45	23	5.6	70.1	16.4	7.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS						0.0	77.0	15.0	8.0	23	NP	NP	18.23	-	-	2.64	F	0.03	30	-	-	-	-	-	-	
18.50	SPT/DS	Very Dense, Brownish, fine-grained silty sand(SM)	18	22	29	51	24																				
19.50	SPT/DS		20	25	31	56	26	5.0	75.3	14.3	5.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.0	76.0	16.4	7.5	25	NP	NP	21.02	-	-	2.66	F	0.02	31	-	-	-	-	-	-
21.50	SPT/DS		25	30	37	67	28																				
22.50	SPT/DS		27	34	42	100	38	10.5	57.3	22.2	10.0	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS						0.0	82.0	11.6	6.4	24	NP	NP	15.93	-	-	2.77	F	0.04	31	-	-	-	-	-	-	
24.50	SPT/DS	20	24	28	52	23																					
25.50	SPT/DS	48	50/5 cm	-	100	37	11.1	67.5	14.4	7.0	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS	Very Dense, Brownish Gray, fine-grained silty sand(SM)						0.0	75.3	19.4	5.3	28	NP	NP	19.07	-	-	2.62	F	0.01	32	-	-	-	-	-	-
27.50	SPT/DS		46	50/4 cm	-	100	36																				
28.50	SPT/DS		0/12 cr	-	-	100	36	4.3	64.7	20.5	10.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	77.3	17.9	4.8	21	NP	NP	20.52	-	-	2.69	F	0.00	33	-	-	-	-	-	-
30.50	SPT/DS		0/10 cr	-	-	100	35																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

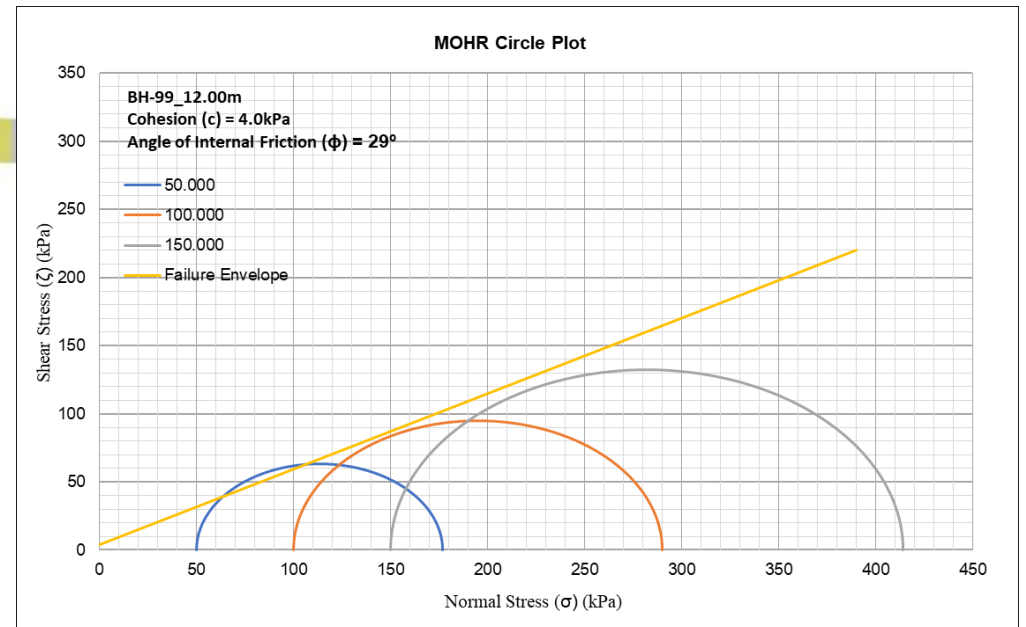
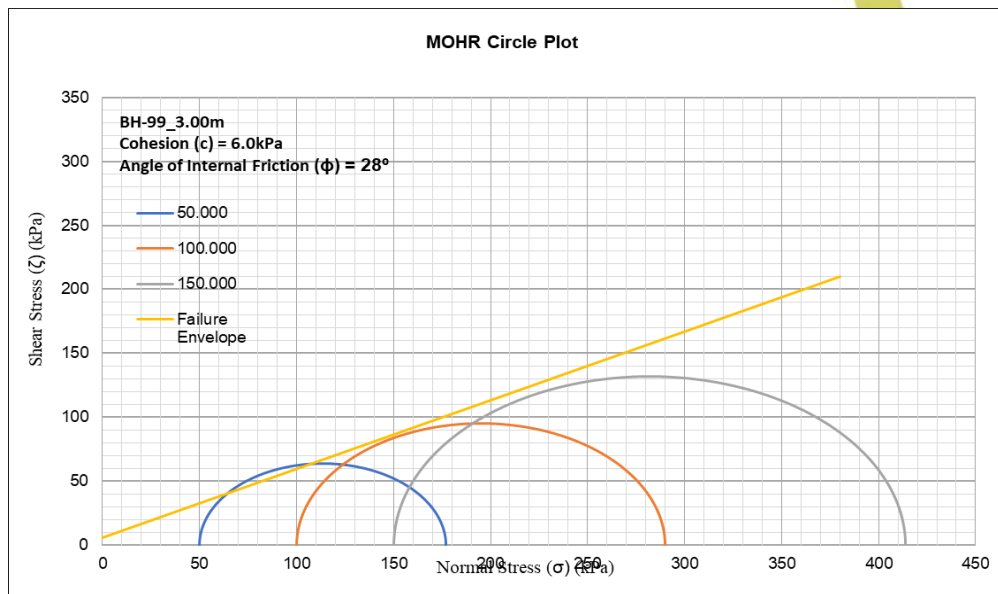
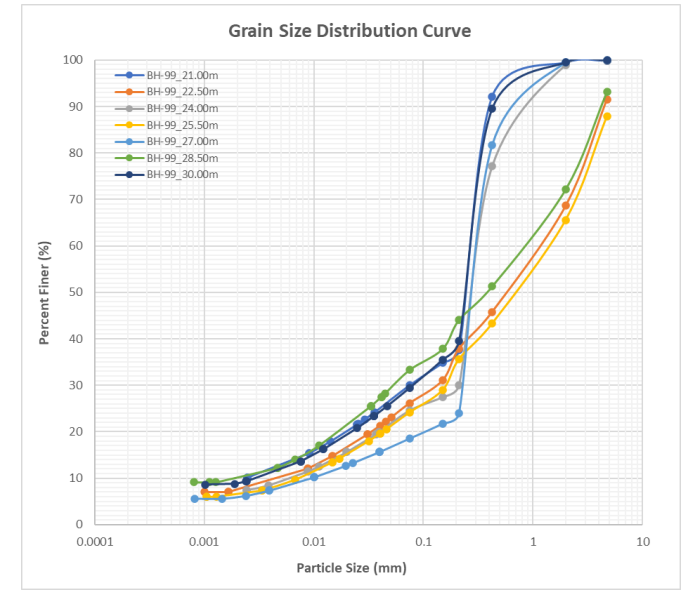
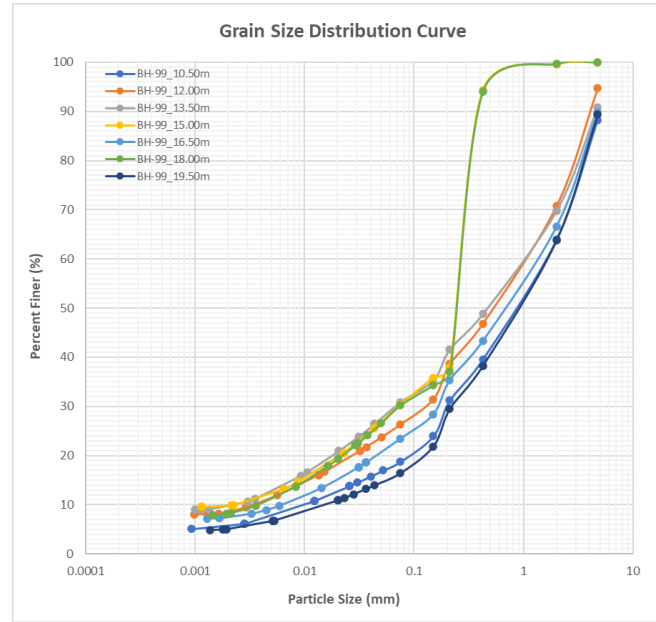
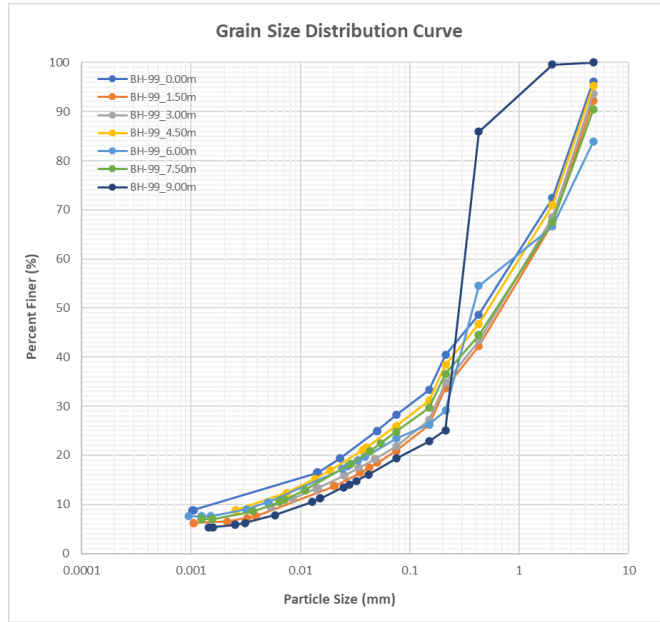
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

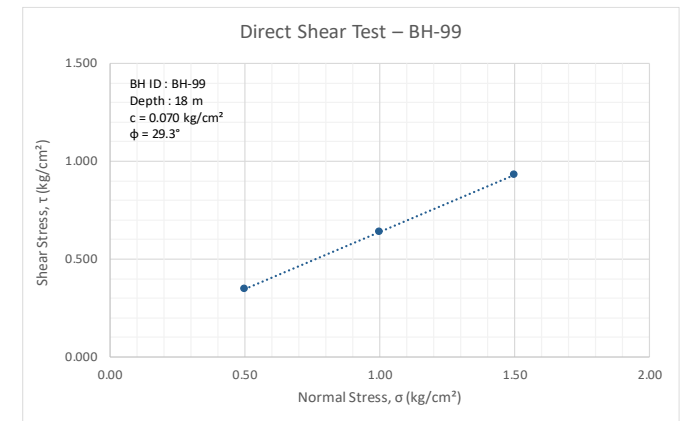
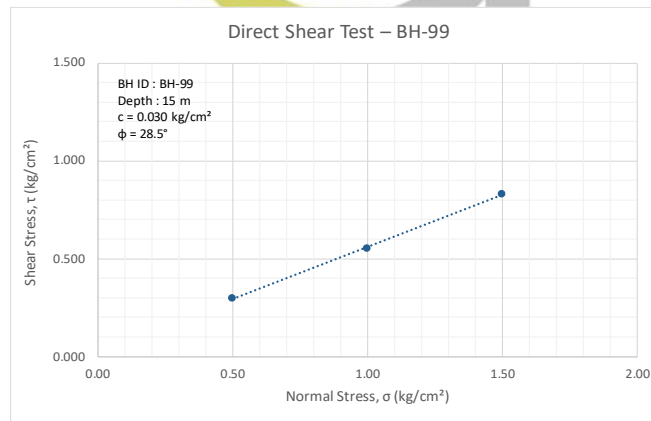
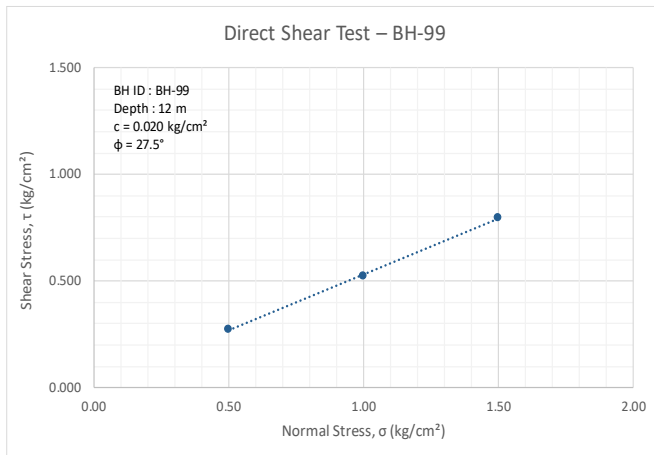
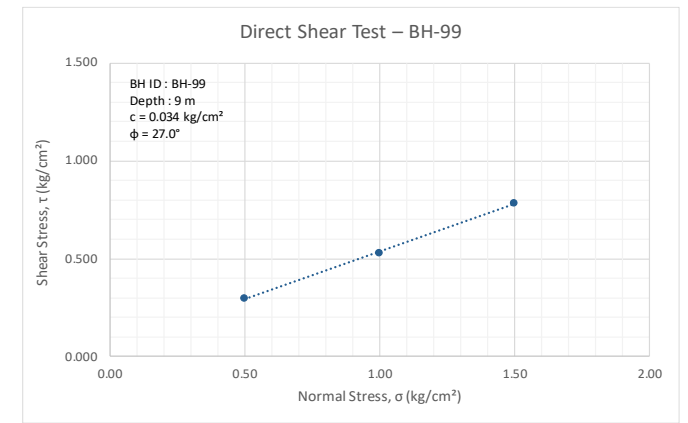
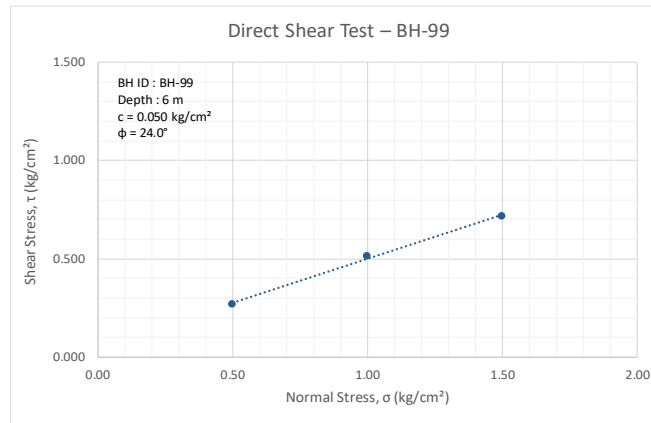
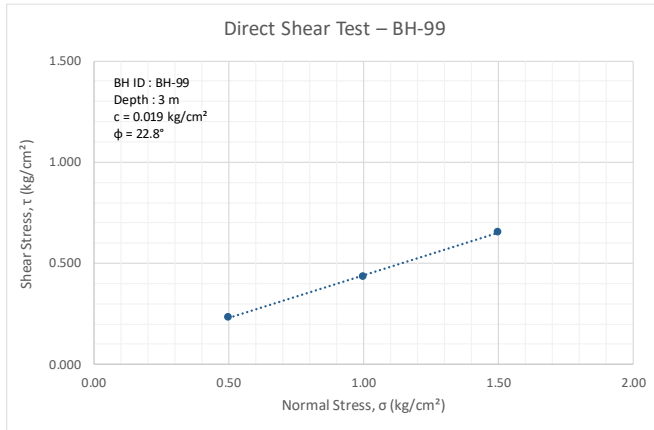


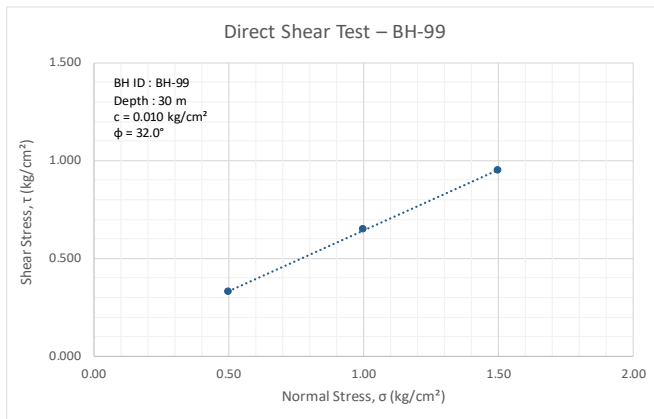
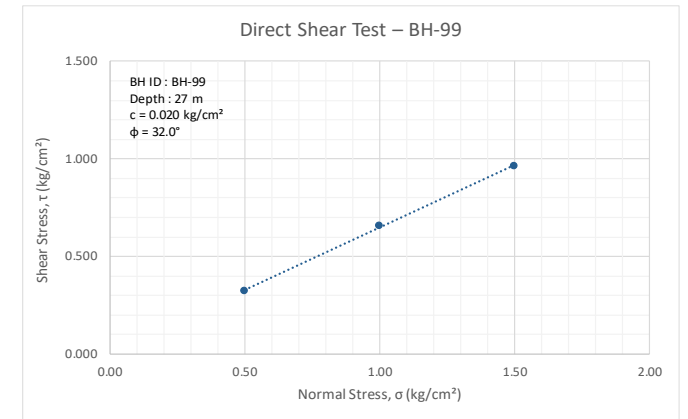
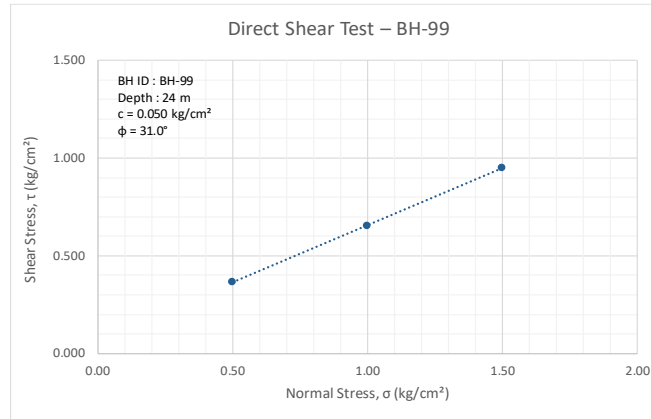
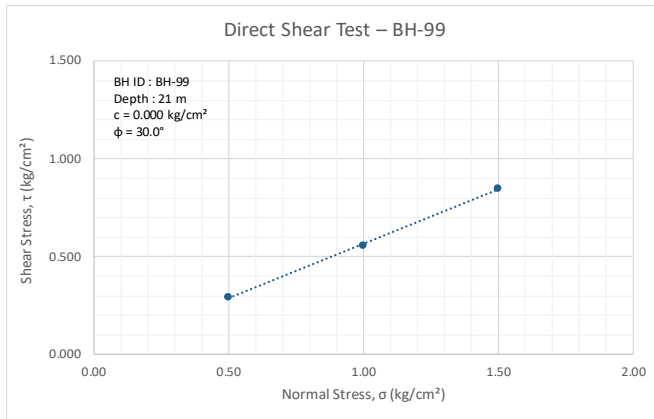
Project		Borehole Details		Drilling Details	
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-99	<b>Contractor:</b>	Goma Engineering & Consultancy
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+428	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	15-02-2026
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	200.40	<b>End Date:</b>	15-02-2026
		<b>Water table Level [m]:</b>	13.40	<b>Location:</b>	Lat: 28.505376 , Long: 77.395746

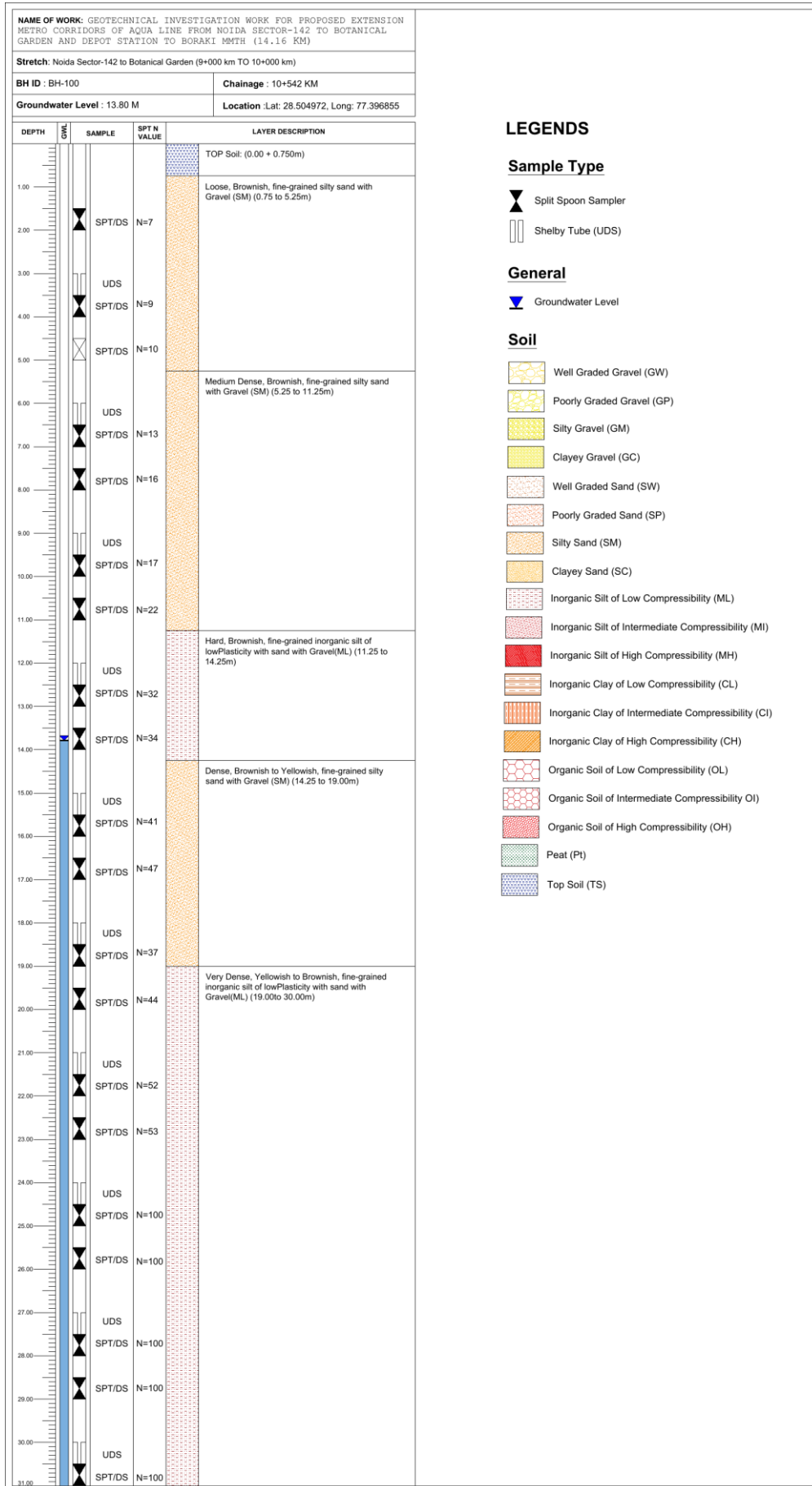
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil	-	-	-	-	-	3.8	67.9	17.5	10.7	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Brownish to Greyish, fine-grained silty sand (SM)	3	4	5	9	13	7.8	71.3	14.4	6.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							6.4	71.8	21.8	0.0	23	NP	NP	4.23	1.89	1.81	2.64	F	0.02	23	UU	6	28	-	-	-
3.50	SPT/DS		5	7	9	16	18																				
4.50	SPT/DS		6	8	12	20	20	4.8	69.2	18.7	7.3	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							16.1	60.5	15.3	8.1	25	NP	NP	6.10	1.80	1.70	2.66	F	0.05	24	-	-	-	-	-	-
6.50	SPT/DS	9	12	13	25	23																					
7.50	SPT/DS	Dense, Grey Brownish to Brownish, fine-grained silty sand (SM)	11	14	18	32	29	9.6	65.6	17.3	7.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS							0.0	80.6	13.8	5.6	24	NP	NP	12.82	-	-	2.74	F	0.03	27	-	-	-	-	-	-
9.50	SPT/DS		15	17	19	36	31																				
10.50	SPT/DS		16	19	21	40	33	11.7	69.5	12.9	5.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS							5.3	68.4	17.7	8.6	29	NP	NP	14.86	1.92	1.67	2.66	F	0.02	28	UU	4	29	-	-	-
12.50	SPT/DS		18	21	22	43	32																				
13.50	SPT/DS		19	22	24	46	24	9.2	60.0	21.0	9.9	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	69.6	20.6	9.8	23	NP	NP	19.23	-	-	2.63	F	0.03	29	-	-	-	-	-	-
15.50	SPT/DS		21	23	25	48	24																				
16.50	SPT/DS		Very Dense, Brownish to Brownish Grey, fine-grained silty sand (SM)	22	24	27	51	25	10.2	66.4	15.9	7.5	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS						0.0	69.8	21.9	8.2	26	NP	NP	20.08	-	-	2.60	F	0.07	29	-	-	-	-	-	-	
18.50	SPT/DS	22		25	30	55	25																				
19.50	SPT/DS	23		27	33	60	27	10.7	73.0	11.3	5.1	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS						0.1	69.9	21.7	8.3	27	NP	NP	18.81	-	-	2.72	F	0.00	30	-	-	-	-	-	-	
21.50	SPT/DS	24	32	35	67	28																					
22.50	SPT/DS	Very Dense, Brownish Grey to Brownish, fine-grained silty sand with Gravel (SM)	27	37	42	100	38	8.5	65.4	18.5	7.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.1	75.3	15.8	8.8	23	NP	NP	11.14	-	-	2.60	F	0.05	31	-	-	-	-	-	-
24.50	SPT/DS		32	39	45	100	37																				
25.50	SPT/DS		33	41	47	100	37	12.1	63.7	17.5	6.7	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.0	81.5	12.5	6.0	25	NP	NP	13.52	-	-	2.62	F	0.02	32	-	-	-	-	-	-
27.50	SPT/DS		38	48	(50/11 cm)	100	36																				
28.50	SPT/DS		42	(50/10 cm)	-	100	35	6.8	59.8	23.1	10.2	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	70.6	20.5	8.9	24	NP	NP	19.19	-	-	2.65	F	0.01	32	-	-	-	-	-	-
30.50	SPT/DS		(50/13 cm)	-	-	100	34																				

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.







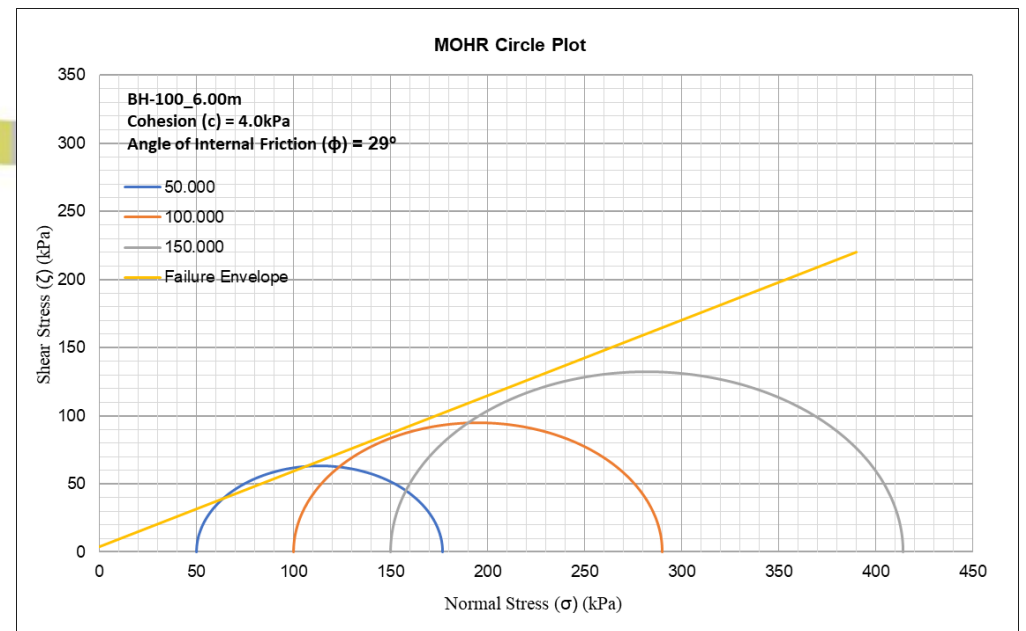
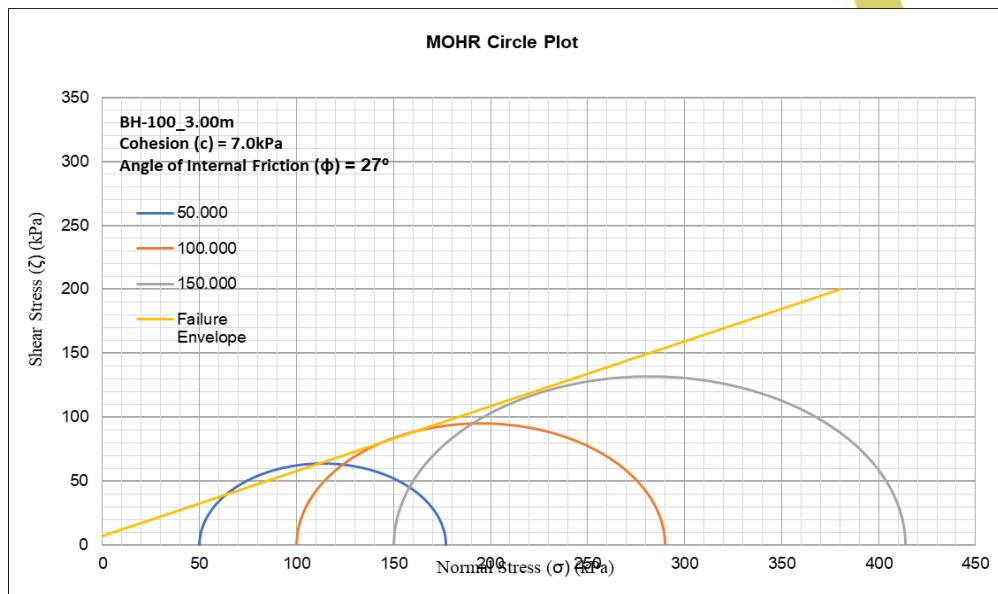
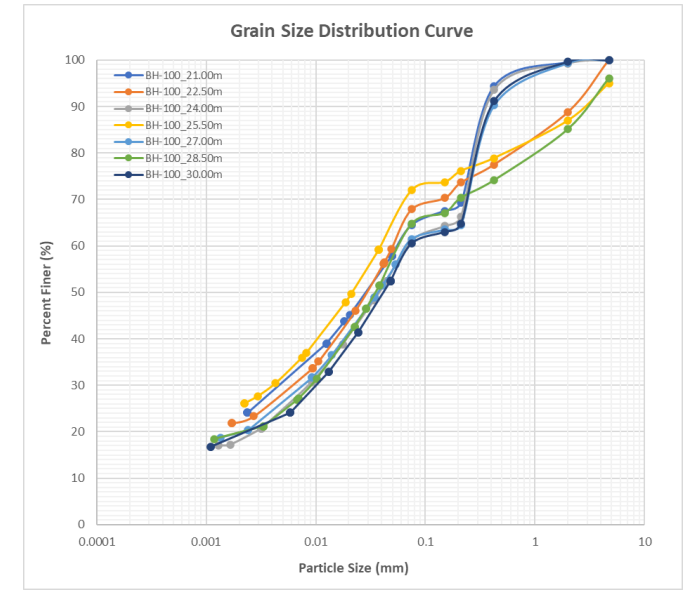
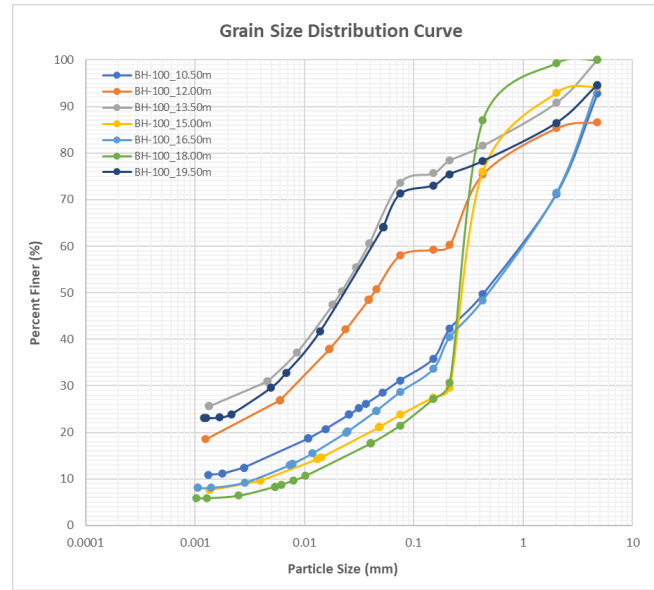
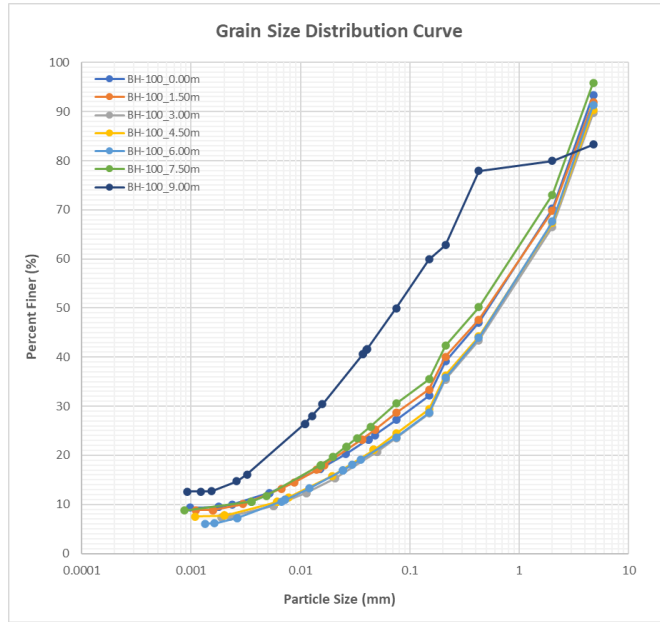


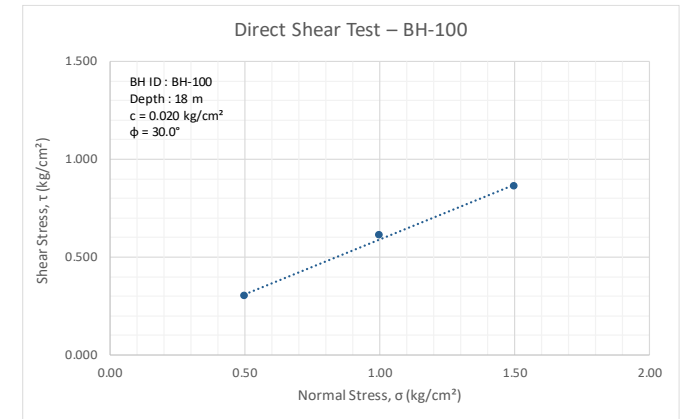
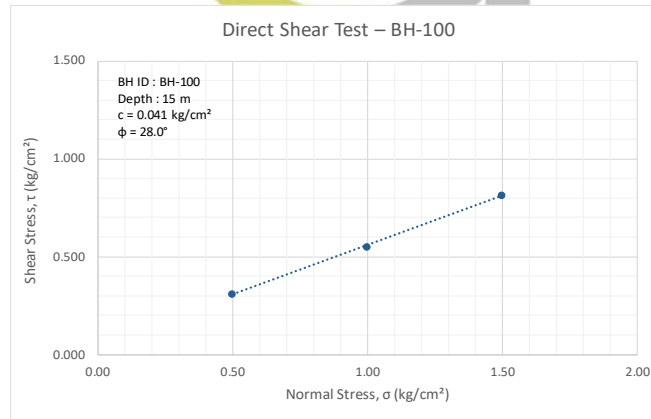
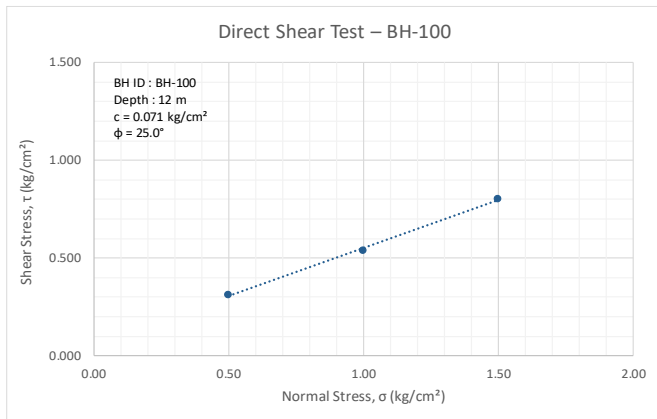
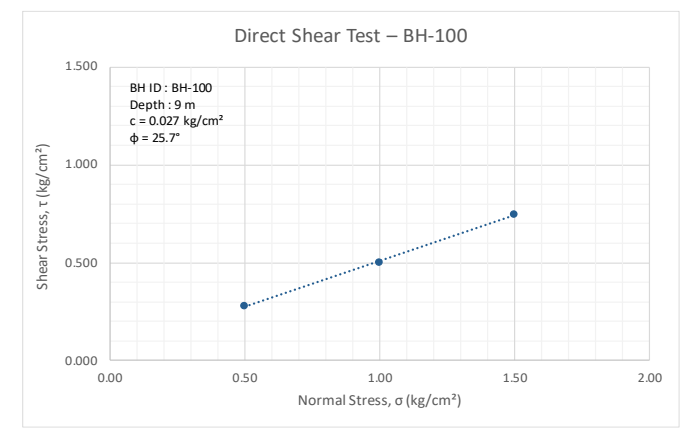
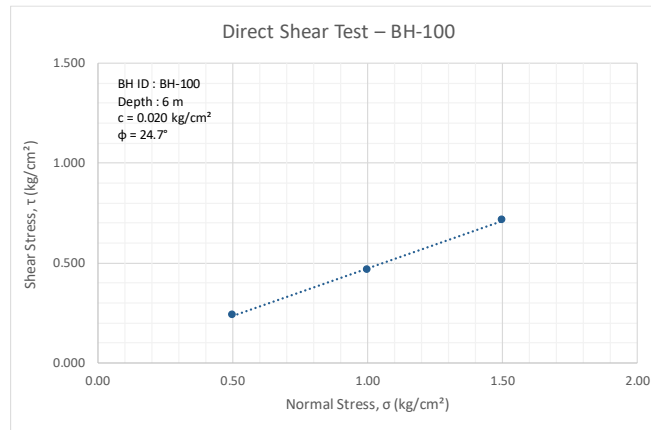
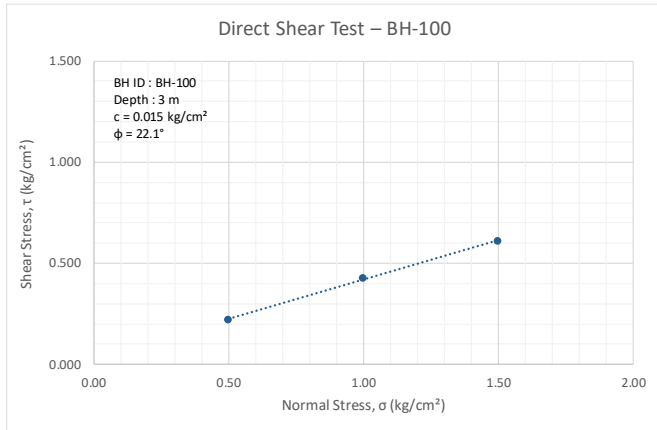


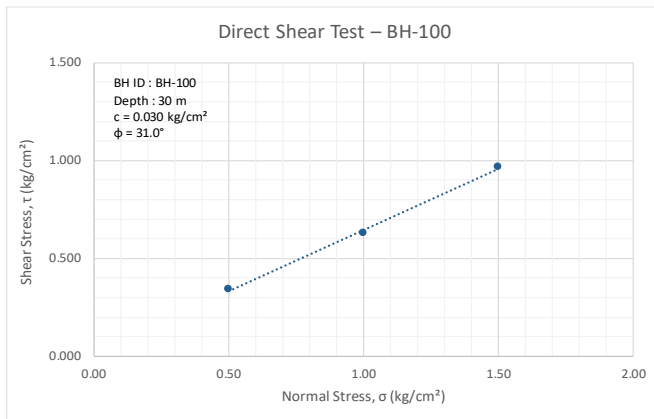
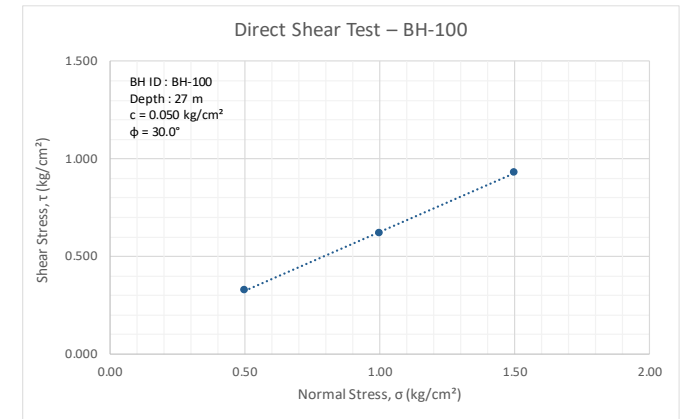
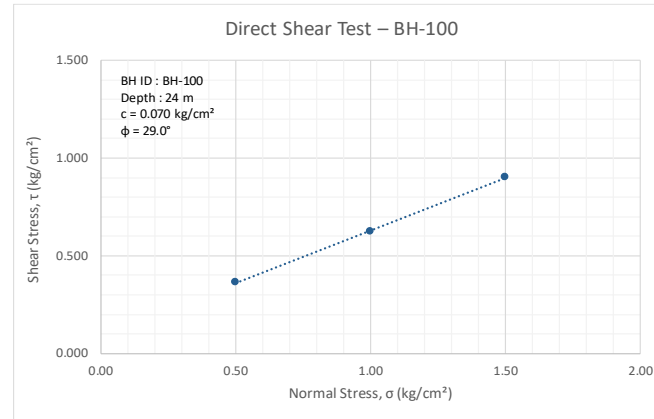
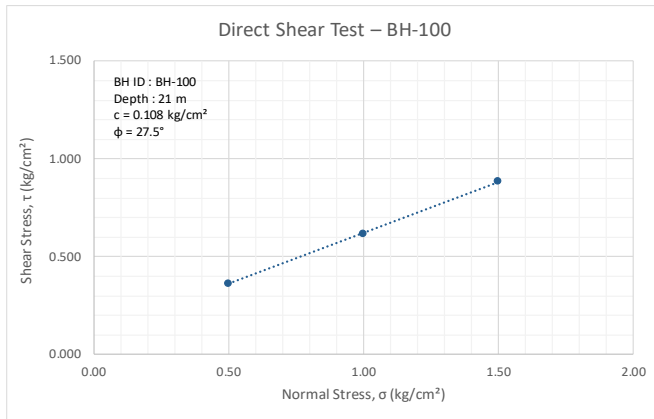
Project		Borehole Details			Drilling Details		
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-100		<b>Contractor:</b>	Goma Engineering & Consultancy	
		<b>Chainage [km]:</b>	10+542		<b>Method of Drilling:</b>	Rotary Drilling	
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	16-02-2026	
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Elevation [m]:</b>	194.20		<b>End Date:</b>	16-02-2026	
<b>Project Code:</b>	158_R11_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Water table Level [m]:</b>	13.80		<b>Location:</b>	Lat: 28.504972, Long: 77.396855	

Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil	-	-	-	-	-	6.6	66.2	17.5	9.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Brownish, fine-grained silty sand with Gravel (SM)	2	3	4	7	10	8.1	63.2	19.4	9.3	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							10.3	66.2	16.1	7.4	29	NP	NP	12.5	1.87	1.66	2.65	F	0.02	22	UU	7	27	-	-	-
3.50	SPT/DS							-																			
4.50	SPT/DS							9.6	65.9	16.7	7.8	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS	Medium Dense, Brownish, fine-grained silty sand with Gravel (SM)						8.7	67.7	17.0	6.6	24	NP	NP	11.8	1.88	1.68	2.65	F	0.02	25	UU	4	29	-	-	-
6.50	SPT/DS							-																			
7.50	SPT/DS							4.1	65.3	20.7	9.9	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							16.7	33.4	36.3	13.7	25	NP	NP	14.08	1.80	1.57	2.64	F	0.03	26	-	-	-	-	-	-
9.50	SPT/DS							-																			
10.50	SPT/DS							7.2	61.6	19.7	11.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS	Hard, Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						13.3	28.6	37.0	21.1	23	NP	NP	14.15	1.87	1.64	2.76	F	0.07	25	-	-	-	-	-	-
12.50	SPT/DS							-																			
13.50	SPT/DS							0.0	26.3	46.3	27.4	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS	Dense, Brownish to Yellowish, fine-grained silty sand with Gravel (SM)						5.8	70.4	15.5	8.4	23	NP	NP	16.39	-	-	2.67	F	0.04	28	-	-	-	-	-	-
15.50	SPT/DS							-																			
16.50	SPT/DS							5.6	65.7	20.0	8.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.0	78.5	15.3	6.3	27	NP	NP	12.80	-	-	2.73	F	0.02	30	-	-	-	-	-	-
18.50	SPT/DS							-																			
19.50	SPT/DS	Very Dense, Yellowish to Brownish, fine-grained inorganic silt of lowPlasticity with sand with Gravel(ML)						5.3	23.4	47.6	23.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.0	35.5	44.3	20.2	25	NP	NP	16.07	-	-	2.68	F	0.11	28	-	-	-	-	-	-
21.50	SPT/DS							-																			
22.50	SPT/DS							0.0	32.1	45.5	22.4	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.0	38.9	42.9	18.2	28	NP	NP	15.83	-	-	2.63	F	0.07	29	-	-	-	-	-	-
24.50	SPT/DS							-																			
25.50	SPT/DS							5.0	23.0	47.3	24.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.0	38.5	41.7	19.8	28	NP	NP	15.91	-	-	2.72	F	0.05	30	-	-	-	-	-	-
27.50	SPT/DS							-																			
28.50	SPT/DS							3.9	31.4	44.9	19.8	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS						0.0	39.5	41.2	19.4	24	NP	NP	15.97	-	-	2.69	F	0.03	31	-	-	-	-	-	-	
30.50	SPT/DS						-																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.

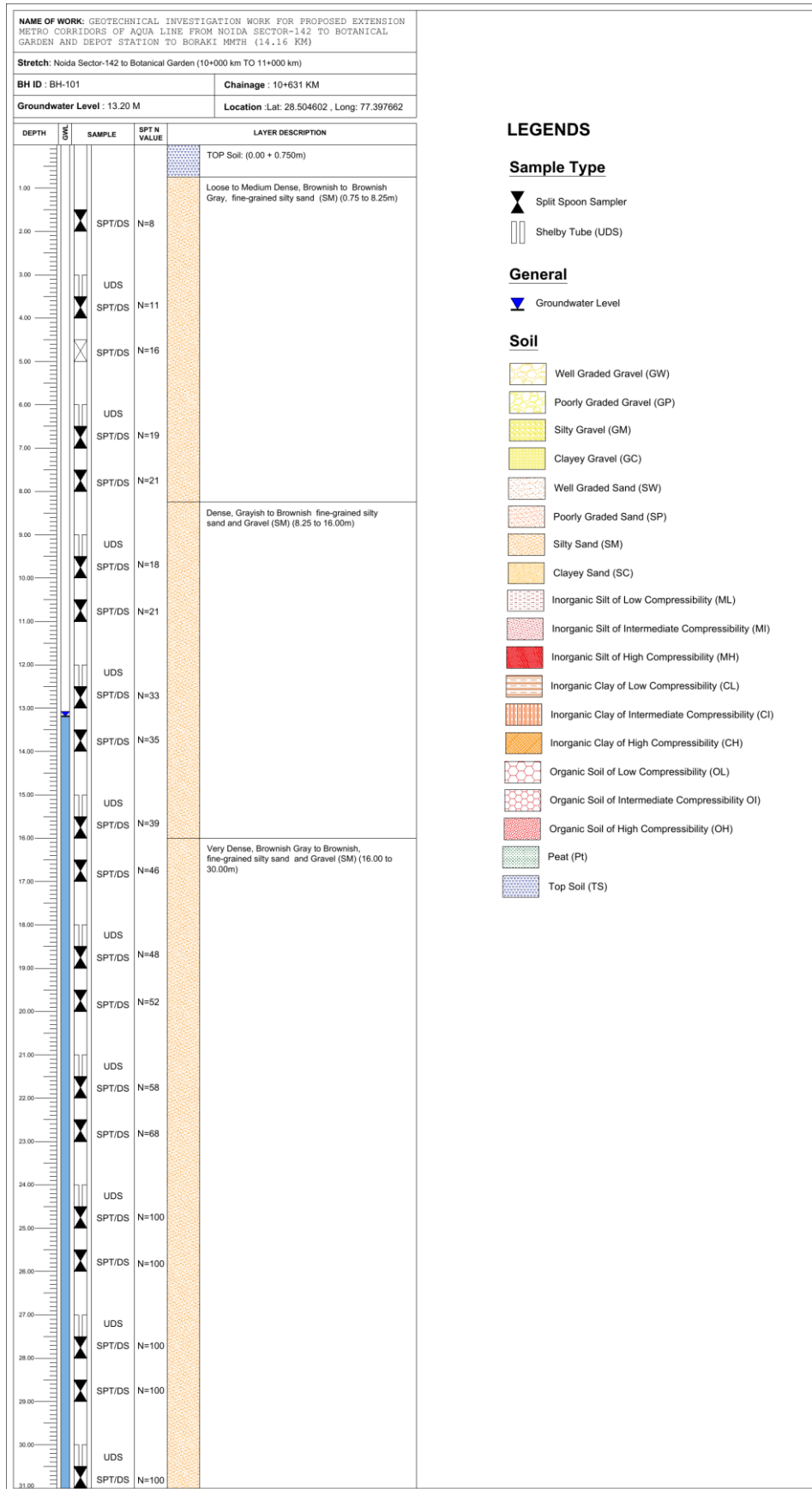








### C.12. Zone 12: CH: 10+540 km to 11+400 km (BH-101 to BH-109)

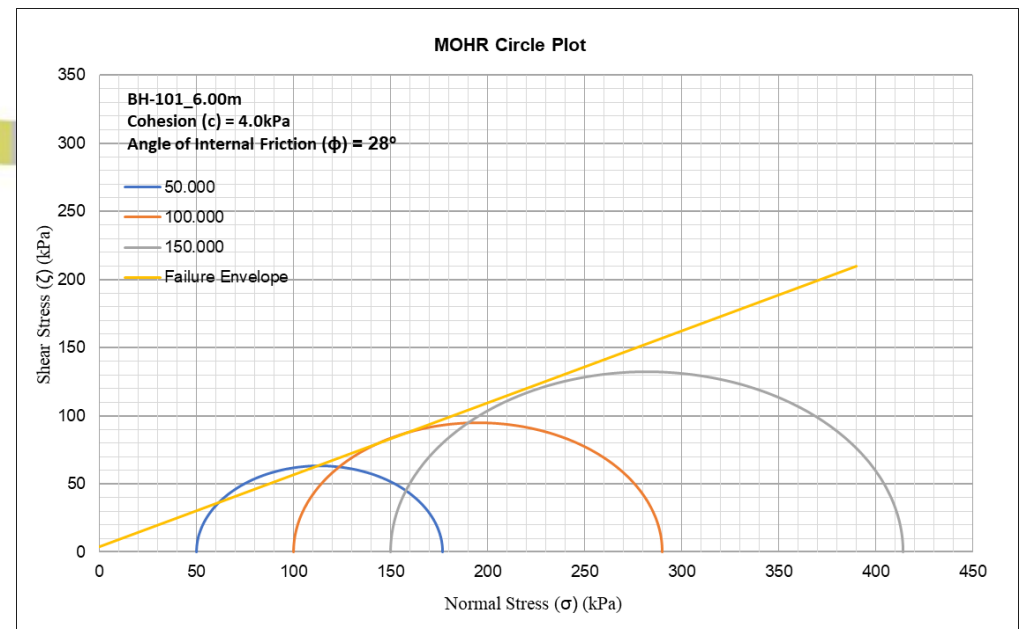
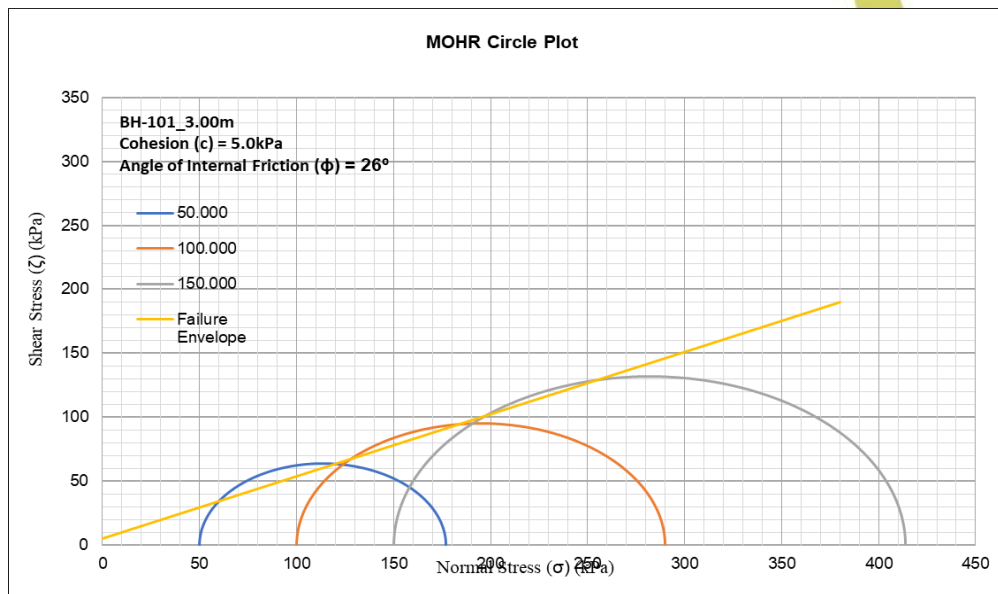
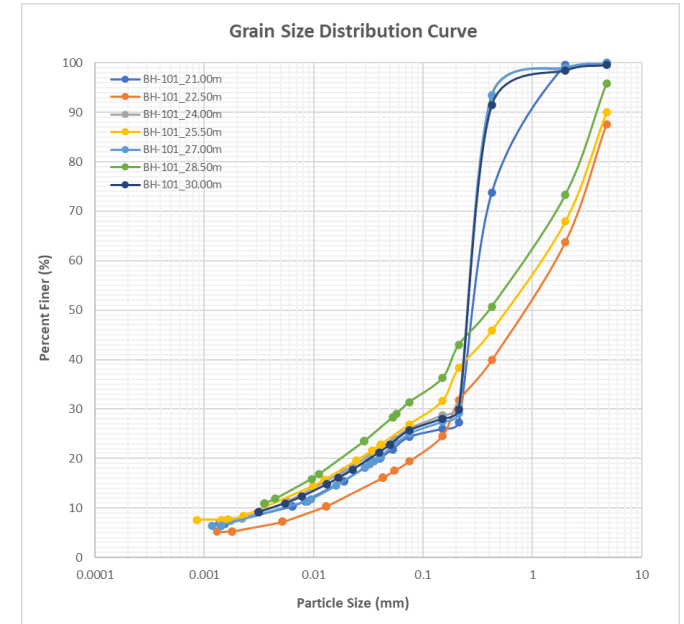
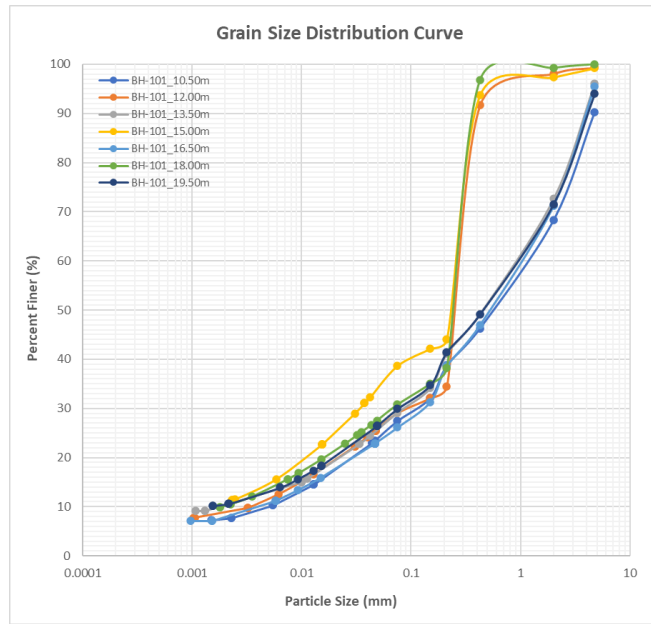
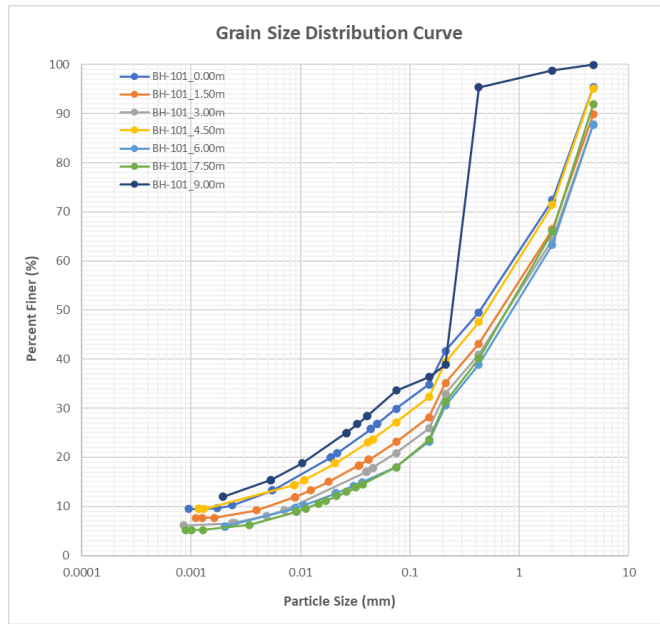


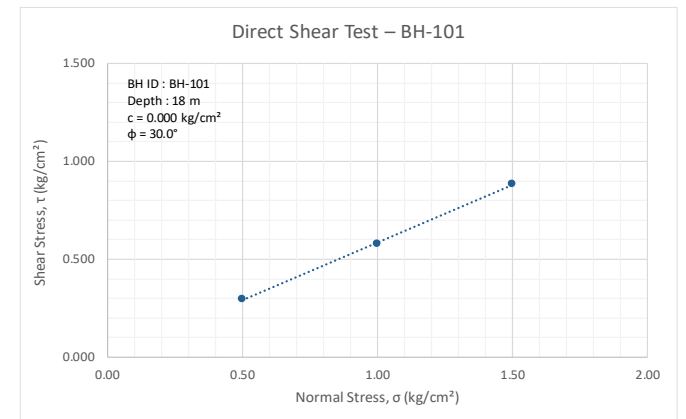
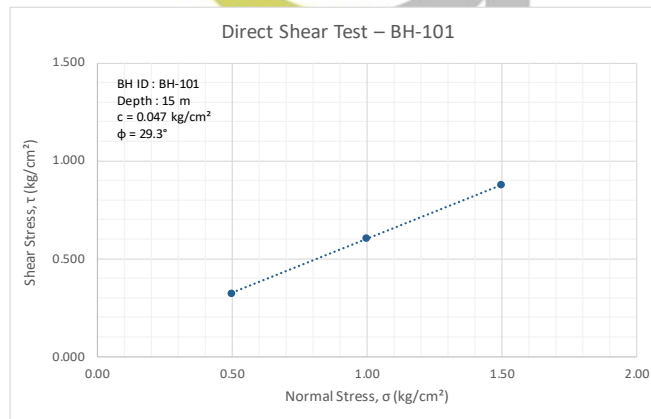
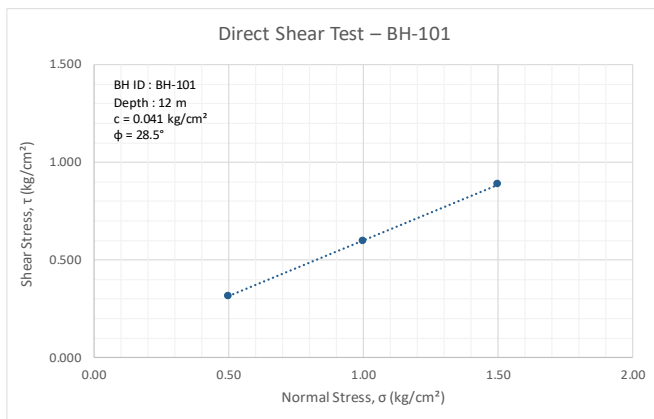
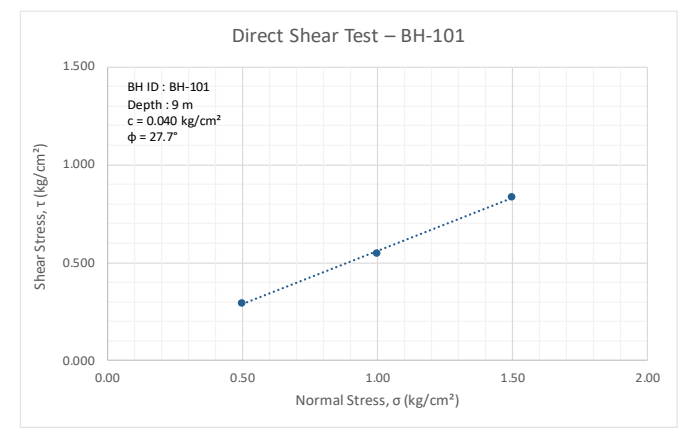
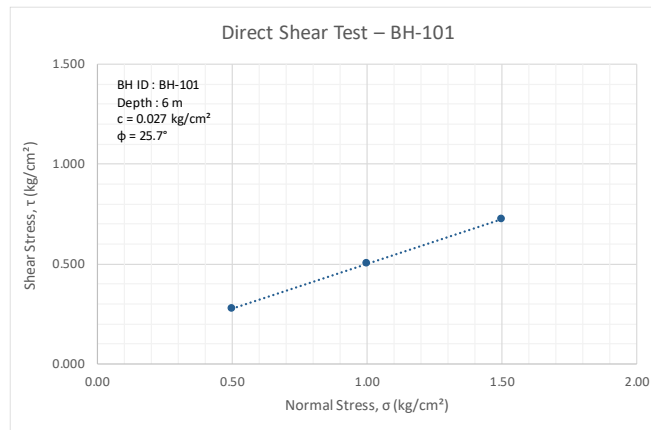
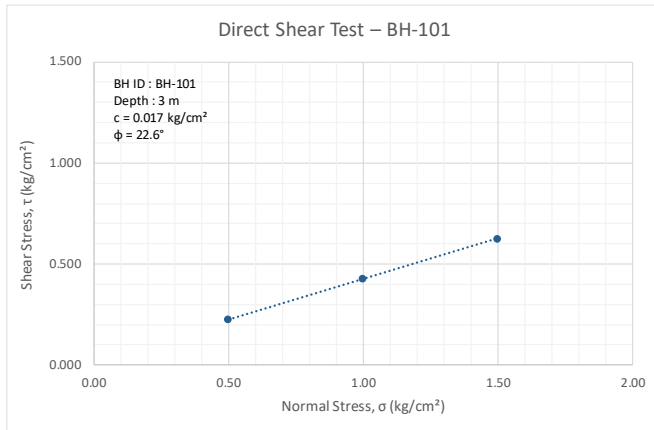


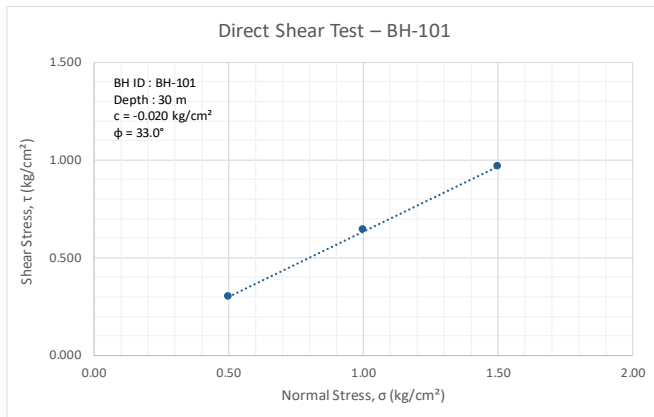
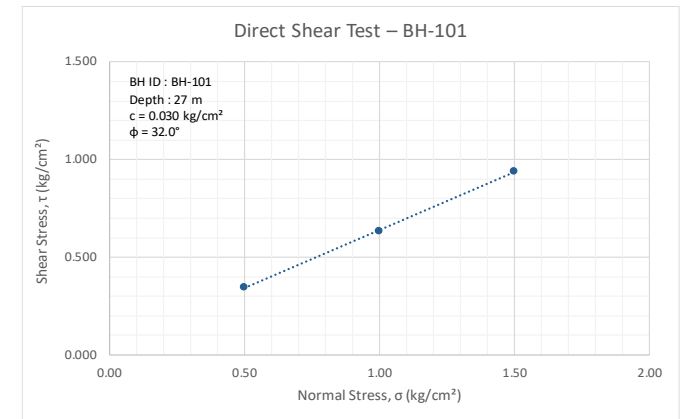
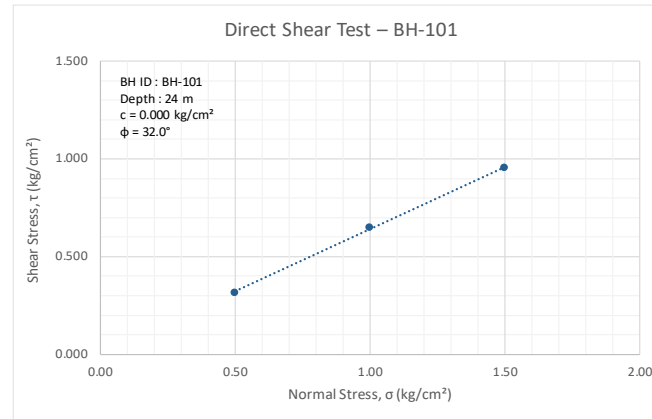
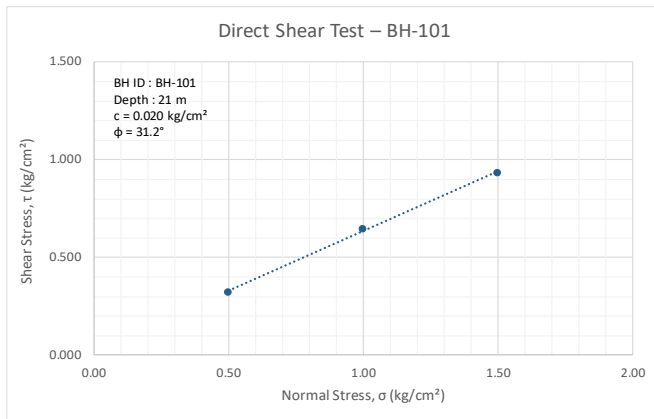
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-101		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	10+631		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	16-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	199.60		End Date:	16-02-2026	
Project Code:	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	13.20		Location:	Lat: 28.504602 , Long: 77.397662	

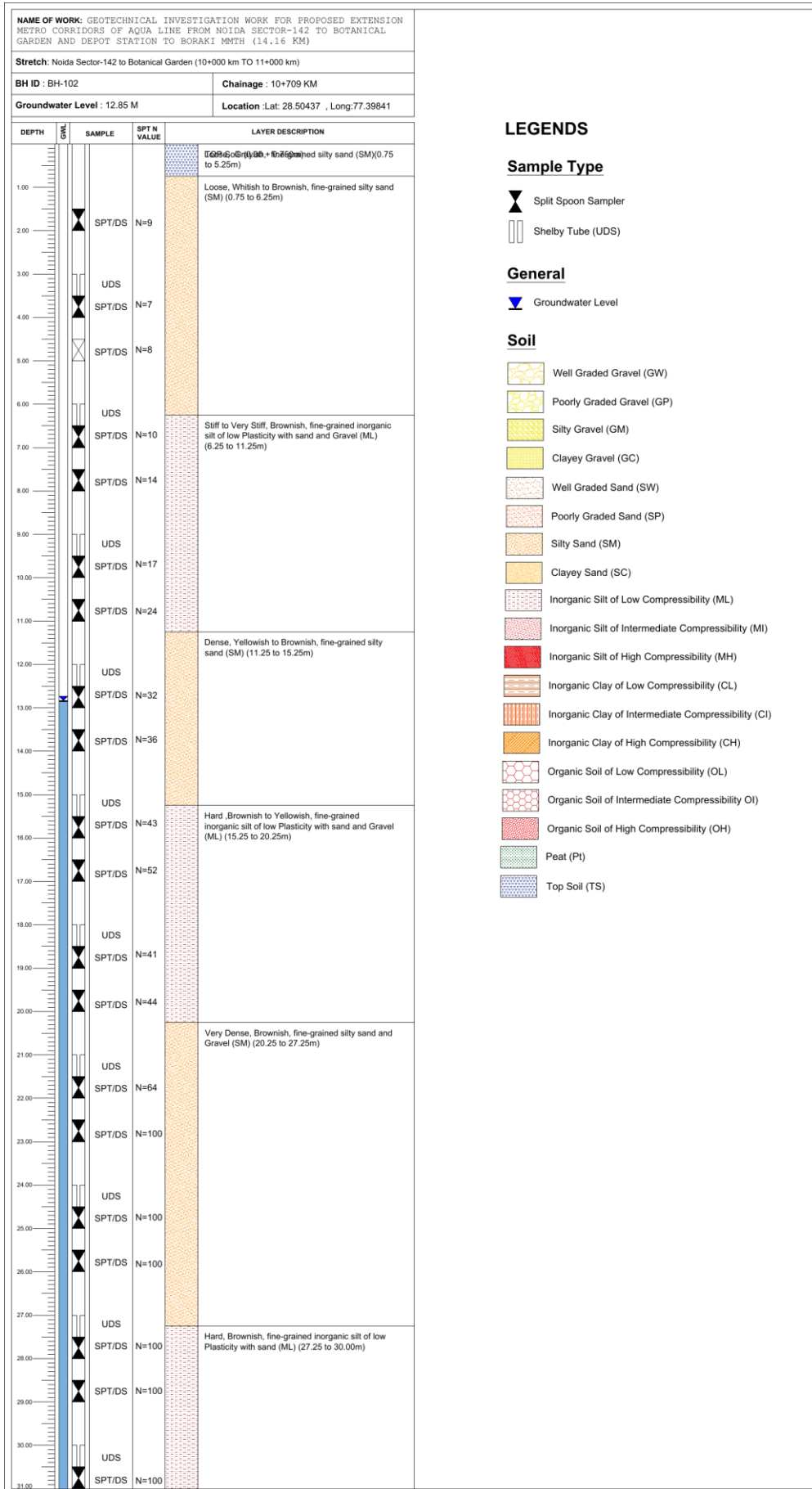
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						4.7	65.4	20.0	9.9	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Brownish to Brownish Gray, fine-grained silty sand (SM)	2	3	5	8	11	10.2	66.7	15.1	8.0	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							12.2	67.0	14.4	6.5	23	NP	NP	17.2	1.85	1.58	2.69	F	0.02	23	UU	5	26	-	-	-
3.50	SPT/DS		3	5	6	11	12																				
4.50	SPT/DS		5	7	9	16	16	4.9	68.0	16.6	10.6	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							12.3	69.7	18.0	0.0	21	NP	NP	19.6	1.87	1.56	2.61	F	0.03	26	UU	4	28	-	-	-
6.50	SPT/DS		5	8	11	19	18																				
7.50	SPT/DS	7	9	12	21	19	8.1	73.9	12.3	5.7	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.00	DS	Dense, Greyish to Brownish fine-grained silty sand and Gravel (SM)						0.1	66.4	21.5	12.1	28	NP	NP	18.00	-	-	2.69	F	0.04	28	-	-	-	-	-	-
9.50	SPT/DS		13	15	18	33	28																				
10.50	SPT/DS		14	16	19	35	29	9.7	62.8	19.9	7.6	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.6	70.4	20.1	8.9	29	NP	NP	19.98	-	-	2.65	F	0.04	29	-	-	-	-	-	-
12.50	SPT/DS		15	18	21	39	29																				
13.50	SPT/DS		19	22	24	46	24	3.9	66.9	18.7	10.4	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.8	60.6	27.4	11.3	24	NP	NP	19.91	-	-	2.73	F	0.05	29	-	-	-	-	-	-
15.50	SPT/DS		21	23	25	48	24																				
16.50	SPT/DS	22	25	27	52	25	4.5	69.4	18.1	8.0	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS						0.0	69.2	20.6	10.2	25	NP	NP	18.64	-	-	2.64	F	0.00	30	-	-	-	-	-	-	
18.50	SPT/DS	23	28	30	58	27																					
19.50	SPT/DS	25	33	35	68	29	6.0	64.1	19.4	10.5	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS						0.0	75.6	16.9	7.5	23	NP	NP	19.83	-	-	2.76	F	0.02	31	-	-	-	-	-	-	
21.50	SPT/DS	27	36	42	100	39																					
22.50	SPT/DS	30	38	45	100	38	12.4	68.1	14.0	5.5	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS	Very Dense, Brownish Gray to Brownish, fine-grained silty sand and Gravel (SM)						0.2	73.7	18.4	7.7	29	NP	NP	19.57	-	-	2.67	F	0.00	32	-	-	-	-	-	-
24.50	SPT/DS		41	(50/10 cm)	-	100	37																				
25.50	SPT/DS		48	(50/6 cm)	-	100	37	10.0	63.1	18.8	8.1	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.0	75.1	17.6	7.3	23	NP	NP	19.53	-	-	2.64	F	0.03	32	-	-	-	-	-	-
27.50	SPT/DS		46	(50/5 cm)	-	100	36																				
28.50	SPT/DS		(50/12 cm)	-	-	100	36	4.1	64.5	19.2	12.2	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS						0.5	73.9	17.4	8.3	26	NP	NP	19.36	-	-	2.67	F	0.00	33	-	-	-	-	-	-	
30.50	SPT/DS	(50/10 cm)	-	-	100	35																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

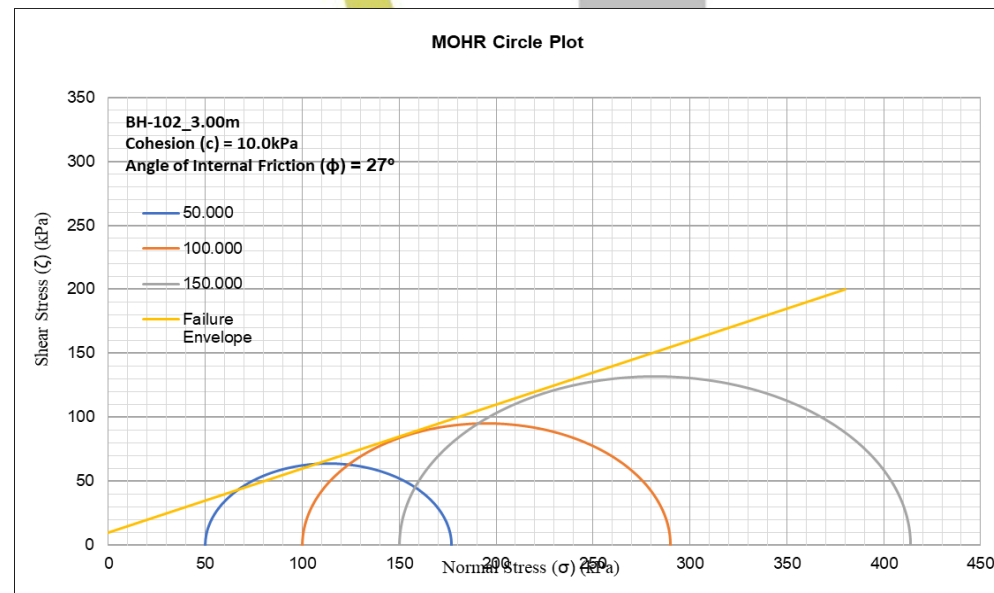
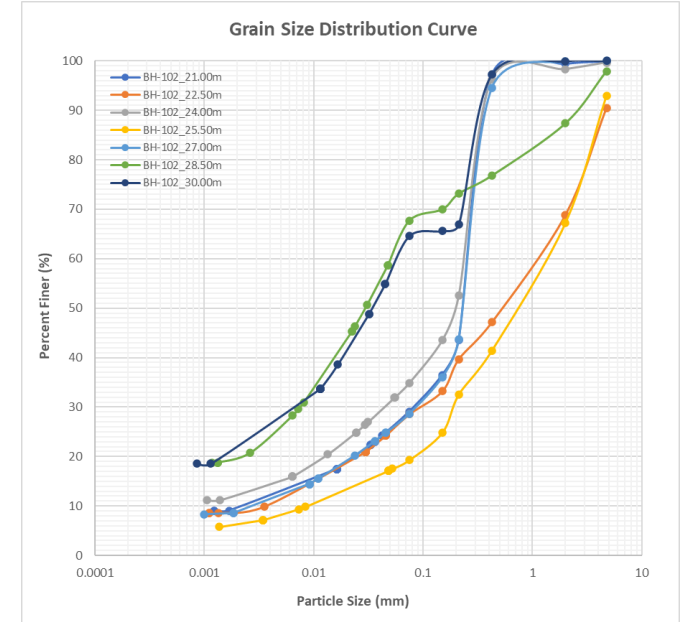
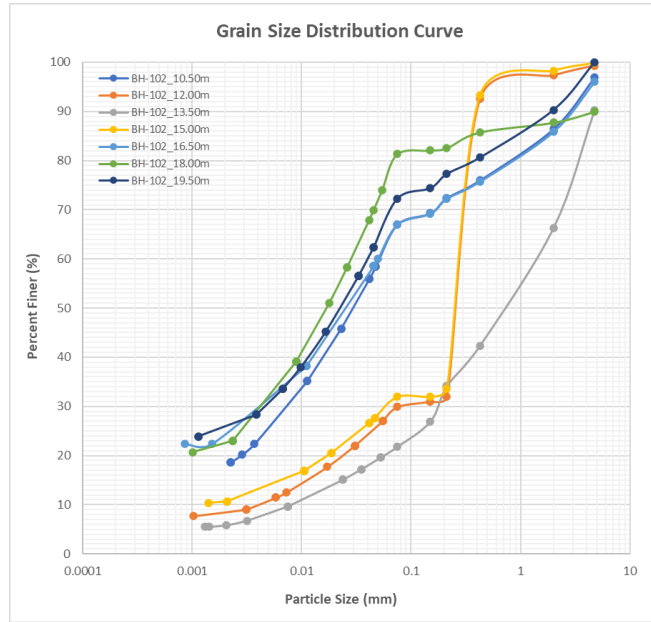
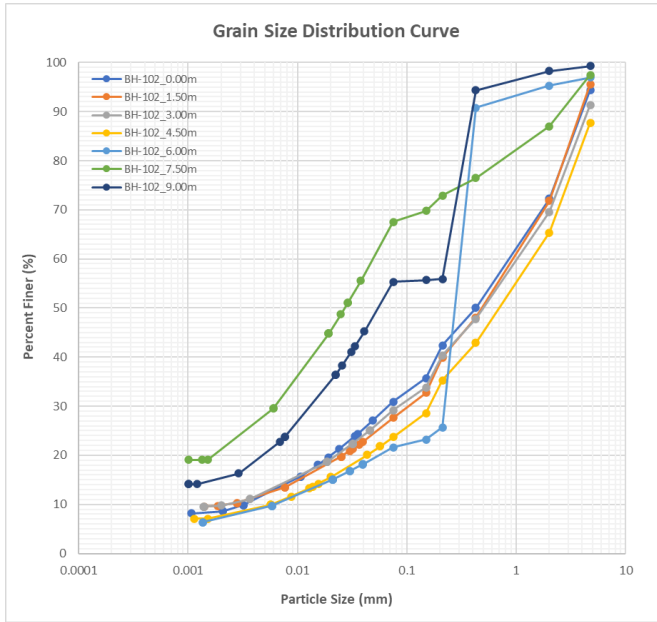
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

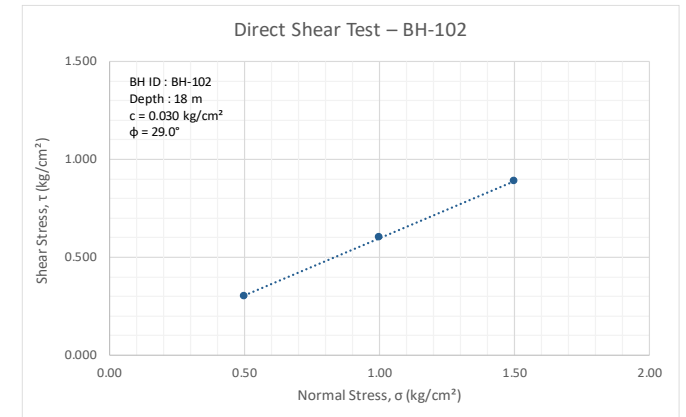
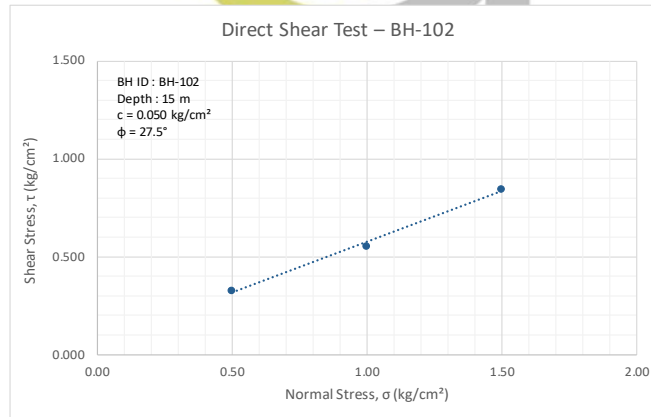
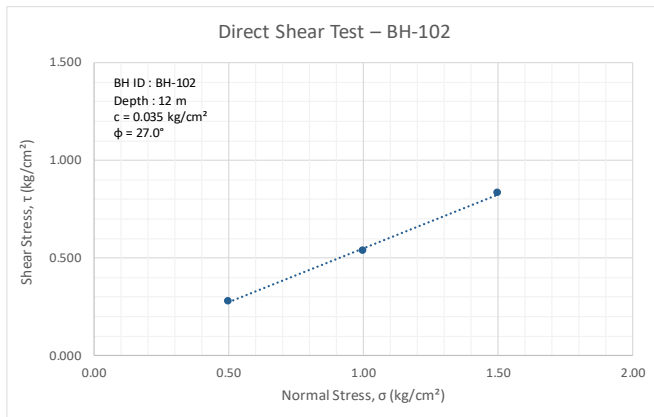
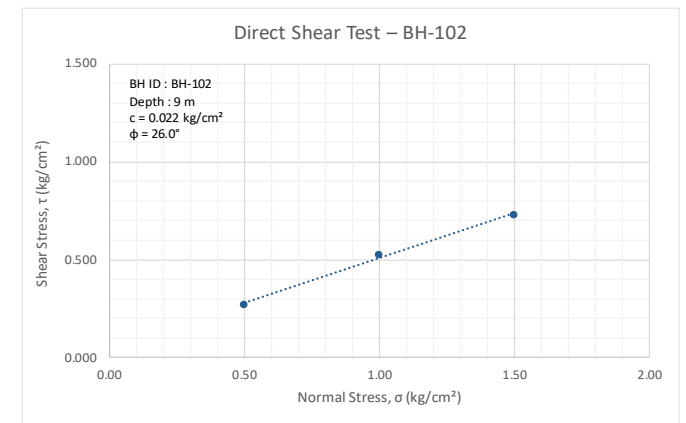
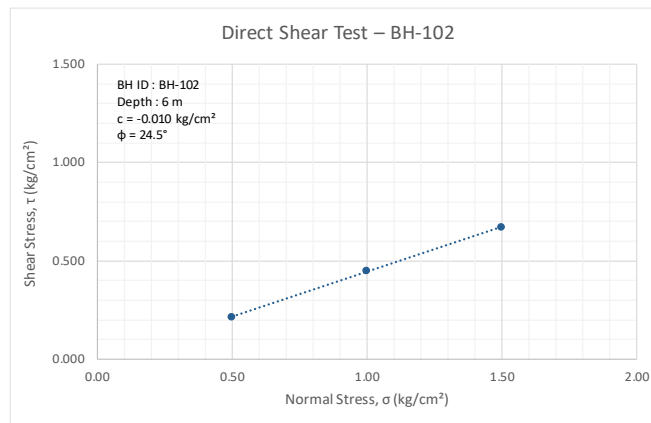
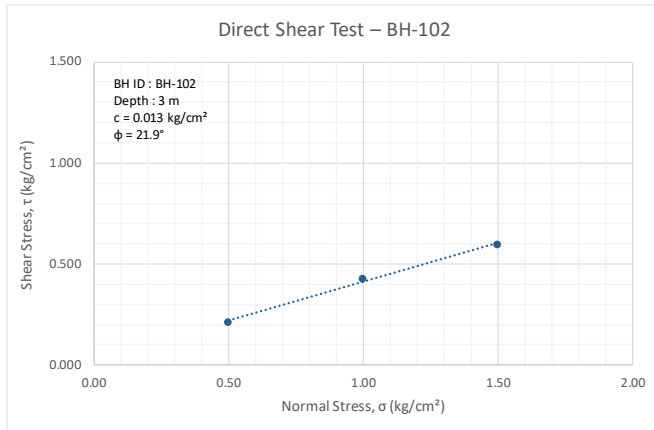


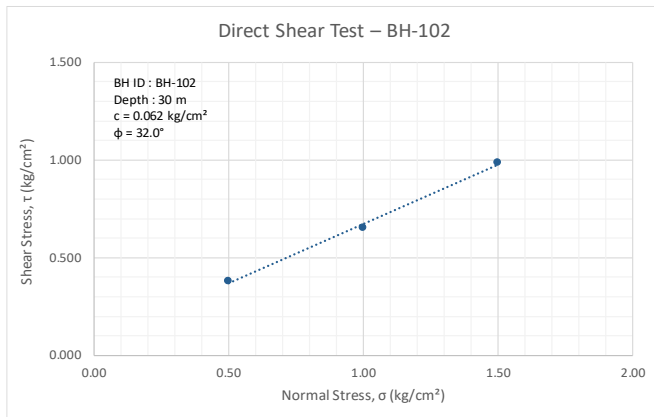
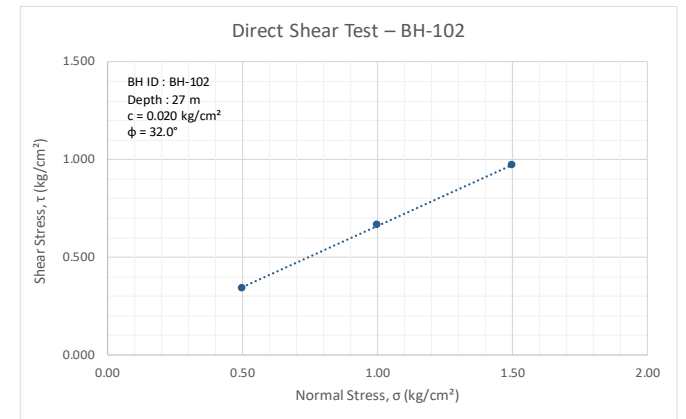
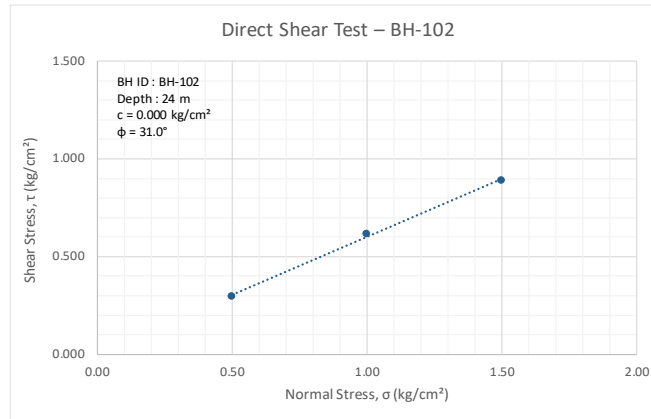
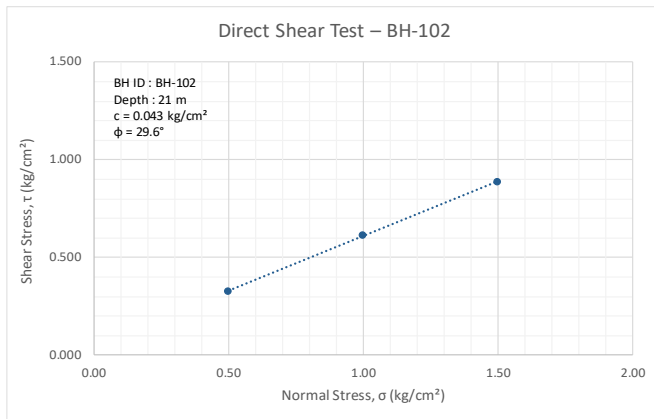
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-102		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+709		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	17-02-2026		
<b>Project Code:</b>	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	200.20		<b>End Date:</b>	17-02-2026		
		<b>Water table Level [m]:</b>	12.85		<b>Location:</b>	Lat: 28.50437 , Long:77.39841		

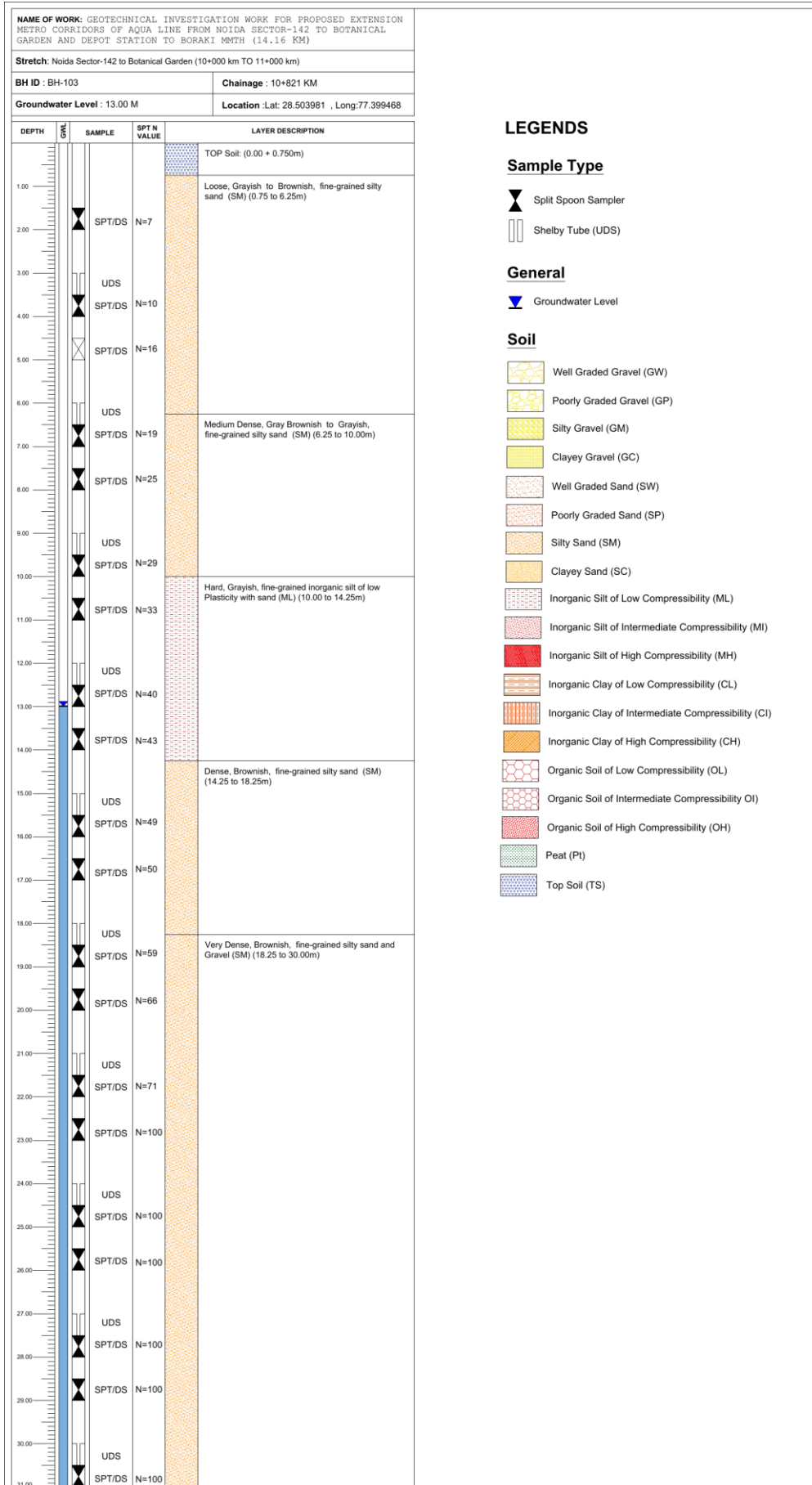
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						5.6	63.5	22.4	8.6	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Whitish to Brownish, fine-grained silty sand (SM)	3	3	6	9	13	4.5	67.9	17.9	9.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							8.7	62.2	19.4	9.8	23	NP	NP	11.4	1.89	1.70	2.66	F	0.01	22	UU	10	27	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		2	3	5	8	8	12.3	63.9	16.1	7.7	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							3.1	75.3	14.4	7.2	29	NP	NP	19.40	1.68	1.41	2.71	F	0.00	25	-	-	-	-	-	-
6.50	SPT/DS	Stiff to Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand and Gravel (ML)	3	5	5	10	9																				
7.50	SPT/DS		4	6	8	14	13	2.6	29.9	46.3	21.2	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							0.7	43.9	40.0	15.4	26	NP	NP	8.90	1.73	1.59	2.61	F	0.02	26	-	-	-	-	-	-
9.50	SPT/DS		5	7	10	17	15																				
10.50	SPT/DS		7	11	13	24	20	3.1	29.9	67.0	0.0	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS	Dense, Yellowish to Brownish, fine-grained silty sand (SM)						0.7	69.4	21.4	8.5	24	NP	NP	16.92	-	-	2.69	F	0.04	27	-	-	-	-	-	-
12.50	SPT/DS		10	14	18	32	24																				
13.50	SPT/DS		12	16	20	36	21	9.7	68.5	16.0	5.8	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	67.9	21.3	10.7	26	NP	NP	16.90	-	-	2.64	F	0.05	28	-	-	-	-	-	-
15.50	SPT/DS		15	19	24	43	23																				
16.50	SPT/DS	Hard, Brownish to Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel (ML)	18	23	29	52	25	4.0	29.0	42.5	24.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	UDS							10.0	8.6	58.8	22.5	29	NP	NP	23.69	-	-	2.69	F	0.03	29	-	-	-	-	-	-
18.50	SPT/DS		15	19	22	41	21																				
19.50	SPT/DS		17	20	24	44	22	0.0	27.7	46.3	26.0	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.1	70.8	19.4	9.7	26	NP	NP	19.61	-	-	2.61	F	0.04	30	-	-	-	-	-	-
21.50	SPT/DS	Very Dense, Brownish, fine-grained silty sand and Gravel (SM)	24	30	34	64	28																				
22.50	SPT/DS		30	35	40	100	39	9.5	61.9	19.4	9.2	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.3	64.8	22.6	12.3	29	NP	NP	17.62	-	-	2.71	F	0.00	31	-	-	-	-	-	-
24.50	SPT/DS		40	(50/7 cm)	-	100	38																				
25.50	SPT/DS		(50/6 cm)	-	-	100	37	7.0	73.7	12.9	6.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS						0.0	71.4	19.8	8.8	23	NP	NP	19.26	-	-	2.61	F	0.02	32	-	-	-	-	-	-	
27.50	SPT/DS	Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand (ML)	48	(50/7 cm)	-	100	36																				
28.50	SPT/DS		46	(50/9 cm)	-	100	36	2.1	30.2	47.8	19.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	35.4	42.4	22.2	25	NP	NP	18.27	-	-	2.64	F	0.06	32	-	-	-	-	-	-
30.50	SPT/DS		48	(50/6 cm)	-	100	35																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

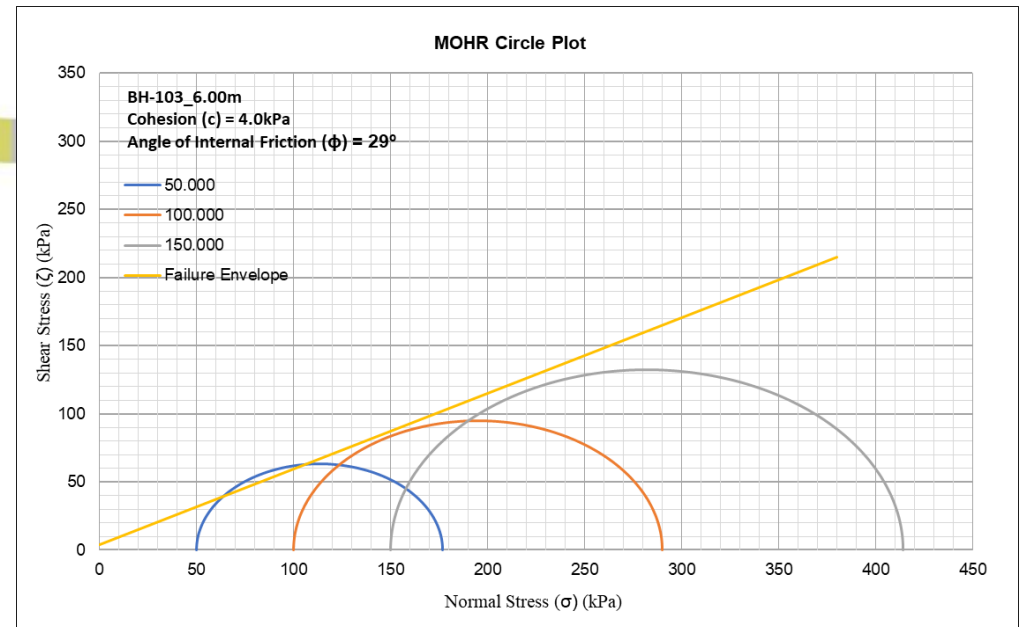
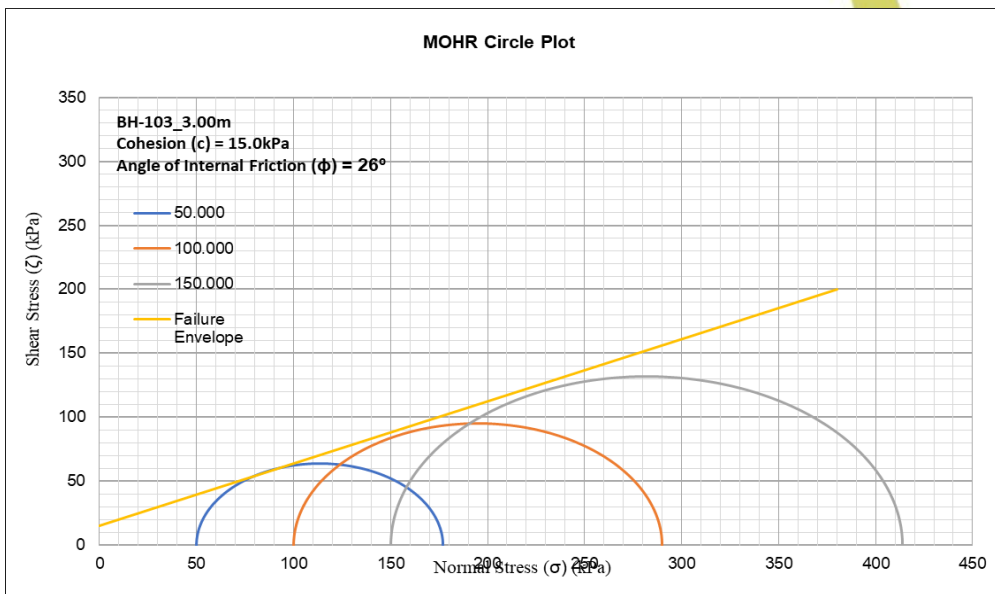
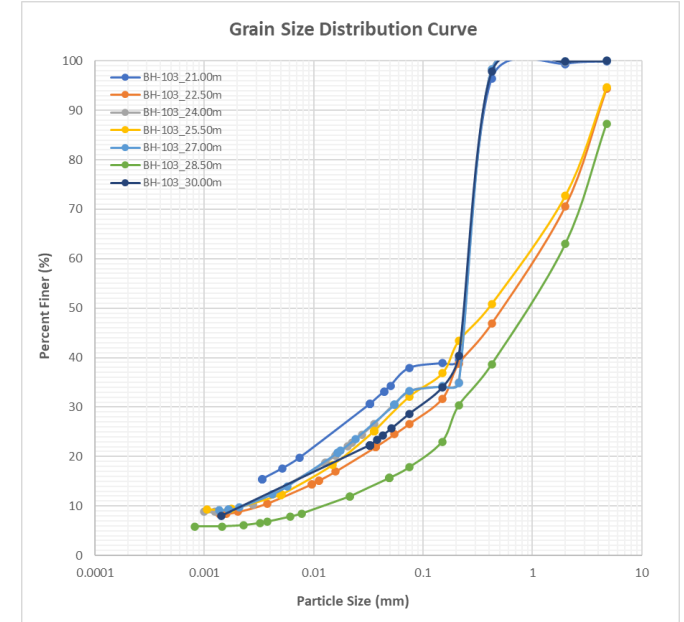
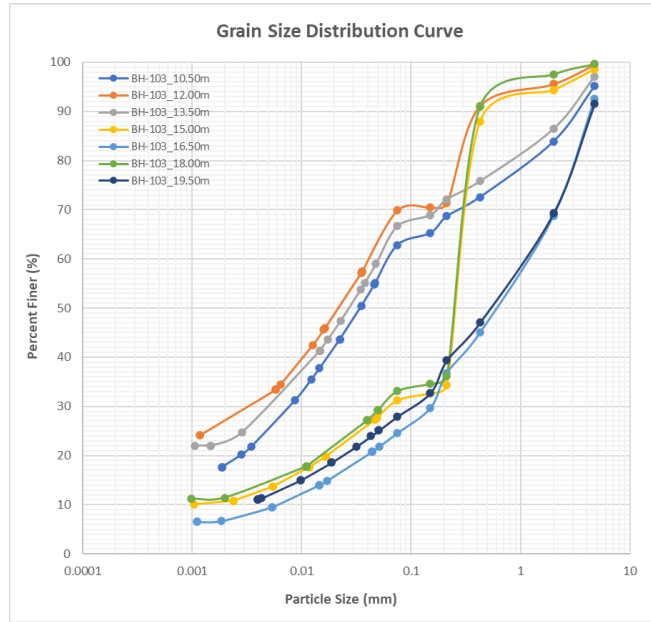
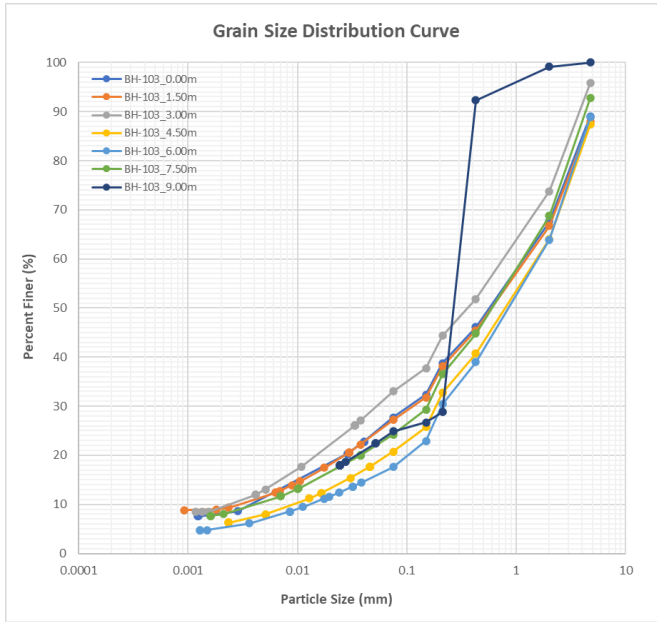
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

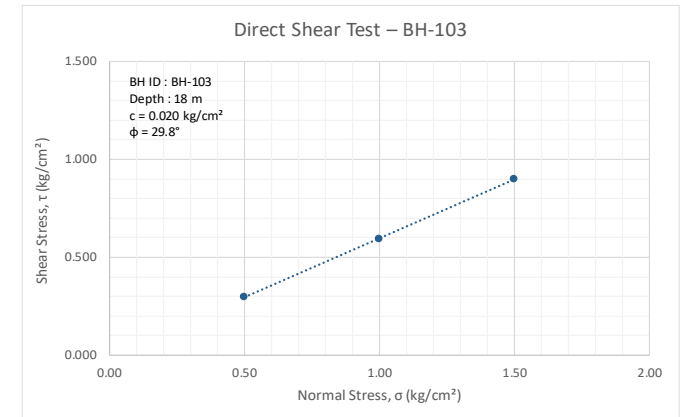
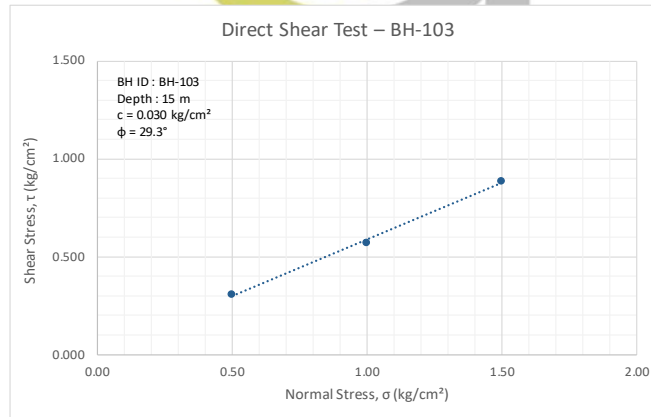
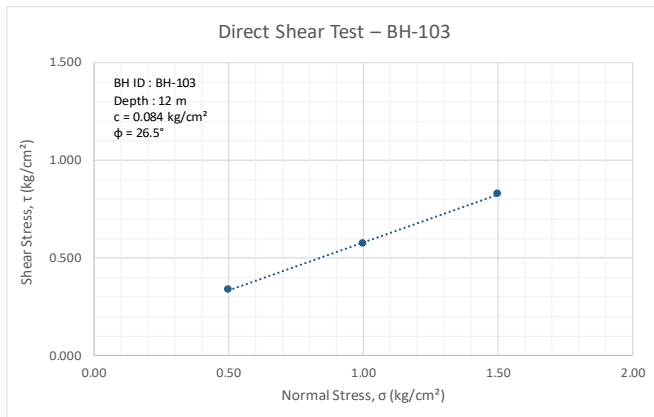
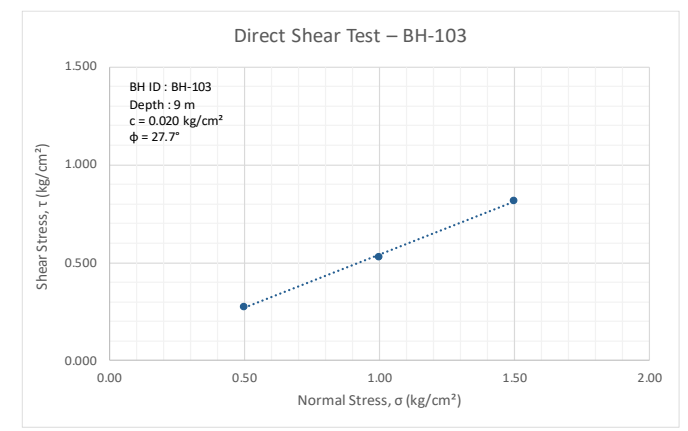
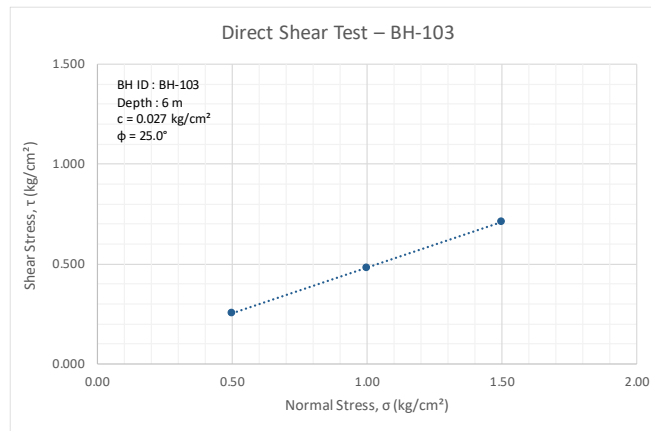
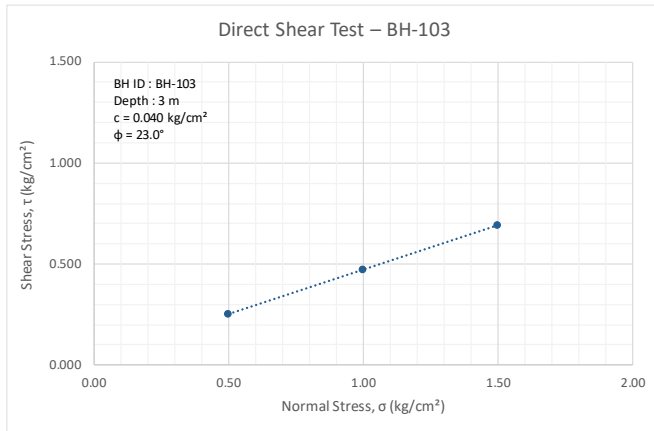


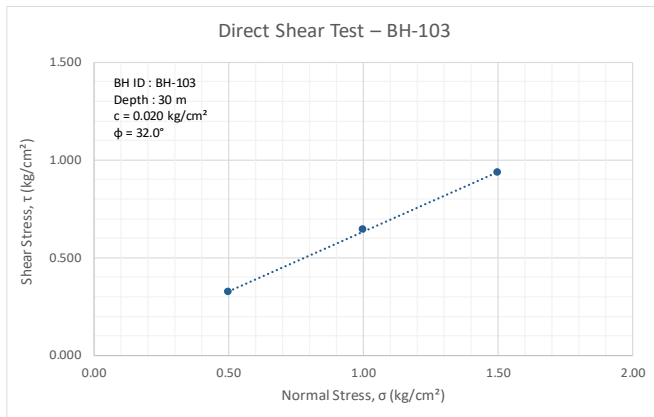
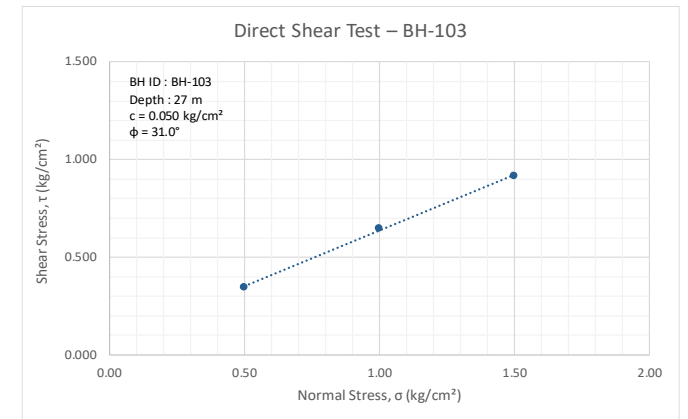
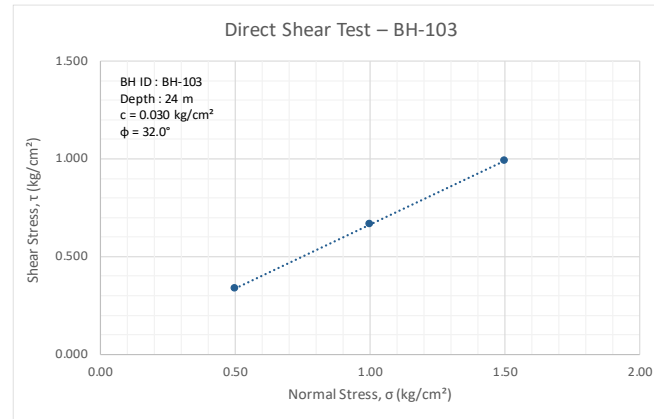
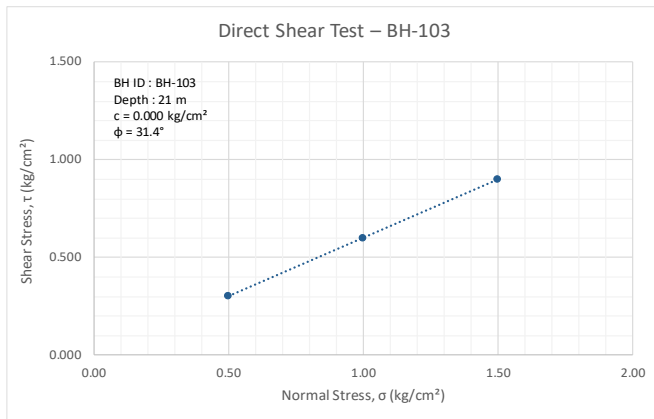
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-103		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	10+821		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	17-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	199.40		End Date:	17-02-2026	
Project Code:	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	13.00		Location:	Lat: 28.503981 , Long:77.399468	

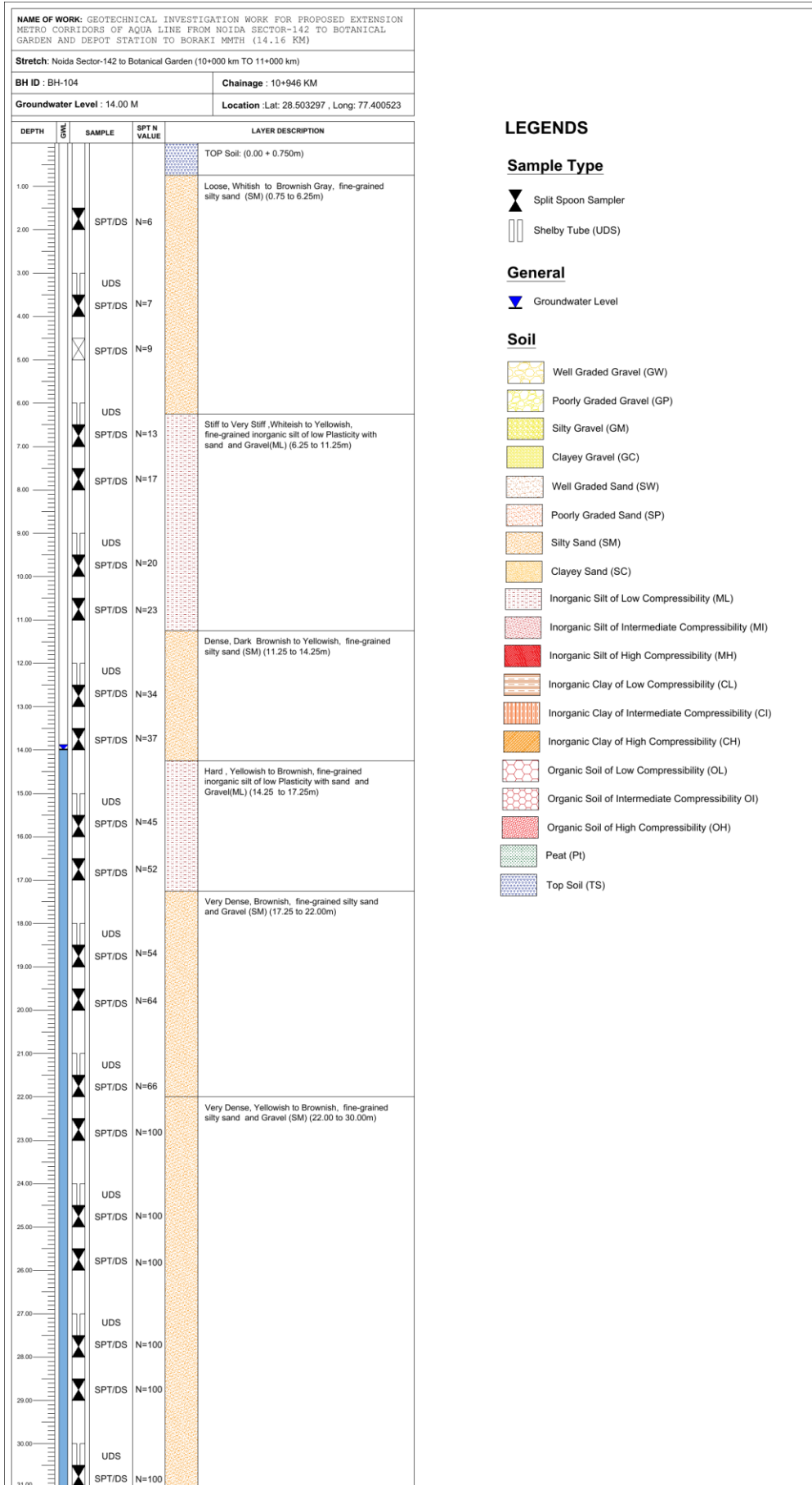
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						11.0	61.3	19.5	8.2	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Grayish to Brownish, fine-grained silty sand (SM)	3	3	4	7	10	12.0	60.8	18.1	9.1	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							4.2	62.7	23.6	9.4	27	NP	NP	15.8	1.88	1.62	2.60	F	0.04	23	UU	15	26	-	-	-
3.50	SPT/DS		3	4	6	10	11																				
4.50	SPT/DS		6	7	9	16	16	12.6	66.7	12.8	7.9	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							11.2	71.2	12.3	5.3	23	NP	NP	16.7	1.9	1.63	2.61	F	0.03	25	UU	4	29	-	-	-
6.50	SPT/DS	Medium Dense, Gray Brownish to Greyish, fine-grained silty sand (SM)	7	8	11	19	18																				
7.50	SPT/DS		9	12	13	25	23	7.3	68.5	16.2	8.0	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS							0.0	75.1	24.9	0.0	26	NP	NP	19.10	-	-	2.73	F	0.02	28	-	-	-	-	-	-
9.50	SPT/DS		12	14	15	29	25																				
10.50	SPT/DS	Hard, Grayish, fine-grained inorganic silt of low Plasticity with sand (ML)	13	15	18	33	27	4.8	32.4	44.8	18.1	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.5	29.7	42.6	27.2	29	NP	NP	23.59	-	-	2.63	F	0.08	27	-	-	-	-	-	-
12.50	SPT/DS		15	19	21	40	30																				
13.50	SPT/DS		18	21	22	43	23	2.9	30.5	43.4	23.3	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS	Dense, Brownish, fine-grained silty sand (SM)						1.4	67.4	20.6	10.7	24	NP	NP	16.87	-	-	2.69	F	0.03	29	-	-	-	-	-	-
15.50	SPT/DS		12	24	25	49	25																				
16.50	SPT/DS		22	23	27	50	25	7.4	68.0	17.7	6.9	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.3	66.6	21.6	11.5	23	NP	NP	16.71	-	-	2.62	F	0.02	30	-	-	-	-	-	-
18.50	SPT/DS		23	27	32	59	27																				
19.50	SPT/DS		25	31	35	66	29	8.5	63.6	19.8	8.2	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS	Very Dense, Brownish, fine-grained silty sand and Gravel (SM)						0.1	62.0	24.7	13.2	24	NP	NP	18.37	-	-	2.70	F	0.00	31	-	-	-	-	-	-
21.50	SPT/DS		26	33	38	71	30																				
22.50	SPT/DS		32	37	43	100	38	5.7	67.7	17.8	8.8	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.0	66.9	23.4	9.7	27	NP	NP	16.67	-	-	2.61	F	0.03	32	-	-	-	-	-	-
24.50	SPT/DS		35	45	(50/10 cm)	100	38																				
25.50	SPT/DS		39	47	(50/8 cm)	100	37	5.4	62.5	22.4	9.7	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.0	66.7	23.6	9.6	28	NP	NP	16.52	-	-	2.68	F	0.05	31	-	-	-	-	-	-
27.50	SPT/DS		43	(50/10 cm)	-	100	36																				
28.50	SPT/DS		47	(50/10 cm)	-	100	36	12.7	69.5	11.8	6.0	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	71.4	19.1	9.5	24	NP	NP	20.07	-	-	2.72	F	0.02	30	-	-	-	-	-	-
30.50	SPT/DS	(50/6 cm)	-	-	100	35																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

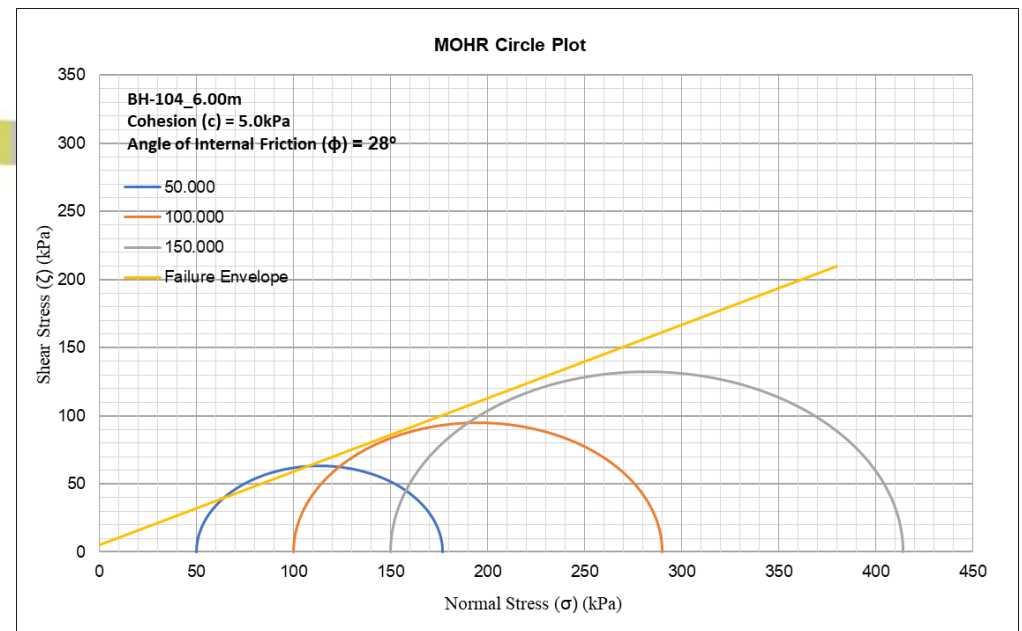
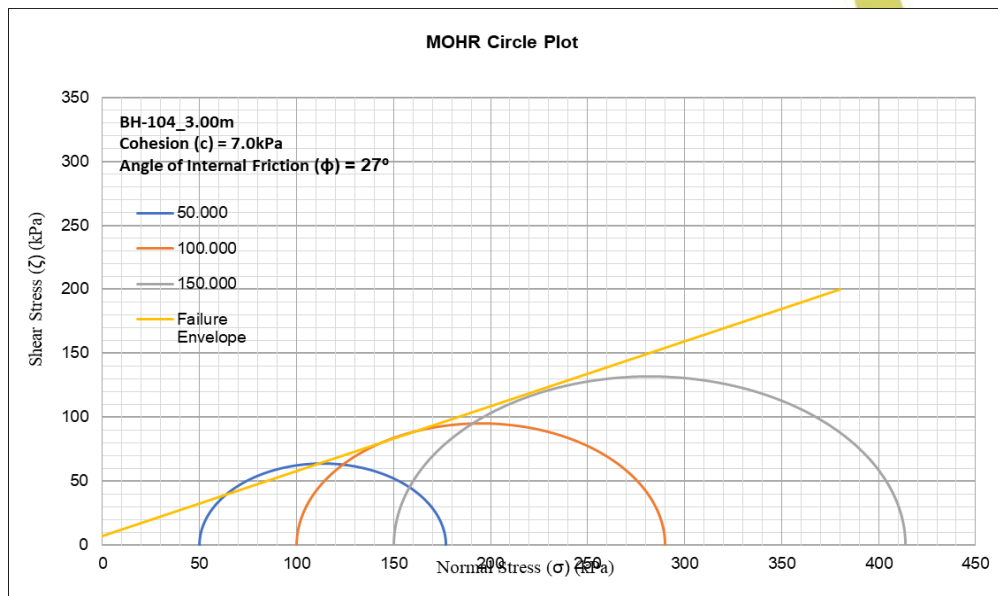
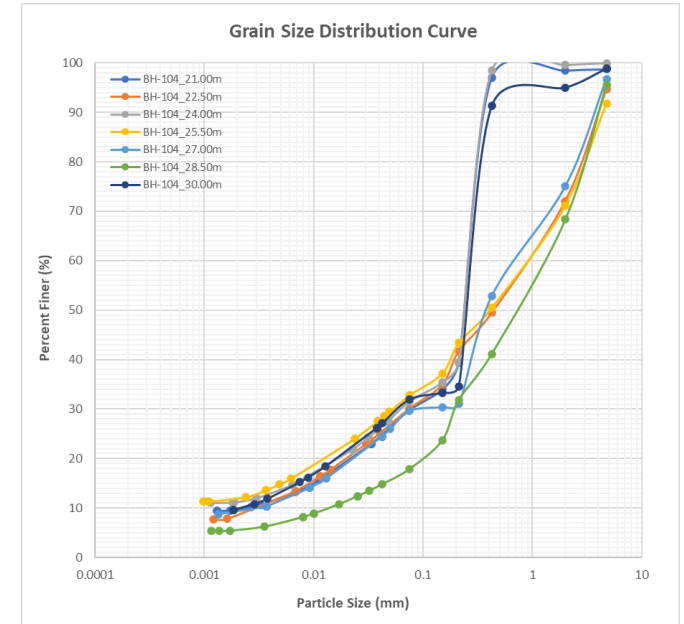
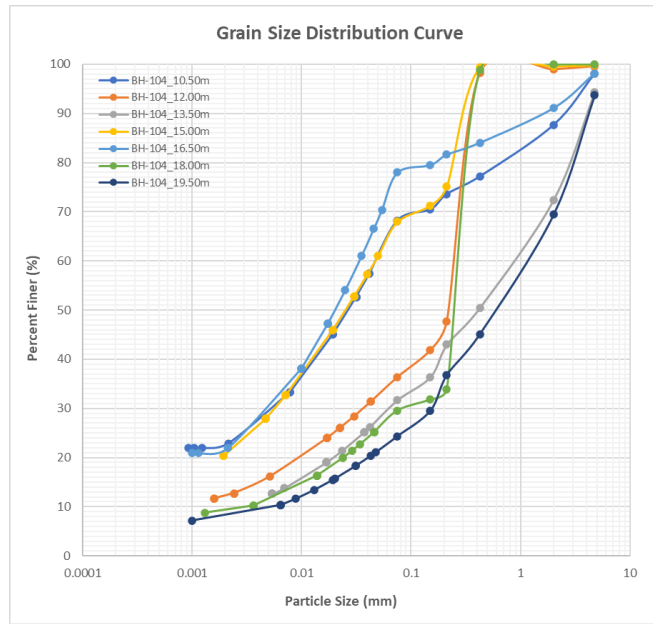
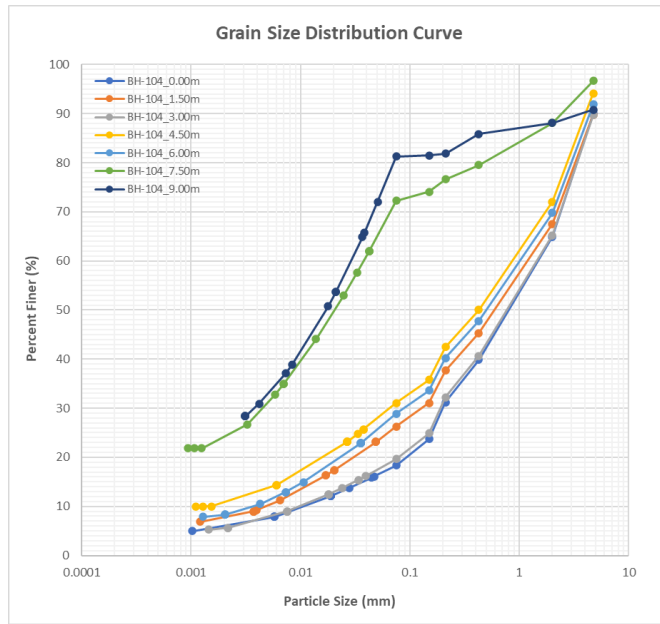
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

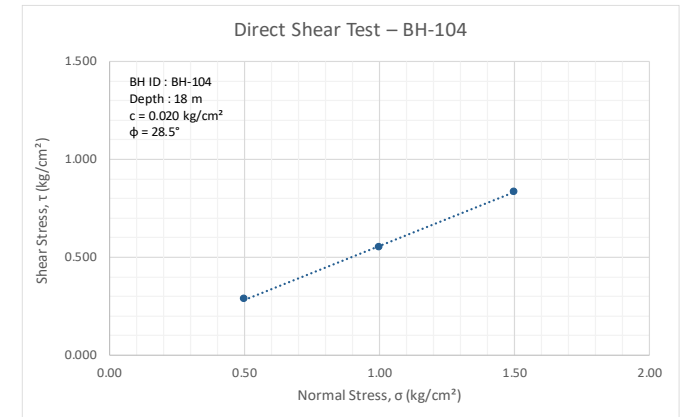
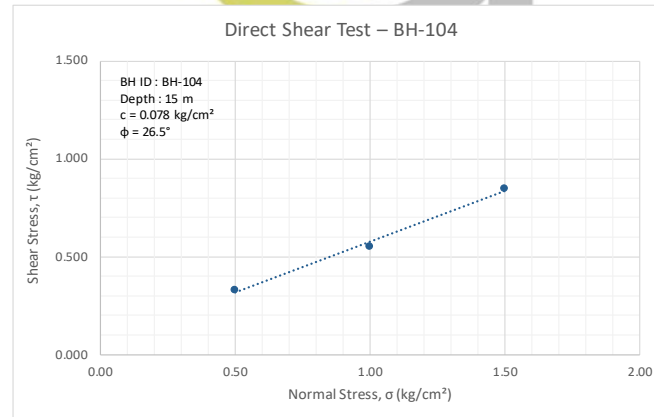
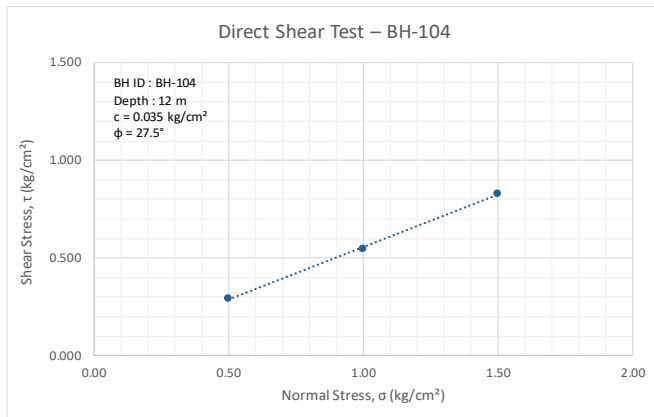
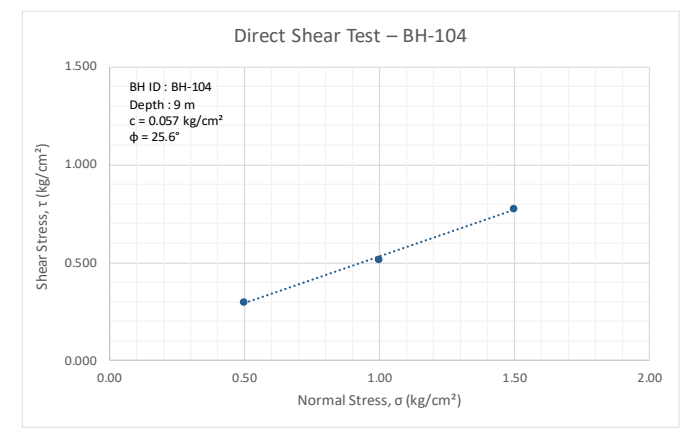
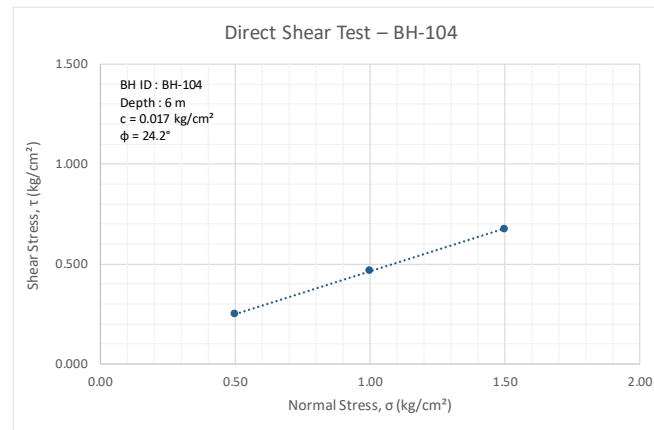
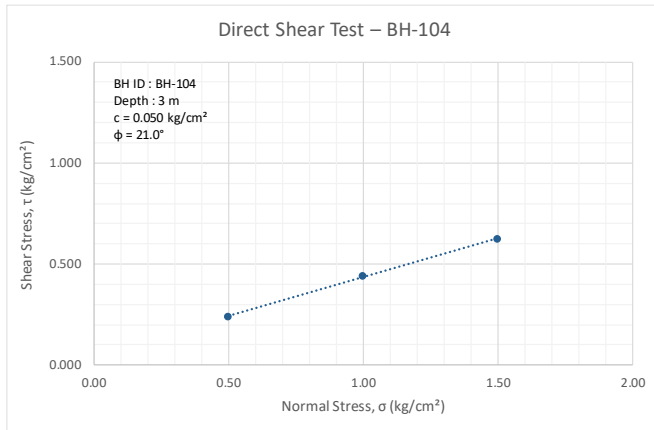


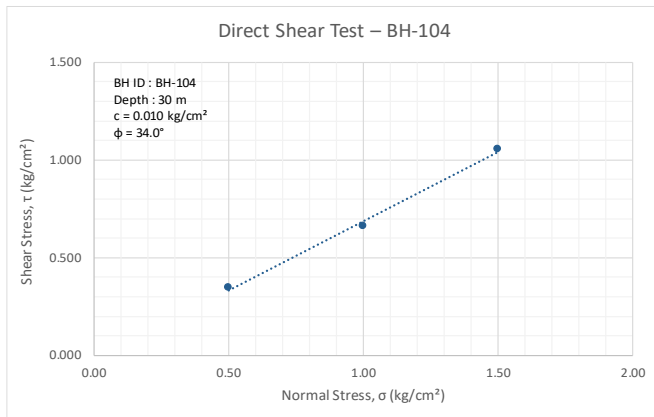
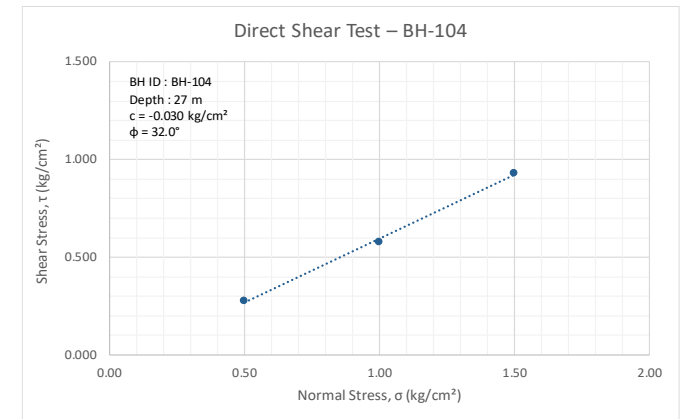
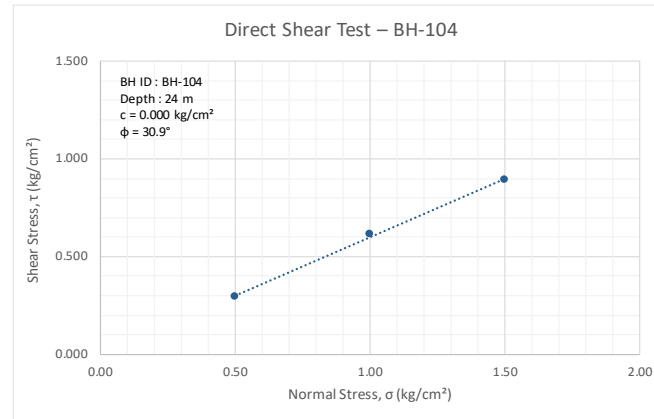
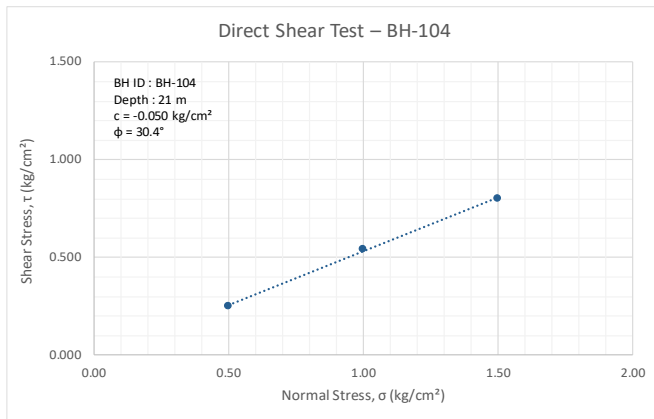
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-104		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	10+946		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	17-02-2026		
<b>Project Code:</b>	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	196.50		<b>End Date:</b>	18-02-2026		
		<b>Water table Level [m]:</b>	14.00		<b>Location:</b>	Lat: 28.503297 , Long: 77.400523		

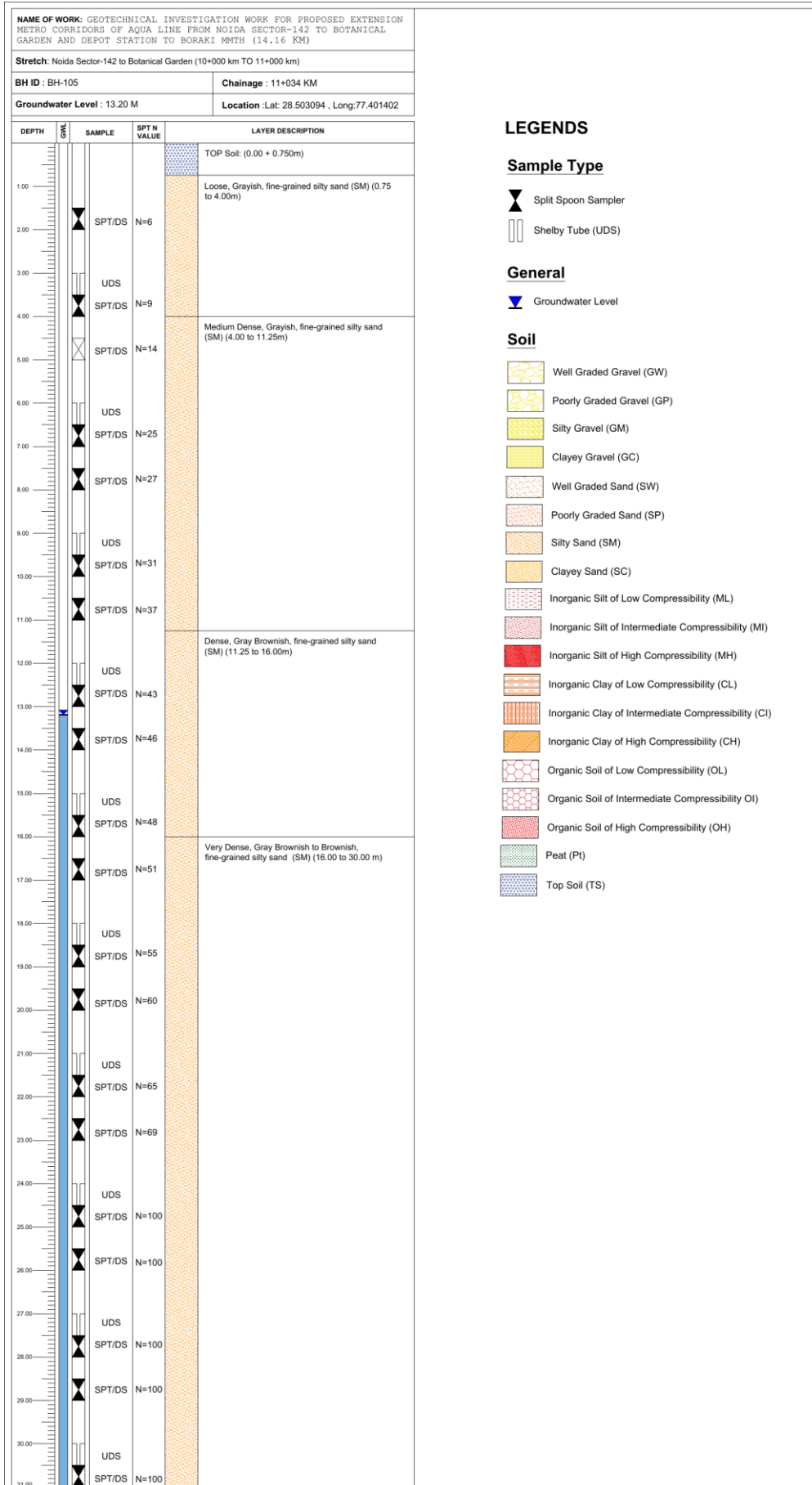
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						10.0	71.7	12.2	6.1	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Whitish to Brownish Gray, fine-grained silty sand (SM)	2	3	3	6	8	10.2	63.5	18.4	7.8	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							10.3	70.1	14.1	5.6	24	NP	NP	17.9	1.85	1.57	2.67	F	0.05	21	UU	7	27	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	4	5	9	9	5.9	63.0	20.2	10.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							8.2	63.0	20.6	8.3	29	NP	NP	21.5	1.86	1.53	2.64	F	0.02	24	UU	5	28	-	-	-
6.50	SPT/DS	Stiff to Very Stiff, Whiteish to Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel (ML)	4	6	7	13	12																				
7.50	SPT/DS		4	7	10	17	15	3.3	24.5	48.0	24.3	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							9.2	9.6	53.3	27.9	29	NP	NP	26.16	1.78	1.41	2.61	F	0.06	26	-	-	-	-	-	-
9.50	SPT/DS		5	8	12	20	17																				
10.50	SPT/DS		5	9	14	23	19	1.9	29.9	45.5	22.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS	Dense, Dark Brownish to Yellowish, fine-grained silty sand (SM)						0.4	63.2	24.1	12.3	24	NP	NP	19.39	-	-	2.75	F	0.04	28	-	-	-	-	-	-
12.50	SPT/DS		10	14	20	34	26																				
13.50	SPT/DS		13	17	20	37	27	5.7	62.6	20.5	11.2	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS	Hard, Yellowish to Brownish, fine-grained inorganic silt of low Plasticity with sand and Gravel (ML)						0.2	31.9	47.3	20.7	29	NP	NP	22.51	-	-	2.67	F	0.08	27	-	-	-	-	-	-
15.50	SPT/DS		15	20	25	45	23																				
16.50	SPT/DS		18	23	29	52	25	1.8	20.2	56.1	21.8	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS	Very Dense, Brownish, fine-grained silty sand and Gravel (SM)						0.0	70.4	20.2	9.4	24	NP	NP	15.96	-	-	2.77	F	0.02	29	-	-	-	-	-	-
18.50	SPT/DS		20	24	30	54	25																				
19.50	SPT/DS		23	29	35	64	28	6.3	69.4	16.0	8.4	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							1.3	69.0	20.0	9.7	28	NP	NP	17.73	-	-	2.69	F	0.00	30	-	-	-	-	-	-
21.50	SPT/DS		25	30	36	66	28																				
22.50	SPT/DS	Very Dense, Yellowish to Brownish, fine-grained silty sand and Gravel (SM)	27	34	40	100	38	5.3	64.6	21.5	8.6	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.0	68.4	20.3	11.2	21	NP	NP	16.74	-	-	2.68	F	0.00	31	-	-	-	-	-	-
24.50	SPT/DS		35	(50/4 cm)	-	100	37																				
25.50	SPT/DS		42	(50/6 cm)	-	100	36	8.2	59.0	20.8	12.0	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							3.2	67.1	20.3	9.4	26	NP	NP	12.27	-	-	2.65	F	0.00	32	-	-	-	-	-	-
27.50	SPT/DS		48	(50/8 cm)	-	100	36																				
28.50	SPT/DS		47	(50/9 cm)	-	100	35	4.5	77.7	12.3	5.6	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							1.2	66.9	22.1	9.8	29	NP	NP	16.12	-	-	2.65	F	0.01	34	-	-	-	-	-	-
30.50	SPT/DS	(50/5 cm)	-	-	100	34																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

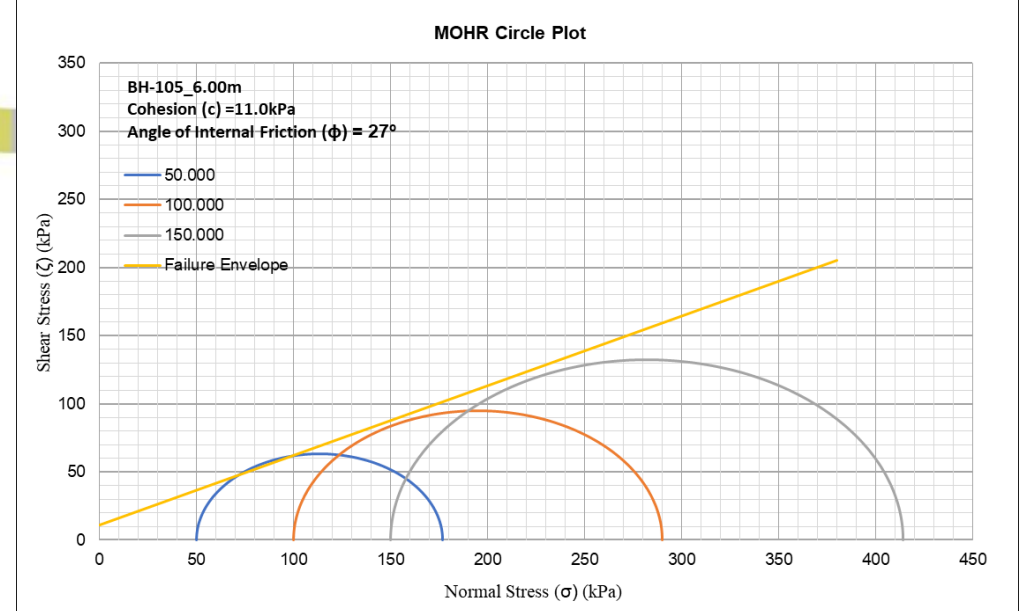
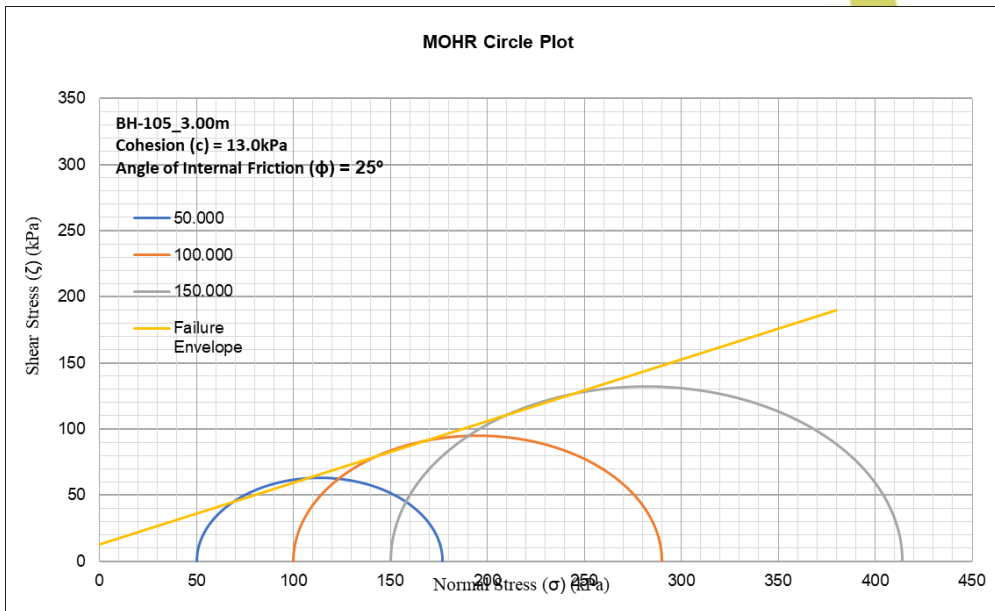
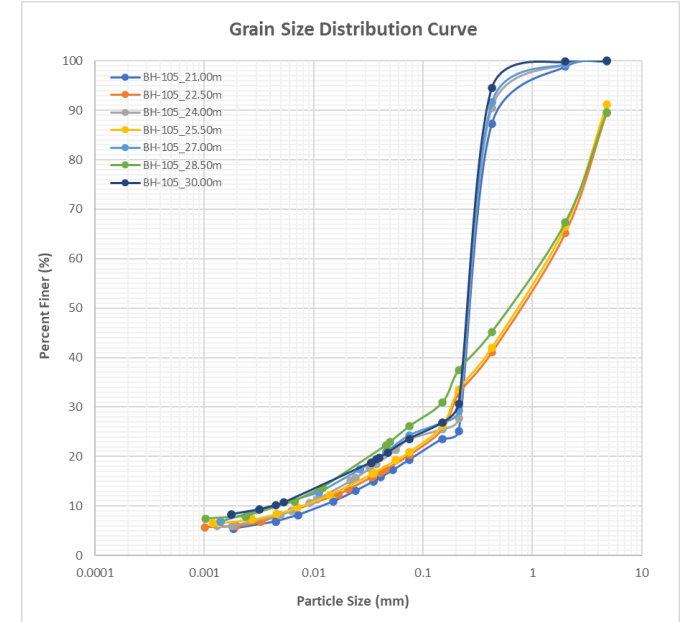
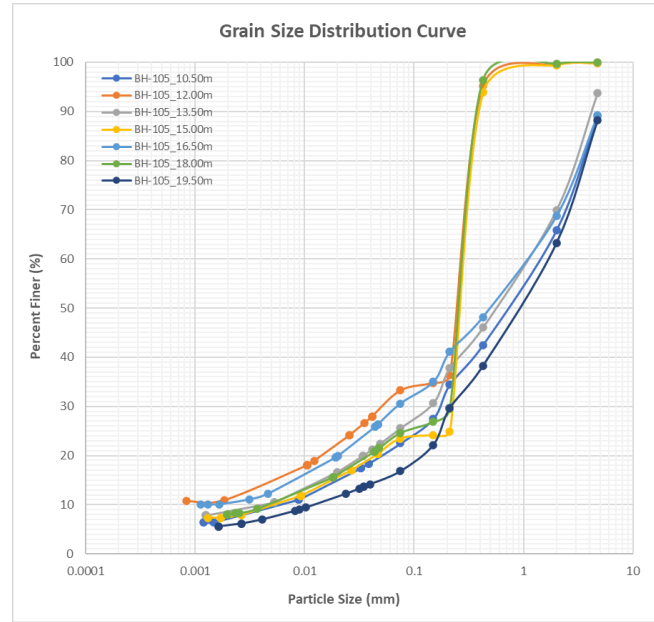
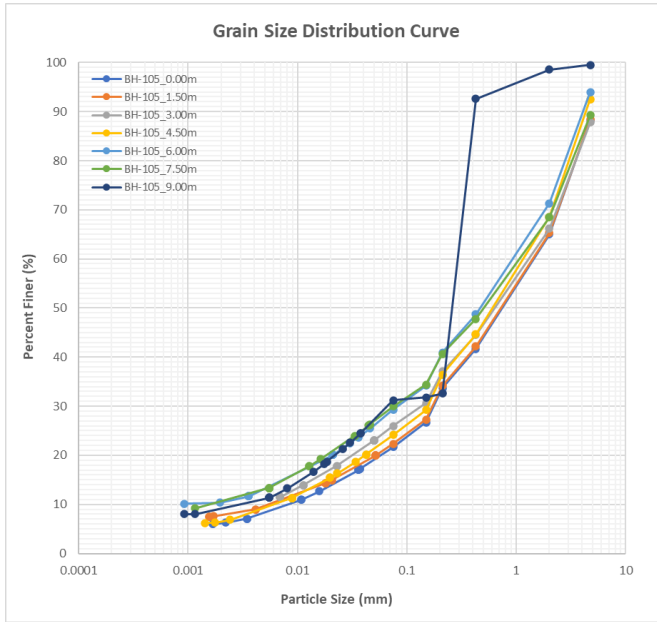
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

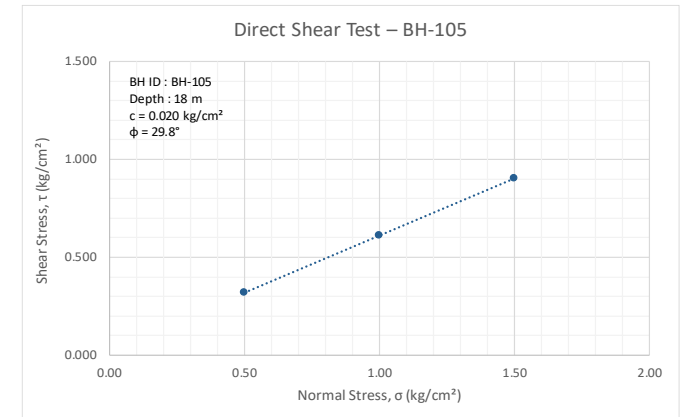
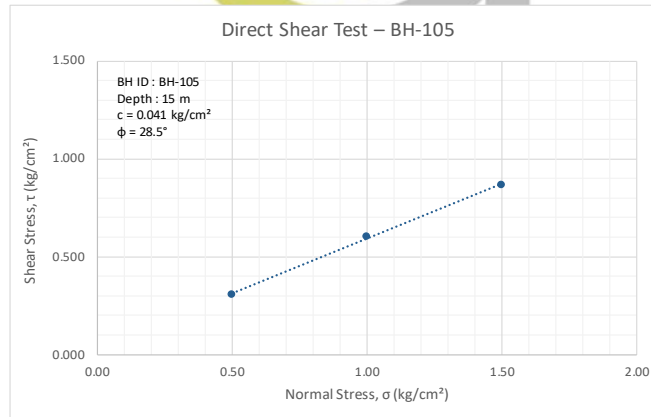
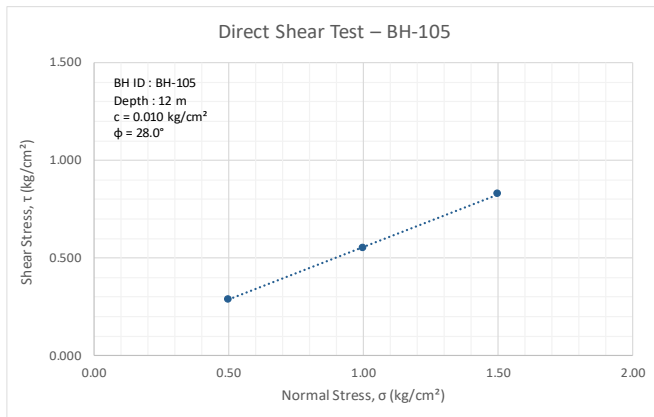
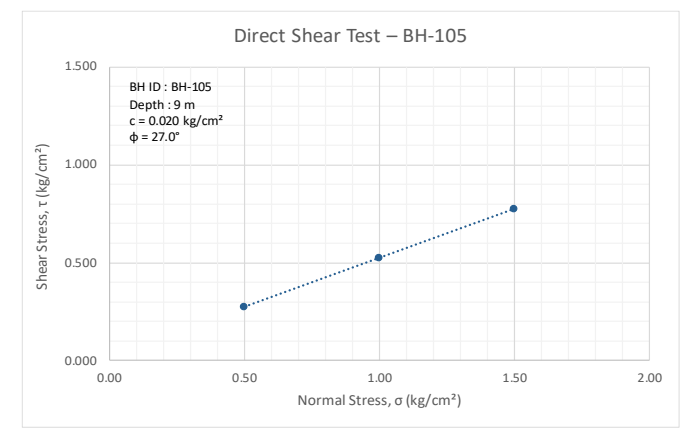
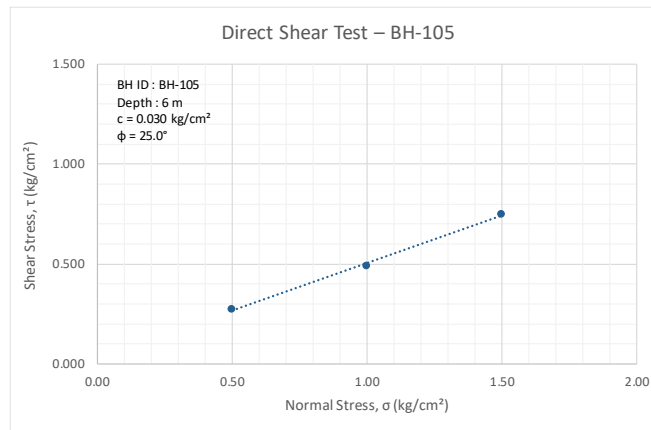
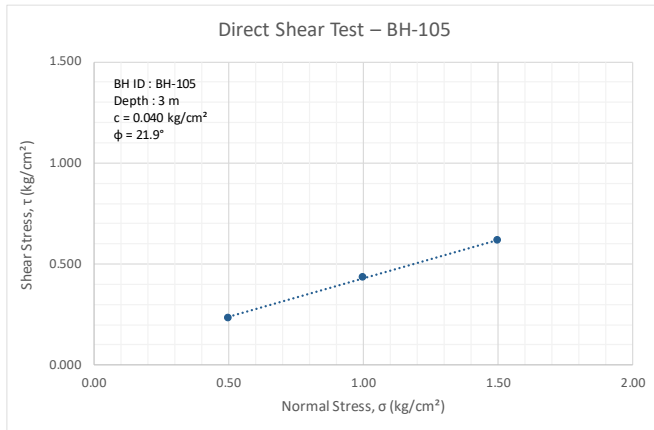


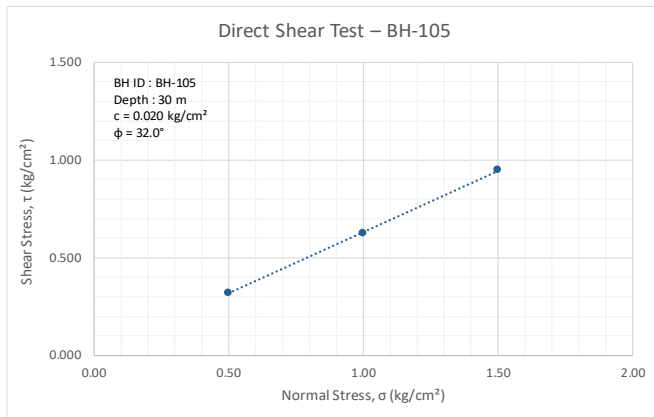
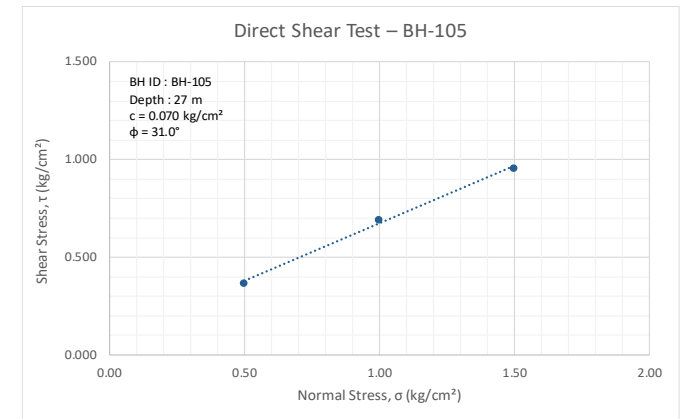
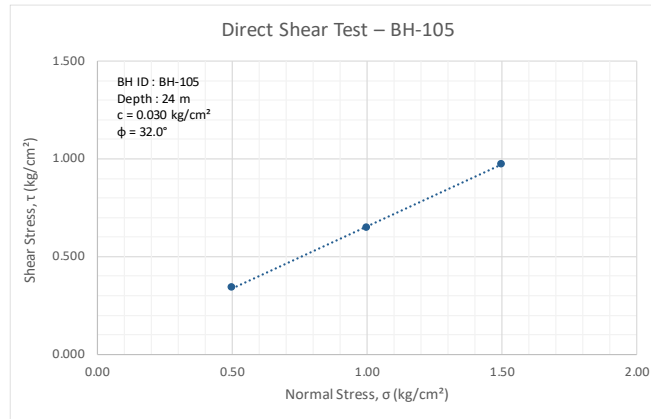
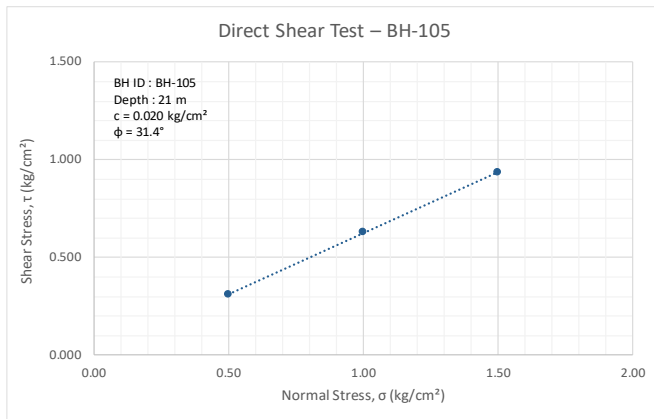
Project		Borehole Details			Drilling Details		
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-105		<b>Contractor:</b>	Goma Engineering & Consultancy	
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	11+034		<b>Method of Drilling:</b>	Rotary Drilling	
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	17-02-2026	
<b>Project Code:</b>	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	195.20		<b>End Date:</b>	18-02-2026	
		<b>Water table Level [m]:</b>	13.20		<b>Location:</b>	Lat: 28.503094 , Long:77.401402	

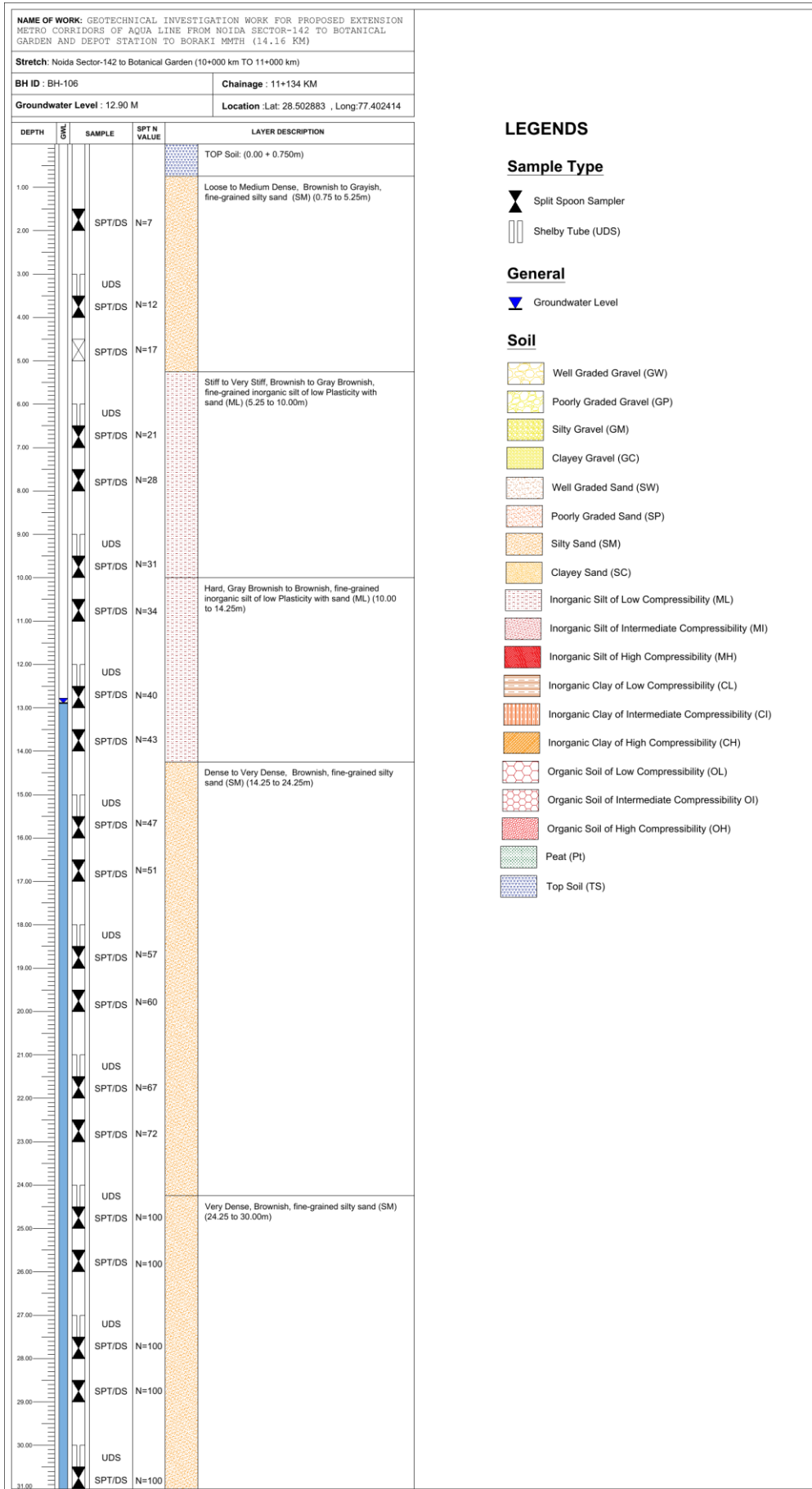
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						11.7	66.7	15.5	6.2	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Grayish, fine-grained silty sand (SM)	2	3	3	6	8	11.6	66.1	14.5	7.8	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							12.2	61.8	26.0	0.0	24	NP	NP	19.3	1.82	1.53	2.65	F	0.04	22	UU	13	25	-	-	-
3.50	SPT/DS		3	4	5	9	10																				
4.50	SPT/DS	Medium Dense, Grayish, fine-grained silty sand (SM)	4	6	8	14	14	7.5	68.3	17.6		29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							6.0	64.7	18.9	10.4	23	NP	NP	12.8	1.85	1.64	2.67	F	0.03	25	UU	11	27	-	-	-
6.50	SPT/DS		7	12	13	25	23																				
7.50	SPT/DS		9	13	14	27	25	10.8	59.2	19.3	10.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS							0.5	68.2	22.1	9.2	23	NP	NP	23.65	-	-	2.61	F	0.02	27	-	-	-	-	-	-
9.50	SPT/DS		13	15	16	31	26																				
10.50	SPT/DS	15	18	19	37	30	10.9	66.7	15.2	7.3	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
12.00	DS	Dense, Gray Brownish, fine-grained silty sand (SM)						0.1	66.6	22.0	11.3	29	NP	NP	15.10	-	-	2.68	F	0.01	28	-	-	-	-	-	-
12.50	SPT/DS		18	21	22	43	32																				
13.50	SPT/DS		19	22	24	46	24	6.2	68.2	16.9	8.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	76.4	15.9	7.6	23	NP	NP	17.90	-	-	2.70	F	0.04	29	-	-	-	-	-	-
15.50	SPT/DS	21	23	25	48	24																					
16.50	SPT/DS	22	24	27	51	25	10.7	58.7	20.2	10.4	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS						0.0	75.4	16.6	8.0	26	NP	NP	16.87	-	-	2.62	F	0.02	30	-	-	-	-	-	-	
18.50	SPT/DS	23	25	30	55	26																					
19.50	SPT/DS	25	27	33	60	27	11.8	71.4	11.0	5.8	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS						0.1	80.6	13.8	5.5	24	NP	NP	17.69	-	-	2.70	F	0.02	31	-	-	-	-	-	-	
21.50	SPT/DS	25	30	35	65	28																					
22.50	SPT/DS	26	33	36	69	29	10.6	69.1	14.4	5.9	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS	Very Dense, Gray Brownish to Brownish, fine-grained silty sand (SM)						0.0	76.5	17.3	6.2	26	NP	NP	17.67	-	-	2.62	F	0.03	32	-	-	-	-	-	-
24.50	SPT/DS		27	35	39	100	37																				
25.50	SPT/DS		30	38	46	100	37	8.9	70.2	14.0	6.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.0	75.7	16.4	7.9	29	NP	NP	18.27	-	-	2.70	F	0.07	31	-	-	-	-	-	-
27.50	SPT/DS		36	(50/12 cm)	-	100	36																				
28.50	SPT/DS		42	(50/2 cm)	-	100	36	10.5	63.4	18.3	7.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	76.4	15.1	8.5	24	NP	NP	16.44	-	-	2.62	F	0.02	32	-	-	-	-	-	-
30.50	SPT/DS		(50/13 cm)	-	-	100	35																				

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.







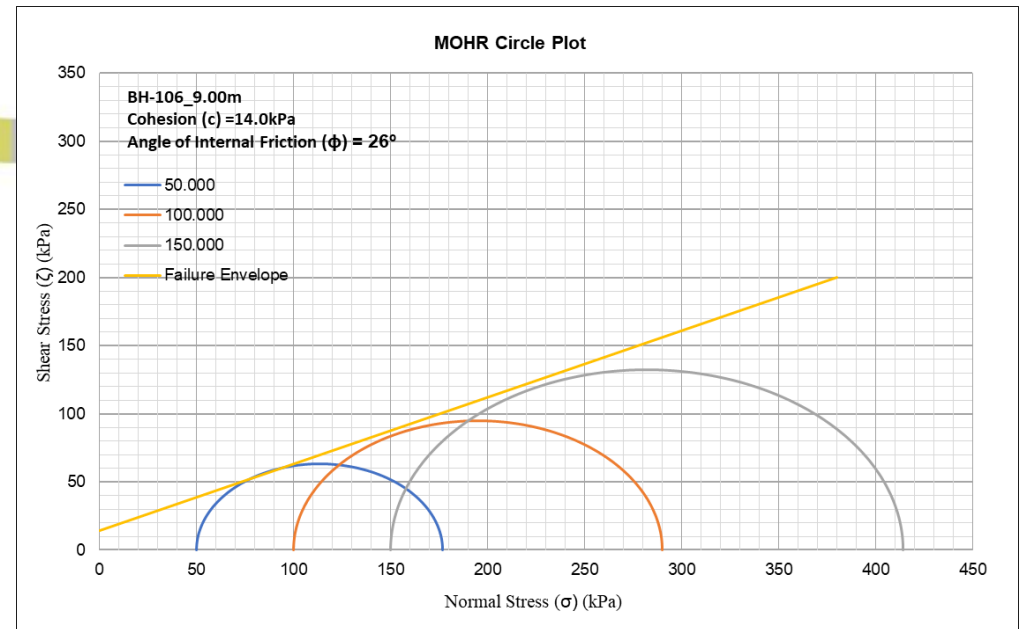
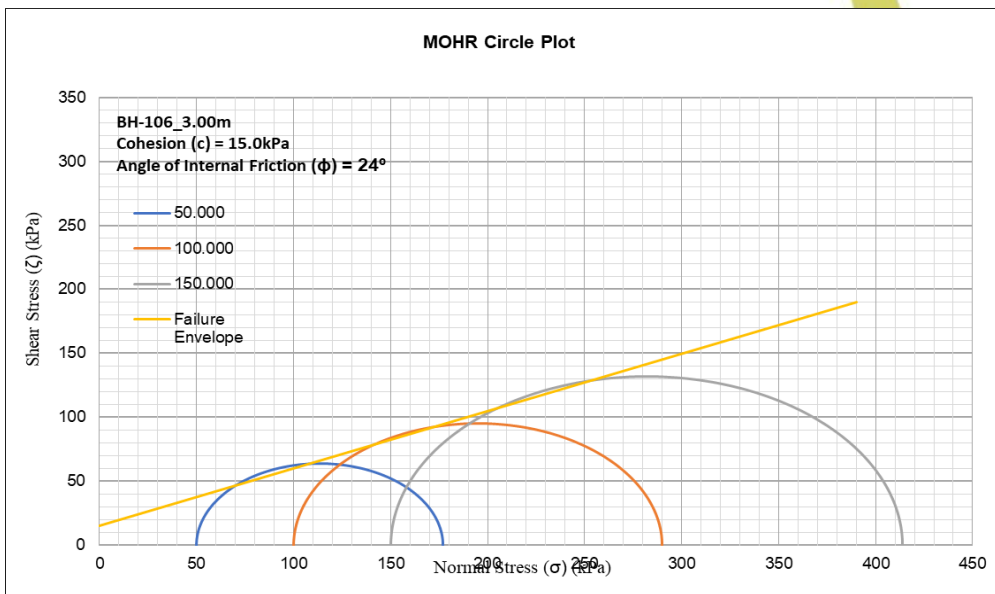
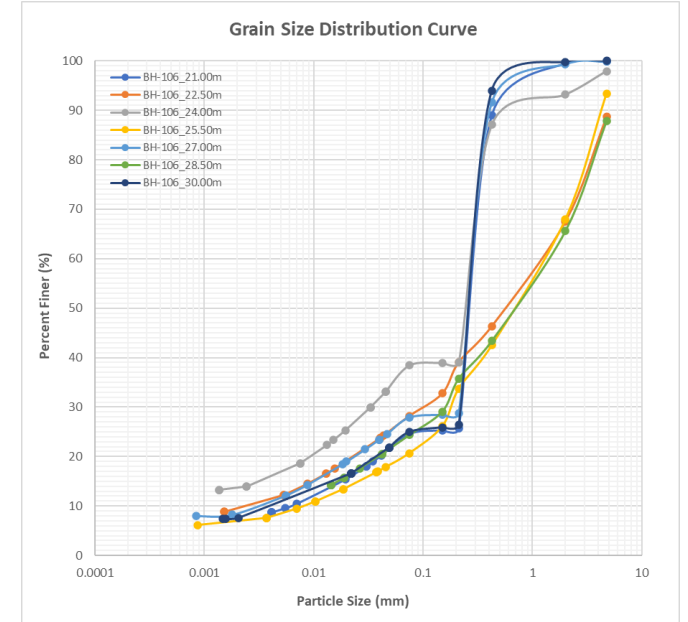
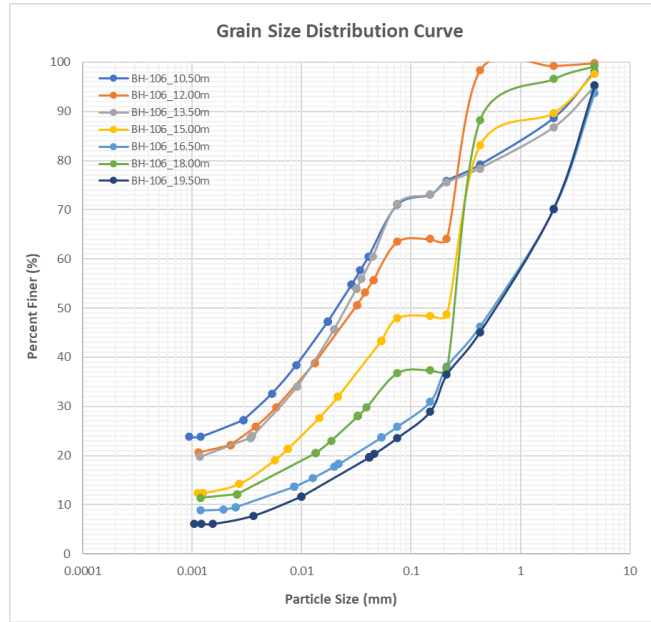
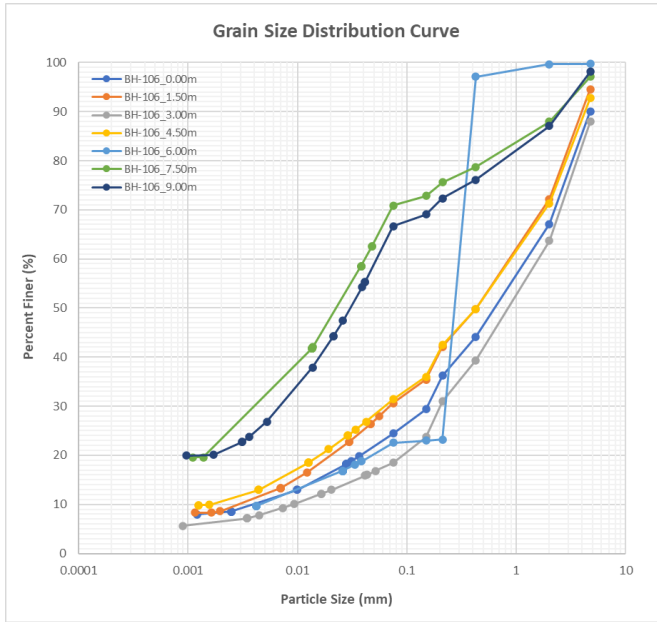


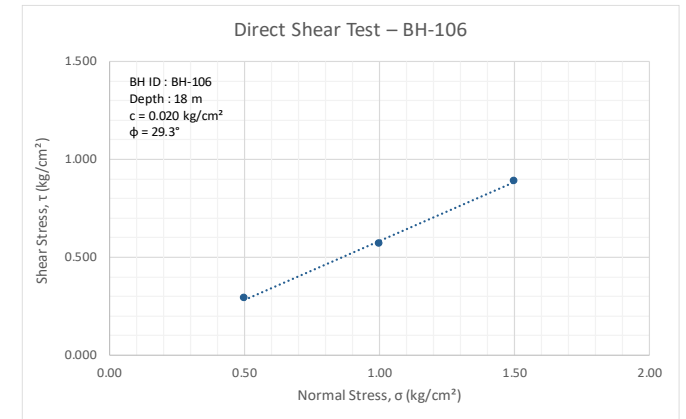
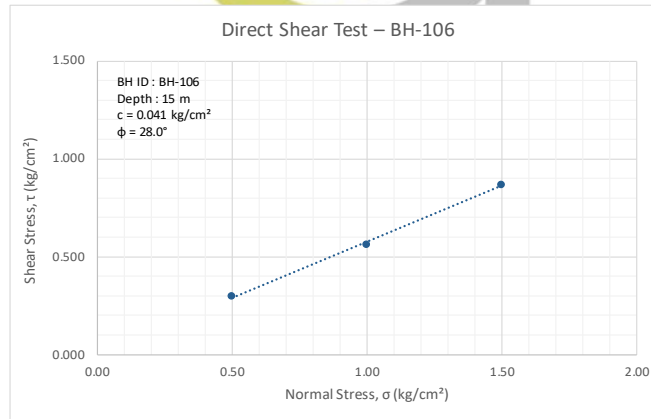
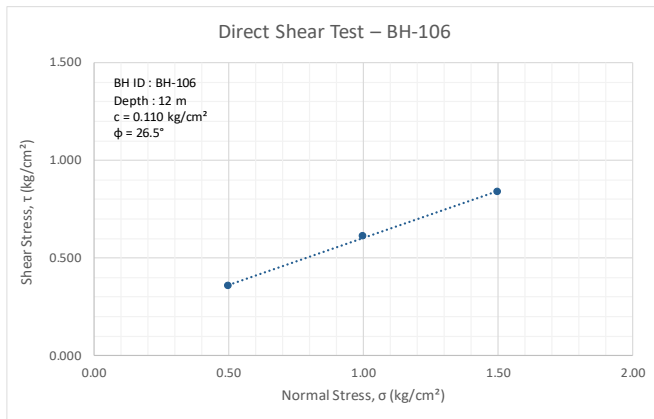
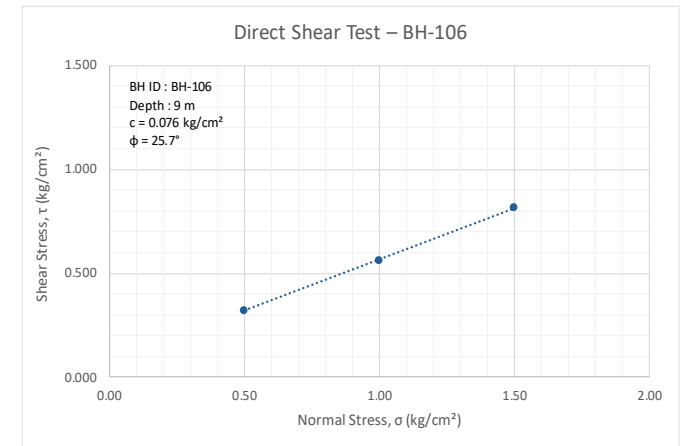
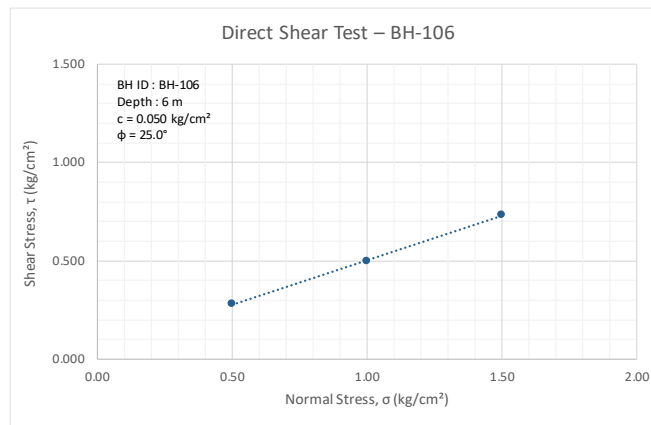
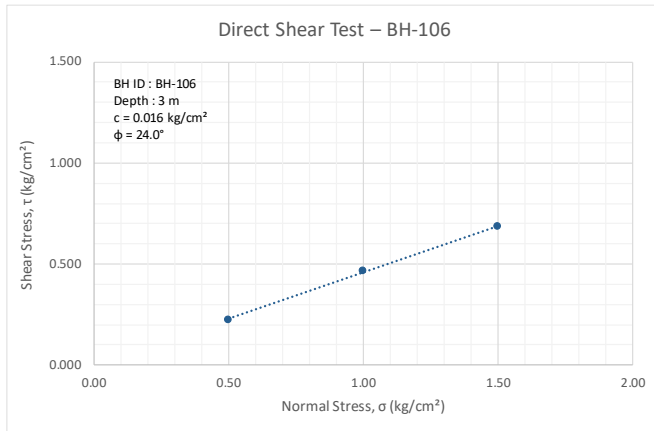


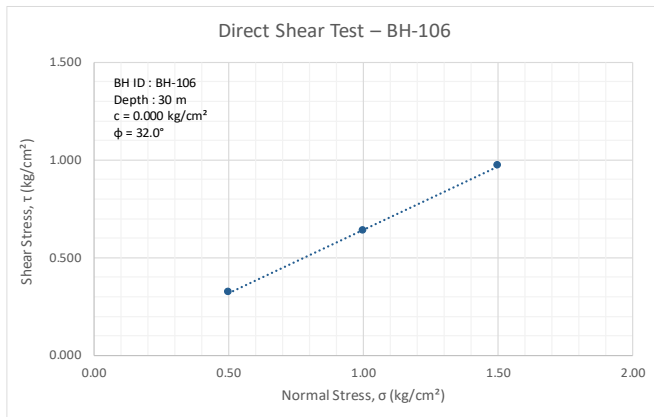
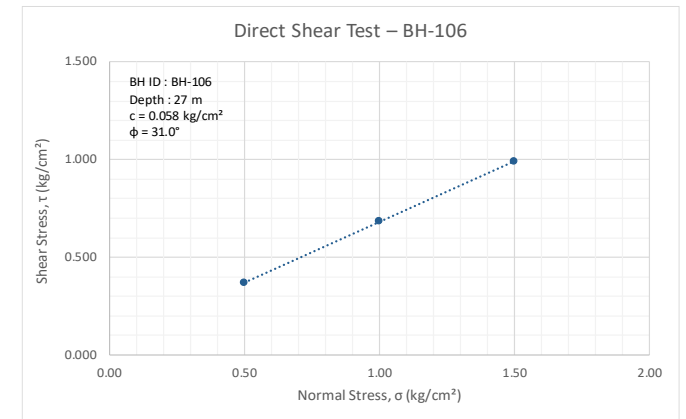
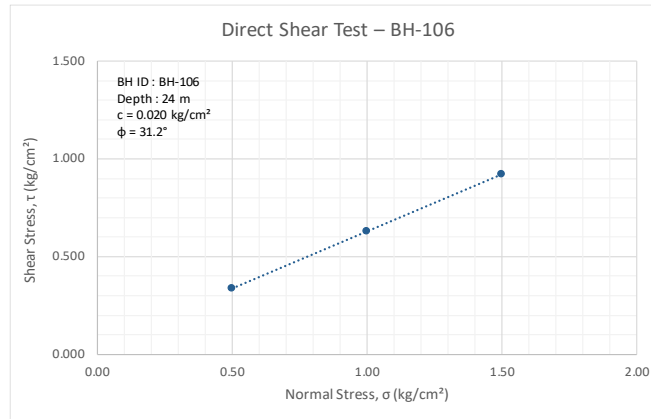
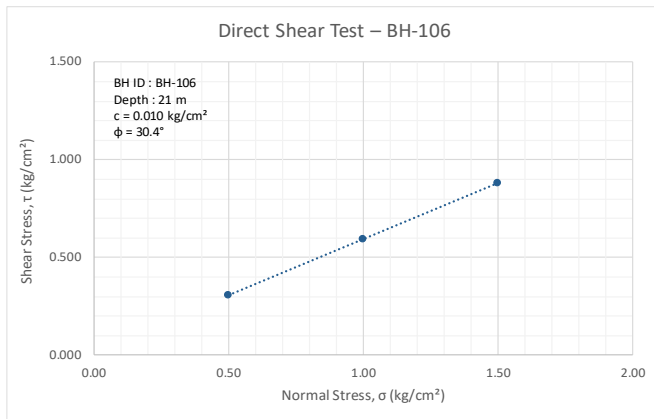
Project		Borehole Details		Drilling Details	
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-106	<b>Contractor:</b>	Goma Engineering & Consultancy
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	11+134	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	18-02-2026
<b>Project Code:</b>	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	198.00	<b>End Date:</b>	19-02-2026
		<b>Water table Level [m]:</b>	12.90	<b>Location:</b>	Lat: 28.502883 , Long:77.402414

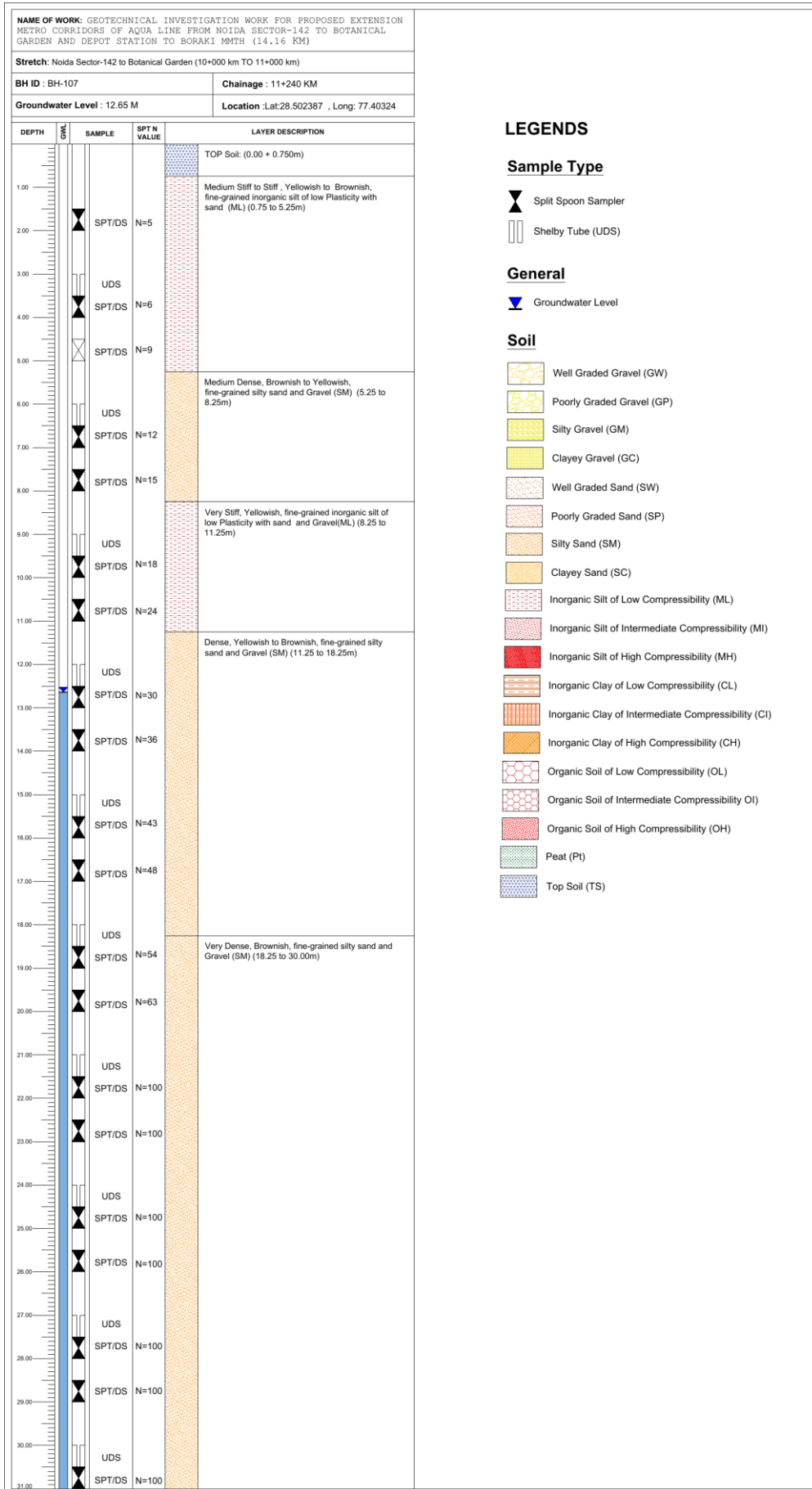
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.9	65.7	16.1	8.3	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Brownish to Greyish, fine-grained silty sand (SM)	2	3	4	7	10	5.4	64.0	21.9	8.7	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							12.0	69.5	12.0	6.5	27	NP	NP	20.7	1.9	1.57	2.63	F	0.02	24	UU	15	24	-	-	-
3.50	SPT/DS		4	5	7	12	13																				
4.50	SPT/DS		5	8	9	17	17	7.3	61.3	20.8	10.6	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	DS							0.3	77.2	14.4	8.2	25	NP	NP	24.70	-	-	2.80	F	0.05	25	-	-	-	-	-	-
6.50	SPT/DS		8	9	12	21	20																				
7.50	SPT/DS	Stiff to Very Stiff, Brownish to Grey Brownish, fine-grained inorganic silt of lowPlasticity with sand (ML)	9	13	15	28	26	2.9	26.2	47.7	23.2	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							1.9	31.4	45.8	20.8	21	NP	NP	23.80	1.93	1.56	2.62	F	0.08	26	UU	14	26	-	-	-
9.50	SPT/DS		12	14	17	31	26																				
10.50	SPT/DS	Hard,Grey Brownish to Brownish, fine-grained inorganic silt of lowPlasticity with sand (ML)	13	16	18	34	28	1.9	27.1	45.3	25.8	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.2	36.3	41.6	21.9	26	NP	NP	18.88	-	-	2.66	F	0.11	27	-	-	-	-	-	-
12.50	SPT/DS		15	19	21	40	30																				
13.50	SPT/DS						5.0	23.8	49.6	21.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
15.00	DS	Dense to Very Dense, Brownish, fine-grained silty sand (SM)						2.3	49.7	34.5	13.5	22	NP	NP	14.78	-	-	2.75	F	0.04	28	-	-	-	-	-	-
15.50	SPT/DS		19	22	25	47	24																				
16.50	SPT/DS		21	24	27	51	25	6.3	67.9	16.8	9.1	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.7	62.5	24.9	11.9	29	NP	NP	16.95	-	-	2.74	F	0.02	29	-	-	-	-	-	-
18.50	SPT/DS		22	25	32	57	26																				
19.50	SPT/DS		23	27	33	60	27	4.7	71.7	17.0	6.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.1	75.3	15.3	9.3	24	NP	NP	14.67	-	-	2.66	F	0.01	30	-	-	-	-	-	-
21.50	SPT/DS		26	32	35	67	29																				
22.50	SPT/DS		28	33	39	72	30	11.3	60.5	18.7	9.5	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							2.1	59.5	24.7	13.7	23	NP	NP	14.78	-	-	2.75	F	0.02	31	-	-	-	-	-	-
24.50	SPT/DS	Very Dense, Brownish, fine-grained silty sand (SM)	30	36	42	100	38																				
25.50	SPT/DS		35	43	45	100	37	6.6	72.7	13.7	6.9	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.1	71.9	19.3	8.6	23	NP	NP	11.38	-	-	2.61	F	0.06	31	-	-	-	-	-	-
27.50	SPT/DS		39	48	(50/3 cm)	100	36																				
28.50	SPT/DS		46	(50/8 cm)	-	100	36	12.2	63.5	16.9	7.5	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	75.0	17.4	7.6	21	NP	NP	16.27	-	-	2.67	F	0.00	32	-	-	-	-	-	-
30.50	SPT/DS	(50/12 cm)	-	-	100	35																					

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

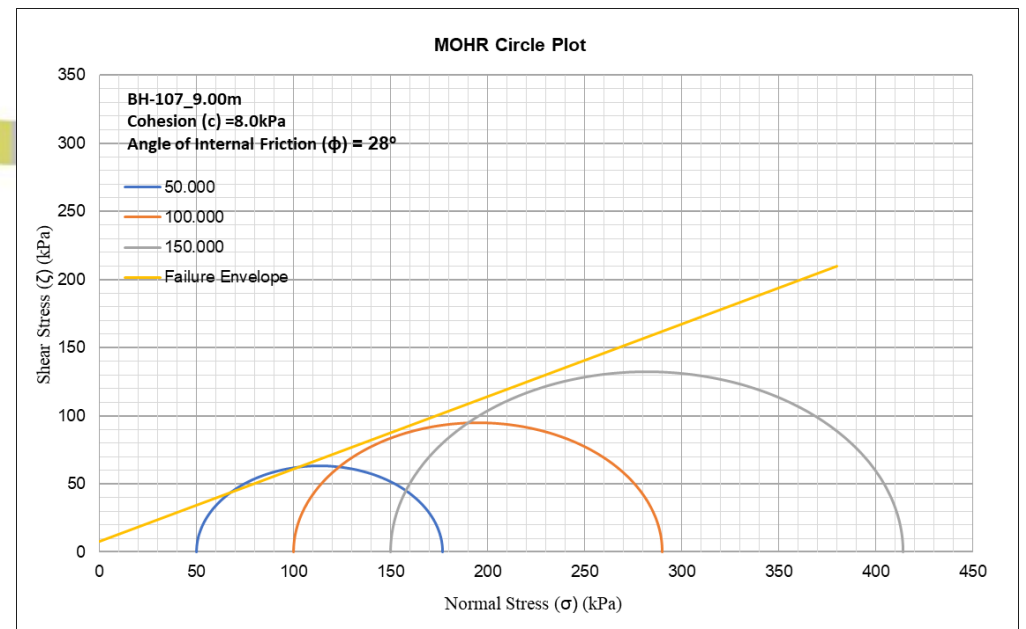
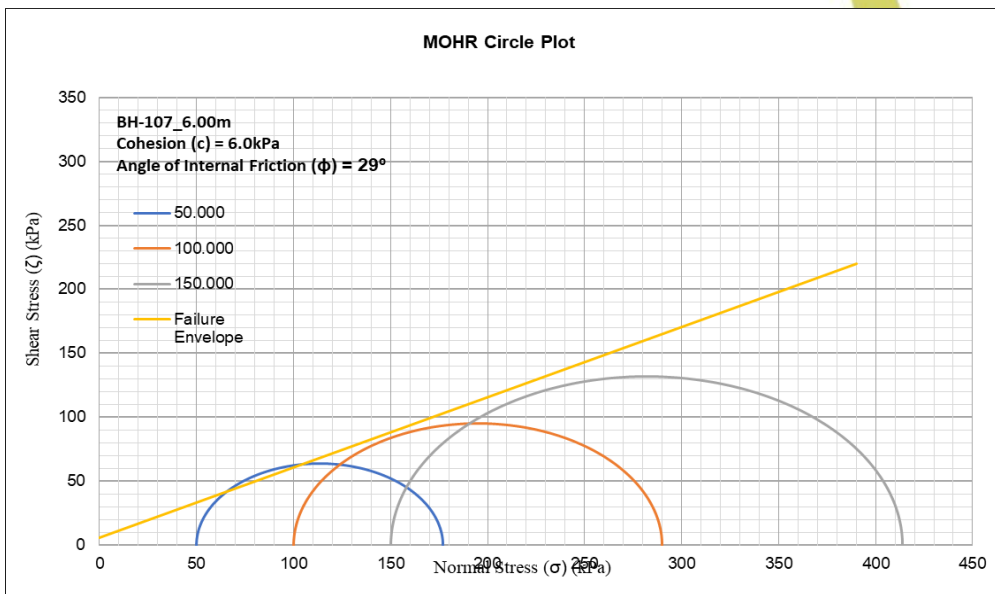
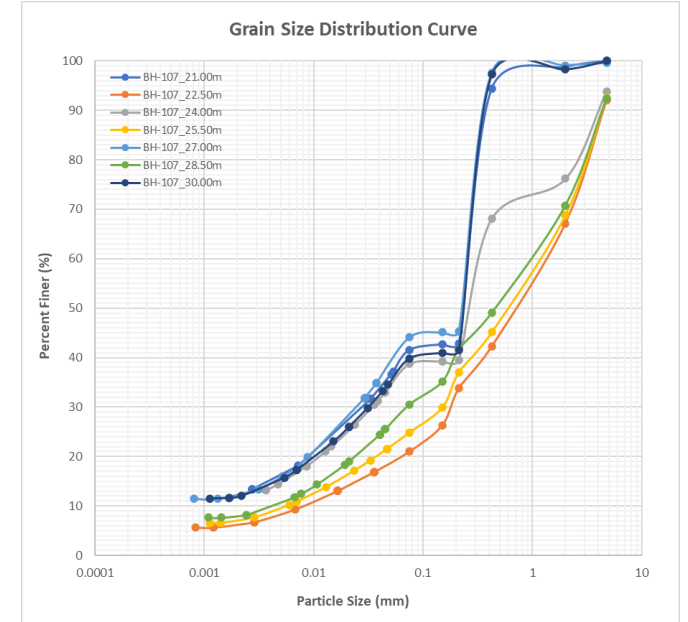
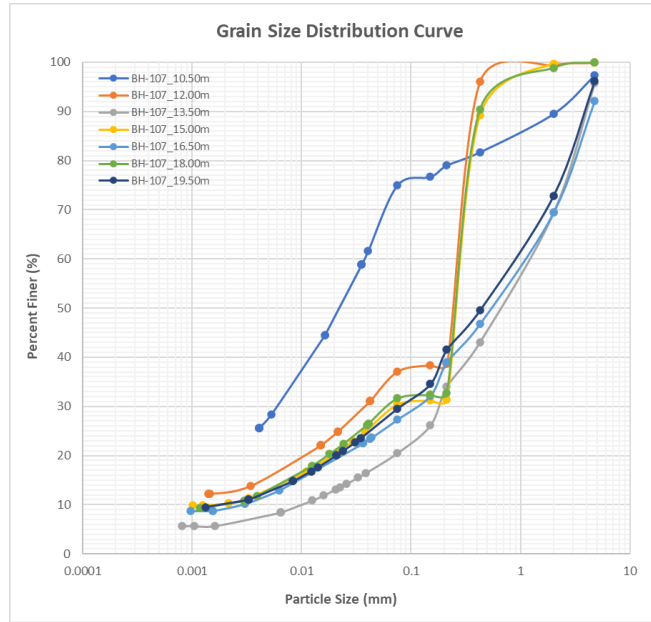
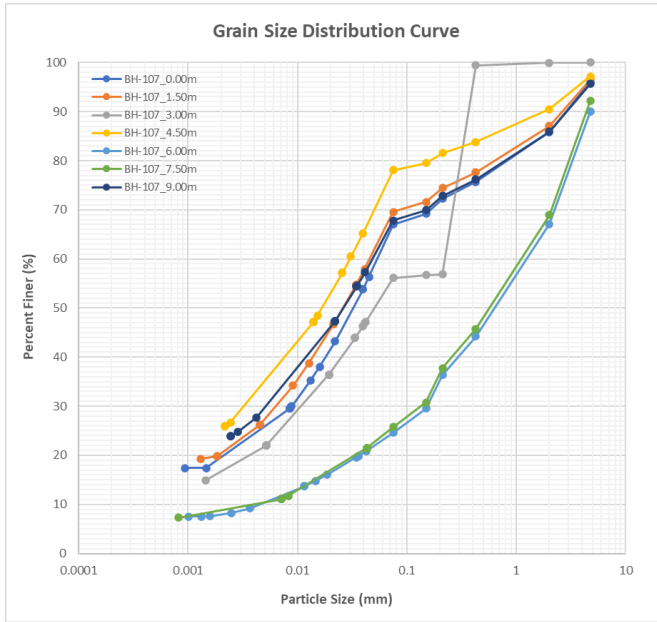
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

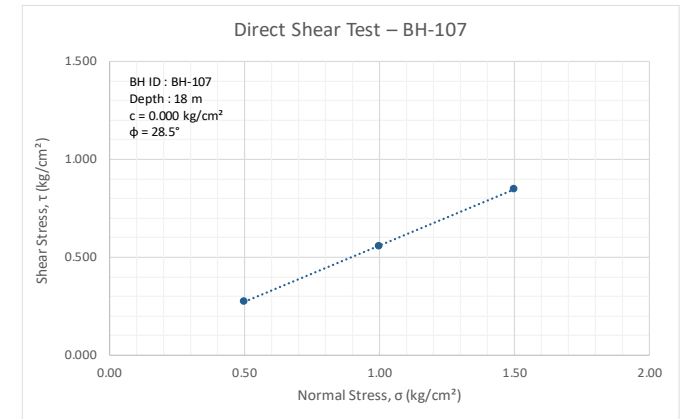
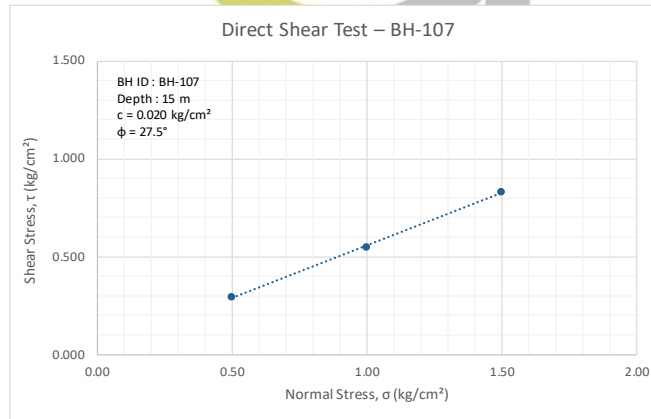
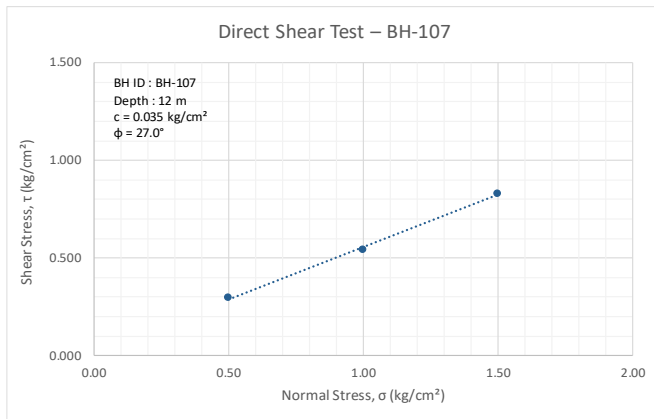
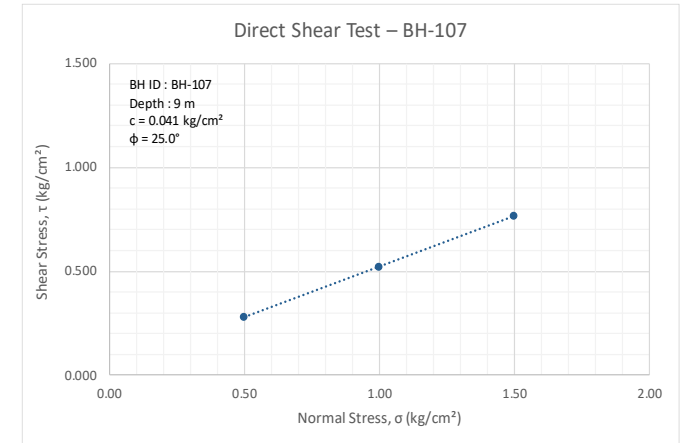
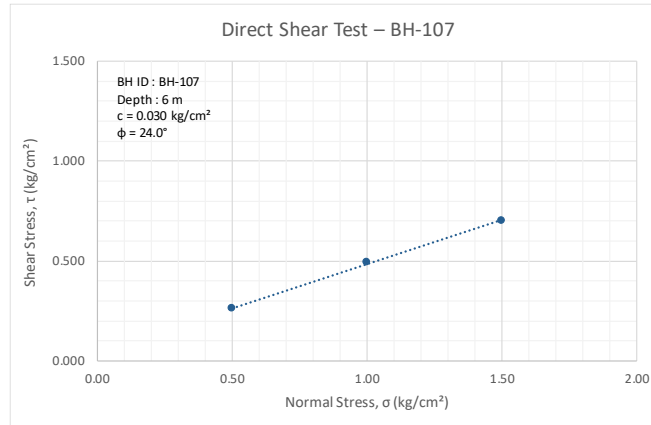
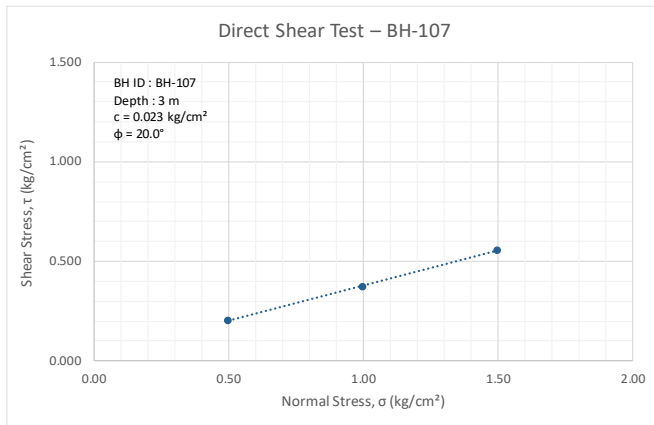


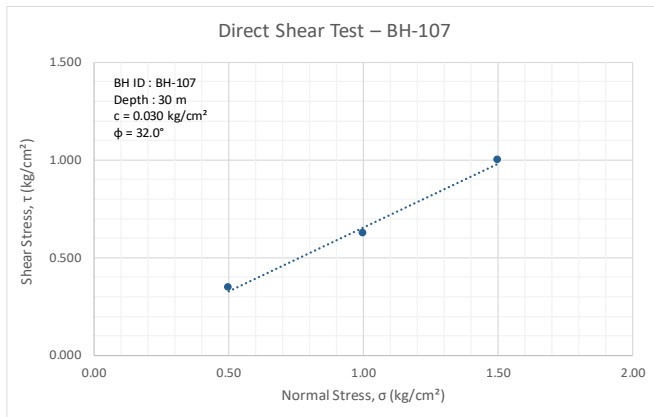
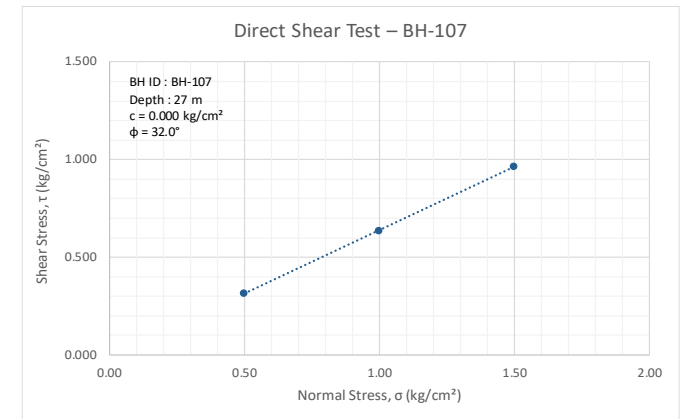
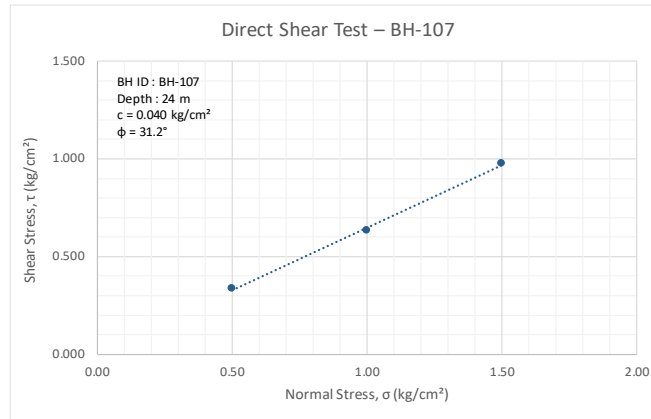
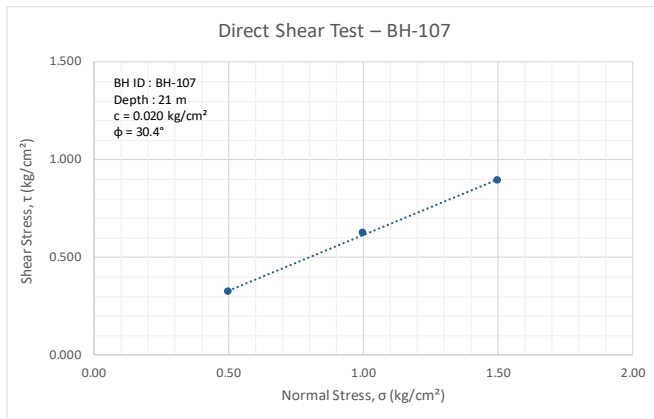
Project		Borehole Details		Drilling Details	
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-107	<b>Contractor:</b>	Goma Engineering & Consultancy
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	11+240	<b>Method of Drilling:</b>	Rotary Drilling
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00	<b>Start Date:</b>	18-02-2026
<b>Project Code:</b>	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	195.90	<b>End Date:</b>	18-02-2026
		<b>Water table Level [m]:</b>	12.65	<b>Location:</b>	Lat:28.502387 , Long: 77.40324

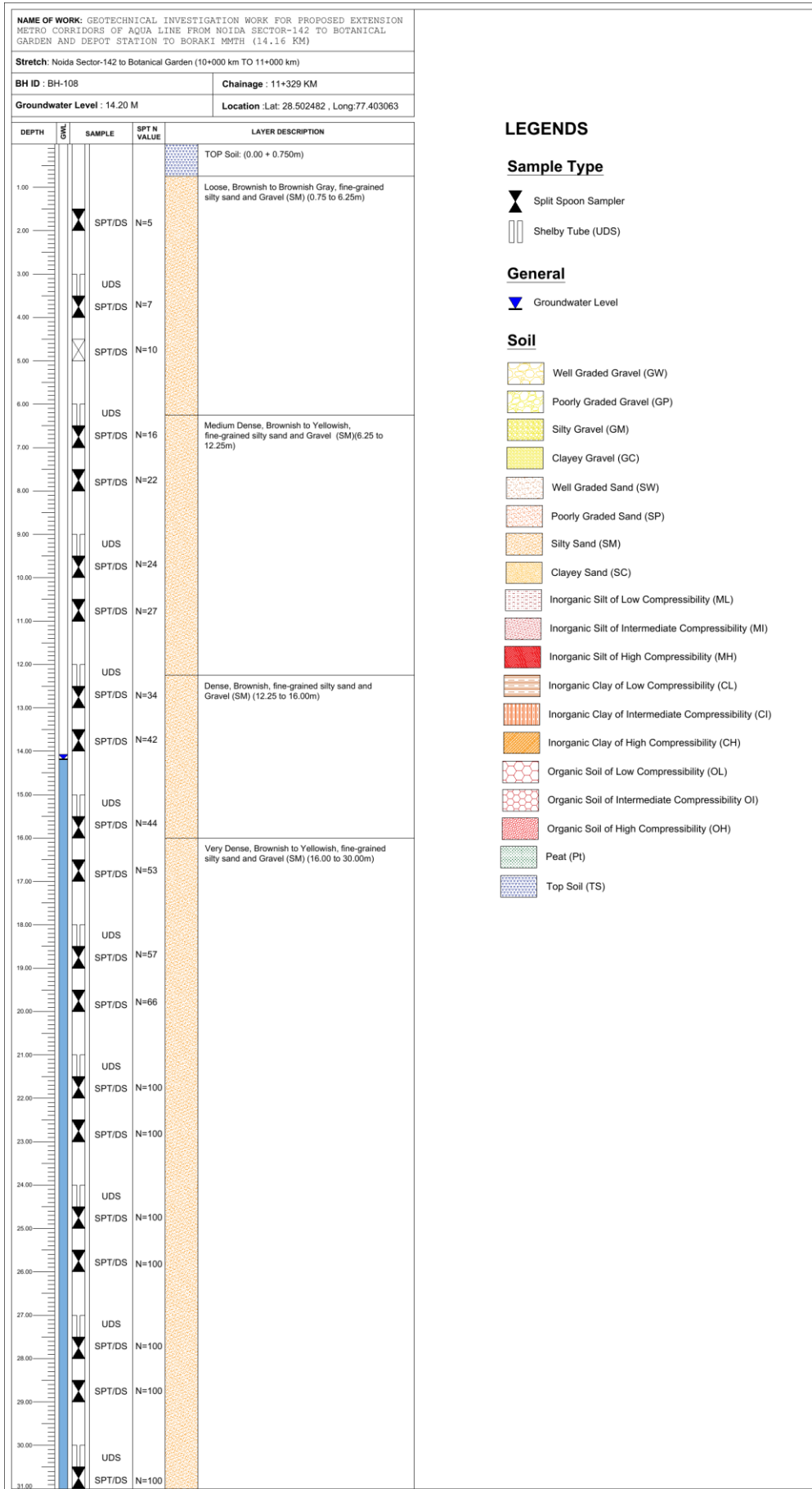
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						4.0	29.0	47.5	19.5	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Stiff to Stiff, Yellowish to Brownish, fine-grained inorganic silt of lowPlasticity with sand (ML)	2	2	3	5	7	3.5	27.0	49.2	20.4	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							0.0	43.9	39.4	16.7	29	NP	NP	9.88	1.65	1.50	2.65	F	0.02	20	-	-	-	-	-	-
3.50	SPT/DS		2	3	3	6	7																				
4.50	SPT/DS		2	4	5	9	9	2.9	19.1	78.1	0.0	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS	Medium Dense, Brownish to Yellowish, fine-grained silty sand and Gravel (SM)						10.0	65.4	16.7	7.9	24	NP	NP	11.40	1.91	1.71	2.67	F	0.03	24	UU	6	29	-	-	-
6.50	SPT/DS		3	5	7	12	11																				
7.50	SPT/DS		4	6	9	15	14	7.8	66.4	16.9	8.9	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS	Very Stiff, Yellowish, fine-grained inorganic silt of lowPlasticity with sand and Gravel(ML)						4.4	27.8	67.8	0.0	21	NP	NP	12.30	1.94	1.73	2.66	F	0.04	25	UU	8	28	-	-	-
9.50	SPT/DS		5	7	11	18	15																				
10.50	SPT/DS		7	10	14	24	20	2.7	22.3	75.0	0.0	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS	Dense, Yellowish to Brownish, fine-grained silty sand and Gravel (SM)						0.1	62.8	24.3	12.8	26	NP	NP	18.41	-	-	2.69	F	0.04	27	-	-	-	-	-	-
12.50	SPT/DS		10	13	17	30	23																				
13.50	SPT/DS		11	16	20	36	21	4.3	75.2	14.4	6.1	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	69.5	20.1	10.3	25	NP	NP	19.00	-	-	2.61	F	0.02	28	-	-	-	-	-	-
15.50	SPT/DS		15	19	24	43	23																				
16.50	SPT/DS		17	21	27	48	24	7.9	64.7	18.0	9.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.0	68.4	21.5	10.2	24	NP	NP	15.87	-	-	2.70	F	0.00	29	-	-	-	-	-	-
18.50	SPT/DS		20	24	30	54	25																				
19.50	SPT/DS		24	31	32	63	28	3.8	66.7	19.3	10.2	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS						0.0	58.5	25.9	15.6	23	NP	NP	14.59	-	-	2.69	F	0.02	30	-	-	-	-	-	-	
21.50	SPT/DS		30	35	40	100	39																				
22.50	SPT/DS		38	(50/10 cm)	-	100	39	8.0	71.0	14.8	6.2	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS						6.2	55.1	29.9	8.8	22	NP	NP	12.88	-	-	2.66	F	0.04	31	-	-	-	-	-	-	
24.50	SPT/DS	Very Dense, Brownish, fine-grained silty sand and Gravel (SM)	32	(50/12 cm)	-	100	38																				
25.50	SPT/DS		40	(50/8 cm)	-	100	37	7.5	67.7	17.7	7.1	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.4	55.4	31.7	12.4	21	NP	NP	17.44	-	-	2.70	F	0.00	32	-	-	-	-	-	-
27.50	SPT/DS		46	(50/9 cm)	-	100	36																				
28.50	SPT/DS		47	(50/7 cm)	-	100	36	7.6	61.8	22.6	8.0	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	60.2	28.0	11.9	22	NP	NP	16.90	-	-	2.68	F	0.03	32	-	-	-	-	-	-
30.50	SPT/DS		(50/3 cm)	-	-	100	35																				

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

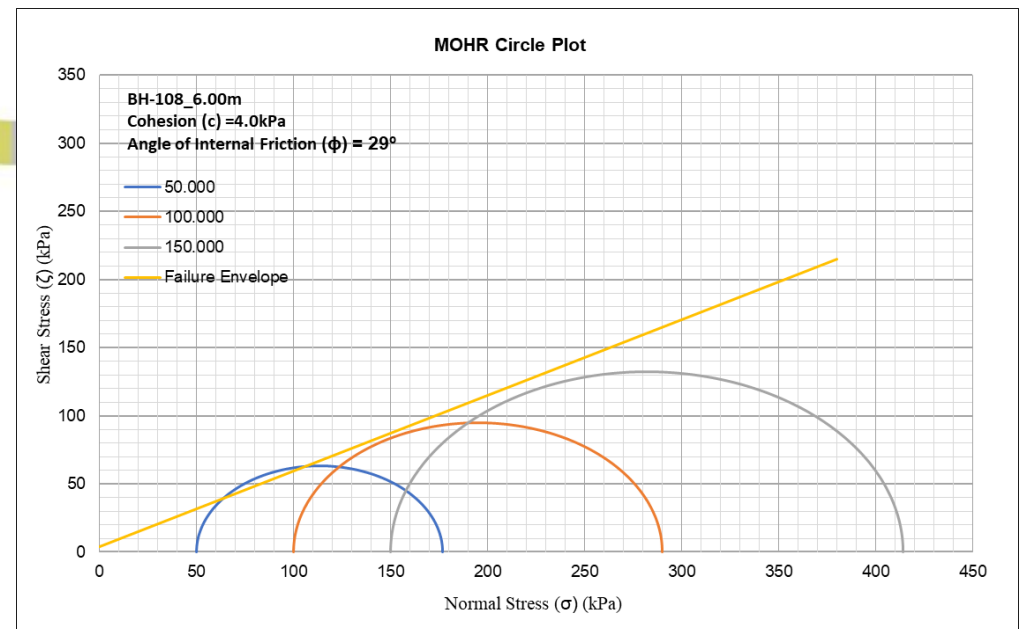
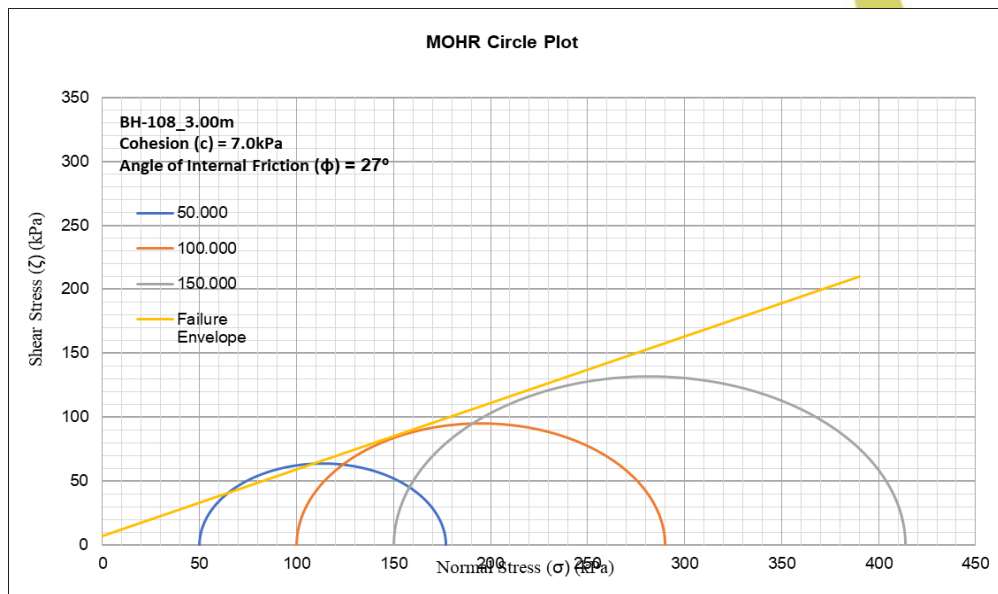
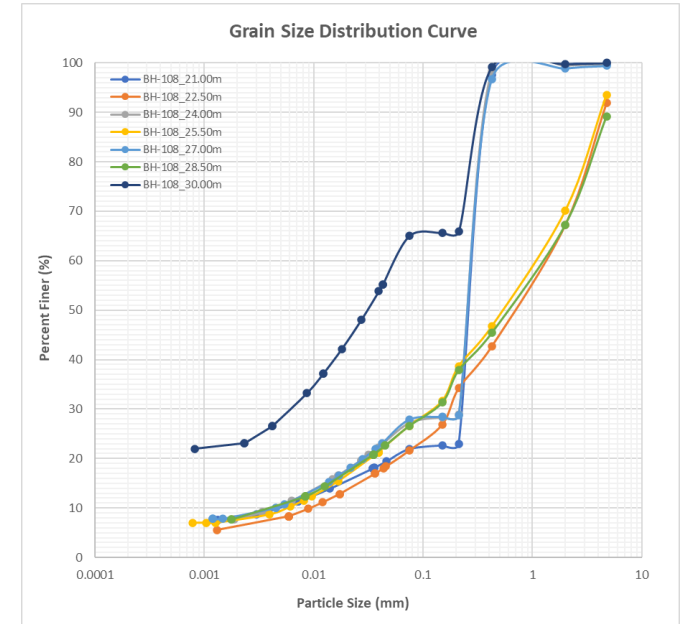
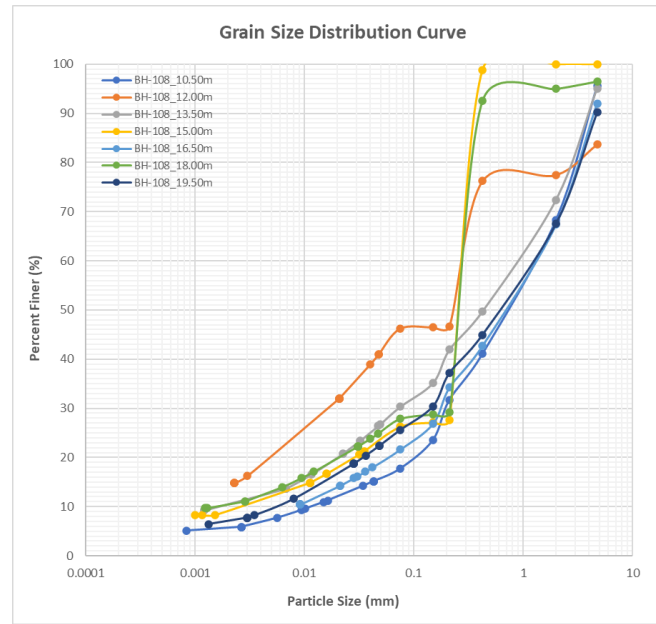
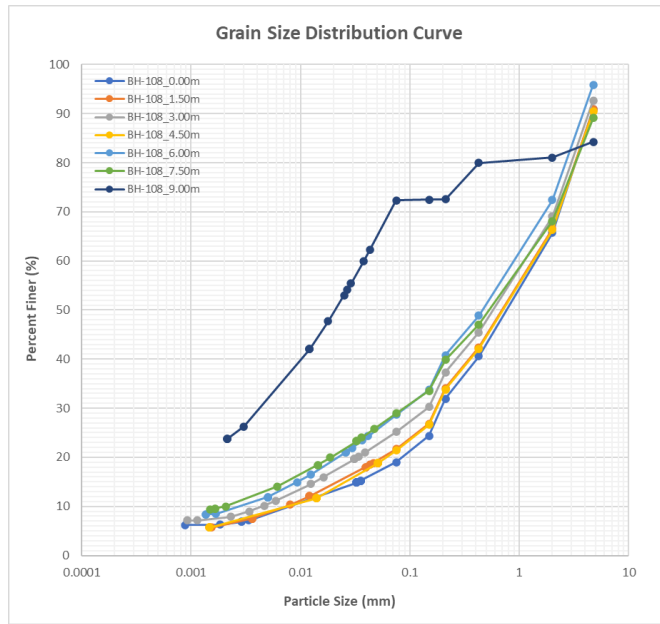
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

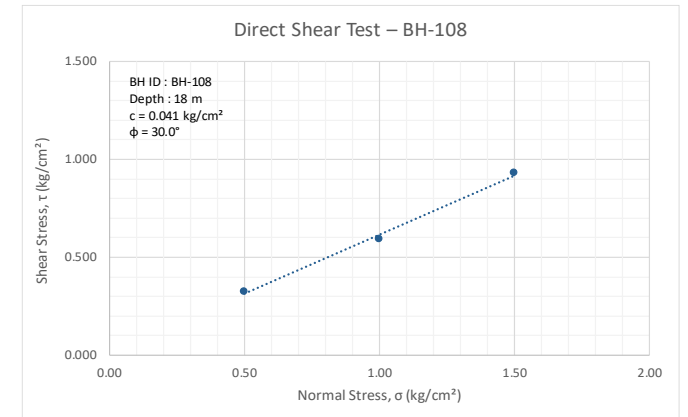
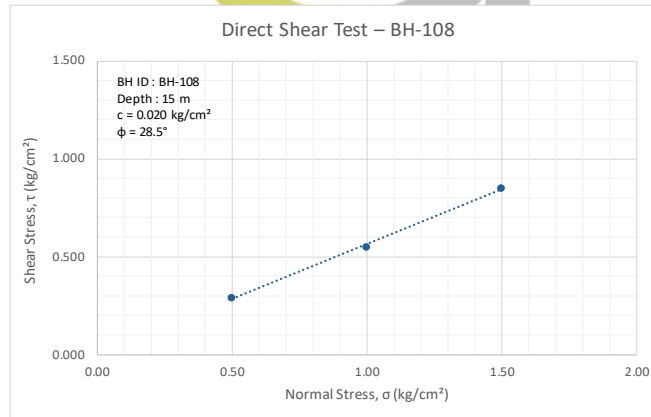
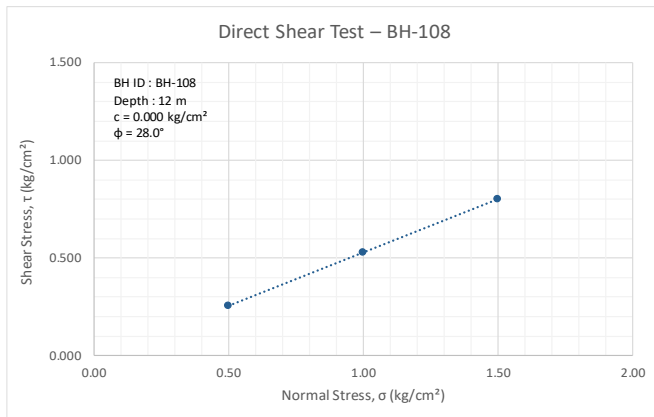
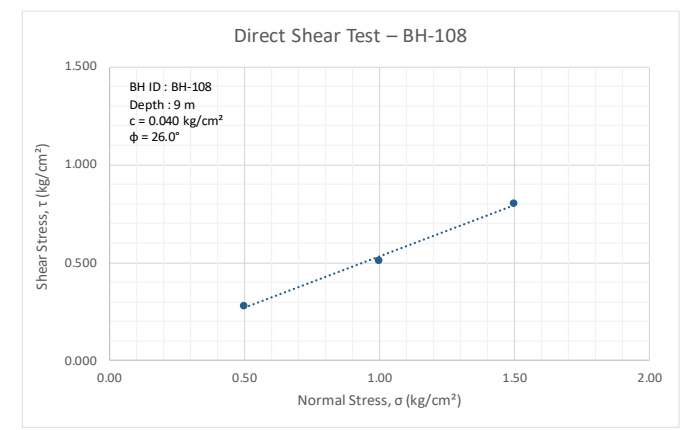
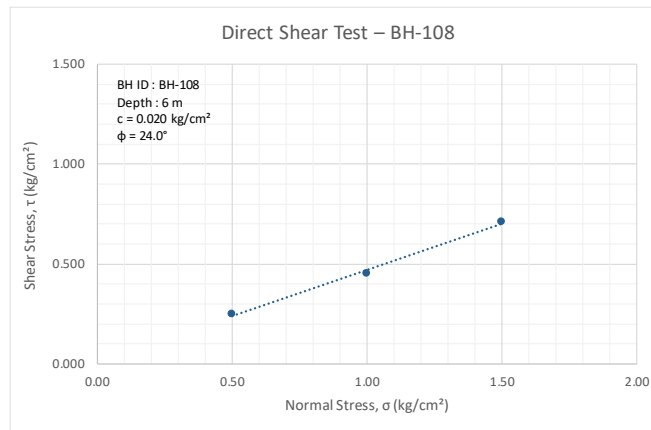
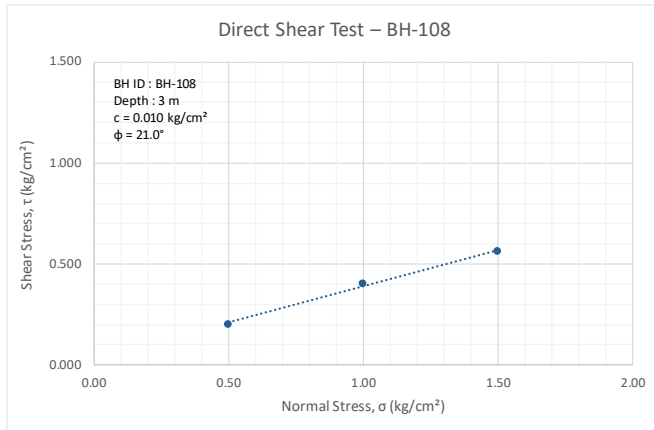


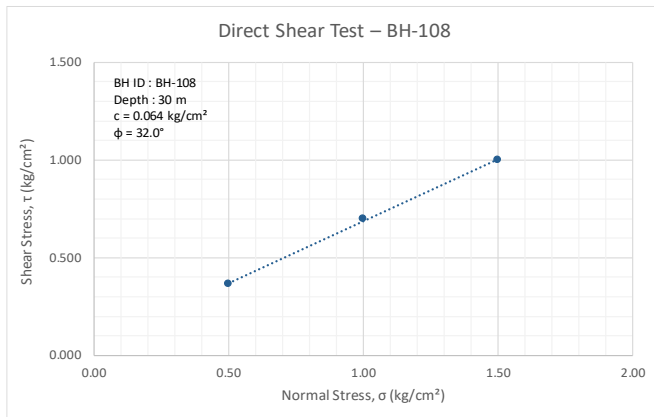
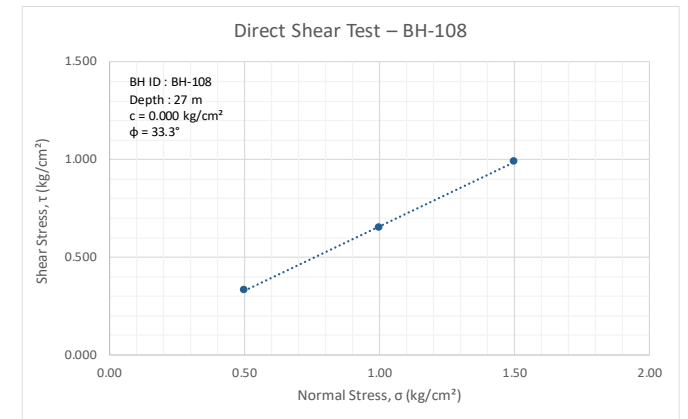
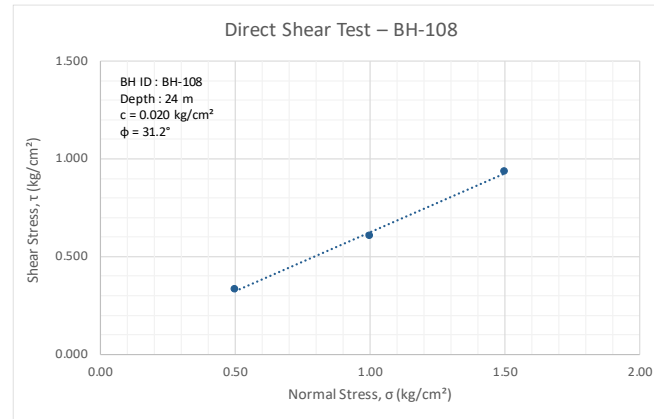
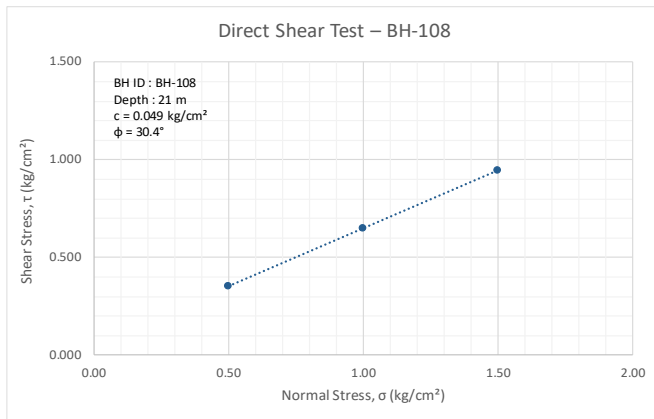
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-108		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	11+329		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	19-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	195.60		End Date:	19-02-2026	
Project Code:	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	14.20		Location:	Lat: 28.502482 , Long:77.403063	

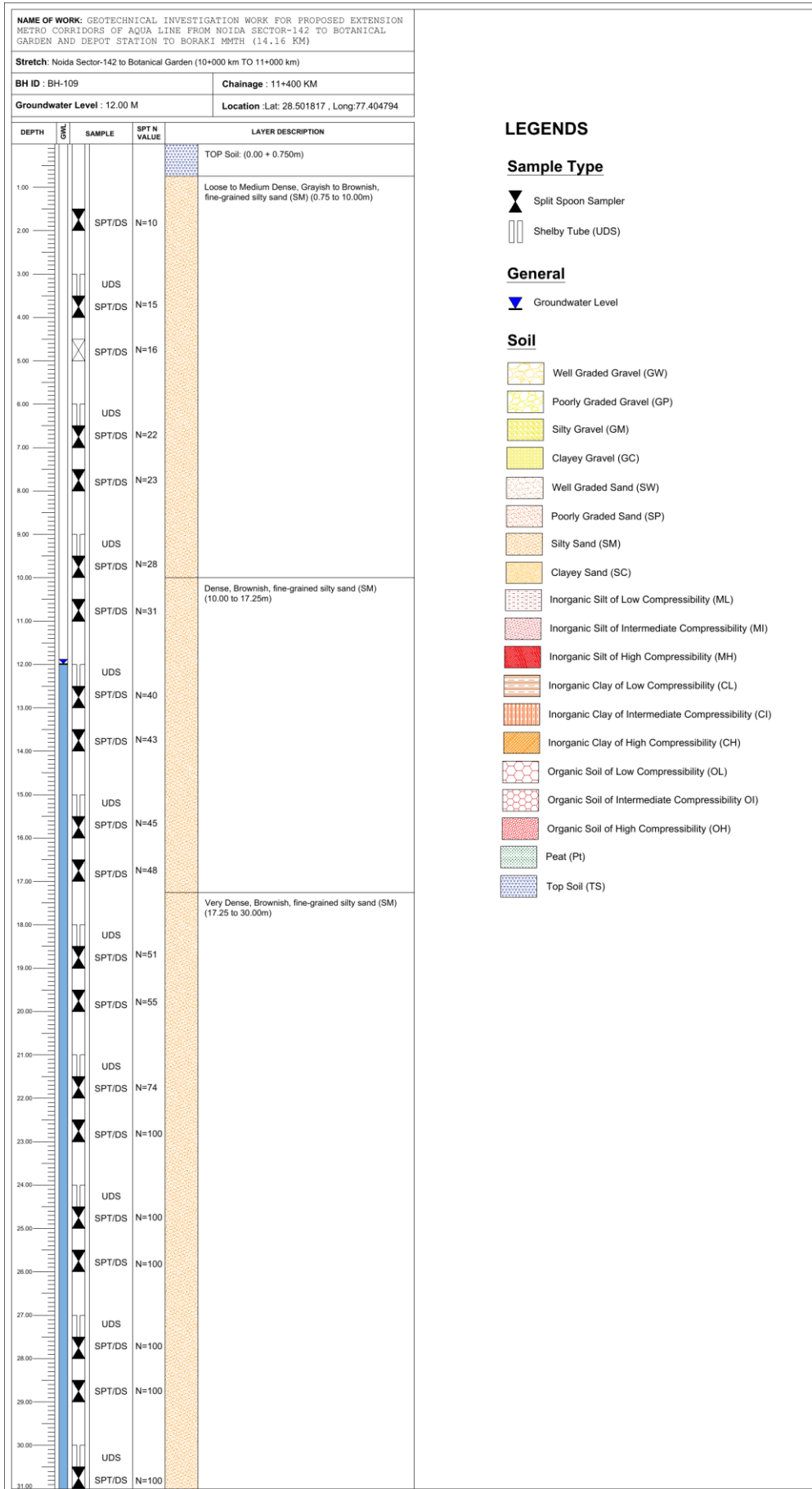
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.1	71.9	12.6	6.4	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose, Brownish to Brownish Grey, fine-grained silty sand and Gravel (SM)	2	2	3	5	7	9.2	69.2	15.4	6.3	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							7.3	67.5	17.5	7.7	21	NP	NP	14.3	1.82	1.59	2.70	F	0.01	21	UU	7	27	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	4	6	10	10	9.5	69.1	14.9	6.5	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							4.1	67.2	19.6	9.1	27	NP	NP	11.8	1.85	1.65	2.69	F	0.02	24	UU	4	29	-	-	-
6.50	SPT/DS	Medium Dense, Brownish to Yellowish, fine-grained silty sand and Gravel (SM)	5	7	9	16	15																				
7.50	SPT/DS		7	10	12	22	20	10.9	60.1	19.1	9.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS							15.8	11.9	72.3	0.0	27	NP	NP	23.79	1.78	1.44	2.61	F	0.04	26	-	-	-	-	-	-
9.50	SPT/DS		7	11	13	24	20																				
10.50	SPT/DS		8	12	15	27	22	4.4	77.9	12.0	5.7	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS						16.3	37.4	30.7	15.5	24	NP	NP	20.13	1.86	1.55	2.61	F	0.00	28	-	-	-	-	-	-	
12.50	SPT/DS	Dense, Brownish, fine-grained silty sand and Gravel (SM)	10	15	19	34	26																				
13.50	SPT/DS		12	18	24	42	30	4.9	64.8	19.8	10.6	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	73.8	17.0	9.2	23	NP	NP	19.93	-	-	2.61	F	0.02	29	-	-	-	-	-	-
15.50	SPT/DS		15	19	25	44	22																				
16.50	SPT/DS		18	23	30	53	25	8.0	70.4	15.8	5.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS						3.5	68.7	17.4	10.5	23	NP	NP	19.04	-	-	2.69	F	0.04	30	-	-	-	-	-	-	
18.50	SPT/DS	Very Dense, Brownish to Yellowish, fine-grained silty sand and Gravel (SM)	20	26	31	57	26																				
19.50	SPT/DS		23	30	36	66	28	9.8	64.7	18.5	7.1	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.1	78.0	13.8	8.1	29	NP	NP	12.61	-	-	2.66	F	0.05	30	-	-	-	-	-	-
21.50	SPT/DS		30	35	42	100	38																				
22.50	SPT/DS		42 (50/4 cm)	-	-	100	38	8.1	70.3	15.3	6.3	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.3	72.5	19.3	7.9	25	NP	NP	15.68	-	-	2.66	F	0.02	31	-	-	-	-	-	-
24.50	SPT/DS		39 (50/6 cm)	-	-	100	37																				
25.50	SPT/DS		40 (50/5 cm)	-	-	100	36	6.5	66.9	18.9	7.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.6	71.5	19.5	8.4	23	NP	NP	18.13	-	-	2.67	F	0.00	33	-	-	-	-	-	-
27.50	SPT/DS		46 (50/7 cm)	-	-	100	35																				
28.50	SPT/DS	(50/3 cm)	-	-	100	35	10.8	62.6	18.6	8.0	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS						0.0	35.0	42.1	23.0	27	NP	NP	16.35	-	-	2.68	F	0.06	32	-	-	-	-	-	-	
30.50	SPT/DS	(50/4 cm)	-	-	100	34																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

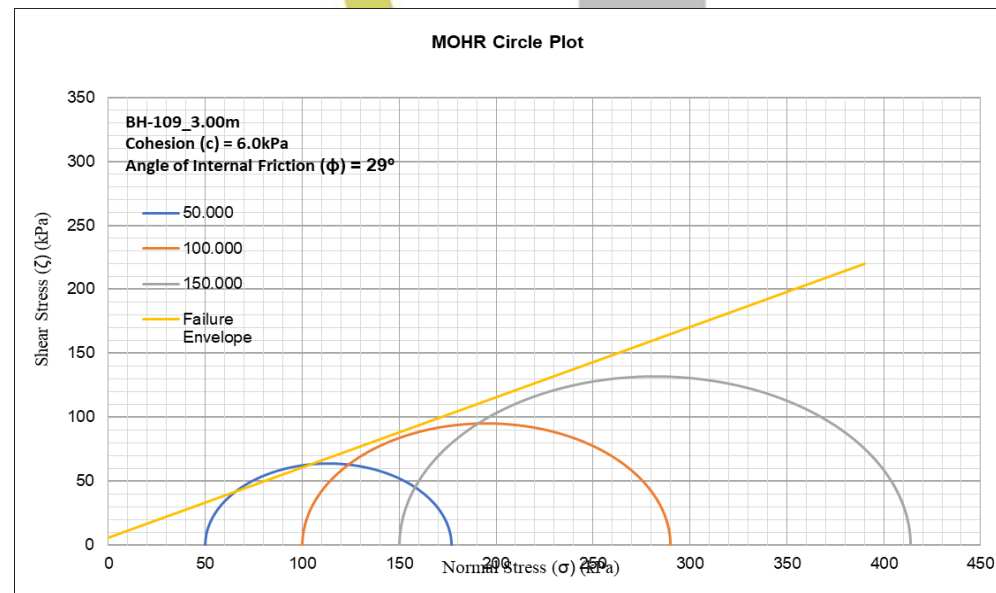
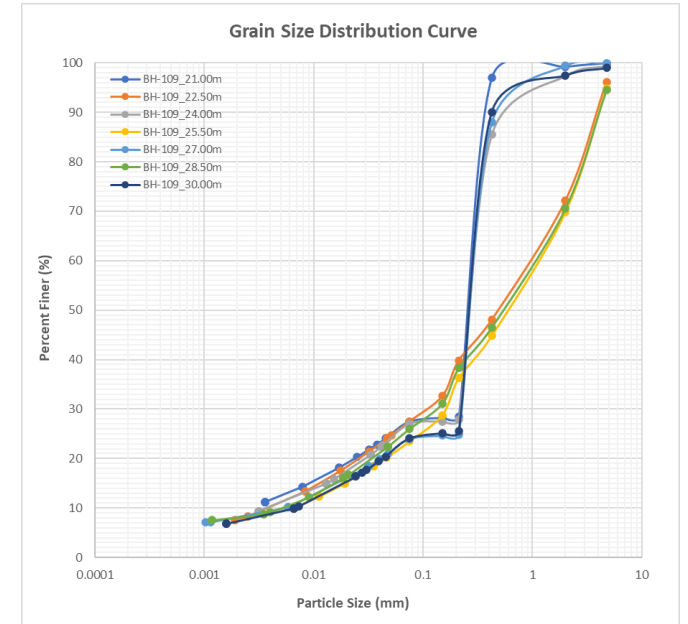
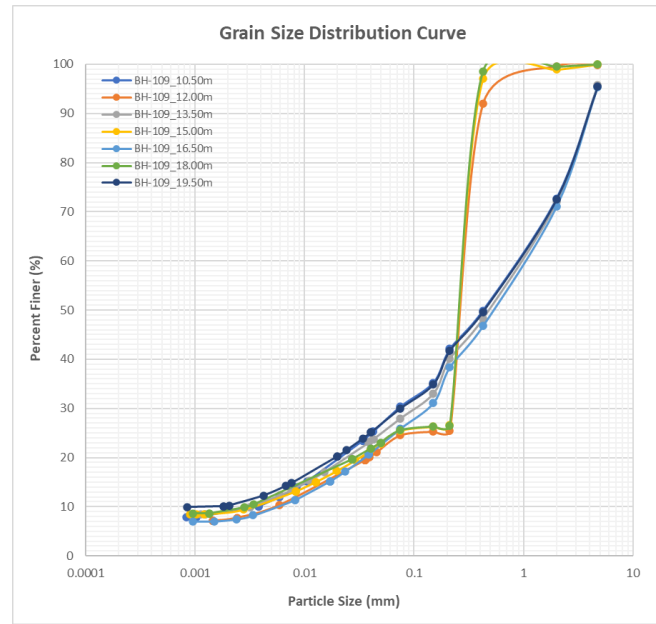
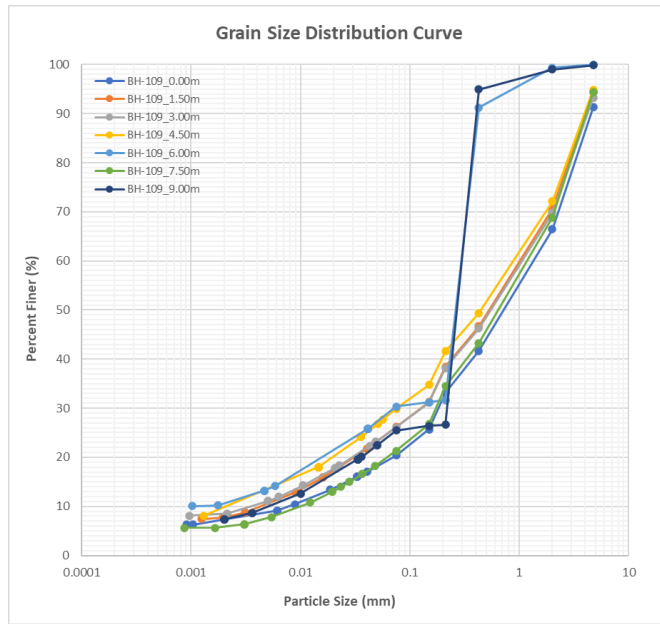
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

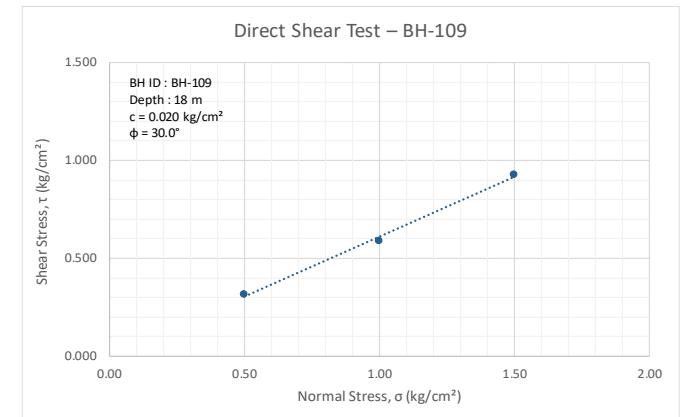
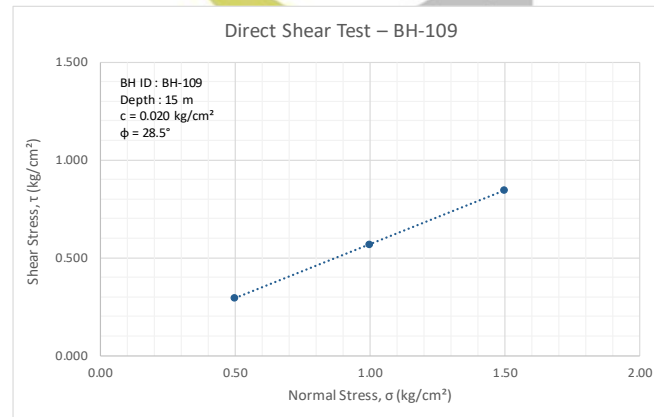
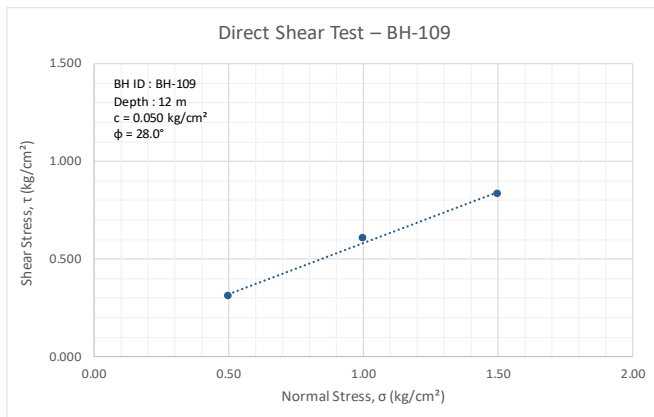
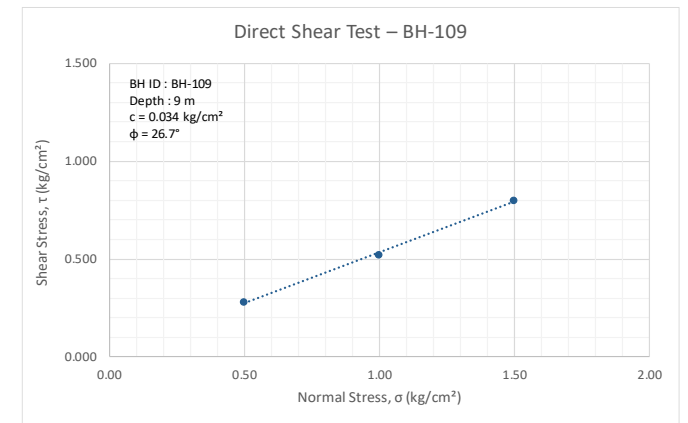
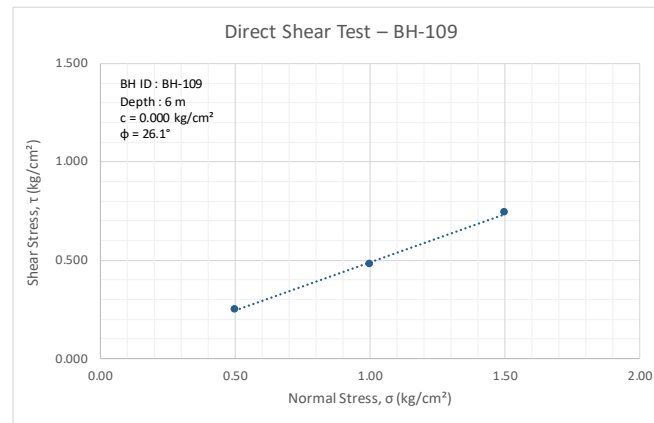
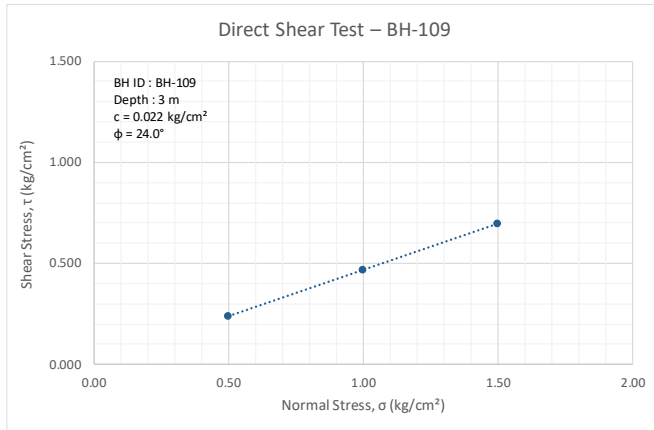


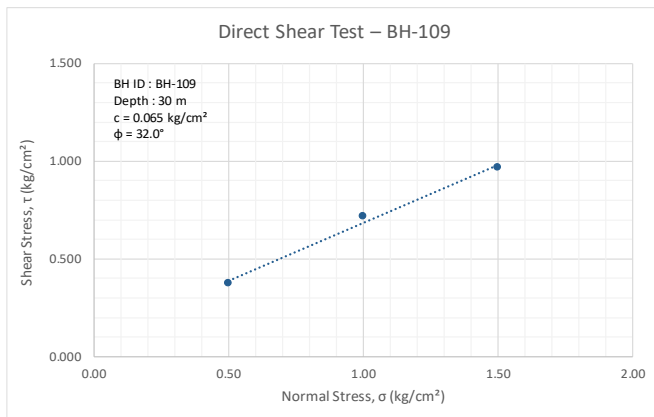
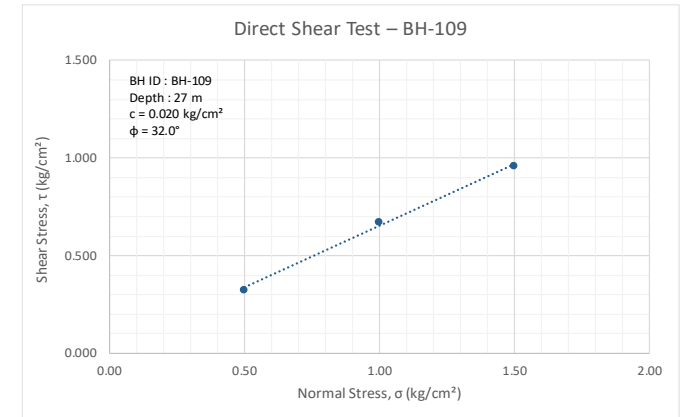
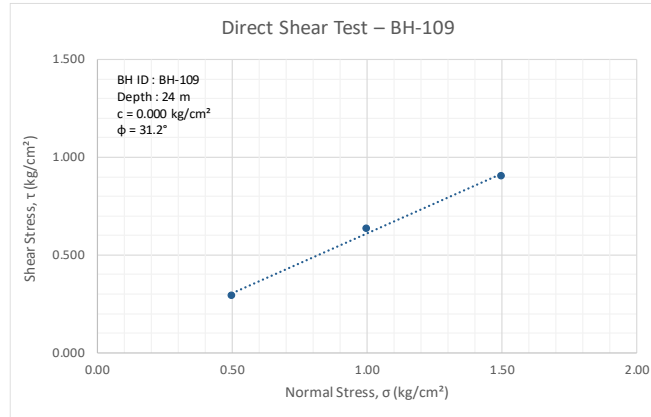
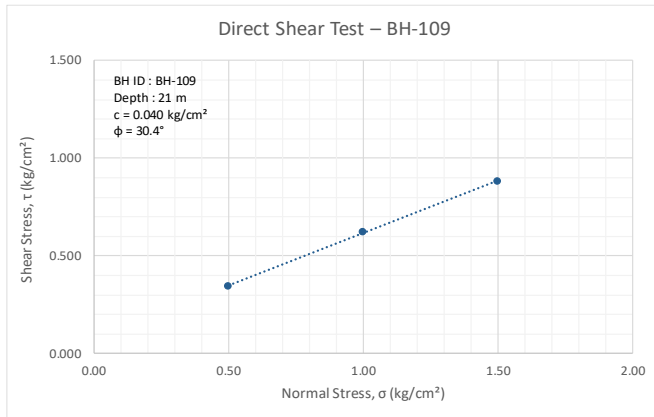
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-109		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	11+400		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	19-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	196.50		End Date:	20-02-2026	
Project Code:	158_R12_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	12.00		Location:	Lat: 28.501817 , Long:77.404794	

Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						8.7	70.9	13.0	7.4	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Greyish to Brownish, fine-grained silty sand (SM)	3	4	6	10	14	5.6	68.3	18.4	7.8	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							6.7	67.2	17.6	8.5	22	NP	NP	17.65	1.85	1.57	2.60	F	0.02	24	UU	6	29	-	-	-
3.50	SPT/DS		4	7	8	15	16																				
4.50	SPT/DS		5	7	9	16	16	5.1	65.0	20.0	9.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	DS		0.1	69.6	19.7	10.6	28	NP	NP	18.30	-	-	2.64	F	0.00	26	-	-	-	-	-	-	-	-	-	-	
6.50	SPT/DS		7	9	13	22	21																				
7.50	SPT/DS		9	10	13	23	21	5.6	73.1	15.4	5.9	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS		0.1	74.4	19.3	6.2	27	NP	NP	18.27	-	-	2.65	F	0.03	27	-	-	-	-	-	-	-	-	-	-	
9.50	SPT/DS		12	13	15	28	24																				
10.50	SPT/DS		14	16	15	31	25	4.5	65.2	21.3	9.0	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS	0.1	75.4	17.0	7.6	29	NP	NP	22.81	-	-	2.60	F	0.05	28	-	-	-	-	-	-	-	-	-	-		
12.50	SPT/DS	15	19	21	40	23																					
13.50	SPT/DS	15	21	22	43	24	4.2	67.8	18.7	9.2	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
15.00	DS	0.0	74.5	16.4	9.0	23	NP	NP	20.44	-	-	2.63	F	0.02	29	-	-	-	-	-	-	-	-	-	-		
15.50	SPT/DS	16	22	23	45	24																					
16.50	SPT/DS	19	23	25	48	24	4.6	69.5	18.6	7.3	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS	0.0	74.4	16.3	9.3	26	NP	NP	18.50	-	-	2.60	F	0.02	30	-	-	-	-	-	-	-	-	-	-		
18.50	SPT/DS	21	24	27	51	25																					
19.50	SPT/DS	23	25	30	55	26	4.6	65.5	19.7	10.2	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS	0.1	72.5	18.3	9.1	23	NP	NP	17.74	-	-	2.63	F	0.04	30	-	-	-	-	-	-	-	-	-	-		
21.50	SPT/DS	25	33	41	74	31																					
22.50	SPT/DS	27	35	45	100	39	3.8	68.7	19.8	7.7	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS	0.6	72.4	20.4	6.6	26	NP	NP	16.08	-	-	2.61	F	0.00	31	-	-	-	-	-	-	-	-	-	-		
24.50	SPT/DS	30	39	(50/13 cm)	100	38																					
25.50	SPT/DS	42	(50/10 cm)	-	100	38	5.2	71.3	16.2	7.3	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS	0.1	75.9	15.8	8.2	21	NP	NP	16.06	-	-	2.645	F	0.02	32	-	-	-	-	-	-	-	-	-	-		
27.50	SPT/DS	(50/9 cm)	-	100	37																						
28.50	SPT/DS	48	(50/8 cm)	-	100	36	5.5	68.5	17.9	8.1	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS	1.0	74.9	16.8	7.3	23	NP	NP	16.84	-	-	2.67	F	0.07	32	-	-	-	-	-	-	-	-	-	-		
30.50	SPT/DS	(50/13 cm)	-	-	100	35																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.

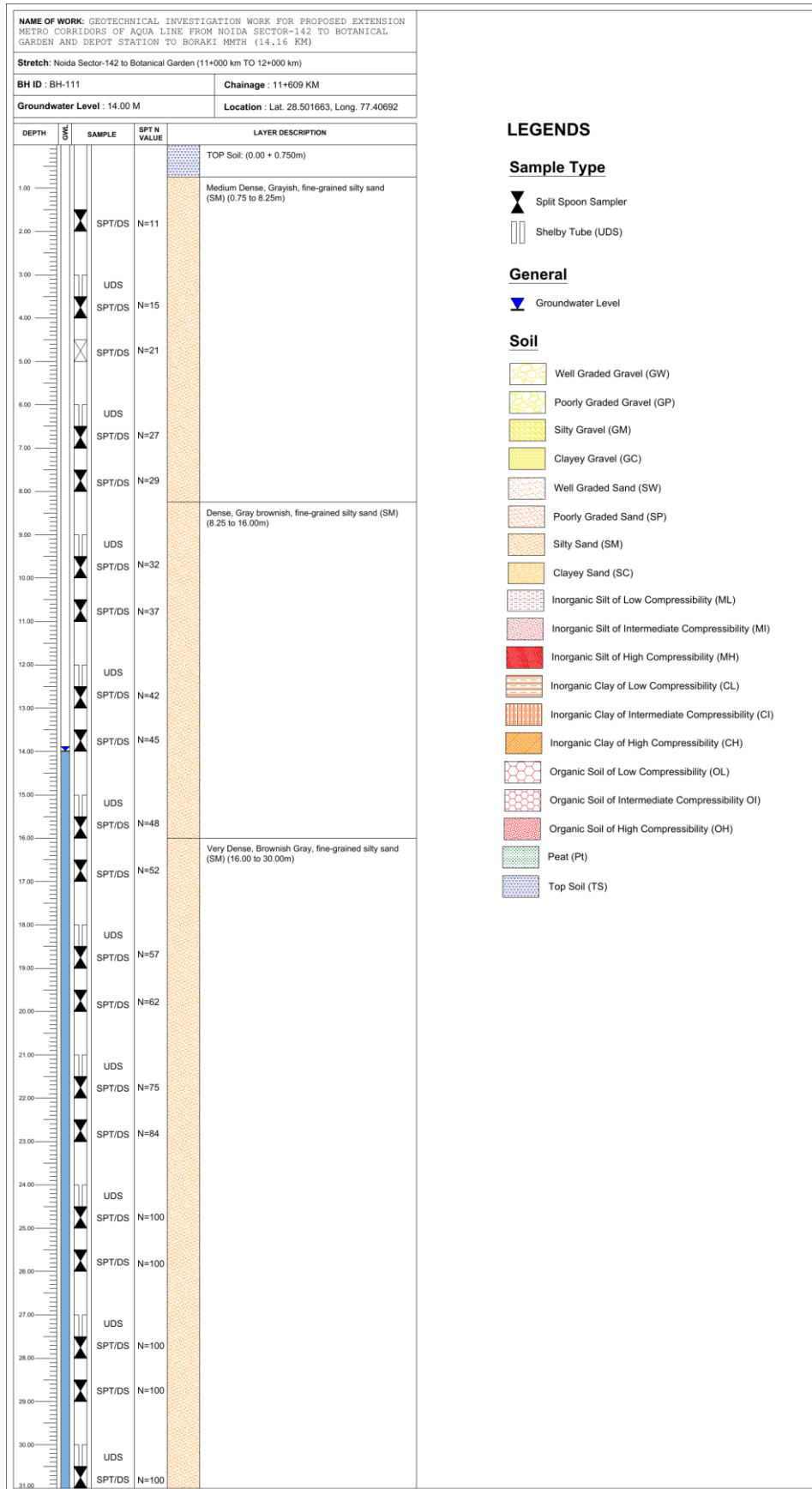








### C.13. Zone 13: CH: 11+400 km to 12+130 km (BH-111 to BH-116)

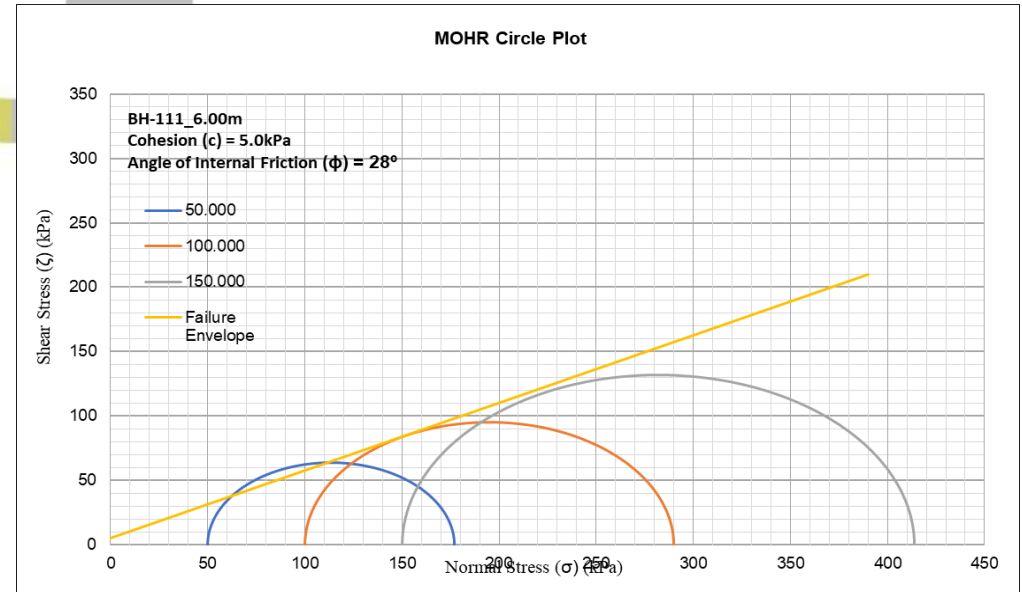
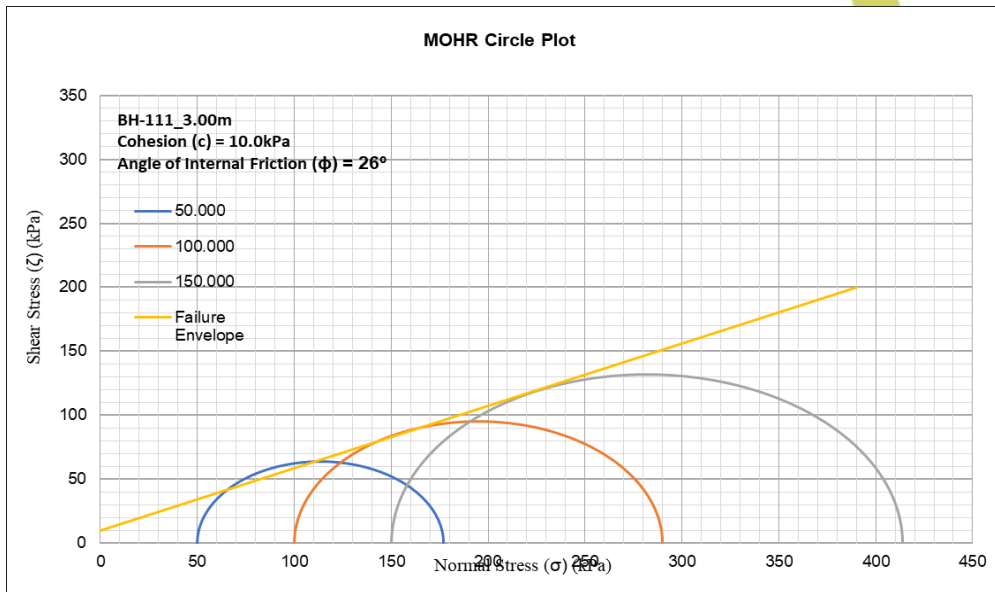
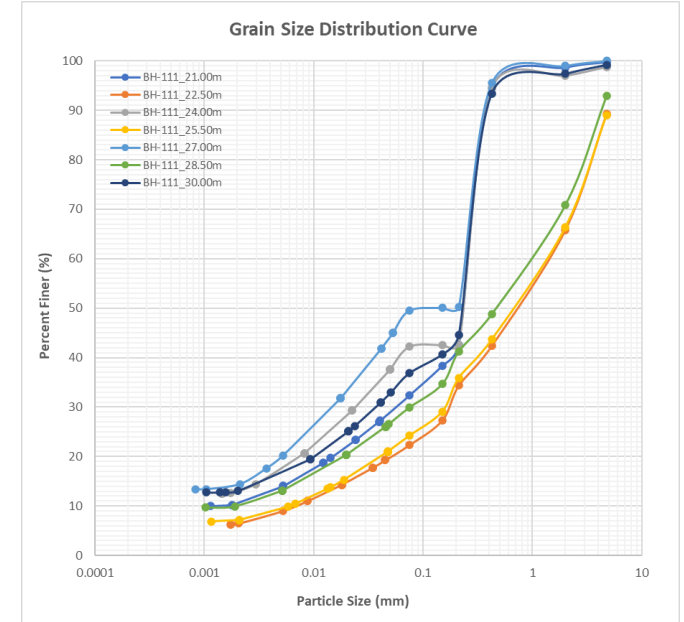
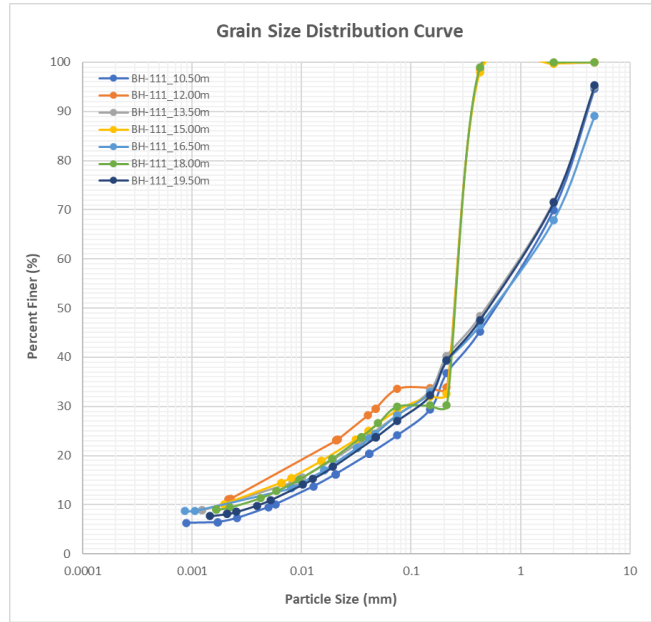
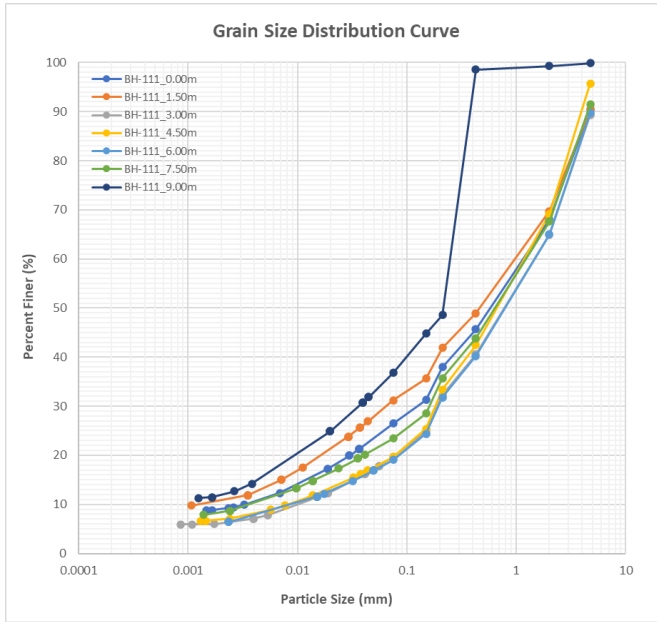


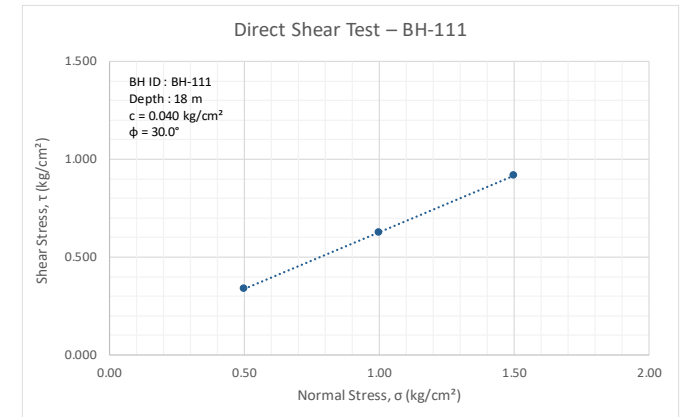
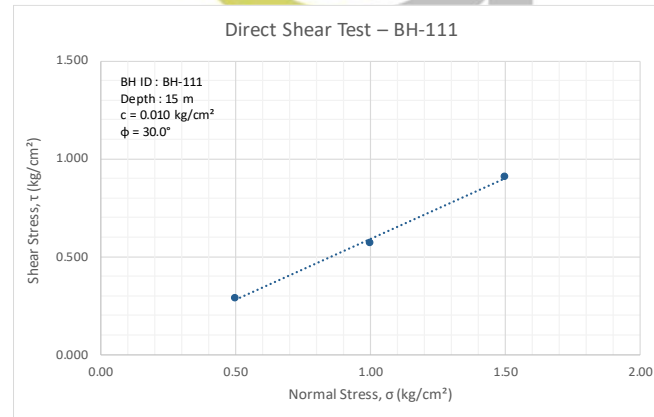
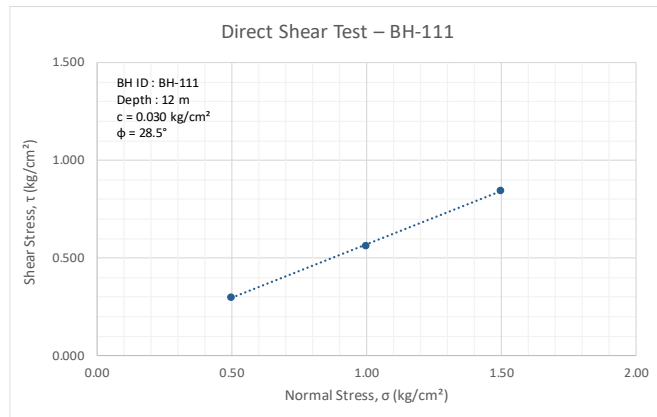
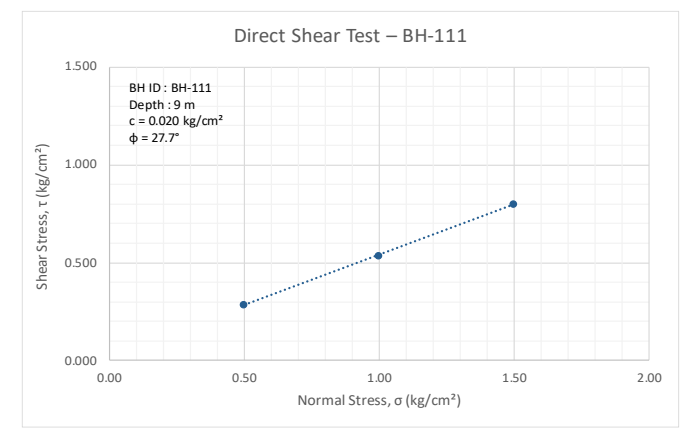
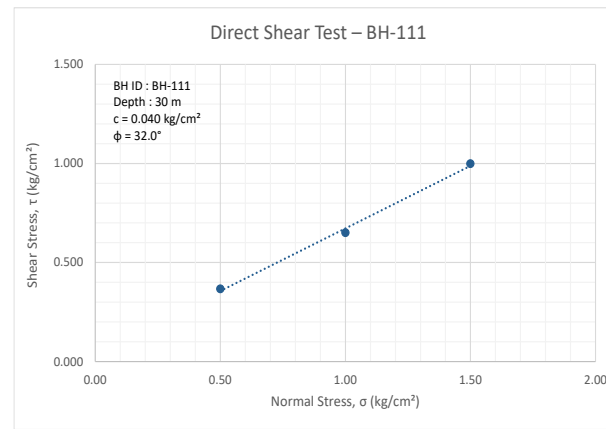
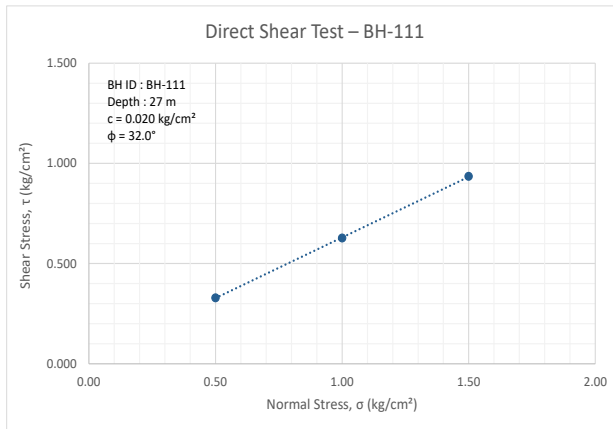


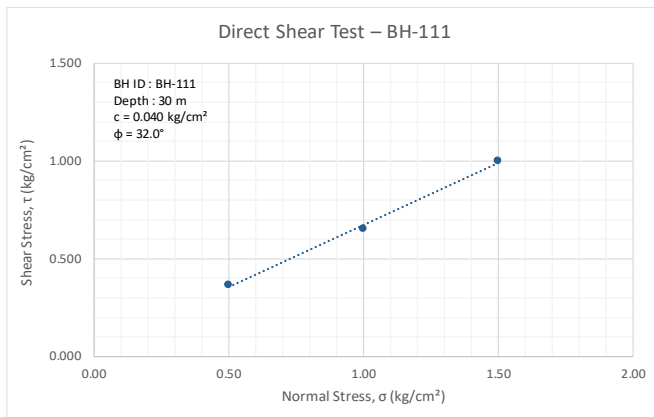
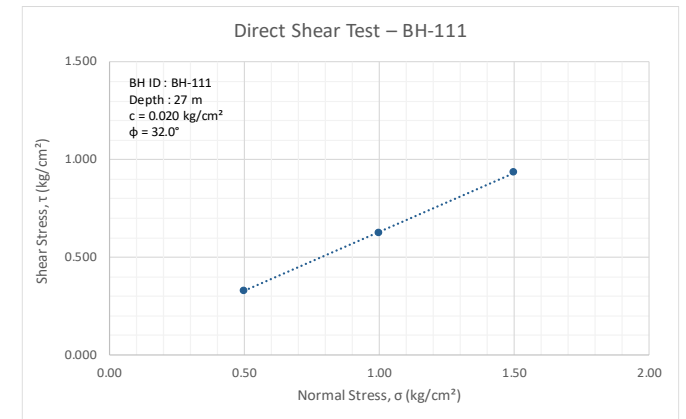
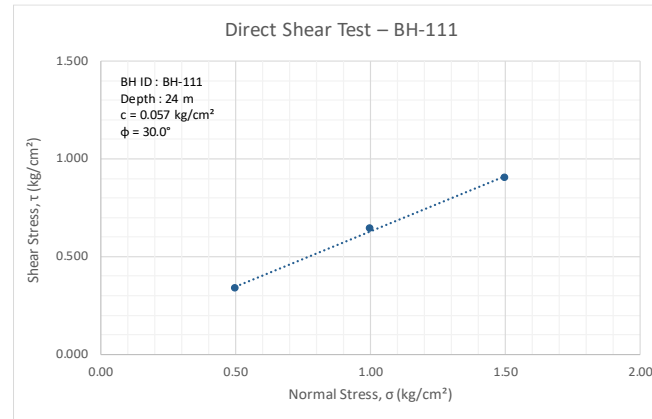
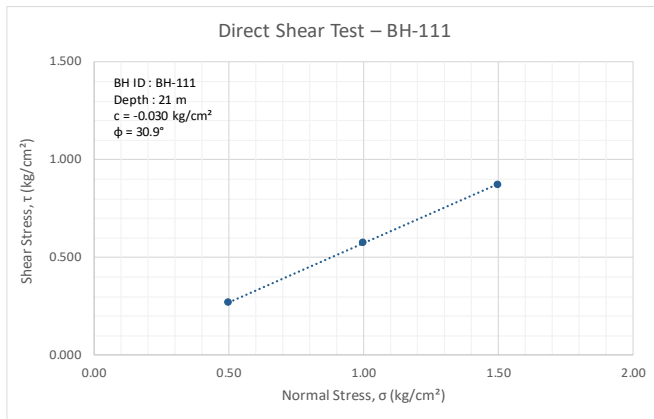
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-111		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	11+609		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	20-02-2026		
<b>Project Code:</b>	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	199.10		<b>End Date:</b>	20-02-2026		
		<b>Water table Level [m]:</b>	14.00		<b>Location:</b>	Lat. 28.501663, Long. 77.406922		

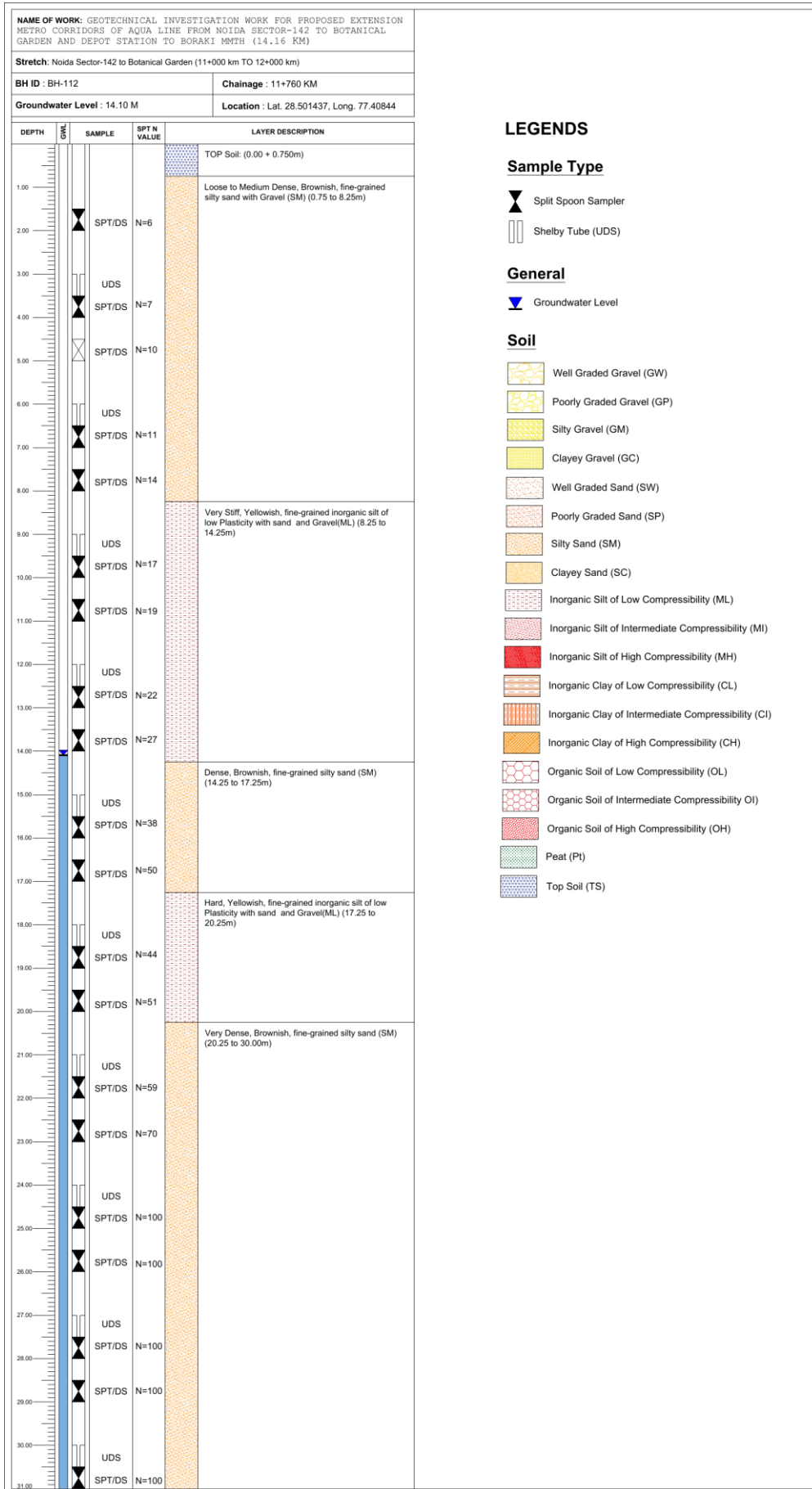
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.6	64.0	17.4	9.1	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Dense, Grayish, fine-grained silty sand (SM)	4	5	6	11	15	9.6	59.2	20.3	10.9	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							10.7	69.7	13.5	6.2	23	NP	NP	18.7	1.85	1.56	2.65	F	0.02	23	UU	10	26	-	-	-
3.50	SPT/DS		5	7	8	15	16																				
4.50	SPT/DS		6	9	12	21	21	4.3	76.1	12.7	6.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							10.3	70.6	19.1	0.0	21	-	-	15.6	1.93	1.67	2.66	F	0	27	UU	5	28	-	-	-
6.50	SPT/DS		9	12	15	27	25																				
7.50	SPT/DS	12	13	16	29	26	8.6	68.0	15.0	8.4	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
9.00	DS	Dense, Gray brownish, fine-grained silty sand (SM)						0.1	63.1	24.9	11.9	24	NP	NP	19.59	-	-	2.62	F	0.02	28	-	-	-	-	-	-
9.50	SPT/DS		13	14	18	32	27																				
10.50	SPT/DS		15	18	19	37	30	5.4	70.5	17.3	6.8	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.0	66.4	22.4	11.2	26	NP	NP	19.84	-	-	2.72	F	0.03	29	-	-	-	-	-	-
12.50	SPT/DS		18	21	21	42	32																				
13.50	SPT/DS		19	22	23	45	32	5.0	66.7	18.0	10.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.1	70.8	19.0	10.2	21	NP	NP	18.97	-	-	2.69	F	0.01	30	-	-	-	-	-	-
15.50	SPT/DS		21	23	25	48	24																				
16.50	SPT/DS	22	25	27	52	25	10.9	60.9	18.1	10.2	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
18.00	DS						0.0	70.0	20.7	9.3	23	NP	NP	20.86	-	-	2.62	F	0.04	30	-	-	-	-	-	-	
18.50	SPT/DS	25	27	30	57	26																					
19.50	SPT/DS	26	29	33	62	27	4.7	68.2	19.0	8.1	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS						0.3	67.4	21.7	10.6	22	NP	NP	17.07	-	-	2.64	F	0.00	31	-	-	-	-	-	-	
21.50	SPT/DS	27	35	40	75	31																					
22.50	SPT/DS	30	39	45	84	33	10.7	67.0	15.9	6.4	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS						1.2	56.6	29.1	13.1	24	NP	NP	19.60	-	-	2.70	F	0.06	30	-	-	-	-	-	-	
24.50	SPT/DS	42	(50/10 cm)	-	100	37																					
25.50	SPT/DS	45	(50/9 cm)	-	100	36	10.9	64.9	17.1	7.2	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS						0.0	50.5	35.2	14.4	25	NP	NP	20.00	-	-	2.70	F	0.02	32	-	-	-	-	-	-	
27.50	SPT/DS	48	(50/8 cm)	-	100	36																					
28.50	SPT/DS	(50/12 cm)	(50/8 cm)	-	100	35	7.1	63.0	19.8	10.1	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS						0.8	62.4	23.8	13.0	24	NP	NP	15.89	-	-	2.82	F	0.04	32	-	-	-	-	-	-	
30.50	SPT/DS	(50/11 cm)	-	-	100	34																					

**Notations:** UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

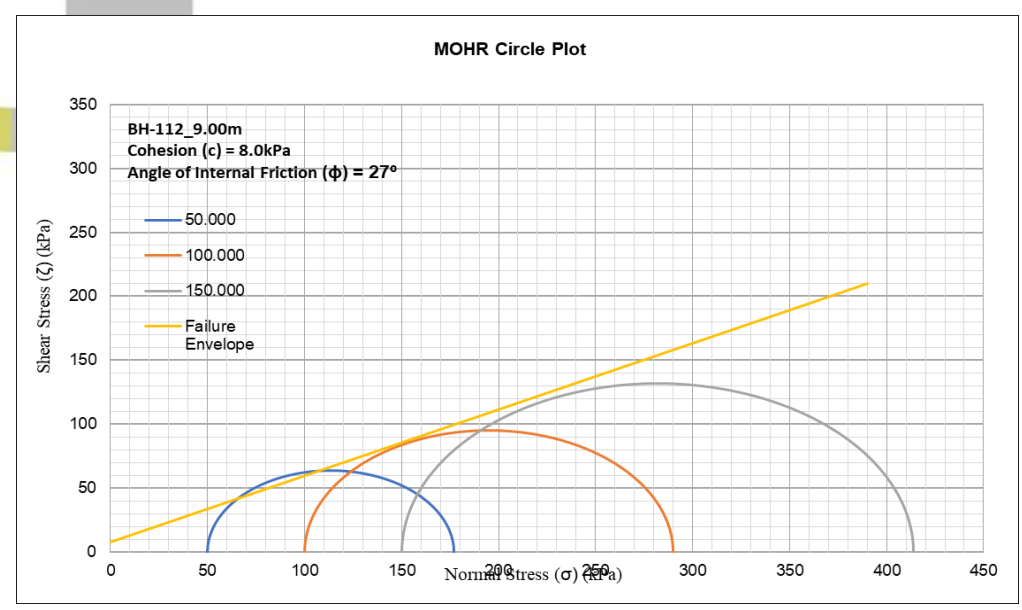
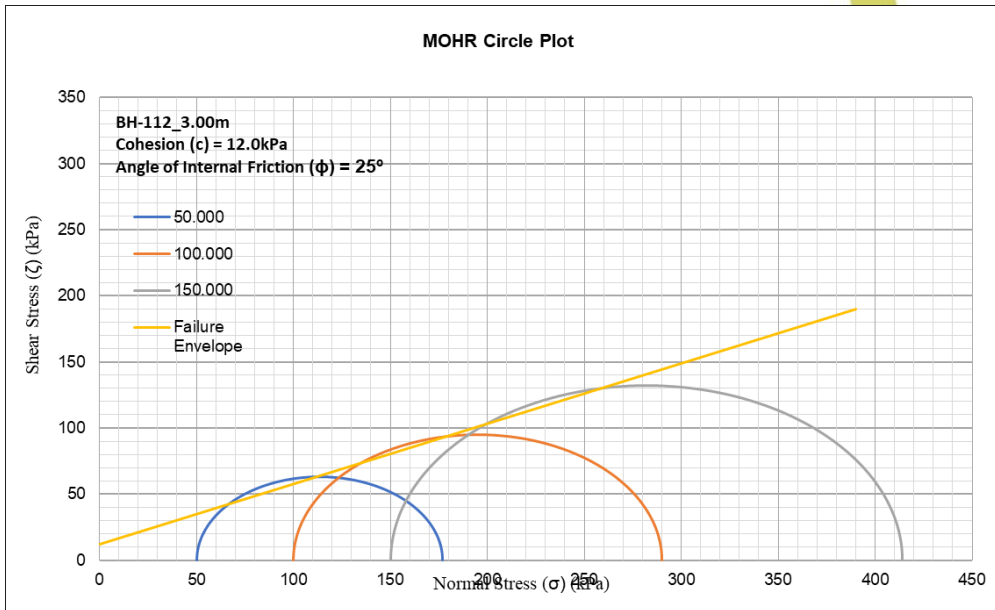
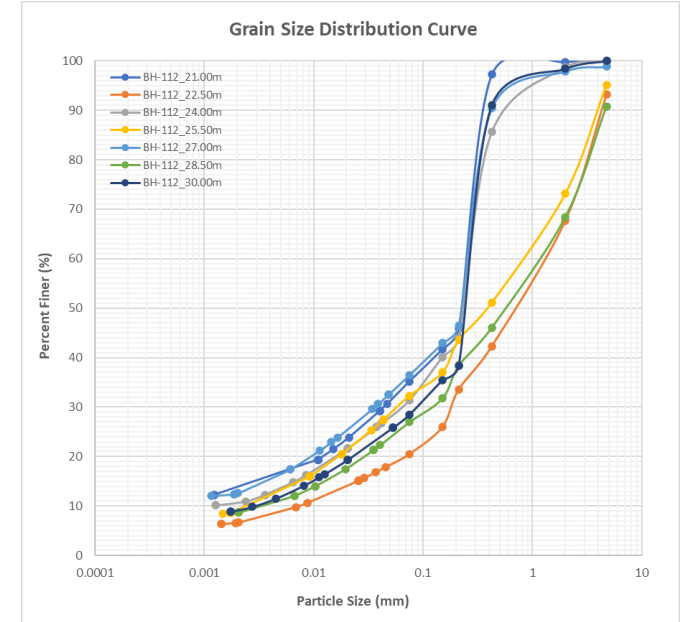
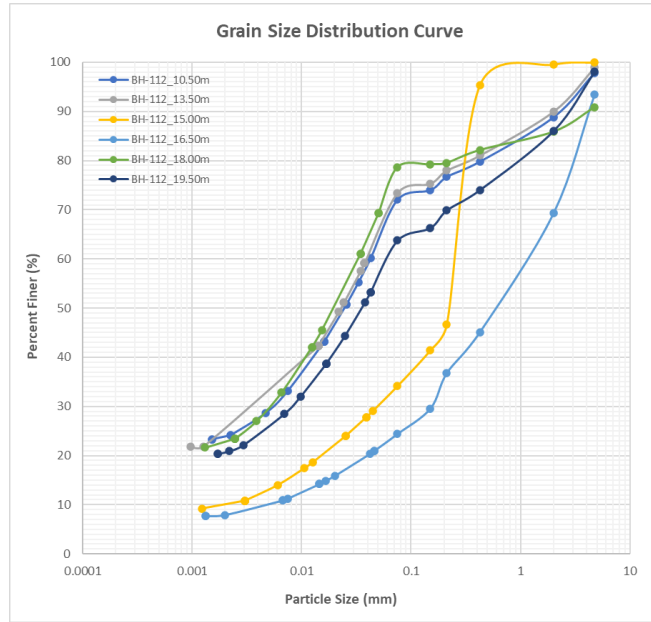
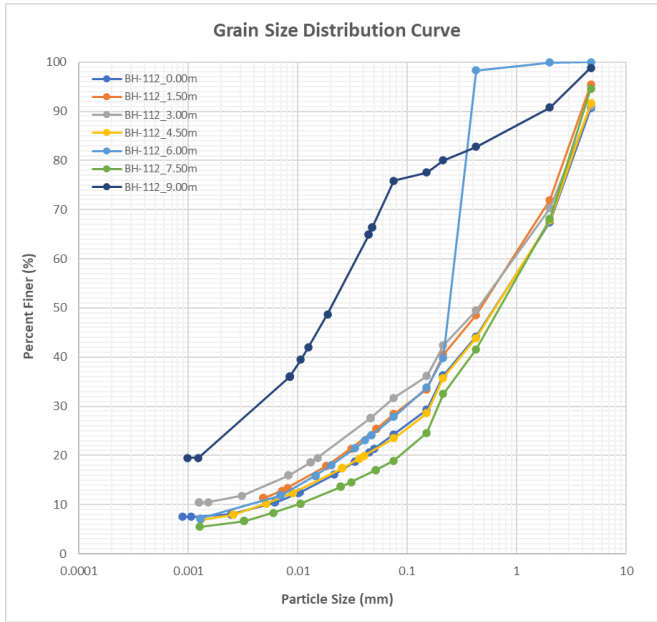
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- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

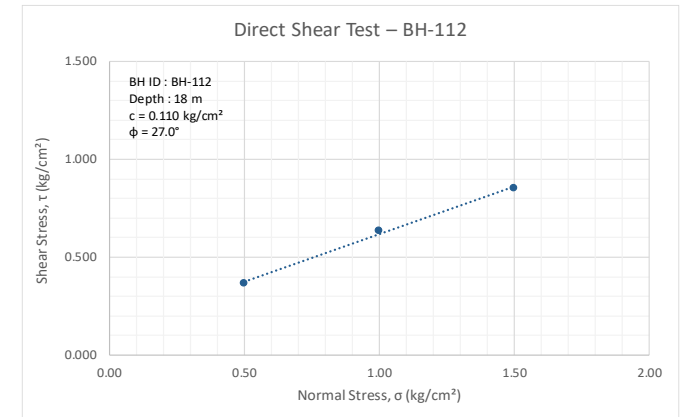
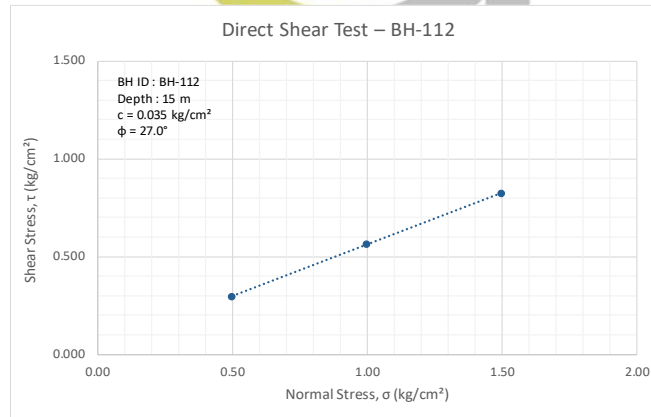
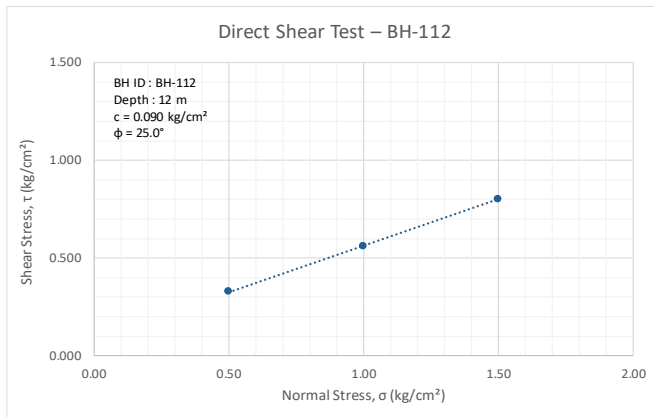
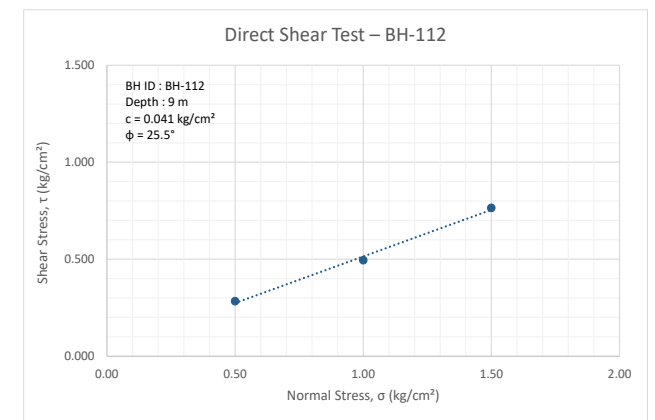
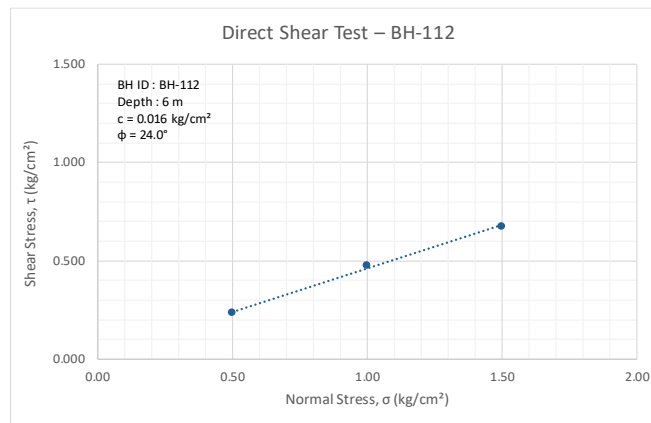
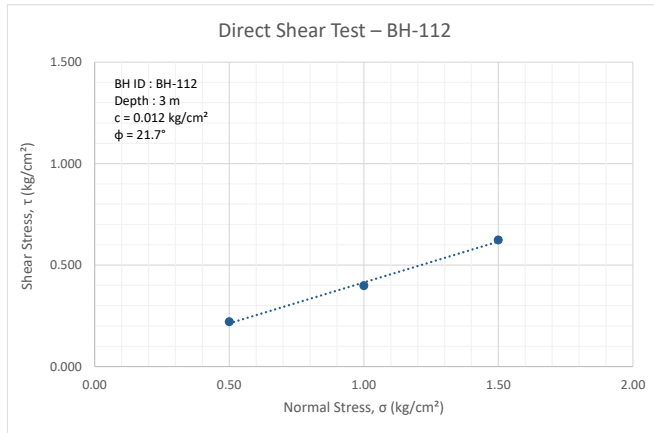


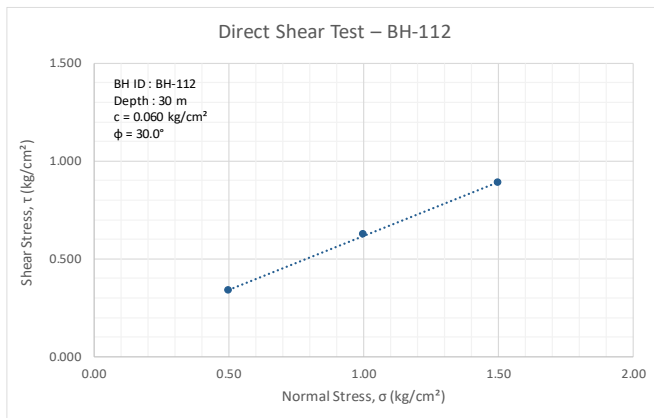
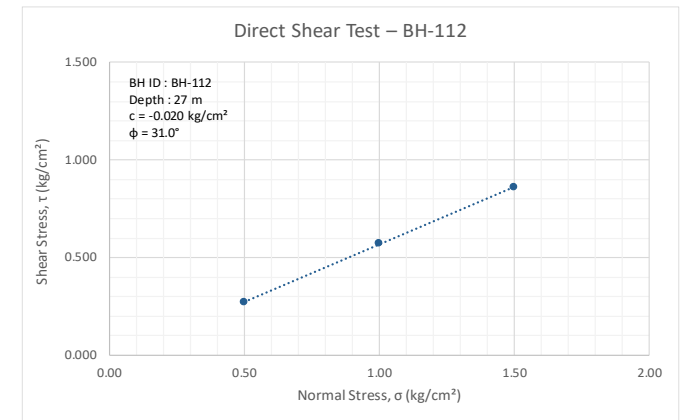
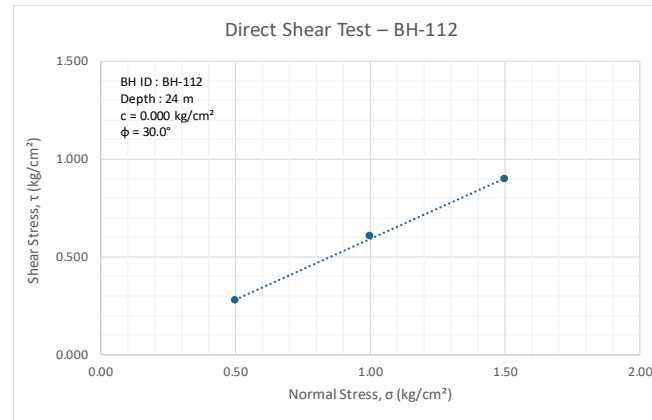
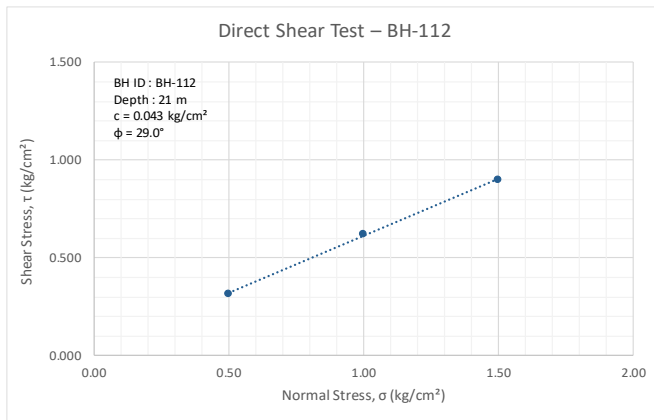
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-112		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	11+760		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	24-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	199.10		End Date:	24-02-2026	
Project Code:	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	14.10		Location:	Lat. 28.501437, Long. 77.40844	

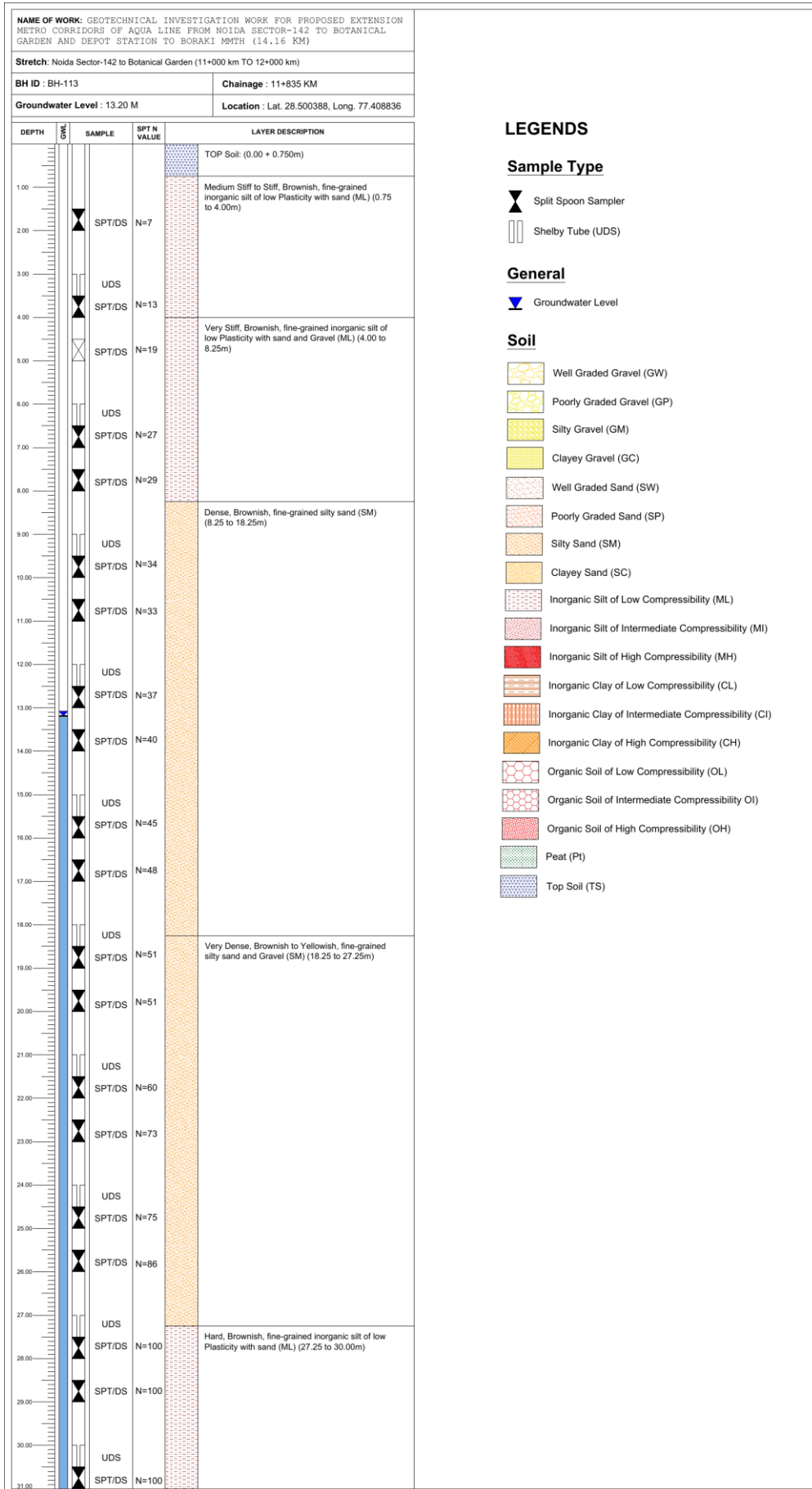
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.4	66.4	16.4	7.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Brownish, fine-grained silty sand with Gravel (SM)	1	3	3	6	8	4.6	67.0	20.3	8.2	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							8.9	59.3	20.7	11.0	21	NP	NP	21.4	1.88	1.55	2.66	F	0.01	22	UU	12	25	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	5	5	10	10	8.3	68.2	15.9	7.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	DS							0.0	72.1	19.5	8.4	22	NP	NP	23.40	-	-	2.78	F	0.02	24	-	-	-	-	-	-
6.50	SPT/DS																										
7.50	SPT/DS																										
9.00	UDS	Very Stiff, Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)						1.2	23.0	52.2	23.6	23	NP	NP	19.60	1.91	1.60	2.61	F	0.04	26	UU	8	27	-	-	-
9.50	SPT/DS		5	8	9	17	15																				
10.50	SPT/DS		6	8	11	19	16	2.2	25.8	48.1	23.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							11.8	23.7	43.4	21.1	25	NP	NP	24.99	-	-	2.63	F	0.09	25	-	-	-	-	-	-
12.50	SPT/DS																										
13.50	SPT/DS																										
15.00	UDS	Dense, Brownish, fine-grained silty sand (SM)						0.0	65.9	24.0	10.1	22	NP	NP	20.64	1.90	1.58	2.64	F	0.04	27	-	-	-	-	-	-
15.50	SPT/DS		13	18	20	38	20																				
16.50	SPT/DS		15	20	30	50	24	6.5	69.1	16.5	7.9	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS	Hard, Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)						9.2	12.2	55.8	22.8	27	NP	NP	29.12	-	-	2.664	F	0.11	27	-	-	-	-	-	-
18.50	SPT/DS		14	20	24	44	22																				
19.50	SPT/DS		17	23	28	51	24	2.0	34.3	43.0	20.7	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS	Very Dense, Brownish, fine-grained silty sand (SM)						0.1	64.7	21.3	13.8	25	NP	NP	24.57	-	-	2.69	F	0.04	29	-	-	-	-	-	-
21.50	SPT/DS		19	26	33	59	26																				
22.50	SPT/DS		24	31	39	70	29	6.8	72.7	13.9	6.6	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.0	68.6	20.7	10.7	24	NP	NP	17.56	-	-	2.67	F	0.00	30	-	-	-	-	-	-
24.50	SPT/DS		39	(50/6 cm)	-	100	37																				
25.50	SPT/DS		43	(50/5 cm)	-	100	36	4.8	62.9	23.0	9.2	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							1.2	62.4	23.9	12.6	26	NP	NP	6.41	-	-	2.75	F	0.00	31	-	-	-	-	-	-
27.50	SPT/DS		46	(50/4 cm)	-	100	35																				
28.50	SPT/DS		48	(50/2 cm)	-	100	35	9.2	63.8	19.7	7.3	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	71.5	19.3	9.2	29	NP	NP	24.28	-	-	2.62	F	0.06	30	-	-	-	-	-	-
30.50	SPT/DS	(50/3 cm)	-	-	100	34																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

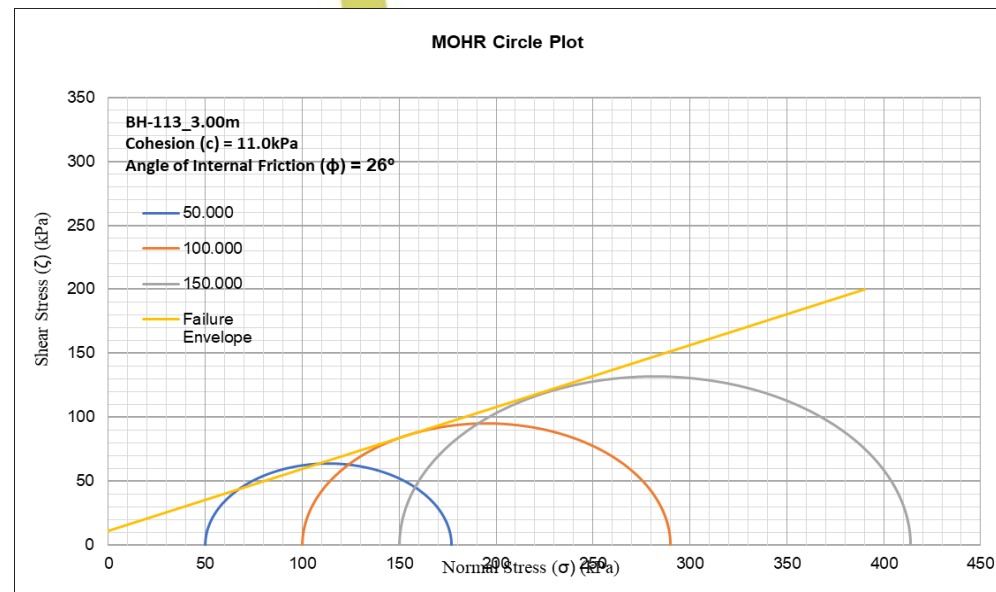
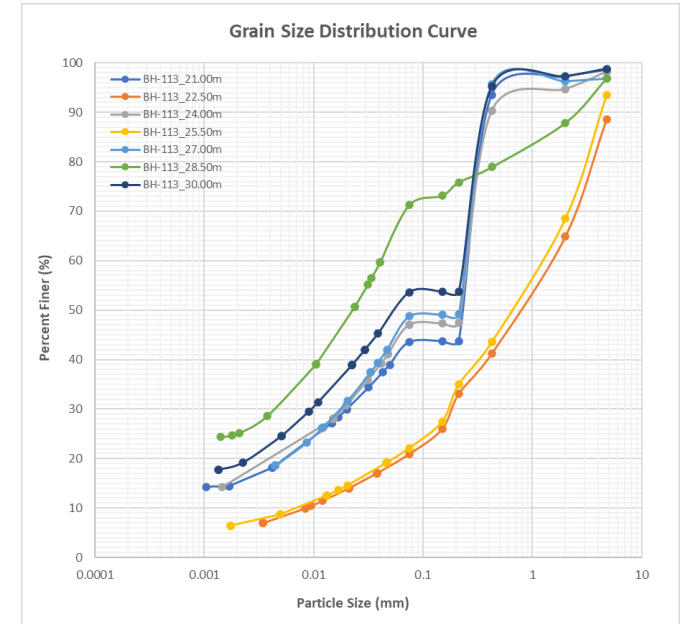
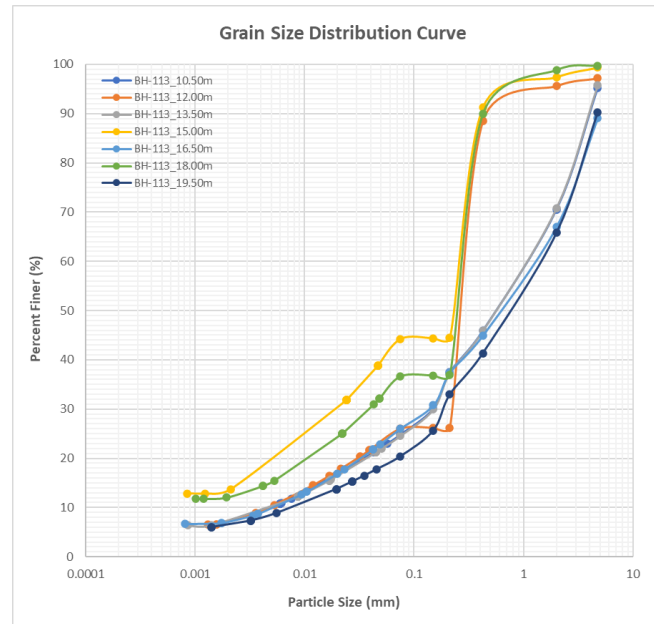
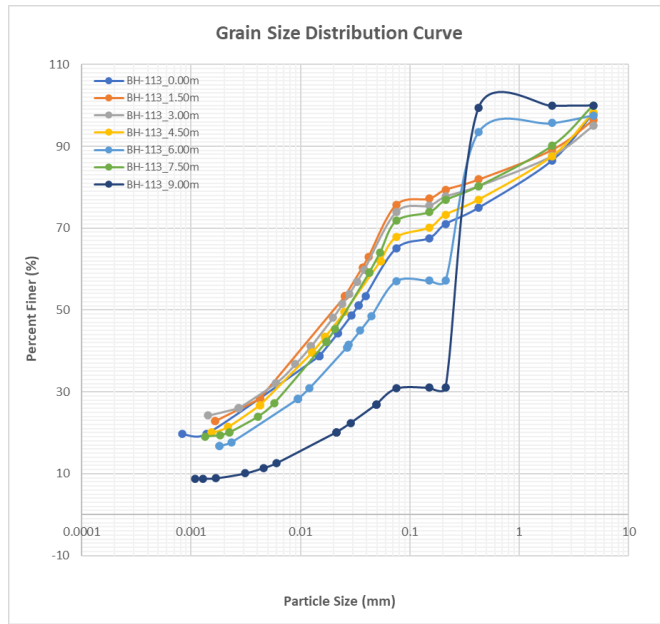
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

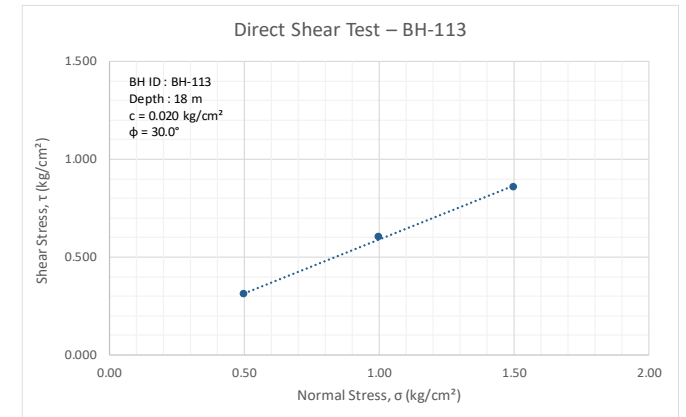
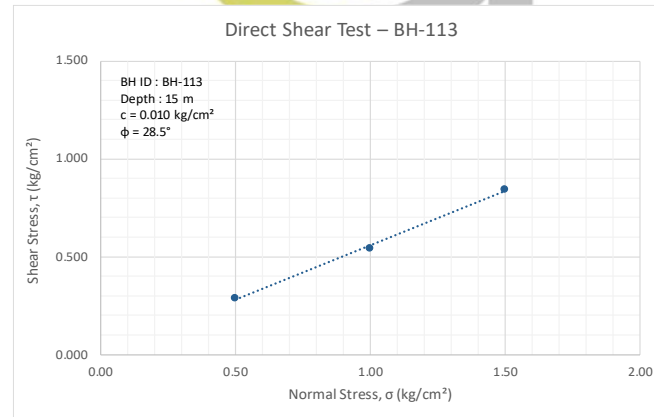
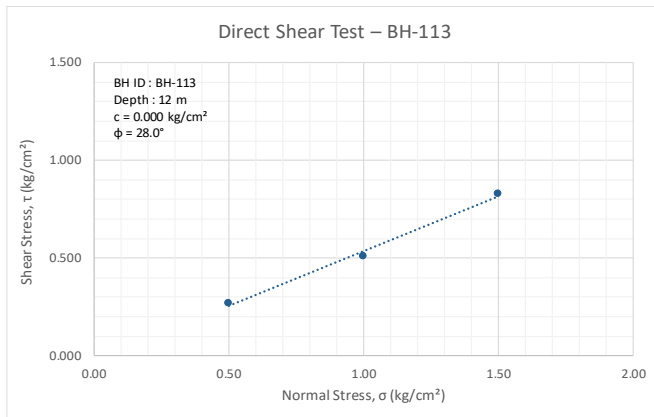
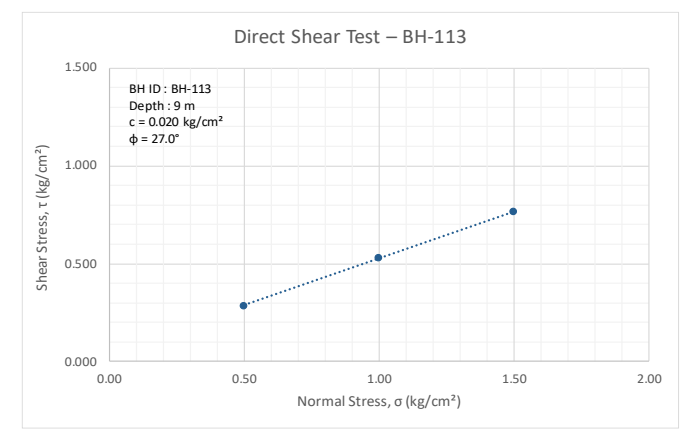
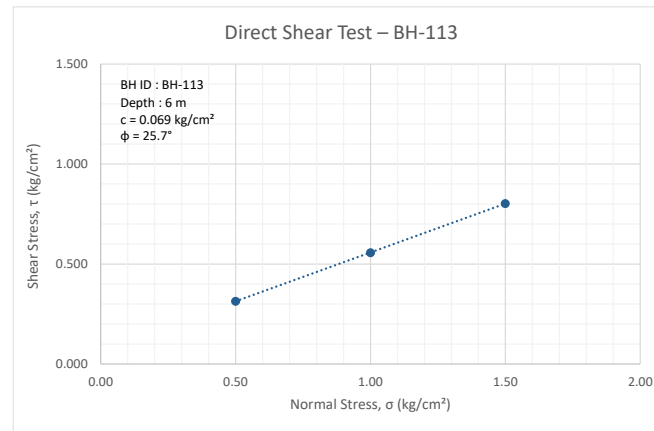
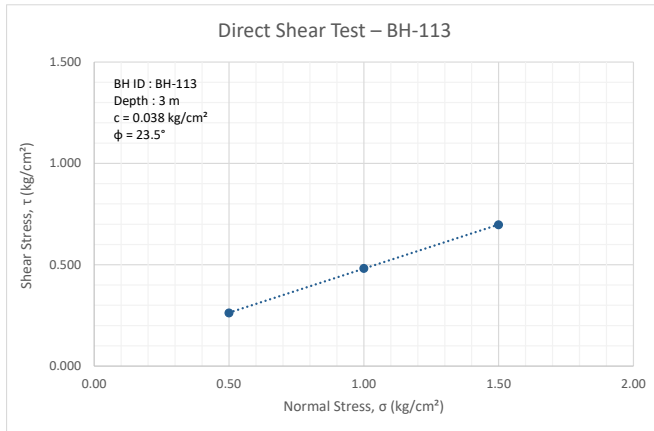


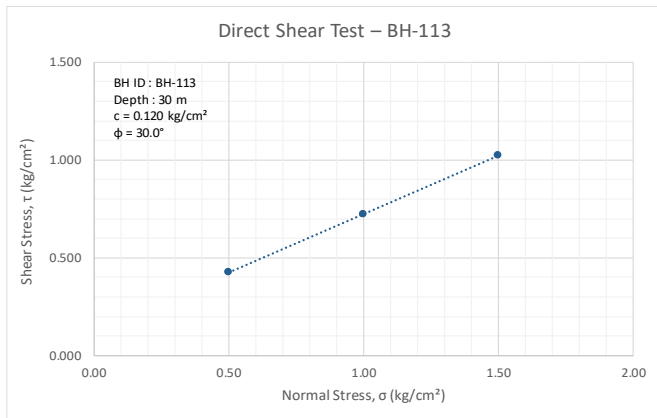
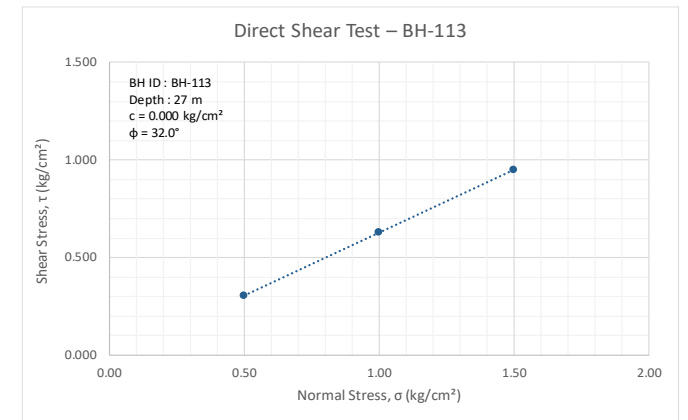
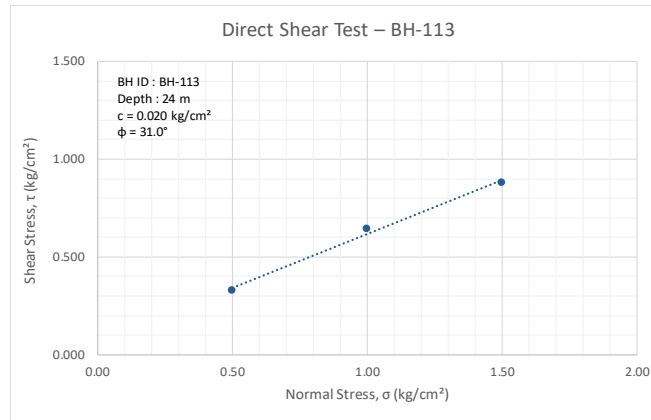
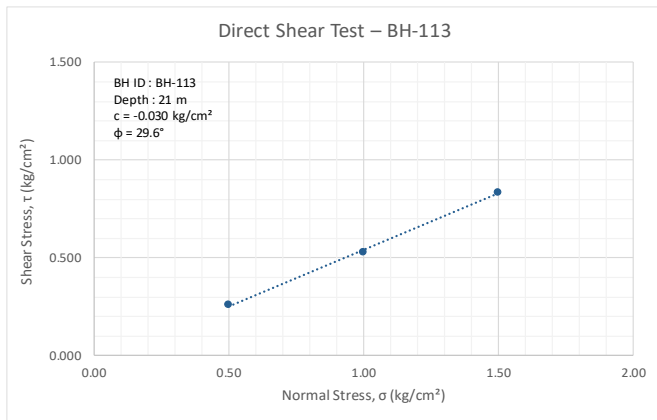
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-113		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	11+835		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	23-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	197.50		End Date:	24-02-2026	
Project Code:	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	13.20		Location:	Lat. : 28.500388, Long. : 77.408836	

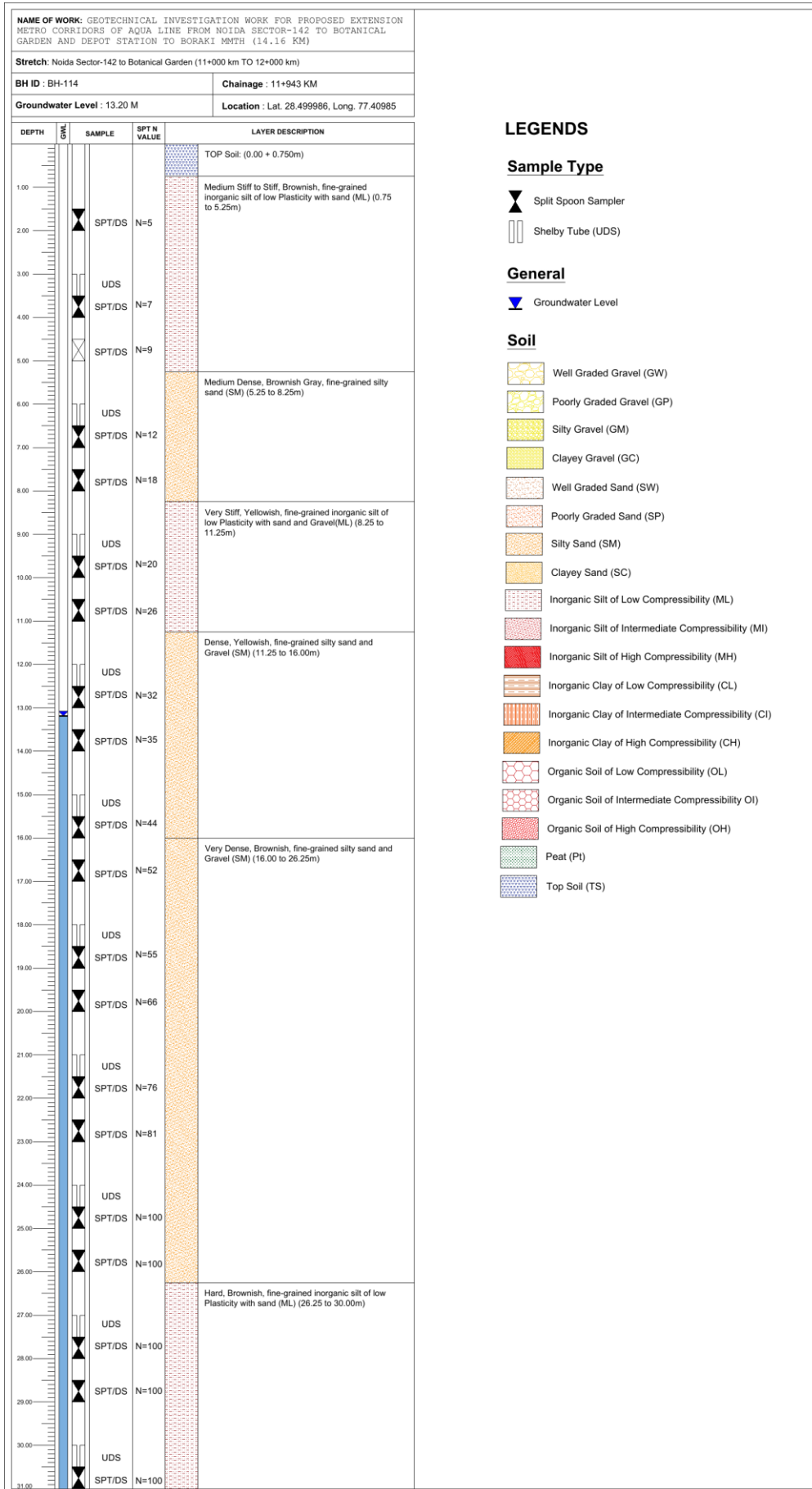
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						1.9	33.0	42.4	22.7	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Stiff to Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)	3	3	4	7	10	3.6	20.7	51.8	23.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							5.0	21.0	48.8	25.2	23	NP	NP	17.3	1.87	1.59	2.70	F	0.04	24	UU	11	26	-	-	-
3.50	SPT/DS		5	6	7	13	14																				
4.50	SPT/DS	Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)	7	9	10	19	19	1.8	30.4	46.7	21.2	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							-	-	-	-	-	-	-	-	-	-	2.69	-	-	-	-	-	-	-	-	-
6.50	SPT/DS		9	13	14	27	25																				
7.50	SPT/DS		12	14	15	29	26	0.0	28.2	52.1	19.7	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS	Dense, Brownish, fine-grained silty sand (SM)						0.0	69.2	21.6	9.2	28	NP	NP	18.25	-	-	2.72	F	0.02	27	-	-	-	-	-	-
9.50	SPT/DS		14	16	18	34	29																				
10.50	SPT/DS		15	15	18	33	27	4.8	70.4	19.5	5.3	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							2.8	71.2	18.7	7.3	27	NP	NP	16.81	-	-	2.64	F	0.00	28	-	-	-	-	-	-
12.50	SPT/DS		15	18	19	37	28																				
13.50	SPT/DS		16	19	21	40	29	4.2	71.2	17.0	7.5	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.7	55.1	30.6	13.6	29	NP	NP	23.24	-	-	2.66	F	0.01	29	-	-	-	-	-	-
15.50	SPT/DS		18	21	24	45	23																				
16.50	SPT/DS		19	22	26	48	23	10.9	63.0	18.9	7.1	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.2	63.1	24.5	12.1	26	NP	NP	18.63	-	-	2.68	F	0.02	30	-	-	-	-	-	-
18.50	SPT/DS	22	25	26	51	24																					
19.50	SPT/DS	23	24	27	51	24	9.7	69.9	13.8	6.6	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS						1.5	55.0	28.5	15.1	21	NP	NP	21.36	-	-	2.63	F	0.00	30	-	-	-	-	-	-	
21.50	SPT/DS	25	27	33	60	26																					
22.50	SPT/DS	27	35	38	73	30	11.4	67.6	14.7	6.2	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
24.00	DS						1.8	51.1	31.0	16.1	29	NP	NP	20.83	-	-	2.74	F	0.02	31	-	-	-	-	-	-	
24.50	SPT/DS	32	36	39	75	30																					
25.50	SPT/DS	35	40	46	86	32	6.6	71.3	15.4	6.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
27.00	DS						3.2	48.0	31.5	17.3	25	NP	NP	9.05	-	-	2.70	F	0.00	32	-	-	-	-	-	-	
27.50	SPT/DS	38	45	(50/10 cm)	100	35																					
28.50	SPT/DS	42	(50/12 cm)	-	100	35	3.2	25.5	46.3	25.0	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
30.00	DS						1.2	45.2	34.8	18.8	25	NP	NP	12.96	-	-	2.64	F	0.12	30	-	-	-	-	-	-	
30.50	SPT/DS	48	(50/9 cm)	-	100	34																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

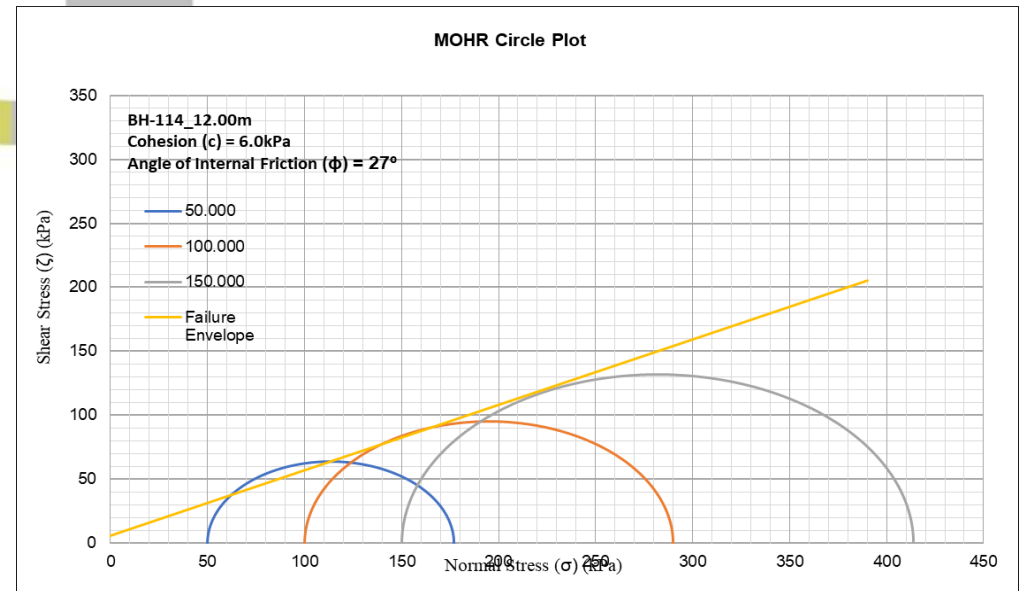
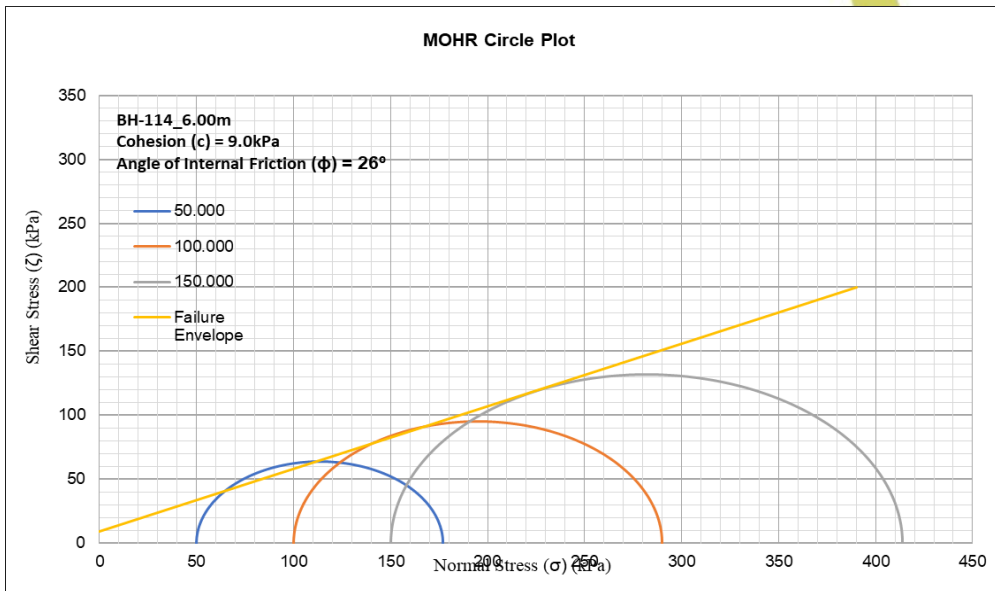
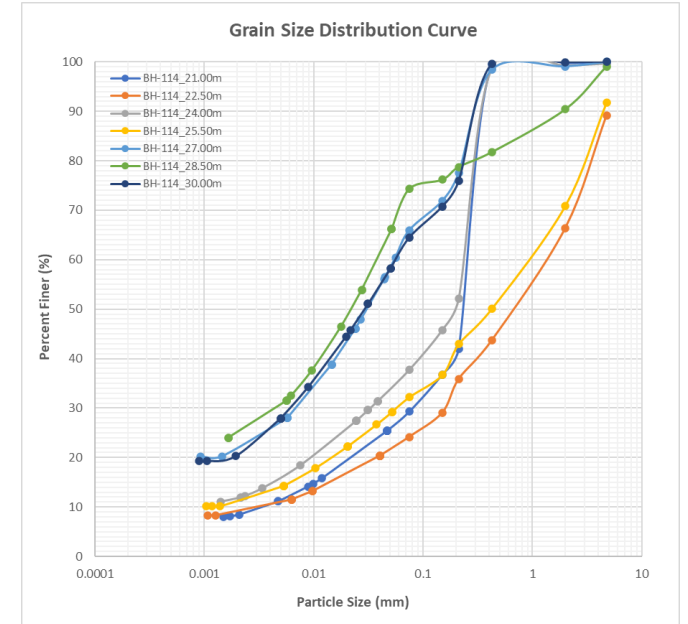
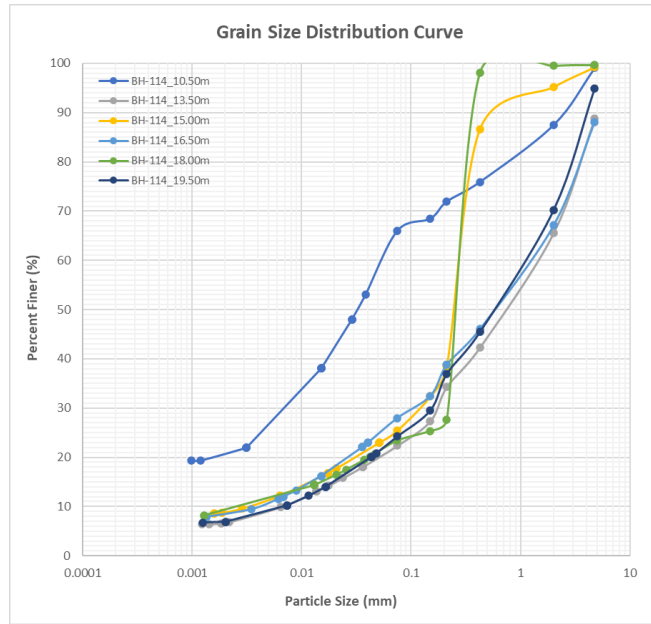
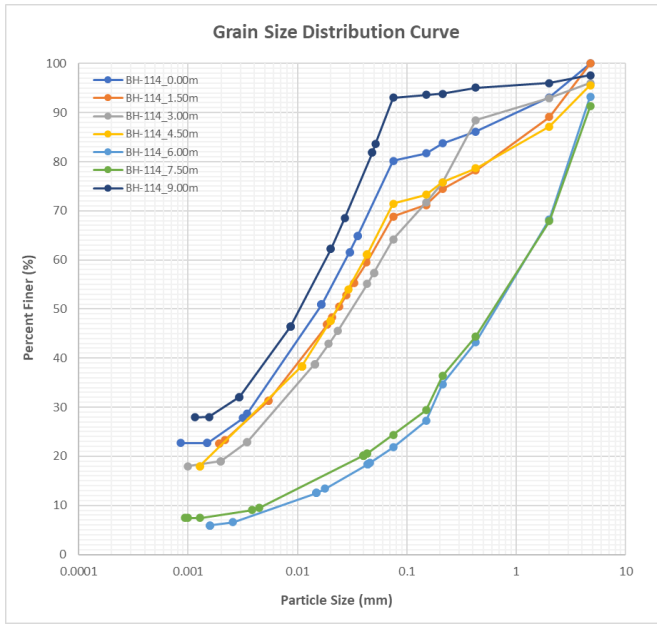
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

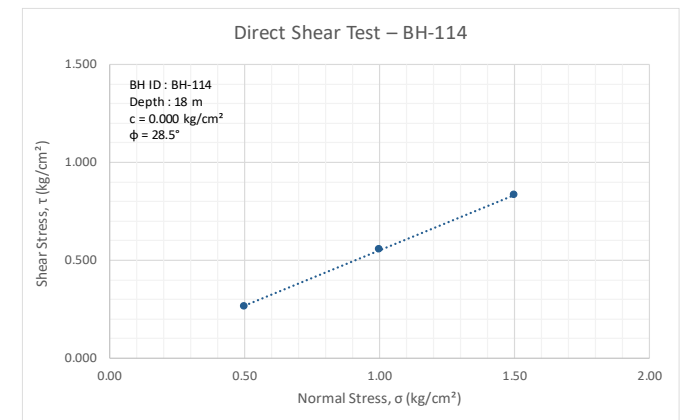
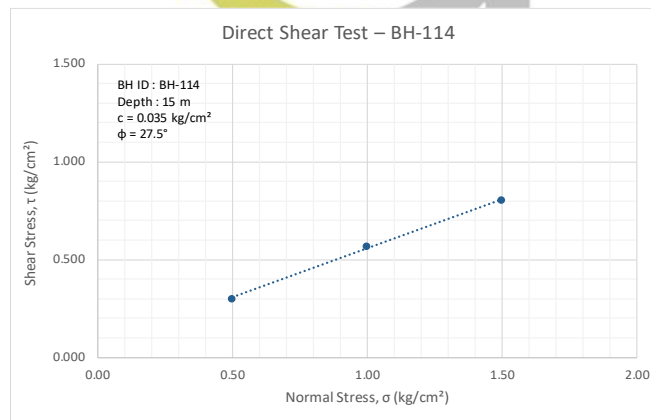
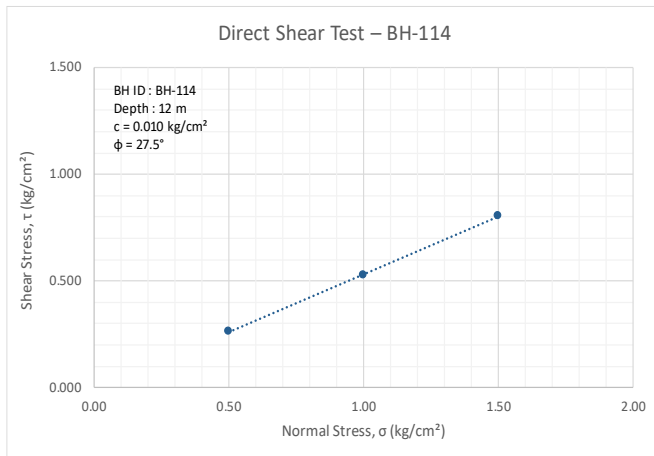
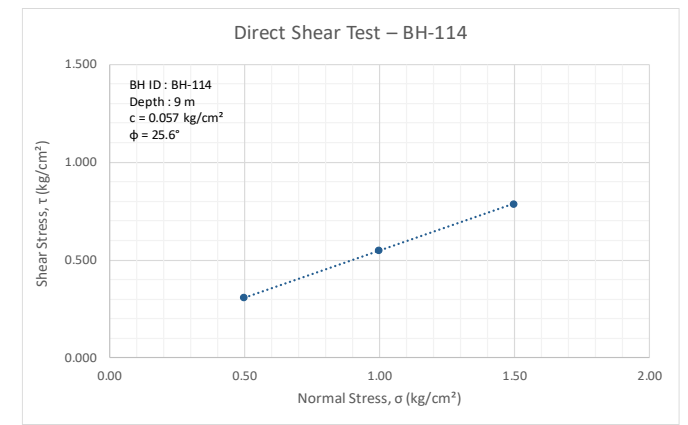
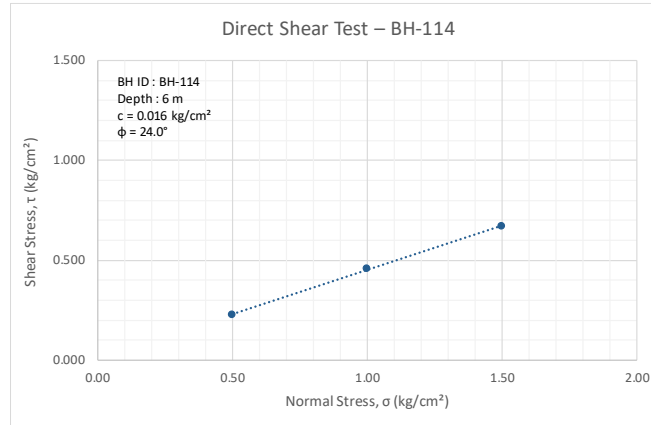
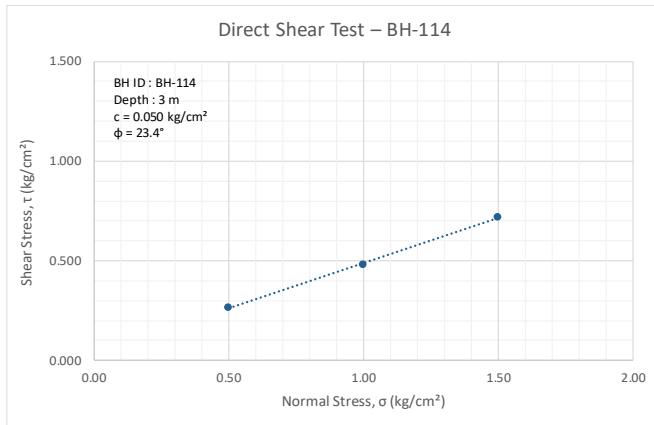


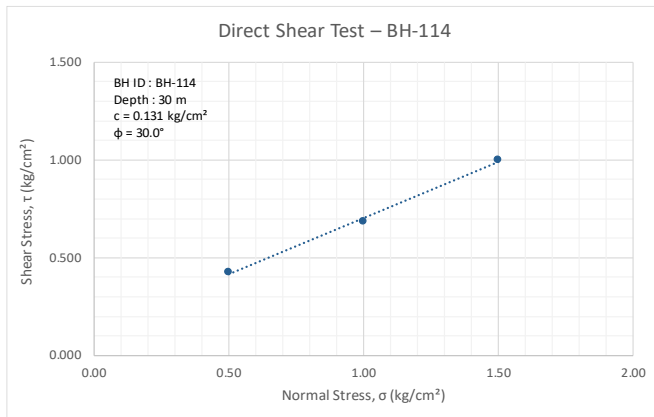
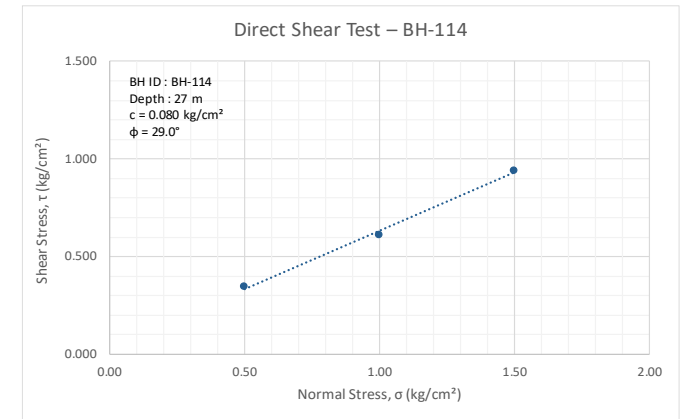
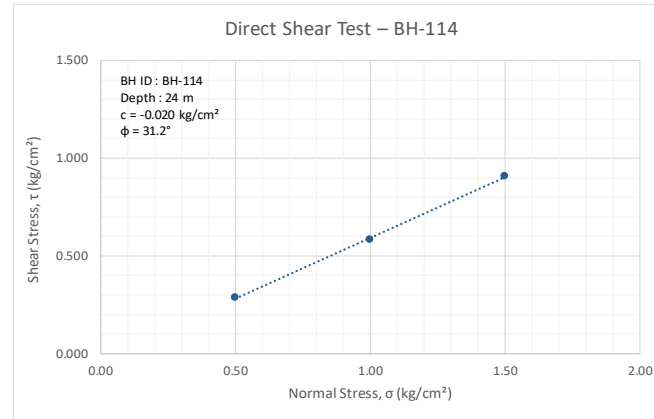
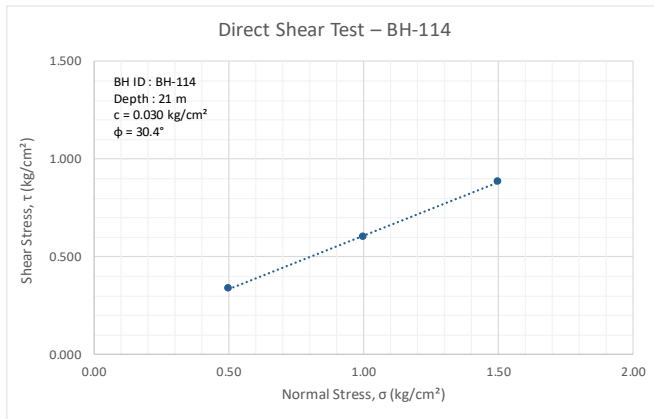
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-114		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	11+943		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	23-02-2026		
<b>Project Code:</b>	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	196.10		<b>End Date:</b>	23-02-2026		
		<b>Water table Level [m]:</b>	13.20		<b>Location:</b>	Lat. 28.499986, Long. 77.40985		

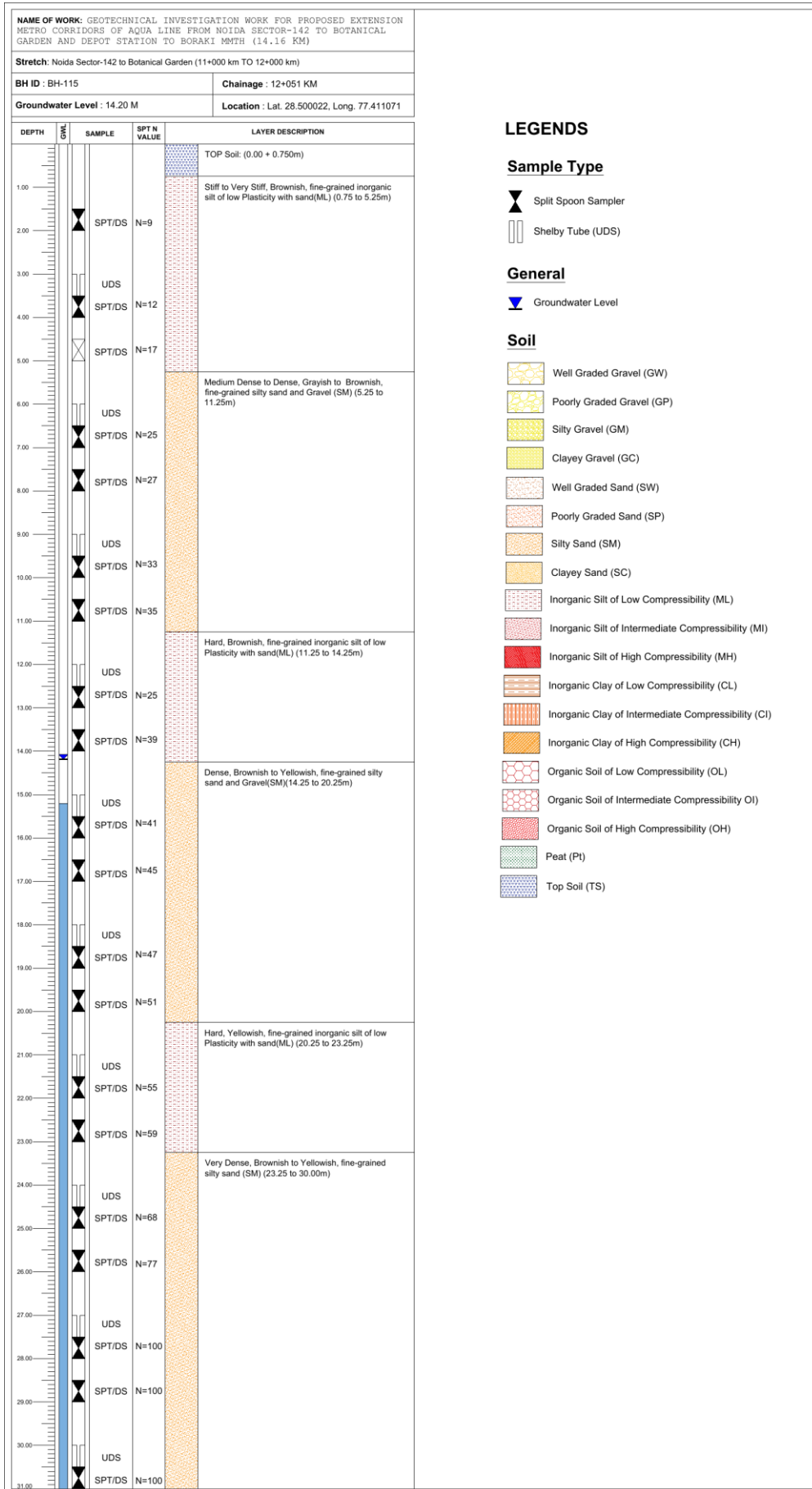
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						0.0	19.8	55.5	24.7	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Medium Stiff to Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)	1	2	3	5	7	0.0	31.1	46.0	22.9	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	DS							4.0	31.8	45.1	19.0	25	NP	NP	14.00	-	-	2.66	F	0.05	23	-	-	-	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		2	4	5	9	9	4.4	24.2	49.2	22.2	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS	Medium Dense, Brownish Gray, fine-grained silty sand (SM)						6.7	71.4	15.6	6.2	23	NP	NP	12.70	1.90	1.69	2.63	F	0.02	24	UU	9	26	-	-	-
6.50	SPT/DS		4	5	7	12	11																				
7.50	SPT/DS		5	8	10	18	16	8.7	67.0	16.3	8.1	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS	Very Stiff, Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)						2.4	4.6	63.4	29.6	29	NP	NP	26.04	1.92	1.52	2.65	F	0.06	26	-	-	-	-	-	-
9.50	SPT/DS		7	9	11	20	17																				
10.50	SPT/DS		8	12	14	26	21	0.9	33.0	45.3	20.7	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS	Dense, Yellowish, fine-grained silty sand and Gravel(SM)						8.7	62.2	19.5	9.6	28	NP	NP	18.60	1.92	1.62	2.61	F	0.01	28	UU	6	27	-	-	-
12.50	SPT/DS		10	15	17	32	24																				
13.50	SPT/DS		11	16	19	35	20	11.2	66.4	15.7	6.7	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.8	73.8	16.6	8.9	23	NP	NP	18.04	-	-	2.69	F	0.04	28	-	-	-	-	-	-
15.50	SPT/DS																										
16.50	SPT/DS	Very Dense, Brownish, fine-grained silty sand and Gravel (SM)	17	23	29	52	25	11.9	60.2	19.5	8.5	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							0.3	76.3	14.0	9.4	29	NP	NP	21.09	-	-	2.65	F	0.00	29	-	-	-	-	-	-
18.50	SPT/DS		20	25	30	55	26																				
19.50	SPT/DS		24	30	36	66	29	5.1	70.7	17.3	6.9	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS							0.1	70.7	20.9	8.4	25	NP	NP	22.53	-	-	2.77	F	0.03	30	-	-	-	-	-	-
21.50	SPT/DS		30	36	40	76	31																				
22.50	SPT/DS		33	37	44	81	32	10.8	65.0	15.0	9.2	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.4	61.9	26.0	11.8	29	NP	NP	22.11	-	-	2.70	F	0.00	31	-	-	-	-	-	-
24.50	SPT/DS		45	(50/4 cm)	-	100	37																				
25.50	SPT/DS		46	(50/3 cm)	-	100	37	8.3	59.5	21.0	11.3	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS	Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand (ML)						0.0	34.0	44.0	22.0	24	NP	NP	19.84	-	-	2.69	F	0.08	29	-	-	-	-	-	-
27.50	SPT/DS		42	(50/5 cm)	-	100	36																				
28.50	SPT/DS		48	(50/7 cm)	-	100	36	0.9	24.8	49.2	25.2	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.0	35.5	43.9	20.6	27	NP	NP	19.80	-	-	2.79	F	0.13	30	-	-	-	-	-	-
30.50	SPT/DS		(50/4 cm)	-	-	100	35																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

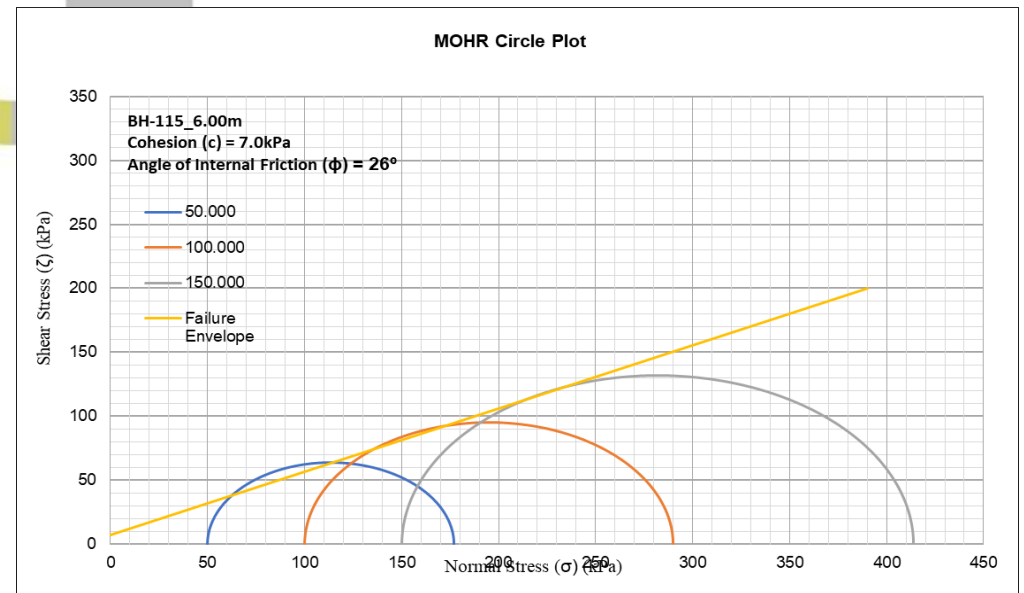
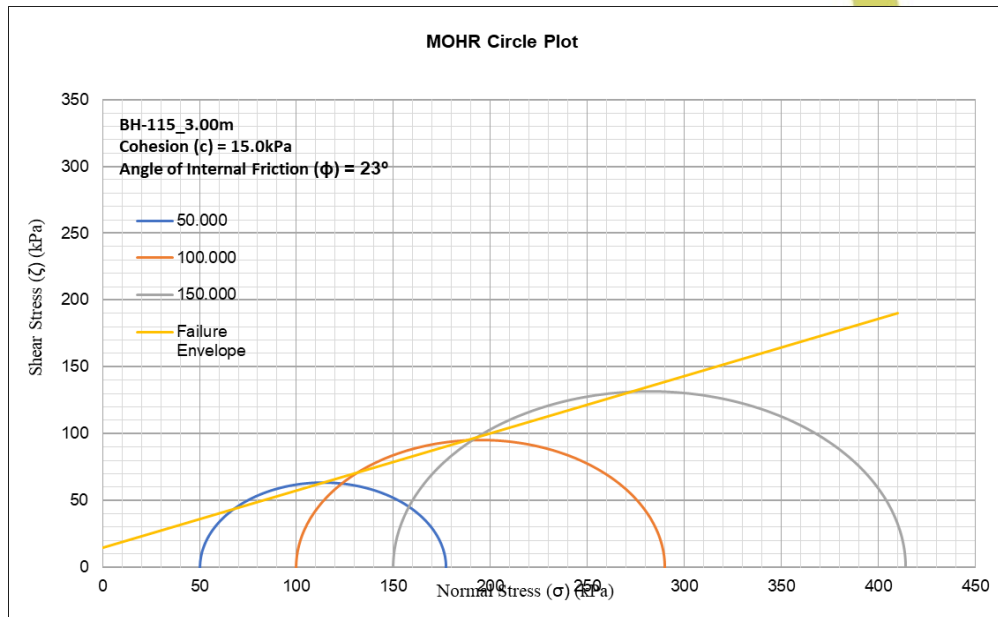
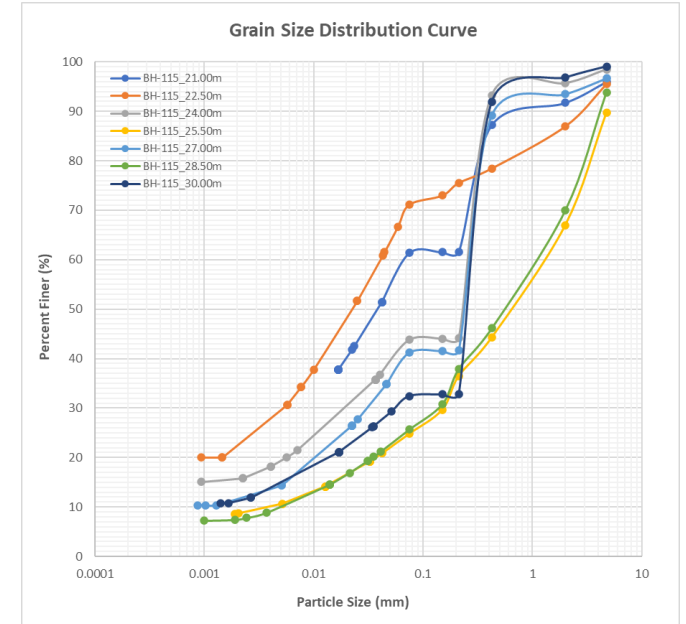
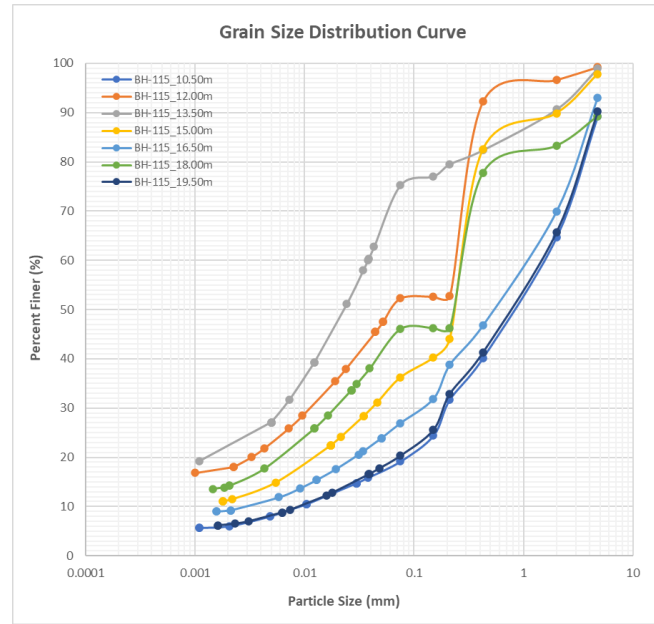
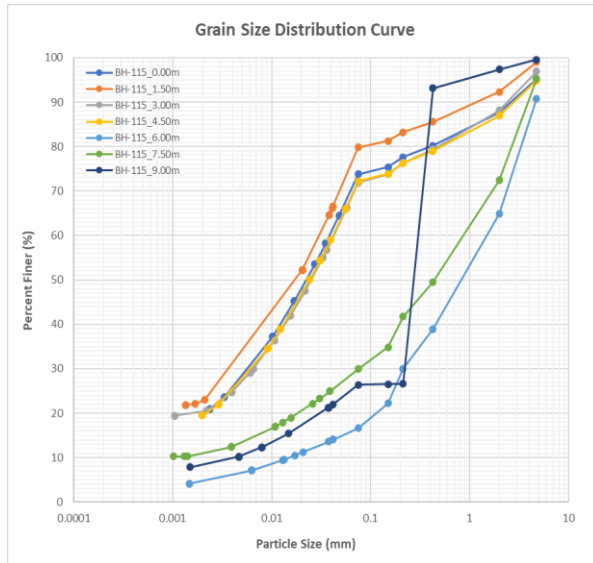
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

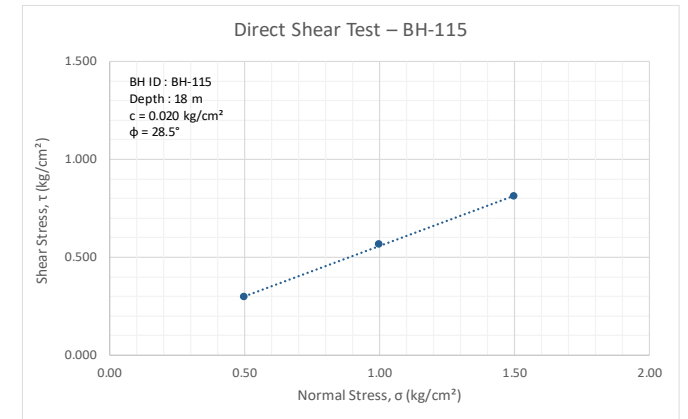
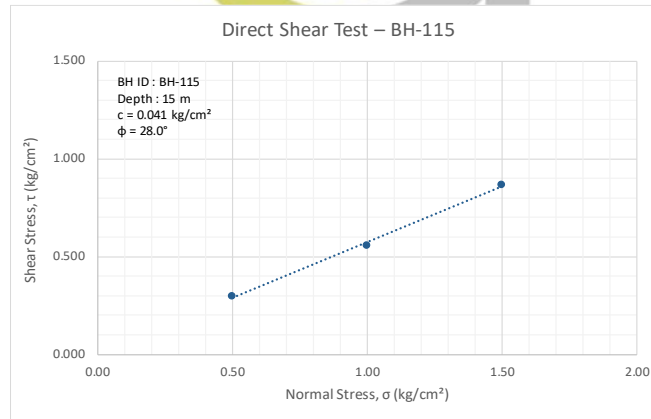
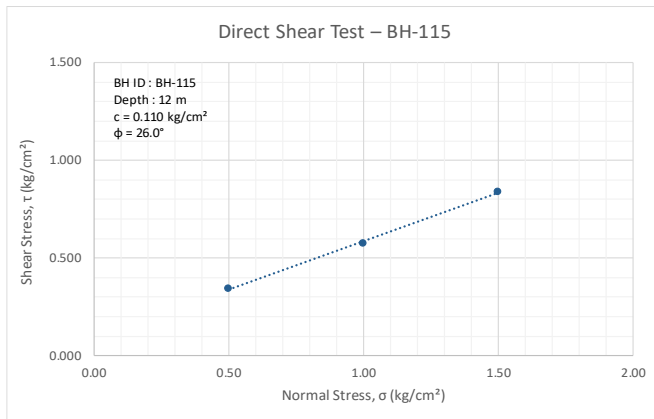
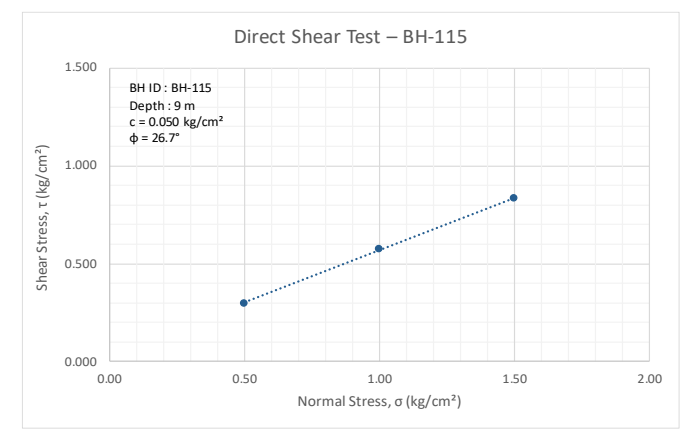
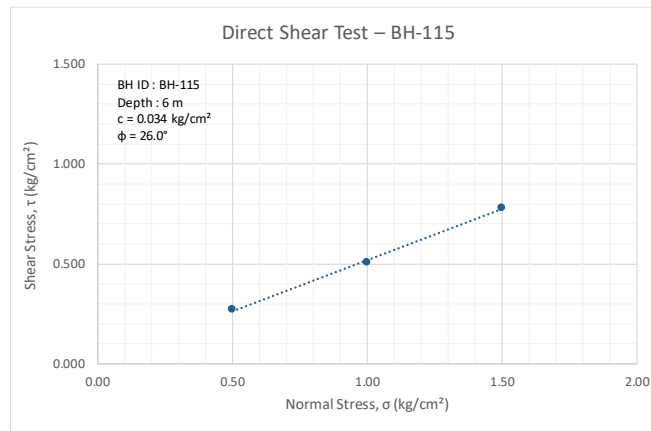
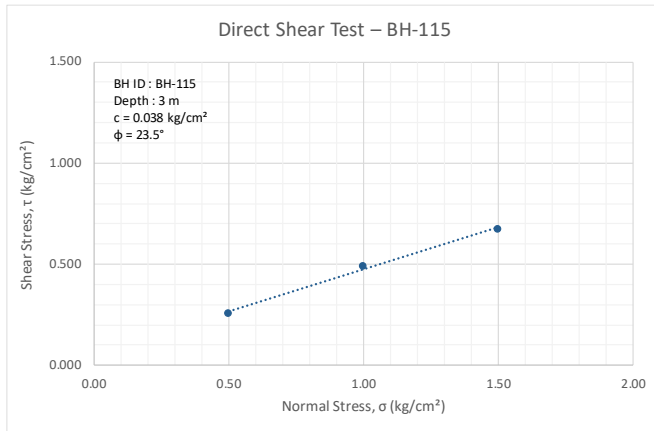


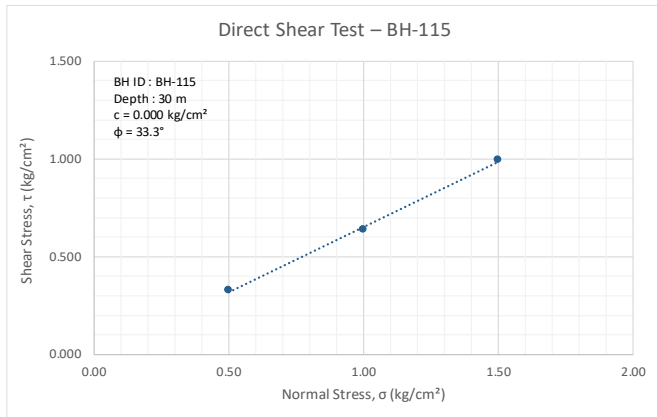
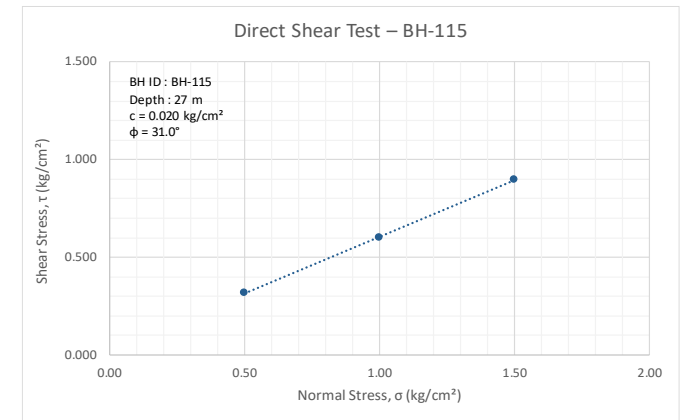
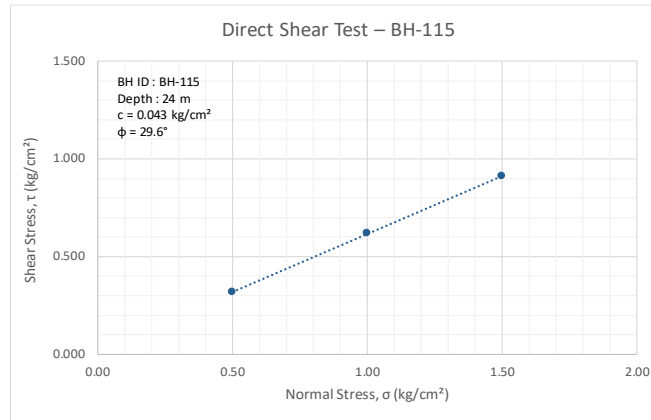
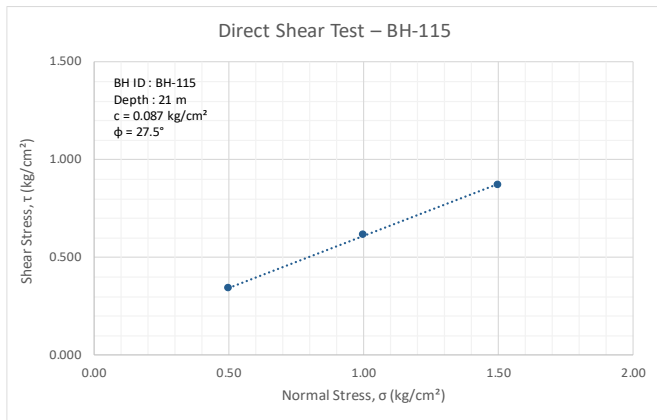
Project		Borehole Details			Drilling Details		
Name of Work:	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	BH ID:	BH-115		Contractor:	Goma Engineering & Consultancy	
		Chainage [km]:	12+051		Method of Drilling:	Rotary Drilling	
Client:	Noida Metro Rail Corporation (NMRC) Limited	Depth [m]:	30.00		Start Date:	22-02-2026	
Stretch:	Noida Sector-142 to Botanical Garden	Elevation [m]:	196.30		End Date:	22-02-2026	
Project Code:	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	Water table Level [m]:	14.20		Location:	Lat. 28.500022, Long. 77.411071	

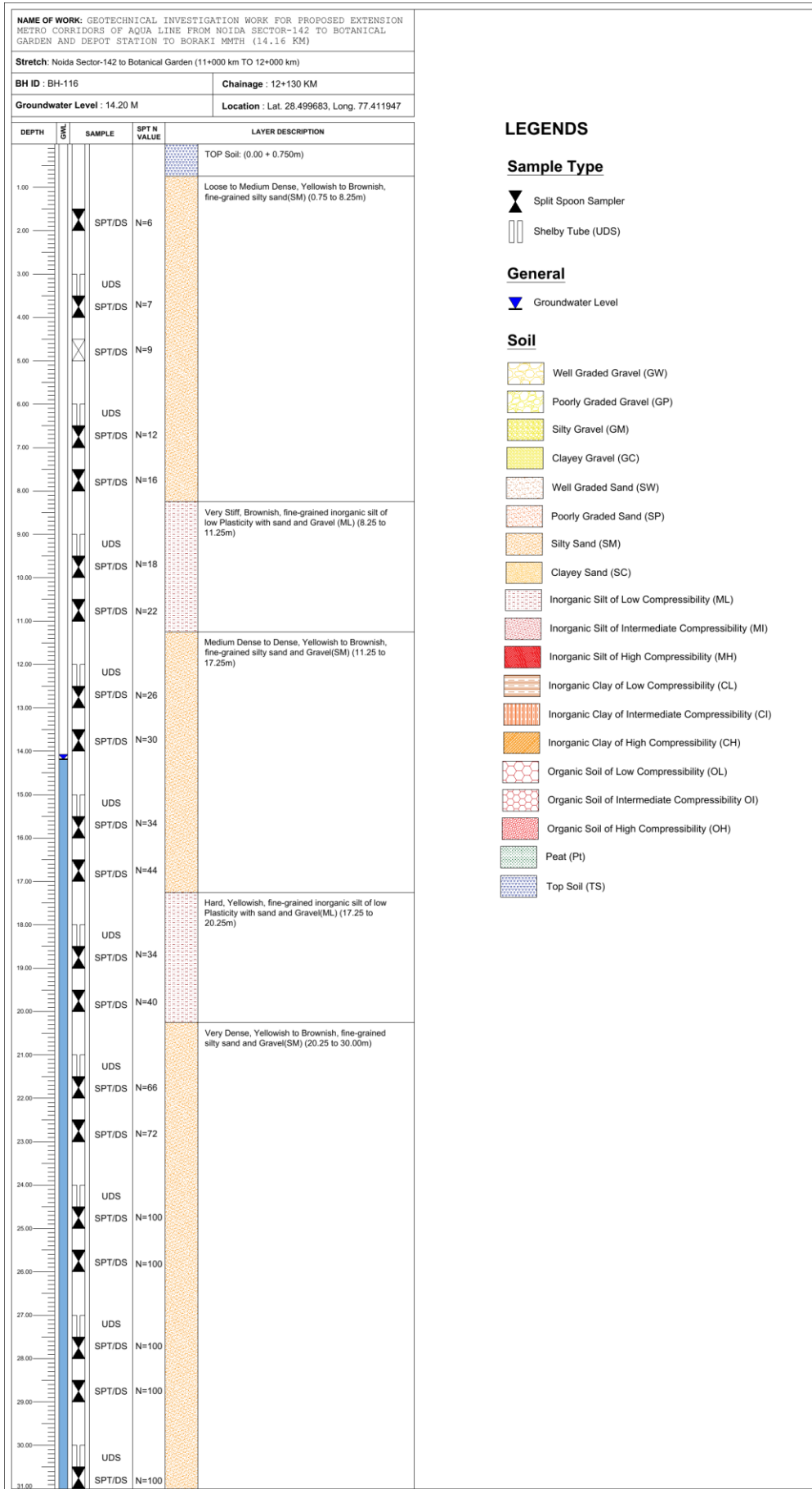
Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						4.9	21.4	73.8	0.0	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Stiff to Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)	3	4	5	9	13	1.0	19.2	57.0	22.8	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							3.1	25.0	51.4	20.4	21	NP	NP	18.3	1.89	1.60	2.66	F	0.04	24	UU	15	23	-	-	-
3.50	SPT/DS		4	5	7	12	13																				
4.50	SPT/DS		6	8	9	17	17	5.2	22.7	52.6	19.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							9.2	74.2	11.9	4.8	24	NP	NP	19.7	1.91	1.60	2.69	F	0.03	26	UU	7	26	-	-	-
6.50	SPT/DS		8	12	13	25	23																				
7.50	SPT/DS	Medium Dense to Dense, Grayish to Brownish, fine-grained silty sand and Gravel(SM)	9	13	14	27	25	4.7	65.4	18.9	11.0	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	DS							0.4	73.2	18.0	8.4	24	NP	NP	19.08	-	-	2.65	F	0.05	27	-	-	-	-	-	-
9.50	SPT/DS		12	15	18	33	28																				
10.50	SPT/DS		13	16	19	35	29	10.8	70.0	13.2	6.0	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	DS							0.7	46.9	34.4	17.9	27	NP	NP	16.26	-	-	2.72	F	0.11	26	-	-	-	-	-	-
12.50	SPT/DS	Hard, Brownish, fine-grained inorganic silt of low Plasticity with sand(ML)	13	15	19	34	26																				
13.50	SPT/DS		15	18	21	39	28	1.1	23.7	52.9	22.4	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS	Dense, Brownish to Yellowish, fine-grained silty sand and Gravel(SM)						2.2	61.6	24.9	11.3	28	NP	NP	12.91	-	-	2.61	F	0.04	28	-	-	-	-	-	-
15.50	SPT/DS		17	19	22	41	21																				
16.50	SPT/DS		19	21	24	45	22	7.0	66.1	17.8	9.2	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS							10.7	43.3	31.9	14.1	21	NP	NP	17.09	-	-	2.72	F	0.02	29	-	-	-	-	-	-
18.50	SPT/DS		21	22	25	47	23																				
19.50	SPT/DS	22	24	27	51	24	9.8	69.9	13.9	6.4	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-	
21.00	DS	Hard, Yellowish, fine-grained inorganic silt of low Plasticity with sand(ML)						4.0	34.5	47.5	13.9	25	NP	NP	16.34	-	-	2.68	F	0.09	28	-	-	-	-	-	-
21.50	SPT/DS		23	25	30	55	24																				
22.50	SPT/DS		25	27	32	59	25	4.5	24.3	48.7	22.5	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS	Very Dense, Brownish to Yellowish, fine-grained silty sand (SM)						1.5	54.6	28.1	15.7	23	NP	NP	17.80	-	-	2.79	F	0.04	30	-	-	-	-	-	-
24.50	SPT/DS		28	33	35	68	27																				
25.50	SPT/DS		30	35	42	77	30	10.3	65.0	16.1	8.7	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							3.3	55.4	29.6	11.6	24	NP	NP	18.45	-	-	2.62	F	0.02	31	-	-	-	-	-	-
27.50	SPT/DS		34	48	(50/9 cm)	100	35																				
28.50	SPT/DS		39	(50/11 cm)	-	100	35	6.2	68.1	18.2	7.5	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.9	66.7	21.2	11.2	26	NP	NP	14.15	-	-	2.63	F	0.00	33	-	-	-	-	-	-
30.50	SPT/DS		45	(50/9 cm)	-	100	34																				

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









**LEGENDS**

**Sample Type**

- Split Spoon Sampler
- Shelby Tube (UDS)

**General**

- Groundwater Level

**Soil**

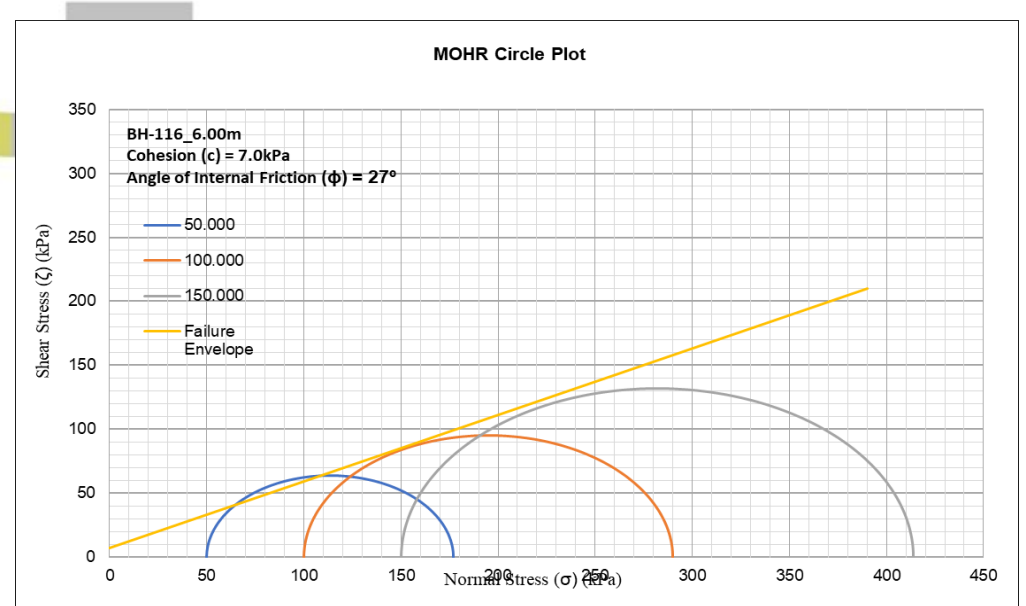
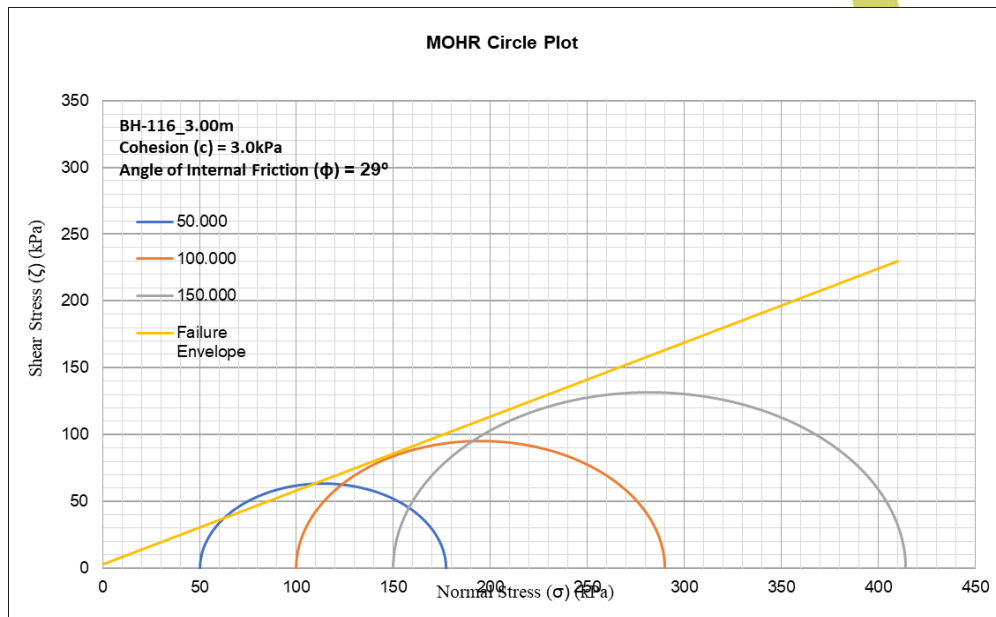
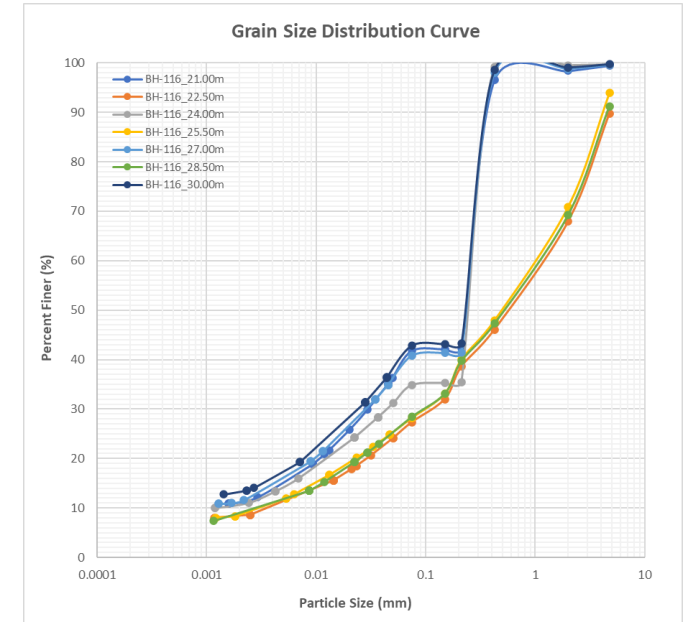
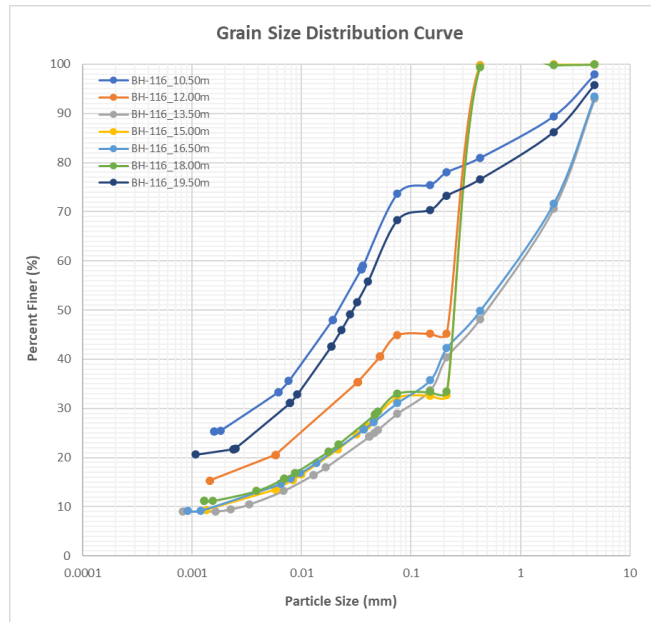
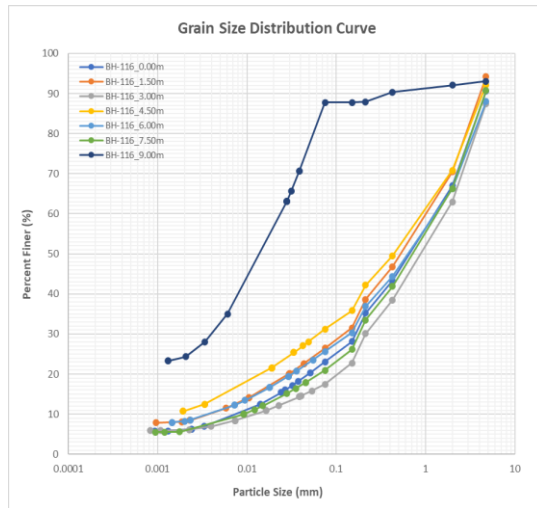
- Well Graded Gravel (GW)
- Poorly Graded Gravel (GP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Sand (SW)
- Poorly Graded Sand (SP)
- Silty Sand (SM)
- Clayey Sand (SC)
- Inorganic Silt of Low Compressibility (ML)
- Inorganic Silt of Intermediate Compressibility (MI)
- Inorganic Silt of High Compressibility (MH)
- Inorganic Clay of Low Compressibility (CL)
- Inorganic Clay of Intermediate Compressibility (CI)
- Inorganic Clay of High Compressibility (CH)
- Organic Soil of Low Compressibility (OL)
- Organic Soil of Intermediate Compressibility (OI)
- Organic Soil of High Compressibility (OH)
- Peat (Pt)
- Top Soil (TS)

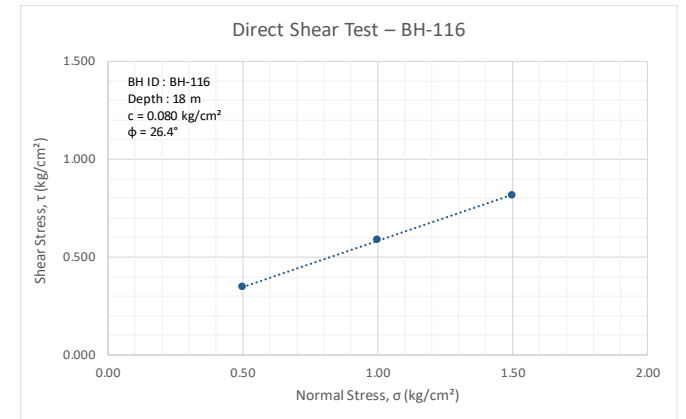
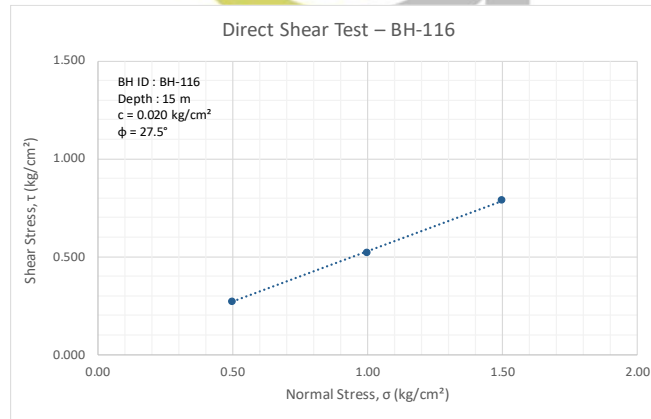
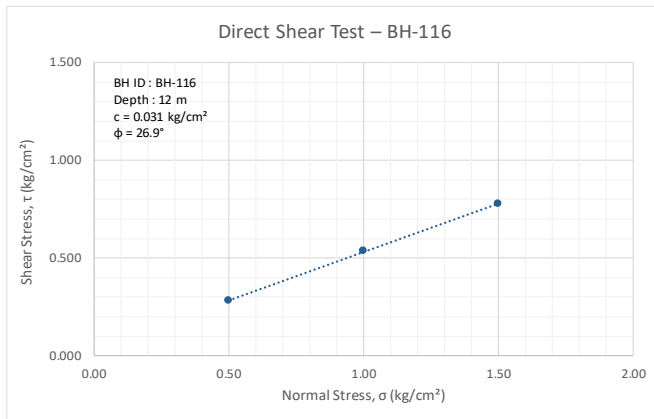
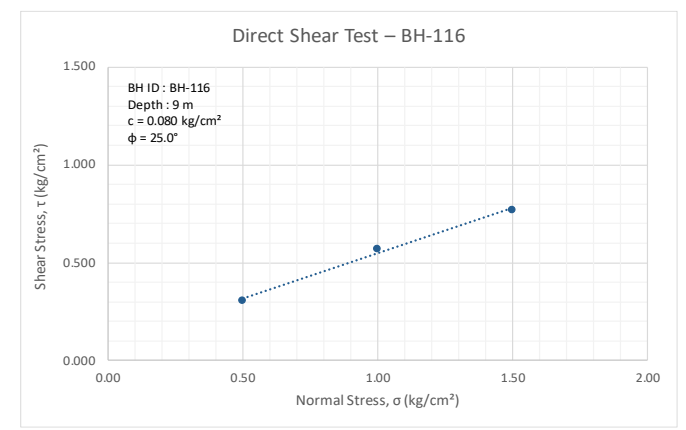
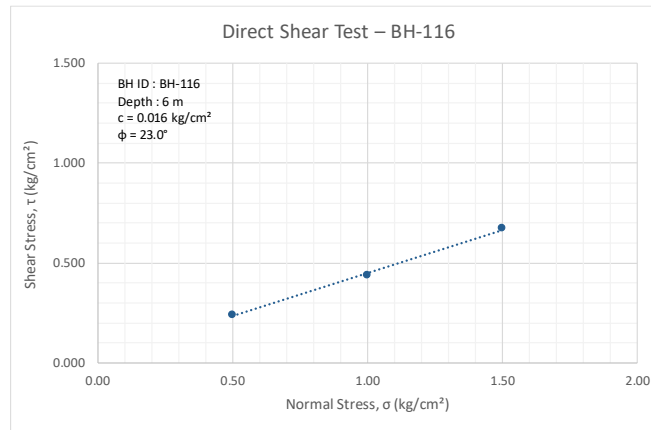
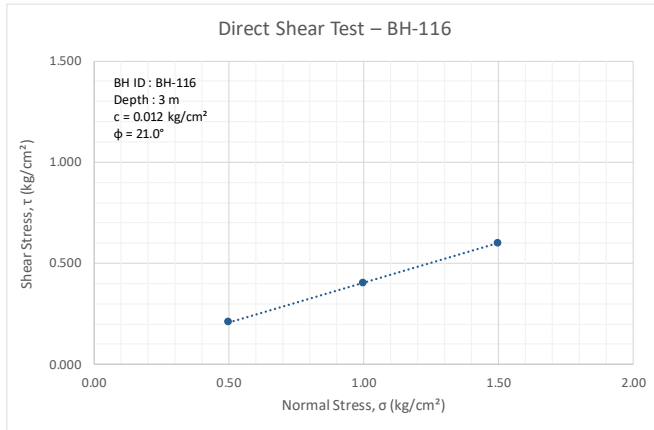


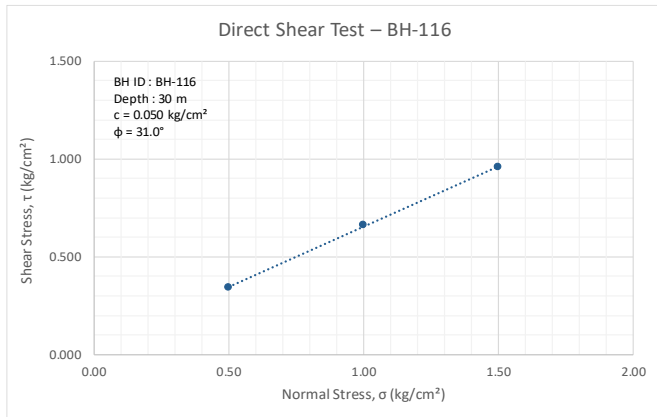
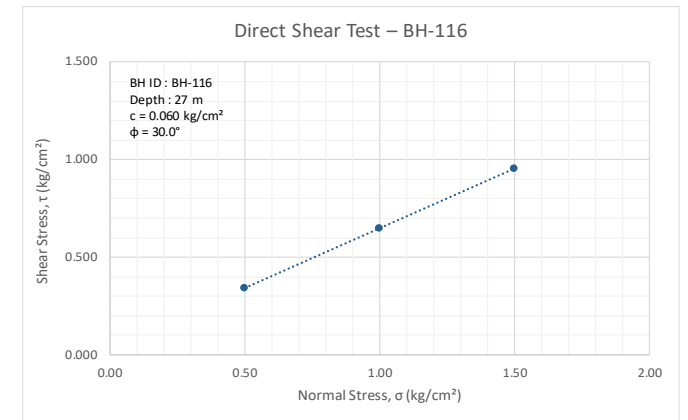
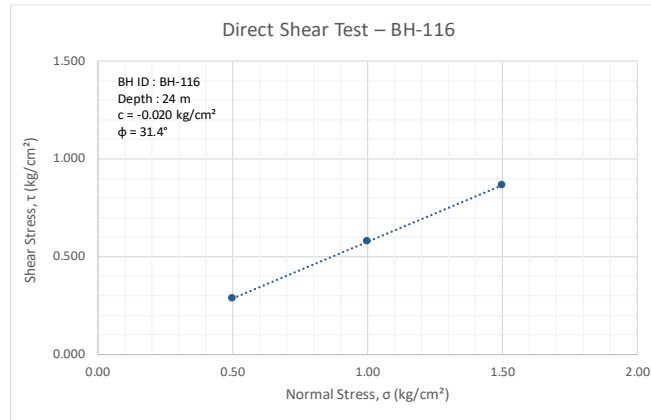
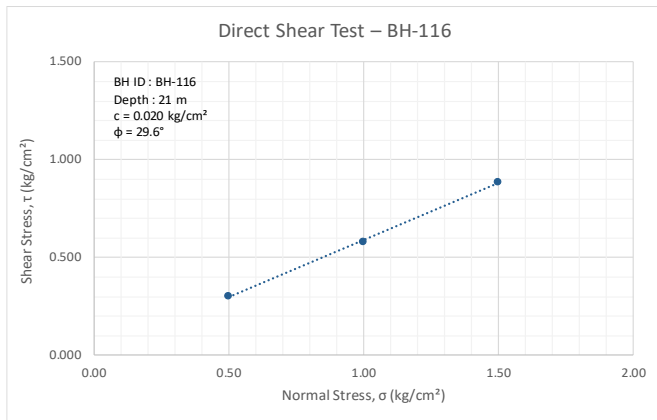
Project		Borehole Details			Drilling Details			
<b>Name of Work:</b>	Geotechnical Investigation work for Proposed Extension Metro Corridors of Aqua Line from Noida Sector-142 to Botanical Garden and Depot Station to Boraki MMTH (14.16 km) (E Tender No. NMRC/Civil/Geo. Inv./366/2025)	<b>BH ID:</b>	BH-116		<b>Contractor:</b>	Goma Engineering & Consultancy		
<b>Client:</b>	Noida Metro Rail Corporation (NMRC) Limited	<b>Chainage [km]:</b>	12+130		<b>Method of Drilling:</b>	Rotary Drilling		
<b>Stretch:</b>	Noida Sector-142 to Botanical Garden	<b>Depth [m]:</b>	30.00		<b>Start Date:</b>	22-02-2026		
<b>Project Code:</b>	158_R13_Noida Sector-142 to Botanical Garden_0-372 km TO 12+130 km	<b>Elevation [m]:</b>	195.20		<b>End Date:</b>	22-02-2026		
		<b>Water table Level [m]:</b>	14.20		<b>Location:</b>	Lat. 28.499683, Long. 77.411947		

Depth [m]	Sample Type	Descriptions	SPT Test Results					Soil Particles				Atterberg Limits			Physical Characteristics				Direct Shear Test			Triaxial Comp Test			Consolidation Test		
			N1 (Seating Drive)	N2 (First Drive)	N3 (Second Drive)	Observed SPT	N (Correct N)	Gravel [%]	Sand [%]	Silt [%]	Clay [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	Moisture Content [%]	Bulk Density [gm/cm <sup>3</sup> ]	Dry Density [gm/cm <sup>3</sup> ]	Specific Gravity	Type	Cohesion [kg/cm <sup>2</sup> ]	Angle of Friction [°]	Type	Cohesion [kPa]	Angle of Friction [°]	Swelling Index	Consolidation Index	Preconsolidation Pressure [kg/cm <sup>2</sup> ]
0.00	DS	Top Soil						9.4	67.5	16.9	6.1	27	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
1.50	SPT/DS	Loose to Medium Dense, Yellowish to Brownish, fine-grained silty sand(SM)	2	3	3	6	8	5.8	67.8	18.2	8.2	29	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
3.00	UDS							12.5	70.0	11.4	6.1	27	NP	NP	19.1	1.88	1.58	2.69	F	0.01	21	UU	3	29	-	-	-
3.50	SPT/DS		2	3	4	7	8																				
4.50	SPT/DS		3	4	5	9	9	7.8	60.9	20.4	10.8	25	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
6.00	UDS							12.0	62.4	17.4	8.3	21	NP	NP	22.5	1.9	1.55	2.62	F	0.02	23	UU	7	27	-	-	-
6.50	SPT/DS		4	5	7	12	11																				
7.50	SPT/DS		5	7	9	16	15	9.3	69.8	15.0	5.9	22	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
9.00	UDS	Very Stiff, Brownish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)						6.9	5.3	63.5	24.3	23	NP	NP	25.73	1.93	1.54	2.60	F	0.08	25	-	-	-	-	-	-
9.50	SPT/DS		6	8	10	18	15																				
10.50	SPT/DS		7	10	12	22	18	2.1	24.2	47.6	26.1	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
12.00	UDS	Medium Dense to Dense, Yellowish to Brownish, fine-grained silty sand and Gravel(SM)						0.0	55.1	28.3	16.6	21	NP	NP	23.65	-	-	2.70	F	0.03	27	-	-	-	-	-	-
12.50	SPT/DS		9	12	14	26	20																				
13.50	SPT/DS		10	13	17	30	21	7.0	64.0	19.6	9.3	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
15.00	DS							0.0	67.8	21.7	10.5	22	NP	NP	21.25	-	-	2.71	F	0.02	28	-	-	-	-	-	-
15.50	SPT/DS		11	15	19	34	19																				
16.50	SPT/DS		15	20	24	44	22	6.6	62.3	20.3	10.9	23	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
18.00	DS	Hard, Yellowish, fine-grained inorganic silt of low Plasticity with sand and Gravel(ML)						0.0	66.9	21.3	11.8	28	NP	NP	22.14	-	-	2.63	F	0.08	26	-	-	-	-	-	-
18.50	SPT/DS		12	15	19	34	18																				
19.50	SPT/DS		14	18	22	40	20	4.2	27.5	46.9	21.5	26	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
21.00	DS	Very Dense, Yellowish to Brownish, fine-grained silty sand and Gravel(SM)						0.5	57.6	30.5	11.3	24	NP	NP	22.26	-	-	2.74	F	0.02	30	-	-	-	-	-	-
21.50	SPT/DS		25	30	36	66	28																				
22.50	SPT/DS		27	32	40	72	29	10.3	62.4	18.9	8.4	28	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
24.00	DS							0.3	64.8	24.1	10.7	23	NP	NP	21.04	-	-	2.65	F	0.00	31	-	-	-	-	-	-
24.50	SPT/DS		35	(50/4 cm)	-	100	37																				
25.50	SPT/DS		40	(50/6 cm)	-	100	36	6.1	65.7	19.6	8.6	21	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
27.00	DS							0.4	58.7	29.5	11.4	22	NP	NP	21.90	-	-	2.77	F	0.06	31	-	-	-	-	-	-
27.50	SPT/DS		42	(50/7 cm)	-	100	35																				
28.50	SPT/DS		48	(50/3 cm)	-	100	35	8.8	62.8	19.4	9.1	24	NP	NP	-	-	-	-	-	-	-	-	-	-	-	-	-
30.00	DS							0.3	56.9	29.6	13.3	26	NP	NP	24.65	-	-	2.68	F	0.05	31	-	-	-	-	-	-
30.50	SPT/DS	(50/11 cm)	-	-	100	34																					

Notations: UDS = Undisturbed Sample, DS = Disturbed Sample, RC = Rock Core, F = Fast, S = Slow, UU = Unconsolidated Undrained Tri-axial compression Test, NP = Non Plastic.









# Appendix C1: Chemical Test Results (Soil & Groundwater)



### CHEMICAL TEST RESULTS (SOIL)

Test Parameter		pH	Sulphate (%)	Chloride (%)
Test Reference		IS:2720(Part 26) R.A 2021	BS 1377 (Part-3) 1990	IS:2720(Part 27) R.A 2020
BH ID	Chainage (km)	-	-	-
BH-(-10)	0-372	8.16	0.121	0.010
BH-(-9)	0-224	7.83	0.126	0.017
BH-(-8)	0-174	8.14	0.123	0.018
BH-(-6)	0-015	7.96	0.133	0.014
BH-(-5)	0+094	7.68	0.119	0.011
BH-(-3)	0+344	8.25	0.126	0.008
BH-(-2)	0+499	8.32	0.132	0.007
BH-01	0+571	8.47	0.113	0.006
BH-02	0+674	8.11	0.100	0.008
BH-03	0+892	7.79	0.125	0.015
BH-04	0+996	8.02	0.118	0.013
BH-05	1+088	8.37	0.119	0.008
BH-06	1+192	7.77	0.116	0.007
BH-07	1+277	7.64	0.123	0.009
BH-08	1+388	8.21	0.115	0.010
BH-09	1+449	8.13	0.122	0.011
BH-11	1+610	8.23	0.114	0.005
BH-12	1+745	8.36	0.118	0.010
BH-13	1+859	7.98	0.133	0.011
BH-14	1+952	8.13	0.123	0.012
BH-15	2+035	8.10	0.114	0.009
BH-16	2+135	7.53	0.136	0.017
BH-17	2+230	7.77	0.130	0.014
BH-18	2+567	8.21	0.132	0.012
BH-18A	2+279	8.18	0.131	0.017
BH-19	2+591	8.25	0.135	0.019
BH-19A	2+420	8.56	0.130	0.018
BH-20	2+541	8.51	0.118	0.014
BH-20A	2+514	8.19	0.133	0.016
BH-21	2+605	8.28	0.042	0.016
BH-22	2+719	8.32	0.017	0.027
BH-23	2+823	8.37	0.021	0.016
BH-24	2+920	8.52	0.034	0.025
BH-25	3+033	8.73	0.013	0.023
BH-26	3+122	8.26	0.039	0.015
BH-27	3+205	8.33	0.025	0.024
BH-28	3+304	8.17	0.019	0.011
BH-28A	3+367	8.29	0.020	0.017
BH-29	3+391	8.24	0.022	0.019
BH-30	3+514	8.21	0.016	0.013



Test Parameter		pH	Sulphate (%)	Chloride (%)
Test Reference		IS:2720(Part 26) R.A 2021	BS 1377 (Part-3) 1990	IS:2720(Part 27) R.A 2020
BH ID	Chainage (km)	-	-	-
BH-31	3+643	8.21	0.042	0.015
BH-32	3+730	8.47	0.017	0.020
BH-33	3+792	8.35	0.021	0.012
BH-34	3+883	8.64	0.034	0.013
BH-35	4+014	8.71	0.013	0.018
BH-36	4+093	8.15	0.039	0.014
BH-37	4+210	8.42	0.023	0.009
BH-38	4+334	8.03	0.017	0.019
BH-39	4+425	8.20	0.044	0.013
BH-40	4+518	8.25	0.019	0.017
BH-41	4+617	8.52	0.132	0.008
BH-42	4+751	8.63	0.114	0.010
BH-43	4+833	8.41	0.117	0.015
BH-44	4+910	8.50	0.125	0.016
BH-45	5+030	8.38	0.121	0.012
BH-45A	5+080	8.76	0.115	0.015
BH-46	5+122	8.43	0.131	0.009
BH-48	5+393	7.59	0.128	0.012
BH-49	5+442	8.10	0.124	0.013
BH-50	5+532	8.35	0.119	0.016
BH-51	5+596	8.18	0.041	0.012
BH-52	5+718	8.42	0.018	0.019
BH-53	5+830	8.34	0.014	0.011
BH-54	5+939	8.25	0.025	0.012
BH-55	6+004	8.19	0.019	0.017
BH-56	6+182	8.37	0.035	0.026
BH-57	6+246	8.15	0.029	0.014
BH-58	6+323	8.29	0.031	0.021
BH-59	6+429	8.31	0.017	0.015
BH-60	6+488	8.21	0.022	0.023
BH-61	6+639	8.47	0.042	0.011
BH-62	6+726	8.13	0.019	0.015
BH-63	6+838	8.32	0.013	0.017
BH-64	6+925	8.43	0.031	0.009
BH-65	6+998	8.17	0.015	0.013
BH-66	7+129	8.14	0.026	0.021
BH-67	7+220	8.10	0.023	0.023
BH-68	7+268	8.10	0.027	0.018
BH-69	7+329	8.28	0.018	0.010
BH-69A	7+392	8.04	0.034	0.016
BH-69B	7+369	8.25	0.017	0.012
BH-70	7+487	8.33	0.013	0.020



Test Parameter		pH	Sulphate (%)	Chloride (%)
Test Reference		IS:2720(Part 26) R.A 2021	BS 1377 (Part-3) 1990	IS:2720(Part 27) R.A 2020
BH ID	Chainage (km)	-	-	-
BH-71	7+629	7.64	0.138	0.013
BH-72	7+728	8.42	0.147	0.015
BH-73	7+837	7.63	0.125	0.008
BH-74	7+912	8.55	0.152	0.032
BH-75	8+031	8.73	0.163	0.024
BH-76	8+069	7.66	0.153	0.009
BH-77	8+226	8.33	0.137	0.020
BH-80	8+551	8.24	0.132	0.016
BH-82	8+859	7.69	0.125	0.015
BH-83	8+793	7.54	0.112	0.018
BH-84	8+939	7.79	0.118	0.026
BH-85	9+024	8.10	0.117	0.022
BH-86	9+115	8.32	0.132	0.020
BH-87	9+244	8.52	0.123	0.009
BH-88	9+346	8.41	0.105	0.029
BH-89	9+428	8.24	0.137	0.013
BH-91	9+626	7.56	0.129	0.009
BH-92	9+737	7.78	0.113	0.008
BH-93	9+820	7.69	0.125	0.017
BH-95	10+044	7.03	0.101	0.025
BH-96	10+125	7.07	0.137	0.028
BH-97	10+222	7.32	0.164	0.007
BH-98	10+328	8.10	0.135	0.015
BH-99	10+428	8.52	0.138	0.019
BH-100	10+542	8.32	0.134	0.021
BH-101	10+631	6.70	0.135	0.007
BH-102	10+709	6.76	0.139	0.013
BH-103	10+821	7.15	0.133	0.012
BH-104	10+946	6.55	0.128	0.009
BH-105	11+034	7.20	0.110	0.015
BH-106	11+134	6.73	0.133	0.007
BH-107	11+240	7.25	0.123	0.010
BH-108	11+329	6.40	0.104	0.013
BH-109	11+400	6.44	0.107	0.014
BH-111	11+609	8.15	0.126	0.009
BH-112	11+760	8.27	0.135	0.008
BH-113	11+835	8.36	0.120	0.013
BH-114	11+943	8.45	0.122	0.014
BH-115	12+051	8.10	0.118	0.012
BH-116	12+130	8.32	0.121	0.010



### CHEMICAL TEST RESULTS (GROUNDWATER)

Test Parameter		pH	Sulphate (mg/l)	Chloride (mg/l)
Test Reference		IS 3025:PART 11 RY 2022	IS 3025:PART 32 RY 2019	IS 3025:PART 24 RY 2022
BH ID	Chainage (km)	-	-	-
BH-(-10)	0-372	7.34	388	349
BH-(-9)	0-224	7.19	421	259
BH-(-8)	0-174	6.64	401	319
BH-(-6)	0-015	6.76	430	294
BH-(-5)	0+094	7.23	410	364
BH-(-3)	0+344	6.98	376	254
BH-(-2)	0+499	7.12	379	339
BH-01	0+571	7.23	370	244
BH-02	0+674	6.78	423	299
BH-03	0+892	6.96	407	284
BH-04	0+996	7.12	395	209
BH-05	1+088	7.09	365	244
BH-06	1+192	6.82	366	254
BH-07	1+277	7.1	388	279
BH-08	1+388	6.95	391	240
BH-09	1+449	6.91	411	259
BH-11	1+610	6.53	428	354
BH-12	1+745	6.61	435	279
BH-13	1+859	6.84	384	294
BH-14	1+952	6.85	416	309
BH-15	2+035	7.17	425	324
BH-16	2+135	7.06	388	289
BH-17	2+230	7.15	420	349
BH-18	2+567	6.95	423	339
BH-18A	2+279	6.69	448	264
BH-19	2+591	6.73	378	249
BH-19A	2+420	6.98	384	319
BH-20A	2+514	6.52	397	334
BH-21	2+605	7.51	395	325
BH-22	2+719	7.4	373	310
BH-23	2+823	7.19	380	354
BH-24	2+920	7.28	391	393
BH-25	3+033	7.45	365	386
BH-26	3+122	7.36	379	341
BH-27	3+205	7.21	471	396
BH-28	3+304	7.32	397	289
BH-28A	3+367	7.38	403	310
BH-29	3+391	7.51	384	315
BH-30	3+514	7.24	368	367
BH-31	3+643	7.56	375	323



Test Parameter		pH	Sulphate (mg/l)	Chloride (mg/l)
Test Reference		IS 3025:PART 11 RY 2022	IS 3025:PART 32 RY 2019	IS 3025:PART 24 RY 2022
BH ID	Chainage (km)	-	-	-
BH-32	3+730	7.41	341	310
BH-33	3+792	7.16	402	297
BH-34	3+883	7.23	394	341
BH-35	4+014	7.44	372	327
BH-36	4+093	7.63	365	339
BH-37	4+210	7.52	347	302
BH-38	4+334	7.29	385	285
BH-39	4+425	7.15	376	316
BH-40	4+518	7.23	395	324
BH-41	4+617	7.35	412	309
BH-42	4+751	7.16	382	269
BH-43	4+833	6.89	423	339
BH-44	4+910	7.12	438	364
BH-45	5+030	7.68	419	319
BH-45A	5+080	6.99	416	254
BH-46	5+122	6.85	402	294
BH-48	5+393	6.78	423	259
BH-49	5+442	7.23	395	354
BH-50	5+532	7.38	370	284
BH-51	5+596	7.52	372	315
BH-52	5+718	7.43	344	317
BH-53	5+830	7.56	409	342
BH-54	5+939	7.12	398	356
BH-55	6+004	7.43	367	349
BH-56	6+182	7.17	363	371
BH-57	6+246	7.19	376	299
BH-58	6+323	7.26	392	345
BH-59	6+429	7.32	345	312
BH-60	6+488	7.1	403	297
BH-61	6+639	7.23	365	310
BH-62	6+726	7.27	394	362
BH-63	6+838	7.15	407	347
BH-64	6+925	7.19	385	315
BH-65	6+998	7.43	397	330
BH-66	7+129	7.32	372	279
BH-67	7+220	7.29	370	296
BH-68	7+268	7.44	390	327
BH-69	7+329	7.17	403	306
BH-69A	7+392	7.28	376	284
BH-69B	7+369	7.25	432	289
BH-70	7+487	7.35	398	305
BH-71	7+629	6.72	385	325



Test Parameter		pH	Sulphate (mg/l)	Chloride (mg/l)
Test Reference		IS 3025:PART 11 RY 2022	IS 3025:PART 32 RY 2019	IS 3025:PART 24 RY 2022
BH ID	Chainage (km)	-	-	-
BH-72	7+728	7.23	379	310
BH-73	7+837	8.3	385	354
BH-74	7+912	7.43	351	393
BH-75	8+031	6.97	362	386
BH-76	8+069	7.47	374	341
BH-77	8+226	7.03	472	396
BH-80	8+551	6.59	391	367
BH-82	8+859	6.9	378	365
BH-83	8+793	7.12	395	341
BH-84	8+939	7.19	341	358
BH-85	9+024	6.94	357	373
BH-86	9+115	6.82	368	381
BH-87	9+244	7.06	372	350
BH-88	9+346	6.73	413	394
BH-89	9+428	7.15	402	378
BH-91	9+626	6.75	457	219
BH-92	9+737	7.1	367	239
BH-93	9+820	7.23	410	260
BH-95	10+044	7.61	443	234
BH-96	10+125	6.75	323	224
BH-97	10+222	6.97	366	264
BH-98	10+328	6.64	414	284
BH-99	10+428	6.19	381	274
BH-100	10+542	6.7	383	294
BH-101	10+631	6.7	411	244
BH-102	10+709	6.57	461	254
BH-103	10+821	6.63	365	240
BH-104	10+946	6.75	405	260
BH-105	11+034	7.02	400	304
BH-106	11+134	7.1	370	234
BH-107	11+240	6.98	395	289
BH-108	11+329	6.81	417	294
BH-109	11+400	7.06	442	274
BH-111	11+609	6.89	412	304
BH-112	11+760	7.16	403	274
BH-113	11+835	7.25	417	324

**IS 456: 2000 Permissible Limit**

SR No.	Parameter	Permissible Limit	Unit
1	pH	not less than 6	-
2	Sulphate	2000 & 500*	(mg/l)
3	Chloride	400	(mg/l)

**Note** : \*Sulphate Content limit of 2000 mg/l for plain concrete and 500 mg/l for reinforced concrete work.



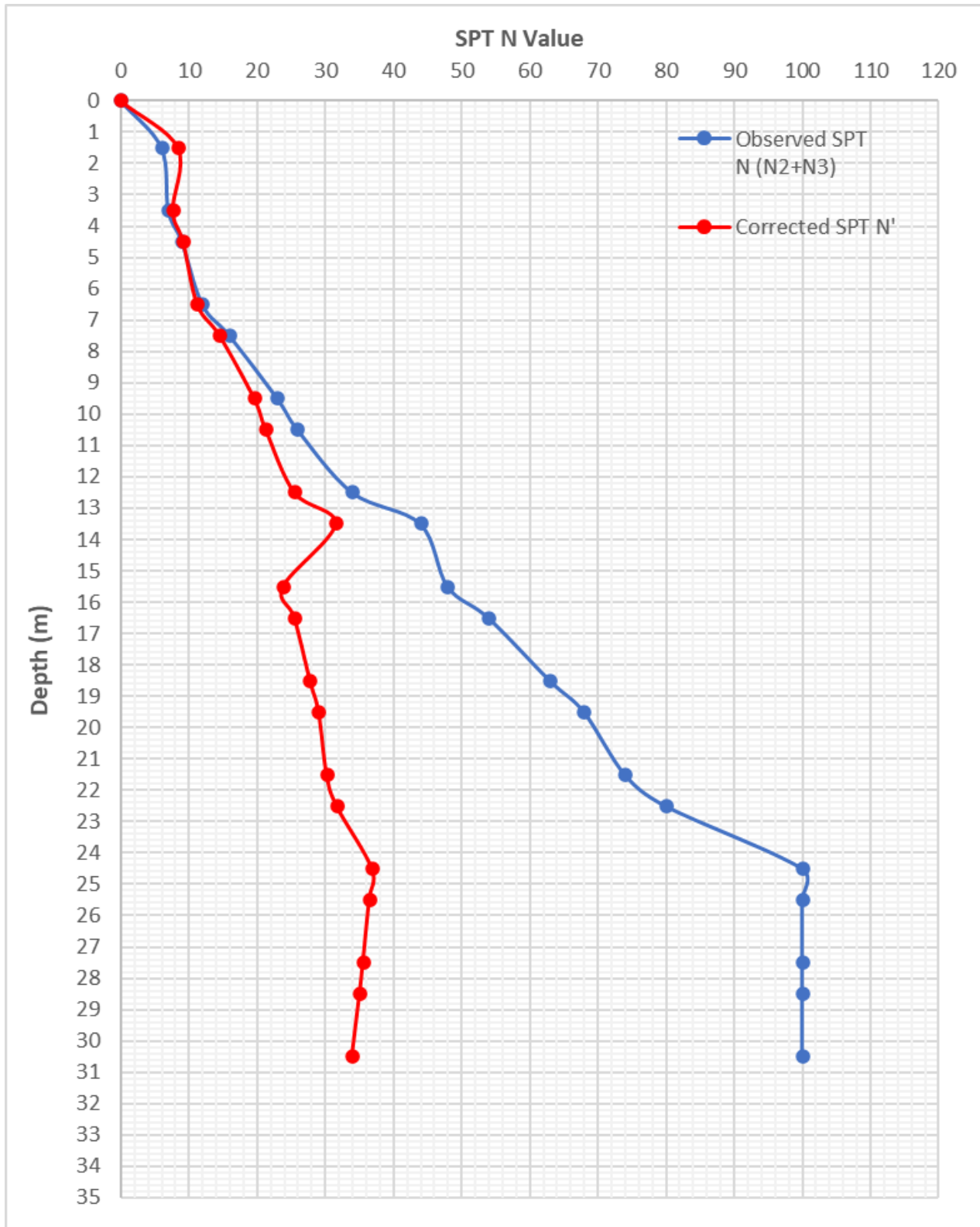
# Appendix D **SPT Results**





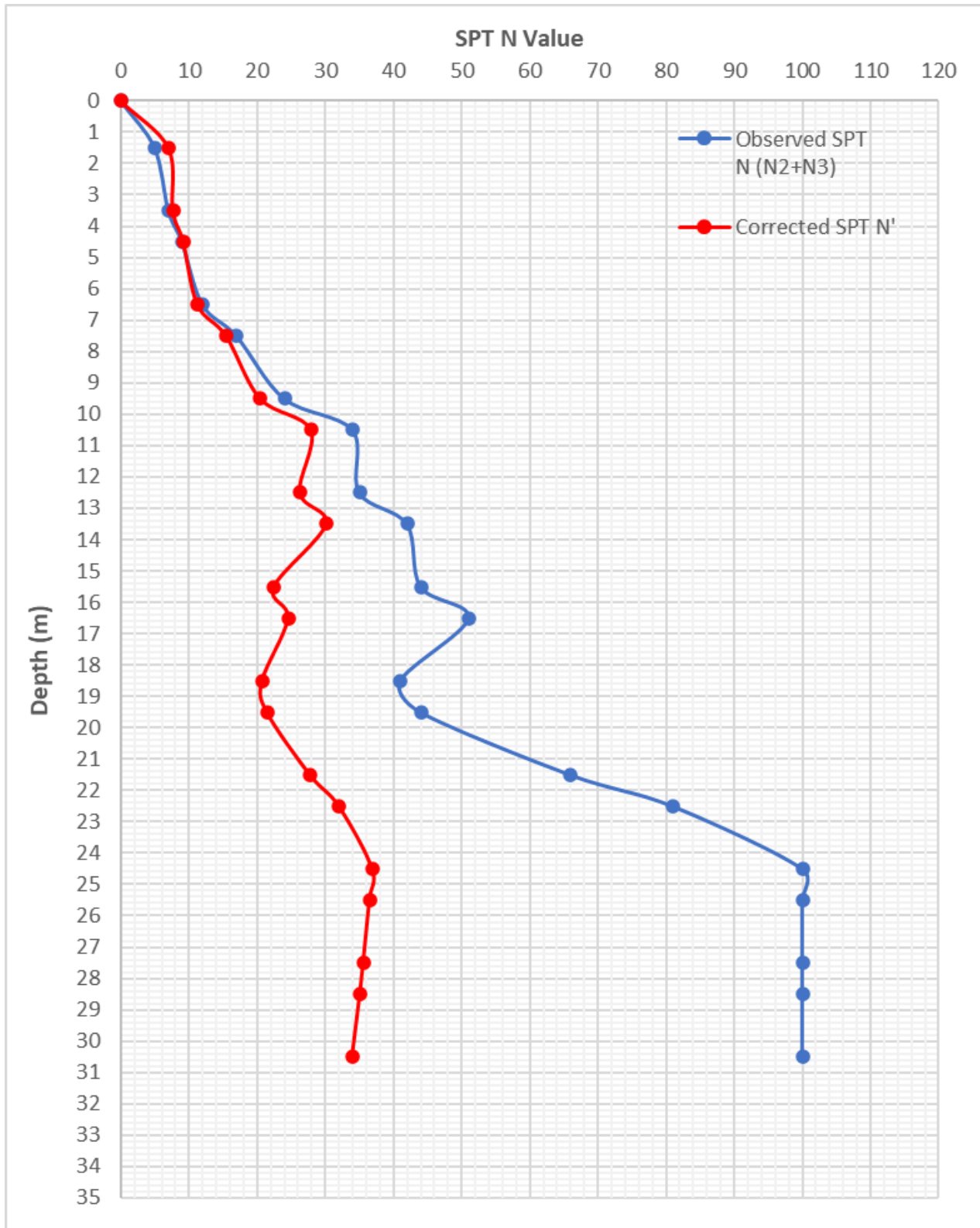
### D.1 Zone 1: CH: 0-380 km to 0+500 km (BH-(-02) to BH-(-10))

#### BH-(-02)



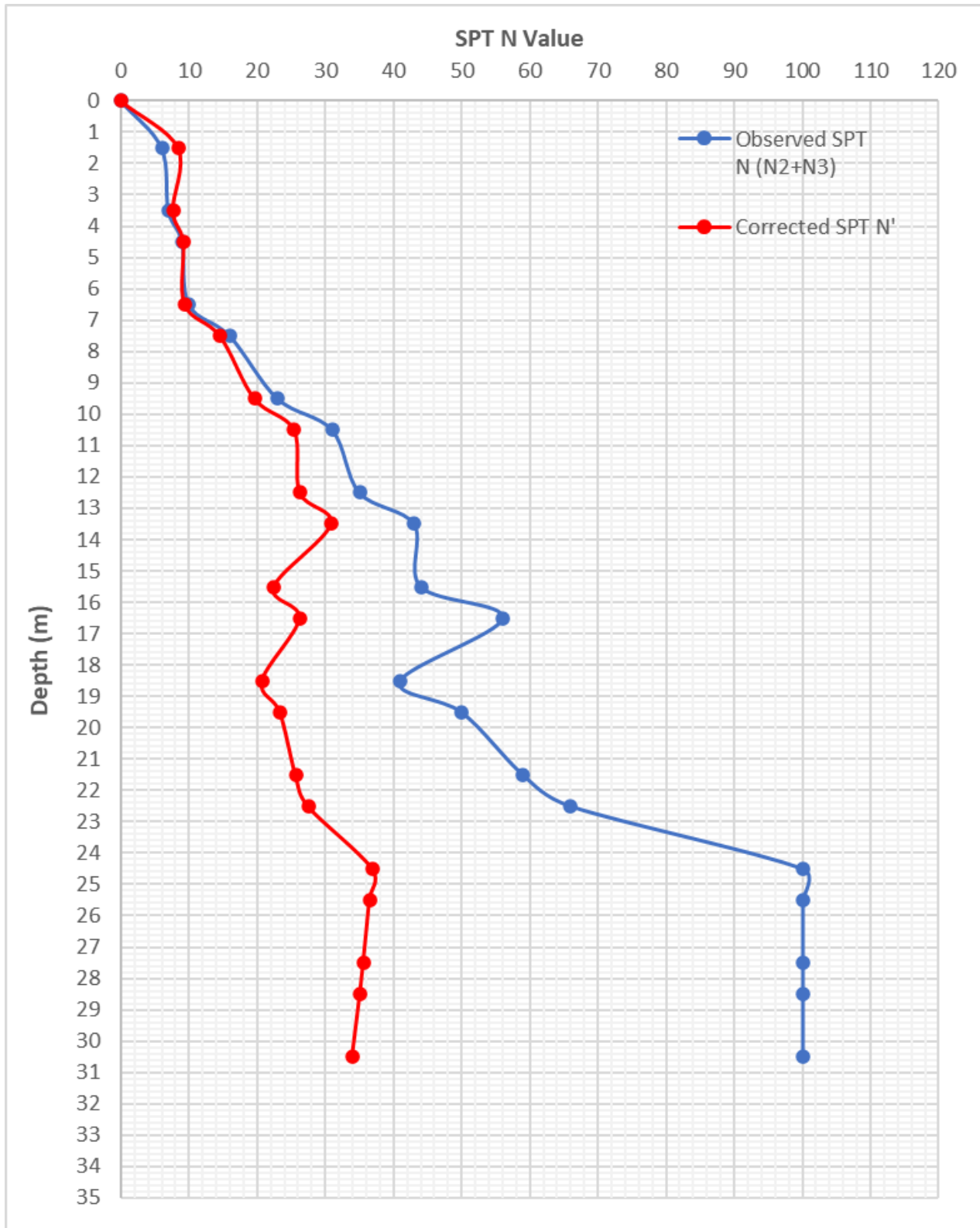


### BH-(-03)



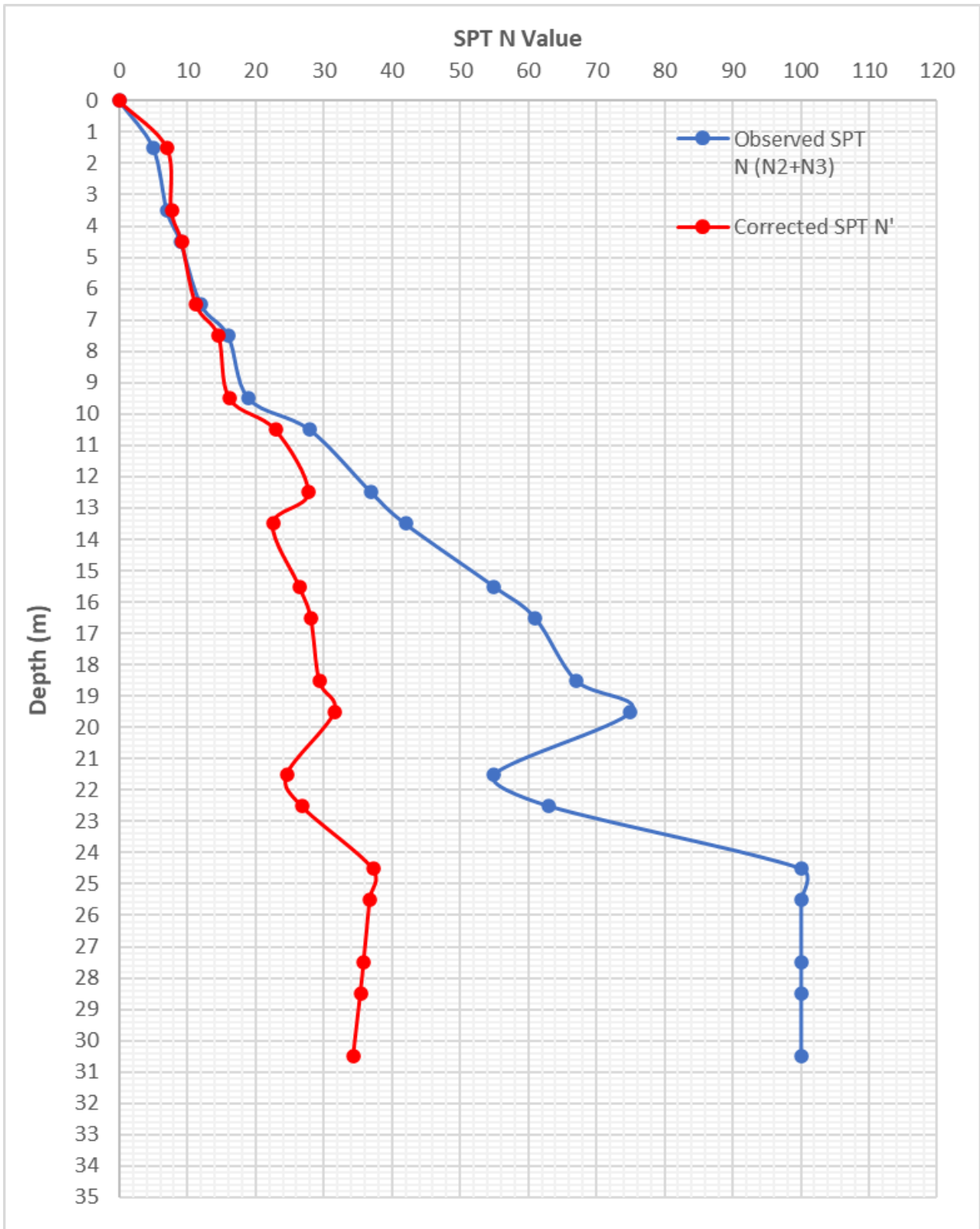


### BH-(-05)



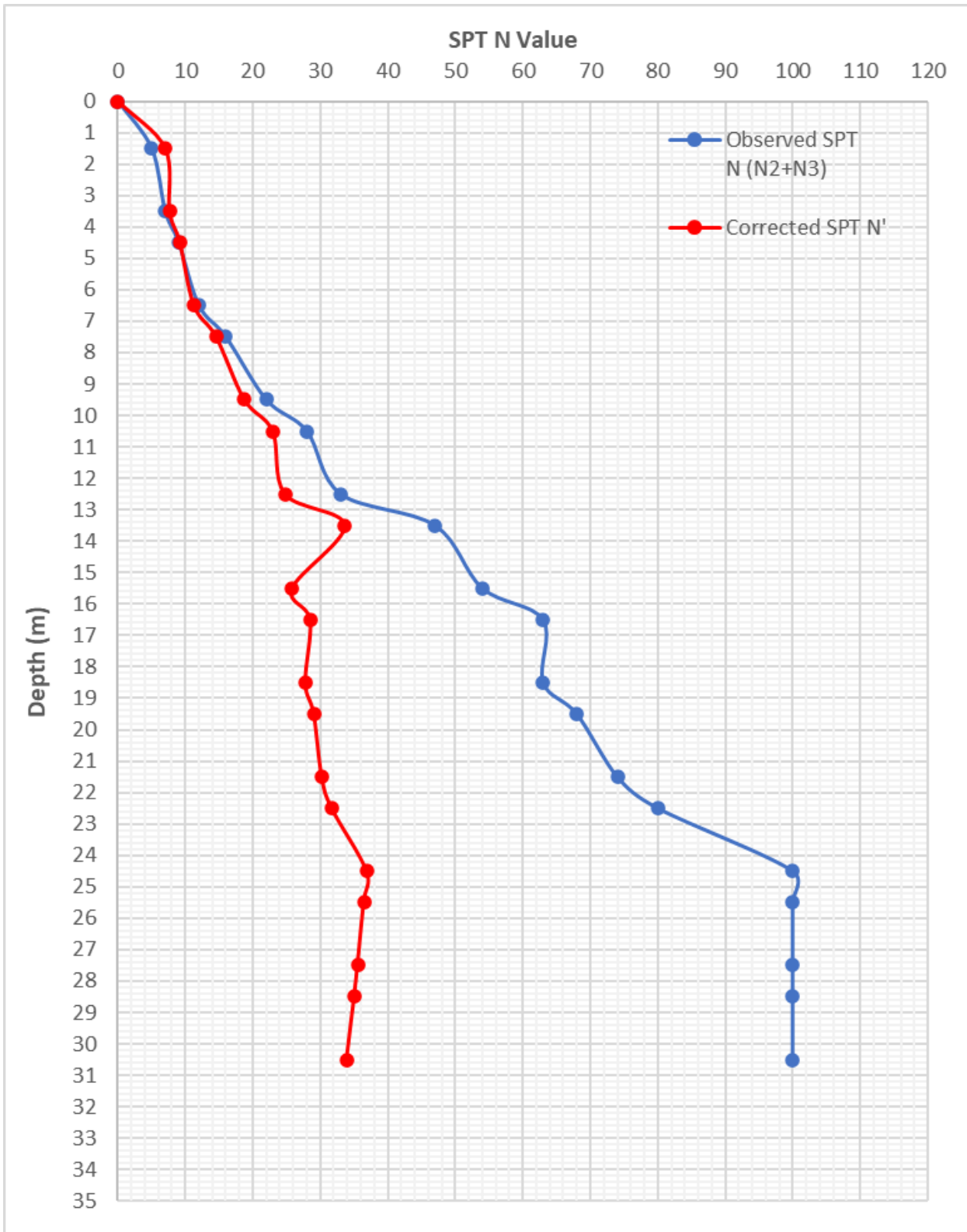


### BH-(-06)



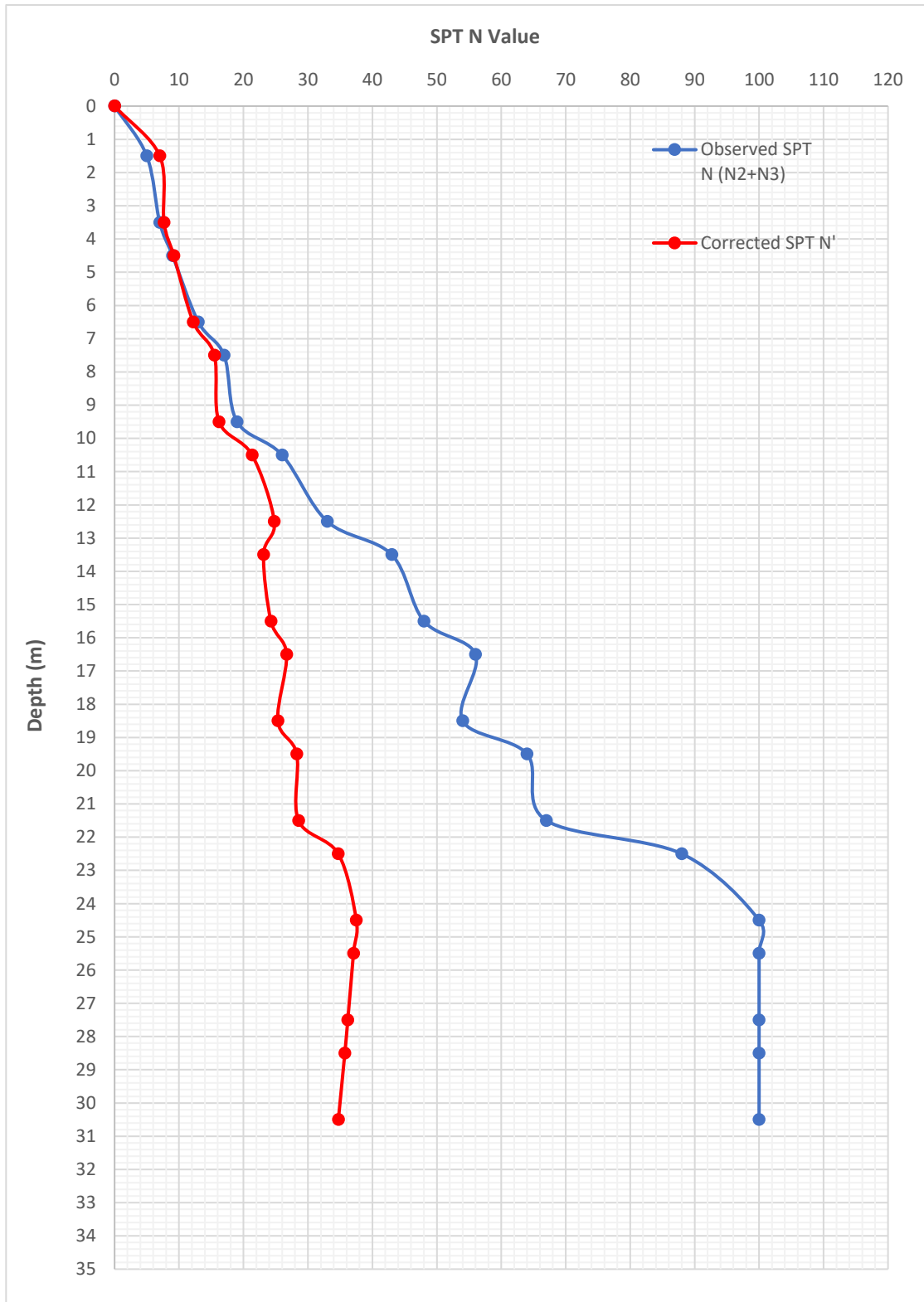


### BH-(-08)



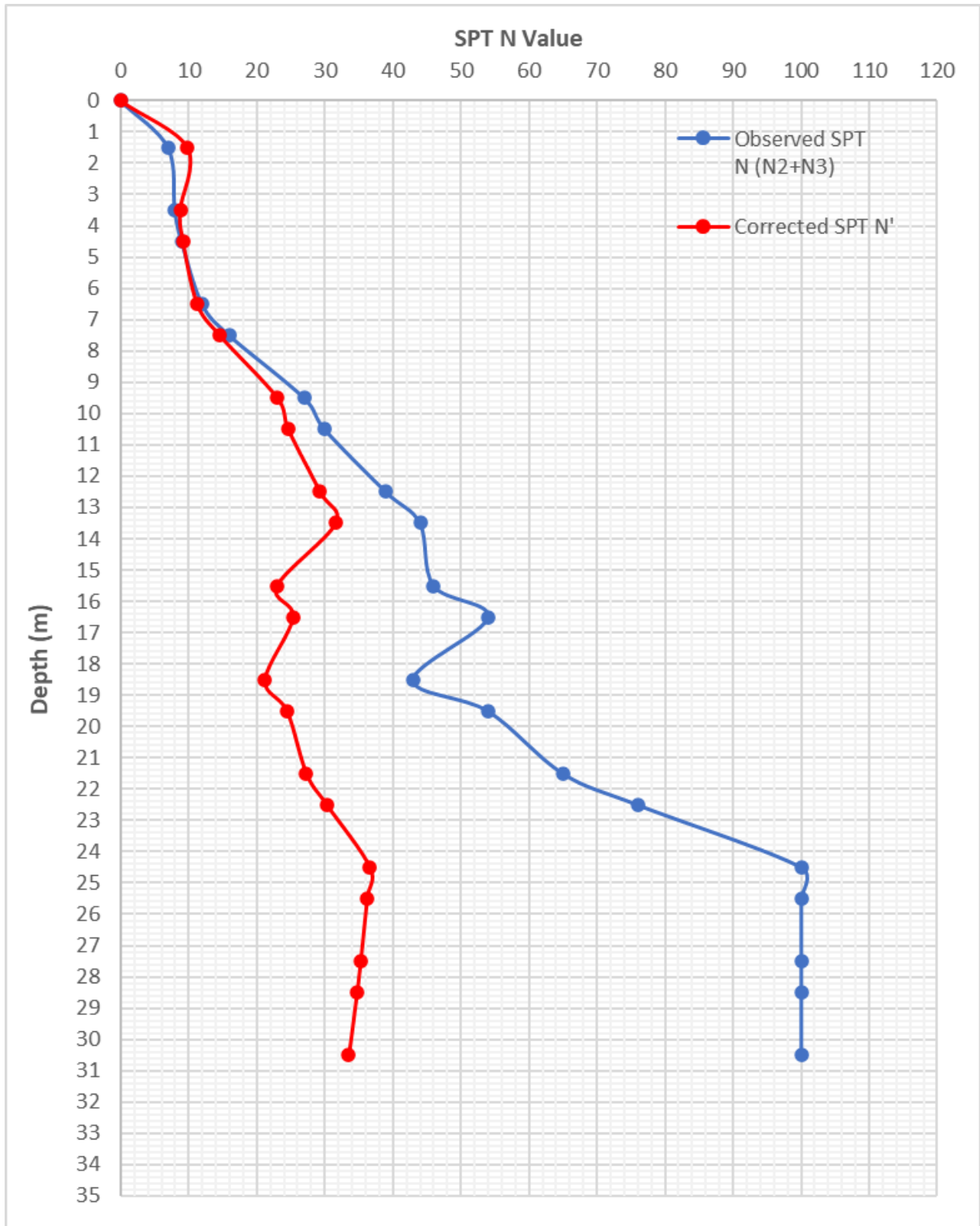


### BH-(-09)





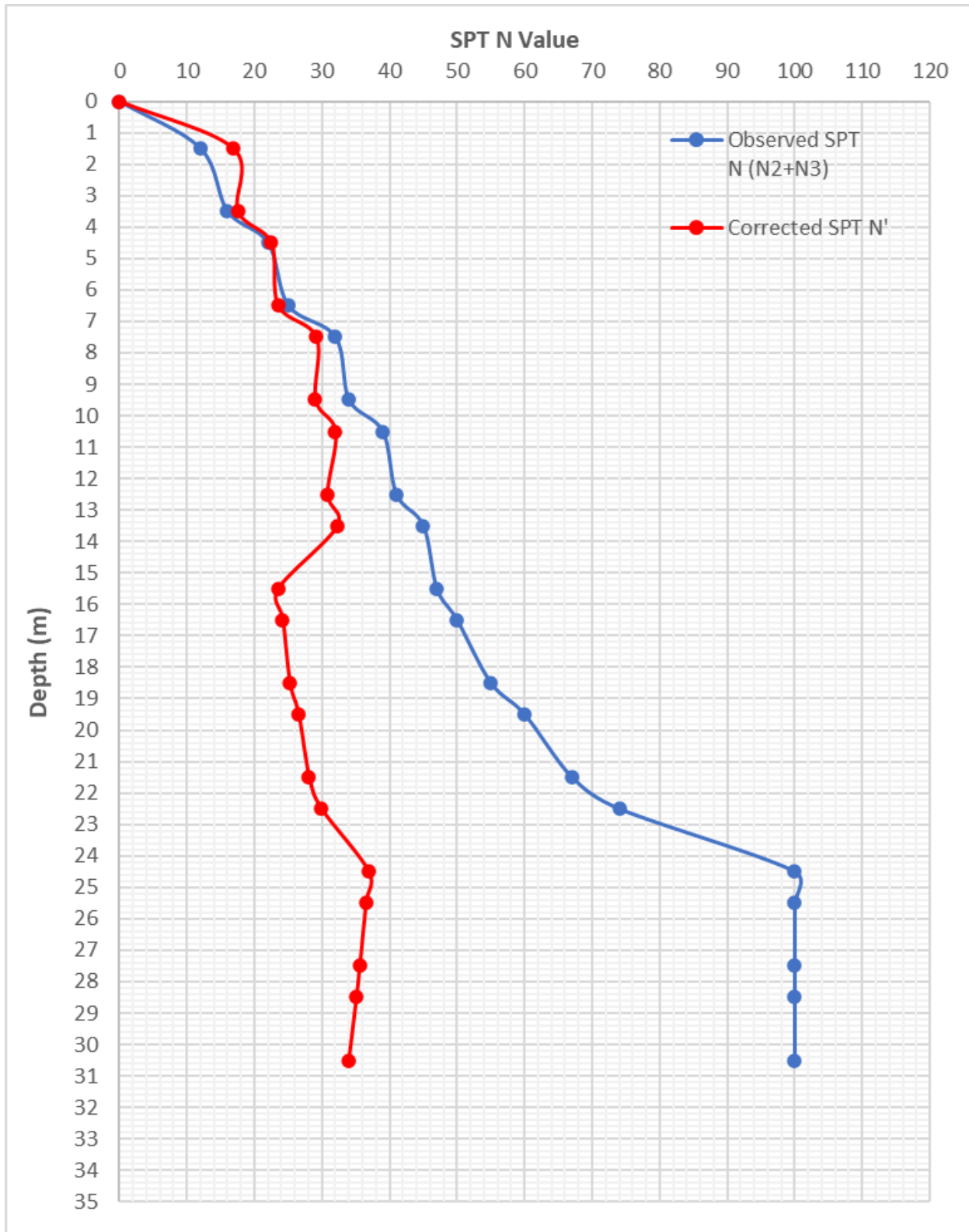
### BH-(-10)





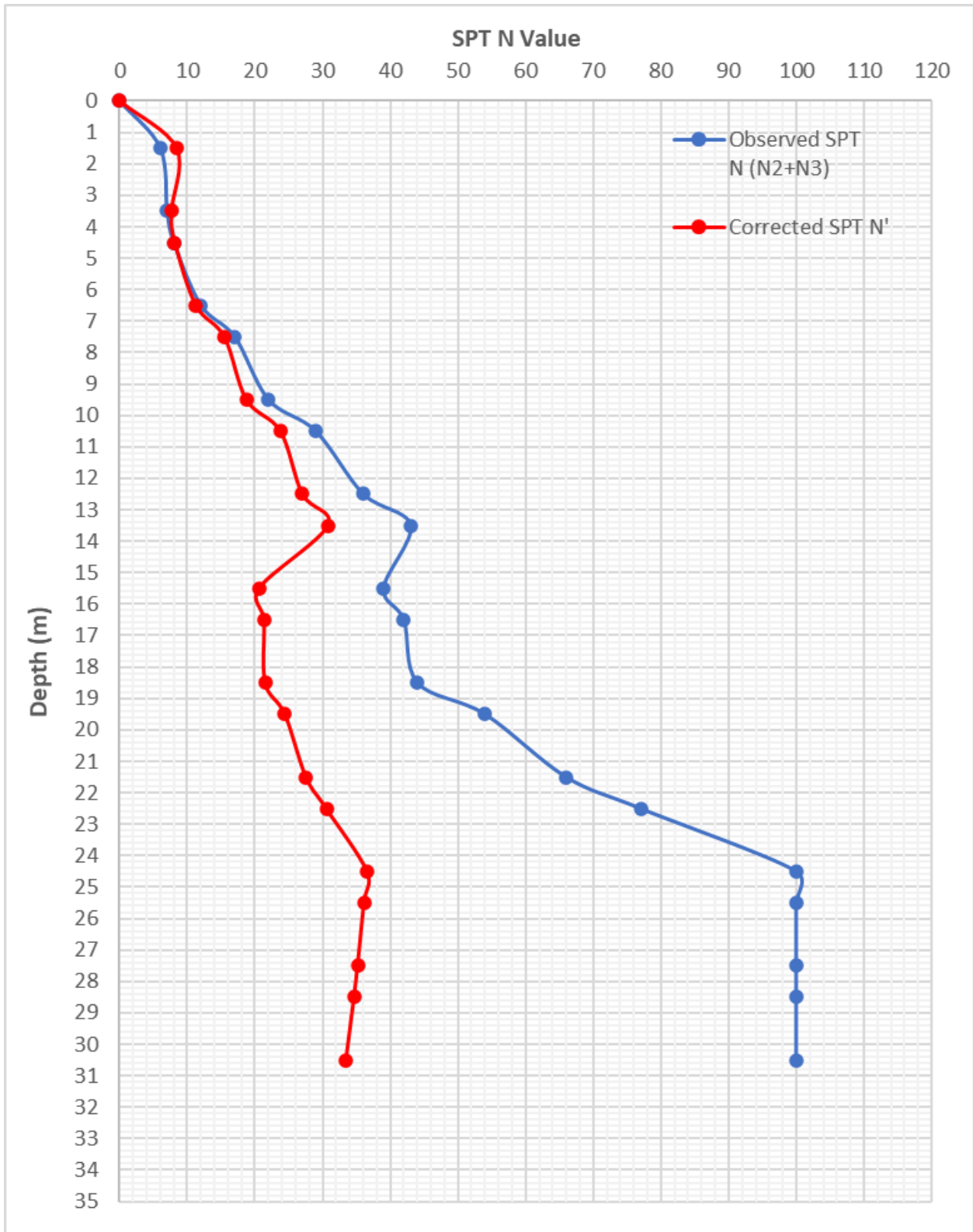
## D.2 Zone 2: CH: 0+500 km to 1+450 km (BH-01 to BH-09)

### BH-01



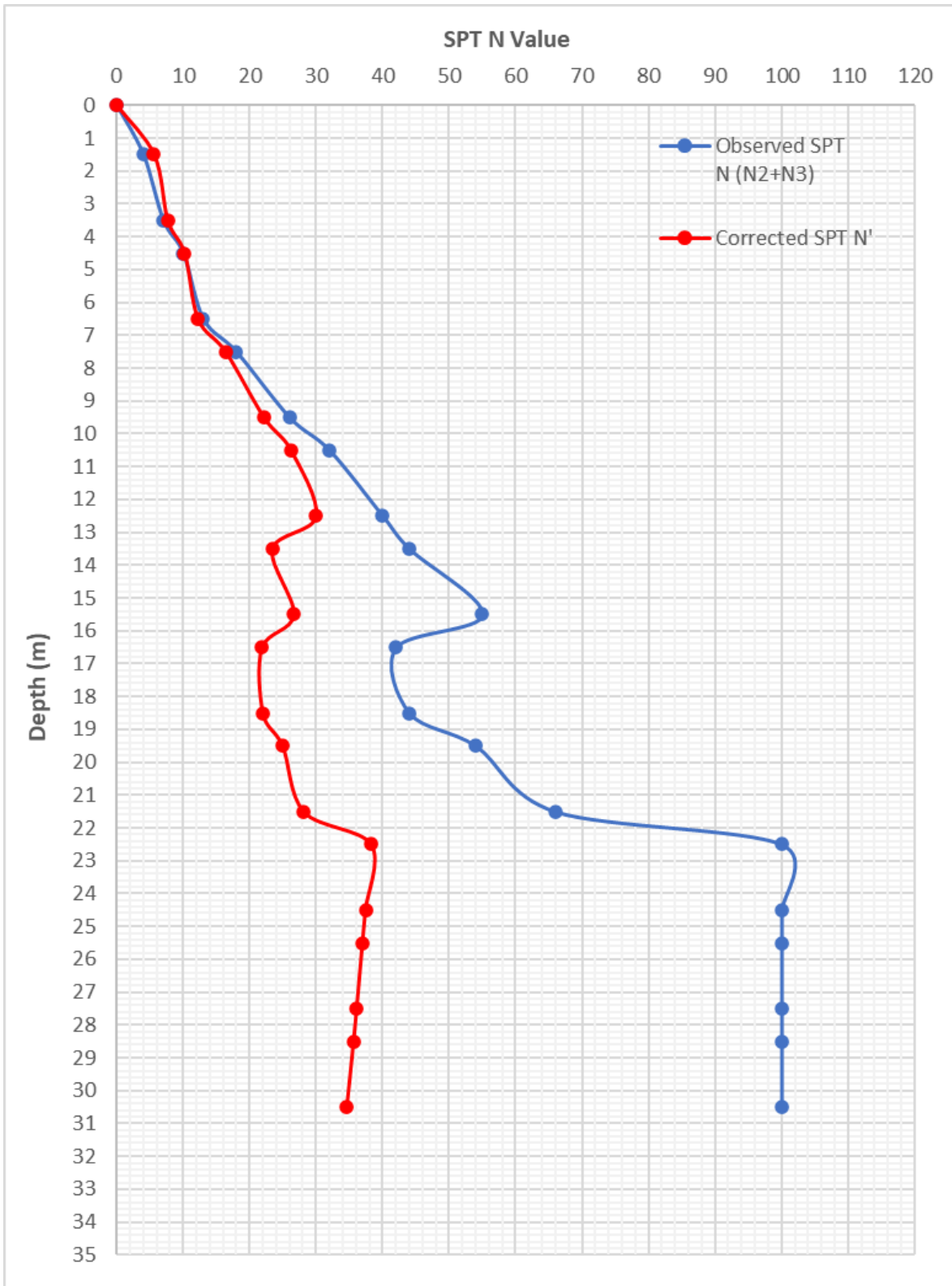


### BH-02



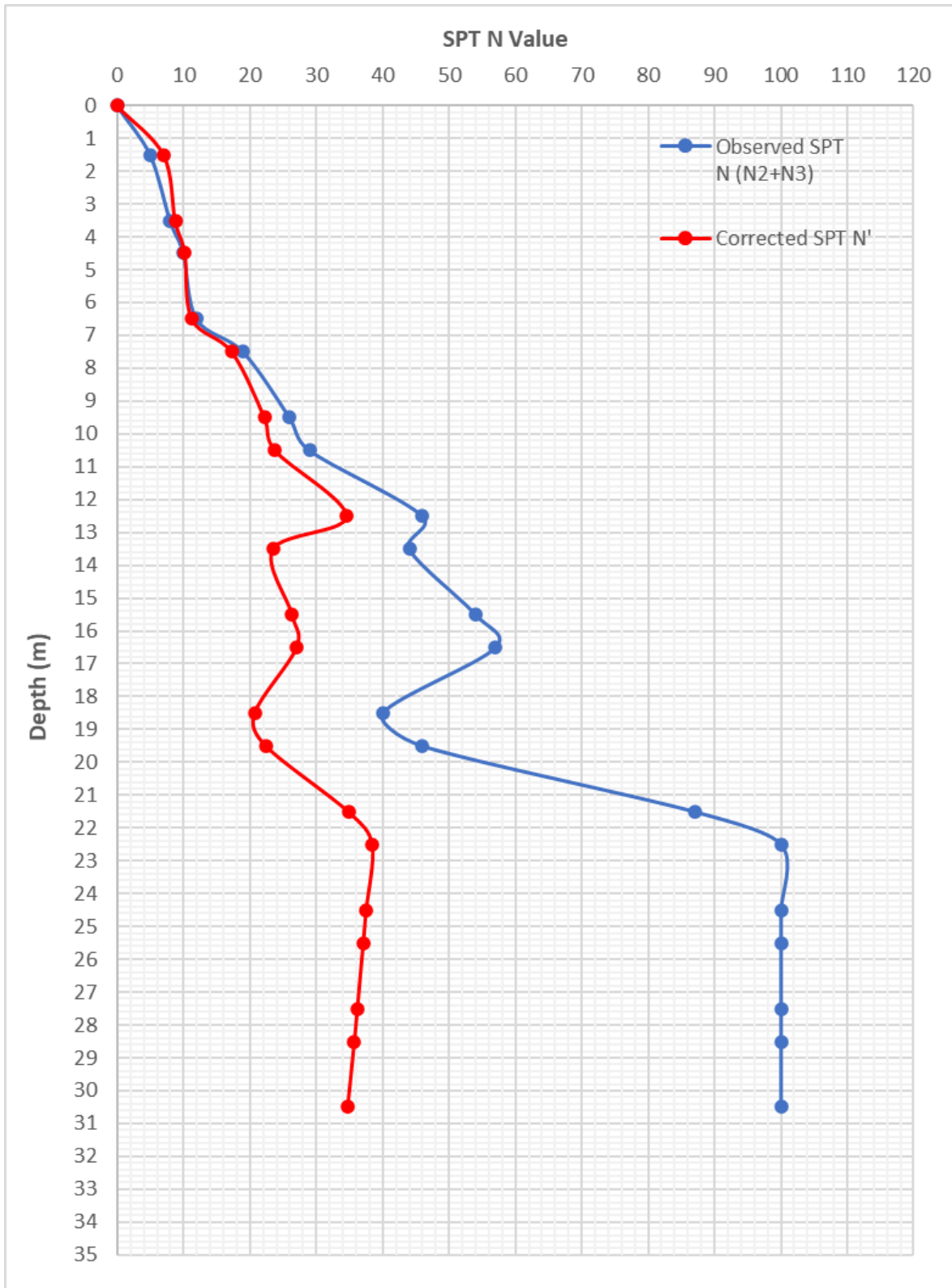


### BH-03



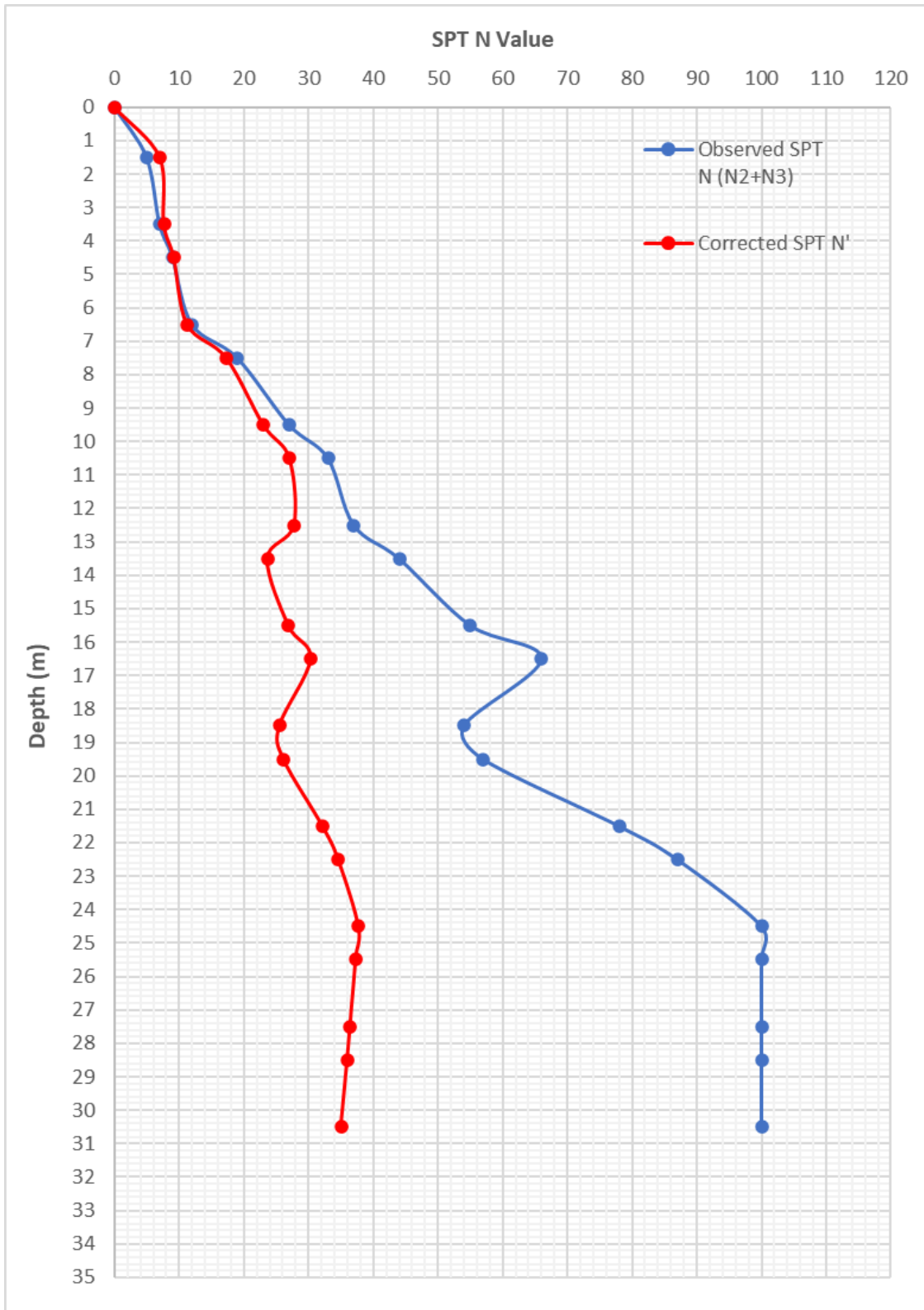


### BH-04



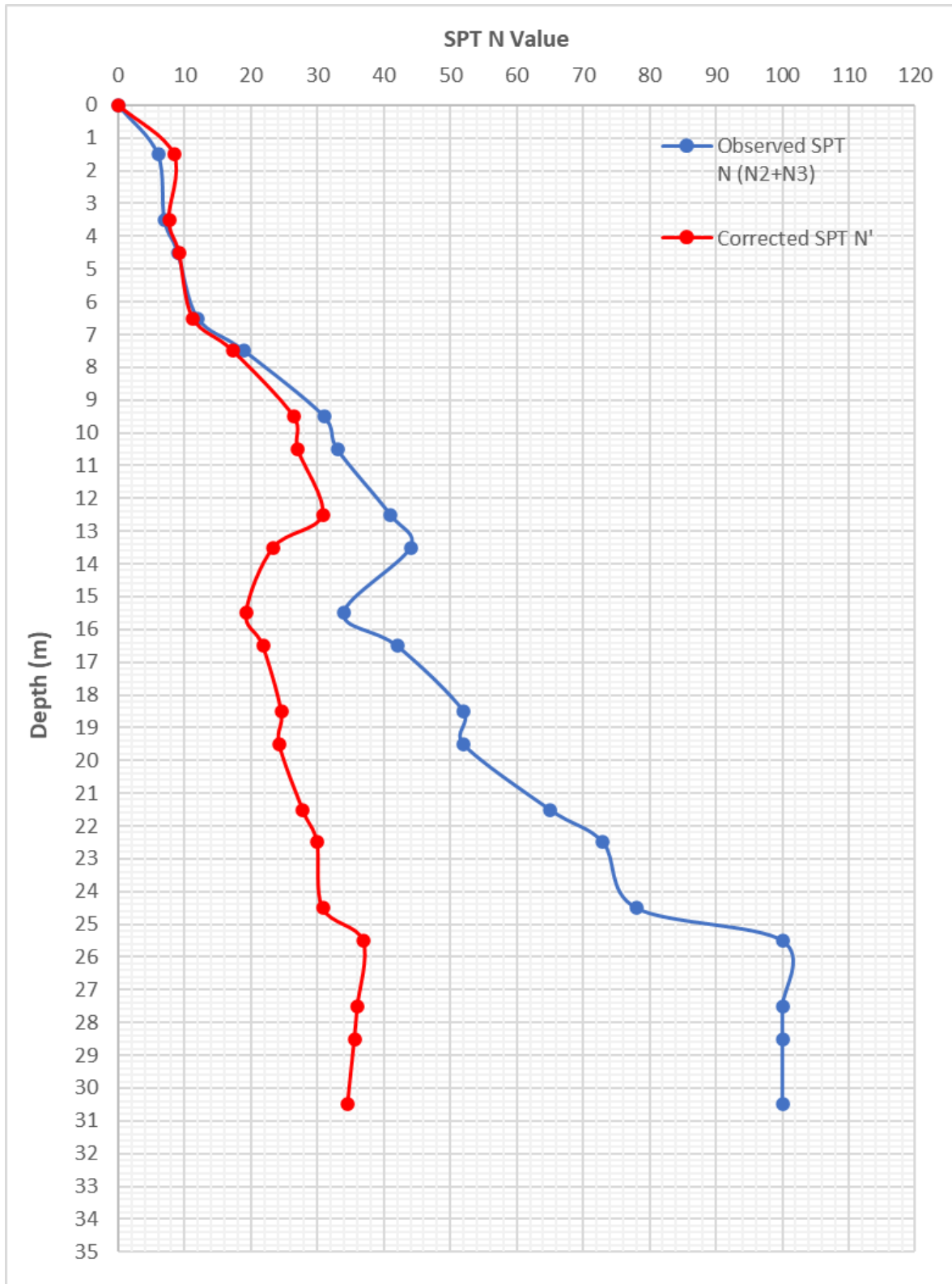


### BH-05



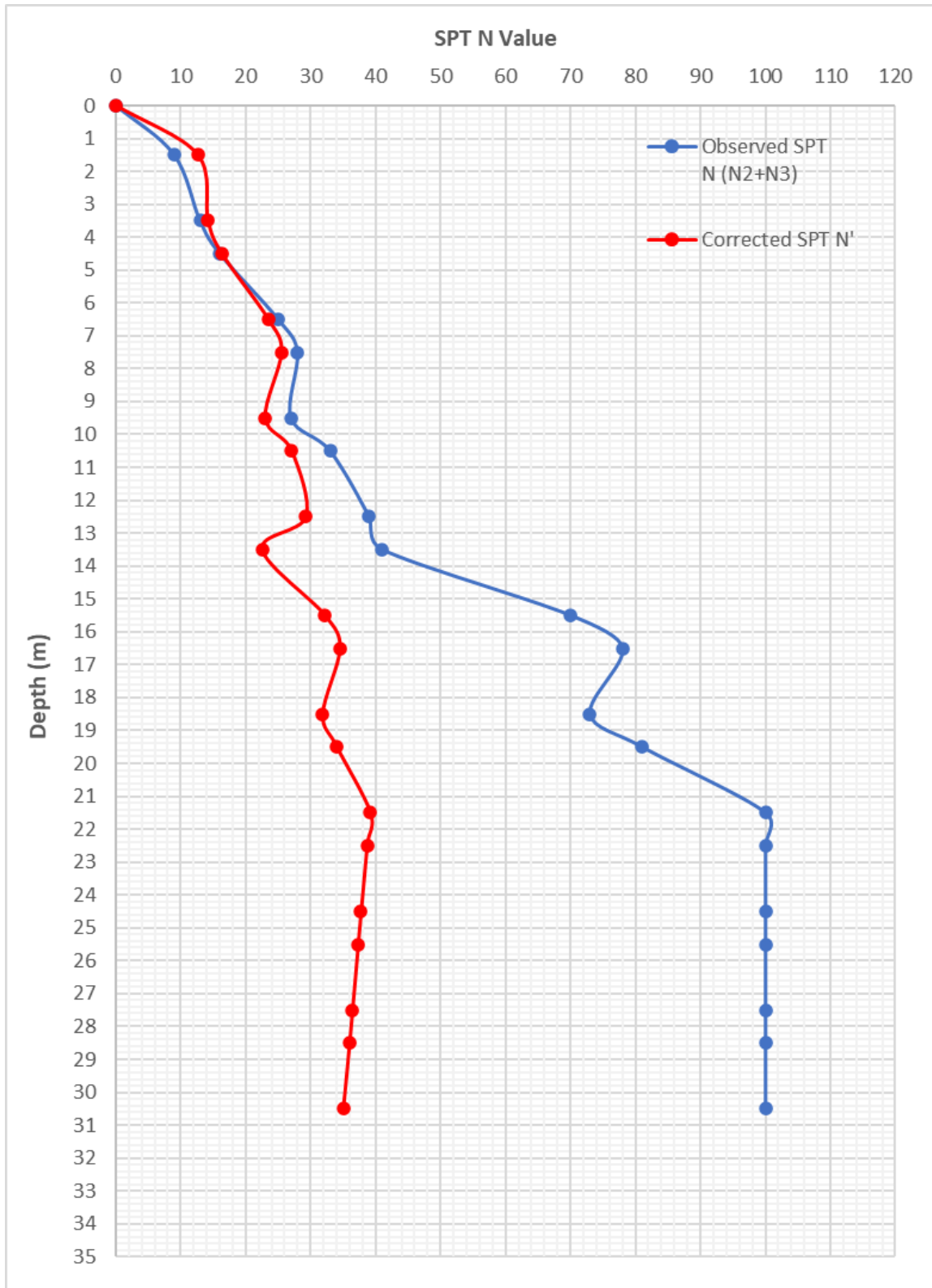


### BH-06



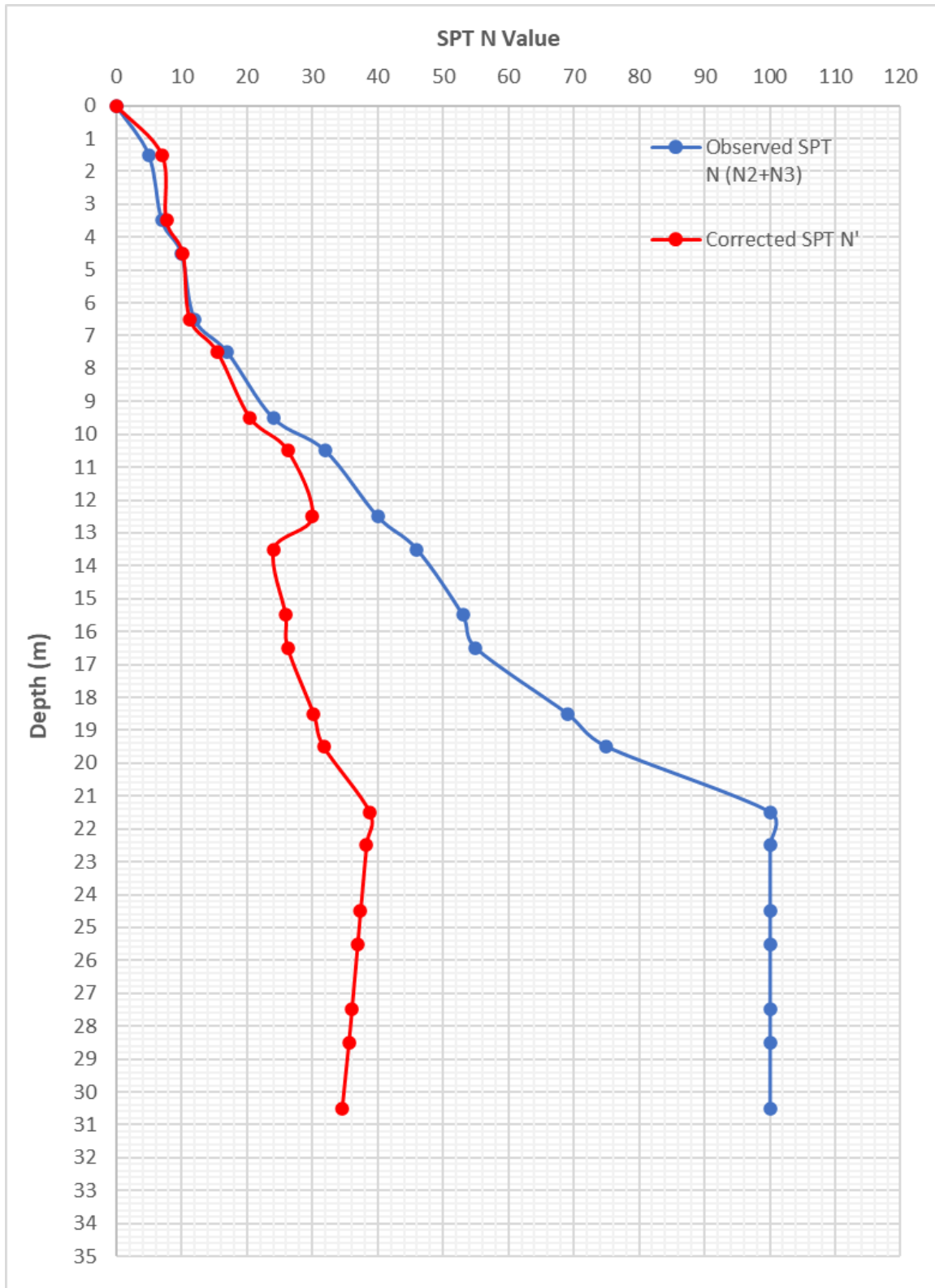


### BH-07



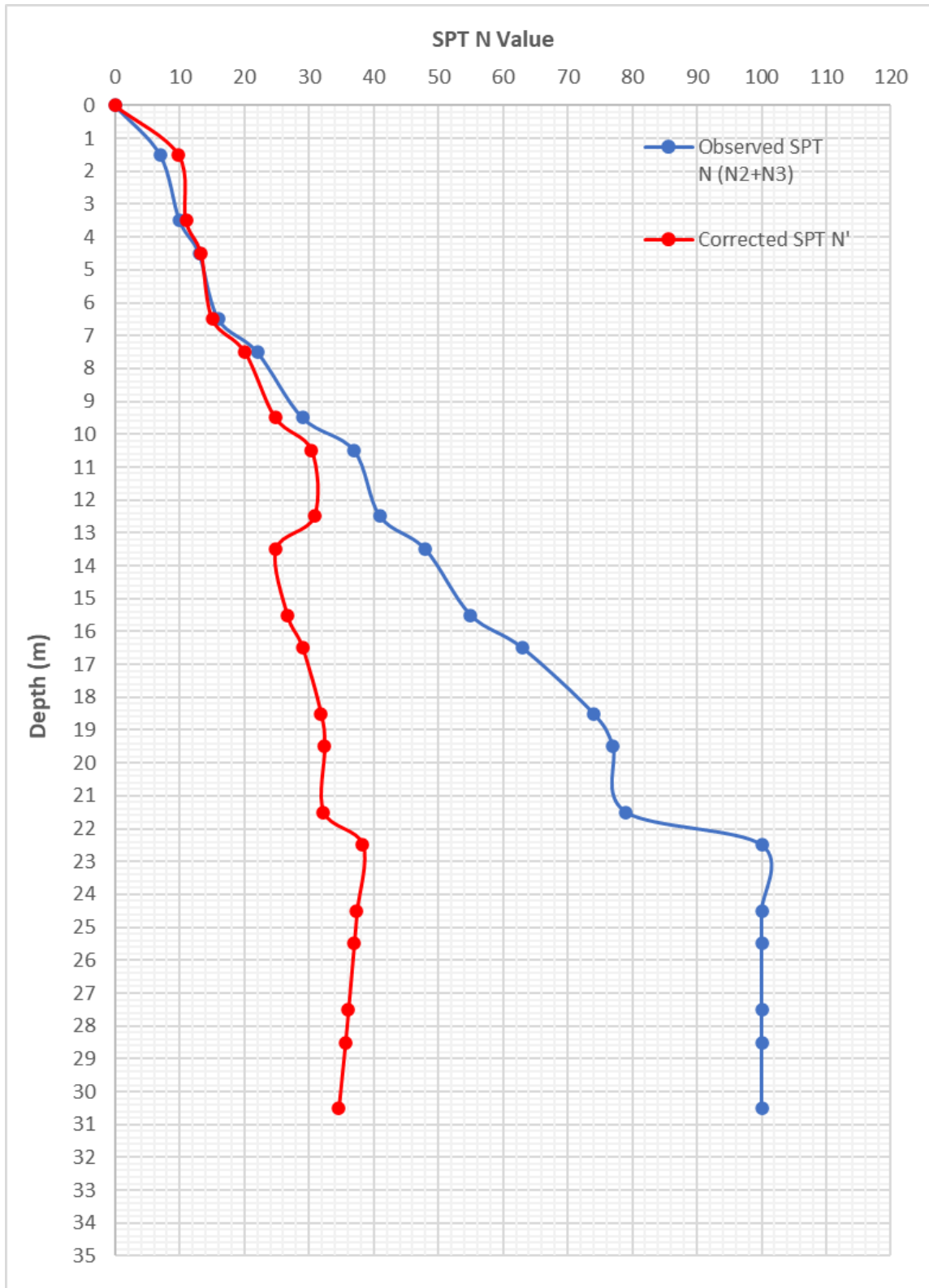


### BH-08





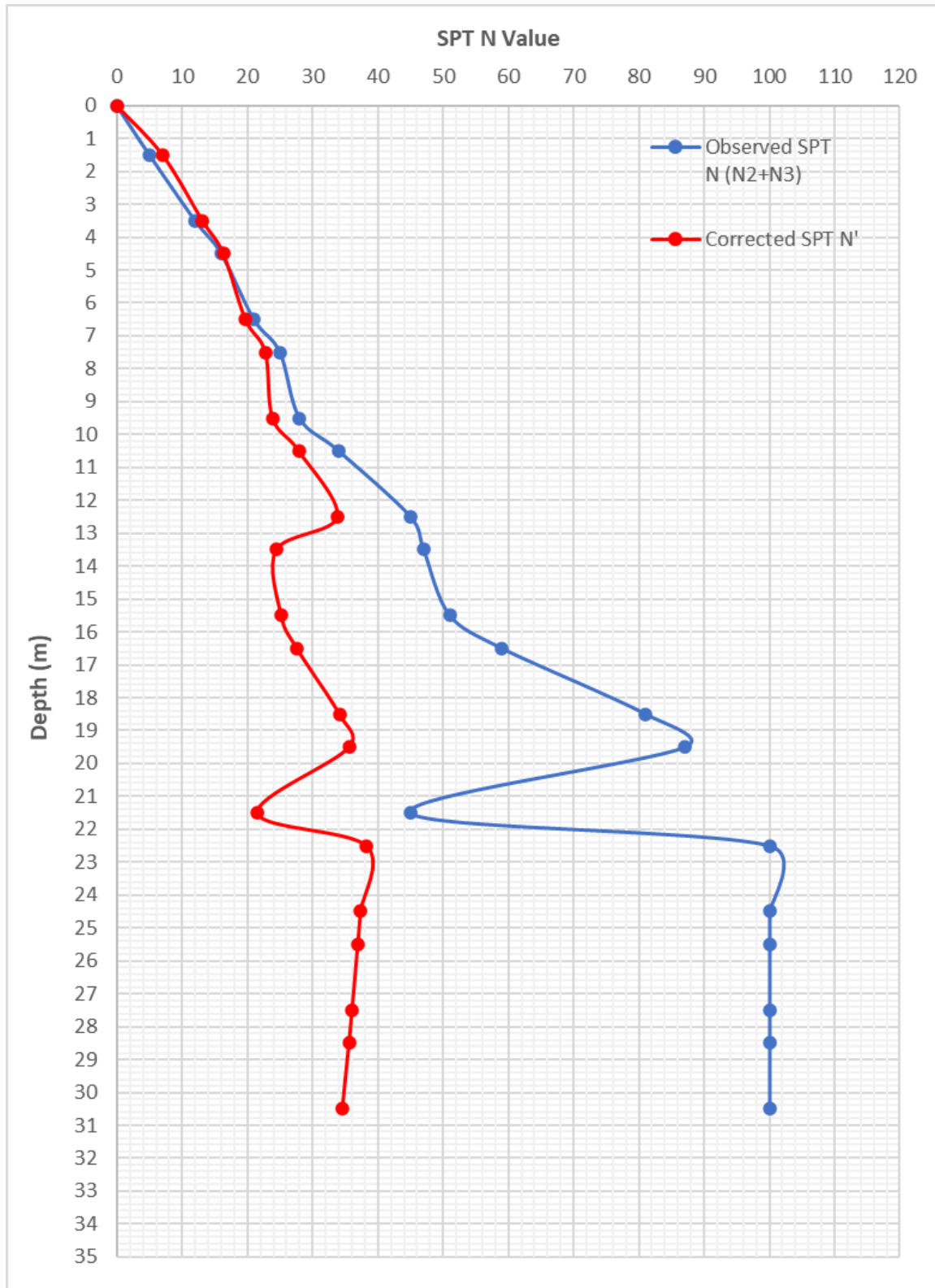
### BH-09





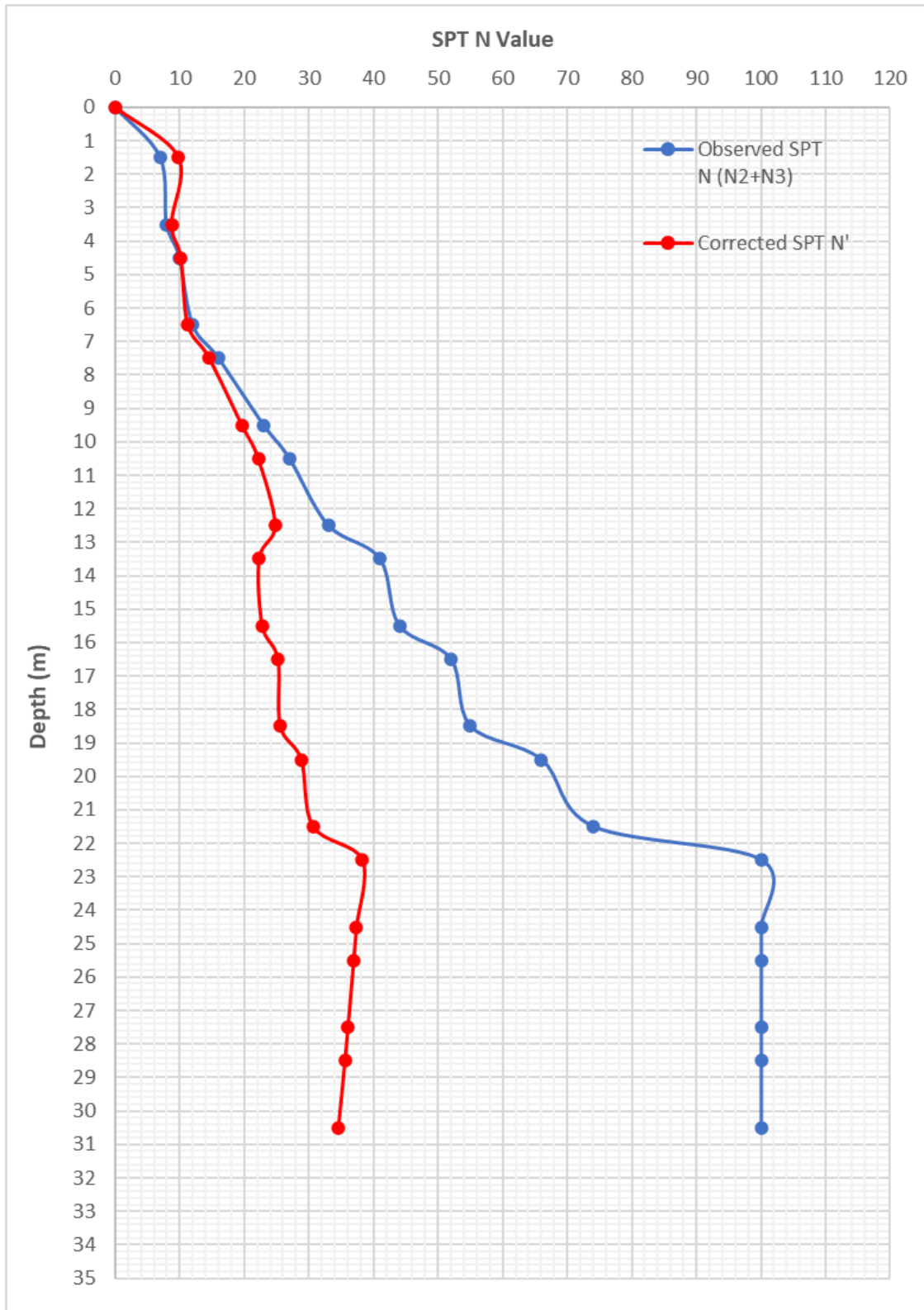
### D.3 Zone 3: CH: 1+450 km to 2+515 km (BH-11 to BH-20A)

#### BH-11



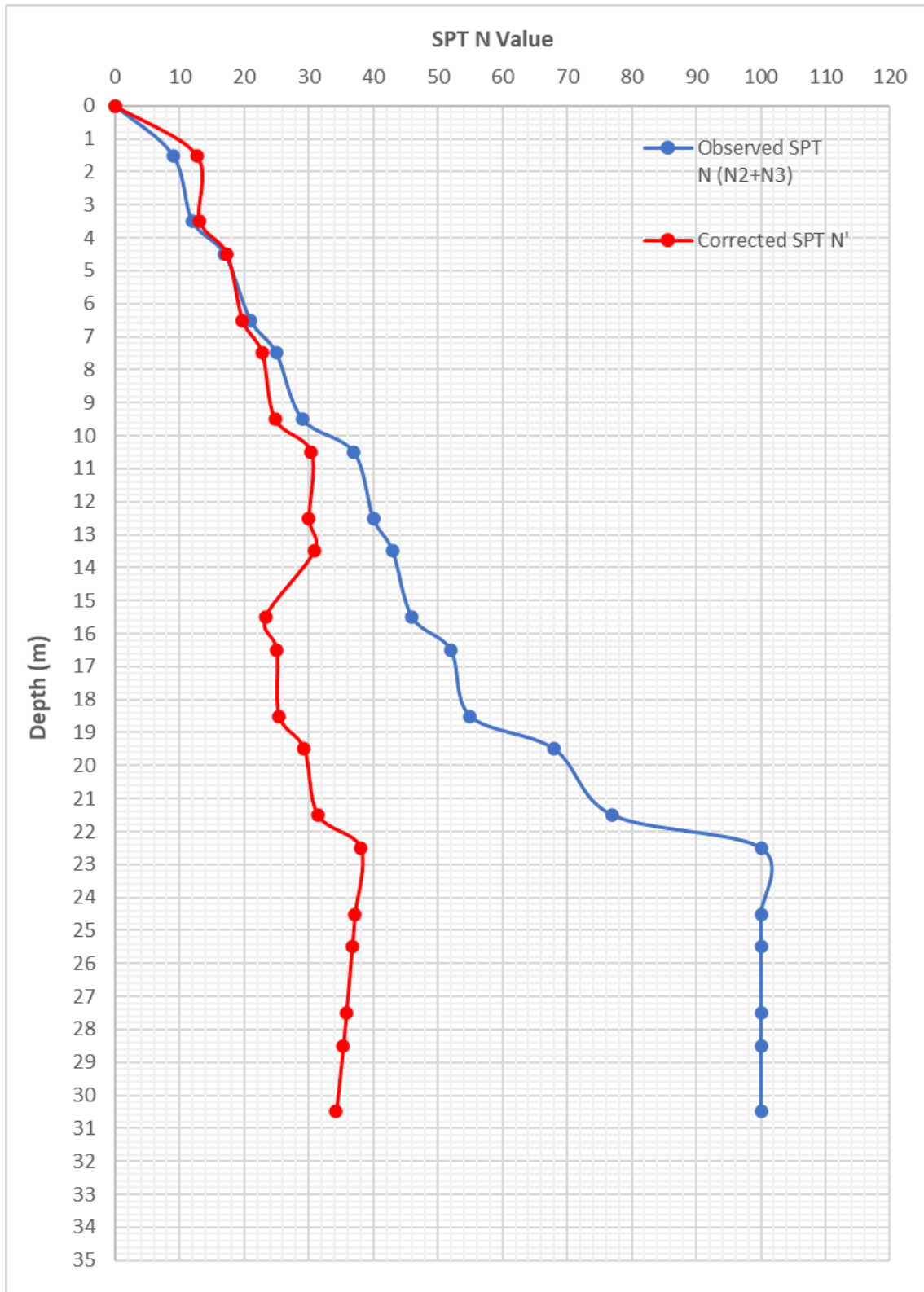


### BH-12



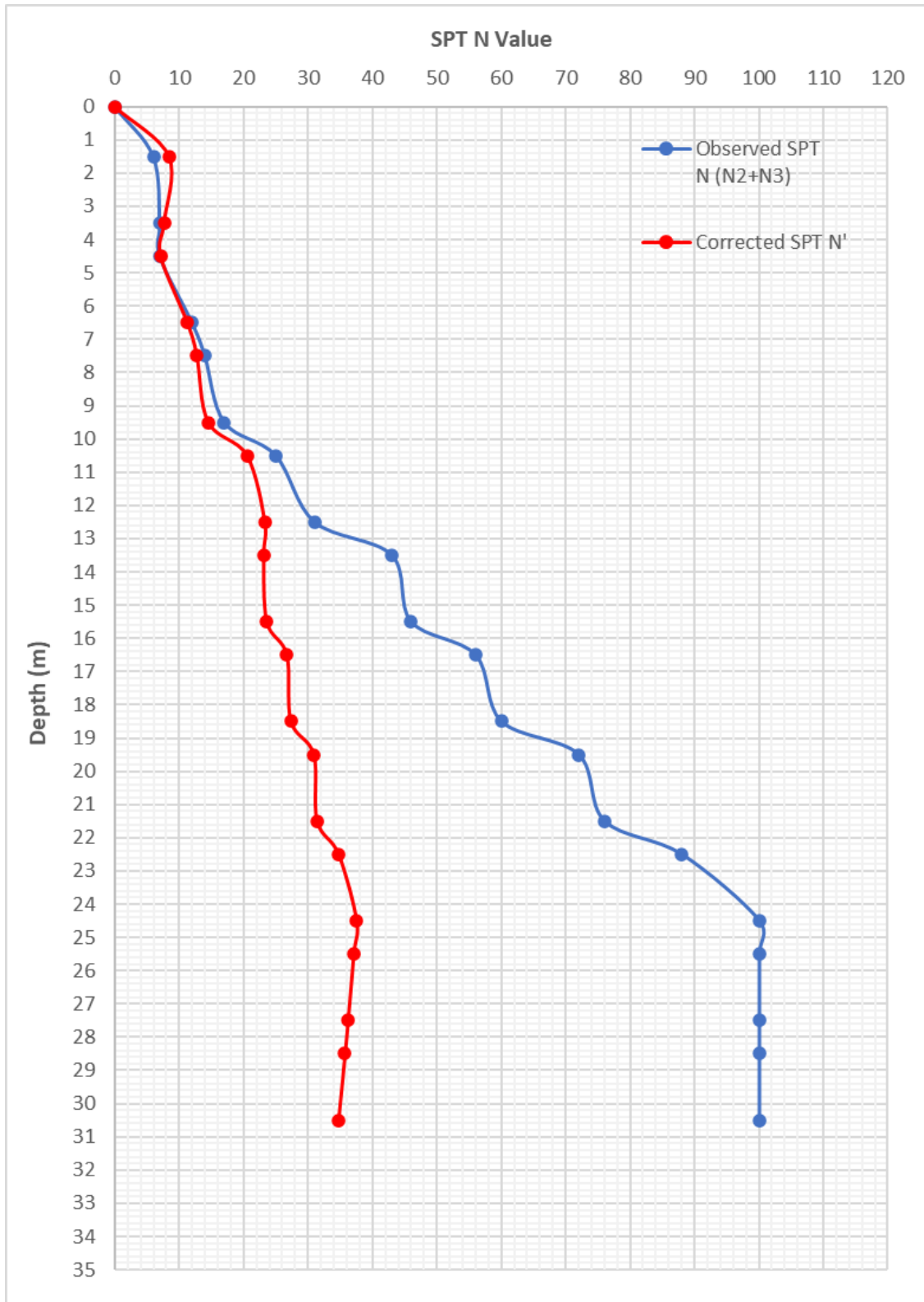


### BH-13



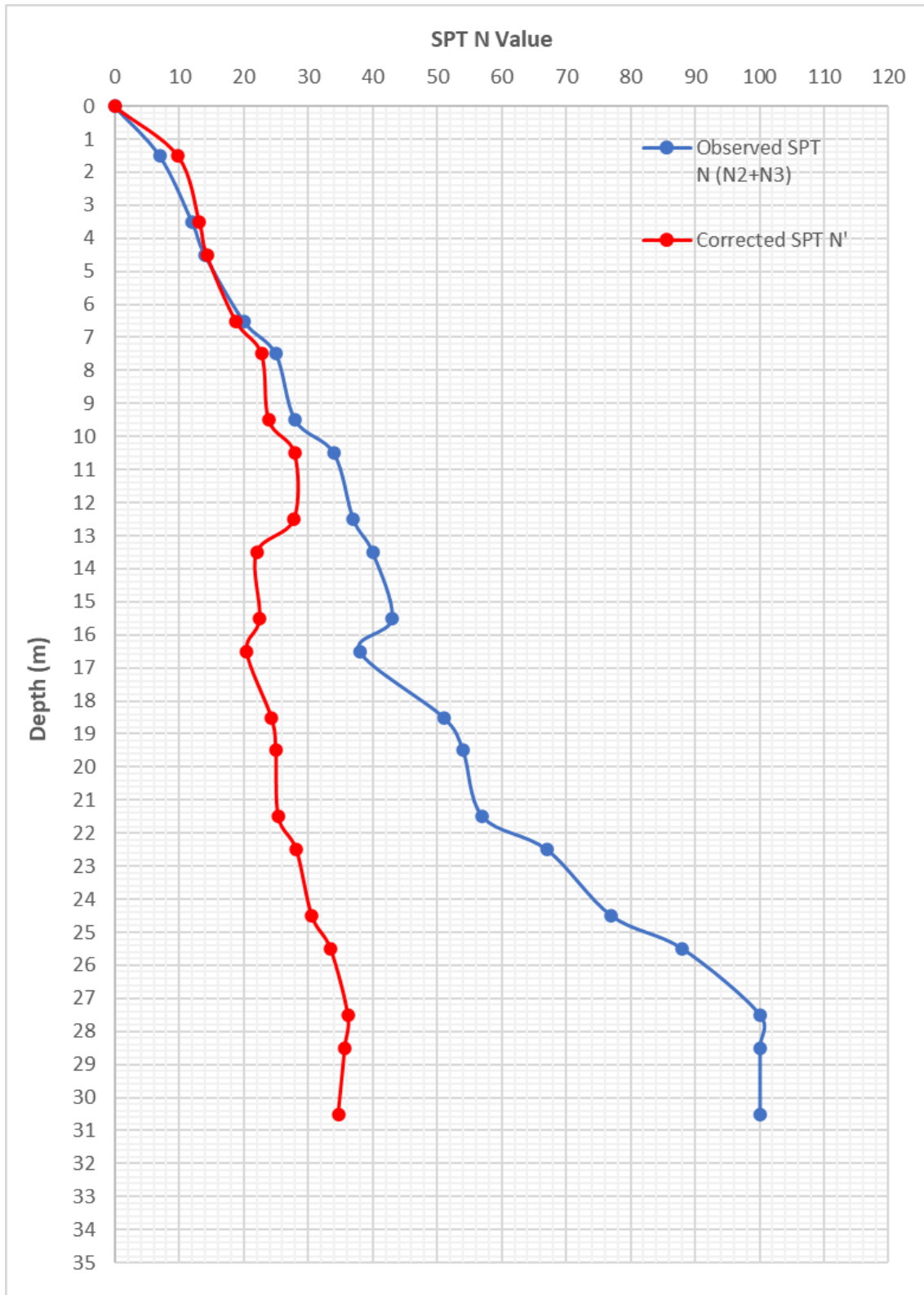


### BH-14



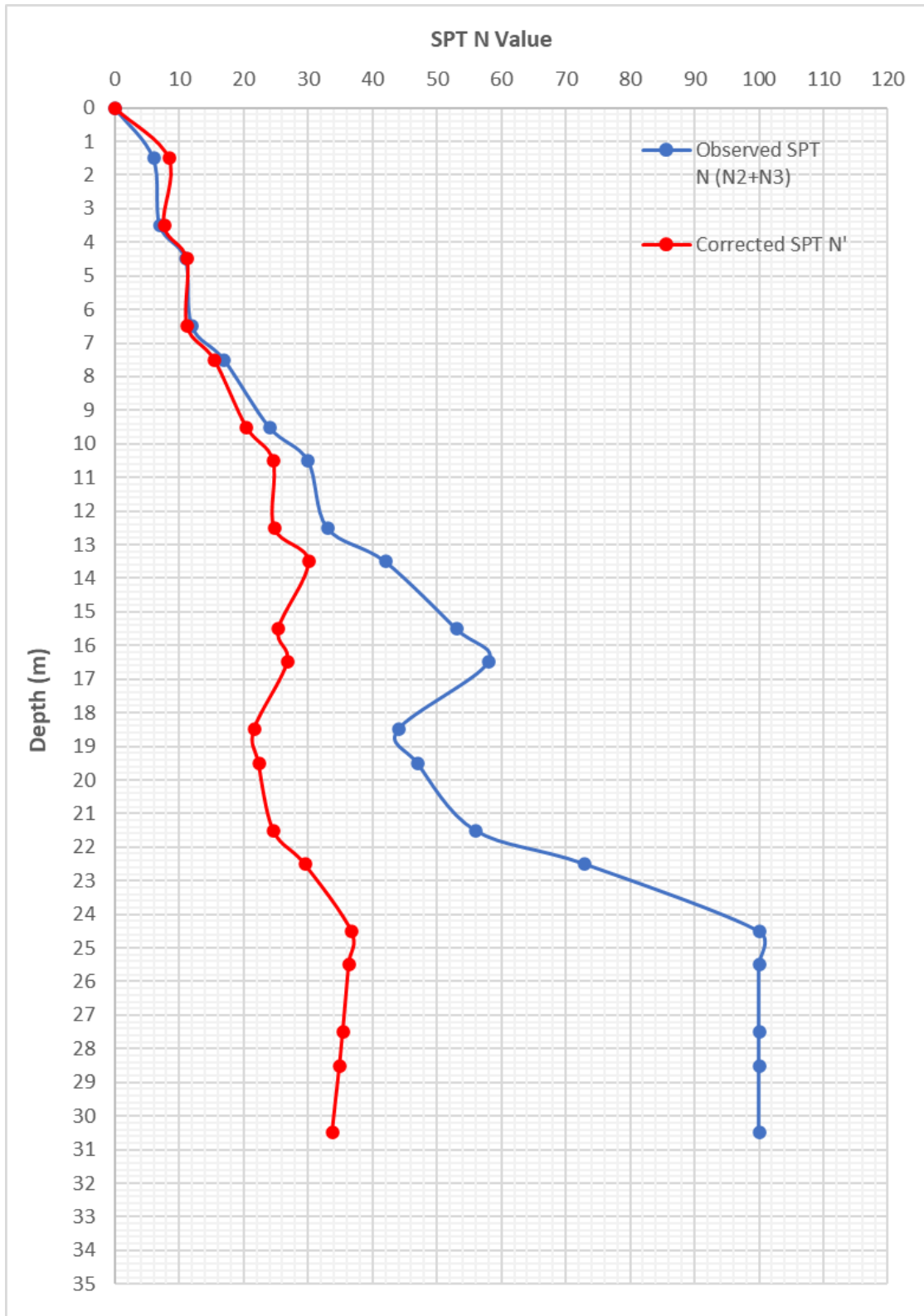


### BH-15



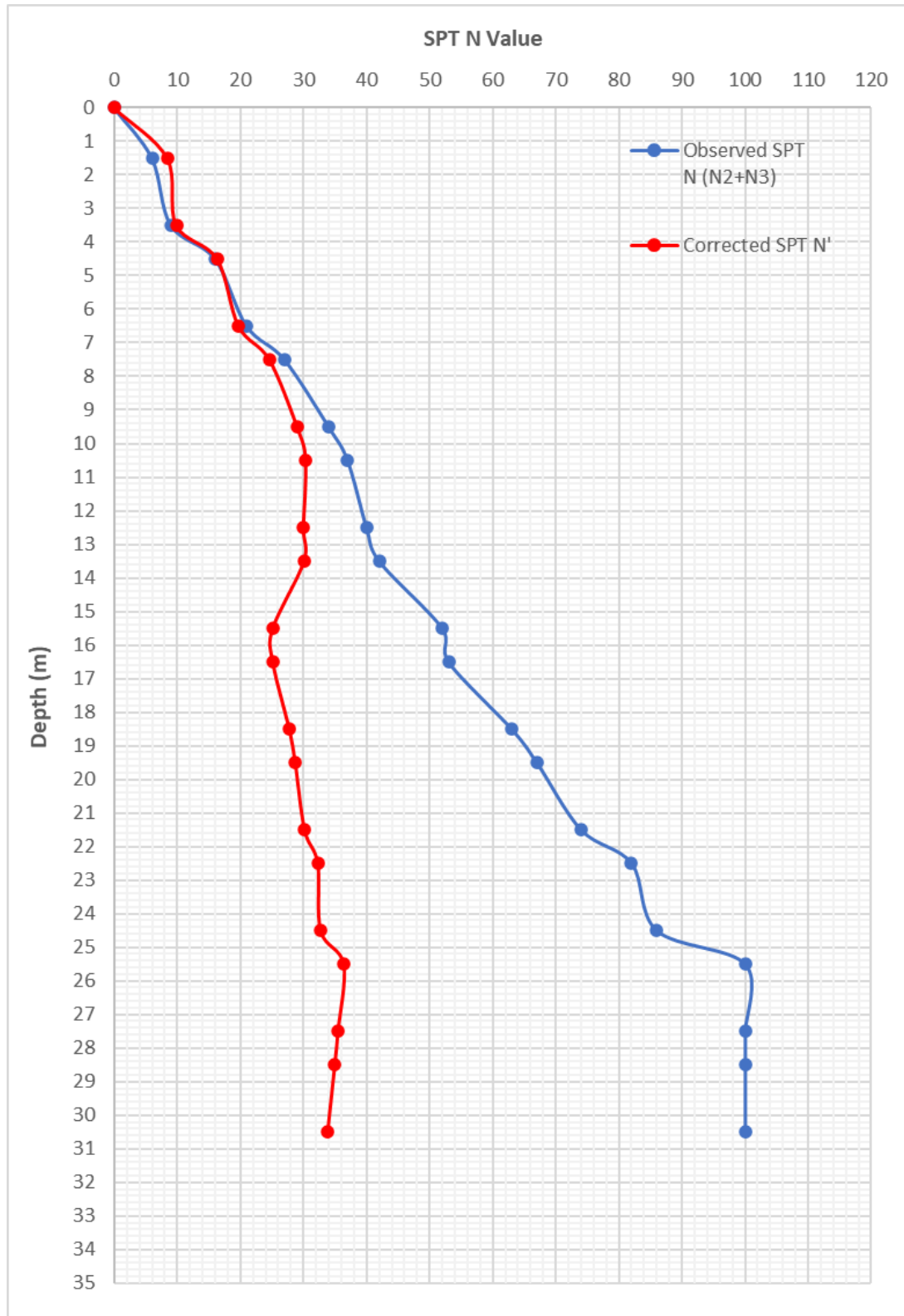


### BH-16



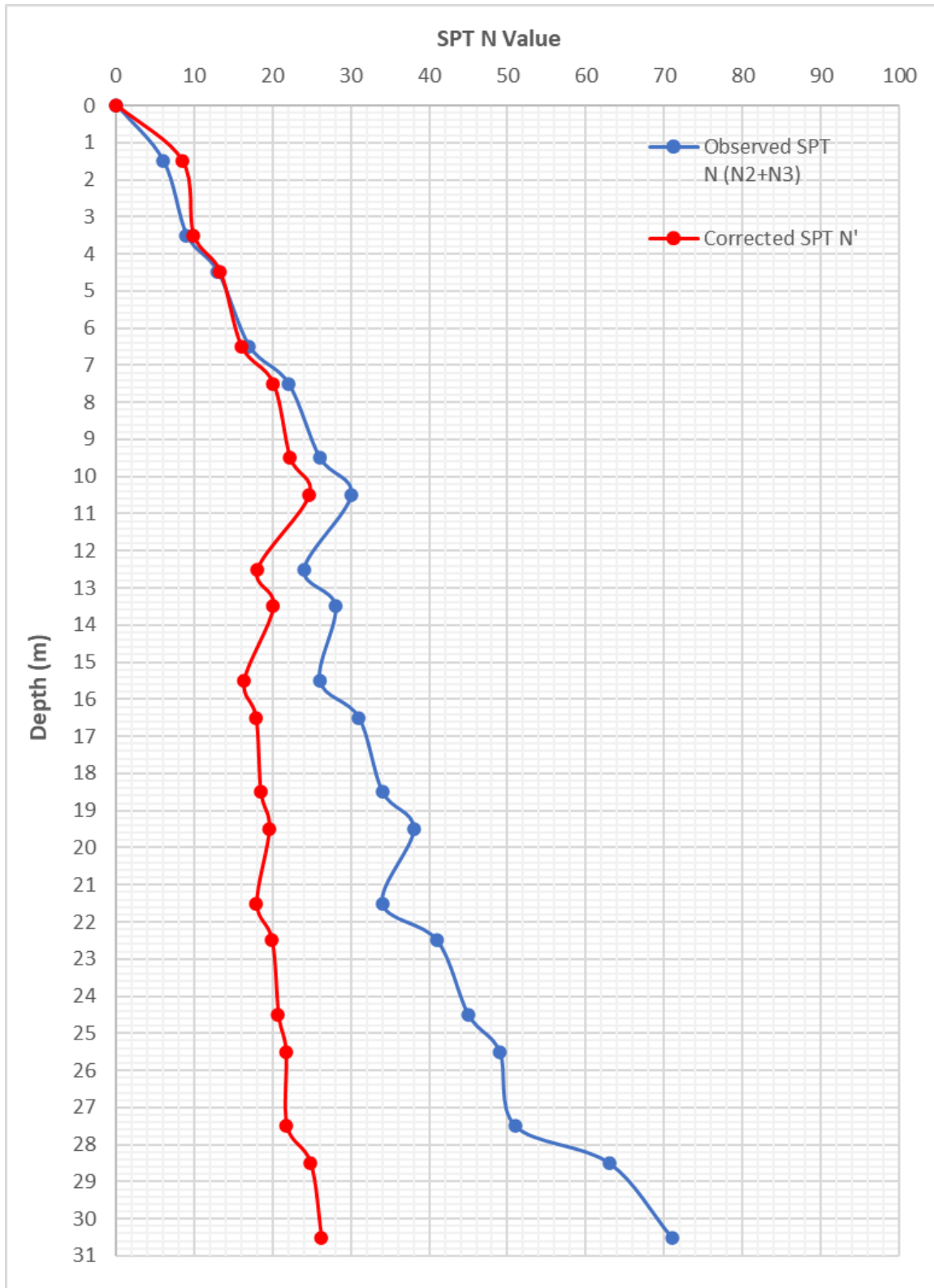


### BH-17



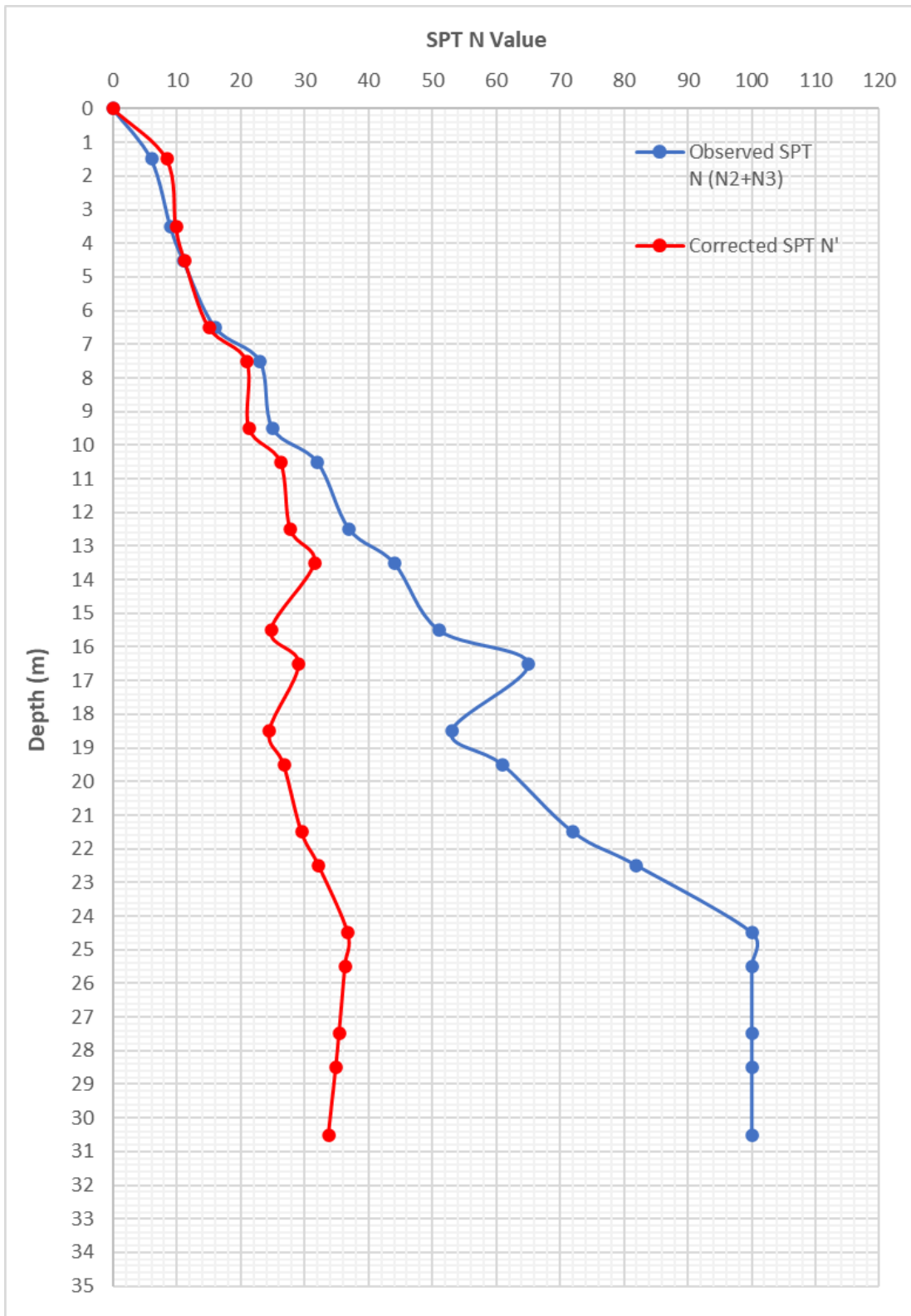


### BH-18



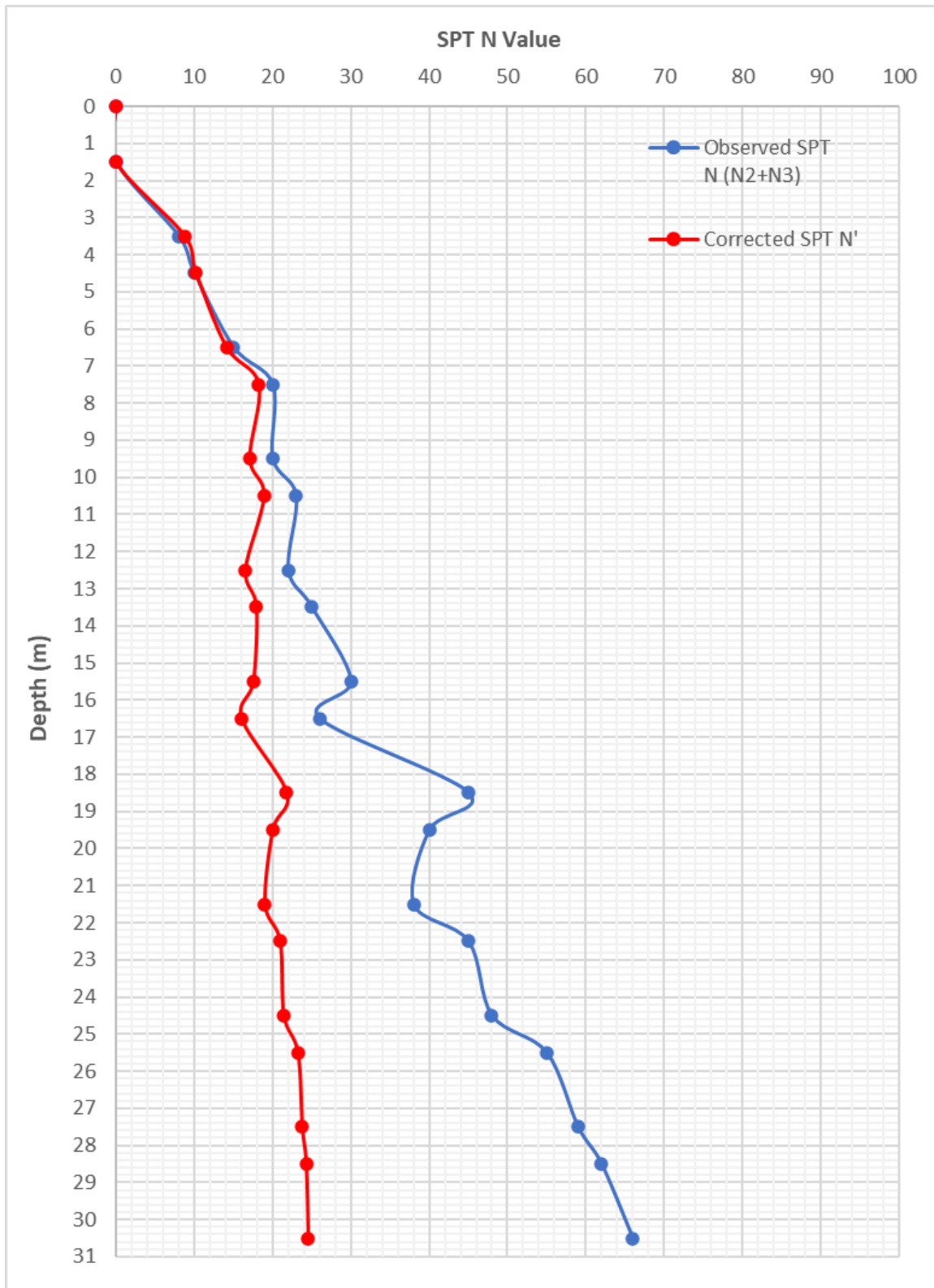


### BH-18A



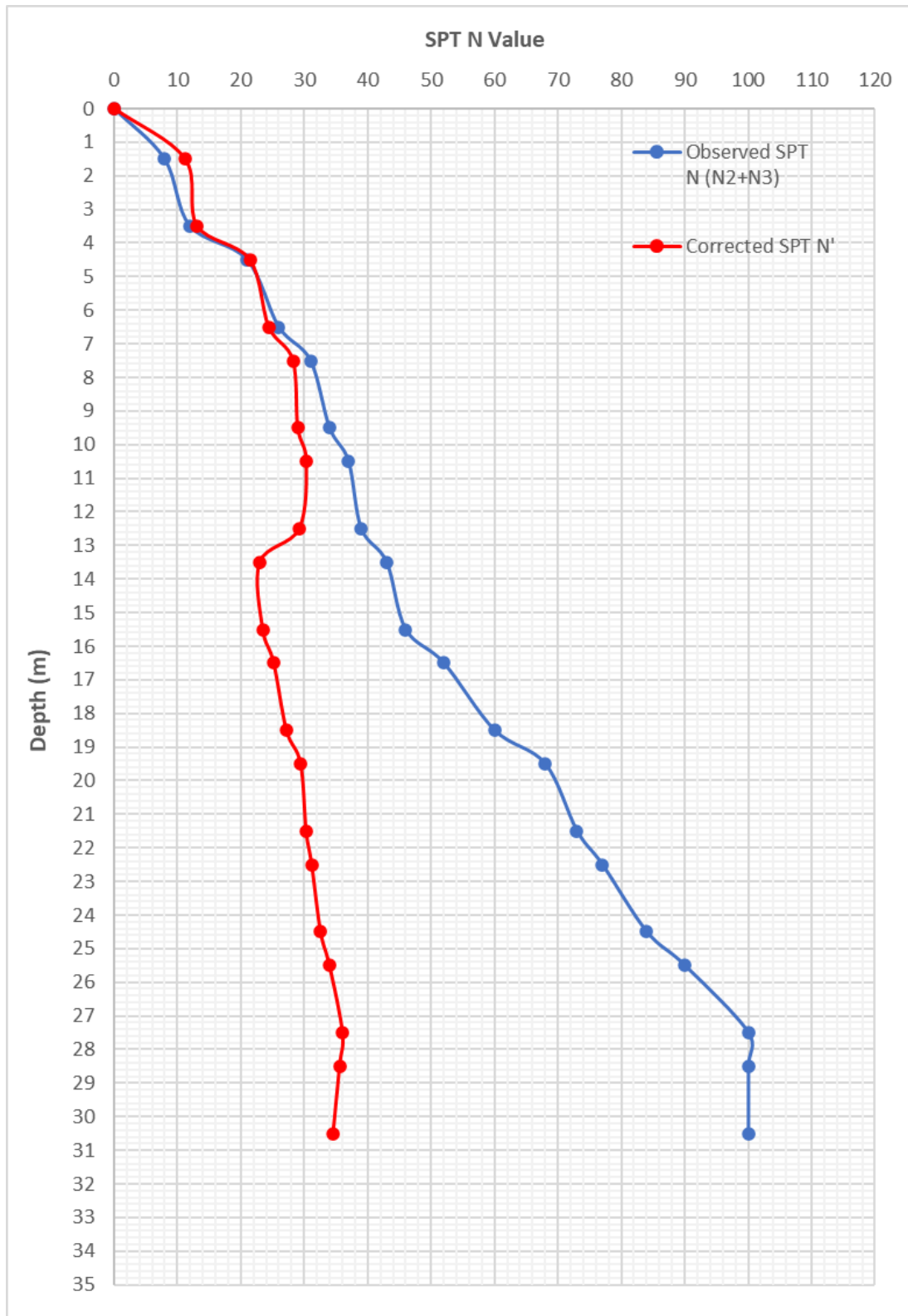


### BH-19



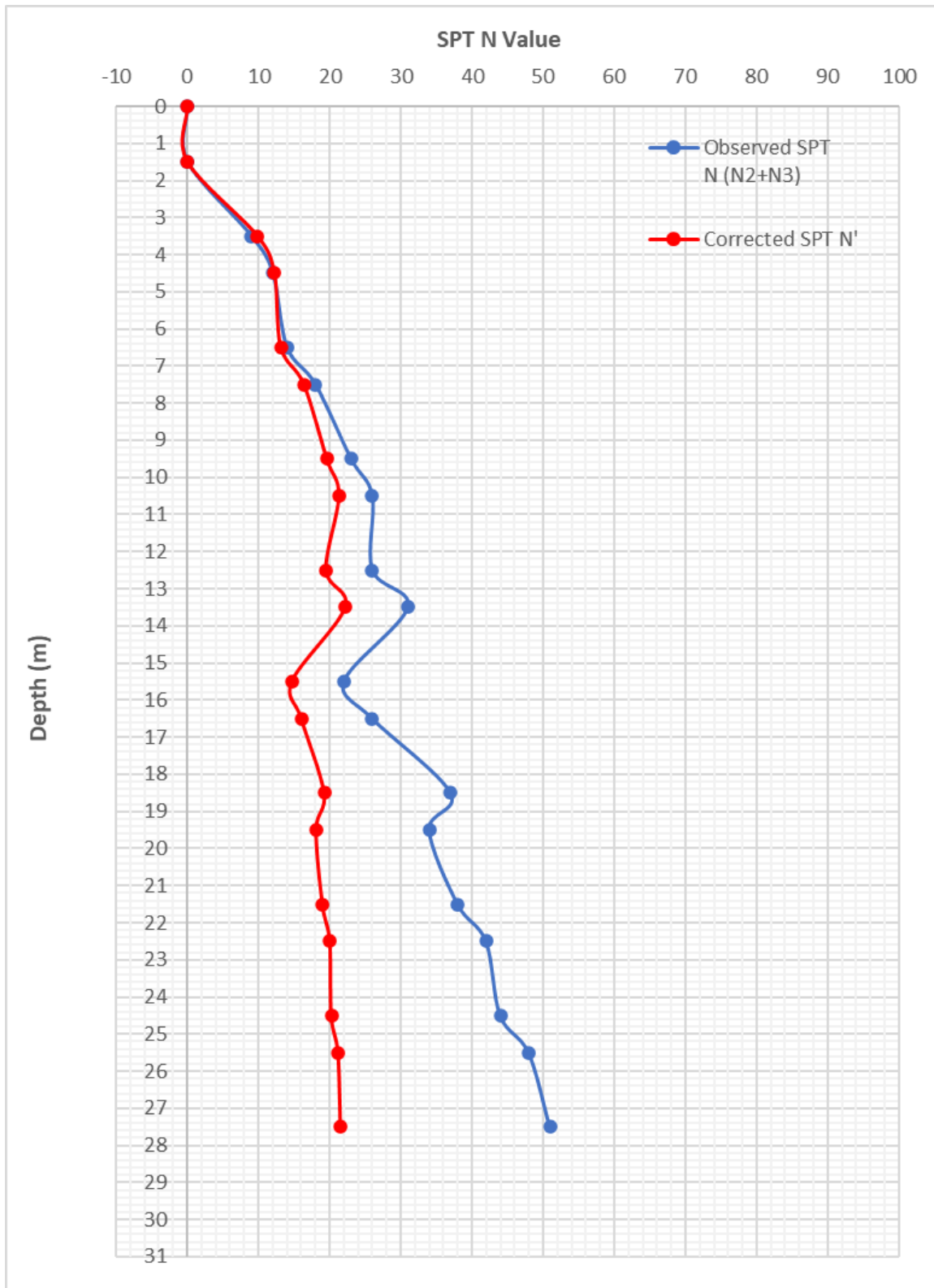


### BH-19A



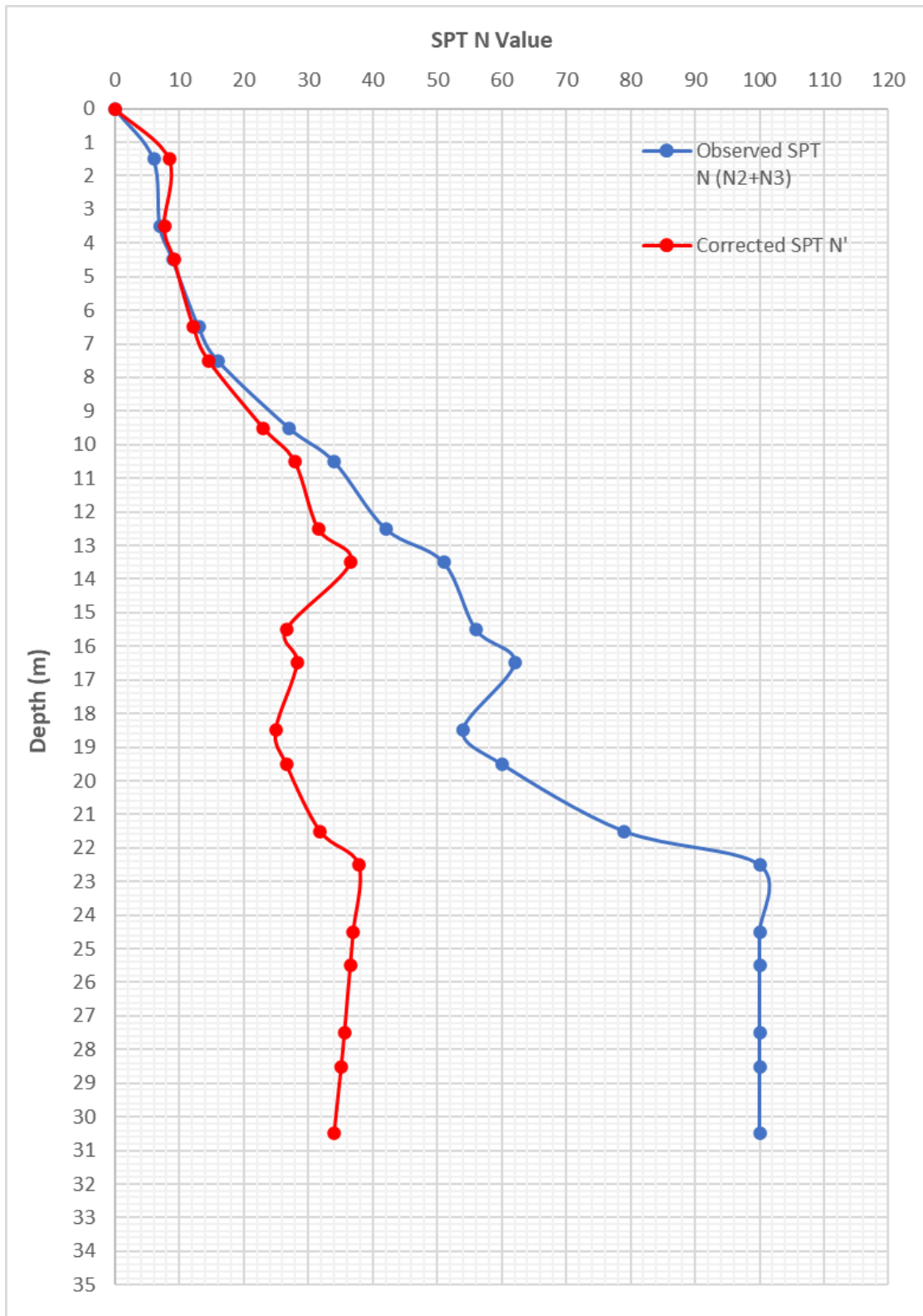


### BH-20





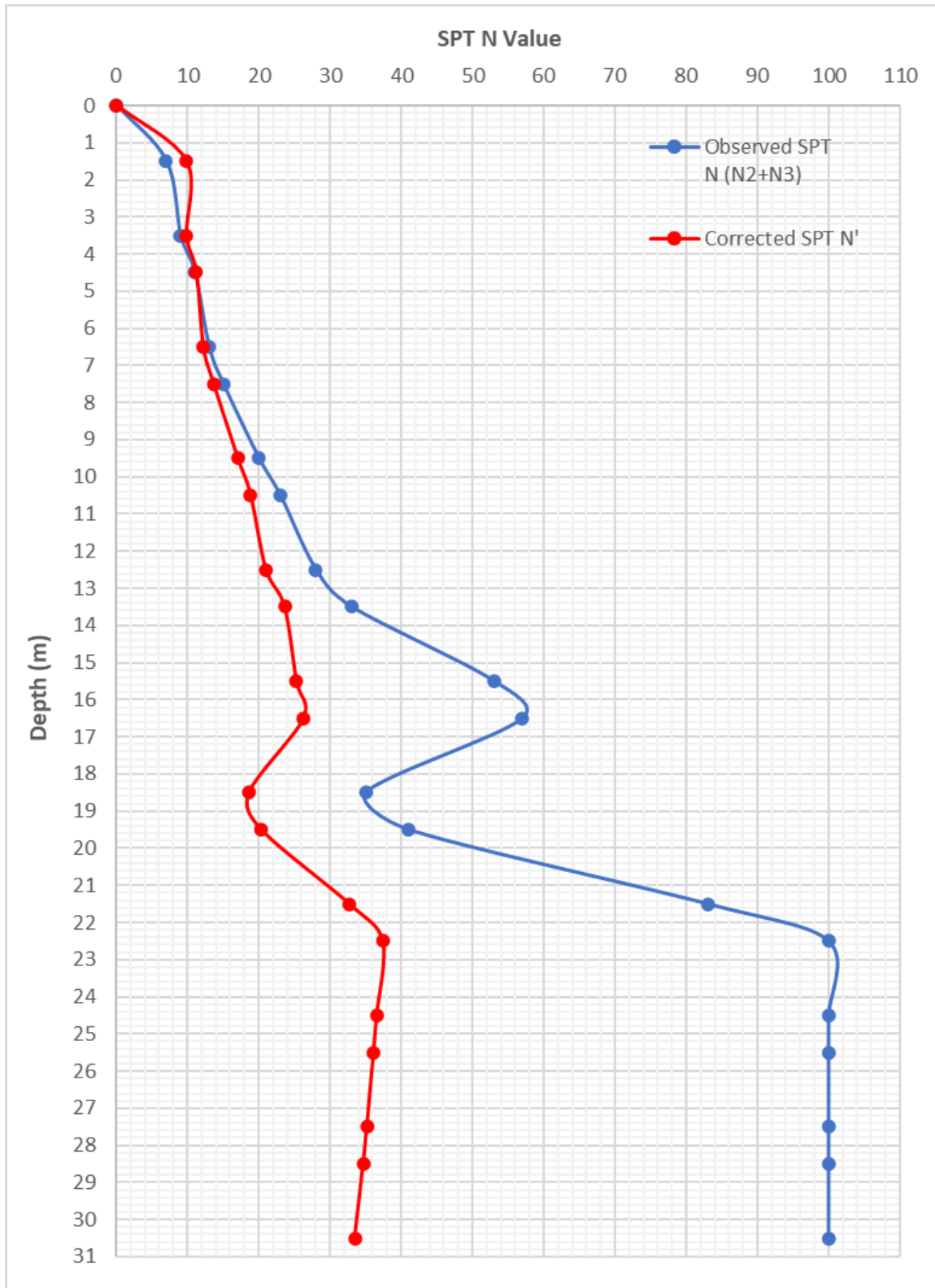
### BH-20A





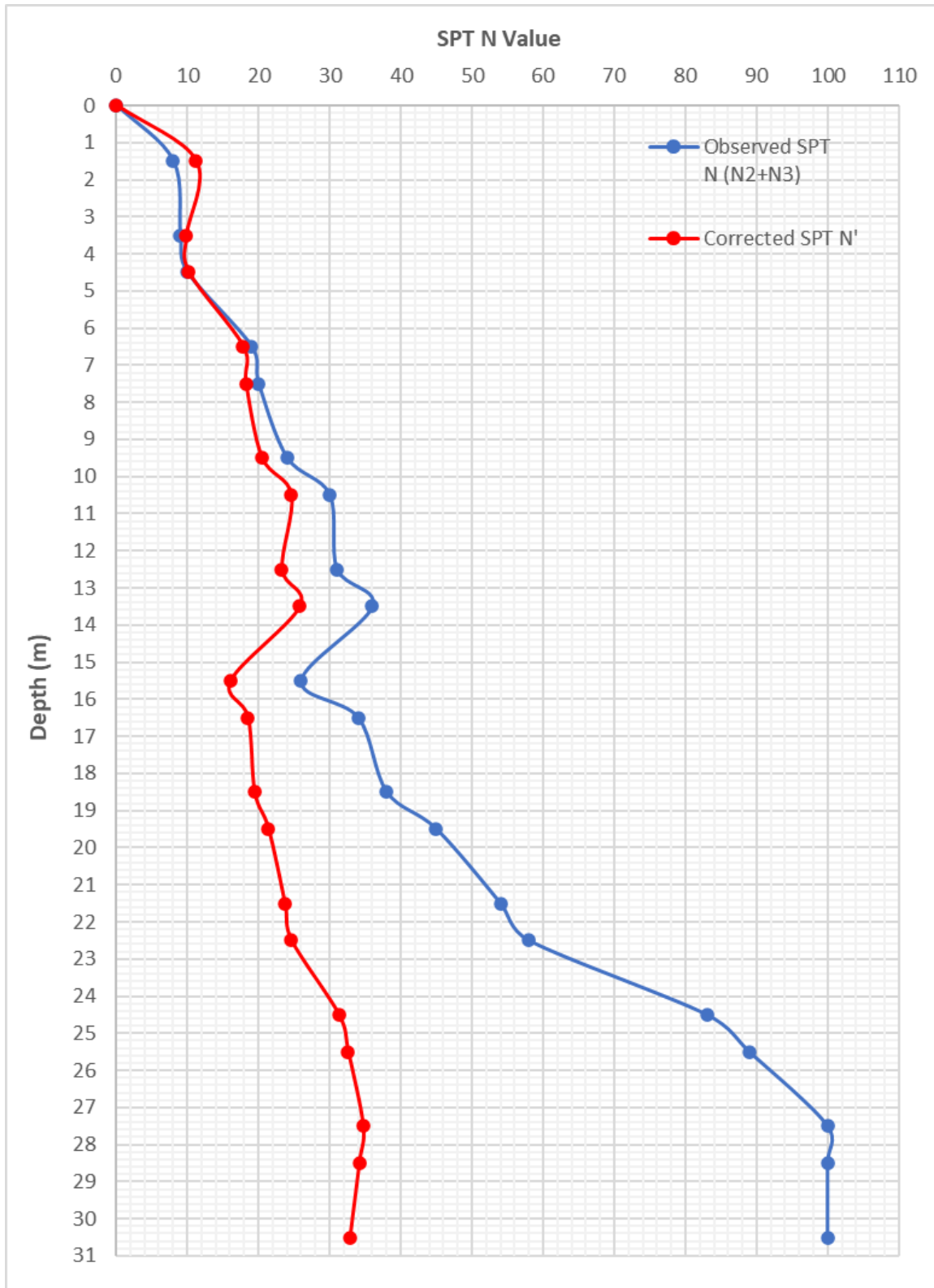
### D.4 Zone 4: CH: 2+515 km to 3+515 km (BH-21 to BH-30)

#### BH-21



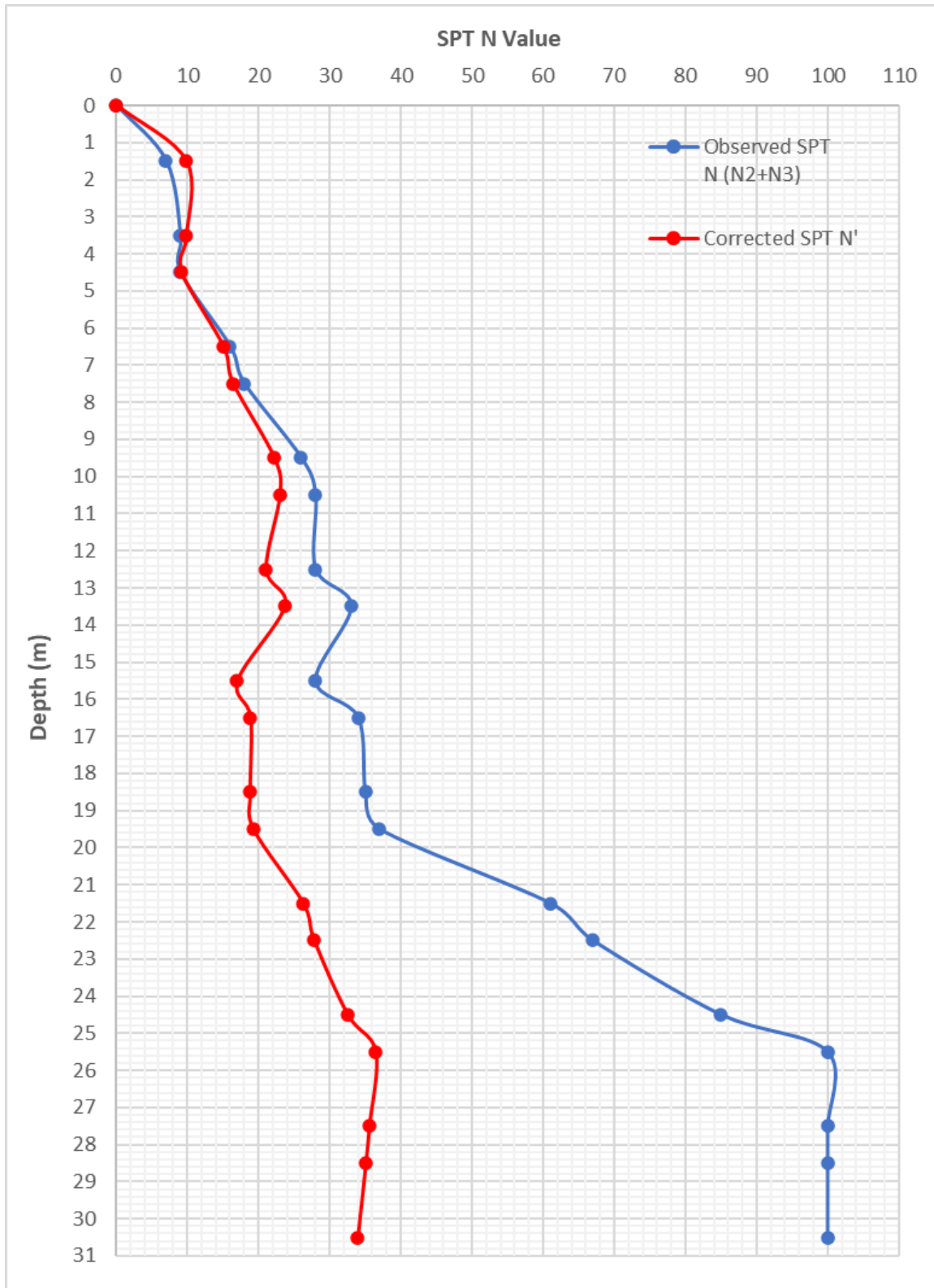


### BH-22



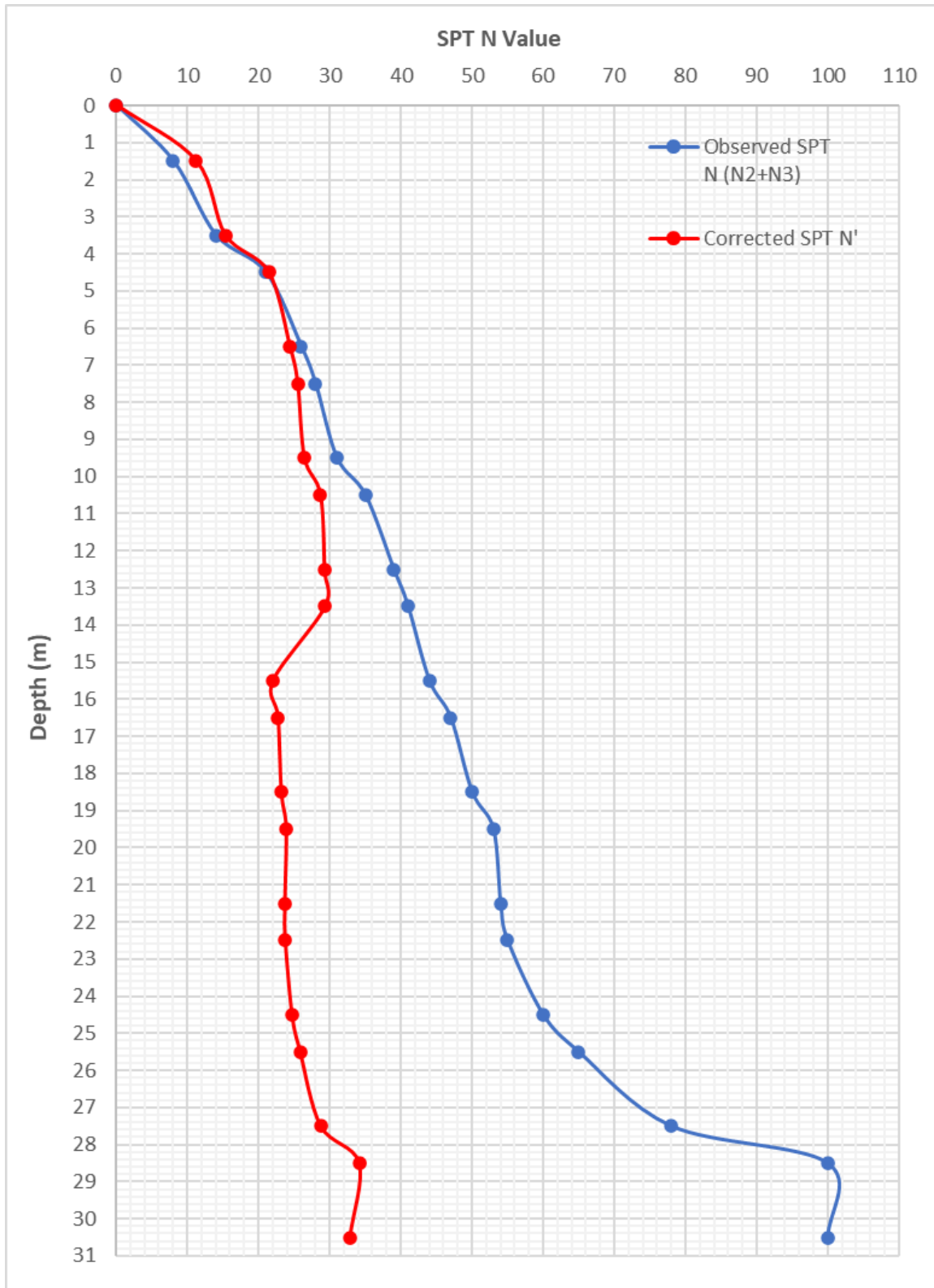


### BH-23



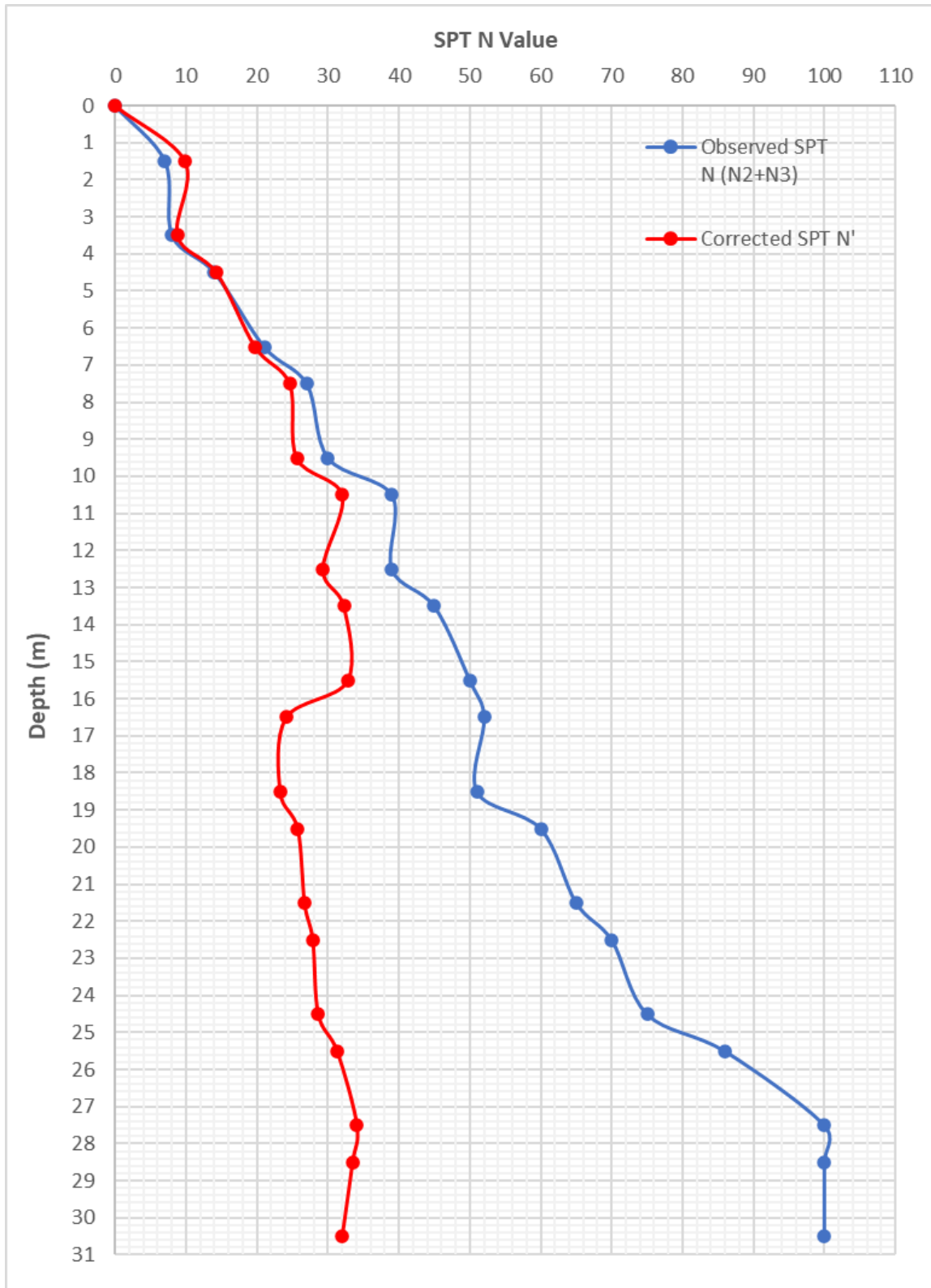


### BH-24



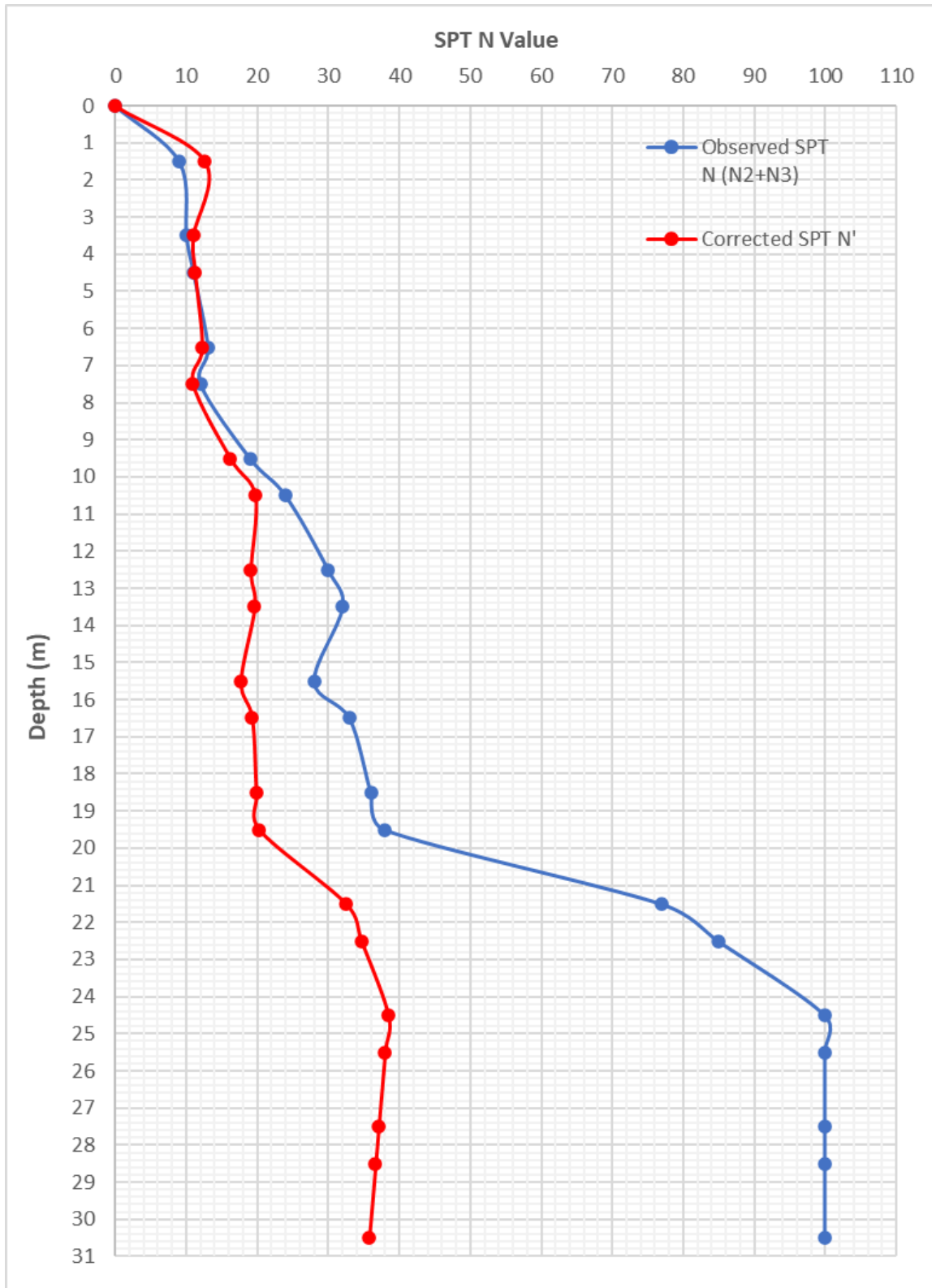


### BH-25



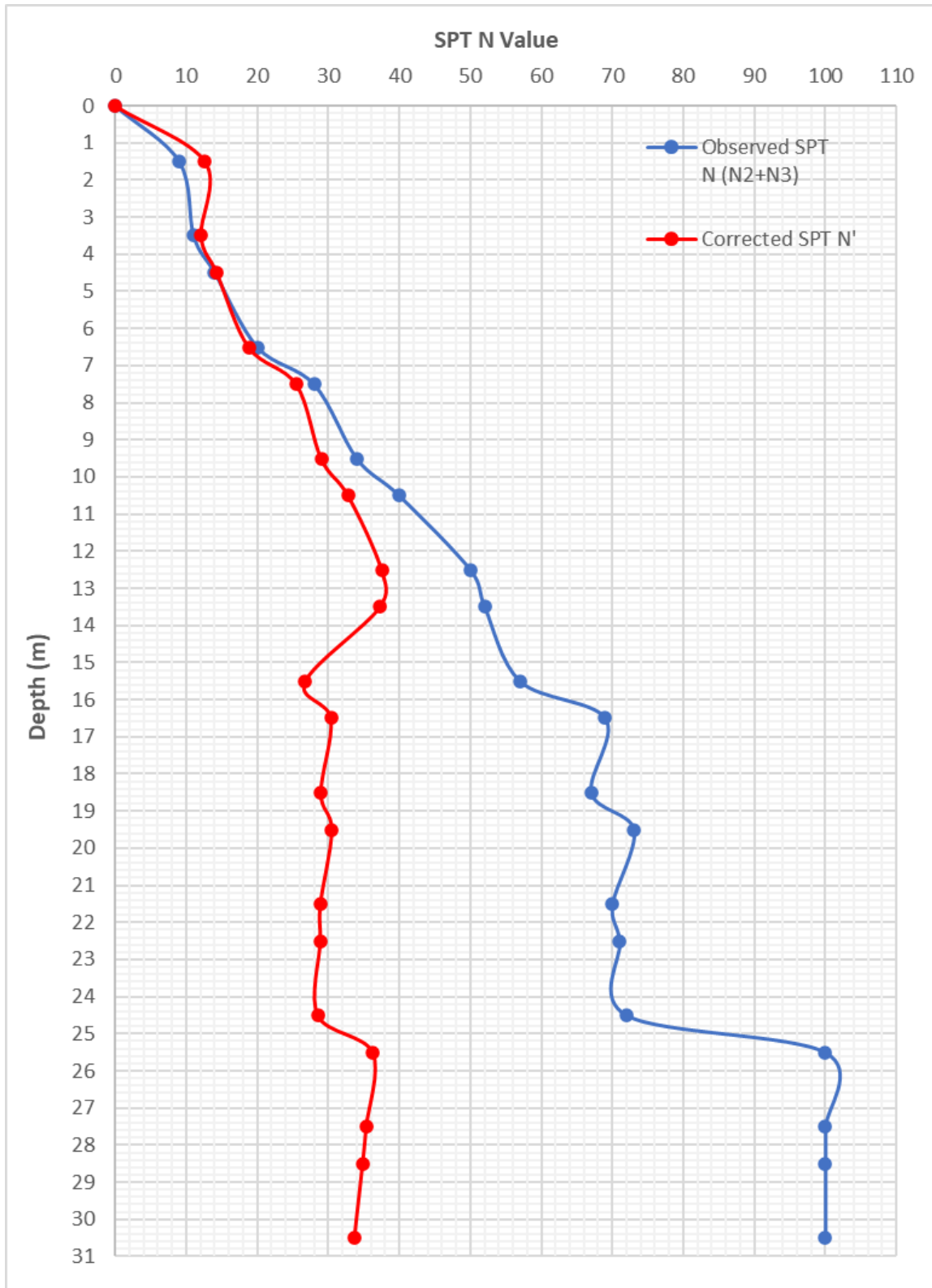


### BH-26





### BH-27





### BH-28

