



Report by :

CENGRS GEOTECHNICA PVT. LTD.
SOIL AND FOUNDATION EXPERTS

Final Factual Report on:

**Geotechnical Investigation for
Exhibition cum Convention Centre
Dwarka, New Delhi**

Report Volume	Report Contents	Structures Covered	Number of Boreholes Covered
Volume-2E	Field and Laboratory Test Data of Boreholes	Office 23, Office 24, Three Star Hotel 25, Office 26	29

Submitted to:

M/s. Delhi-Mumbai Industrial Corridor Development Corporation Ltd.

Room 341-B, 3rd Floor, Hotel Ashok, Diplomatic Enclave, 50-B, Chanakyapuri, New Delhi-110021

Project No. 217048

Date: 21st July, 2017

Revision: 0



21st July, 2017

Project No. 217048-2E

M/s. Delhi-Mumbai Industrial Corridor Development Corporation Ltd.
Room 341-B 3rd Floor
Hotel Ashok
Diplomatic Enclave
50-B, Chanakyapuri
New Delhi-110021

Subject: Geotechnical Investigation for Exhibition cum Convention Centre Dwarka, New Delhi

We have carried out the captioned study in accordance with your work order dated 31st March, 2017. We thank you for your business, and hope that you are satisfied with our services rendered.

This Factual Report presents our findings based on the geotechnical investigations conducted by us at the project site. This report presents the field and laboratory test data based on the investigations completed on site.

We have prepared this report based on our findings on site, as well as our experience gained in over 5000 projects completed over the past 28 years. We are pleased to have been of service to you on this project and will be glad to consult further with you and your design team.

Yours faithfully,
CENGRS GEOTECHNICA PVT. LTD.

Sanjay Gupta
Managing Director

Ravi Sundaram
Director



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DEFINITION OF ACRONYMS

CENGRS	Cengrs Geotechnica Pvt. Ltd.
UTM	Universal Transverse Mercator coordinates system
NABL	National Accreditation Board for Testing and Calibration Laboratories
ISO	International Standards Organization
BIS	Bureau of Indian Standards
EGL	Existing Ground Level
NGL	Natural Ground Level
RL	Reduced Level
SPT	Standard Penetration Test
DS	Consolidated drained direct shear test

BIS REFERENCES

- Compendium of Indian Standard on Soil Engineering (***Part-2, Field Testing of Soils for Civil Engineering Purposes***) ***SP36 (Part-2:1988) RA 2006***
- Compendium of Indian Standard on Soil Engineering (***Part-1, Laboratory Testing of Soils for Civil Engineering Purposes***) ***SP36 (Part-1:1987) RA 2006***



1.0 INTRODUCTION

1.1 Project Description

Government of India (GOI) is planning to develop an Exhibition cum Convention Center at Sector-25, Dwarka, New Delhi. GOI has envisaged M/s. Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) to establish, promote and facilitate the development of the overall project.

The various agencies involved in the design of the facility are as follows:

- | | | |
|-----|--|------------------------------|
| (a) | Government of India | : Owner |
| (b) | Delhi-Mumbai Industrial Corridor Development Corporation | : Client |
| (c) | AECOM India Pvt. Ltd. | : Detailed Design Consultant |
| (d) | Cengrs Geotechnica Pvt. Ltd. | : Geotechnical Consultant |

Delhi-Mumbai Industrial Corridor Development Corporation (DMICDC) has awarded the work of detailed geotechnical investigation at the project site to Cengrs Geotechnica Pvt. Ltd (CENGRS). A layout plan indicating the locations of our field investigation is presented on Plate 1.

The scope of our investigations includes drilling of about one hundred and sixty two(162) boreholes (including 60 priority boreholes as specified by AECOM), conducting hundred (100) field California bearing ratio (FCBR), ten (10) trial pits, one (1) electrical resistivity test (ERT), ten (10) plate load test and installation of one (1) piezometer at the specified location.

This report volume (Volume-2E) presents the field and laboratory results of twenty nine (29) boreholes drilled at the site.

1.2 Scope of Work

The overall purposes of this study are to investigate the stratigraphy at the site and submission of this factual report. To accomplish these purposes, the study is being conducted in the following phases:

- (a) drilling one hundred and sixty two (162) boreholes to 30 m depth or refusal (N>100), in order to determine the site stratigraphy and to collect soil and groundwater samples;
- (b) conducting hundred (100) field California bearing ratio (FCBR) tests to provide data for the design of internal roads;
- (c) excavating ten (10) trial pits to provide additional information on the stratigraphy at shallow depths;
- (d) conducting one (1) electrical resistivity tests (ERT's) to provide data for the grounding systems;
- (e) performing ten (10) plate load test at specified locations to assess the load-settlement behaviour of soils under loading;
- (f) installing one (1) piezometer for long-term monitoring of ground water level to aid in foundation construction;
- (g) testing selected soil and groundwater samples in the laboratory to determine pertinent index and engineering properties; and
- (h) compiling all field and laboratory data and submission of this factual report



1.3 Report Format

Our final report shall be presented in seven (7) volumes. The content of each of these report volumes is summarized below:

Report Volume	Report Content	Structures Covered	Number of Boreholes / Tests Covered
Volume I	Engineering Analysis & Recommendations	All structures	-
Volume 2A	Field and Laboratory Test Data of Boreholes	Exhibition Hall 1, Exhibition Hall 5, Convention 7, Retail 10	34
Volume 2B	Field and Laboratory Test Data of Boreholes	Arena 8, Five Star Hotel 11, Office 13, Office 14, Office 15, Retail 16, Office 17, Office 18, Four Star Hotel 21	35
Volume 2C	Field and Laboratory Test Data of Boreholes	Exhibition Hall 2, Exhibition Hall 3, Exhibition Hall 4	33
Volume 2D	Field and Laboratory Test Data of Boreholes	Five Star Hotel 9, Five Star Hotel 12, Four Star Hotel 19, Four Star Hotel 20, Service Apartment 22	31
Volume 2E	Field and Laboratory Test Data of Boreholes	Office 23, Office 24, Three Star Hotel 25, Office 26	29
Volume 2F	Field test results of FCBR, PLT, ERT, Trial pits etc.	-	-

This report volume (Volume-2E) presents the field and laboratory results of twenty nine (29) boreholes drilled at the site.

1.4 Scope of Work Covered in this Report Volume

Details of boreholes drilled on site and presented in this report volume are as follows:

S.No.	Structure	Borehole No.	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Borehole Termination Depth (m)
			Easting	Northing		
1	Three Star Hotel 25	BH-89	699709	3159785	210.699	30.45
2		BH-90	699750	3159755	212.600	30.45
3		BH-91	699715	3159753	210.996	30.45
4		BH-92	699690	3159759	210.816	30.45
5		BH-93	699718	3159712	213.000	30.45
6	Office 27	BH-94	699639	3159728	212.963	30.45
7		BH-95	699652	3159687	212.593	30.45
8		BH-96	699606	3159694	212.650	30.45



S.No.	Structure	Borehole No.	UTM Coordinates (Zone 43 R)		Ground Level (RL), m	Borehole Termination Depth (m)
			Easting	Northing		
9	Three Star Hotel 28	BH-98	699730	3159636	213.000	30.45
10		BH-99	699766	3159609	213.000	30.45
11	Office 26	BH-100	699762	3159679	213.449	30.45
12		BH-101	699798	3159652	213.143	30.45
13		BH-102	699795	3159688	213.490	30.45
14		BH-103	699794	3159723	213.357	30.45
15	Office 23	BH-104	699830	3159696	213.396	30.45
16		BH-105	699823	3159762	213.455	30.45
17		BH-106	699859	3159735	212.686	30.45
18		BH-107	699855	3159769	213.500	30.45
19		BH-108	699855	3159805	213.220	30.45
20		BH-109	699891	3159779	213.355	30.45
21	Office 24	BH-150	699938	3159747	213.306	30.45
22		BH-151	699992	3159704	213.609	30.45
23		BH-152	699940	3159686	213.512	30.45
24		BH-153	699889	3159658	213.293	30.45
25		BH-154	699934	3159625	213.367	30.45
26	Office 29	BH-155	699869	3159618	213.306	30.45
27		BH-156	699907	3159589	213.369	30.45
28		BH-157	699873	3159574	213.500	30.45
29		BH-158	699851	3159537	213.500	30.45

- A layout plan indicating the test locations of our field investigations is presented on Plate 1.
- The test locations were marked on the field by us in the presence of a client representative using a hand-held Global Positioning System (GPS). A satellite image indicating the test locations (as recorded by GPS) is presented on Plate 2.
- The reduced levels at the test locations were given to us by the client.

2.0 FIELD INVESTIGATION

2.1 Exploratory Boreholes

The boreholes were progressed using a mechanized calyx drilling rig to the specified depth. The diameter of the borehole was 150 mm. Where caving of the borehole occurred, casing was used to keep the borehole stable. The work was in general accordance with IS: 1892-1979 RA 2002.

Standard Penetration Tests (SPT) was conducted in the boreholes at specified depth intervals. The test was conducted by connecting a split spoon sampler to 'A' rods and driving it by 45 cm using a 63.5 kg hammer falling freely from a height of 75 cm. The tests were conducted in accordance with IS: 2131-1981 RA 2002. The SPT 'N'-values are described as follows:-

1. The number of blows for each 15 cm of penetration of the split spoon sampler is recorded.
2. The blows required to penetrate the initial 15 cm of the split spoon for seating the sampler is ignored due to the possible presence of loose materials or cuttings from the drilling operation.
3. The cumulative number of blows required to penetrate the balance 30 cm of the 45 cm split spoon sampler is termed the SPT value or the 'N' value. For example, a SPT value reported as "20" means that 20 blows were imparted to penetrate the split spoon sampler by the last 30 cm.
4. Where the number of blows required to penetrate the balance 30 cm of the split spoon sampler exceeds 100, the number of blows is presented along with the corresponding penetration. For example, an SPT value reported as "101 / 5 cm" means that 101 blows were imparted to penetrate the split spoon sampler by 5 cm after the first 15 cm initial (seating) penetration.
5. Where refusal ($N > 100$) to further penetration of the split spoon sampler is encountered in the first 15 cm of seating penetration itself, SPT test could not be completed and "Ref" is indicated in the bore logs, along with the penetration achieved. For example, an SPT value reported as "Ref / 5 cm" means that more than 100 blows were imparted to penetrate the split spoon sampler by a total of 5 cm only, and the 15 cm seating penetration could not be achieved.

Disturbed samples were collected from the split spoon after conducting SPT. Undisturbed soil samples were collected by attaching a thin walled 'Shelby' tubes and driving the sampler by light-hammering using a 63.5 kg hammer in accordance with IS: 2132-1986 RA 2002. The tubes were sealed with wax at both ends. Wherever undisturbed samples were not available due to slippages, disturbed samples were collected. All samples were transported to our NABL-accredited laboratory at Noida for further examination and testing.

2.2 Groundwater

Groundwater level is measured in the boreholes after drilling and sampling is completed. The measured water levels are recorded on the individual soil profiles.

3.0 LABORATORY TEST

The laboratory testing was carried out in our NABL accredited laboratory. The quality procedure in our laboratory conforms to ISO/IEC-17025-2005.

Laboratory tests were conducted on selected soil and groundwater samples to determine their physical and engineering properties. The testing procedures are in accordance with current applicable IS specifications.

The following tests were conducted on selected soil and groundwater samples recovered from the boreholes:

Laboratory Test	IS Code Referred
Bulk Density	By calculations
Natural moisture content	IS : 2720 (Part-2)-1973, RA-2010
Specific Gravity	IS : 2720 (Part-3)-1980, RA-2007
Grain size analysis	IS : 2720 (Part-4)-1985, RA-2010

Laboratory Test		IS Code Referred
Liquid Limit and Plastic Limit		IS : 2720 (Part-5)-1985, RA-2010
Free Swell Index		IS : 2720 (Part-40) -1977, RA-2007
Consolidated drained direct shear test		IS : 2720 (Part-13)-1986, RA-2010
Chemical Analysis of water*	pH value	IS : 3025 (Part-11)-1983, RA-2006
	sulphates	IS : 3025 (Part-24)-1986, RA-2009
	chlorides	IS : 3025 (Part-32)-1988, RA-2009
Chemical Analysis of soil*	pH value	IS : 2720 (Part 26)-1987, RA-2007
	Sulphates	IS : 2720 (Part-27)-1977, RA-2010
	Chlorides	IS : 3025 (Part-32)-1988, RA-2009

*Outside NABL Scope

Engineering terms used to describe soils are explained on Plate 3. A note on our NABL accreditation together with the uncertainty in laboratory measurements is presented on Plate 4.

4.0 GENERAL SITE CONDITIONS

4.1 Site Description

The site for the proposed Exhibition cum Convention center is located at Sec-25 Dwarka and lies at Latitude 28°33'7.76"N and Longitude 77° 2'35.31"E. The site is situated about 3.0 km west of Terminal-3, IGI Airport and about 1.5 km west of Dwarka Sec-21 Metro Station.

The site is bounded by roads on all the sides and covers about 221 acres on plan. Localized construction debris was observed at the site at the time of our field investigations.

4.2 Regional Geology

The deposits in the project area belong to the "Indo Gangetic Alluvium" and are river deposits of the Yamuna, and its tributaries. The alluvial tract⁽¹⁾ is in the nature of a synclinal basin formed concomitantly with the elevation of the Himalayas to its north. It was formed during the later stages of the Himalayan Orogeny by the buckling down of the northern border of the peninsular shield beneath the sediments thrust over it from the north.

The Pleistocene and Recent Deposits of the Indo-Gangetic Basin are composed of gravels, sands, silts and clays with remains of animal and plants. A generalized description of geological formations encountered in Gurgaon and Delhi is as follows:

Period	Formation	Description
Recent	Newer Alluvium (Younger alluvium)	Unconsolidated, inter-bedded lenses of sand, silt gravel and clay confined to flood plains of Yamuna river.
Quaternary	Older Alluvium	Unconsolidated inter-bedded, inter-fingering deposit sand, clay and kankar, moderately sorted, thickness variable, at places more than 300 m.
~~~~~ Unconformity ~~~~~		
Pre-Cambrian	Pegmatite and Quartz Veins Quartzites and minor Schist Bands	Well stratified, thick-bedded brown to buff colour, hard and compact, intruded locally by pegmatite and quartz veins inter-bedded with mica schists.

⁽¹⁾ Krishnan, M.S. (1986), "**Geology of India & Burma**", CBS Publishers, New Delhi.

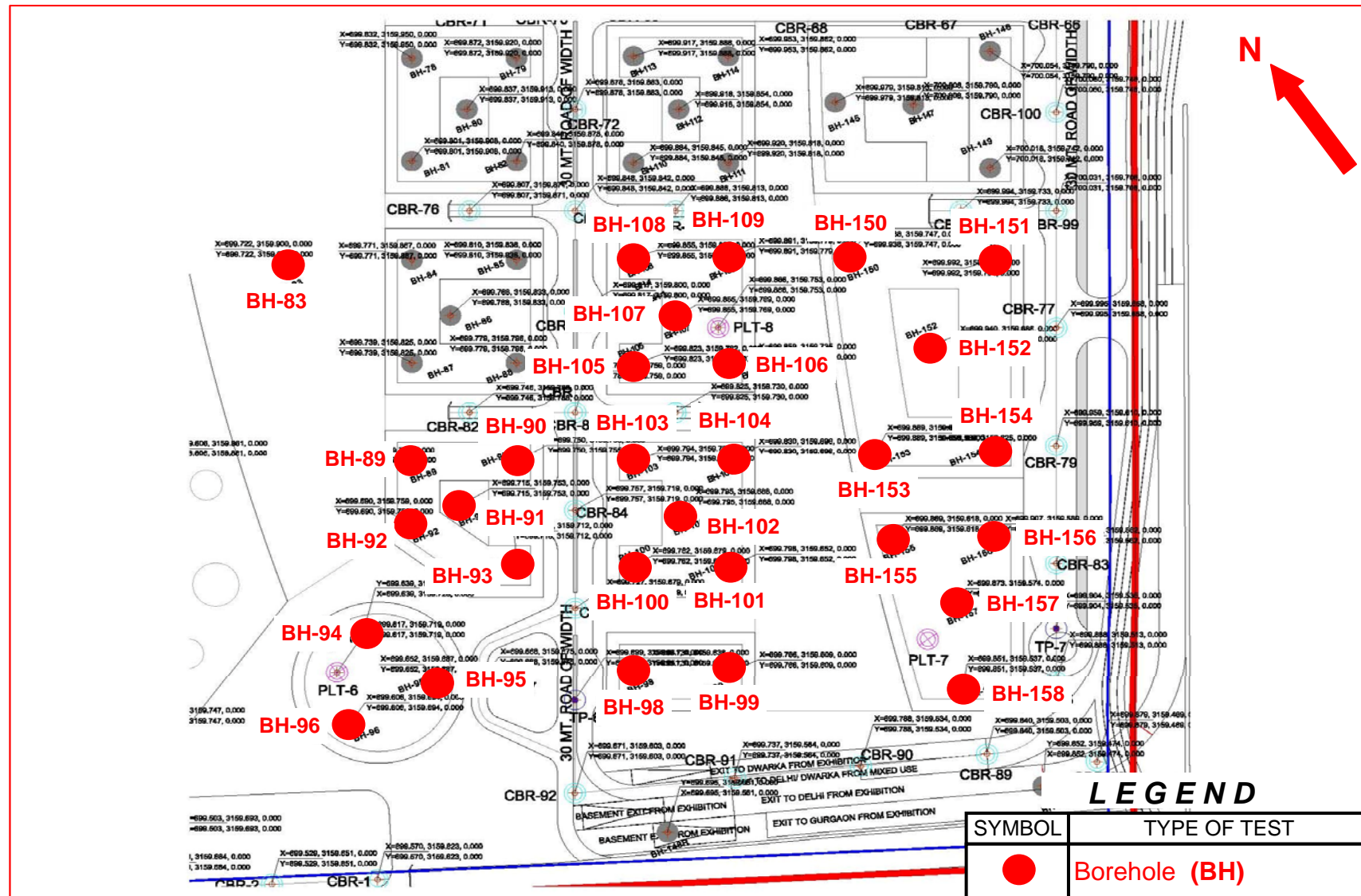


The older alluvium is rather dark colored (locally called “Bhanger”) and is generally, rich in concretions or nodules of impure calcium carbonate (kankars). The kankars are of all shapes and sizes, varying from small sand sized grains to big grains and big lumps. The age of the “Bhanger” alluvium is Middle to Upper Pleistocene.

The newer alluvium (locally called “Khadar”) is light colored and poor in concretions. It contains lenticular beds of sand and gravel as well as peat beds. It is merged by insensible gradations into the Recent or deltaic alluvia and its age is Upper Pleistocene to Recent.

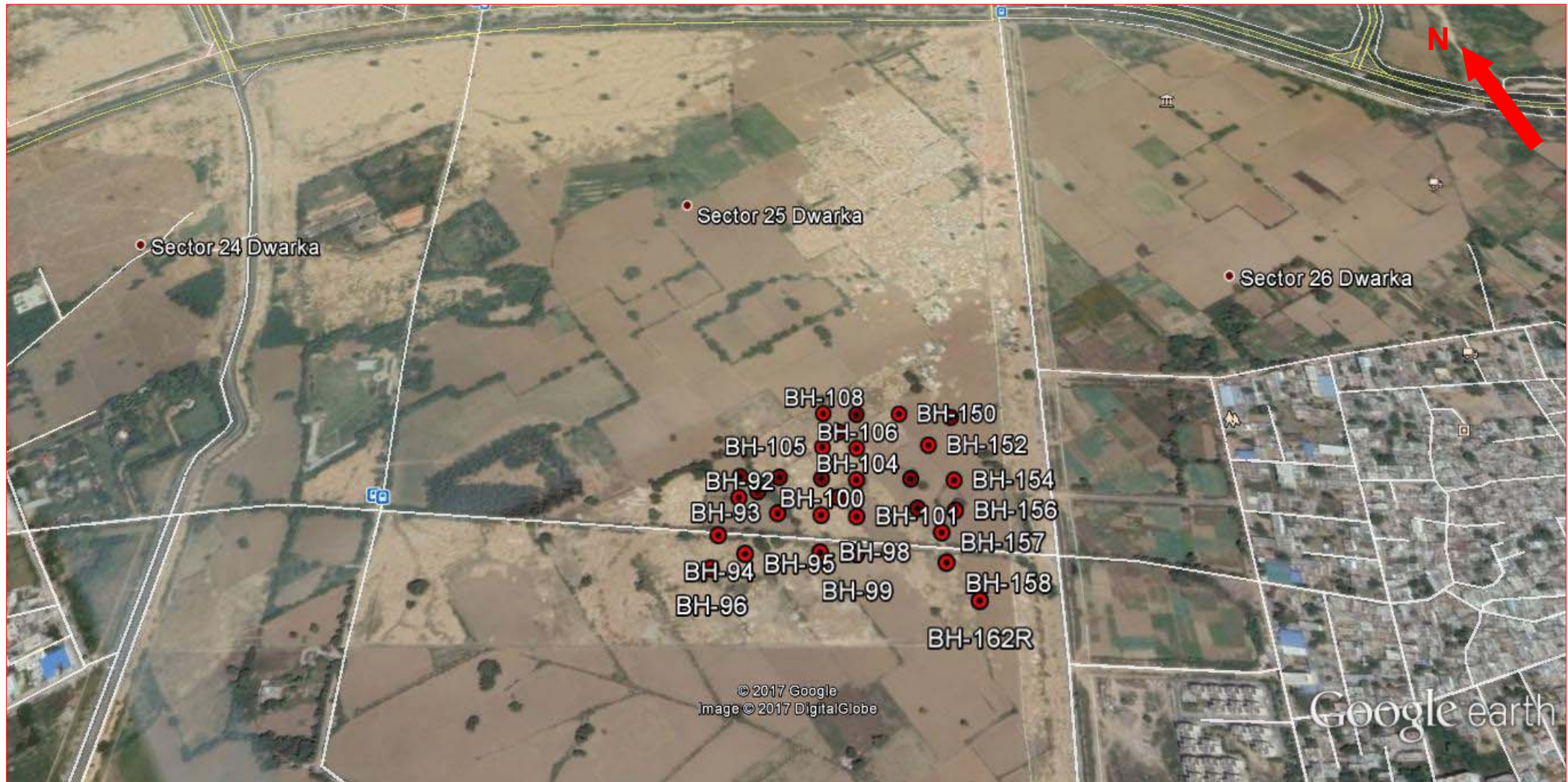
## 5.0 VARIABILITY IN SUBSURFACE CONDITIONS

Subsurface conditions encountered during construction may vary somewhat from the conditions encountered during the site investigation. In case significant variations are encountered during construction, we request to be notified so that our engineers may review the recommendations in this report in light of these variations.



Plan of Field Investigations





- Satellite image taken from Google Earth®
- Test Locations marked as per GPS coordinates taken on site using hand-held Garmin® device
- Accuracy of hand-held GPS device generally ranges from 4-6m, and varies depending on the availability of satellite connection at the site

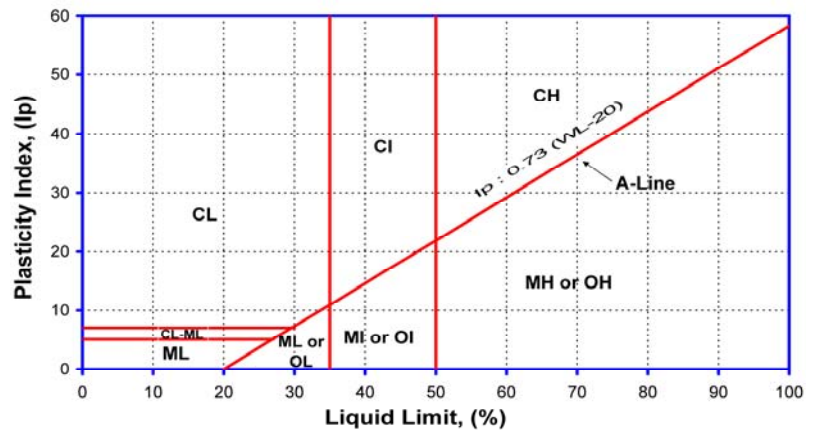
### Satellite Image of Site and Test Locations



### Plasticity of Clay

Plasticity	Liquid Limit
Low Plastic	< 35
Medium Plastic	35 to 50
High Plastic	> 50

### Plasticity Chart



### Consistency of Cohesive Soils

Consistency	Cohesion Intercept, kg/sq.cm	SPT (N) Value
Very Soft	< 0.1	0 to 2
Soft	0.1 to 0.25	2 to 4
Firm/Medium	0.25 to 0.5	4 to 8
Stiff	0.5 to 1.0	8 to 15
Very Stiff	1.0 to 2.0	15 to 30
Hard	> 2.0	> 30

### Density Condition of Granular Soils

Density Descriptor	SPT (N) Value	Static Cone Tip Resistance kg/sq.cm
Very Loose	0 to 4	< 20
Loose	4 to 10	20 to 40
Medium Dense	10 to 30	40 to 120
Dense	30 to 50	120 to 200
Very dense	> 50	> 200

### Degree of Expansion of Fine Grained Soils

Liquid Limit	Plasticity Index	Shrinkage Index	Free Swell Percent	Degree of Expansion	Degree of Severity
20 - 35	< 12	< 15	< 50	Low	Non-critical
35 - 50	12 - 23	15 - 30	50 - 100	Medium	Marginal
50 - 70	23 - 32	30 - 60	100 - 200	High	Critical
70 - 90	> 32	> 60	> 200	Very High	Severe

## Engineering Description of Soils

### NABL Accredited Laboratory

Our laboratory is accredited to **National Accreditation Board for Testing and Calibration Laboratories (NABL)**, New Delhi. The quality procedures in our laboratory conform to the International Standard **ISO/IEC: 17025-2005**.

The accreditation assures our clients of work quality in conformance with international norms and practices. It authorizes us to use the NABL logo on test results.

To maintain the necessary level of quality and reliability in all measurements on a continual basis, we indulge in the following:

- Use of calibrated equipment, regular maintenance and good housekeeping are a part of our work culture.
- Inter-laboratory comparison, proficiency testing and replicate testing, continuing education - ensure uniform quality of results.
- Internal Audit of quality procedures is done by our qualified ISO 17025 auditors to maintain the requisite standards. NABL conducts external audit.

### Uncertainty

Every measurement entails an uncertainty. It is well known that no measuring instrument can determine the true value of any measurement. The cumulative effect of factors such as sensitivity of equipment, accuracy in calibration, human factors and environmental conditions will determine the overall uncertainty in the parameter determined from these measurements.

As a part of our commitment to our clients, we have worked out the uncertainty in the parameters reported by our laboratory. Although this does not form a part of our contract agreement, we present below our statistical estimate of uncertainty of various parameters based on our most recent evaluation (February, 2016).

Test / Parameter		Uncertainty*	Test / Parameter		Uncertainty*	
Moisture Content		± 0.29%	Free Swell Index, %		± 2.6%	
Bulk & Dry Density		± 0.01 g/cc	Swell Pressure		± 0.43 kg/cm ²	
Specific Gravity		± 0.01	Consolidation	Pressure	± 0.03 kg/cm ²	
Liquid Limit		± 0.29%		Void Ratio	±0.01	
Plastic Limit			Density Index (relative density) of cohesionless soils	± 5 %		
Shrinkage Limit		± 0.61%				
Unconfined Compression	c	± 0.054 kg/cm ²	CD Direct Shear Test	φ	± 0.29 degrees	
UU Triaxial Test	c	± 0.01 kg/cm ²	Soil Gradation		± 0.5% of particle size	
	φ	± 0.48 degree				
Std/Mod Proctor Compaction	MDD	± 0.14 g/cc	Coefficient of Permeability		± 2.7 x 10 ⁻⁵ cm/s	
	OMC	± 0.29%	Rock		Crushing Strength	± 3.1 kg/cm ²
Laboratory CBR		± 0.58%			Point Load Strength Index	± 8.89 kg/cm ²

* at 95 percent confidence level for coverage factor of 2

### **Uncertainty in Laboratory Measurements**



ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : 3*hotel-25  
UTM Coordinates : 699709 E, 3159785 N

### Soil Profile (BH-89)

Termination Depth : 30.45 m (RL 180.249 m)  
Ground Water Depth : 19.40 m  
Surface Elevation : RL 210.699 m  
Ground Water Level : RL 191.3 m  
Boring Method : Shell & Auger  
Casing Depth : 12.5 m  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Very stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	18	22		- very stiff, 0.0 to 7.0 m																		11
2.00	2.30	UDS1														1.77	1.58	11.9						18
3.00	3.45	SPT2	23	21																				8
4.00	4.30	UDS2						2	22	69	7					1.79	1.55	15.6						11
5.00	5.45	SPT3	24	20		- very stiff, 5.0 to 14.0 m						32.5	14.5	18.0										
6.00	6.30	UDS3														1.79	1.57	14.3						
7.00	7.45	SPT4	35	24		- hard, 7.0 to 14.0 m																		
8.00	8.30	UDS4														1.84	1.60	15.3		DS	0.5, 1, 1.5	0.0	32.1	
9.50	9.95	SPT5	38	23				1	29	64	6													
11.00	11.30	DS2										33.5	12.7	20.8										
12.50	12.95	SPT6	40	22																				

⁽¹⁾ SPT is outside NABL scope.

ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : 3*hotel-25  
UTM Coordinates : 699709 E, 3159785 N

### Soil Profile (BH-89)

Termination Depth : 30.45 m (RL 180.249 m)  
Ground Water Depth : 19.40 m  
Surface Elevation : RL 210.699 m  
Ground Water Level : RL 191.3 m  
Boring Method : Shell & Auger  
Casing Depth : 12.5 m  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS5				Hard brown sandy silt, low plastic (CL)  - with gravel, 15.5 to 18.5 m									1.89	1.58	19.8	2.67							
15.50	15.95	SPT7	55	26				5	12	76	7														
17.00	17.30	UDS6										28.7	14.7	14.0		1.87	1.64	14.3							
18.50	18.95	SPT8	61	26																					
20.00	20.30	UDS7														1.89	1.64	15.3							
22.00	22.45	SPT9	49	21		- with traces of gravel, 26.0 to 28.0 m	30.45																		
24.00	24.30	DS3																							
26.00	26.45	SPT10	43	18				4	43	48	5														
28.00	28.30	DS4																							
30.00	30.45	SPT11	72	24																					

⁽¹⁾ SPT is outside NABL scope.



ISO/IEC 17025:2005  
Certified Laboratory  
(NABL)  
Certificate No. T-1741



Location : 3*hotel-25  
UTM Coordinates : 699750 E, 3159755 N

### Soil Profile (BH-90)

Termination Depth : 30.45 m (RL 182.15 m)  
Ground Water Depth : 19.20 m  
Surface Elevation : RL 212.600 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)	
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)																			
1.00	1.45	SPT1	8	12			- stiff, 0.0 to 7.0 m		0	35	59	6												7	
2.00	2.30	UDS1											28.7	12.7	16.0		1.74	1.54	12.8					21	
3.00	3.45	SPT2	10	12																			8		
4.00	4.30	UDS2														1.78	1.53	16.4					22		
5.00	5.45	SPT3	11	11																					
6.00	6.30	UDS3				- with gravel, 6.0 to 7.5 m		5	41	49	5					1.84	1.60	14.9							
7.00	7.45	SPT4	15	14		- very stiff, 7.0 to 14.0 m						26.5	13.5	13.0											
8.00	8.30	UDS4														1.83	1.59	14.8	DS	0.5 ,1, 1.5	0.0	31.8			
9.50	9.95	SPT5	21	16														2.66							
11.00	11.30	UDS5				- with traces of gravel, 11.0 to 14.0 m		4	45	47	4					1.82	1.59	14.6							
12.50	12.95	SPT6	25	17								32.8	19.8	13.0											

⁽¹⁾ SPT is outside NABL scope.







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Location : 3*hotel-25  
UTM Coordinates : 699750 E, 3159755 N

### Soil Profile (BH-90)

Termination Depth : 30.45 m (RL 182.15 m)  
Ground Water Depth : 19.20 m  
Surface Elevation : RL 212.600 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS6	29	17		Very stiff to hard brown sandy silt, low plastic (CL)	30.45	5	14	74	7				1.87	1.59	17.9								
15.50	15.95	SPT7				- very stiff, 14.0 to 18.5 m																			
17.00	17.30	DS2																							
18.50	18.95	SPT8				- hard, 18.5 to 30.4 m																			
20.00	20.30	UDS7	- with gravel, 20.0 to 22.0 m																						
22.00	22.45	SPT9	36	17																					
24.00	24.30	UDS8																							
26.00	26.45	SPT10	45	18																					
28.00	28.30	DS3																							
30.00	30.45	SPT11	62	22																					

⁽¹⁾ SPT is outside NABL scope.

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Location : 3*hotel-25  
UTM Coordinates : 699715 E, 3159753 N

### Soil Profile (BH-91)

Termination Depth : 30.45 m (RL 180.546 m)  
Ground Water Depth : 19.80 m  
Surface Elevation : RL 210.996 m  
Ground Water Level : RL 191.2 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 29-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)  - very stiff, 0.0 to 7.0 m		1	46	48	5														
1.00	1.45	SPT1	18	22									26.5	15.5	11.0									22	
2.00	2.30	UDS1															1.71	1.50	13.8					12	
3.00	3.45	SPT2	24	22		- hard, 7.0 to 14.0 m																	8		
4.00	4.30	UDS2															1.78	1.55	14.5		DS	0.5 ,1, 1.5	0.0	31.4	17
5.00	5.45	SPT3	25	20				3	22	68	7														
6.00	6.30	UDS3										34.8	12.8	22.0		1.85	1.60	15.7							
7.00	7.45	SPT4	33	23																					
8.00	8.30	UDS4														1.82	1.56	16.4	2.62						
9.50	9.95	SPT5	56	31					4	24	66	6													
11.00	11.30	DS2											29.8	16.5	13.3										
12.50	12.95	SPT6	45	24																					

⁽¹⁾ SPT is outside NABL scope.


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Location : 3*hotel-25  
UTM Coordinates : 699715 E, 3159753 N

### Soil Profile (BH-91)

Termination Depth : 30.45 m (RL 180.546 m)  
Ground Water Depth : 19.80 m  
Surface Elevation : RL 210.996 m  
Ground Water Level : RL 191.2 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 29-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS5	63	28		Hard brown sandy silt, low plastic (CL)	30.45	4	29	61	6				1.87	1.60	17.0								
15.50	15.95	SPT7				- with traces of gravel, 18.5 to 22.0 m																			
17.00	17.30	UDS6																							
18.50	18.95	SPT8																							
20.00	20.30	UDS7																							
22.00	22.45	SPT9																							
24.00	24.30	DS3																							
26.00	26.45	SPT10																							
28.00	28.30	DS4																							
30.00	30.45	SPT11																							

⁽¹⁾ SPT is outside NABL scope.

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Location : 3*hotel-25  
UTM Coordinates : 699690 E, 3159759 N

### Soil Profile (BH-92)

Termination Depth : 30.45 m (RL 180.366 m)  
Ground Water Depth : 19.40 m  
Surface Elevation : RL 210.816 m  
Ground Water Level : RL 191.4 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 28-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Very stiff to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	17	21		- very stiff, 0.0 to 5.0 m																		10
2.00	2.30	UDS1														1.76	1.54	14.5						7
3.00	3.45	SPT2	24	22		- with traces of gravel, 3.0 to 4.0 m		2	26	65	7													19
4.00	4.30	UDS2										34.8	14.8	20.0		1.76	1.53	14.8						21
5.00	5.45	SPT3	30	23		- hard, 5.0 to 14.0 m																		
6.00	6.30	UDS3														1.84	1.62	13.8		DS	0.5, 1, 1.5	0.0	32.4	
7.00	7.45	SPT4	35	24																				
8.00	8.30	UDS4						0	26	67	7					1.87	1.61	15.9						
9.50	9.95	SPT5	43	25								28.5	18.5	10.0										
11.00	11.30	UDS5														1.83	1.61	13.9						
12.50	12.95	SPT6	48	25															2.64					

⁽¹⁾ SPT is outside NABL scope.

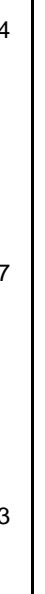
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Location : 3*hotel-25  
UTM Coordinates : 699690 E, 3159759 N

### Soil Profile (BH-92)

Termination Depth : 30.45 m (RL 180.366 m)  
Ground Water Depth : 19.40 m  
Surface Elevation : RL 210.816 m  
Ground Water Level : RL 191.4 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 28-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS6	55	26		Hard brown sandy silt with traces of gravel, low plastic (CL)	30.45	2	18	73	7	26.8	15.8	11.0		1.84	1.59	15.6							
15.50	15.95	SPT7																							
17.00	17.30	DS2																							
18.50	18.95	SPT8																							
20.00	20.30	UDS7																							
22.00	22.45	SPT9																							
24.00	24.30	DS3																							
26.00	26.45	SPT10																							
28.00	28.30	UDS8																							
30.00	30.45	SPT11																							

⁽¹⁾ SPT is outside NABL scope.

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Location : 3*hotel-25  
UTM Coordinates : 699718 E, 3159712 N

### Soil Profile (BH-93)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.64 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)		4	31	59	6													
1.00	1.45	SPT1	8	12		- with traces of gravel, 0.0 to 6.0 m						28.5	18.5	10.0										15
2.00	2.30	UDS1				- stiff, 0.0 to 7.0 m										1.76	1.56	12.5						7
3.00	3.45	SPT2	10	12																				8
4.00	4.30	UDS2														1.81	1.56	15.7		DS	0.5, 1, 1.5	0.0	31.1	21
5.00	5.45	SPT3	14	15				4	46	46	4													
6.00	6.30	UDS3										27.8	14.8	13.0		1.83	1.57	16.7						
7.00	7.45	SPT4	19	16		- very stiff, 7.0 to 14.0 m																		
8.00	8.30	UDS4														1.86	1.63	13.8	2.66					
9.50	9.95	SPT5	21	16		- with gravel, 9.5 to 11.0 m		5	42	48	5													
11.00	11.30	UDS5										21.8	12.8	9.0		1.85	1.61	14.8						
12.50	12.95	SPT6	25	17																				

⁽¹⁾ SPT is outside NABL scope.



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Location : 3*hotel-25  
UTM Coordinates : 699718 E, 3159712 N

### Soil Profile (BH-93)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.64 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS6	30	17		Hard brown sandy silt, low plastic (CL)	30.45	3	44	48	5				1.86	1.63	14.3							
15.50	15.95	SPT7				- with traces of gravel, 18.5 to 22.0 m																		
17.00	17.30	DS2																						
18.50	18.95	SPT8	36	18																				
20.00	20.30	UDS7																						
22.00	22.45	SPT9	42	19																				
24.00	24.30	UDS8																						
26.00	26.45	SPT10	45	18																				
28.00	28.30	UDS9																						
30.00	30.45	SPT11	54	20																				

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 27  
UTM Coordinates : 699639 E, 3159728 N

### Soil Profile (BH-94)

Termination Depth : 30.45 m (RL 182.513 m)  
Ground Water Depth : 19.67 m  
Surface Elevation : RL 212.963 m  
Ground Water Level : RL 193.3 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 5.0 m																5		
2.00	2.30	UDS1										1.73	1.48	16.7								22		
3.00	3.45	SPT2	12	14				3	36	57	4											22		
4.00	4.30	UDS2									28.5	15.5	13.0		1.86	1.60	16.3					4		
5.00	5.45	SPT3	18	19		- very stiff, 5.0 to 9.5 m																		
6.00	6.30	UDS3													1.80	1.57	14.3	DS	0.5 ,1, 1.5	0.0	31.4			
7.00	7.45	SPT4	23	21																				
8.00	8.30	UDS4						3	44	50	3				1.83	1.58	15.7							
9.50	9.95	SPT5	40	33		- hard, 9.5 to 14.0 m					30.9	19.9	11.0											
11.00	11.30	UDS5													1.83	1.57	16.8							
12.50	12.95	SPT6	45	33													2.65							

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 27  
UTM Coordinates : 699639 E, 3159728 N

### Soil Profile (BH-94)

Termination Depth : 30.45 m (RL 182.513 m)  
Ground Water Depth : 19.67 m  
Surface Elevation : RL 212.963 m  
Ground Water Level : RL 193.3 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS6	40	27		Hard brown sandy silt with traces of gravel, low plastic (CL)	30.45	2	18	75	5	26.9	14.9	12.0		1.84	1.59	15.6							
15.50	15.95	SPT7						1.83	1.59	15.2															
17.00	17.30	UDS7						1.94	1.70	14.3															
18.50	18.95	SPT8						1.95	1.61	20.8															
20.00	20.30	UDS8																							
22.00	22.45	SPT9																							
24.00	24.30	UDS9																							
26.00	26.45	SPT10																							
28.00	28.30	DS2																							
30.00	30.45	SPT11																							

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 27  
UTM Coordinates : 699652 E, 3159687 N

### Soil Profile (BH-95)

Termination Depth : 30.45 m (RL 182.143 m)  
Ground Water Depth : 19.69 m  
Surface Elevation : RL 212.593 m  
Ground Water Level : RL 192.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 18-Jun-17  
Boring Finish : 20-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	7	11		- stiff, 0.0 to 7.0 m		5	38	53	4											15		
2.00	2.30	UDS1				- with gravel, 1.0 to 3.0 m						33.9	20.9	13.0		1.75	1.52	15.4				14		
3.00	3.45	SPT2	10	12																		21		
4.00	4.30	UDS2														1.84	1.60	14.9				20		
5.00	5.45	SPT3	14	15																				
6.00	6.30	UDS3				- with traces of gravel, 6.0 to 12.5 m		4	26	66	4					1.83	1.57	16.7						
7.00	7.45	SPT4	18	17		- very stiff, 7.0 to 14.0 m						23.9	12.9	11.0										
8.00	8.30	UDS4														1.84	1.61	14.6						
9.50	9.95	SPT5	22	18															2.62					
11.00	11.30	DS2						4	44	47	5													
12.50	12.95	SPT6	27	20								26.9	16.9	10.0										

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 27  
UTM Coordinates : 699652 E, 3159687 N

### Soil Profile (BH-95)

Termination Depth : 30.45 m (RL 182.143 m)  
Ground Water Depth : 19.69 m  
Surface Elevation : RL 212.593 m  
Ground Water Level : RL 192.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 18-Jun-17  
Boring Finish : 20-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS5				Very stiff to hard brown sandy silt, low plastic (CL)										1.86	1.62	14.6		DS	0.5, 1, 1.5	0.0	32.3	
15.50	15.95	SPT7	29	19		- very stiff, 14.0 to 18.5 m																		
17.00	17.30	UDS6														1.87	1.64	14.3						
18.50	18.95	SPT8	35	21		- hard, 18.5 to 30.4 m																		
20.00	20.30	UDS7				- with traces of gravel, 20.0 to 22.0 m		2	32	60	6					1.95	1.72	13.4						
22.00	22.45	SPT9	43	20																				
24.00	24.30	DS3																						
26.00	26.45	SPT10	44	19																				
28.00	28.30	UDS8														2.06	1.67	23.4						
30.00	30.45	SPT11	32	16			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 27  
UTM Coordinates : 699606 E, 3159694 N

### Soil Profile (BH-96)

Termination Depth : 30.45 m (RL 182.2 m)  
Ground Water Depth : 19.45 m  
Surface Elevation : RL 212.650 m  
Ground Water Level : RL 193.2 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 18-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, $\phi$ (degrees)	
0.00	0.50	DS1				Very stiff brown sandy silt with traces of gravel, low plastic (CL)		4	37	54	5													
1.00	1.45	SPT1	15	23								29.9	17.9	12.0										7
2.00	2.30	UDS1														1.70	1.50	13.7						13
3.00	3.45	SPT2	18	22																				13
4.00	4.30	UDS2														1.87	1.61	16.3						17
5.00	5.45	SPT3	20	21				1	43	51	5													
6.00	6.30	UDS3										28.5	18.9	9.6		1.88	1.62	15.7						
7.00	7.45	SPT4	24	22																				
8.00	8.30	UDS4														1.83	1.59	14.9	2.67					
9.50	9.95	SPT5	25	21				4	18	71	7													
11.00	11.30	UDS5										26.9	15.5	11.4		1.82	1.57	15.8		DS	0.5, 1, 1.5	0.0	31.5	
12.50	12.95	SPT6	27	20																				

⁽¹⁾ SPT is outside NABL scope.







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Location : Office - 27  
UTM Coordinates : 699606 E, 3159694 N

### Soil Profile (BH-96)

Termination Depth : 30.45 m (RL 182.2 m)  
Ground Water Depth : 19.45 m  
Surface Elevation : RL 212.650 m  
Ground Water Level : RL 193.2 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 18-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	DS2	29	19		Very stiff to hard brown sandy silt, low plastic (CL)  - very stiff, 14.0 to 18.5 m									1.86	1.65	12.6							
15.50	15.95	SPT7																						
17.00	17.30	UDS6	32	19		- hard, 18.5 to 30.4 m		3	16	74	7													
18.50	18.95	SPT8																						
20.00	20.30	DS3	35	17		- with traces of gravel, 18.5 to 22.0 m																		
22.00	22.45	SPT9																						
24.00	24.30	UDS7	43	19											1.98	1.60	23.4							
26.00	26.45	SPT10																						
28.00	28.30	DS4	48	20			30.45																	
30.00	30.45	SPT11																						
																								

⁽¹⁾ SPT is outside NABL scope.

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Location : 3*hotel-28  
UTM Coordinates : 699730 E, 3159636 N

### Soil Profile (BH-98)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.56 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 23-Jun-17  
Boring Finish : 25-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	12	17				- stiff, 0.0 to 3.0 m															16	
2.00	2.30	UDS1				- very stiff, 3.0 to 12.5 m								1.75	1.52	15.1						20		
3.00	3.45	SPT2	15	17				2	40	53	5											14		
4.00	4.30	UDS2										24.9	14.9	10.0	1.85	1.59	16.7					18		
5.00	5.45	SPT3	18	17																				
6.00	6.30	UDS3													1.81	1.59	13.8							
7.00	7.45	SPT4	21	17																				
8.00	8.30	UDS4						4	17	72	7			1.82	1.59	14.8								
9.50	9.95	SPT5	28	19								28.9	13.9	15.0										
11.00	11.30	UDS5												1.84	1.59	15.8		DS	0.5 ,1, 1.5	0.0	31.7			
12.50	12.95	SPT6	31	19		- hard, 12.5 to 14.0 m											2.62							

⁽¹⁾ SPT is outside NABL scope.



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Location : 3*hotel-28  
UTM Coordinates : 699730 E, 3159636 N

### Soil Profile (BH-98)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.56 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 23-Jun-17  
Boring Finish : 25-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)					
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)							
14.00	14.30	UDS6	36	19		Hard brown sandy silt with traces of gravel, low plastic (CL)	30.45	1	30	63	6					1.87	1.61	15.8												
15.50	15.95	SPT7																												
17.00	17.30	UDS7																												
18.50	18.95	SPT8						38	19																					
20.00	20.30	UDS8																												
22.00	22.45	SPT9	40	18																										
24.00	24.30	UDS9	43	18													1.97	1.60					23.5							
26.00	26.45	SPT10																												
28.00	28.30	UDS10																						2.07	1.67	24.0				
30.00	30.45	SPT11						49	19																					

⁽¹⁾ SPT is outside NABL scope.



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Location : 3*hotel-28  
UTM Coordinates : 699766 E, 3159609 N

### Soil Profile (BH-99)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.57 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 23-Jun-17  
Boring Finish : 25-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	10	15		- stiff, 0.0 to 3.0 m		1	32	61	6											11		
2.00	2.30	UDS1										26.5	15.9	10.6		1.73	1.51	14.3				17		
3.00	3.45	SPT2	18	18		- very stiff, 3.0 to 9.0 m																17		
4.00	4.30	UDS2														1.80	1.55	15.9				11		
5.00	5.45	SPT3	20	18		- very stiff, 5.0 to 9.5 m																		
6.00	6.30	UDS3						3	14	75	8					1.86	1.61	15.7	DS	0.5 ,1, 1.5	0.0	32.4		
7.00	7.45	SPT4	26	20								29.9	14.9	15.0										
8.00	8.30	UDS4														1.84	1.59	15.8						
9.50	9.95	SPT5	30	20		- hard, 9.5 to 14.0 m													2.69					
11.00	11.30	UDS5						4	23	66	7					1.83	1.61	13.8						
12.50	12.95	SPT6	37	21								28.5	15.5	13.0										

⁽¹⁾ SPT is outside NABL scope.


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Location : 3*hotel-28  
UTM Coordinates : 699766 E, 3159609 N

### Soil Profile (BH-99)

Termination Depth : 30.45 m (RL 182.55 m)  
Ground Water Depth : 19.57 m  
Surface Elevation : RL 213.000 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 23-Jun-17  
Boring Finish : 25-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)																	
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)																			
14.00	14.30	UDS6	44	22		Hard brown sandy silt, low plastic (CL)	30.45	3	32	59	6				1.86	1.64	13.6																									
15.50	15.95	SPT7				17.00									17.30	UDS7	18.50						18.95	SPT8	20.00	20.30	UDS8	22.00	22.45	SPT9	24.00	24.30	UDS9	26.00	26.45	SPT10	28.00	28.30	UDS10	30.00	30.45	SPT11

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 26  
UTM Coordinates : 699762 E, 3159679 N

### Soil Profile (BH-100)

Termination Depth : 30.45 m (RL 182.999 m)  
Ground Water Depth : 20.10 m  
Surface Elevation : RL 213.449 m  
Ground Water Level : RL 193.3 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	9	14		- stiff, 0.0 to 5.0 m		5	38	52	5													20
2.00	2.30	UDS1				- with gravel, 1.0 to 3.0 m						28.5	18.5	10.0		1.74	1.51	15.5						11
3.00	3.45	SPT2	12	14																				20
4.00	4.30	UDS2														1.80	1.57	14.6						4
5.00	5.45	SPT3	16	16		- very stiff, 5.0 to 14.0 m																		
6.00	6.30	UDS3				- with traces of gravel, 6.0 to 14.0 m		1	43	51	5					1.80	1.56	15.7						
7.00	7.45	SPT4	18	16								26.8	15.5	11.3										
8.00	8.30	UDS4														1.87	1.61	15.9						
9.50	9.95	SPT5	21	16															2.63					
11.00	11.30	DS2						2	23	68	7									DS	0.5 ,1, 1.5	0.0	32.3	
12.50	12.95	SPT6	23	16								28.5	19.5	9.0										

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 26  
UTM Coordinates : 699762 E, 3159679 N

### Soil Profile (BH-100)

Termination Depth : 30.45 m (RL 182.999 m)  
Ground Water Depth : 20.10 m  
Surface Elevation : RL 213.449 m  
Ground Water Level : RL 193.3 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS5	28	17		Very stiff to hard brown sandy silt, low plastic (CL)	30.45	5	27	62	6				1.82	1.57	15.8								
15.50	15.95	SPT7				- very stiff, 14.0 to 18.5 m																			
17.00	17.30	UDS6																							
18.50	18.95	SPT8				- hard, 18.5 to 30.4 m																			
20.00	20.30	UDS7				- with gravel, 20.0 to 22.0 m																			
22.00	22.45	SPT9																							
24.00	24.30	UDS8																							
26.00	26.45	SPT10																							
28.00	28.30	UDS9																							
30.00	30.45	SPT11																							

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 26  
UTM Coordinates : 699798 E, 3159652 N

### Soil Profile (BH-101)

Termination Depth : 30.45 m (RL 182.693 m)  
Ground Water Depth : 20.20 m  
Surface Elevation : RL 213.143 m  
Ground Water Level : RL 192.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 25-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to very stiff brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 7.0 m																		4
2.00	2.30	UDS1					1	22	70	7						1.73	1.51	14.8						18
3.00	3.45	SPT2	11	13								22.8	13.8	9.0										18
4.00	4.30	UDS2														1.81	1.56	15.9						13
5.00	5.45	SPT3	14	15																				
6.00	6.30	UDS3				- very stiff, 7.0 to 14.0 m										1.82	1.56	16.4		DS	0.5, 1, 1.5	0.0	31.3	
7.00	7.45	SPT4	20	19			3	42	50	5														
8.00	8.30	UDS4										26.5	17.8	8.7		1.84	1.58	16.2						
9.50	9.95	SPT5	23	19																				
11.00	11.30	UDS5														1.86	1.60	16.3	2.62					
12.50	12.95	SPT6	26	19			4	36	55	5														

⁽¹⁾ SPT is outside NABL scope.

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(NABL)  
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Location : Office - 26  
UTM Coordinates : 699798 E, 3159652 N

### Soil Profile (BH-101)

Termination Depth : 30.45 m (RL 182.693 m)  
Ground Water Depth : 20.20 m  
Surface Elevation : RL 213.143 m  
Ground Water Level : RL 192.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 25-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	DS2				Very stiff to hard brown sandy silt, low plastic (CL)																		
15.50	15.95	SPT7	21	14	- very stiff, 14.0 to 18.5 m																			
17.00	17.30	UDS6				- hard, 18.5 to 30.4 m																		
18.50	18.95	SPT8	37	22																				
20.00	20.30	DS3																						
22.00	22.45	SPT9	42	19	048475																			
24.00	24.30	UDS7																						
26.00	26.45	SPT10	44	19	1.941.6120.8																			
28.00	28.30	DS4																						
30.00	30.45	SPT11	47	19																				
							30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 26  
UTM Coordinates : 699795 E, 3159688 N

### Soil Profile (BH-102)

Termination Depth : 30.45 m (RL 183.04 m)  
Ground Water Depth : 20.10 m  
Surface Elevation : RL 213.490 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r ¹				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)		2	35	57	6													
1.00	1.45	SPT1	12	17		- stiff, 0.0 to 3.0 m						29.8	12.8	17.0										12
2.00	2.30	UDS1				- with traces of gravel, 0.0 to 6.0 m										1.78	1.53	16.2						20
3.00	3.45	SPT2	15	17		- very stiff, 3.0 to 14.0 m																		17
4.00	4.30	UDS2														1.83	1.60	14.3		DS	0.5 ,1, 1.5	0.0	32.1	20
5.00	5.45	SPT3	18	17				2	40	53	5													
6.00	6.30	UDS3										27.8	18.8	9.0		1.83	1.58	15.9						
7.00	7.45	SPT4	21	17																				
8.00	8.30	UDS4														1.83	1.59	14.8	2.59					
9.50	9.95	SPT5	23	17		- with gravel, 9.5 to 14.0 m		5	15	73	7													
11.00	11.30	UDS5										24.8	12.8	12.0		1.84	1.62	13.8						
12.50	12.95	SPT6	26	17																				

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 26  
UTM Coordinates : 699795 E, 3159688 N

### Soil Profile (BH-102)

Termination Depth : 30.45 m (RL 183.04 m)  
Ground Water Depth : 20.10 m  
Surface Elevation : RL 213.490 m  
Ground Water Level : RL 193.4 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS6	31	18		Hard brown sandy silt, low plastic (CL)	30.45	1	35	58	6				1.90	1.65	15.4							
15.50	15.95	SPT7				- with traces of gravel, 18.5 to 14.0 m																		
17.00	17.30	DS2																						
18.50	18.95	SPT8																						
20.00	20.30	UDS7																						
22.00	22.45	SPT9																						
24.00	24.30	UDS8																						
26.00	26.45	SPT10																						
28.00	28.30	DS3																						
30.00	30.45	SPT11																						

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 26  
UTM Coordinates : 699794 E, 3159723 N

### Soil Profile (BH-103)

Termination Depth : 30.45 m (RL 182.907 m)  
Ground Water Depth : 19.66 m  
Surface Elevation : RL 213.357 m  
Ground Water Level : RL 193.7 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																			
1.00	1.45	SPT1	7	11			- stiff, 0.0 to 5.0 m		3	18	74	5											16		
2.00	2.30	UDS1											29.9	14.9	15.0		1.79	1.56	14.8					15	
3.00	3.45	SPT2	9	11																			14		
4.00	4.30	UDS2														1.84	1.60	15.0					12		
5.00	5.45	SPT3	20	18		- very stiff, 5.0 to 9.5 m																			
6.00	6.30	UDS3						4	37	55	4					1.84	1.60	14.9							
7.00	7.45	SPT4	27	20								22.9	14.9	8.0											
8.00	8.30	UDS4														1.81	1.56	15.9							
9.50	9.95	SPT5	32	21		- hard, 9.5 to 14.0 m												2.68	DS	0.5 ,1, 1.5	0.0	31.2			
11.00	11.30	DS2						3	14	78	5														
12.50	12.95	SPT6	32	19								27.5	18.5	9.0											

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 26  
UTM Coordinates : 699794 E, 3159723 N

### Soil Profile (BH-103)

Termination Depth : 30.45 m (RL 182.907 m)  
Ground Water Depth : 19.66 m  
Surface Elevation : RL 213.357 m  
Ground Water Level : RL 193.7 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS5	38	20		Hard brown sandy silt, low plastic (CL)	30.45	5	29	62	4				1.86	1.60	15.9							
15.50	15.95	SPT7																						
17.00	17.30	UDS6																						
18.50	18.95	SPT8																						
20.00	20.30	UDS7																						
22.00	22.45	SPT9																						
24.00	24.30	UDS8																						
26.00	26.45	SPT10																						
28.00	28.30	DS3																						
30.00	30.45	SPT11																						

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699830 E, 3159696 N

### Soil Profile (BH-104)

Termination Depth : 30.45 m (RL 182.946 m)  
Ground Water Depth : 19.50 m  
Surface Elevation : RL 213.396 m  
Ground Water Level : RL 193.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)		3	26	61	10														
1.00	1.45	SPT1	7	11		- stiff, 0.0 to 7.0 m						34.6	18.6	16.0										17	
2.00	2.30	UDS1				- with traces of gravel, 0.0 to 7.0 m										1.76	1.54	14.2						8	
3.00	3.45	SPT2	9	11																				8	
4.00	4.30	UDS2														1.84	1.58	16.4		DS	0.5 ,1, 1.5	0.0	31.5	4	
5.00	5.45	SPT3	13	13				1	24	65	10														
6.00	6.30	UDS3										23.6	15.6	8.0		1.79	1.57	13.8							
7.00	7.45	SPT4	21	17		- very stiff, 7.0 to 14.0 m																			
8.00	8.30	UDS4														1.79	1.53	16.8	2.66						
9.50	9.95	SPT5	25	18				0	28	62	10														
11.00	11.30	UDS5										32.6	18.6	14.0		1.86	1.59	16.7							
12.50	12.95	SPT6	26	17																					

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 23  
UTM Coordinates : 699830 E, 3159696 N

### Soil Profile (BH-104)

Termination Depth : 30.45 m (RL 182.946 m)  
Ground Water Depth : 19.50 m  
Surface Elevation : RL 213.396 m  
Ground Water Level : RL 193.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 27-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS6	29	17		Very stiff to hard brown sandy silt, low plastic (CL)	30.45	1	46	46	7				1.86	1.59	16.7							
15.50	15.95	SPT7				- very stiff, 14.0 to 18.5 m																		
17.00	17.30	DS2																						
18.50	18.95	SPT8				- with traces of gravel, 18.5 to 22.0 m																		
20.00	20.30	UDS7				- hard, 18.5 to 30.4 m																		
22.00	22.45	SPT9																						
24.00	24.30	UDS8																						
26.00	26.45	SPT10																						
28.00	28.30	DS3																						
30.00	30.45	SPT11																						

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699823 E, 3159762 N

### Soil Profile (BH-105)

Termination Depth : 30.45 m (RL 183.005 m)  
Ground Water Depth : 19.93 m  
Surface Elevation : RL 213.455 m  
Ground Water Level : RL 193.5 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 21-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)  - stiff, 0.0 to 7.0 m																		
1.00	1.45	SPT1	9	14																				11
2.00	2.30	UDS1												1.79	1.56	14.9								16
3.00	3.45	SPT2	11	13				4	20	65	11												22	
4.00	4.30	UDS2											27.5	18.5	9.0		1.78	1.55	14.8					18
5.00	5.45	SPT3	12	12																				
6.00	6.30	UDS3				- very stiff, 7.0 to 9.5 m										1.82	1.56	16.8						
7.00	7.45	SPT4	18	16																				
8.00	8.30	UDS4																						
9.50	9.95	SPT5	42	25		- hard, 9.5 to 14.0 m																		
11.00	11.30	DS2											30.6	19.6	11.0									
12.50	12.95	SPT6	50	26																				

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 23  
UTM Coordinates : 699823 E, 3159762 N

### Soil Profile (BH-105)

Termination Depth : 30.45 m (RL 183.005 m)  
Ground Water Depth : 19.93 m  
Surface Elevation : RL 213.455 m  
Ground Water Level : RL 193.5 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 21-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests					Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)		
14.00	14.30	UDS5	54	25		Hard brown sandy silt, low plastic (CL)	30.45	5	12	71	12	26.6	18.5	8.1	1.83	1.61	13.8								
15.50	15.95	SPT7				- with gravel, 14.0 to 17.0 m																			
17.00	17.30	UDS6																							
18.50	18.95	SPT8																							
20.00	20.30	DS3																							
22.00	22.45	SPT9																							
24.00	24.30	UDS7				- with traces of gravel, 24.0 to 26.0 m																			
26.00	26.45	SPT10																							
28.00	28.30	DS4																							
30.00	30.45	SPT11																							

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699859 E, 3159735 N

### Soil Profile (BH-106)

Termination Depth : 30.45 m (RL 182.236 m)  
Ground Water Depth : 19.80 m  
Surface Elevation : RL 212.686 m  
Ground Water Level : RL 192.9 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to hard brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 3.0 m		4	29	58	9													20
2.00	2.30	UDS1										26.6	12.6	14.0		1.81	1.64	10.5						20
3.00	3.45	SPT2	17	18		- very stiff, 5.0 to 9.5 m																		18
4.00	4.30	UDS2														1.74	1.52	14.7						13
5.00	5.45	SPT3	20	18																				
6.00	6.30	UDS3						2	17	70	11					1.83	1.60	14.6						
7.00	7.45	SPT4	26	20								24.6	15.6	9.0										
8.00	8.30	UDS4														1.85	1.60	15.8						
9.50	9.95	SPT5	35	22		- hard, 9.5 to 14.0 m													2.64					
11.00	11.30	DS2						3	30	58	9									DS	0.5, 1, 1.5	0.0	31.7	
12.50	12.95	SPT6	40	22								26.6	14.6	12.0										

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 23  
UTM Coordinates : 699859 E, 3159735 N

### Soil Profile (BH-106)

Termination Depth : 30.45 m (RL 182.236 m)  
Ground Water Depth : 19.80 m  
Surface Elevation : RL 212.686 m  
Ground Water Level : RL 192.9 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS5				Hard brown sandy silt, low plastic (CL)    - with traces of gravel, 20.0 to 22.0 m									1.88	1.64	14.9							
15.50	15.95	SPT7	38	20																				
17.00	17.30	DS3																						
18.50	18.95	SPT8	31	17																				
20.00	20.30	UDS6					1	42	49	8					1.96	1.67	17.3							
22.00	22.45	SPT9	41	19																				
24.00	24.30	DS4																						
26.00	26.45	SPT10	49	19																				
28.00	28.30	UDS7													2.01	1.63	23.4							
30.00	30.45	SPT11	55	20			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699855 E, 3159769 N

### Soil Profile (BH-107)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 19.84 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 193.7 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 21-Jun-17  
Boring Finish : 23-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Very stiff to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	15	19		- very stiff, 0.0 to 9.5 m		0	44	48	8													16
2.00	2.30	UDS1										29.5	19.5	10.0		1.75	1.55	12.6						8
3.00	3.45	SPT2	17	18																				14
4.00	4.30	UDS2														1.84	1.62	13.9		DS	0.5, 1, 1.5	0.0	32.3	17
5.00	5.45	SPT3	19	17		- with traces of gravel, 6.0 to 14.0 m																		
6.00	6.30	UDS3						4	21	65	10					1.84	1.59	15.7						
7.00	7.45	SPT4	21	17								31.6	19.6	12.0										
8.00	8.30	UDS4														1.84	1.56	17.6						
9.50	9.95	SPT5	38	23		- hard, 9.5 to 14.0 m													2.66					
11.00	11.30	UDS5						3	37	52	8					1.84	1.58	16.4						
12.50	12.95	SPT6	32	19								30.6	12.6	18.0										

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699855 E, 3159769 N

### Soil Profile (BH-107)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 19.84 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 193.7 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 21-Jun-17  
Boring Finish : 23-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS6				Hard brown sandy silt, low plastic (CL)										1.84	1.58	16.8						
15.50	15.95	SPT7	30	17		- with gravel, 20.0 to 24.0 m																		
17.00	17.30	UDS7														1.89	1.66	13.7						
18.50	18.95	SPT8	40	20																				
20.00	20.30	DS2						5	24	61	10													
22.00	22.45	SPT9	41	19																				
24.00	24.30	DS3																						
26.00	26.45	SPT10	45	18																				
28.00	28.30	UDS8														2.04	1.65	23.4						
30.00	30.45	SPT11	40	17			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699855 E, 3159805 N

### Soil Profile (BH-108)

Termination Depth : 30.45 m (RL 182.77 m)  
Ground Water Depth : 19.90 m  
Surface Elevation : RL 213.220 m  
Ground Water Level : RL 193.3 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 20-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	14	22		- stiff, 0.0 to 3.0 m		3	18	68	11													16
2.00	2.30	UDS1				- with traces of gravel, 1.0 to 3.0 m						28.6	17.6	11.0		1.73	1.51	14.3						16
3.00	3.45	SPT2	15	18		- very stiff, 3.0 to 12.5 m																		18
4.00	4.30	UDS2														1.84	1.58	16.7						12
5.00	5.45	SPT3	26	27																				
6.00	6.30	UDS3				- with gravel, 6.0 to 8.0 m		5	16	68	11					1.84	1.61	14.6						
7.00	7.45	SPT4	30	28								29.6	13.6	16.0										
8.00	8.30	DS2																						
9.50	9.95	SPT5	18	15															2.67					
11.00	11.30	UDS4				- with traces of gravel, 11.0 to 12.5 m		4	45	44	7					1.86	1.61	15.3		DS	0.5, 1, 1.5	0.0	32.1	
12.50	12.95	SPT6	33	24		- hard, 12.5 to 14.0 m						32.7	18.7	14.0										

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 23  
UTM Coordinates : 699855 E, 3159805 N

### Soil Profile (BH-108)

Termination Depth : 30.45 m (RL 182.77 m)  
Ground Water Depth : 19.90 m  
Surface Elevation : RL 213.220 m  
Ground Water Level : RL 193.3 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 20-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS5	60	40		Hard brown sandy silt, low plastic (CL)	30.45	3	35	54	8				1.86	1.59	16.7							
15.50	15.95	SPT7				Hard brown sandy silt, low plastic (CL)																		
17.00	17.30	DS3				Hard brown sandy silt, low plastic (CL)																		
18.50	18.95	SPT8				Hard brown sandy silt, low plastic (CL)																		
20.00	20.30	UDS6	- with traces of gravel, 20.0 to 24.0 m																					
22.00	22.45	SPT9	36	17		- with traces of gravel, 20.0 to 24.0 m																		
24.00	24.30	UDS7				- with traces of gravel, 20.0 to 24.0 m																		
26.00	26.45	SPT10	43	19		- with traces of gravel, 20.0 to 24.0 m																		
28.00	28.30	DS4				- with traces of gravel, 20.0 to 24.0 m																		
30.00	30.45	SPT11	51	20		- with traces of gravel, 20.0 to 24.0 m																		

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699891 E, 3159779 N

### Soil Profile (BH-109)

Termination Depth : 30.45 m (RL 182.905 m)  
Ground Water Depth : 19.79 m  
Surface Elevation : RL 213.355 m  
Ground Water Level : RL 193.6 m  
Boring Method : Shell & Auger  
Casing Depth : 9.4 m  
Boring Start : 20-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	9	14		- stiff, 0.0 to 3.0 m																		7
2.00	2.30	UDS1														1.74	1.53	13.8						12
3.00	3.45	SPT2	17	20		- very stiff, 5.0 to 7.0 m		3	44	46	7													19
4.00	4.30	UDS2										28.6	18.6	10.0		1.82	1.59	14.5		DS	0.5, 1, 1.5	0.0	31.6	5
5.00	5.45	SPT3	28	29																				
6.00	6.30	UDS3														1.89	1.66	13.8						
7.00	7.45	SPT4	33	31		- hard, 7.0 to 9.5 m																		
8.00	8.30	UDS4						3	15	71	11					1.86	1.61	15.4						
9.50	9.95	SPT5	27	22		- very stiff, 9.5 to 14.0 m						28.6	15.6	13.0										
11.00	11.30	DS2																						
12.50	12.95	SPT6	24	18															2.62					

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 23  
UTM Coordinates : 699891 E, 3159779 N

### Soil Profile (BH-109)

Termination Depth : 30.45 m (RL 182.905 m)  
Ground Water Depth : 19.79 m  
Surface Elevation : RL 213.355 m  
Ground Water Level : RL 193.6 m  
Boring Method : Shell & Auger  
Casing Depth : 9.4 m  
Boring Start : 20-Jun-17  
Boring Finish : 21-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS5				Very stiff to hard brown sandy silt, low plastic (CL)		0	43	49	8					1.81	1.57	15.5						
15.50	15.95	SPT7	28	19		- very stiff, 14.0 to 18.5 m						28.9	17.5	11.4										
17.00	17.30	UDS6														1.87	1.63	14.6						
18.50	18.95	SPT8	49	30		- hard, 18.5 to 30.4 m																		
20.00	20.30	DS3																						
22.00	22.45	SPT9	33	17																				
24.00	24.30	UDS7				- with traces of gravel, 24.0 to 26.0 m		3	31	57	9					1.97	1.58	24.6						
26.00	26.45	SPT10	40	18																				
28.00	28.30	DS4																						
30.00	30.45	SPT11	50	20			30.45																	

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 24  
UTM Coordinates : 699938 E, 3159747 N

### Soil Profile (BH-150)

Termination Depth : 30.45 m (RL 182.856 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.306 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to very stiff brown sandy silt with traces of gravel, low plastic (CL)																		
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 5.0 m										1.76	1.53	14.8						18
2.00	2.30	UDS1																						5
3.00	3.45	SPT2	13	16				3	28	60	9													15
4.00	4.30	UDS2										22.7	12.7	10.0		1.83	1.57	16.7		DS	0.5, 1, 1.5	0.0	30.9	20
5.00	5.45	SPT3	20	21		- very stiff, 5.0 to 14.0 m																		
6.00	6.30	DS2																						
7.00	7.45	SPT4	23	21																				
8.00	8.30	DS3						2	15	71	12													
9.50	9.95	SPT5	25	21								23.7	16.7	7.0										
11.00	11.30	UDS3														1.85	1.59	16.7						
12.50	12.95	SPT6	29	21															2.66					

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699938 E, 3159747 N

### Soil Profile (BH-150)

Termination Depth : 30.45 m (RL 182.856 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.306 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 19-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS4				Hard brown sandy silt with traces of gravel, low plastic (CL)		1	42	52	5					1.86	1.59	17.3						
15.50	15.95	SPT7	32	21								27.7	18.7	9.0										
17.00	17.30	DS4																						
18.50	18.95	SPT8	36	22																				
20.00	20.30	UDS5														1.97	1.69	16.4						
22.00	22.45	SPT9	41	19																				
24.00	24.30	UDS6						2	12	78	8					1.95	1.60	22.1						
26.00	26.45	SPT10	50	21																				
28.00	28.30	DS5																						
30.00	30.45	SPT11	58	22			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699992 E, 3159704 N

### Soil Profile (BH-151)

Termination Depth : 30.45 m (RL 183.159 m)  
Ground Water Depth : 21.30 m  
Surface Elevation : RL 213.609 m  
Ground Water Level : RL 192.3 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 20-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Firm to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	5	8		-firm, 0.0 to 3.0 m																		17
2.00	2.30	UDS1				- with traces of gravel, 2.0 to 4.0 m										1.74	1.49	16.7						14
3.00	3.45	SPT2	9	11		- stiff, 3.0 to 7.0 m		4	49	43	4													22
4.00	4.30	UDS2										33.7	15.7	18.0		1.84	1.60	14.9						13
5.00	5.45	SPT3	12	12																				
6.00	6.30	UDS3														1.85	1.60	15.6		DS	0.5, 1, 1.5	0.0	32.0	
7.00	7.45	SPT4	16	15		- very stiff, 7.0 to 12.5 m m																		
8.00	8.30	UDS4						0	41	54	5					1.81	1.55	16.4						
9.50	9.95	SPT5	28	23								28.7	18.7	10.0										
11.00	11.30	UDS5														1.84	1.61	14.3	2.68					
12.50	12.95	SPT6	31	23		- hard, 12.5 to 14.0 m																		

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699992 E, 3159704 N

### Soil Profile (BH-151)

Termination Depth : 30.45 m (RL 183.159 m)  
Ground Water Depth : 21.30 m  
Surface Elevation : RL 213.609 m  
Ground Water Level : RL 192.3 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 20-Jun-17  
Boring Finish : 22-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS6				Hard brown sandy silt with traces of gravel, low plastic (CL)		3	38	54	5					1.87	1.62	15.6						
15.50	15.95	SPT7	31	21								29.7	14.7	15.0										
17.00	17.30	DS2																						
18.50	18.95	SPT8	35	21																				
20.00	20.30	UDS7														1.95	1.72	13.3						
22.00	22.45	SPT9	43	19																				
24.00	24.30	DS3						1	36	57	6													
26.00	26.45	SPT10	60	23																				
28.00	28.30	DS4																						
30.00	30.45	SPT11	48	19			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699940 E, 3159686 N

### Soil Profile (BH-152)

Termination Depth : 30.45 m (RL 183.062 m)  
Ground Water Depth : 21.50 m  
Surface Elevation : RL 213.512 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)		0	36	58	6													
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 5.0 m						30.5	19.5	11.0										12
2.00	2.30	UDS1														1.74	1.53	13.5						17
3.00	3.45	SPT2	11	13																				11
4.00	4.30	UDS2				- with traces of gravel, 5.0 to 12.5 m										1.85	1.60	15.7		DS	0.5, 1, 1.5	0.0	32.1	17
5.00	5.45	SPT3	17	16		- very stiff, 5.0 to 14.0 m		4	43	48	5													
6.00	6.30	UDS3										26.5	16.5	10.0		1.87	1.63	14.6						
7.00	7.45	SPT4	22	18																				
8.00	8.30	UDS4														1.83	1.59	15.4	2.69					
9.50	9.95	SPT5	24	17				4	44	47	5													
11.00	11.30	UDS5										31.5	19.5	12.0		1.86	1.61	15.5						
12.50	12.95	SPT6	29	18																				

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 24  
UTM Coordinates : 699940 E, 3159686 N

### Soil Profile (BH-152)

Termination Depth : 30.45 m (RL 183.062 m)  
Ground Water Depth : 21.50 m  
Surface Elevation : RL 213.512 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
14.00	14.30	UDS6	31	18		Hard brown sandy silt, low plastic (CL)	30.45	1	12	79	8				1.84	1.62	13.8							
15.50	15.95	SPT7				- with traces of gravel, 18.5 to 20.0 m																		
17.00	17.30	UDS7																						
18.50	18.95	SPT8																						
20.00	20.30	UDS8																						
22.00	22.45	SPT9																						
24.00	24.30	UDS9																						
26.00	26.45	SPT10																						
28.00	28.30	UDS10																						
30.00	30.45	SPT11																						

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699889 E, 3159658 N

### Soil Profile (BH-153)

Termination Depth : 30.45 m (RL 182.843 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.293 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	8	12		- stiff, 0.0 to 9.5 m		5	25	64	6											16		
2.00	2.30	UDS1				- with gravel, 1.0 to 4.0 m						25.7	18.7	7.0		1.76	1.56	12.7				18		
3.00	3.45	SPT2	11	13																		22		
4.00	4.30	UDS2														1.82	1.57	15.8				22		
5.00	5.45	SPT3	12	12																				
6.00	6.30	UDS3				- with traces of gravel, 6.0 to 14.0 m		3	42	50	5					1.79	1.57	14.3						
7.00	7.45	SPT4	14	13								31.7	17.7	14.0										
8.00	8.30	DS2																						
9.50	9.95	SPT5	17	14		- very stiff, 9.5 to 14.0 m													2.69					
11.00	11.30	UDS4						2	15	76	7					1.84	1.61	14.1						
12.50	12.95	SPT6	25	18								24.7	14.7	10.0										

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 24  
UTM Coordinates : 699889 E, 3159658 N

### Soil Profile (BH-153)

Termination Depth : 30.45 m (RL 182.843 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.293 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS5				Very stiff to hard brown sandy silt, low plastic (CL)										1.83	1.58	15.8		DS	0.5, 1, 1.5	0.0	33.0	
15.50	15.95	SPT7	26	17		- very stiff, 14.0 to 22.0 m																		
17.00	17.30	DS3																						
18.50	18.95	SPT8	29	17																				
20.00	20.30	UDS6				- with gravel, 20.0 to 22.0 m		5	39	51	5					1.94	1.65	17.3						
22.00	22.45	SPT9	31	16		- hard, 22.0 to 30.4 m																		
24.00	24.30	UDS7														1.94	1.57	23.8						
26.00	26.45	SPT10	35	17																				
28.00	28.30	DS4																						
30.00	30.45	SPT11	45	19			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 24  
UTM Coordinates : 699934 E, 3159625 N

### Soil Profile (BH-154)

Termination Depth : 30.45 m (RL 182.917 m)  
Ground Water Depth : 21.30 m  
Surface Elevation : RL 213.367 m  
Ground Water Level : RL 192.1 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Firm to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	5	8		- firm, 0.0 to 3.0 m										1.79	1.59	12.5				8		
2.00	2.30	UDS1																				17		
3.00	3.45	SPT2	8	10		- stiff, 3.0 to 5.0 m		5	12	76	7											13		
4.00	4.30	UDS2				- with gravel, 3.0 to 5.0 m						25.7	15.7	10.0		1.80	1.56	15.1				21		
5.00	5.45	SPT3	10	10																				
6.00	6.30	UDS3														1.76	1.51	16.5		DS	0.5 ,1, 1.5	0.0	30.1	
7.00	7.45	SPT4	15	14		- very stiff, 5.0 to 14.0 m																		
8.00	8.30	UDS4				- with traces of gravel, 8.0 to 11.0 m		3	37	55	5					1.83	1.60	14.3						
9.50	9.95	SPT5	17	14								24.7	17.7	7.0										
11.00	11.30	UDS5														1.82	1.60	13.5						
12.50	12.95	SPT6	25	17															2.68					

⁽¹⁾ SPT is outside NABL scope.




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Location : Office - 24  
UTM Coordinates : 699934 E, 3159625 N

### Soil Profile (BH-154)

Termination Depth : 30.45 m (RL 182.917 m)  
Ground Water Depth : 21.30 m  
Surface Elevation : RL 213.367 m  
Ground Water Level : RL 192.1 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 22-Jun-17  
Boring Finish : 24-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)				
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)					
14.00	14.30	UDS6	30	17		Hard brown sandy silt, low plastic (CL)		0	14	78	8	22.7	12.7	10.0		1.82	1.59	14.6										
15.50	15.95	SPT7		17																								
17.00	17.30	UDS7		18																								
18.50	18.95	SPT8		17																								
20.00	20.30	UDS8		17																								
22.00	22.45	SPT9	39	17		- with traces of gravel, 24.0 to 26.0 m		2	41	52	5					1.94	1.58	22.8										
24.00	24.30	UDS9		17																								
26.00	26.45	SPT10		17																								
28.00	28.30	UDS10		17																								
30.00	30.45	SPT11	61	22			30.45																					

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699869 E, 3159618 N

### Soil Profile (BH-155)

Termination Depth : 30.45 m (RL 182.856 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.306 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 25-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Firm to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	5	8		- firm, 0.0 to 3.0 m																		9
2.00	2.30	UDS1														1.77	1.52	16.1						11
3.00	3.45	SPT2	9	11		- stiff, 3.0 to 7.0 m																		7
4.00	4.30	UDS2				- with gravel, 4.0 to 6.0 m		5	30	59	6					1.74	1.49	16.7						7
5.00	5.45	SPT3	11	11		- very stiff, 5.0 to 14.0 m						29.9	13.9	16.0										
6.00	6.30	UDS3														1.79	1.57	13.9						
7.00	7.45	SPT4	16	15																				
8.00	8.30	UDS4														1.85	1.60	15.9		DS	0.5, 1, 1.5	0.0	32.2	
9.50	9.95	SPT5	22	18		- with traces of gravel, 9.5 to 12.5 m		1	40	54	5													
11.00	11.30	UDS5										31.9	19.9	12.0		1.85	1.59	16.7						
12.50	12.95	SPT6	26	19																				

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699869 E, 3159618 N

### Soil Profile (BH-155)

Termination Depth : 30.45 m (RL 182.856 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.306 m  
Ground Water Level : RL 191.9 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 25-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS6				Hard brown sandy silt, low plastic (CL)		4	35	55	6					1.84	1.62	13.5	2.68					
15.50	15.95	SPT7	31	21																				
17.00	17.30	DS2										22.0	15.0	7.0										
18.50	18.95	SPT8	35	21																				
20.00	20.30	UDS7														1.97	1.71	15.4						
22.00	22.45	SPT9	39	18																				
24.00	24.30	DS3																						
26.00	26.45	SPT10	42	18		- with traces of gravel, 26.0 to 28.0 m		2	13	77	8													
28.00	28.30	DS4																						
30.00	30.45	SPT11	58	22			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699907 E, 3159589 N

### Soil Profile (BH-156)

Termination Depth : 30.45 m (RL 182.919 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.369 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 26-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	
0.00	0.50	DS1				Firm to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	7	11		- firm, 0.0 to 3.0 m		4	44	47	5											21		
2.00	2.30	UDS1				- with traces of gravel, 1.0 to 3.0 m						31.5	19.5	12.0		1.78	1.55	14.6				4		
3.00	3.45	SPT2	11	13		- stiff, 3.0 to 7.0 m																16		
4.00	4.30	UDS2														1.80	1.55	15.9				6		
5.00	5.45	SPT3	13	13																				
6.00	6.30	UDS3				- with gravel, 6.0 to 7.0 m		5	34	55	6					1.78	1.55	14.5						
7.00	7.45	SPT4	18	16		- very stiff, 7.0 to 14.0 m						29.5	18.5	11.0										
8.00	8.30	UDS4														1.84	1.59	15.4						
9.50	9.95	SPT5	22	17															2.67					
11.00	11.30	UDS5				- with traces of gravel, 11.0 to 12.5 m		1	25	67	7					1.84	1.59	15.8		DS	0.5 ,1, 1.5	0.0	31.7	
12.50	12.95	SPT6	24	16								28.5	18.0	10.5										

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699907 E, 3159589 N

### Soil Profile (BH-156)

Termination Depth : 30.45 m (RL 182.919 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.369 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 26-Jun-17  
Boring Finish : 28-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS6				Hard brown sandy silt, low plastic (CL)										1.85	1.58	16.8						
15.50	15.95	SPT7	32	18		- with traces of gravel, 20.0 to 24.0 m																		
17.00	17.30	UDS7														1.86	1.65	12.6						
18.50	18.95	SPT8	38	19																				
20.00	20.30	DS2						4	42	49	5													
22.00	22.45	SPT9	43	19																				
24.00	24.30	UDS8														1.97	1.62	21.4						
26.00	26.45	SPT10	48	19																				
28.00	28.30	DS3																						
30.00	30.45	SPT11	57	21			30.45																	

⁽¹⁾ SPT is outside NABL scope.



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Location : Office - 29  
UTM Coordinates : 699873 E, 3159574 N

### Soil Profile (BH-157)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 192.1 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N _r				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to hard brown sandy silt, low plastic (CL)		5	24	65	6													
1.00	1.45	SPT1	11	17		- very stiff, 0.0 to 3.0 m						28.5	16.0	12.5										18
2.00	2.30	UDS1				- with gravel, 0.0 to 3.0 m										1.74	1.51	15.6						14
3.00	3.45	SPT2	18	22		- very stiff, 3.0 to 12.5 m																		7
4.00	4.30	UDS2														1.76	1.53	15.0		DS	0.5, 1, 1.5	0.0	30.5	21
5.00	5.45	SPT3	22	23		- with traces of gravel, 5.0 to 7.0 m		1	29	64	6													
6.00	6.30	UDS3										29.5	20.0	9.5		1.81	1.56	16.1						
7.00	7.45	SPT4	25	23												1.81	1.55	16.4	2.66					
8.00	8.30	DS2																						
9.50	9.95	SPT5	26	22				0	41	54	5													
11.00	11.30	UDS4										32.5	18.0	14.5		1.89	1.62	16.7						
12.50	12.95	SPT6	40	29		- hard, 12.5 to 14.0 m																		

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699873 E, 3159574 N

### Soil Profile (BH-157)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 21.40 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 192.1 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS5				Hard brown sandy silt, low plastic (CL)										1.89	1.65	14.5						
15.50	15.95	SPT7	40	27		- with traces of gravel, 18.5 to 22.0 m																		
17.00	17.30	DS3																						
18.50	18.95	SPT8	34	21				3	32	59	6													
20.00	20.30	UDS6														1.90	1.66	14.3						
22.00	22.45	SPT9	41	19																				
24.00	24.30	UDS7														1.94	1.57	23.4						
26.00	26.45	SPT10	47	20																				
28.00	28.30	DS4																						
30.00	30.45	SPT11	51	20			30.45																	

⁽¹⁾ SPT is outside NABL scope.

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Location : Office - 29  
UTM Coordinates : 699851 E, 3159537 N

### Soil Profile (BH-158)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 21.50 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Stiff to very stiff brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	11	17		- stiff, 0.0 to 3.0 m		5	31	58	6													5
2.00	2.30	UDS1				- with gravel, 1.0 to 7.0 m						26.5	15.0	11.5		1.75	1.50	16.3						8
3.00	3.45	SPT2	15	18		- very stiff, 3.0 to 14.0 m																		10
4.00	4.30	UDS2														1.77	1.53	16.0		DS	0.5, 1, 1.5	0.0	30.4	13
5.00	5.45	SPT3	21	22																				
6.00	6.30	UDS3						5	44	46	5					1.85	1.60	15.8						
7.00	7.45	SPT4	22	20								28.5	18.5	10.0										
8.00	8.30	UDS4														1.80	1.54	16.7						
9.50	9.95	SPT5	27	22															2.70					
11.00	11.30	UDS5				- with traces of gravel, 11.0 to 14.0 m		3	26	65	6					1.84	1.58	16.8						
12.50	12.95	SPT6	24	18								33.0	13.0	20.0										

⁽¹⁾ SPT is outside NABL scope.


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Location : Office - 29  
UTM Coordinates : 699851 E, 3159537 N

### Soil Profile (BH-158)

Termination Depth : 30.45 m (RL 183.05 m)  
Ground Water Depth : 21.50 m  
Surface Elevation : RL 213.500 m  
Ground Water Level : RL 192 m  
Boring Method : Rotary Drilling  
Casing Depth : -  
Boring Start : 24-Jun-17  
Boring Finish : 26-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				Free Swell Index, (%)															
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)																
14.00	14.30	UDS6	34	23		Hard brown sandy silt, low plastic (CL)	30.45	5	29	60	6				1.84	1.58	16.8																						
15.50	15.95	SPT7				18.50									18.95	SPT8	20.00						20.30	UDS8	22.00	22.45	SPT9	24.00	24.30	UDS9	26.00	26.45	SPT10	28.00	28.30	DS2	30.00	30.45	SPT11
17.00	17.30	UDS7				1.87									1.61	16.1																							
18.50	18.95	SPT8				1.98									1.67	18.7																							
20.00	20.30	UDS8				1.98									1.63	21.6																							
22.00	22.45	SPT9																																					
24.00	24.30	UDS9																																					
26.00	26.45	SPT10																																					
28.00	28.30	DS2																																					
30.00	30.45	SPT11																																					

⁽¹⁾ SPT is outside NABL scope.

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Certificate No. T-1741



Location : -  
UTM Coordinates : 699852 E, 3159474 N

### Soil Profile (BH-162R)

Termination Depth : 30.45 m (RL 183.056 m)  
Ground Water Depth : 19.60 m  
Surface Elevation : RL 213.506 m  
Ground Water Level : RL 193.9 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 29-Jun-17  
Boring Finish : 29-Jun-17

Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _f	Corrected Value, N _c				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
0.00	0.50	DS1				Very stiff to hard brown sandy silt, low plastic (CL)																		
1.00	1.45	SPT1	15	19		- very stiff, 0.0 to 7.0 m		0	19	73	8													14
2.00	2.30	UDS1										28.6	20.6	8.0		1.75	1.53	14.6						15
3.00	3.45	SPT2	20	20																				8
4.00	4.30	UDS2														1.83	1.58	15.6		DS	0.5, 1, 1.5	0.0	30.3	13
5.00	5.45	SPT3	26	21																				
6.00	6.30	UDS3				- with traces of gravel, 6.0 to 8.0 m		3	30	60	7					1.81	1.58	14.6						
7.00	7.45	SPT4	33	23		- hard, 7.0 to 14.0 m						31.6	15.6	16.0										
8.00	8.30	UDS4														1.84	1.59	15.5						
9.50	9.95	SPT5	40	24																				
11.00	11.30	UDS5						3	33	57	7					1.82	1.56	16.3						
12.50	12.95	SPT6	47	25								33.6	19.6	14.0										

⁽¹⁾ SPT is outside NABL scope.

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(NABL)  
Certificate No. T-1741



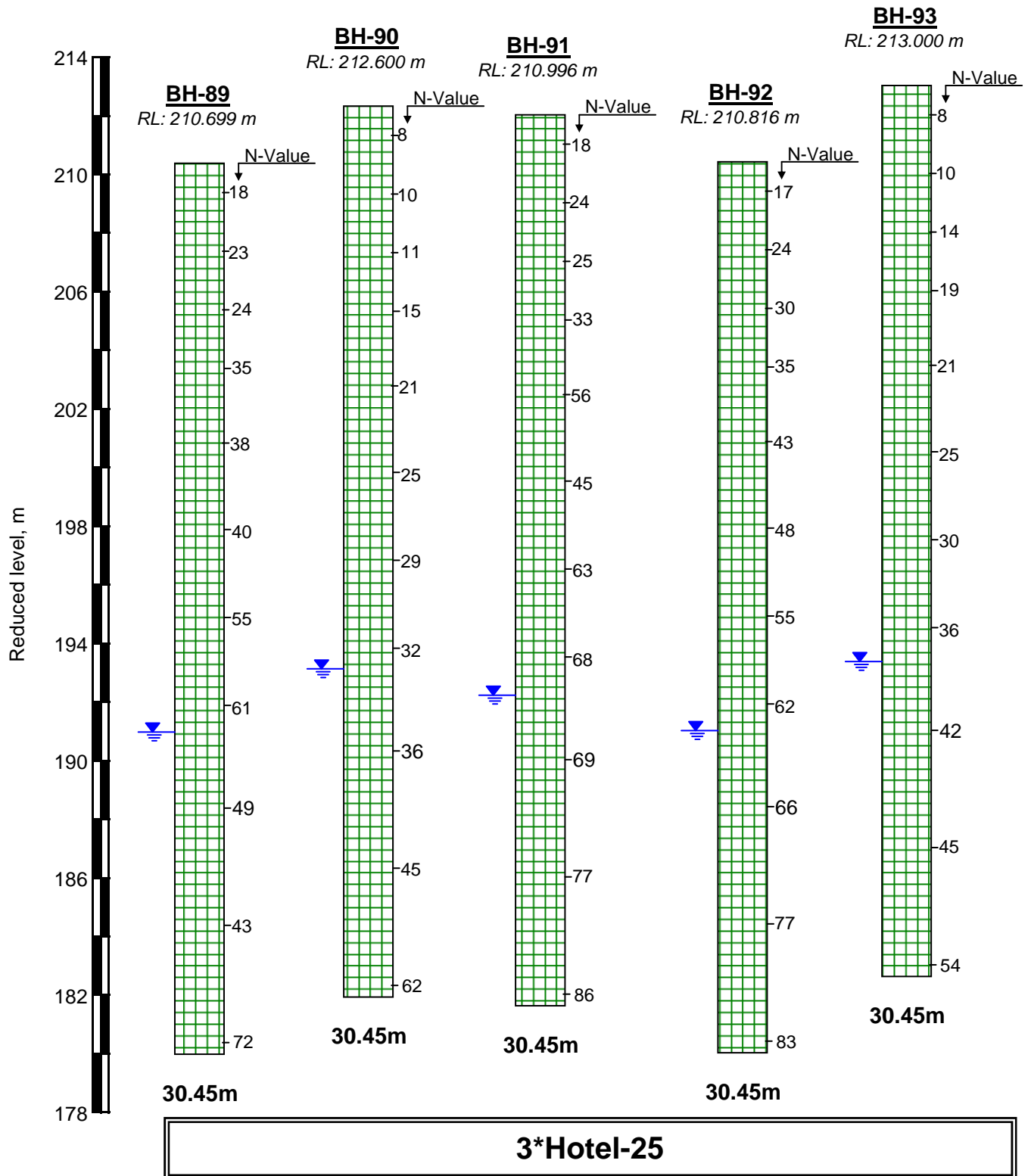
Location : -  
UTM Coordinates : 699852 E, 3159474 N

### Soil Profile (BH-162R)

Termination Depth : 30.45 m (RL 183.056 m)  
Ground Water Depth : 19.60 m  
Surface Elevation : RL 213.506 m  
Ground Water Level : RL 193.9 m  
Boring Method : Shell & Auger  
Casing Depth : -  
Boring Start : 29-Jun-17  
Boring Finish : 29-Jun-17

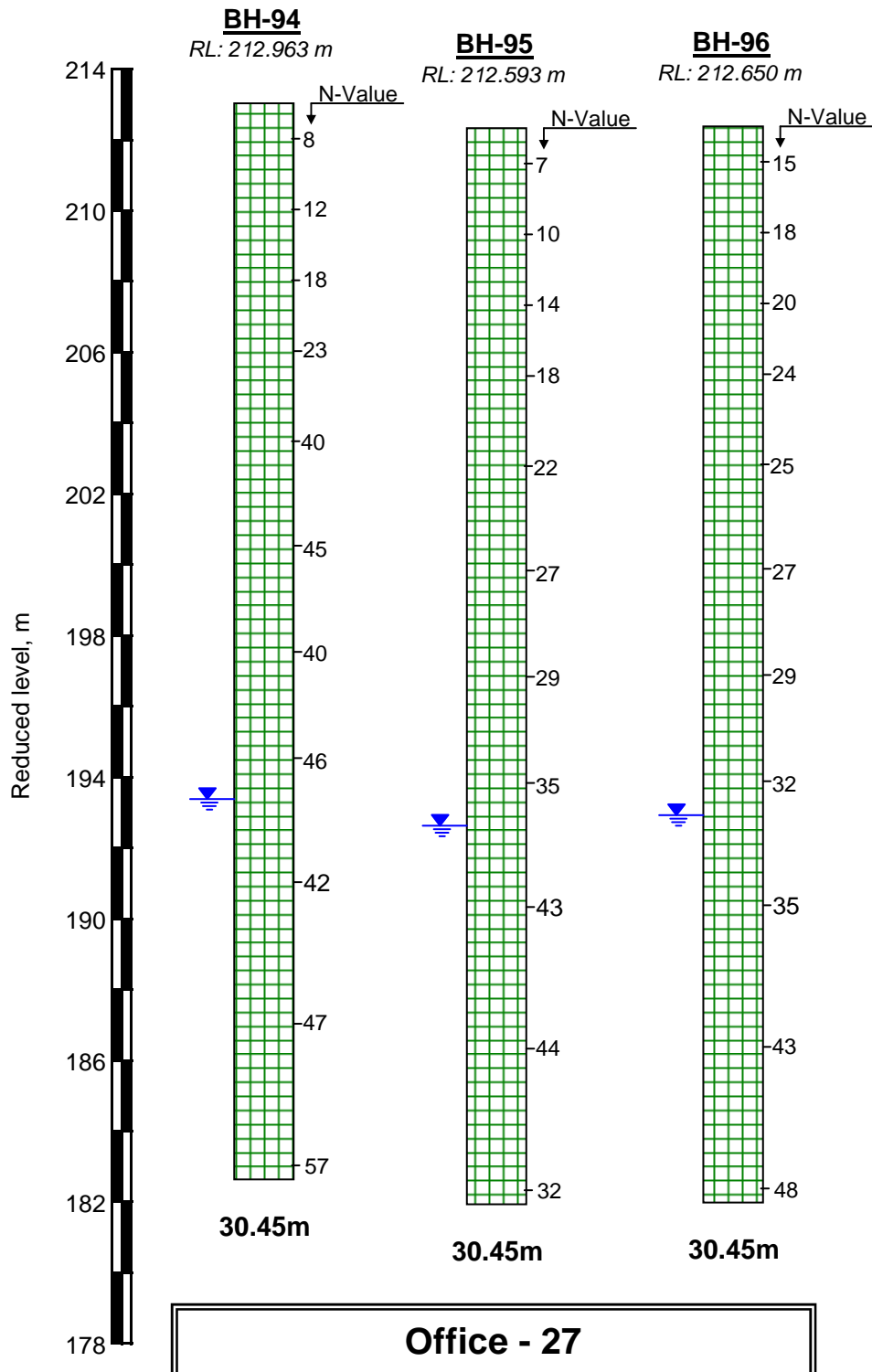
Depth, m		Sample No.	SPT ⁽¹⁾		Symbol	SOIL DESCRIPTION	Depth of Strata (m)	Grain Size Analysis				Atterberg Limits			Shrinkage Limit, (%)	Density and Moisture			Specific Gravity	Shear Tests				
From	To		Field Value, N _r	Corrected Value, N"				Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Plasticity Index (%)		Bulk Density (gms/cm ³ )	Dry Density (gms/cm ³ )	Moisture Content (%)		Type of Test	Confining Pressures (kg/cm ² )	Cohesion Intercept, 'c' (kg/cm ² )	Angle of Internal Friction, φ (degrees)	Free Swell Index, (%)
14.00	14.30	UDS6				Hard brown sandy silt, low plastic (CL)										1.87	1.61	15.9	2.64					
15.50	15.95	SPT7	46	23		- with traces of gravel, 20.0 to 24.0 m																		
17.00	17.30	UDS7														1.82	1.62	12.2						
18.50	18.95	SPT8	48	22																				
20.00	20.30	UDS8						4	34	56	6					1.97	1.69	16.4						
22.00	22.45	SPT9	49	21																				
24.00	24.30	DS2																						
26.00	26.45	SPT10	39	17																				
28.00	28.30	DS3																						
30.00	30.45	SPT11	53	20			30.45																	

⁽¹⁾ SPT is outside NABL scope.



LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

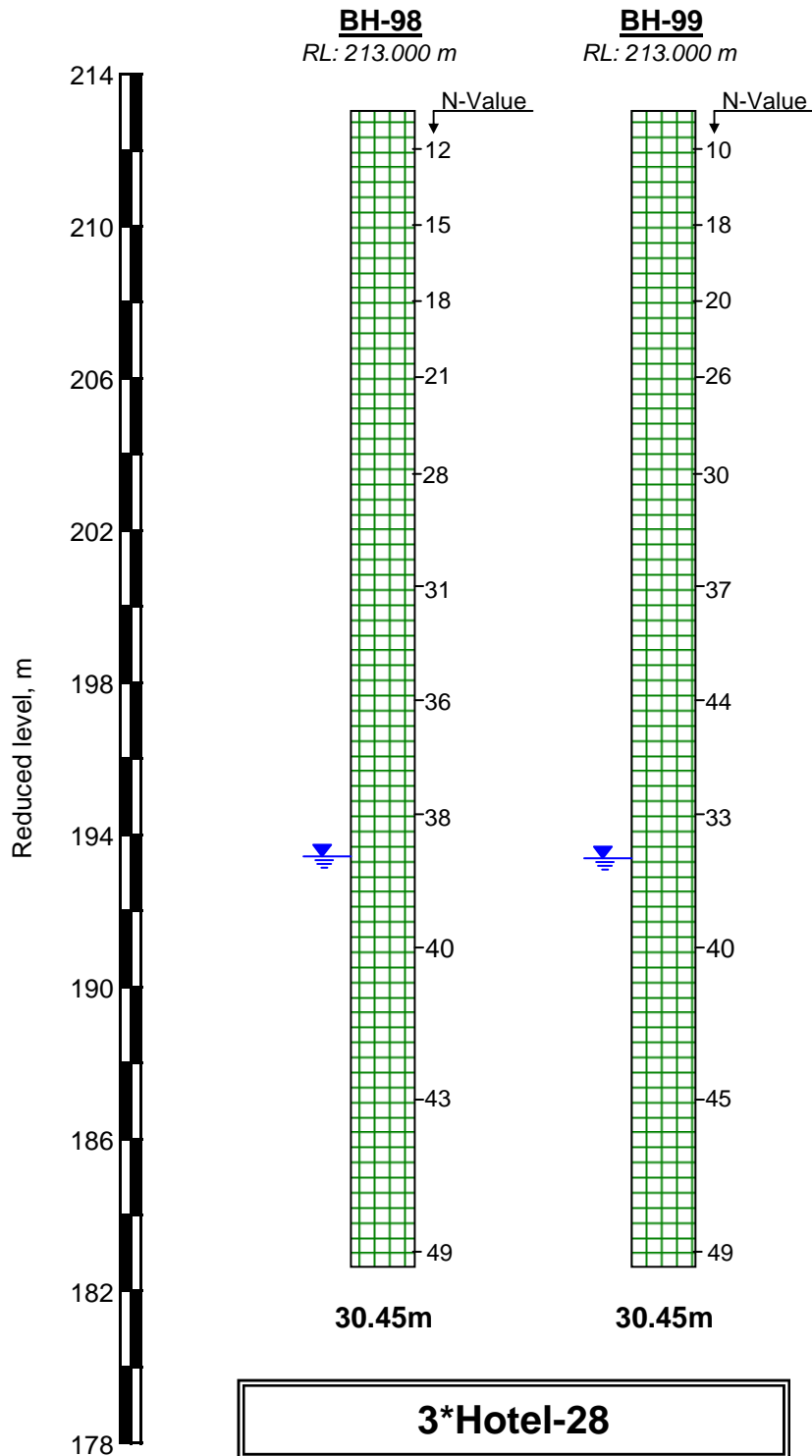
Summary of Borehole Profiles



LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

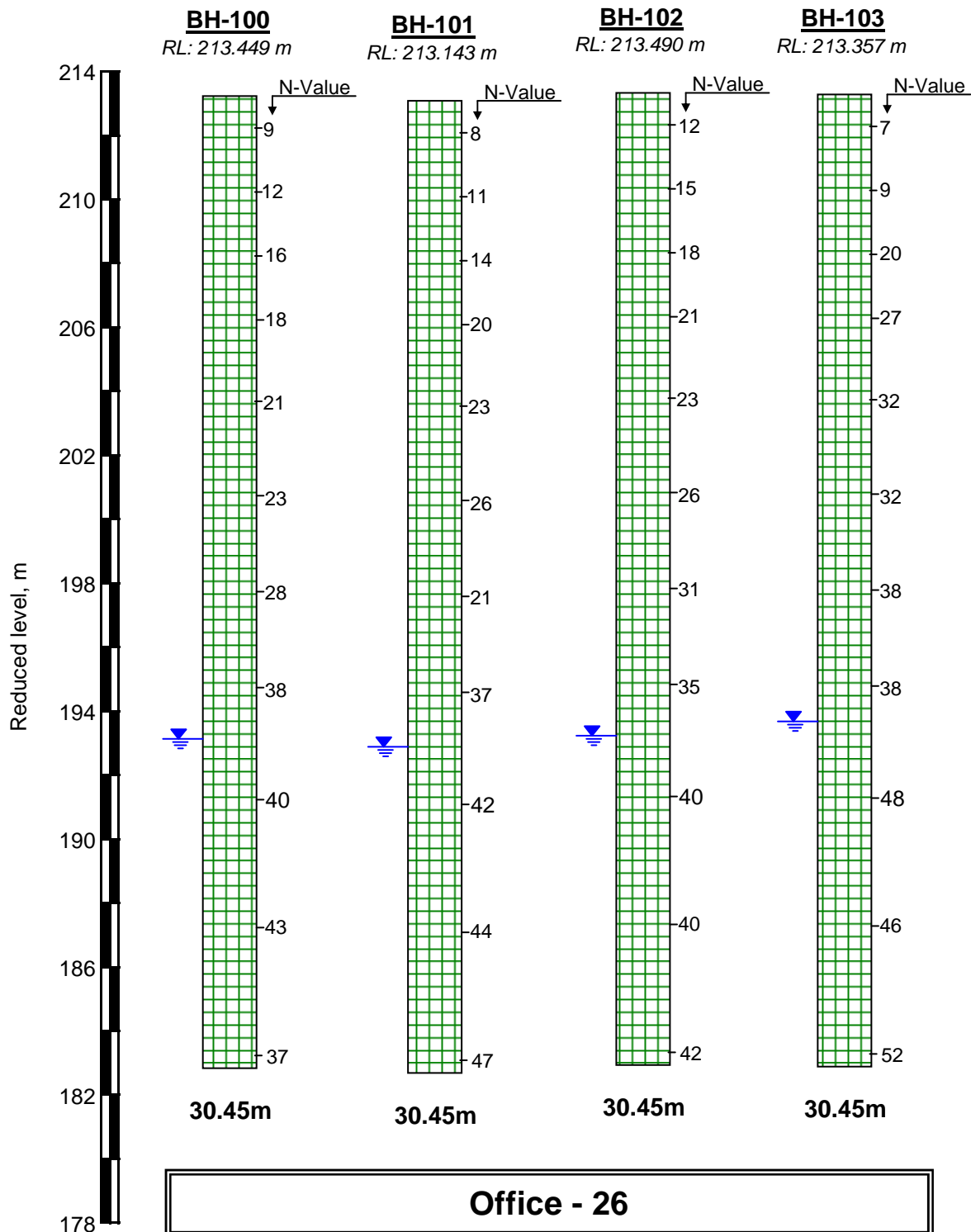
### Summary of Borehole Profiles





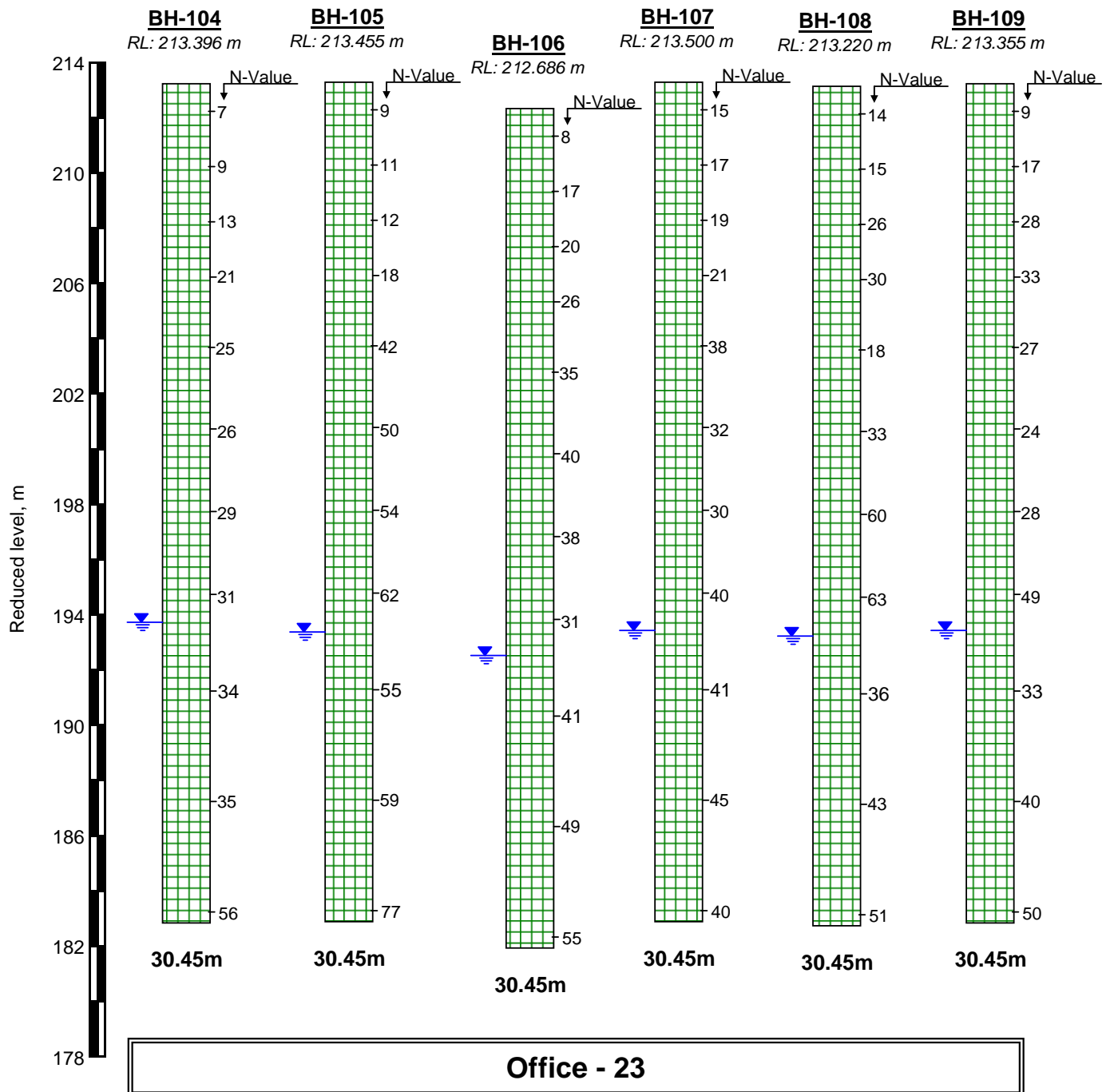
LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

### Summary of Borehole Profiles



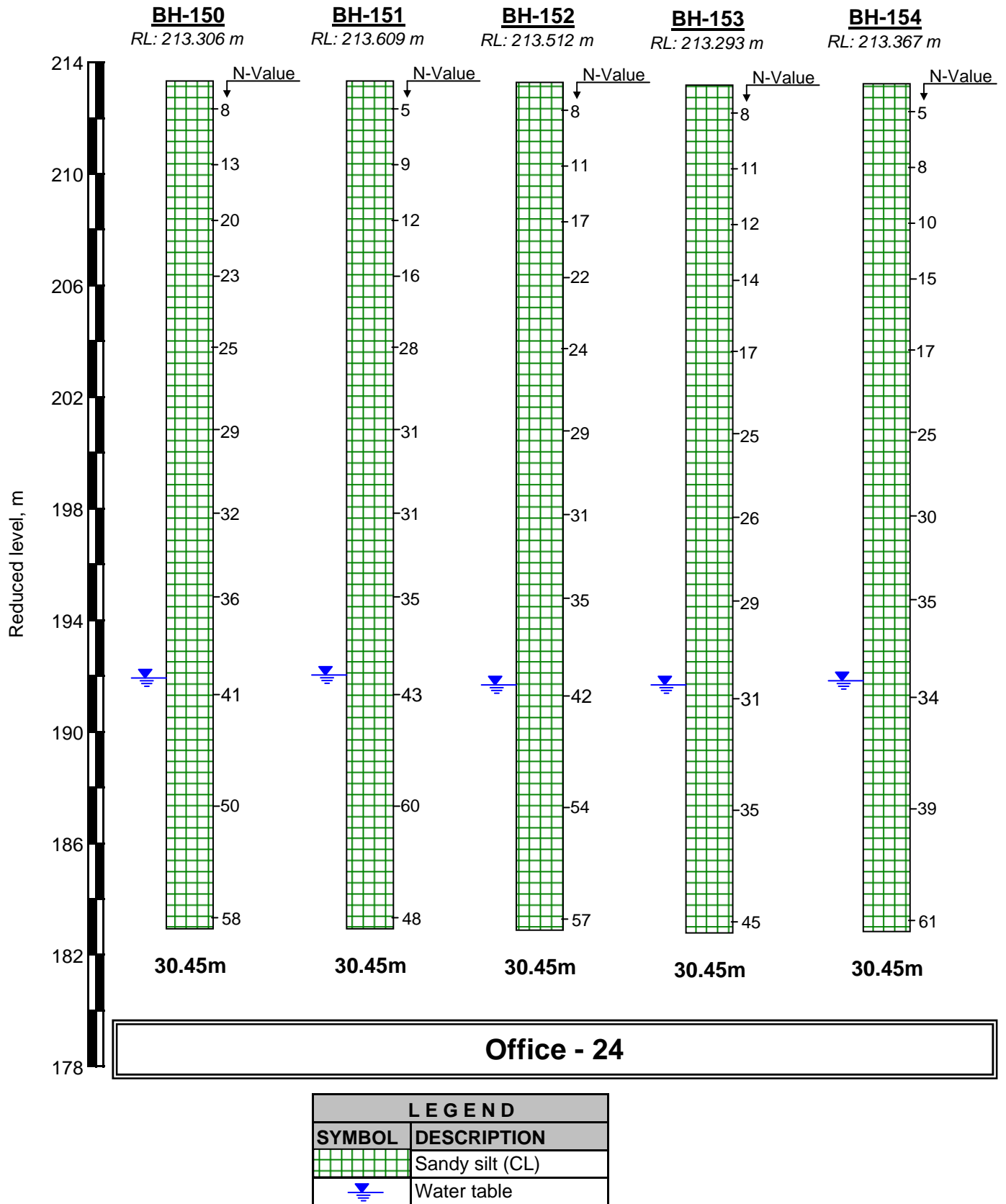
LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

## Summary of Borehole Profiles

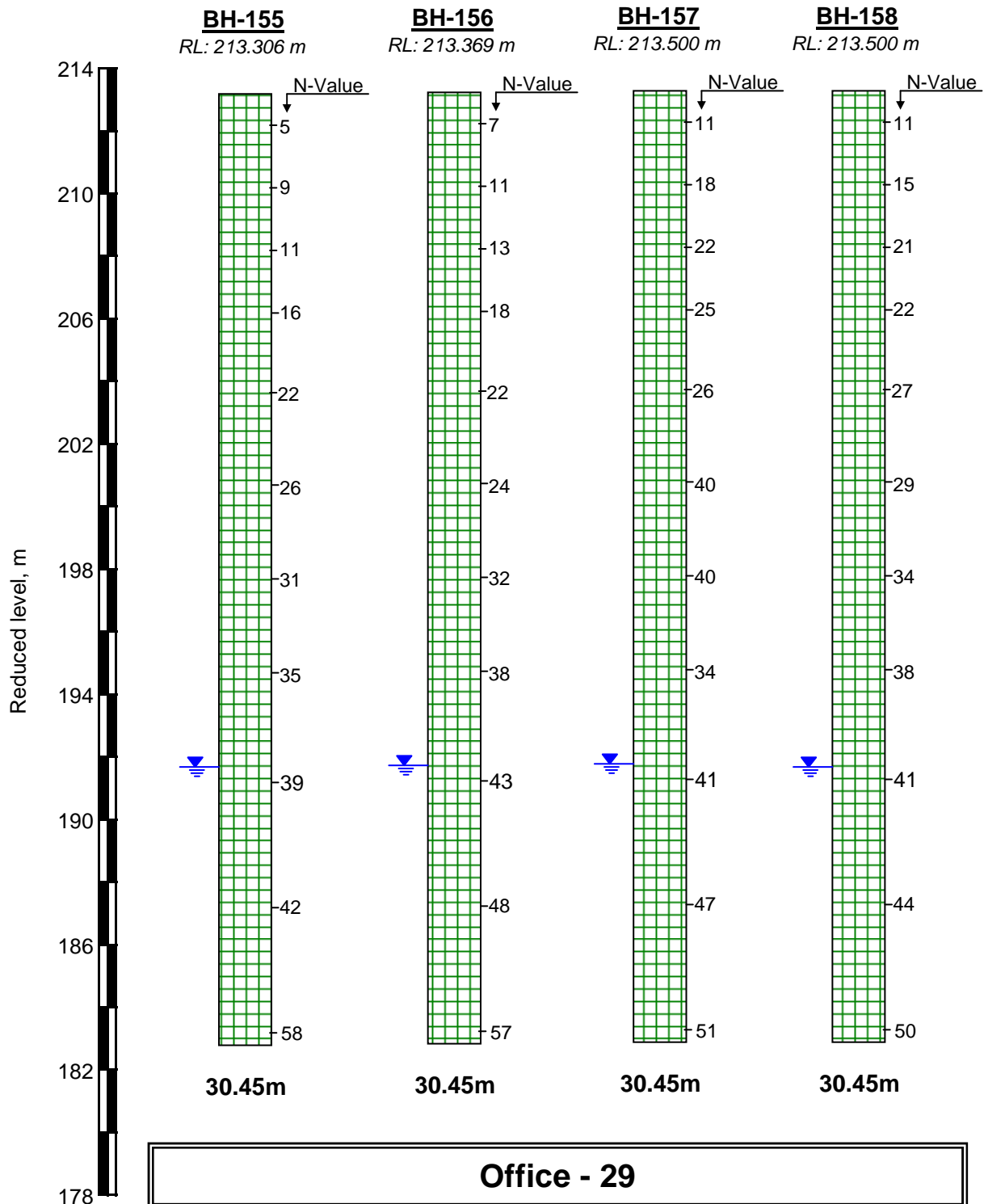


LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

### Summary of Borehole Profiles



Summary of Borehole Profiles



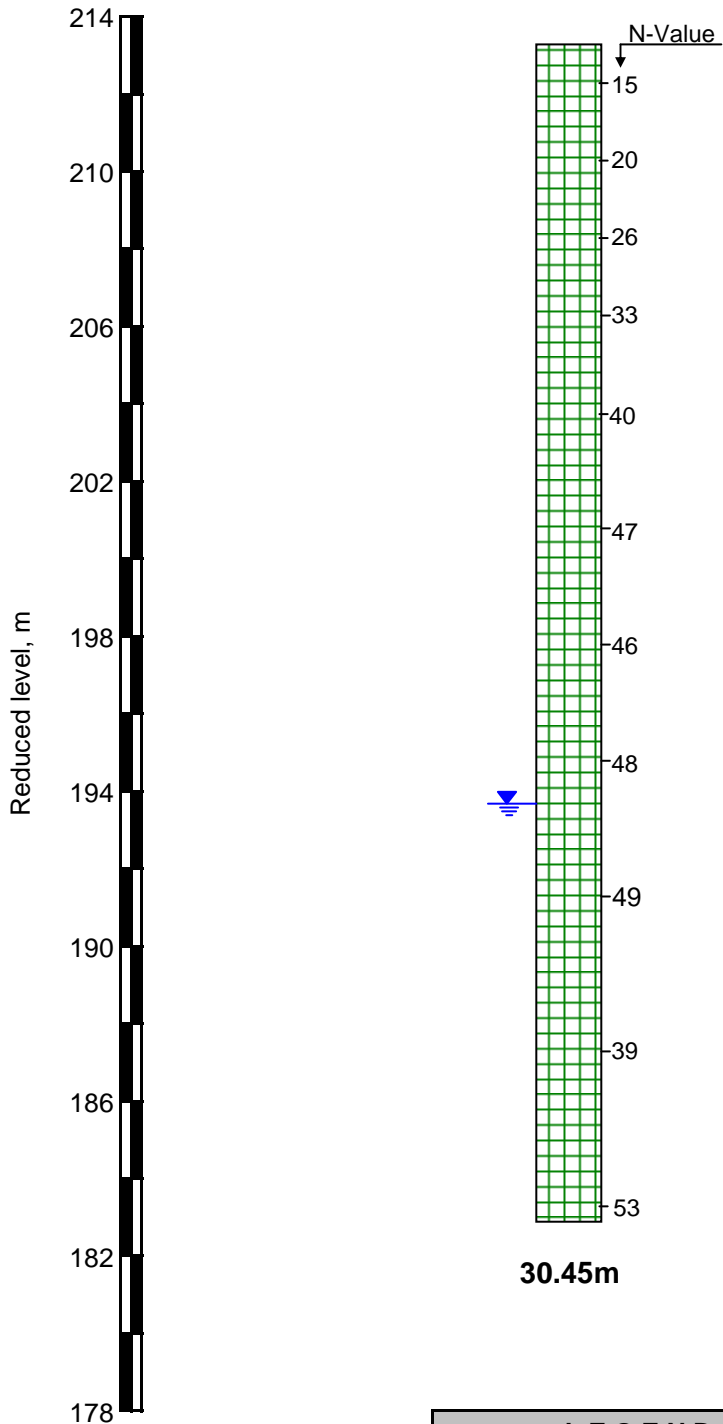
LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

### Summary of Borehole Profiles



### BH-162R

RL: 213.506 m



LEGEND	
SYMBOL	DESCRIPTION
	Sandy silt (CL)
	Water table

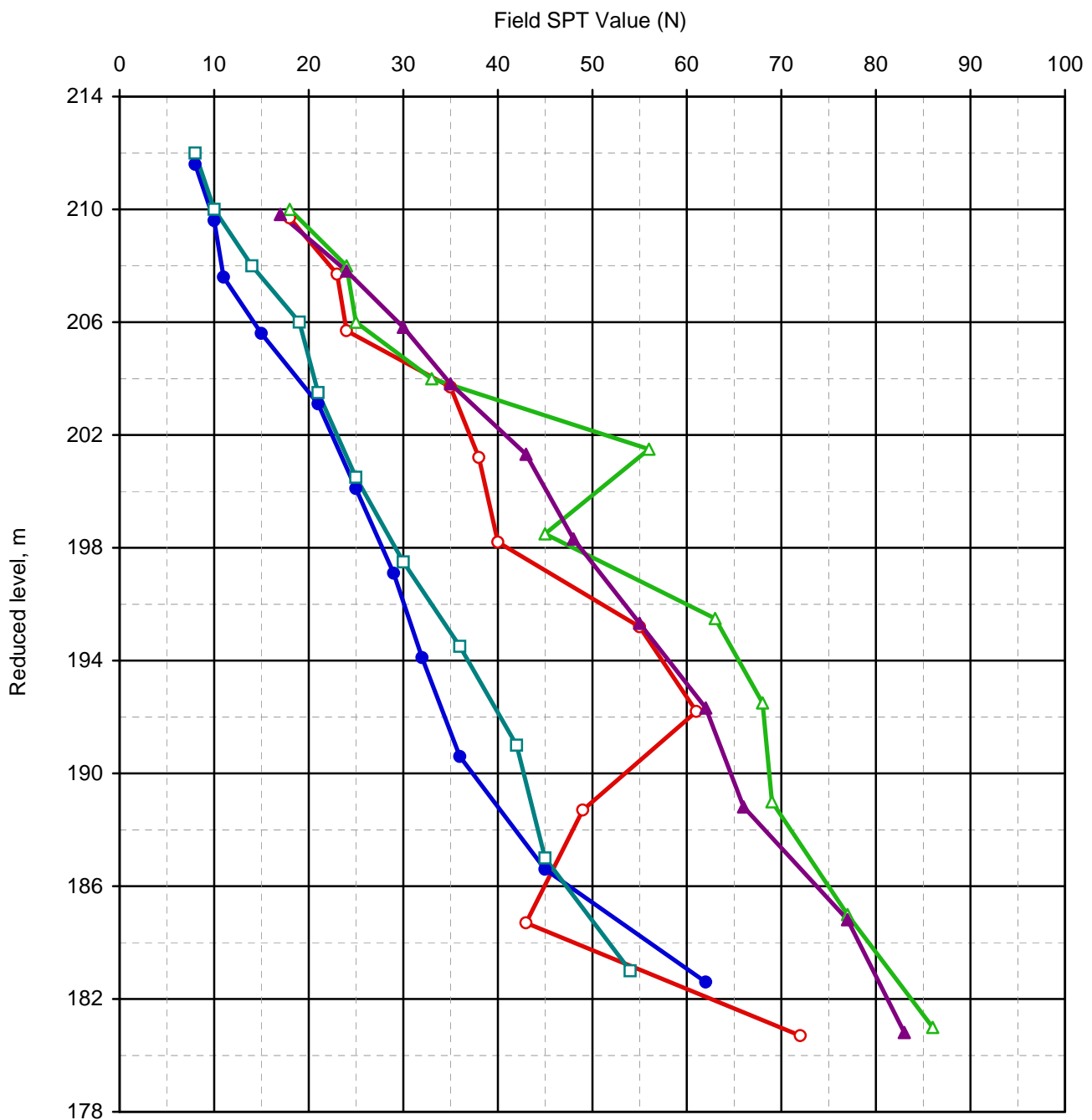
### Summary of Borehole Profiles



### Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-89	210.699	3*hotel-25
●	BH-90	212.600	
△	BH-91	210.996	
▲	BH-92	210.816	
□	BH-93	213.000	



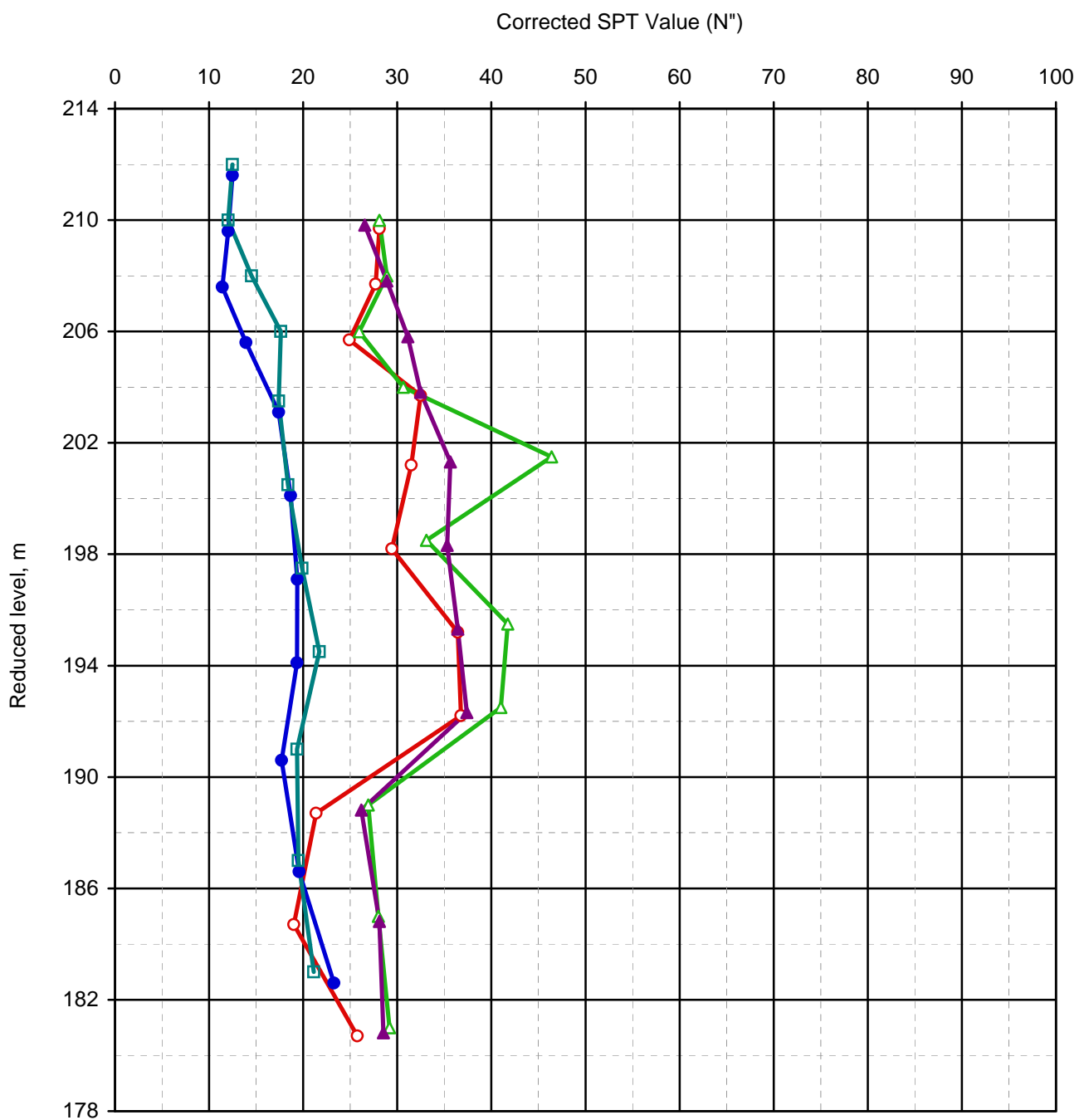
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
	BH-89	210.699	3*hotel-25
	BH-90	212.600	
	BH-91	210.996	
	BH-92	210.816	
	BH-93	213.000	



Corrected SPT Values vs. Reduced level

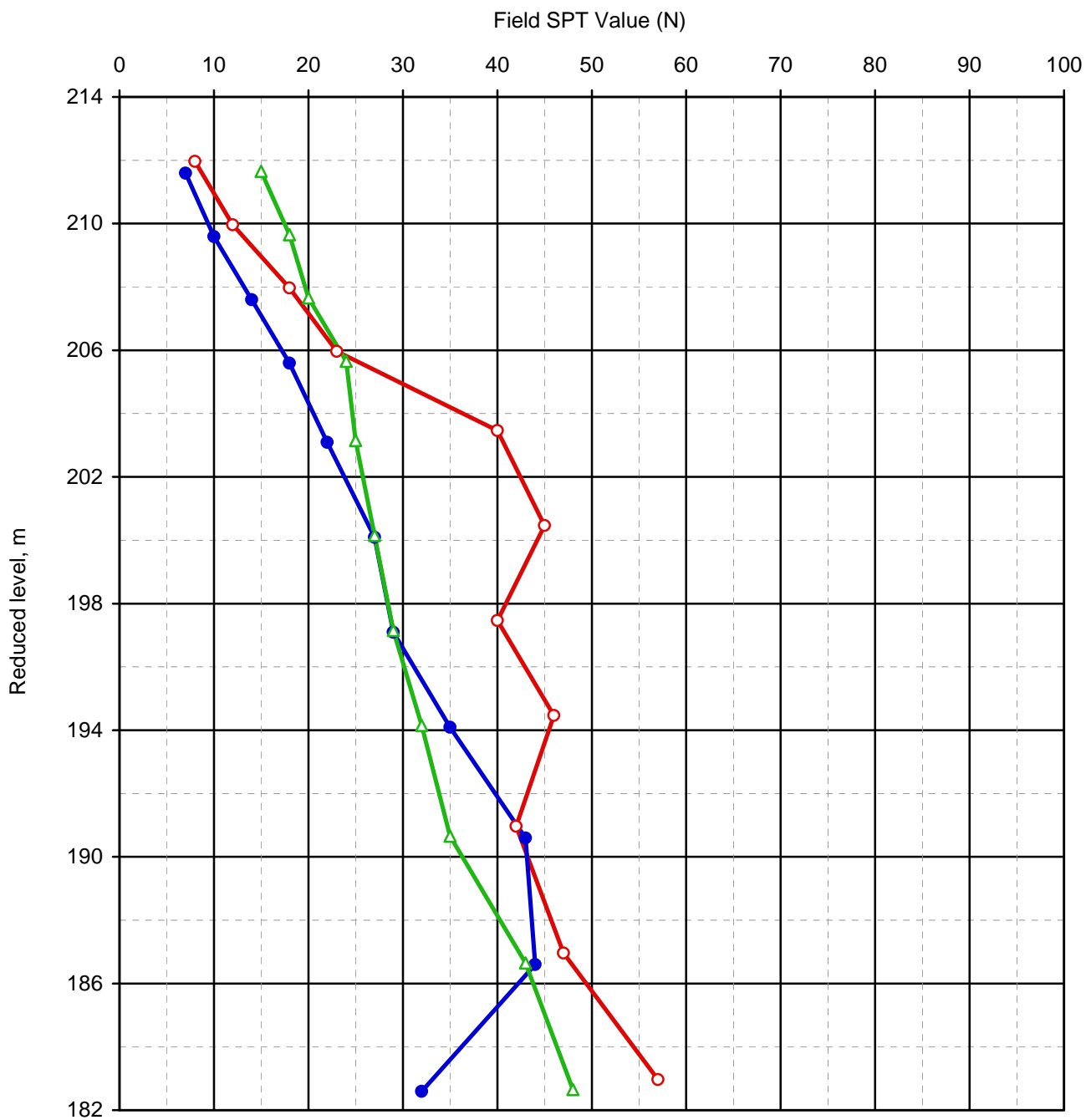




## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-94	212.963	Office - 27
●	BH-95	212.593	
△	BH-96	212.650	



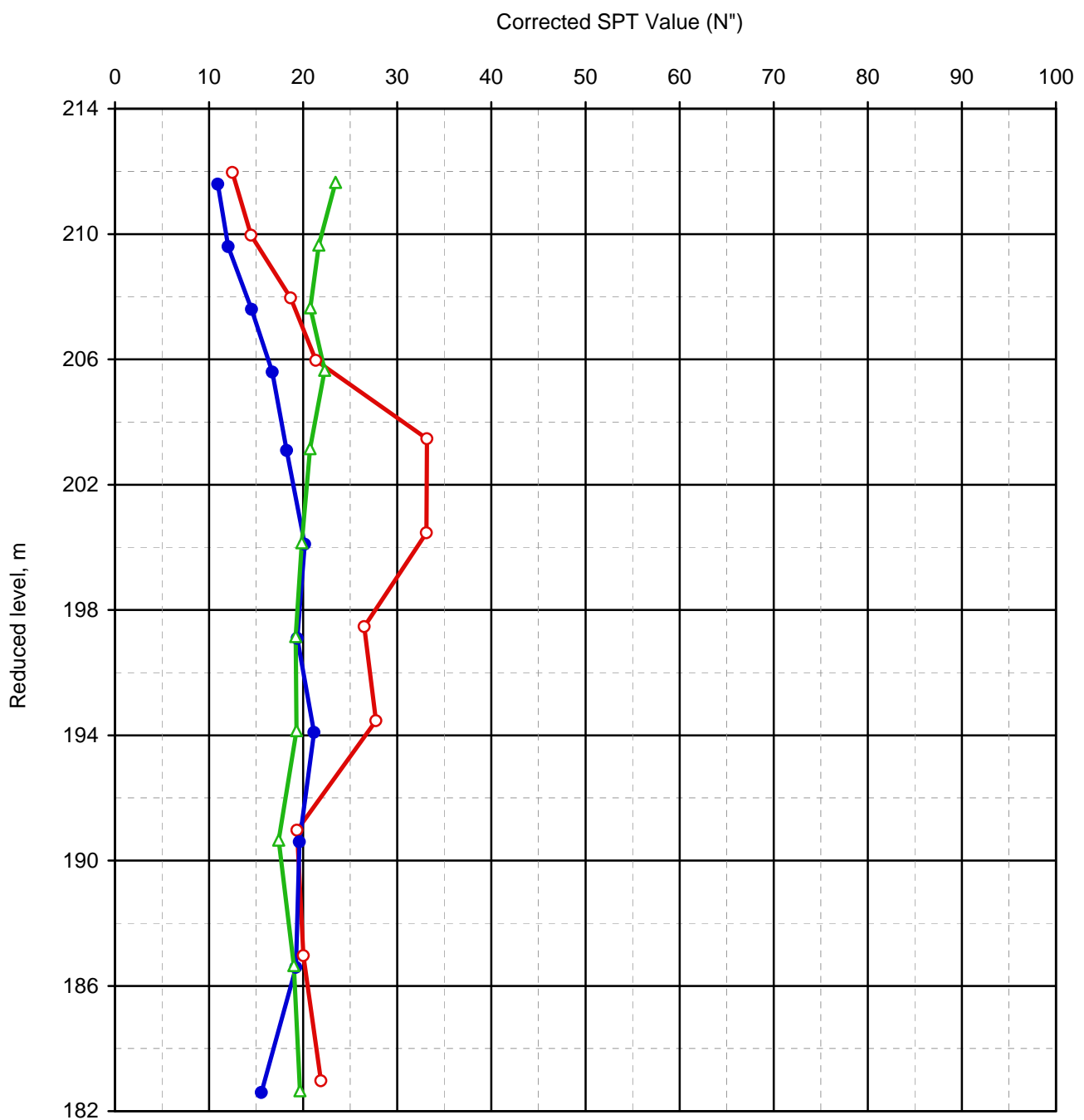
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-94	212.963	Office - 27
●	BH-95	212.593	
△	BH-96	212.650	



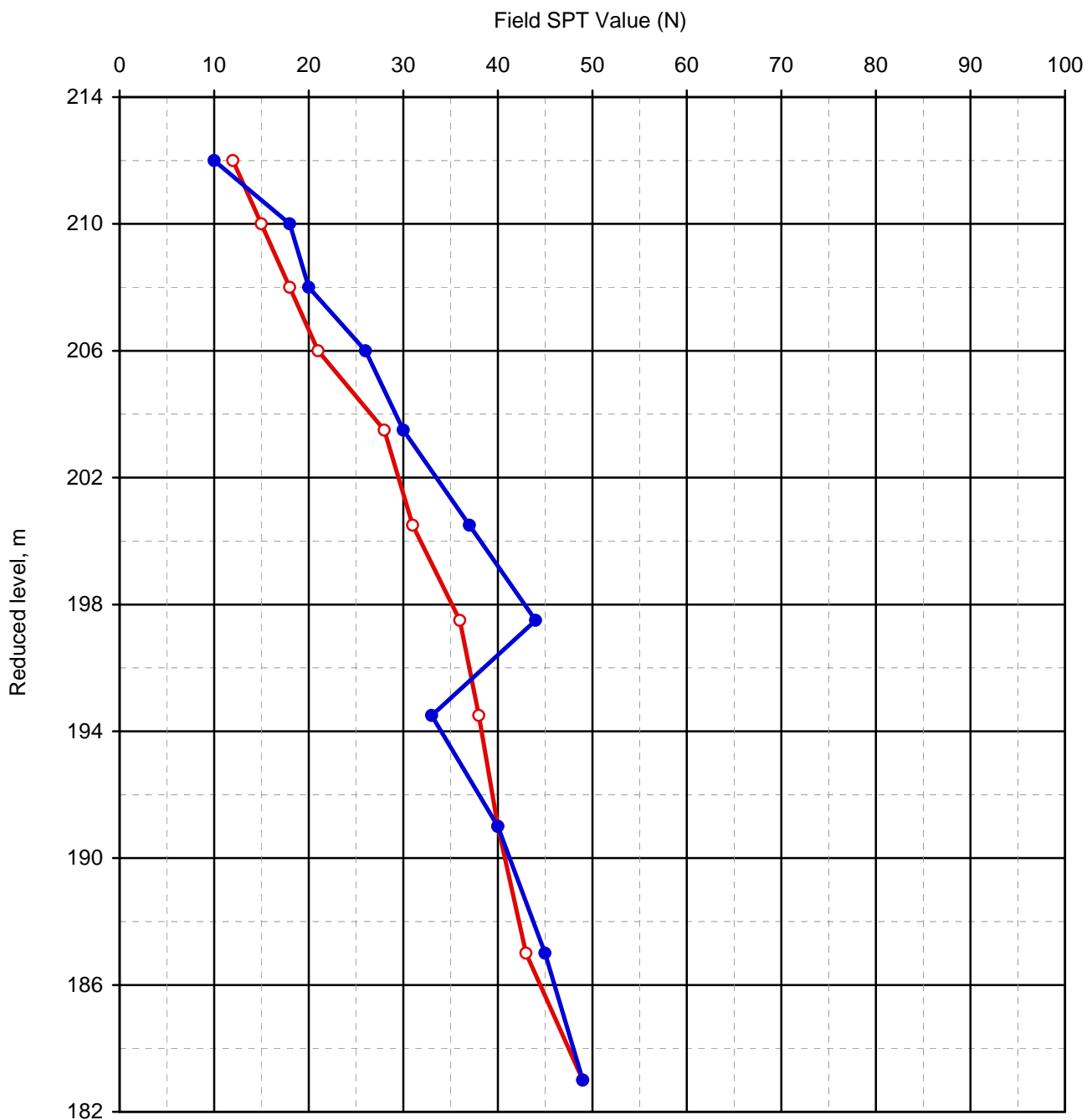
Corrected SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
—○—	BH-98	213.000	3*hotel-28
—●—	BH-99	213.000	



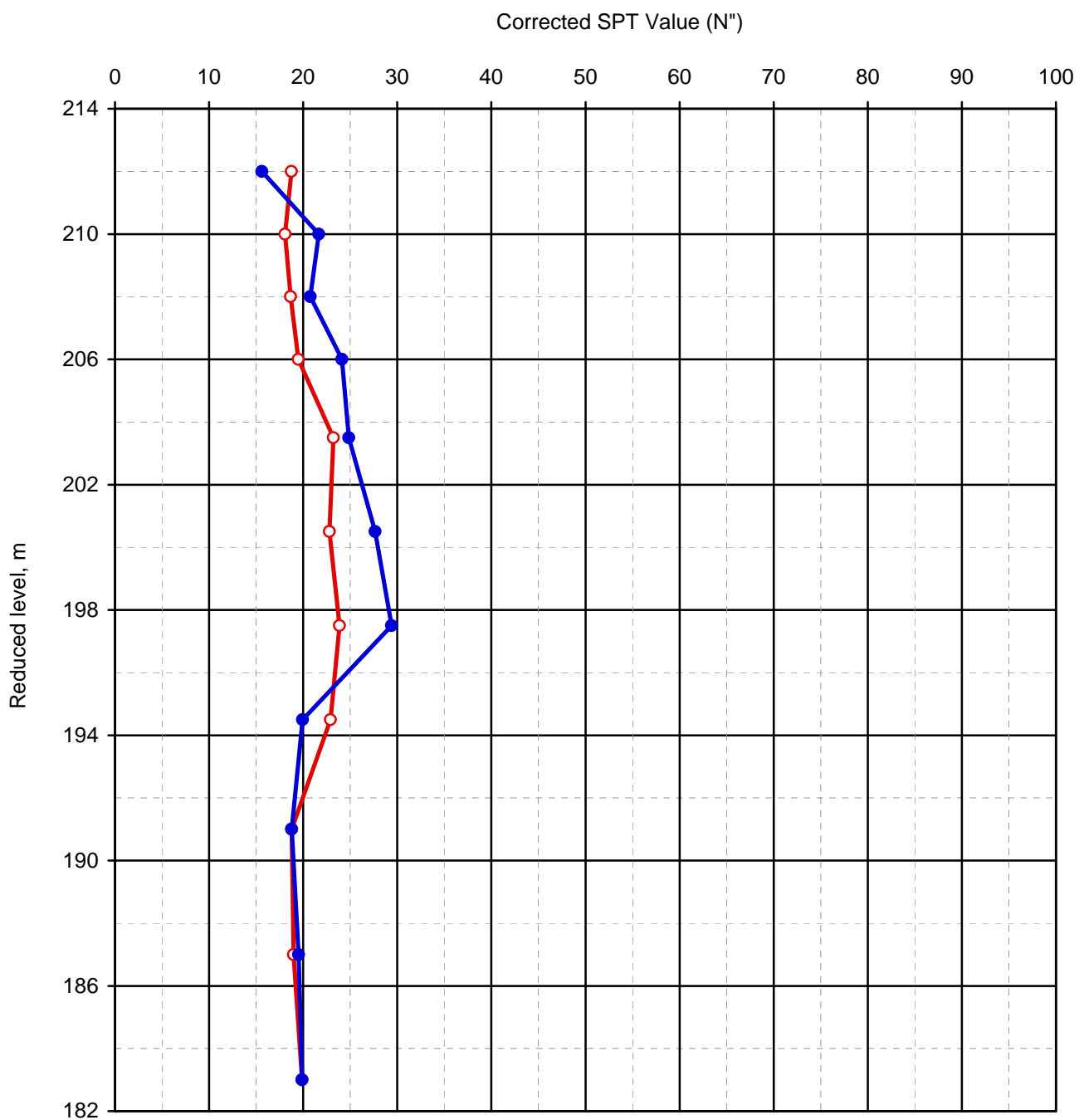
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
—○—	BH-98	213.000	3*hotel-28
—●—	BH-99	213.000	



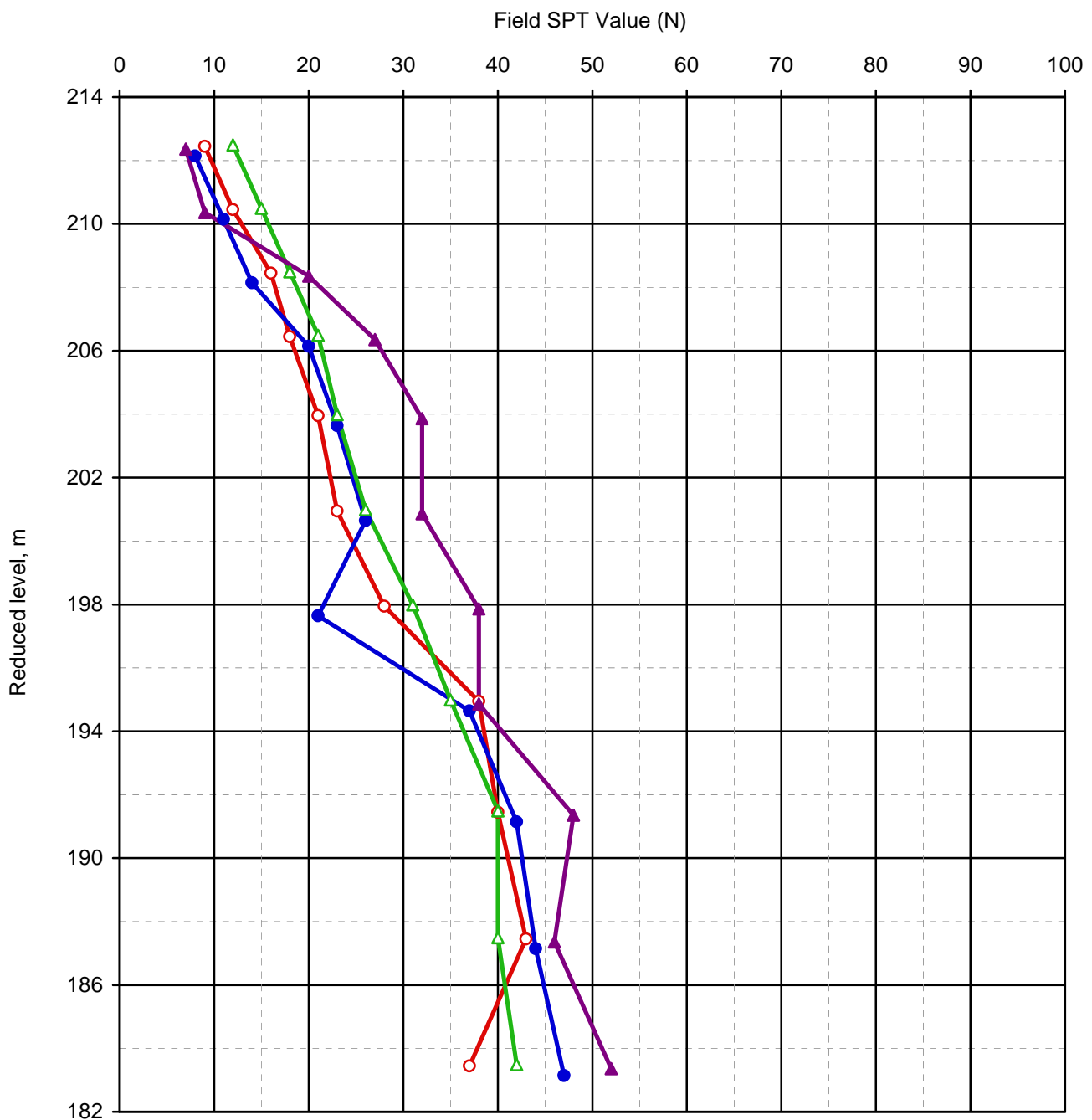
Corrected SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-100	213.449	Office - 26
●	BH-101	213.143	
△	BH-102	213.490	
▲	BH-103	213.357	



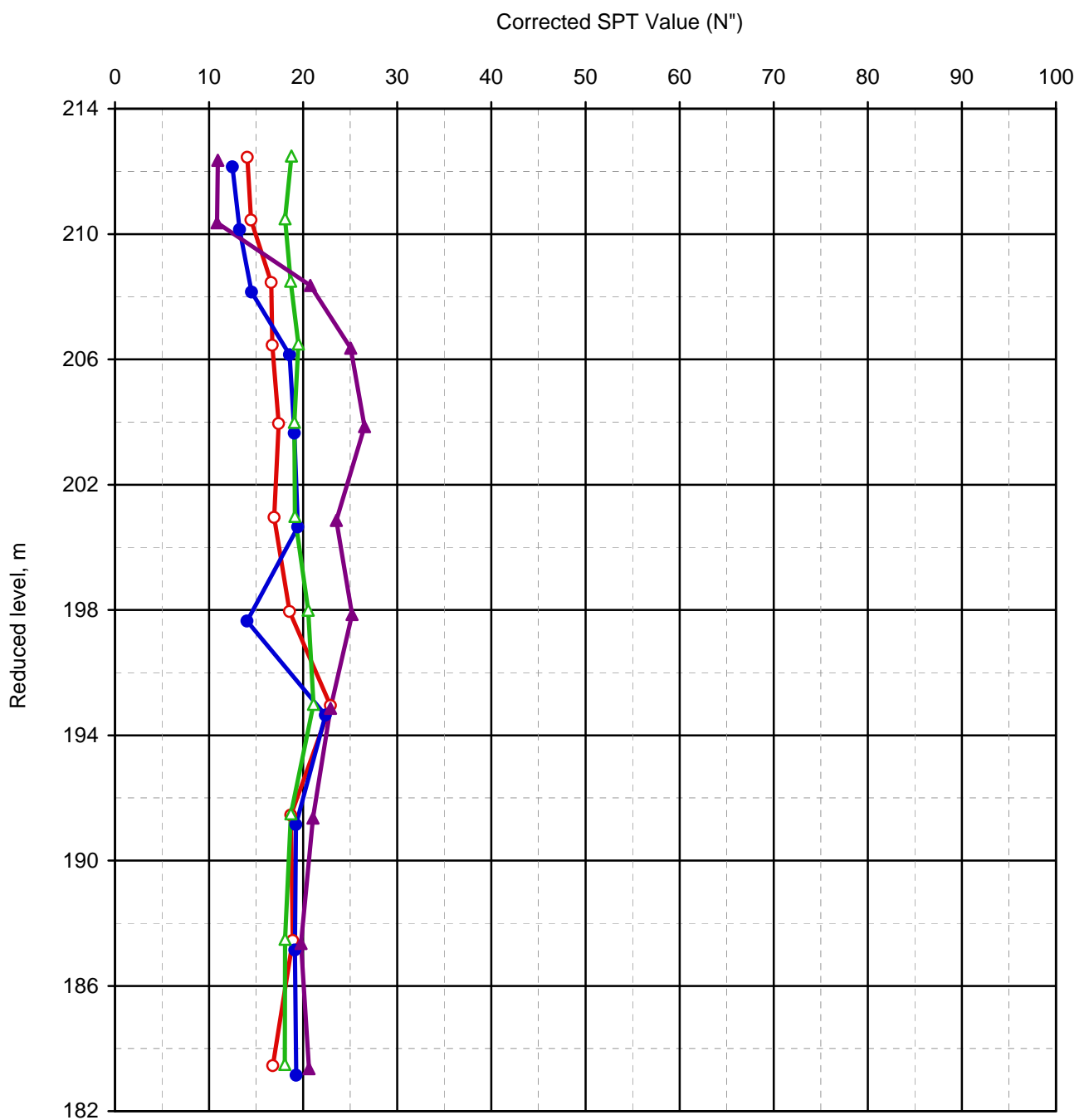
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-100	213.449	Office - 26
●	BH-101	213.143	
△	BH-102	213.490	
▲	BH-103	213.357	



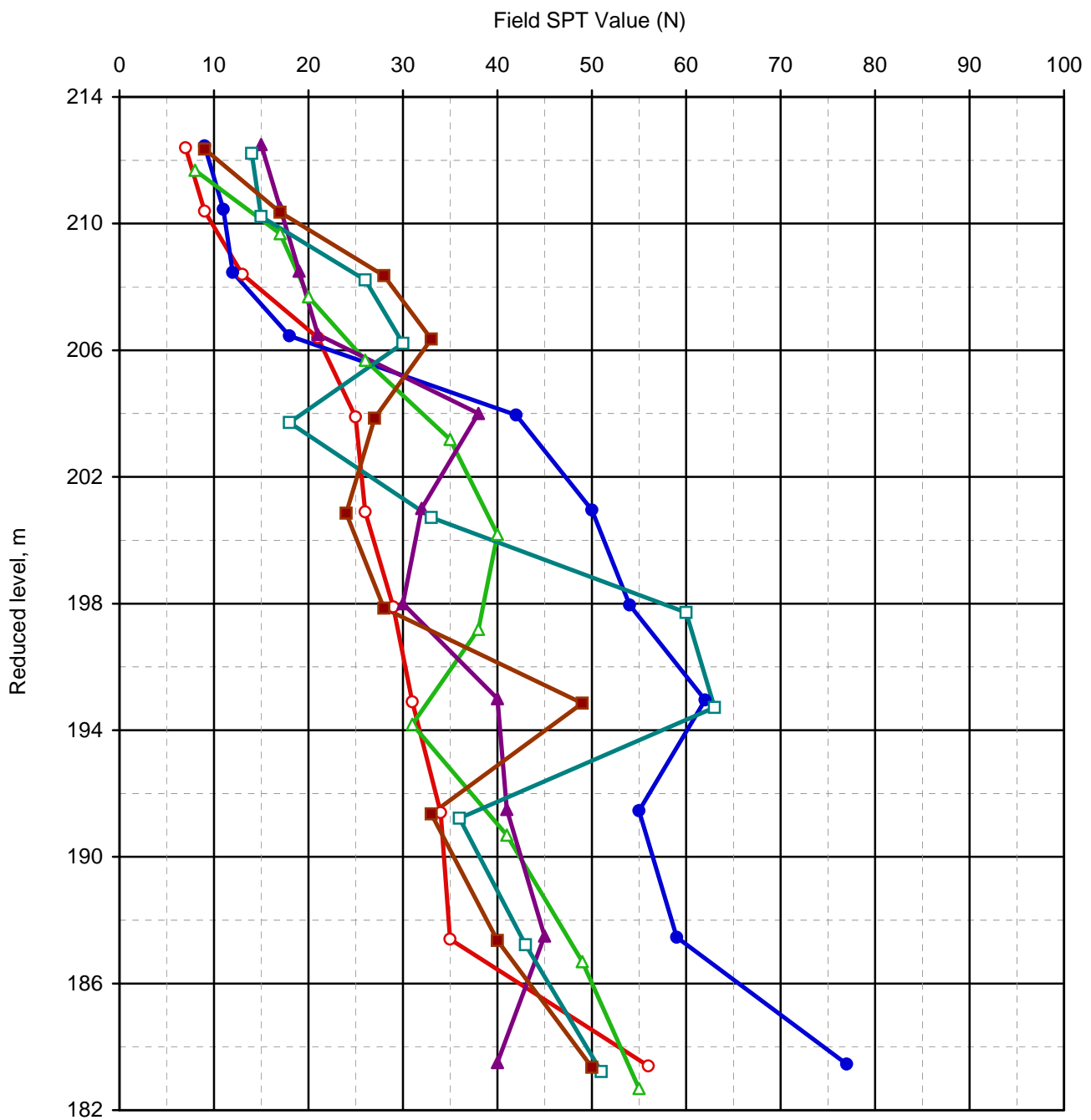
Corrected SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-104	213.396	Office-23
●	BH-105	213.455	
△	BH-106	212.686	
▲	BH-107	213.500	
□	BH-108	213.220	
■	BH-109	213.355	



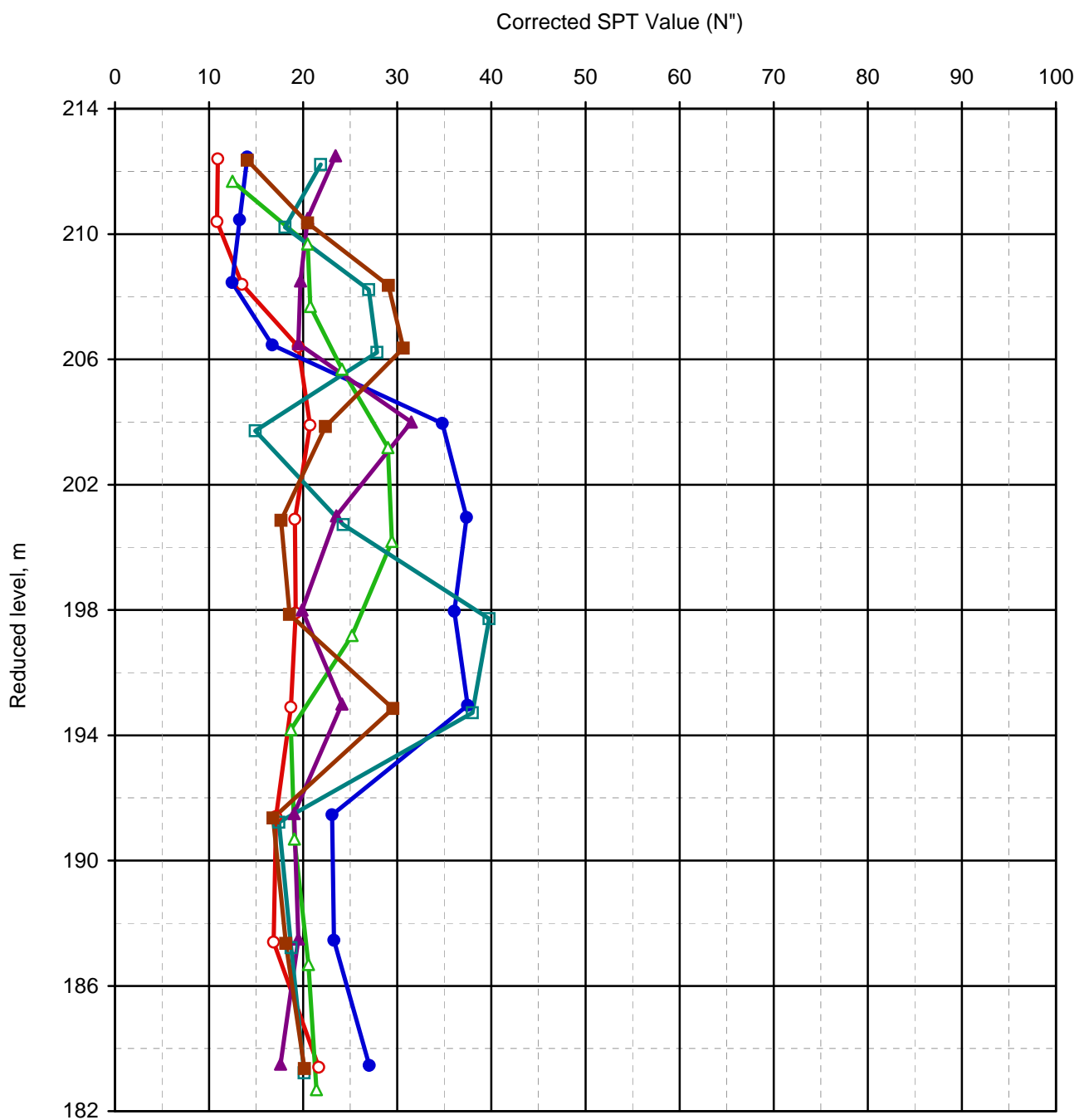
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-104	213.396	Office-23
●	BH-105	213.455	
△	BH-106	212.686	
▲	BH-107	213.500	
□	BH-108	213.220	
■	BH-109	213.355	



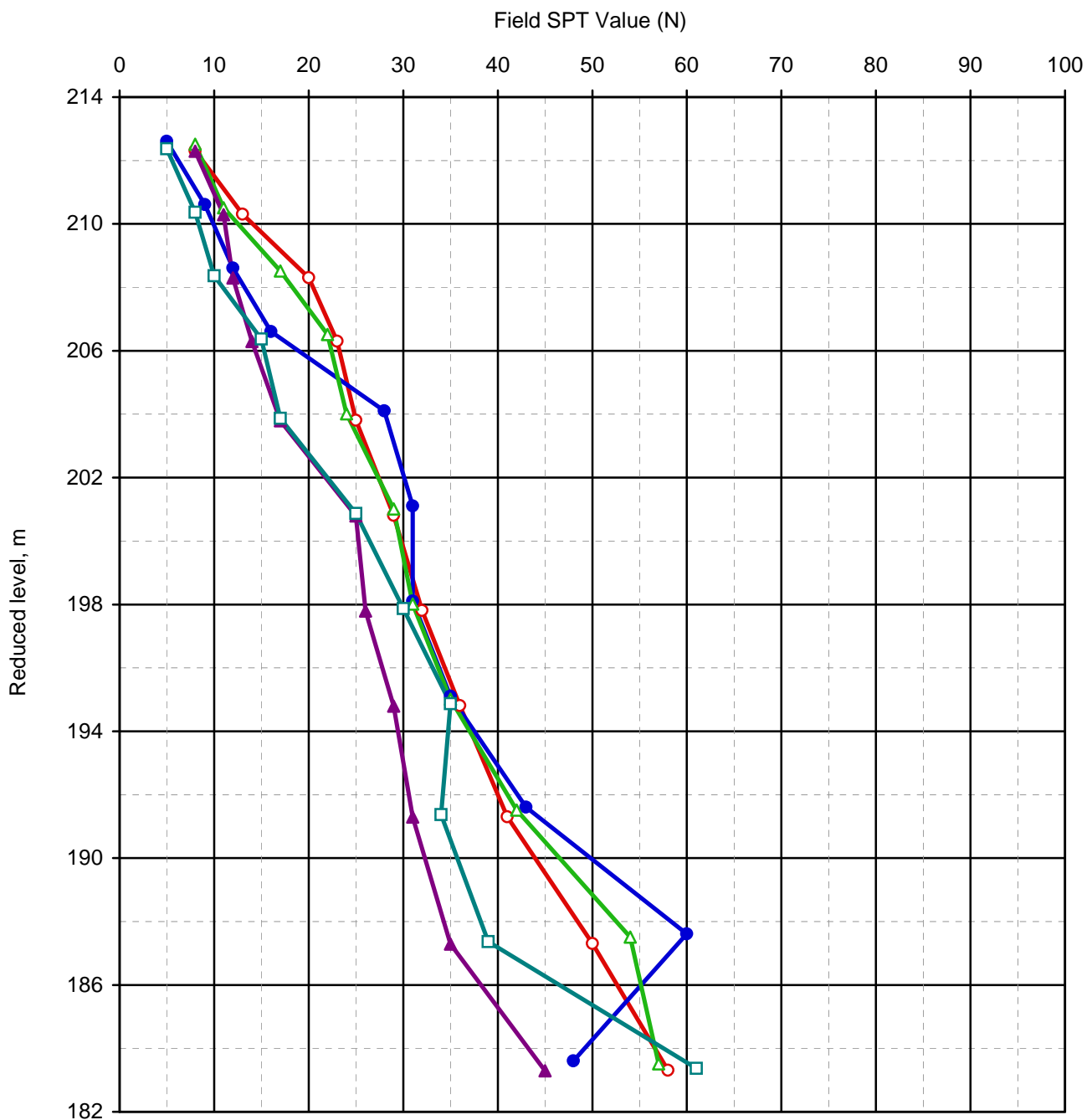




## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-150	213.306	Office-24
●	BH-151	213.609	
△	BH-152	213.512	
▲	BH-153	213.293	
□	BH-154	213.367	



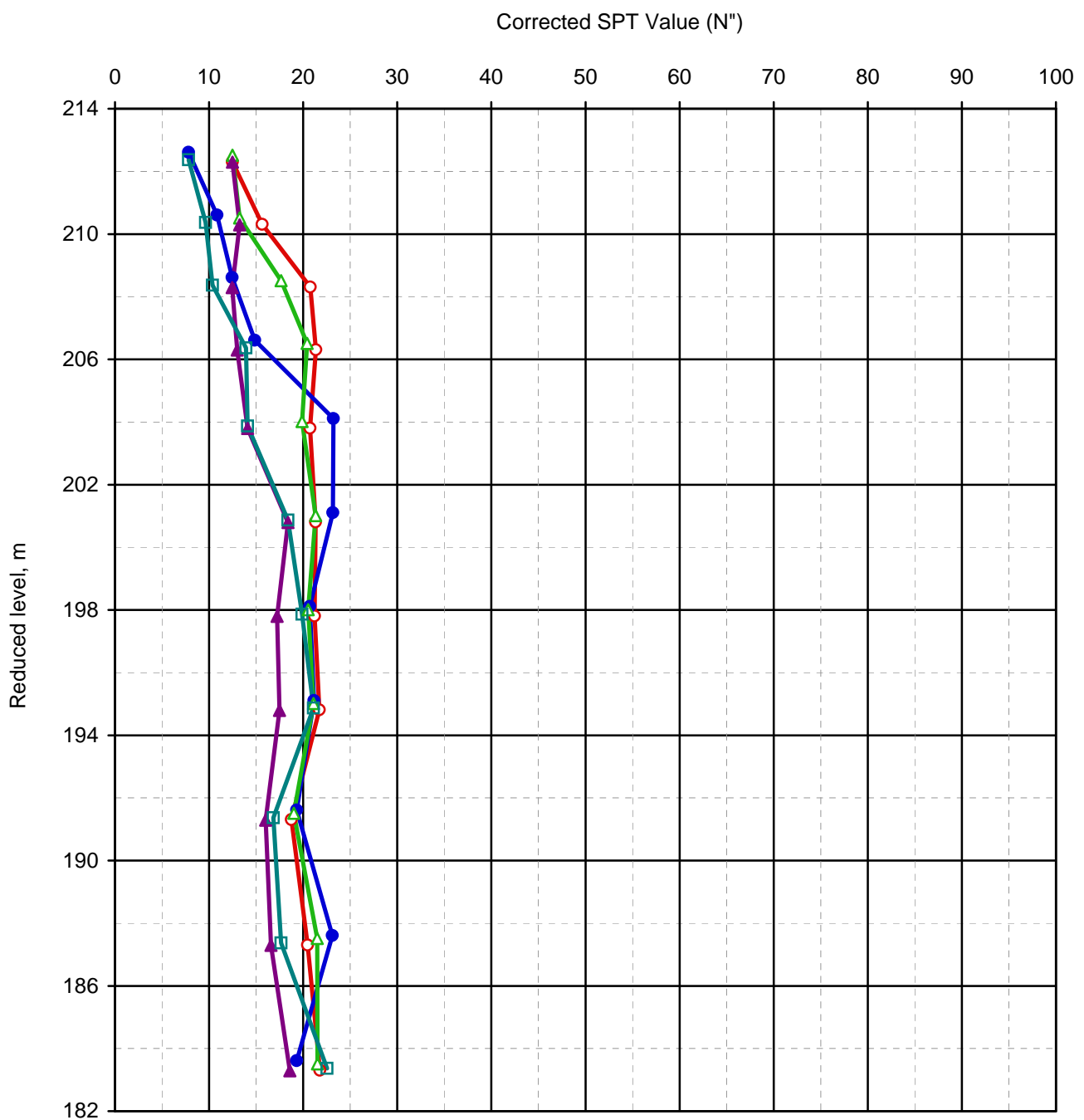
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-150	213.306	Office-24
●	BH-151	213.609	
△	BH-152	213.512	
▲	BH-153	213.293	
□	BH-154	213.367	



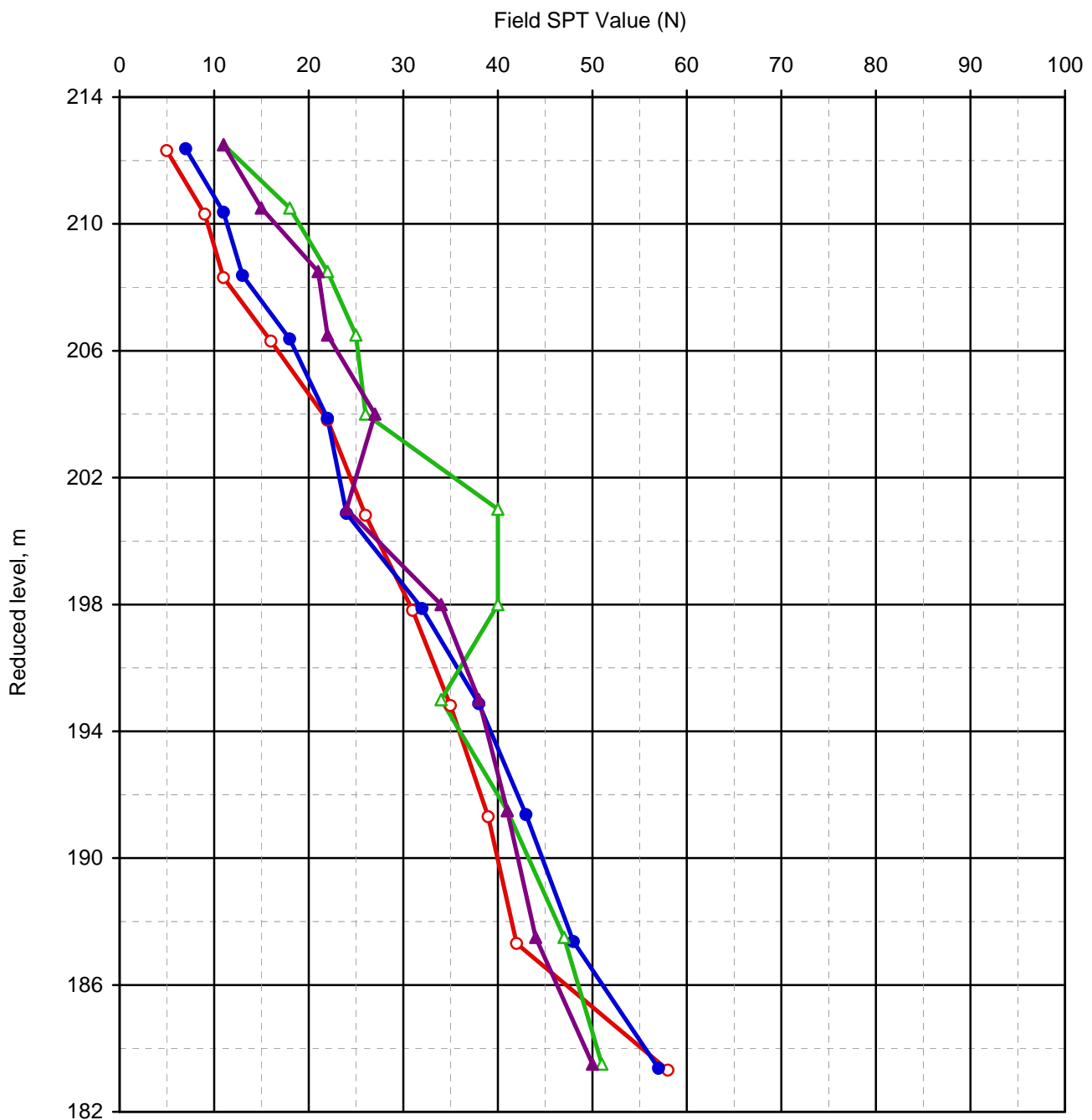
Corrected SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-155	213.306	Office - 29
●	BH-156	213.369	
△	BH-157	213.500	
▲	BH-158	213.500	



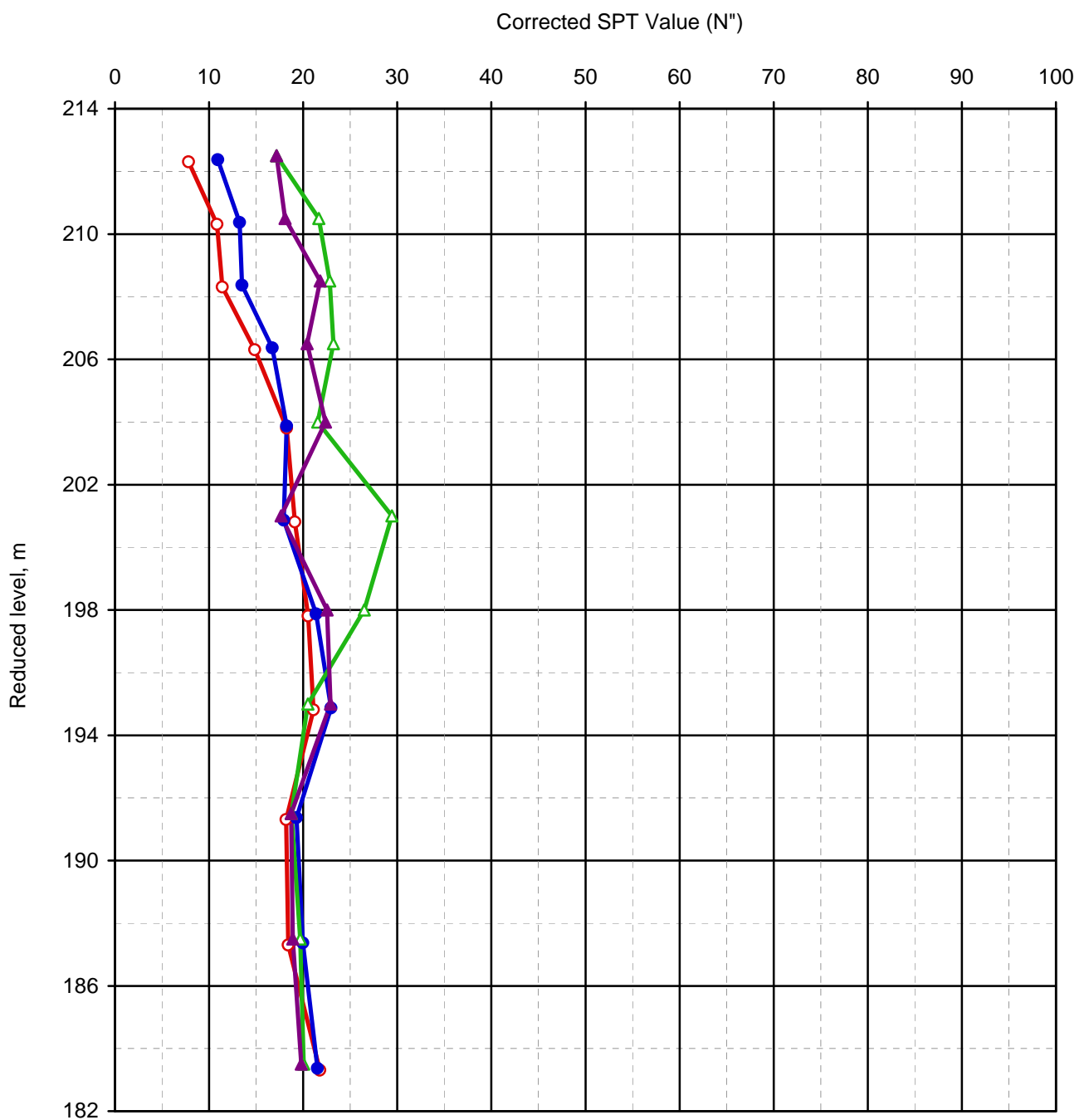
Field SPT Values vs. Reduced level



## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
○	BH-155	213.306	Office - 29
●	BH-156	213.369	
△	BH-157	213.500	
▲	BH-158	213.500	




Corrected SPT Values vs. Reduced level

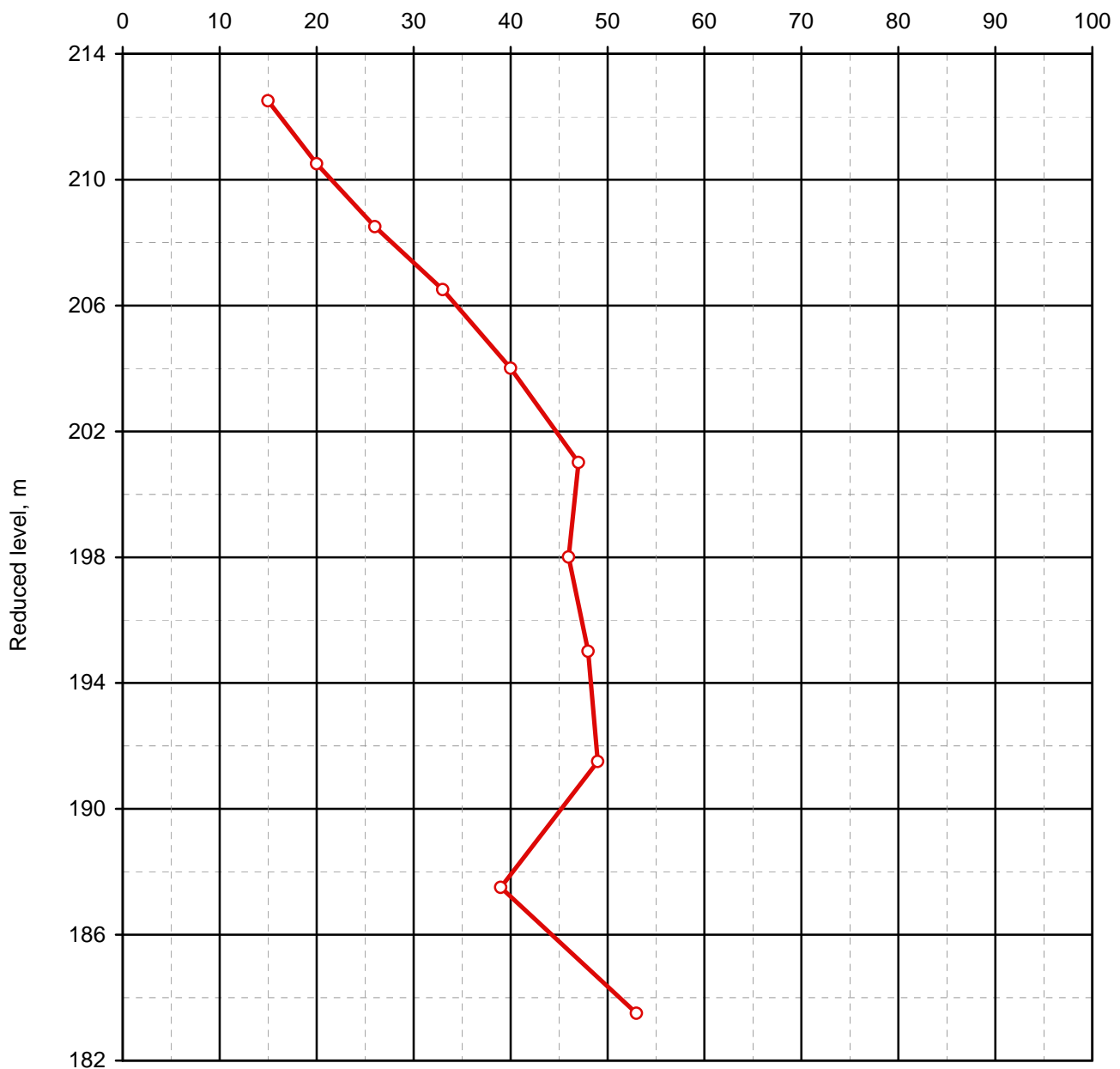


### Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
	BH-162R	213.506	-

Field SPT Value (N)




Field SPT Values vs. Reduced level

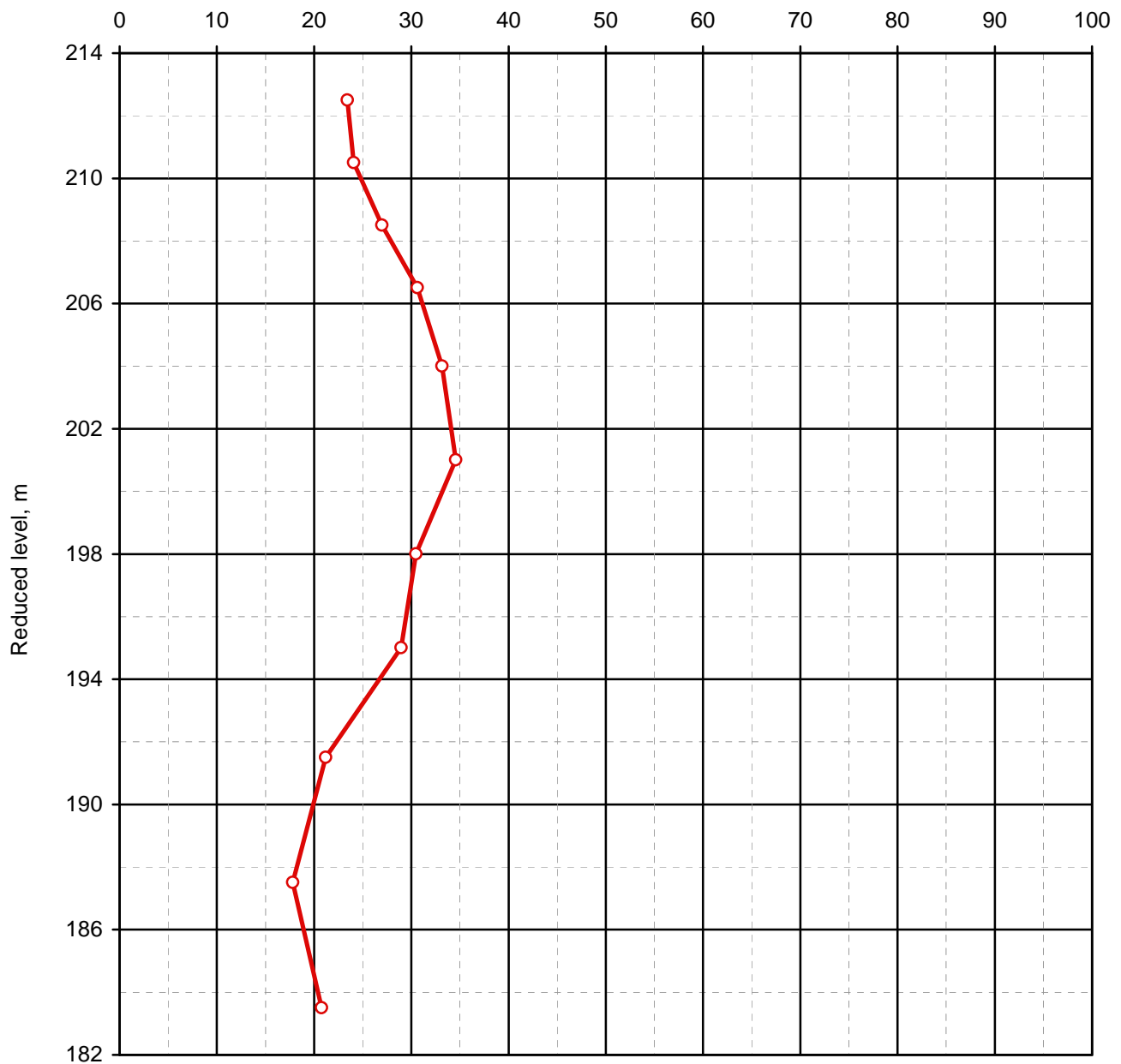


## Standard Penetration Test

IS : 2131-1981, RA-2007

Borehole Details			
Symbol	Borehole Number	Reduced Level,m	Location
	BH-162R	213.506	-

Corrected SPT Value (N")

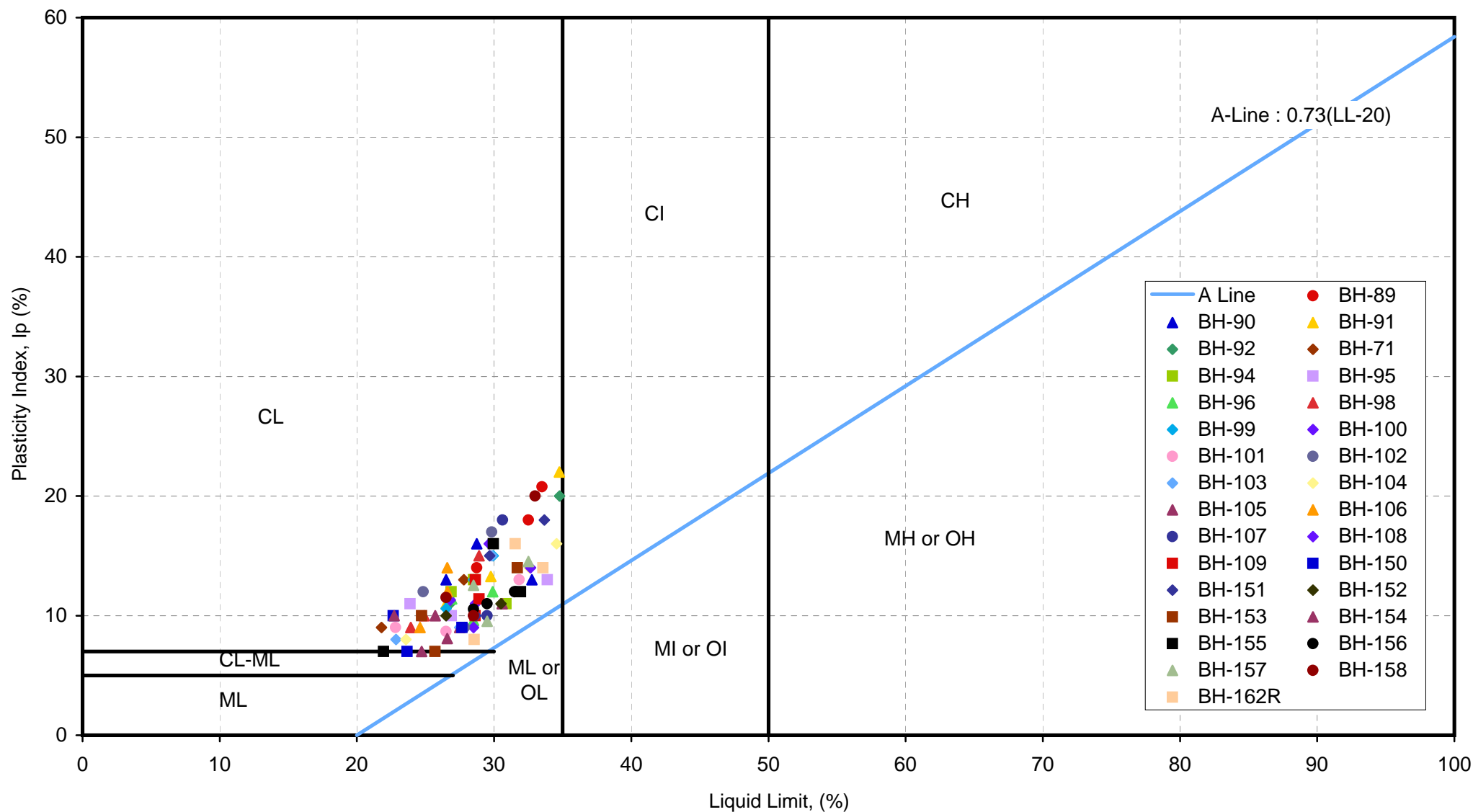


Corrected SPT Values vs. Reduced level



# Atterberg Test

IS : 2720 (Part-5)-1985, RA-2010



Plasticity Chart



## Grain Size Analysis

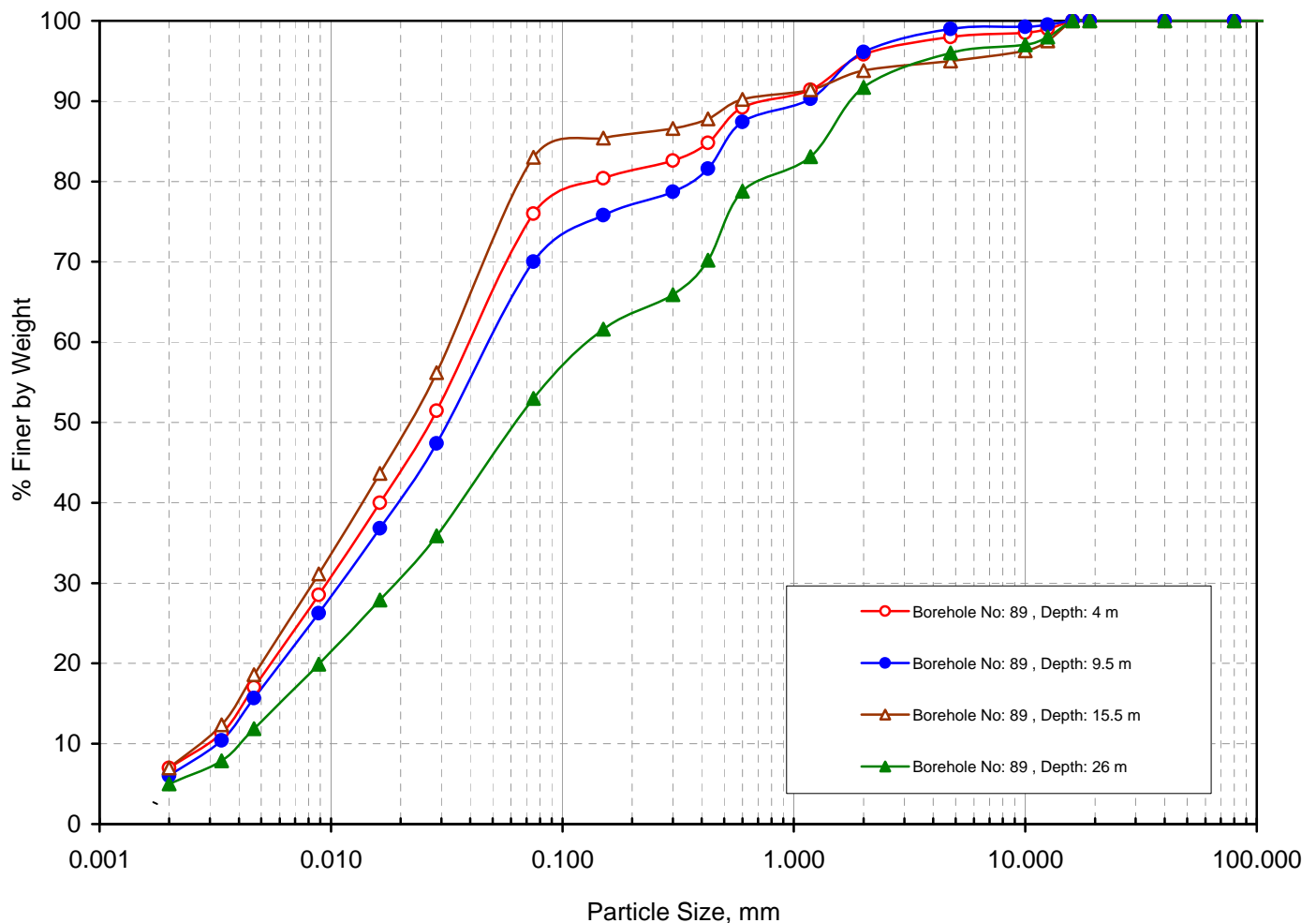
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-89	4.00	Sandy silt with traces of gravels (CL)	2	22	69	7	0.045	0.010	0.003	15.0	0.74
BH-89	9.50	Sandy silt with traces of gravels (CL)	1	29	64	6	0.054	0.011	0.003	18.0	0.75
BH-89	15.50	Sandy silt with gravels (CL)	5	12	76	7	0.035	0.008	0.003	11.7	0.61
BH-89	26.00	Sandy silt with traces of gravels (CL)	4	43	48	5	0.136	0.020	0.004	34.0	0.74

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



## Grain Size Distribution Curve

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## Grain Size Analysis

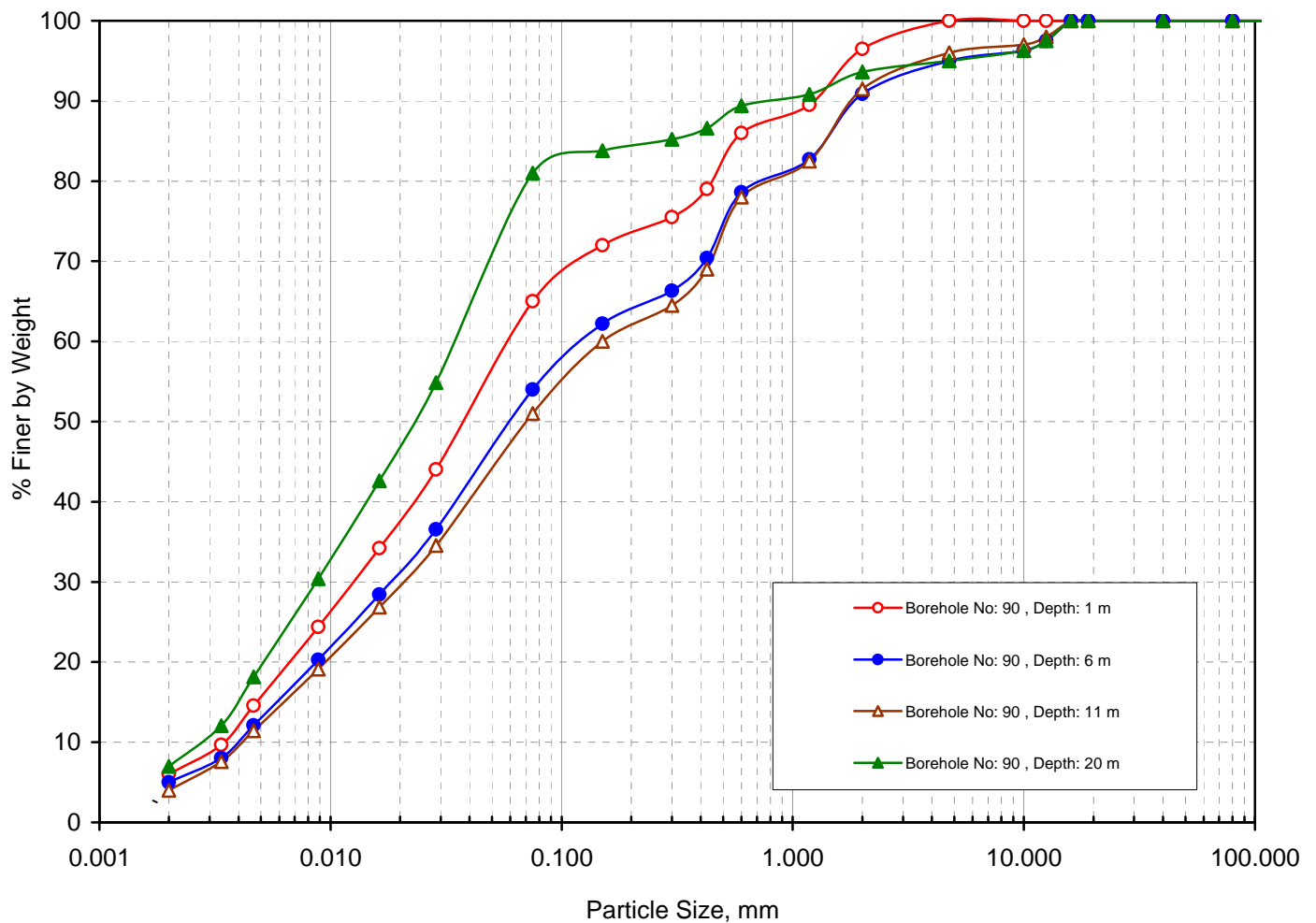
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-90	1.00	Sandy silt (CL)	0	35	59	6	0.064	0.013	0.003	21.3	0.88
BH-90	6.00	Sandy silt with gravels (CL)	5	41	49	5	0.130	0.019	0.004	32.5	0.69
BH-90	11.00	Sandy silt with traces of gravels (CL)	4	45	47	4	0.150	0.021	0.004	37.5	0.74
BH-90	20.00	Sandy silt with gravels (CL)	5	14	74	7	0.038	0.009	0.003	12.7	0.71

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

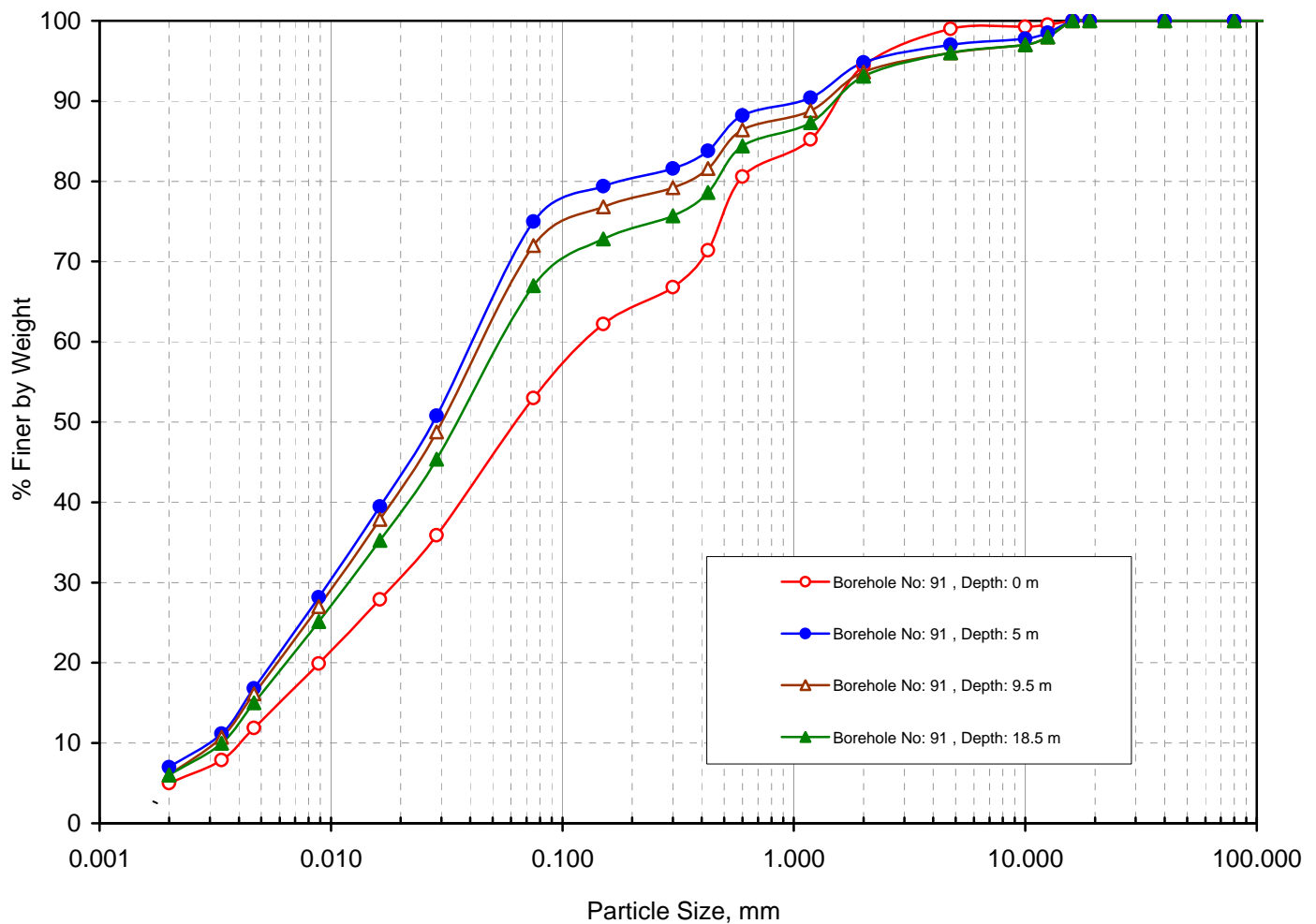
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-91	0.00	Sandy silt with traces of gravels (CL)	1	46	48	5	0.132	0.020	0.004	33.0	0.76
BH-91	5.00	Sandy silt with traces of gravels (CL)	3	22	68	7	0.046	0.010	0.003	15.3	0.72
BH-91	9.50	Sandy silt with traces of gravels (CL)	4	24	66	6	0.051	0.011	0.003	17.0	0.79
BH-91	18.50	Sandy silt with traces of gravels (CL)	4	29	61	6	0.060	0.012	0.003	20.0	0.80

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

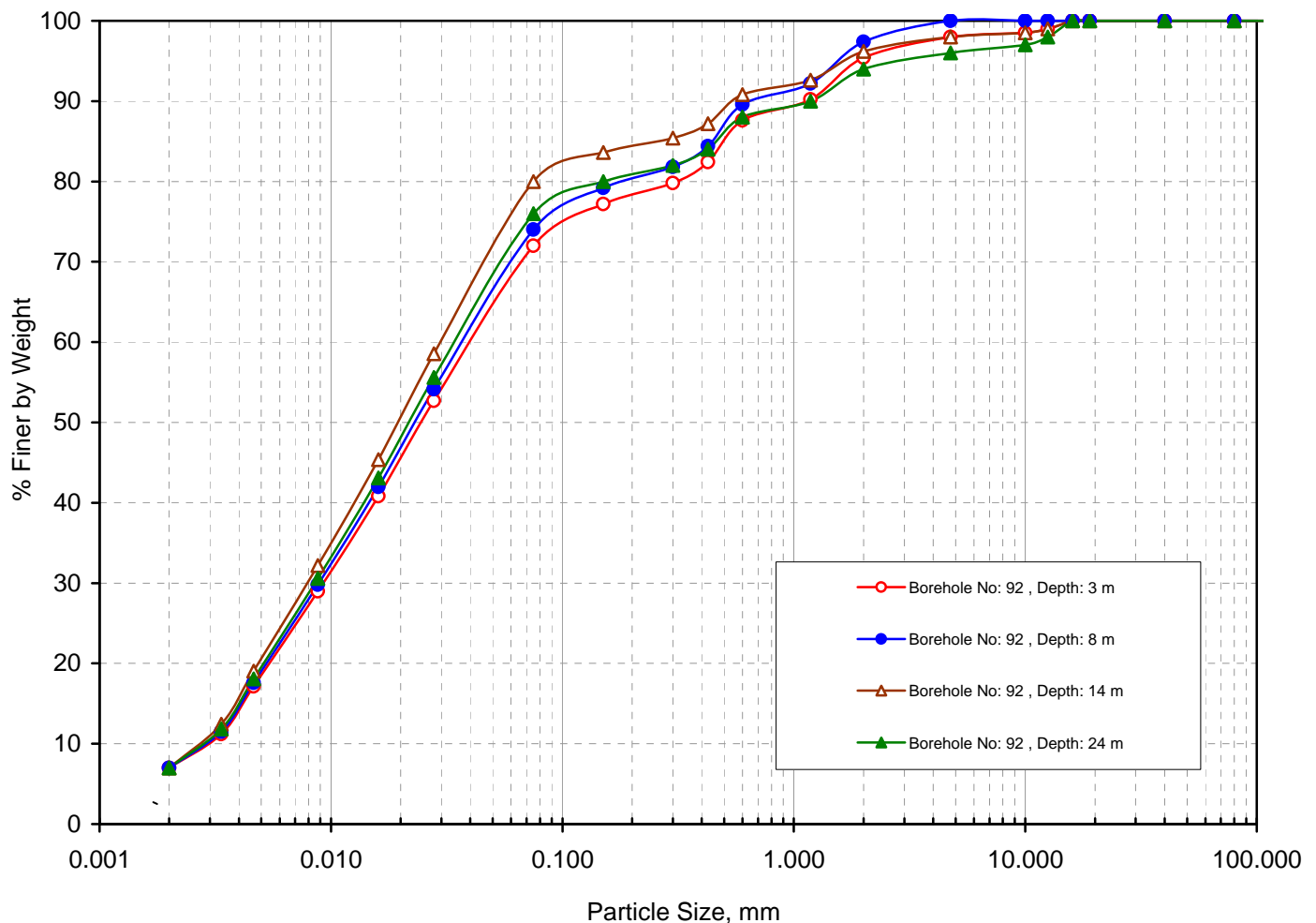
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-92	3.00	Sandy silt with traces of gravels (CL)	2	26	65	7	0.046	0.009	0.003	15.3	0.59
BH-92	8.00	Sandy silt (CL)	0	26	67	7	0.042	0.009	0.003	14.0	0.64
BH-92	14.00	Sandy silt with traces of gravels (CL)	2	18	73	7	0.031	0.008	0.003	10.3	0.69
BH-92	24.00	Sandy silt with traces of gravels (CL)	4	20	69	7	0.038	0.009	0.003	12.7	0.71

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

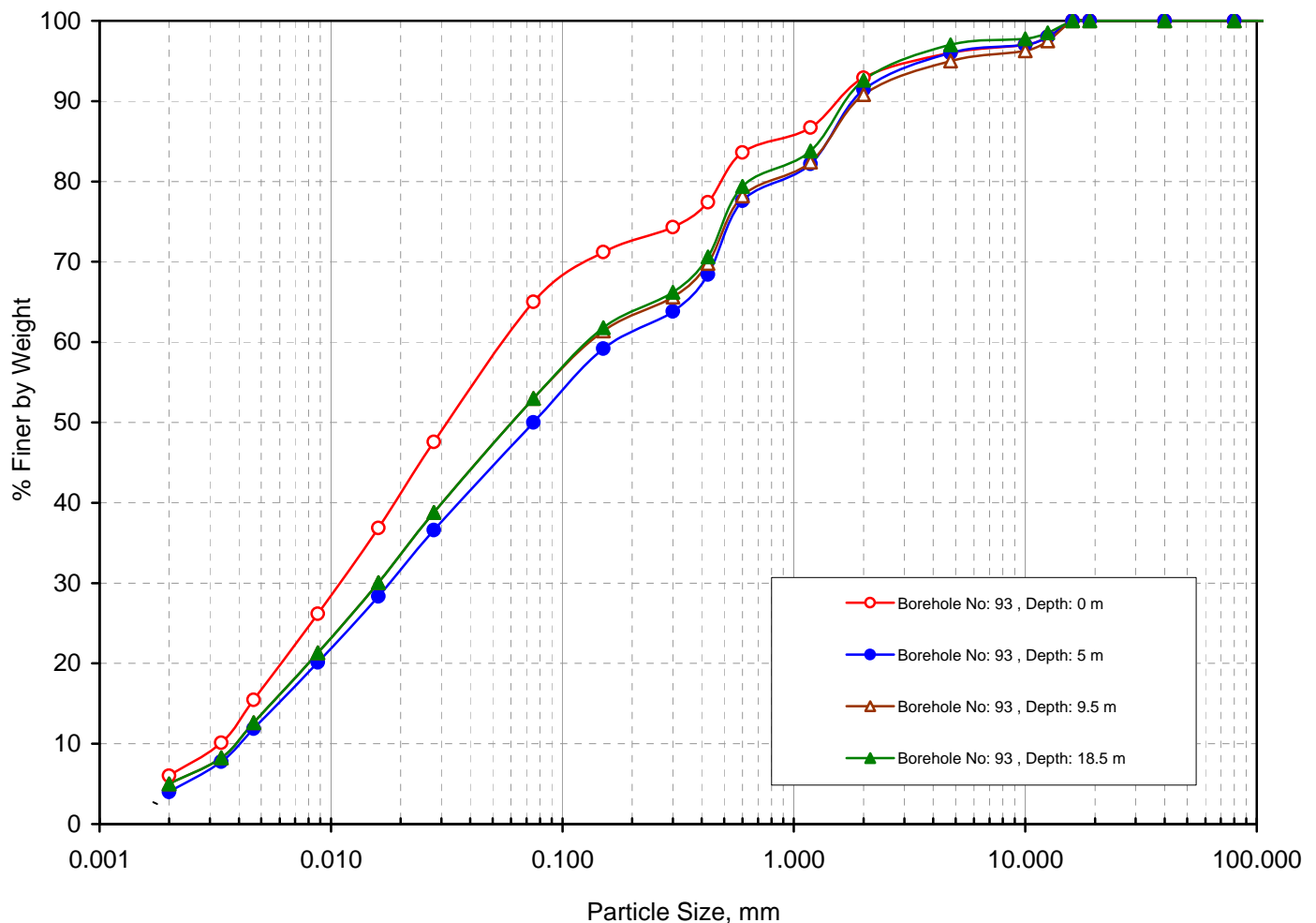
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-93	0.00	Sandy silt with traces of gravels (CL)	4	31	59	6	0.061	0.011	0.003	20.3	0.66
BH-93	5.00	Sandy silt with traces of gravels (CL)	4	46	46	4	0.176	0.018	0.004	44.0	0.46
BH-93	9.50	Sandy silt with gravels (CL)	5	42	48	5	0.138	0.016	0.004	34.5	0.46
BH-93	18.50	Sandy silt with traces of gravels (CL)	3	44	48	5	0.135	0.016	0.004	33.8	0.47

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

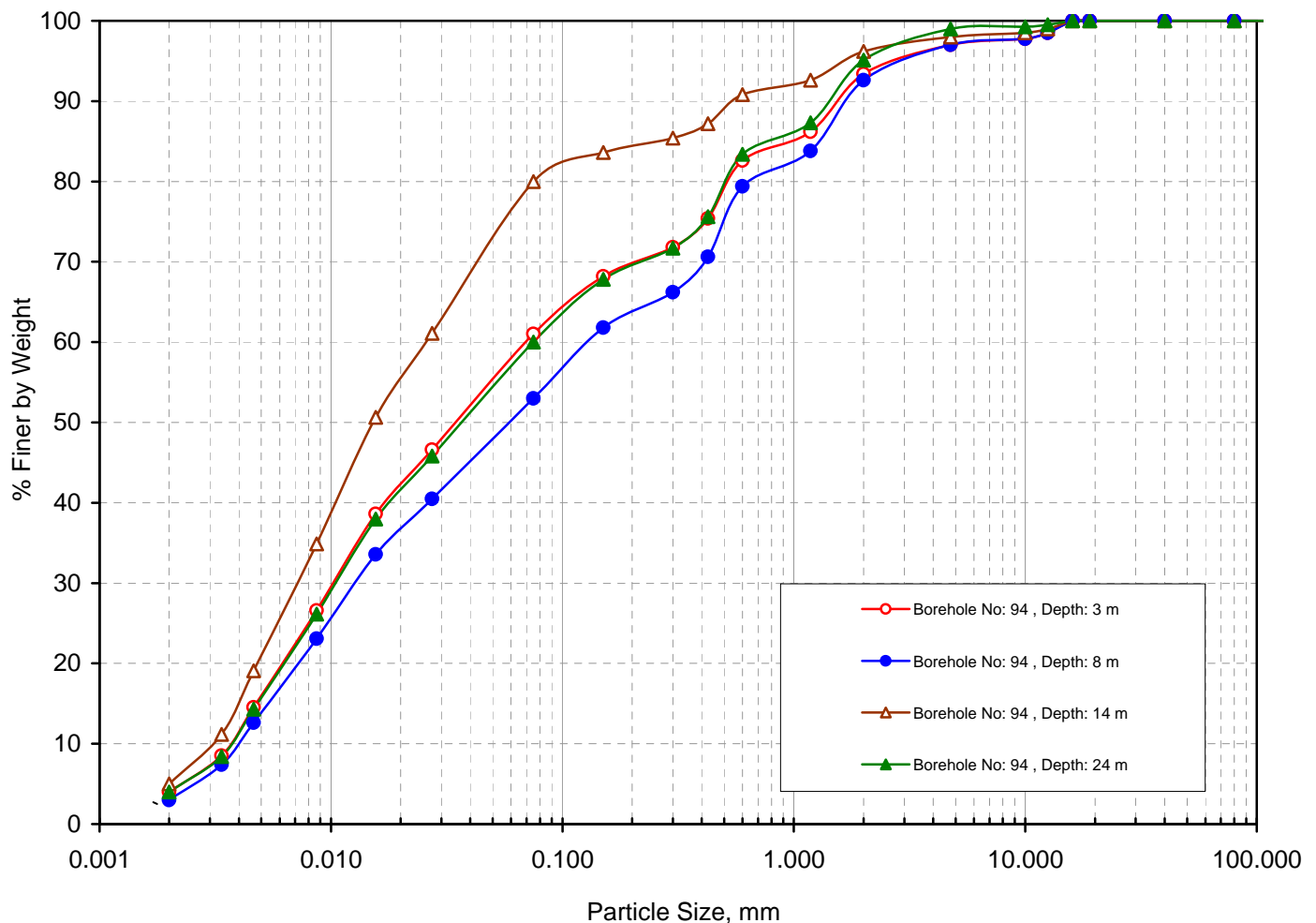
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-94	3.00	Sandy silt with traces of gravels (CL)	3	36	57	4	0.072	0.011	0.004	18.0	0.42
BH-94	8.00	Sandy silt with traces of gravels (CL)	3	44	50	3	0.135	0.013	0.004	33.8	0.31
BH-94	14.00	Sandy silt with traces of gravels (CL)	2	18	75	5	0.026	0.007	0.003	8.7	0.63
BH-94	24.00	Sandy silt with traces of gravels (CL)	1	39	56	4	0.075	0.011	0.004	18.8	0.40

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

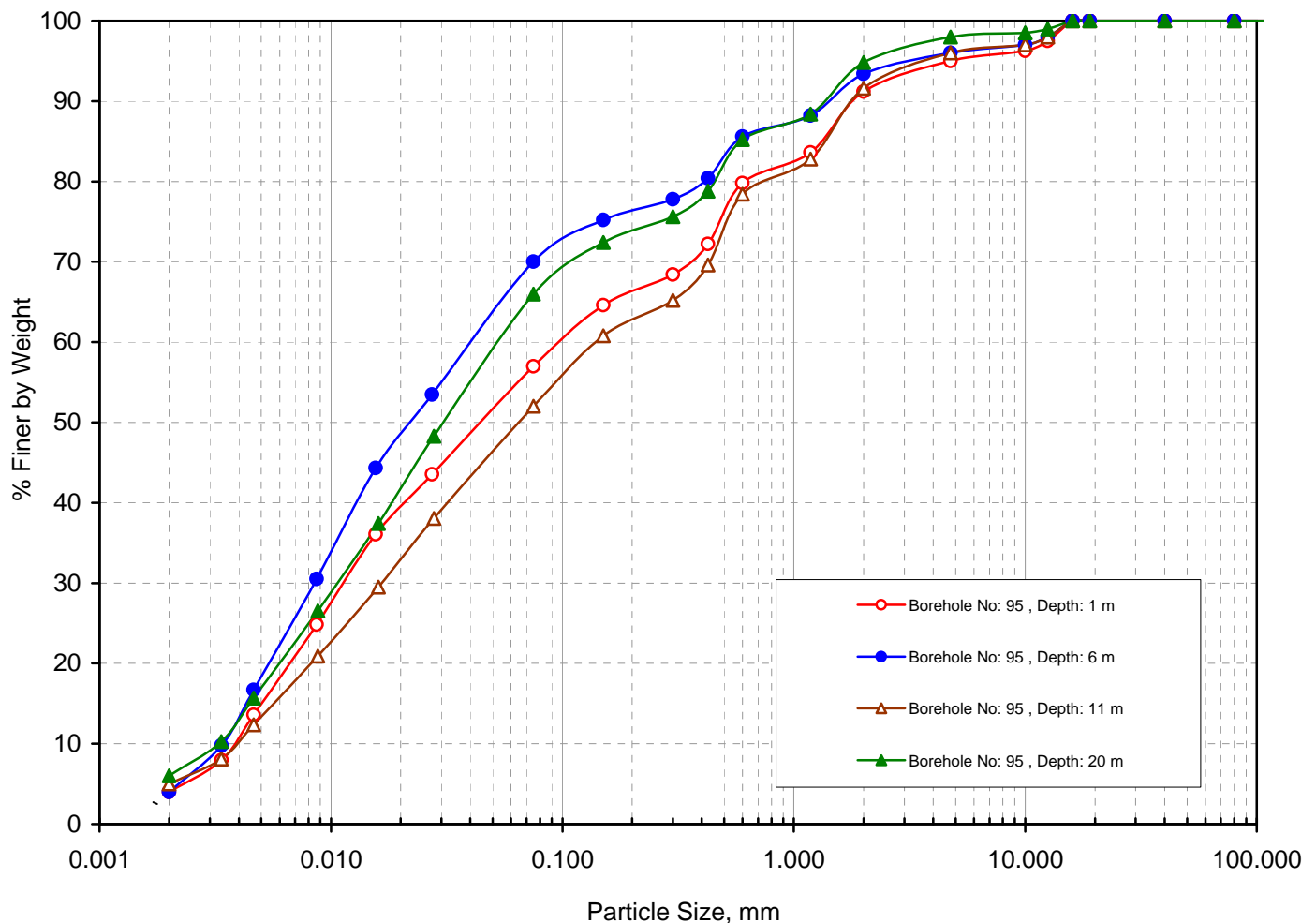
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-95	1.00	Sandy silt with gravels (CL)	5	38	53	4	0.105	0.012	0.004	26.3	0.34
BH-95	6.00	Sandy silt with traces of gravels (CL)	4	26	66	4	0.046	0.009	0.003	15.3	0.59
BH-95	11.00	Sandy silt with traces of gravels (CL)	4	44	47	5	0.143	0.017	0.004	35.8	0.51
BH-95	20.00	Sandy silt with traces of gravels (CL)	2	32	60	6	0.059	0.011	0.003	19.7	0.68

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

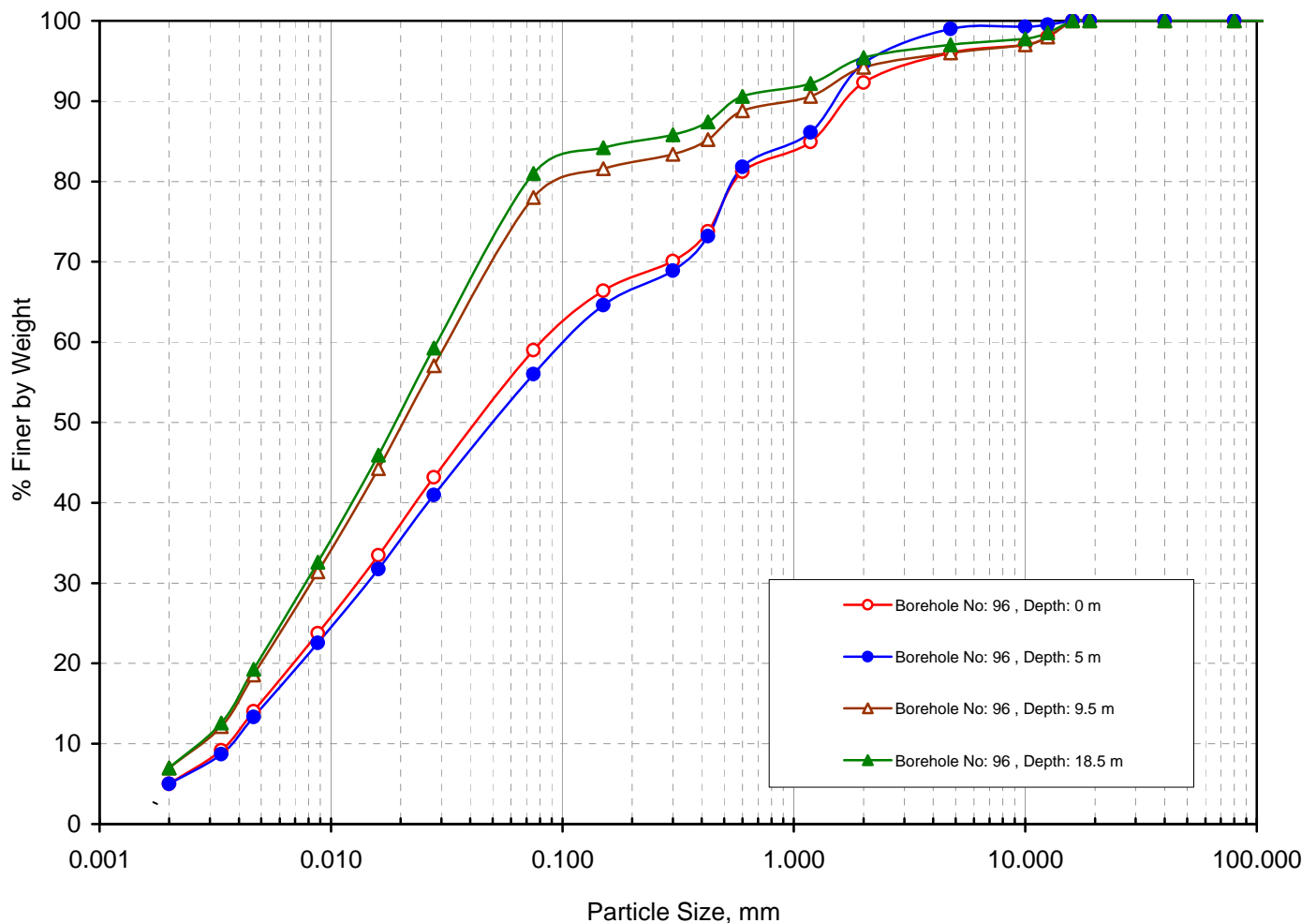
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-96	0.00	Sandy silt with traces of gravels (CL)	4	37	54	5	0.085	0.013	0.004	21.3	0.50
BH-96	5.00	Sandy silt with traces of gravels (CL)	1	43	51	5	0.110	0.015	0.004	27.5	0.51
BH-96	9.50	Sandy silt with traces of gravels (CL)	4	18	71	7	0.034	0.008	0.003	11.3	0.63
BH-96	18.50	Sandy silt with traces of gravels (CL)	3	16	74	7	0.029	0.008	0.003	9.7	0.74

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

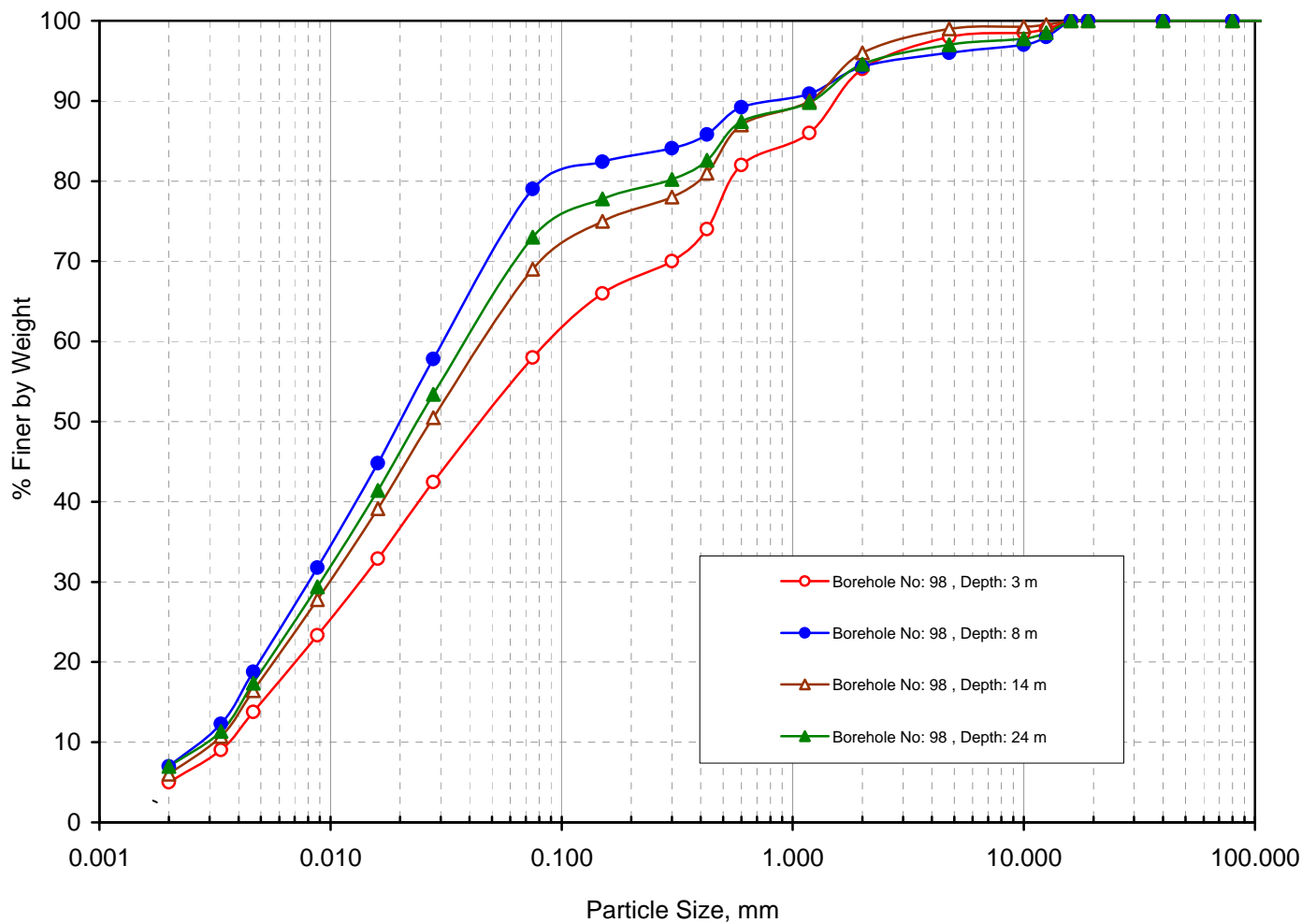
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-98	3.00	Sandy silt with traces of gravels (CL)	2	40	53	5	0.094	0.014	0.004	23.5	0.52
BH-98	8.00	Sandy silt with traces of gravels (CL)	4	17	72	7	0.033	0.008	0.003	11.0	0.65
BH-98	14.00	Sandy silt with traces of gravels (CL)	1	30	63	6	0.052	0.010	0.003	17.3	0.64
BH-98	24.00	Sandy silt with traces of gravels (CL)	3	24	66	7	0.044	0.009	0.003	14.7	0.61

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

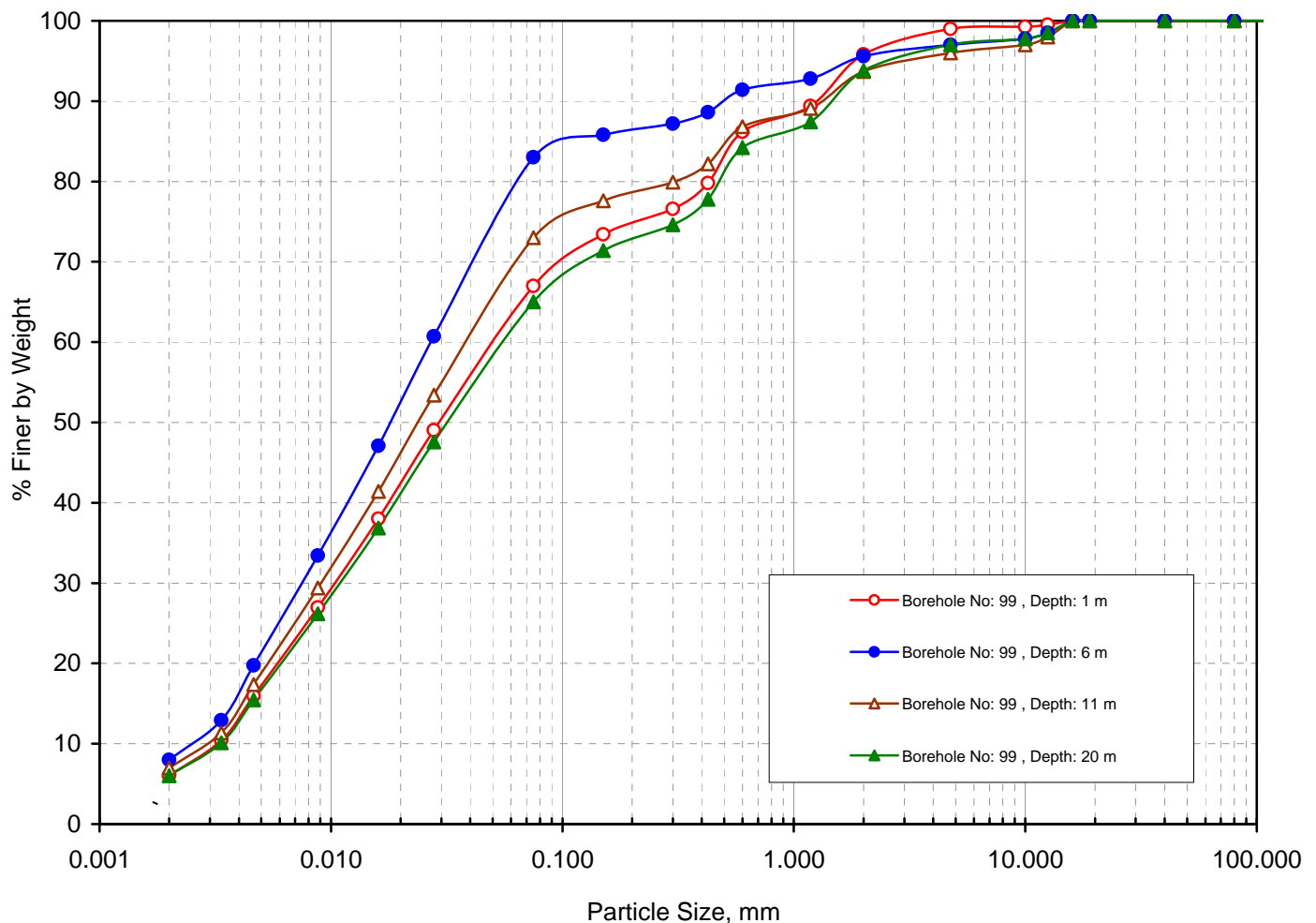
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-99	1.00	Sandy silt with traces of gravels (CL)	1	32	61	6	0.057	0.011	0.003	19.0	0.71
BH-99	6.00	Sandy silt with traces of gravels (CL)	3	14	75	8	0.027	0.008	0.003	9.0	0.79
BH-99	11.00	Sandy silt with traces of gravels (CL)	4	23	66	7	0.044	0.009	0.003	14.7	0.61
BH-99	20.00	Sandy silt with traces of gravels (CL)	3	32	59	6	0.061	0.011	0.003	20.3	0.66

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## Grain Size Analysis

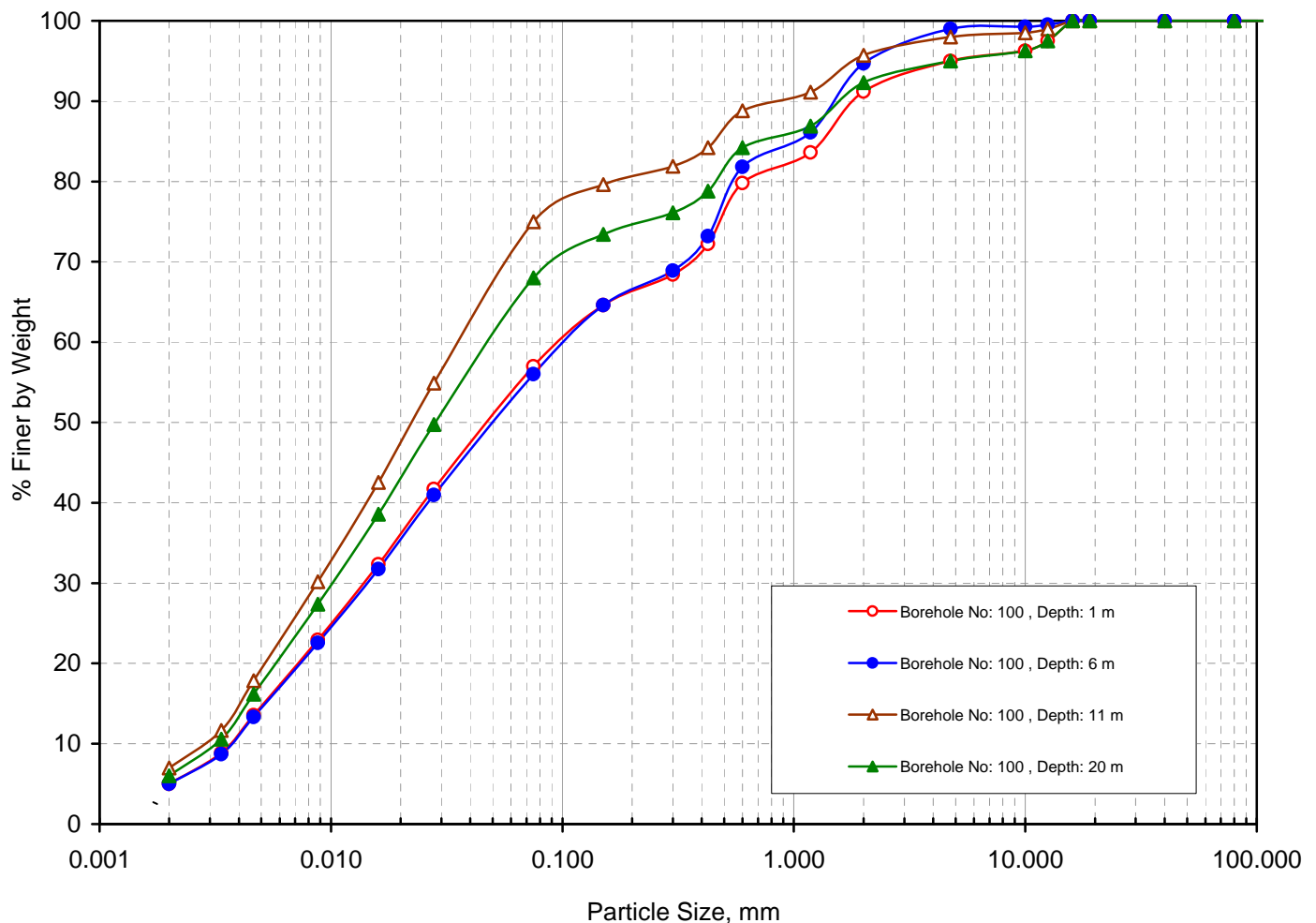
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-100	1.00	Sandy silt with gravels (CL)	5	38	52	5	0.105	0.014	0.004	26.3	0.47
BH-100	6.00	Sandy silt with traces of gravels (CL)	1	43	51	5	0.110	0.015	0.004	27.5	0.51
BH-100	11.00	Sandy silt with traces of gravels (CL)	2	23	68	7	0.040	0.009	0.003	13.3	0.68
BH-100	20.00	Sandy silt with gravels (CL)	5	27	62	6	0.054	0.010	0.003	18.0	0.62

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## Grain Size Analysis

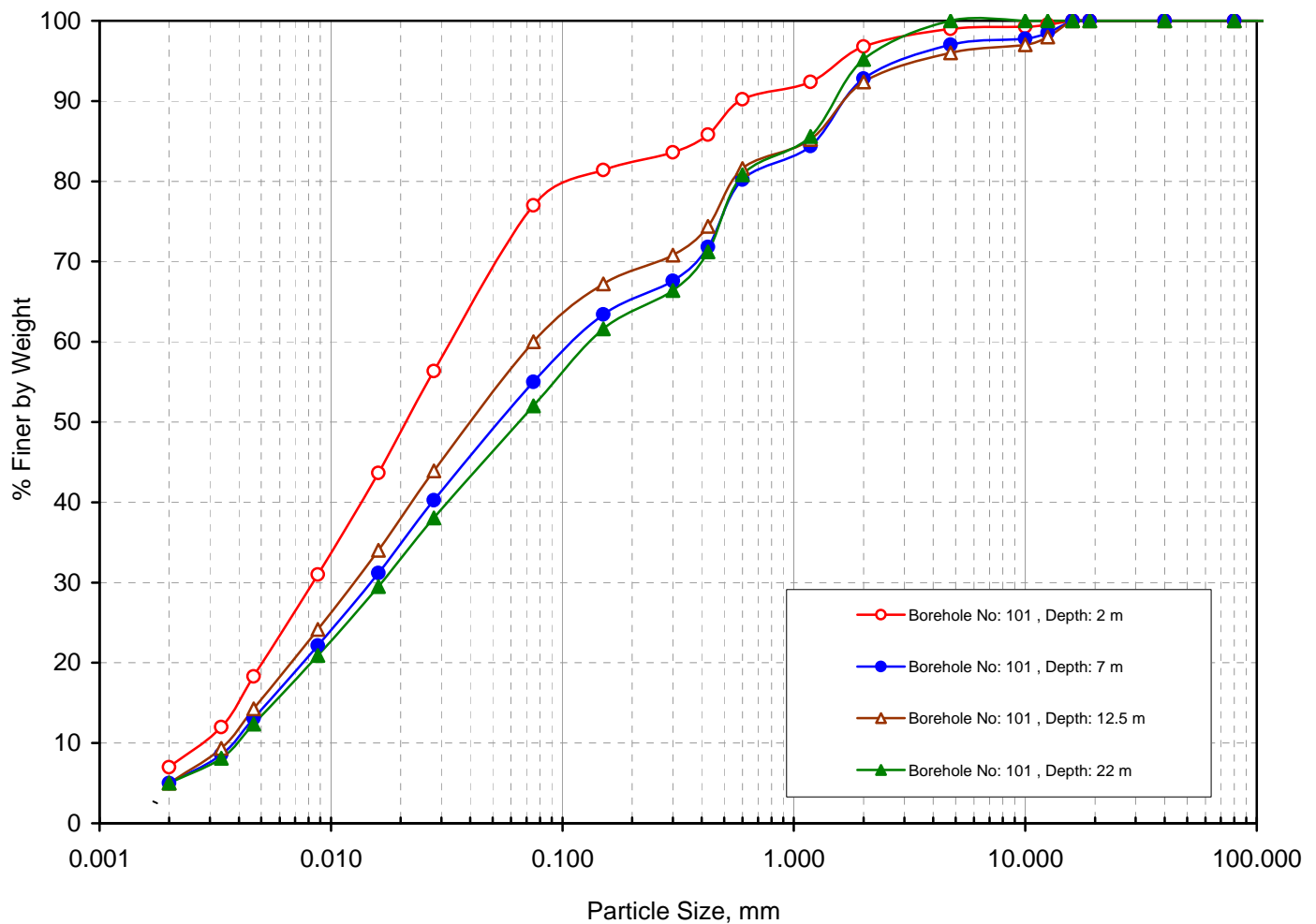
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-101	2.00	Sandy silt with traces of gravels (CL)	1	22	70	7	0.036	0.008	0.003	12.0	0.59
BH-101	7.00	Sandy silt with traces of gravels (CL)	3	42	50	5	0.120	0.015	0.004	30.0	0.47
BH-101	12.50	Sandy silt with traces of gravels (CL)	4	36	55	5	0.075	0.013	0.004	18.8	0.56
BH-101	22.00	Sandy silt (CL)	0	48	47	5	0.138	0.017	0.004	34.5	0.52

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

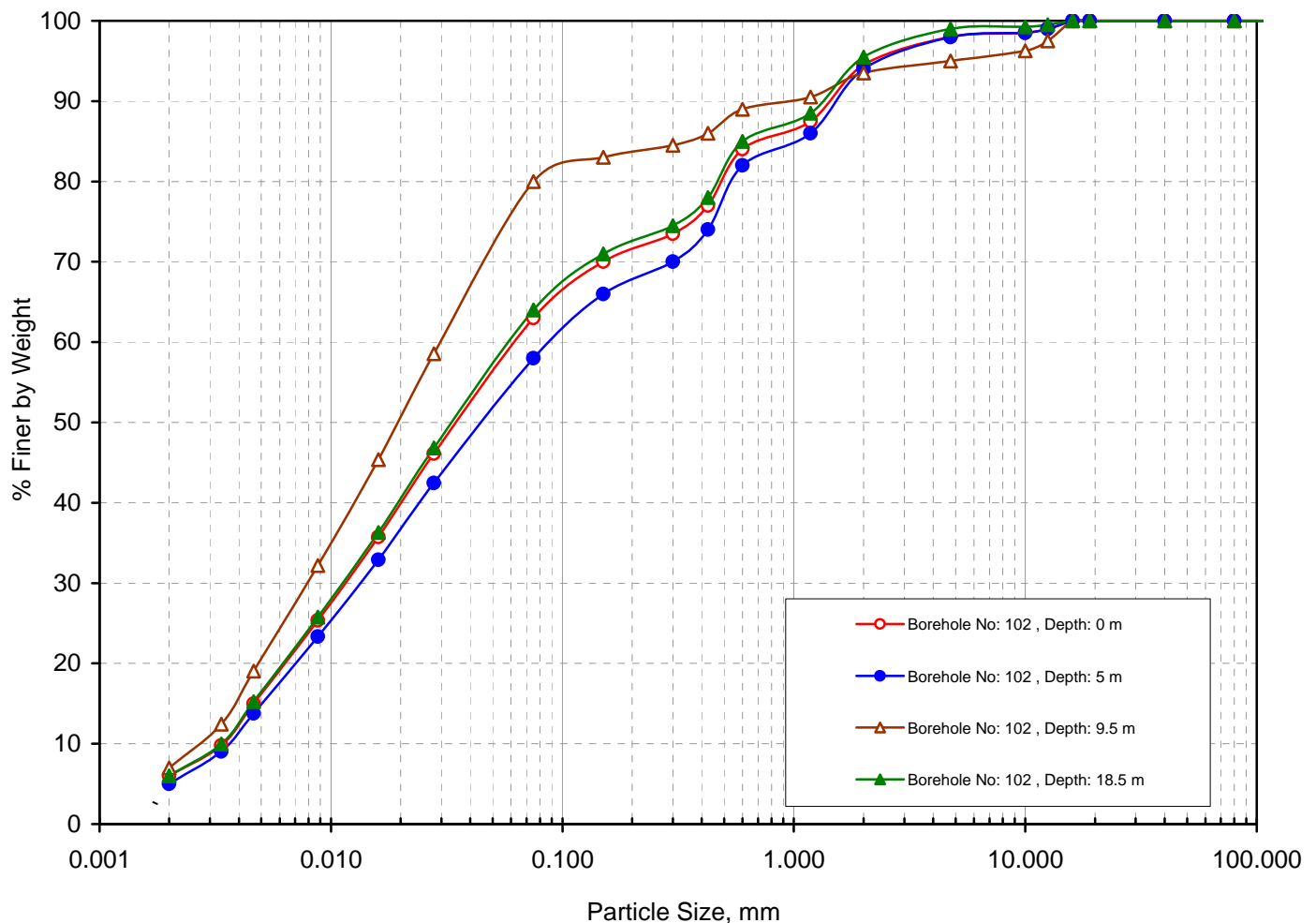
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-102	0.00	Sandy silt with traces of gravels (CL)	2	35	57	6	0.067	0.012	0.003	22.3	0.72
BH-102	5.00	Sandy silt with traces of gravels (CL)	2	40	53	5	0.094	0.014	0.004	23.5	0.52
BH-102	9.50	Sandy silt with gravels (CL)	5	15	73	7	0.031	0.008	0.003	10.3	0.69
BH-102	18.50	Sandy silt with traces of gravels (CL)	1	35	58	6	0.064	0.012	0.003	21.3	0.75

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

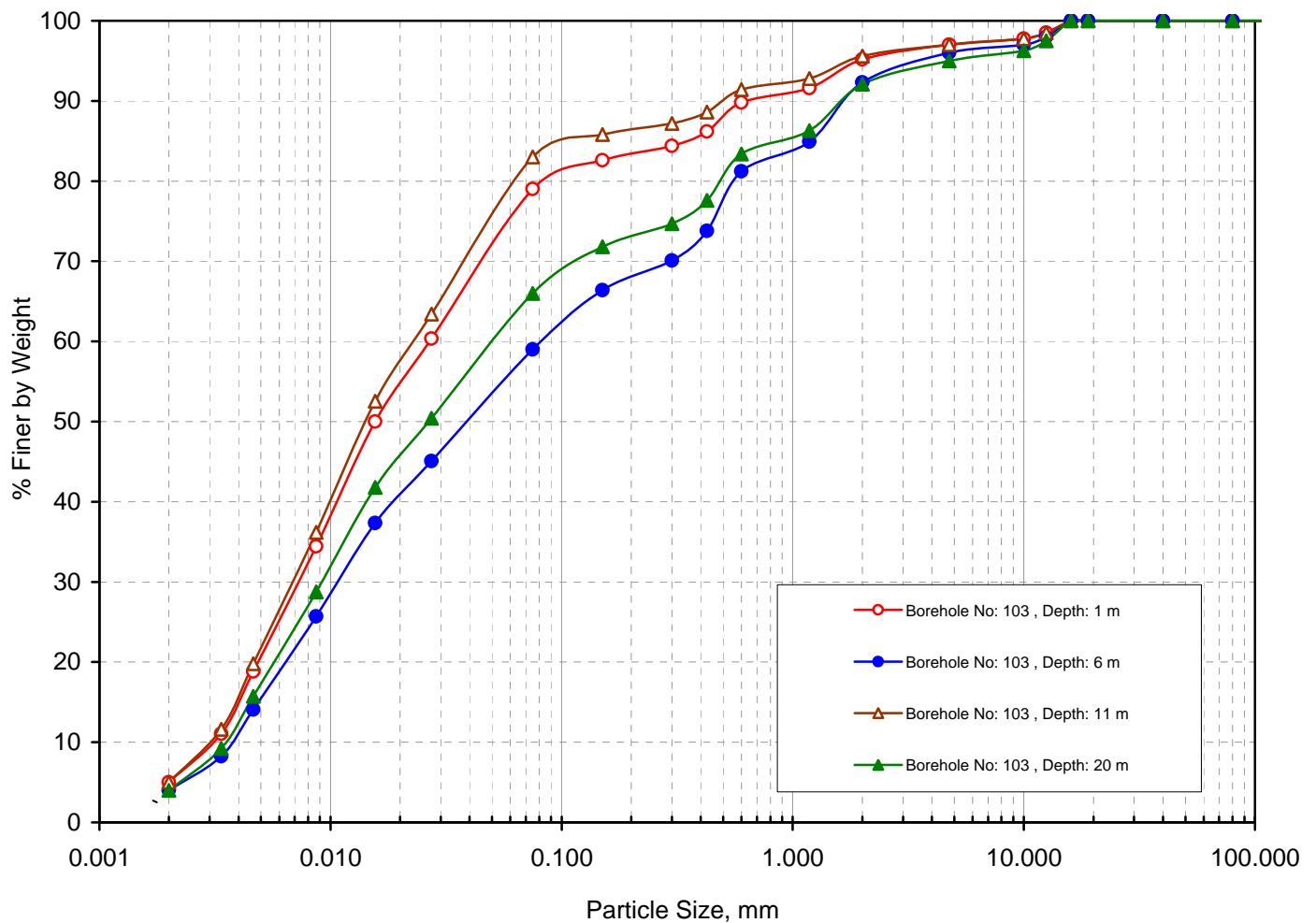
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-103	1.00	Sandy silt with traces of gravels (CL)	3	18	74	5	0.027	0.008	0.003	9.0	0.79
BH-103	6.00	Sandy silt with traces of gravels (CL)	4	37	55	4	0.085	0.011	0.004	21.3	0.36
BH-103	11.00	Sandy silt with traces of gravels (CL)	3	14	78	5	0.024	0.007	0.003	8.0	0.68
BH-103	20.00	Sandy silt with gravels (CL)	5	29	62	4	0.057	0.009	0.004	14.3	0.36

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

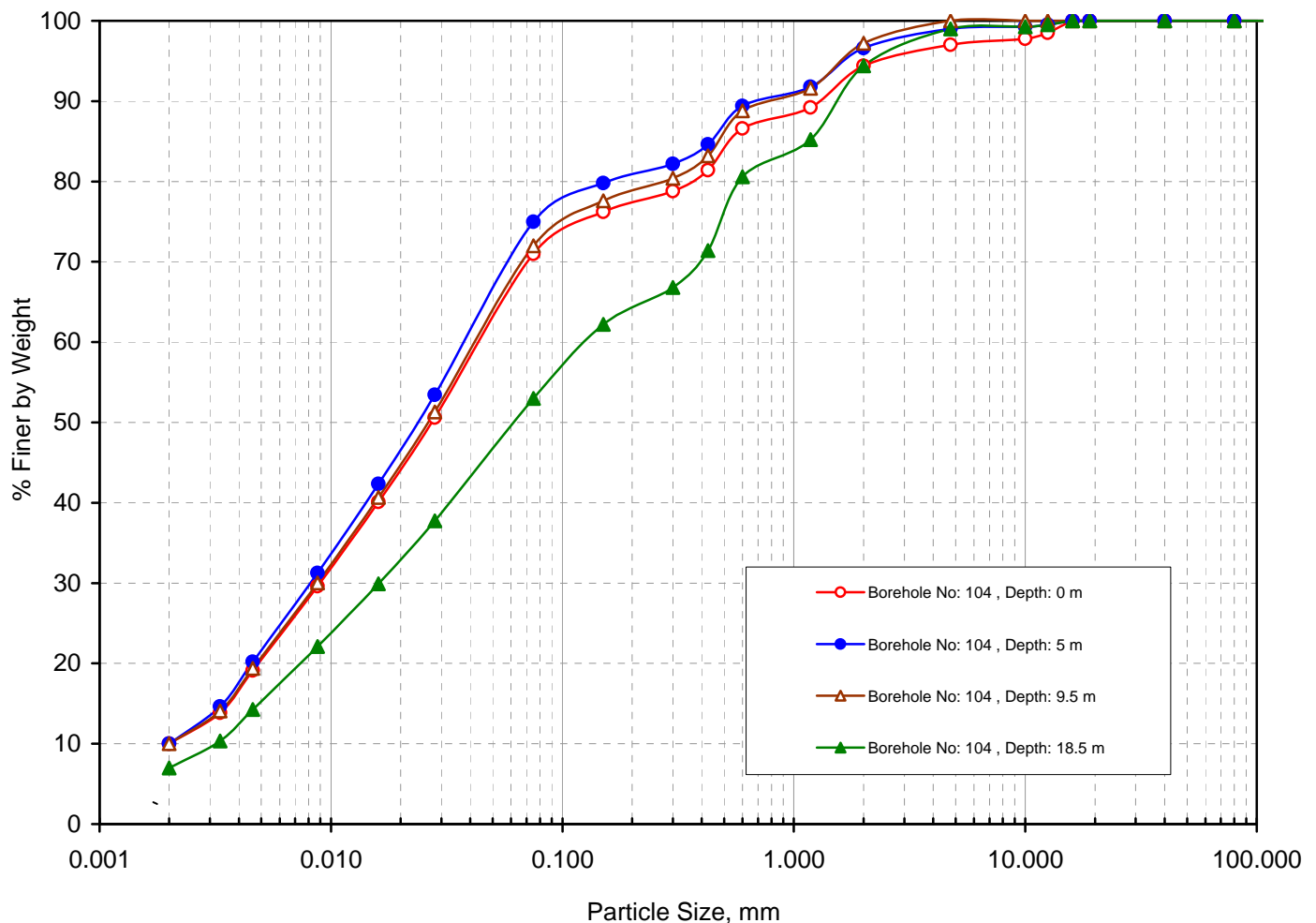
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-104	0.00	Sandy silt with traces of gravels (CL)	3	26	61	10	0.050	0.009	0.002	25.0	0.81
BH-104	5.00	Sandy silt with traces of gravels (CL)	1	24	65	10	0.042	0.008	0.002	21.0	0.76
BH-104	9.50	Sandy silt (CL)	0	28	62	10	0.048	0.009	0.002	24.0	0.84
BH-104	18.50	Sandy silt with traces of gravels (CL)	1	46	46	7	0.132	0.016	0.003	44.0	0.65

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

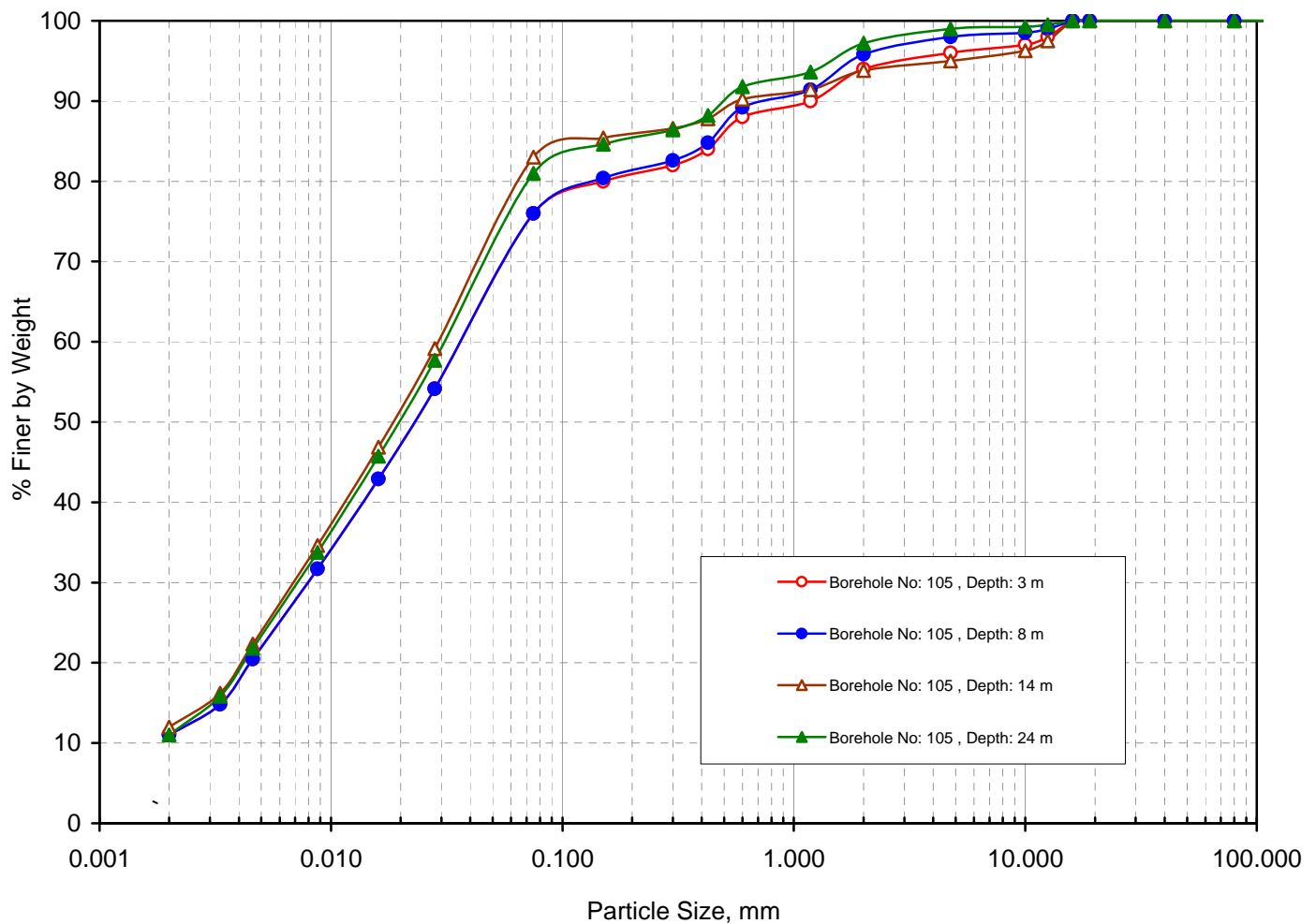
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-105	3.00	Sandy silt with traces of gravels (CL)	4	20	65	11	0.041	0.008			
BH-105	8.00	Sandy silt with traces of gravels (CL)	2	22	65	11	0.041	0.008			
BH-105	14.00	Sandy silt with gravels (CL)	5	12	71	12	0.030	0.007			
BH-105	24.00	Sandy silt with traces of gravels (CL)	1	18	70	11	0.033	0.007			

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

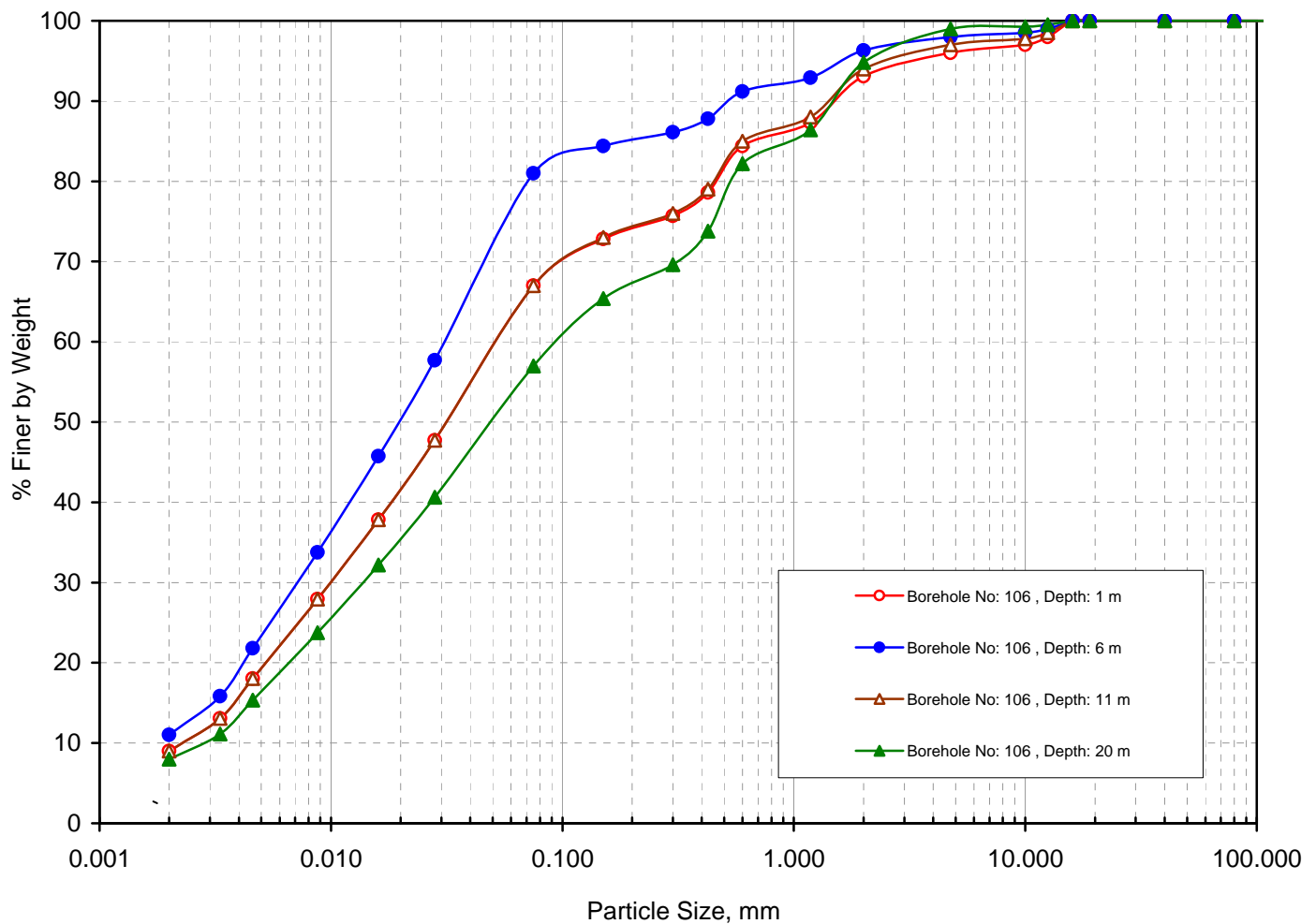
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-106	1.00	Sandy silt with traces of gravels (CL)	4	29	58	9	0.058	0.010	0.002	29.0	0.86
BH-106	6.00	Sandy silt with traces of gravels (CL)	2	17	70	11	0.033	0.007			
BH-106	11.00	Sandy silt with traces of gravels (CL)	3	30	58	9	0.058	0.010	0.002	29.0	0.86
BH-106	20.00	Sandy silt with traces of gravels (CL)	1	42	49	8	0.102	0.014	0.003	34.0	0.64

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

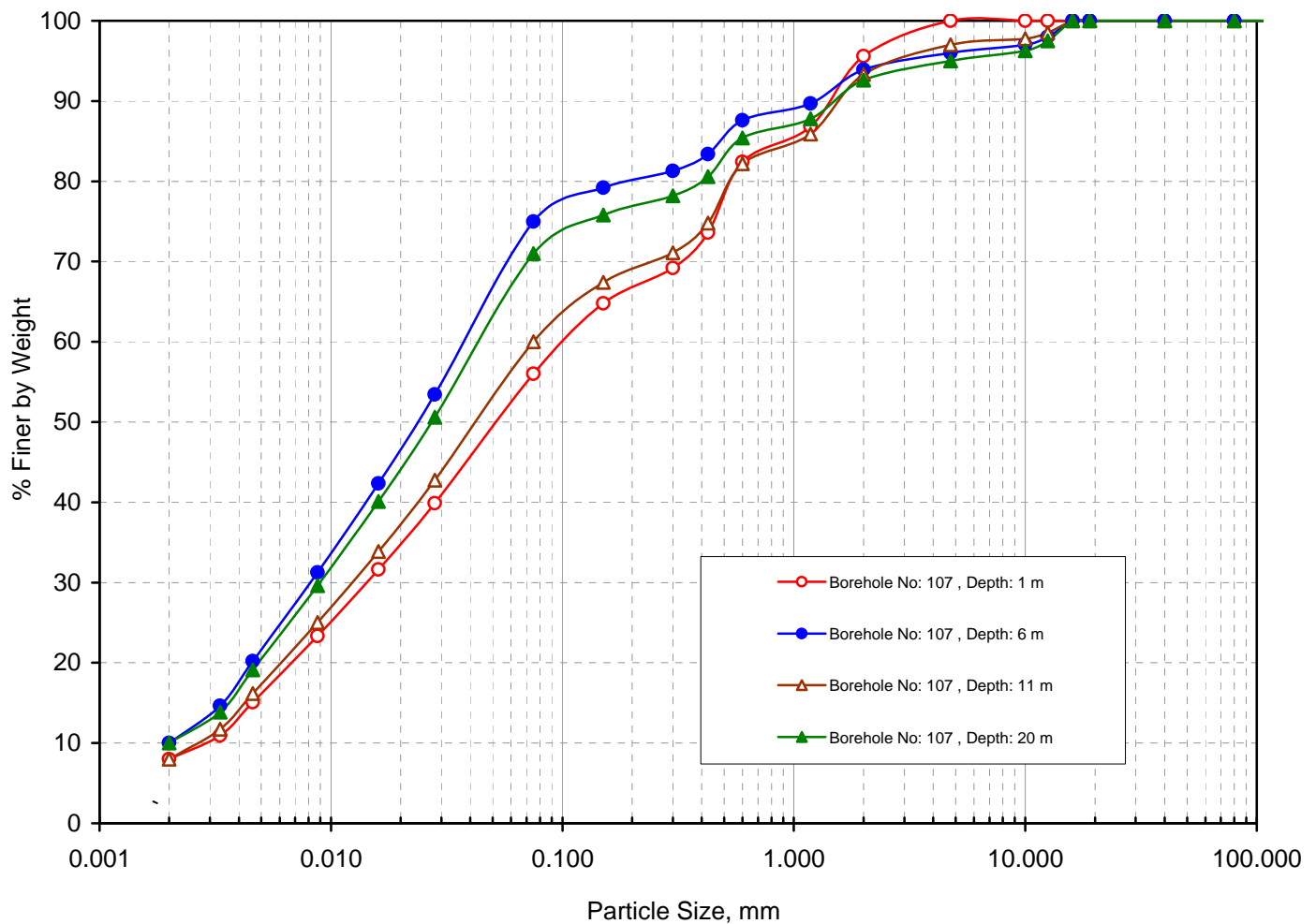
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-107	1.00	Sandy silt (CL)	0	44	48	8	0.109	0.015	0.003	36.3	0.69
BH-107	6.00	Sandy silt with traces of gravels (CL)	4	21	65	10	0.042	0.008	0.002	21.0	0.76
BH-107	11.00	Sandy silt with traces of gravels (CL)	3	37	52	8	0.075	0.013	0.003	25.0	0.75
BH-107	20.00	Sandy silt with gravels (CL)	5	24	61	10	0.050	0.009	0.002	25.0	0.81

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

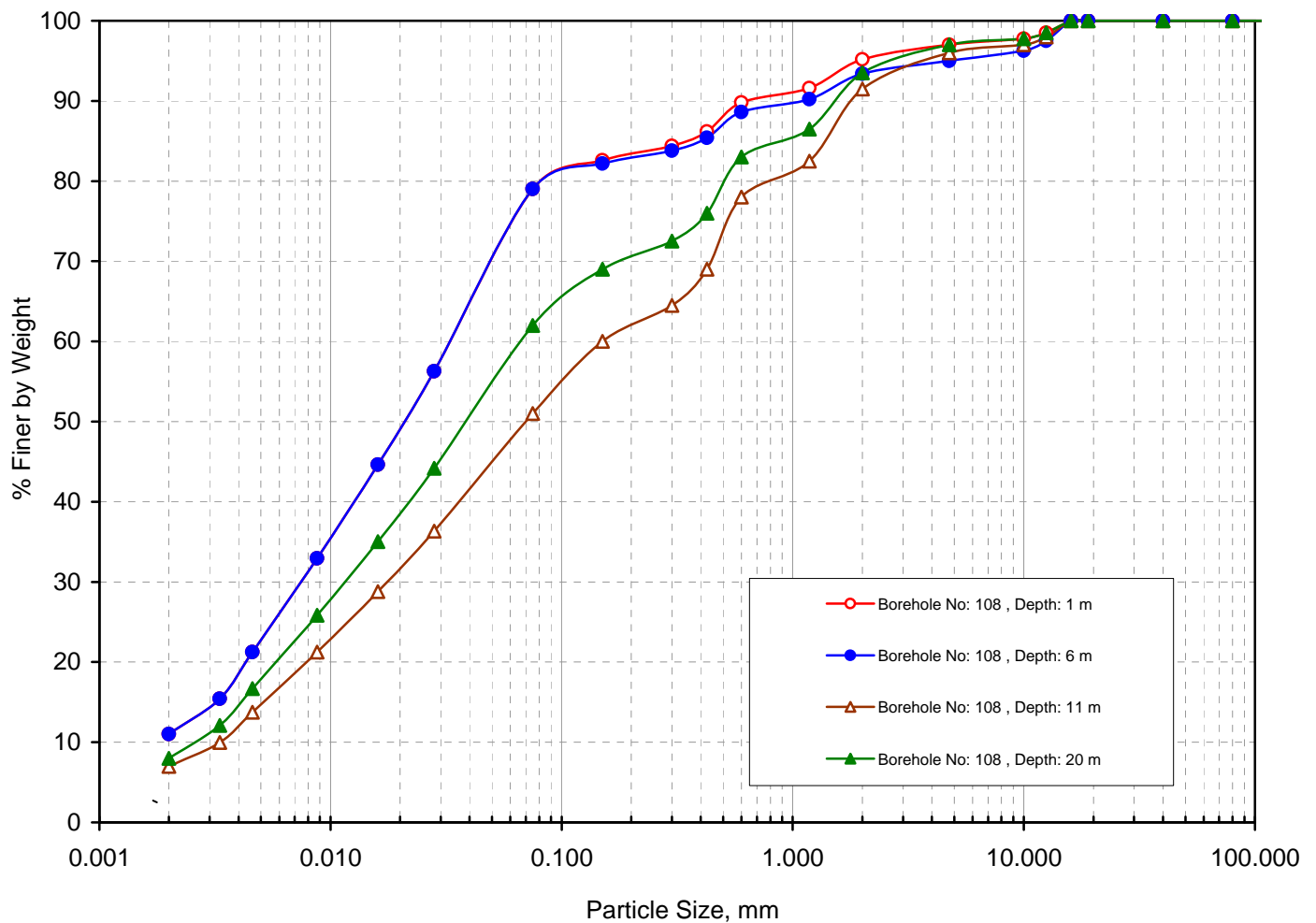
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-108	1.00	Sandy silt with traces of gravels (CL)	3	18	68	11	0.036	0.008			
BH-108	6.00	Sandy silt with gravels (CL)	5	16	68	11	0.036	0.008			
BH-108	11.00	Sandy silt with traces of gravels (CL)	4	45	44	7	0.150	0.018	0.003	50.0	0.72
BH-108	20.00	Sandy silt with traces of gravels (CL)	3	35	54	8	0.070	0.012	0.003	23.3	0.69

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

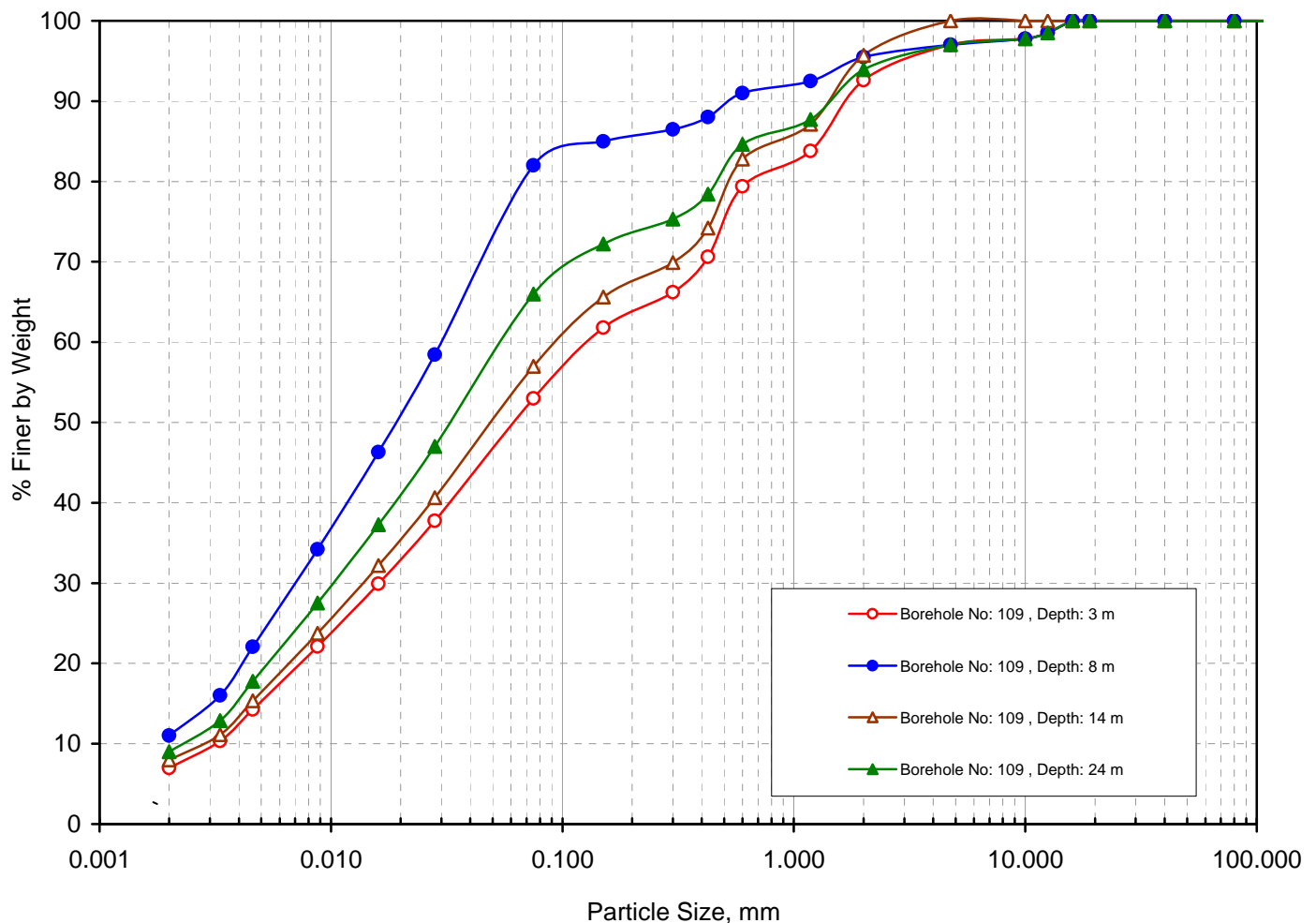
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-109	3.00	Sandy silt with traces of gravels (CL)	3	44	46	7	0.135	0.016	0.003	45.0	0.63
BH-109	8.00	Sandy silt with traces of gravels (CL)	3	15	71	11	0.031	0.007			
BH-109	14.00	Sandy silt (CL)	0	43	49	8	0.101	0.014	0.003	33.7	0.65
BH-109	24.00	Sandy silt with traces of gravels (CL)	3	31	57	9	0.060	0.011	0.002	30.0	1.01

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

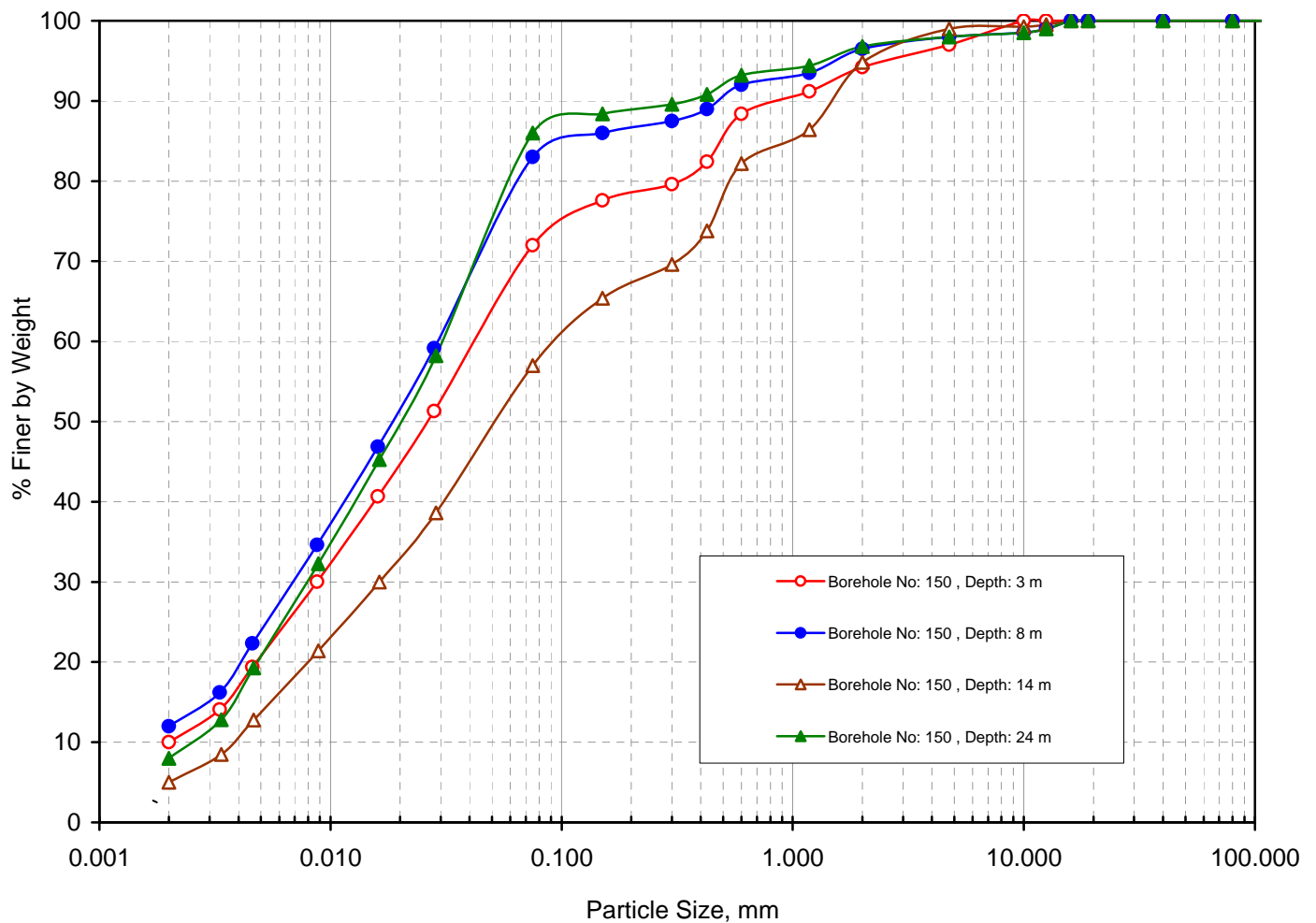
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
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BH-150	3.00	Sandy silt with traces of gravels (CL)	3	25	62	10	0.048	0.009	0.002	24.0	0.84
BH-150	8.00	Sandy silt with traces of gravels (CL)	2	15	71	12	0.030	0.007			
BH-150	14.00	Sandy silt with traces of gravels (CL)	1	42	52	5	0.102	0.016	0.004	25.5	0.63
BH-150	24.00	Sandy silt with traces of gravels (CL)	2	12	78	8	0.032	0.008	0.003	10.7	0.67

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

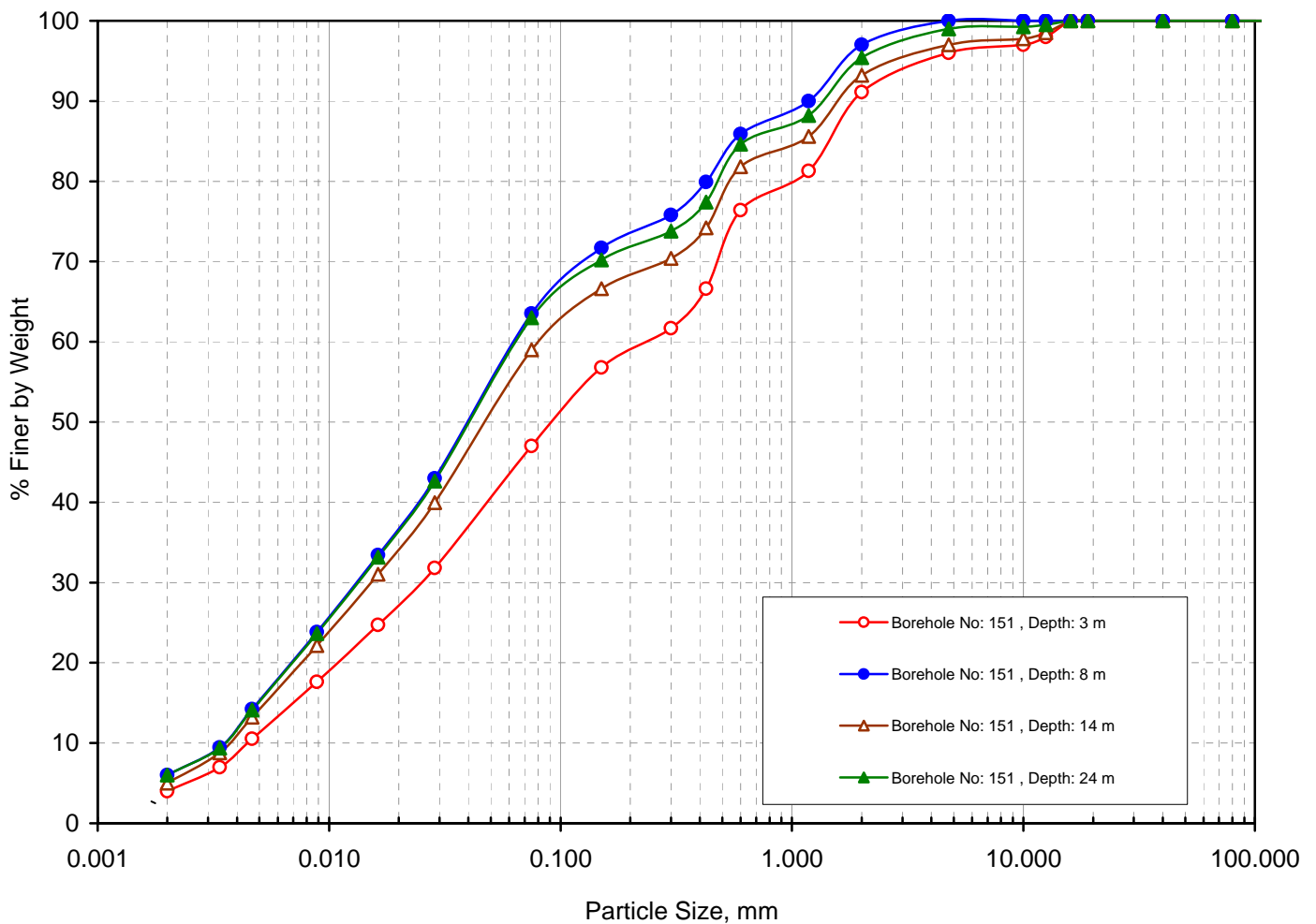
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Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-151	3.00	Sandy silt with traces of gravels (CL)	4	49	43	4	0.248	0.025	0.004	62.0	0.63
BH-151	8.00	Sandy silt (CL)	0	36	58	6	0.067	0.014	0.004	16.8	0.73
BH-151	14.00	Sandy silt with traces of gravels (CL)	3	38	54	5	0.085	0.015	0.004	21.3	0.66
BH-151	24.00	Sandy silt with traces of gravels (CL)	1	36	57	6	0.068	0.014	0.004	17.0	0.72

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

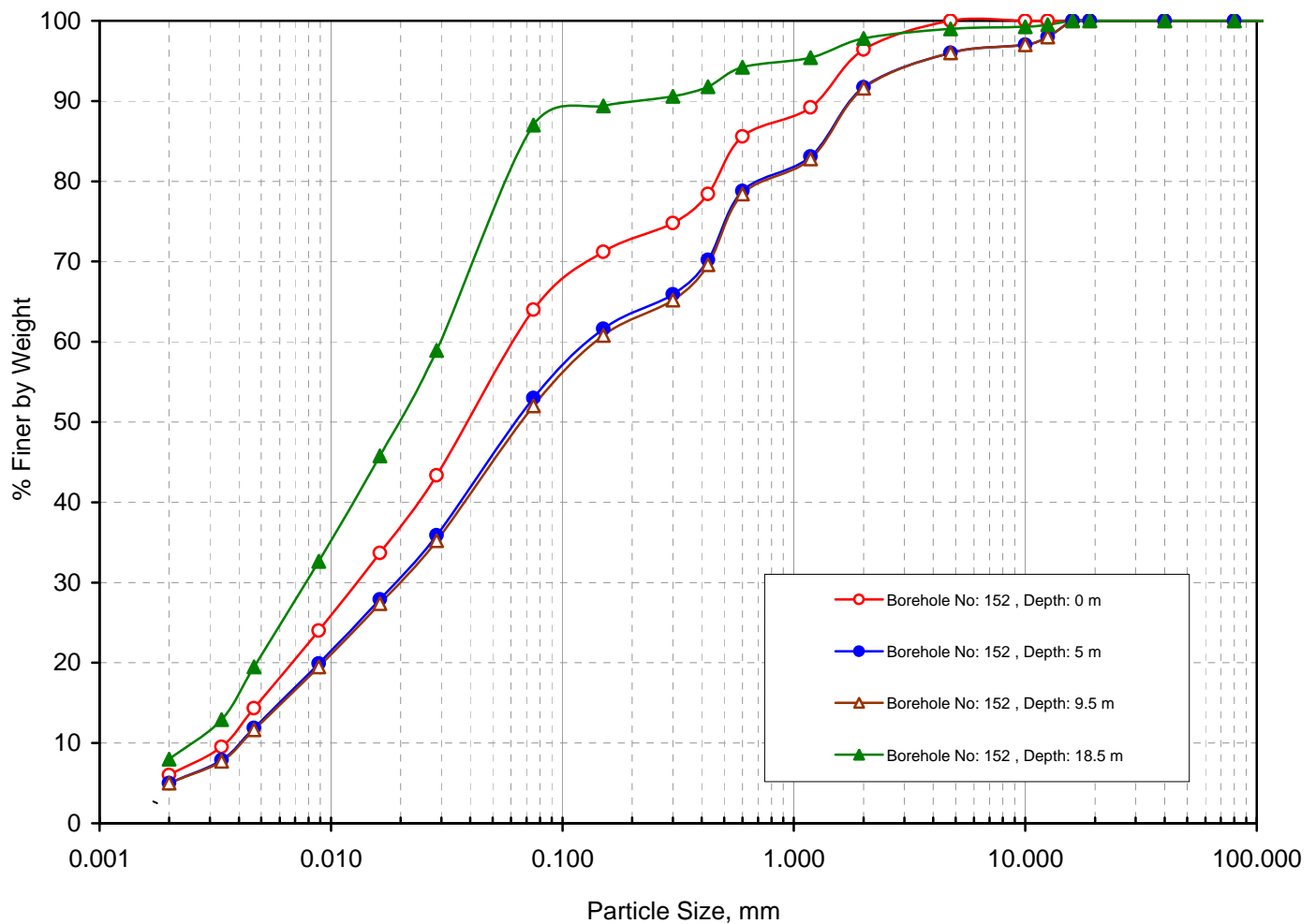
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-152	0.00	Sandy silt (CL)	0	36	58	6	0.066	0.013	0.003	22.0	0.85
BH-152	5.00	Sandy silt with traces of gravels (CL)	4	43	48	5	0.136	0.020	0.004	34.0	0.74
BH-152	9.50	Sandy silt with traces of gravels (CL)	4	44	47	5	0.143	0.020	0.004	35.8	0.70
BH-152	18.50	Sandy silt with traces of gravels (CL)	1	12	79	8	0.030	0.008	0.003	10.0	0.71

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

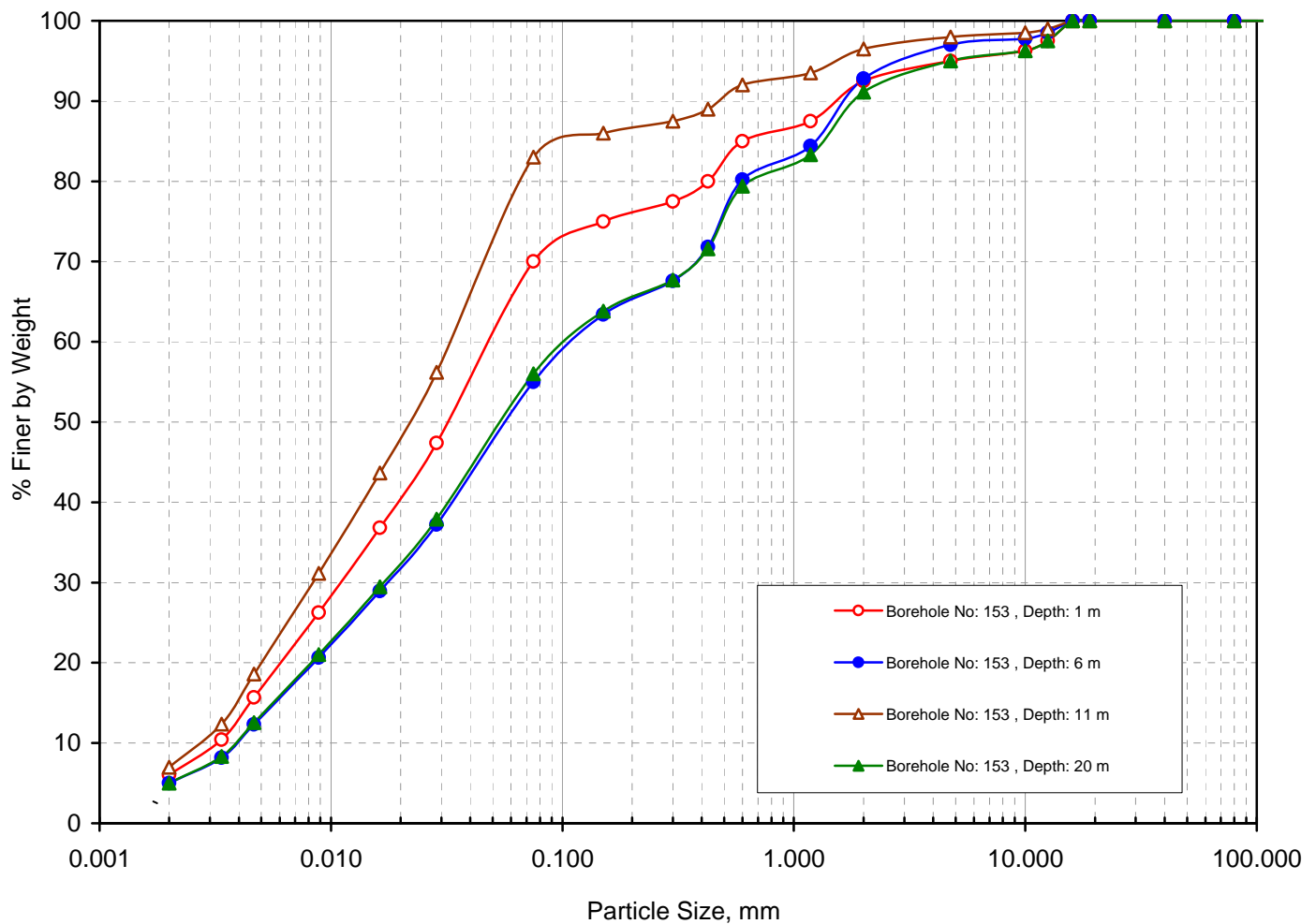
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-153	1.00	Sandy silt with gravels (CL)	5	25	64	6	0.054	0.011	0.003	18.0	0.75
BH-153	6.00	Sandy silt with traces of gravels (CL)	3	42	50	5	0.120	0.018	0.004	30.0	0.68
BH-153	11.00	Sandy silt with traces of gravels (CL)	2	15	76	7	0.035	0.008	0.003	11.7	0.61
BH-153	20.00	Sandy silt with gravels (CL)	5	39	51	5	0.113	0.017	0.004	28.3	0.64

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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## Grain Size Analysis

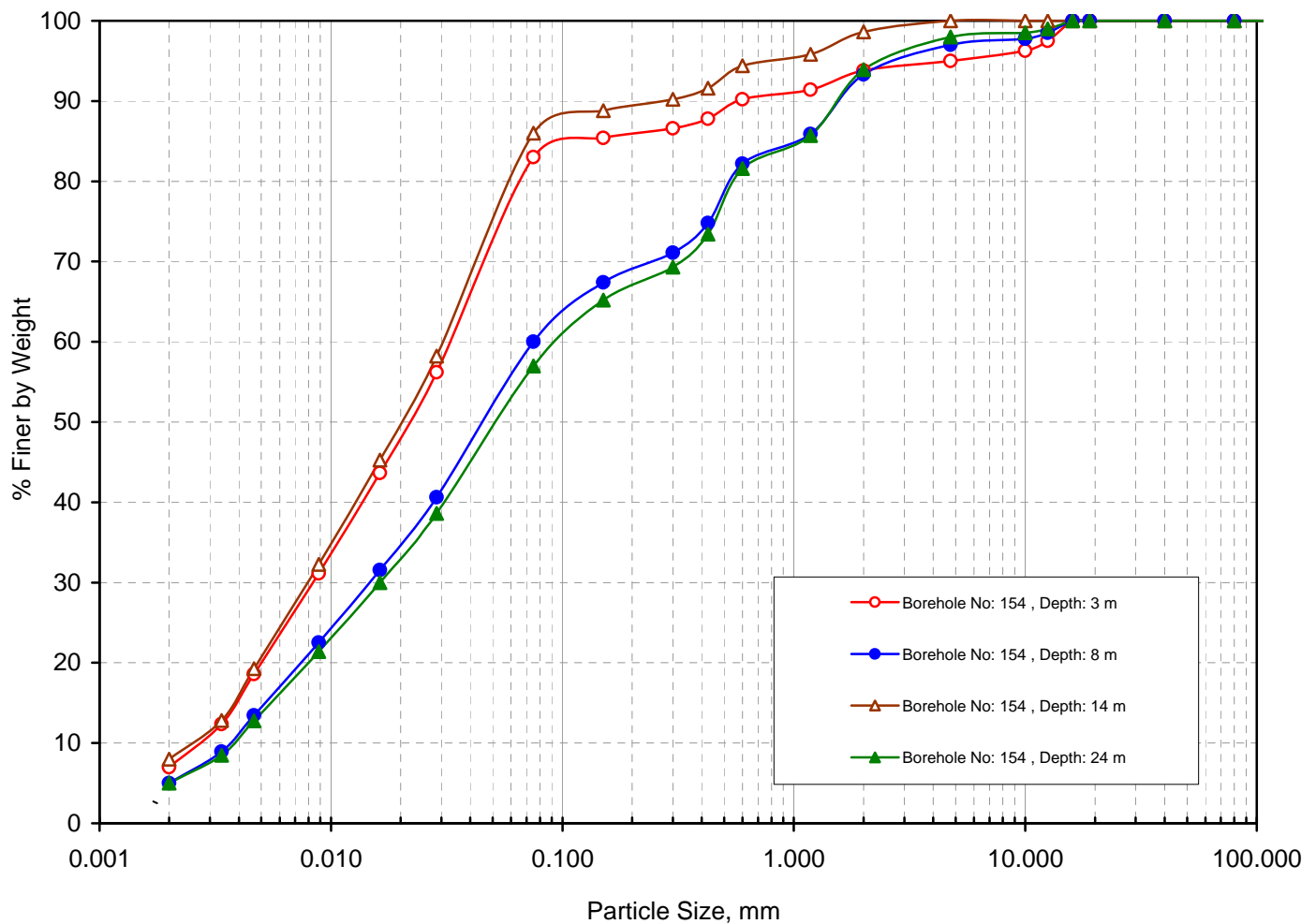
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-154	3.00	Sandy silt with gravels (CL)	5	12	76	7	0.035	0.008	0.003	11.7	0.61
BH-154	8.00	Sandy silt with traces of gravels (CL)	3	37	55	5	0.075	0.015	0.004	18.8	0.75
BH-154	14.00	Sandy silt (CL)	0	14	78	8	0.032	0.008	0.003	10.7	0.67
BH-154	24.00	Sandy silt with traces of gravels (CL)	2	41	52	5	0.102	0.016	0.004	25.5	0.63

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve







## Grain Size Analysis

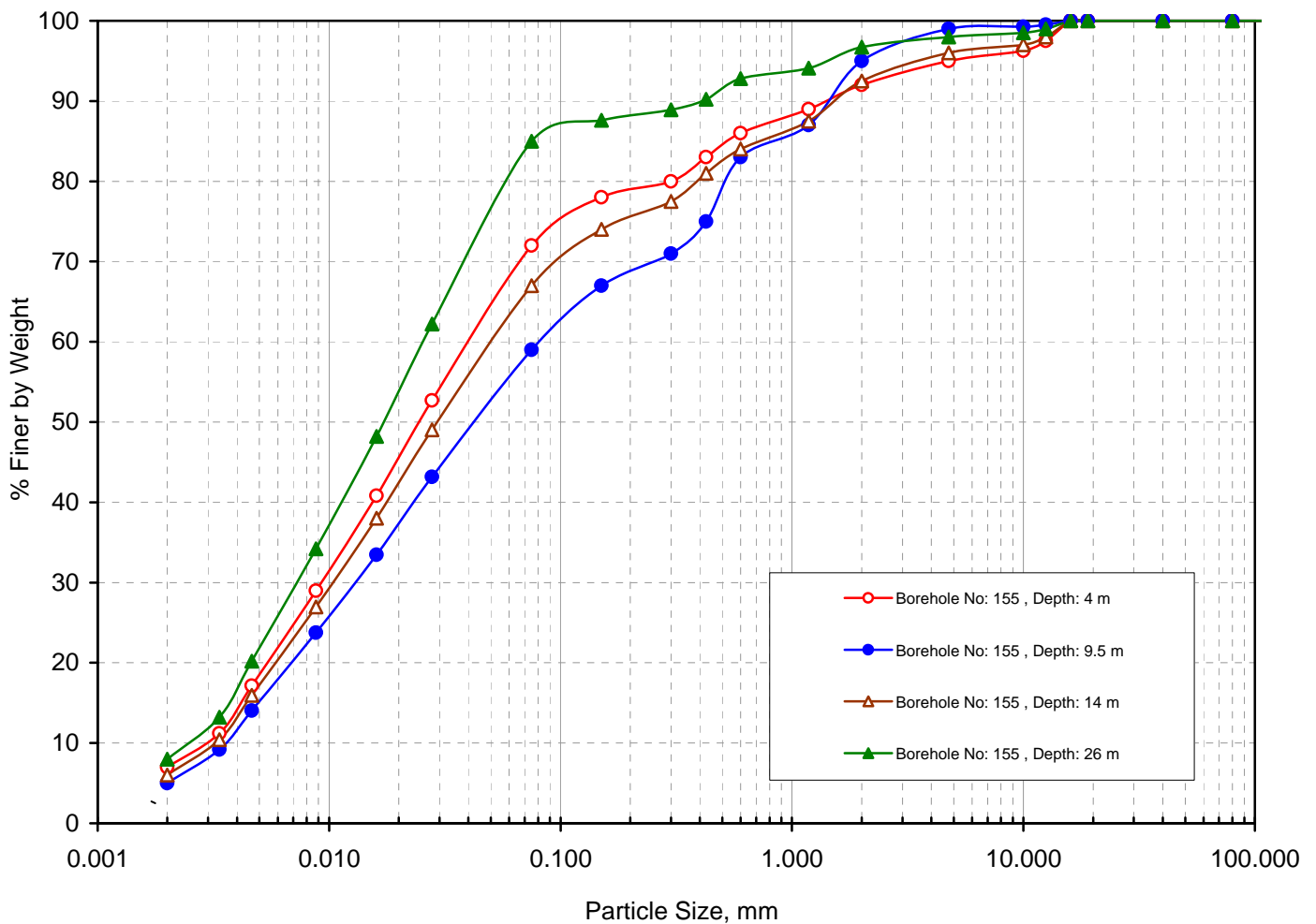
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-155	4.00	Sandy silt with gravels (CL)	5	23	65	7	0.046	0.009	0.003	15.3	0.59
BH-155	9.50	Sandy silt with traces of gravels (CL)	1	40	54	5	0.084	0.013	0.004	21.0	0.50
BH-155	14.00	Sandy silt with traces of gravels (CL)	4	29	61	6	0.057	0.011	0.003	19.0	0.71
BH-155	26.00	Sandy silt with traces of gravels (CL)	2	13	77	8	0.026	0.008	0.003	8.7	0.82

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## Grain Size Analysis

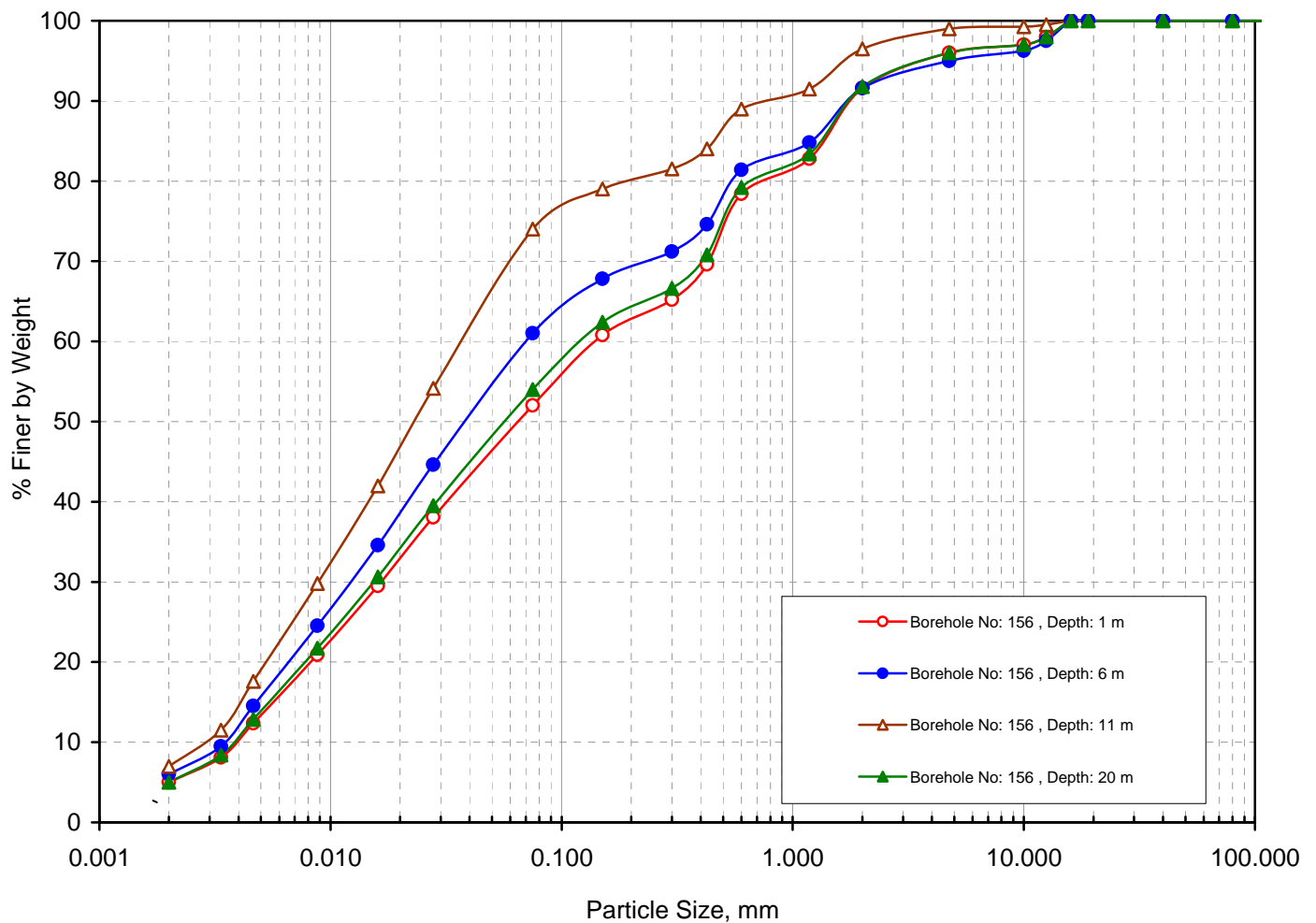
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-156	1.00	Sandy silt with traces of gravels (CL)	4	44	47	5	0.143	0.017	0.004	35.8	0.51
BH-156	6.00	Sandy silt with gravels (CL)	5	34	55	6	0.072	0.013	0.003	24.0	0.78
BH-156	11.00	Sandy silt with traces of gravels (CL)	1	25	67	7	0.042	0.009	0.003	14.0	0.64
BH-156	20.00	Sandy silt with traces of gravels (CL)	4	42	49	5	0.129	0.016	0.004	32.3	0.50

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## Grain Size Analysis

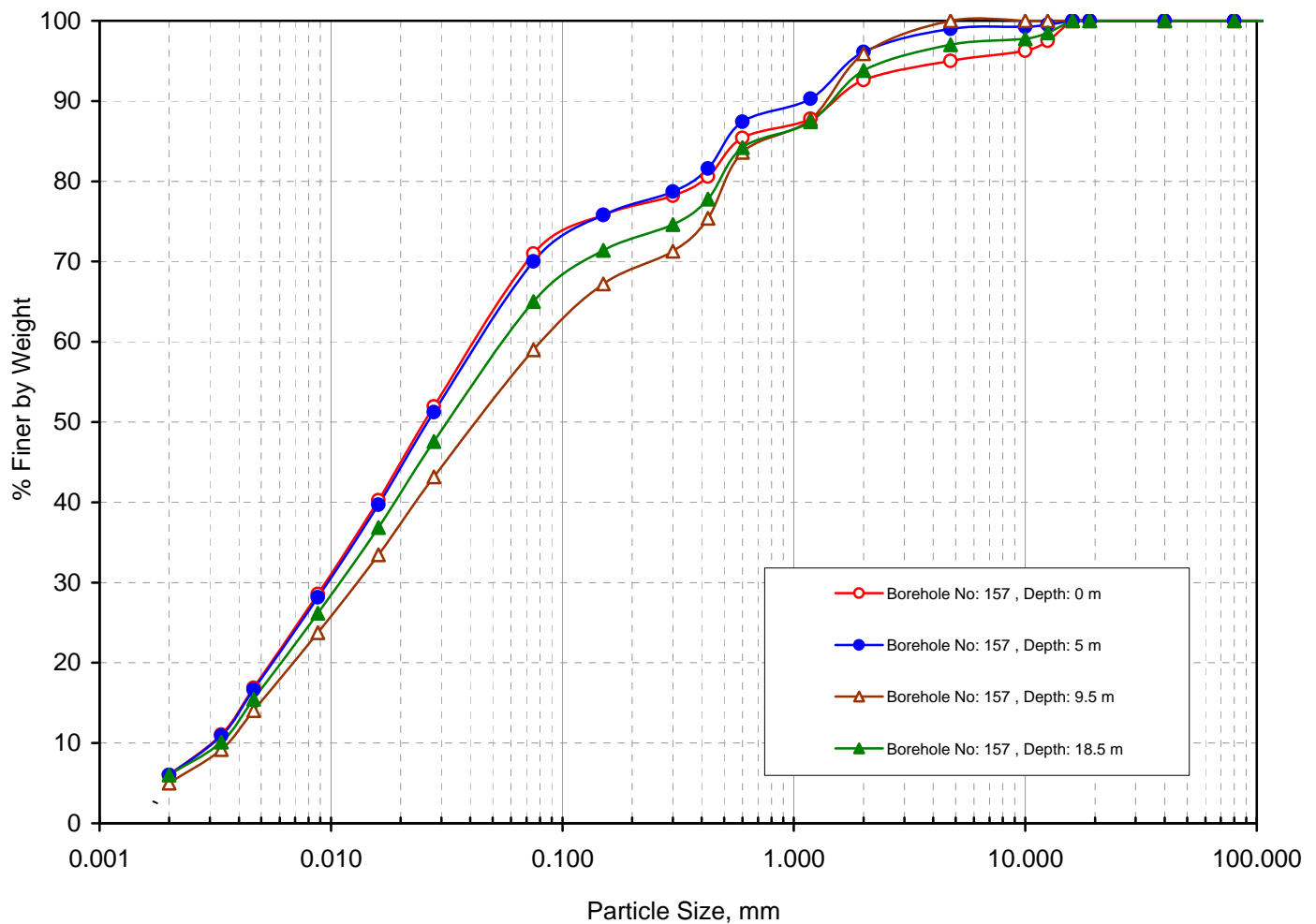
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-157	0.00	Sandy silt with gravels (CL)	5	24	65	6	0.048	0.010	0.003	16.0	0.69
BH-157	5.00	Sandy silt with traces of gravels (CL)	1	29	64	6	0.050	0.010	0.003	16.7	0.67
BH-157	9.50	Sandy silt (CL)	0	41	54	5	0.084	0.013	0.004	21.0	0.50
BH-157	18.50	Sandy silt with traces of gravels (CL)	3	32	59	6	0.061	0.011	0.003	20.3	0.66

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve





## Grain Size Analysis

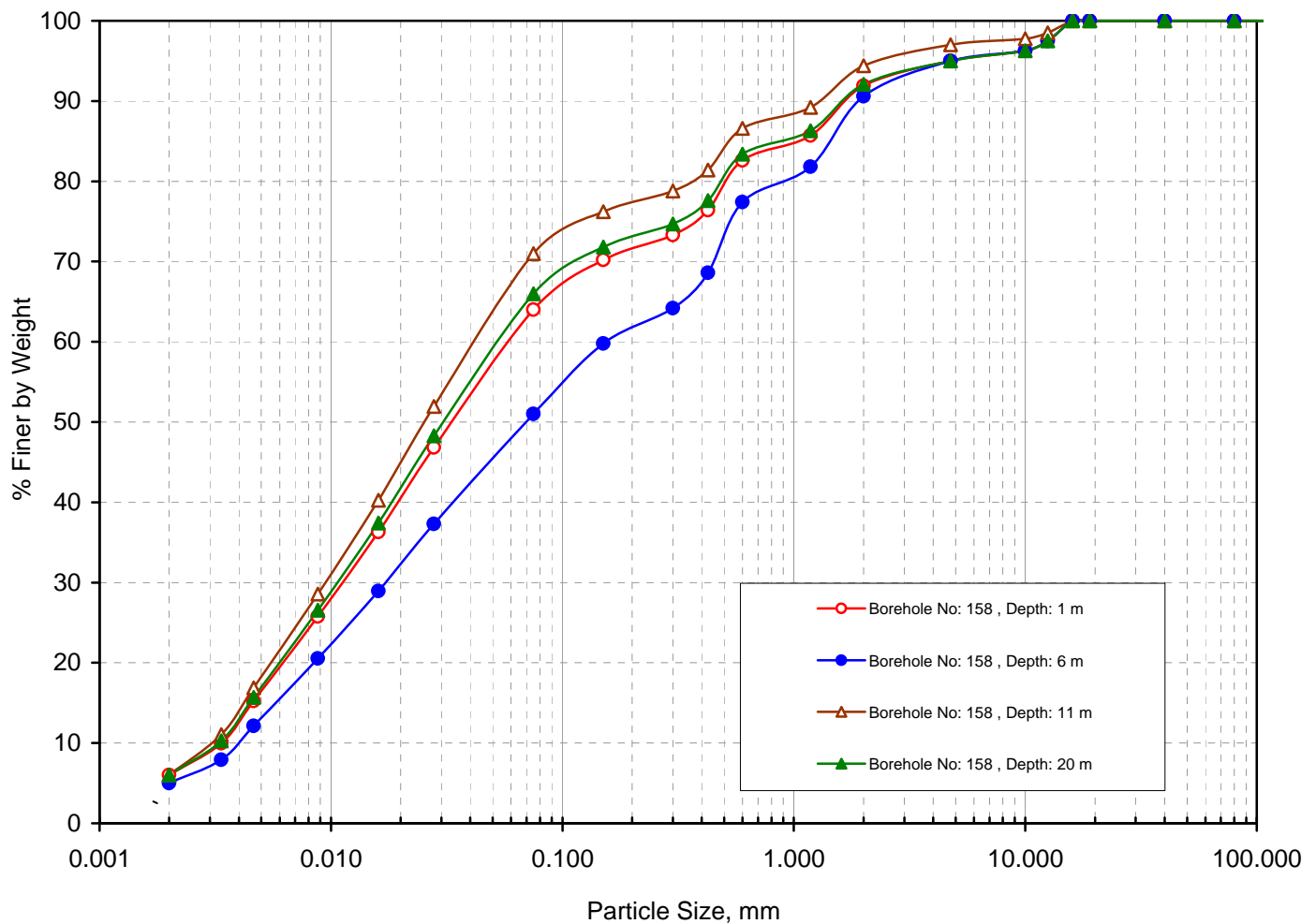
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-158	1.00	Sandy silt with gravels (CL)	5	31	58	6	0.064	0.012	0.003	21.3	0.75
BH-158	6.00	Sandy silt with gravels (CL)	5	44	46	5	0.157	0.018	0.004	39.3	0.52
BH-158	11.00	Sandy silt with traces of gravels (CL)	3	26	65	6	0.048	0.010	0.003	16.0	0.69
BH-158	20.00	Sandy silt with gravels (CL)	5	29	60	6	0.059	0.011	0.003	19.7	0.68

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



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## Grain Size Analysis

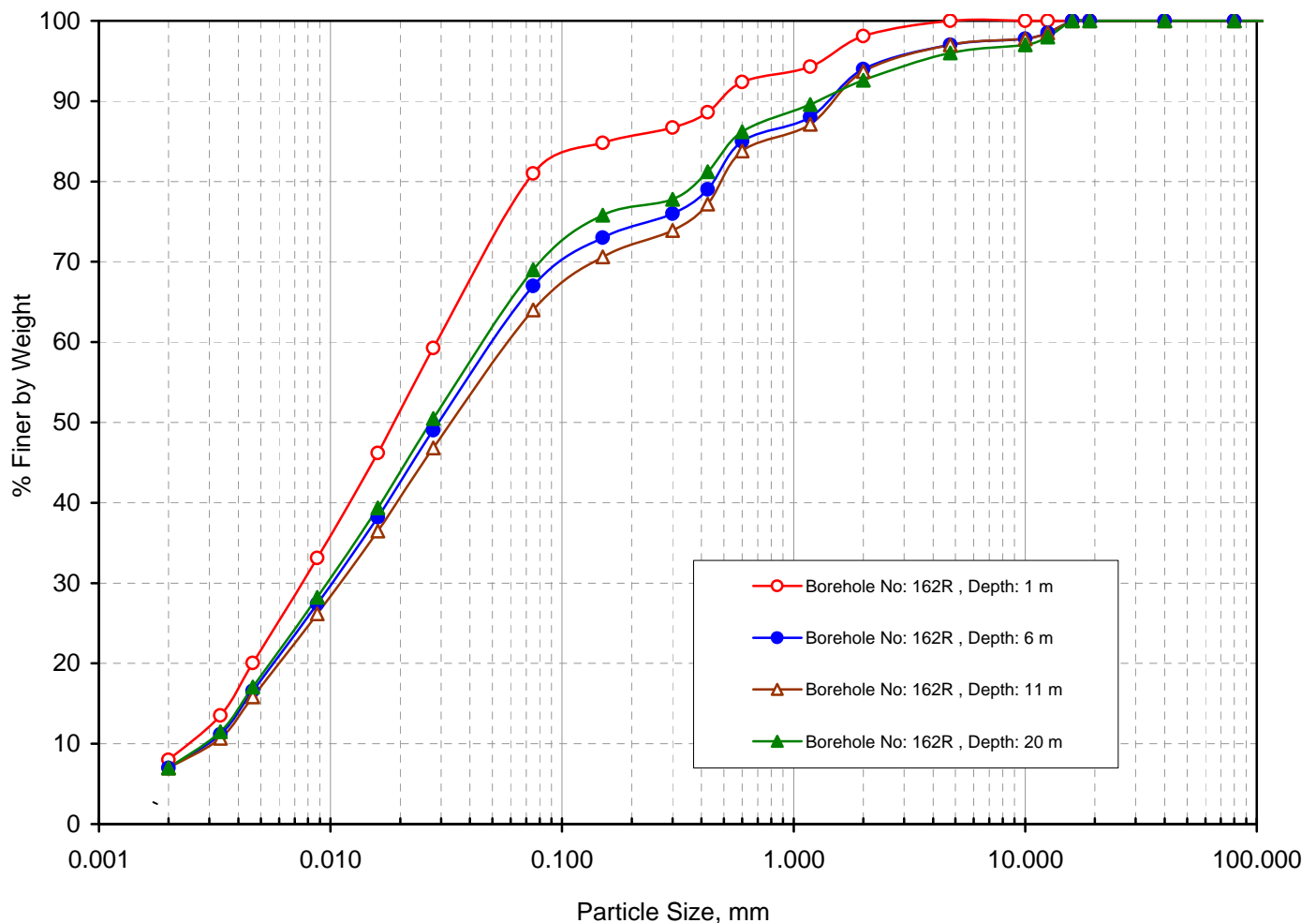
IS : 2720 (Part 4) - 1985, RA-2010

Sample Details			Test Results								
Borehole Number	Sample Depth, m	Sample Description	% Gravel	% Sand	% Silt	% Clay	D ₆₀	D ₃₀	D ₁₀	C _u	C _c
BH-162R	1.00	Sandy silt (CL)	0	19	73	8	0.029	0.008	0.002	14.5	1.10
BH-162R	6.00	Sandy silt with traces of gravels (CL)	3	30	60	7	0.057	0.011	0.003	19.0	0.71
BH-162R	11.00	Sandy silt with traces of gravels (CL)	3	33	57	7	0.064	0.011	0.003	21.3	0.63
BH-162R	20.00	Sandy silt with traces of gravels (CL)	4	27	62	7	0.052	0.010	0.003	17.3	0.64

Hydrometer Analysis

Sieve Analysis

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



Grain Size Distribution Curve

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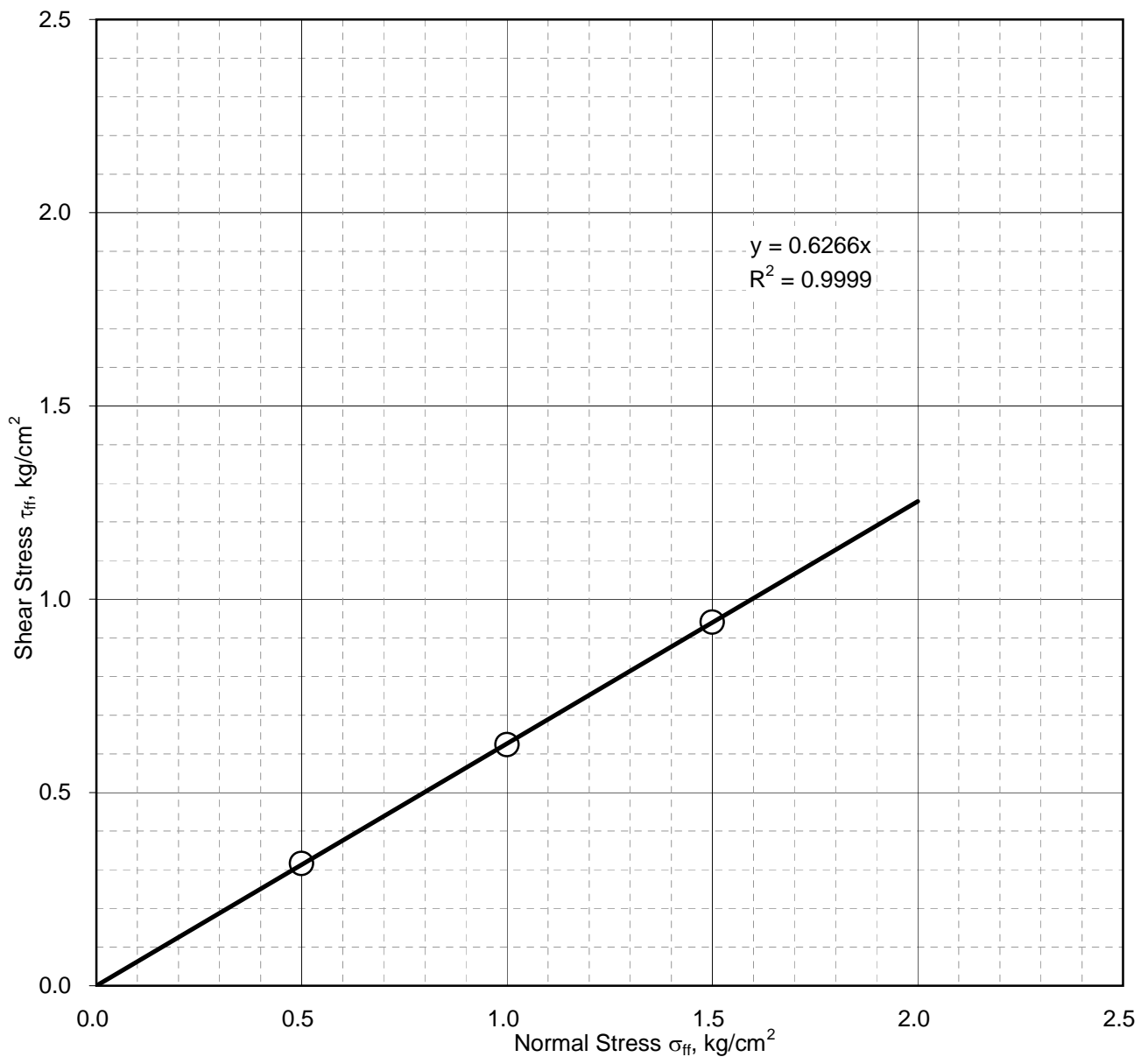




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-89	Sample Depth: 8 m	
	Sample No.: UDS-4	Sample Description: Sandy silt	
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.60
	Moisture Content (%):		Saturated
	Cohesion Intercept, $c$ :		0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		32.1 degrees



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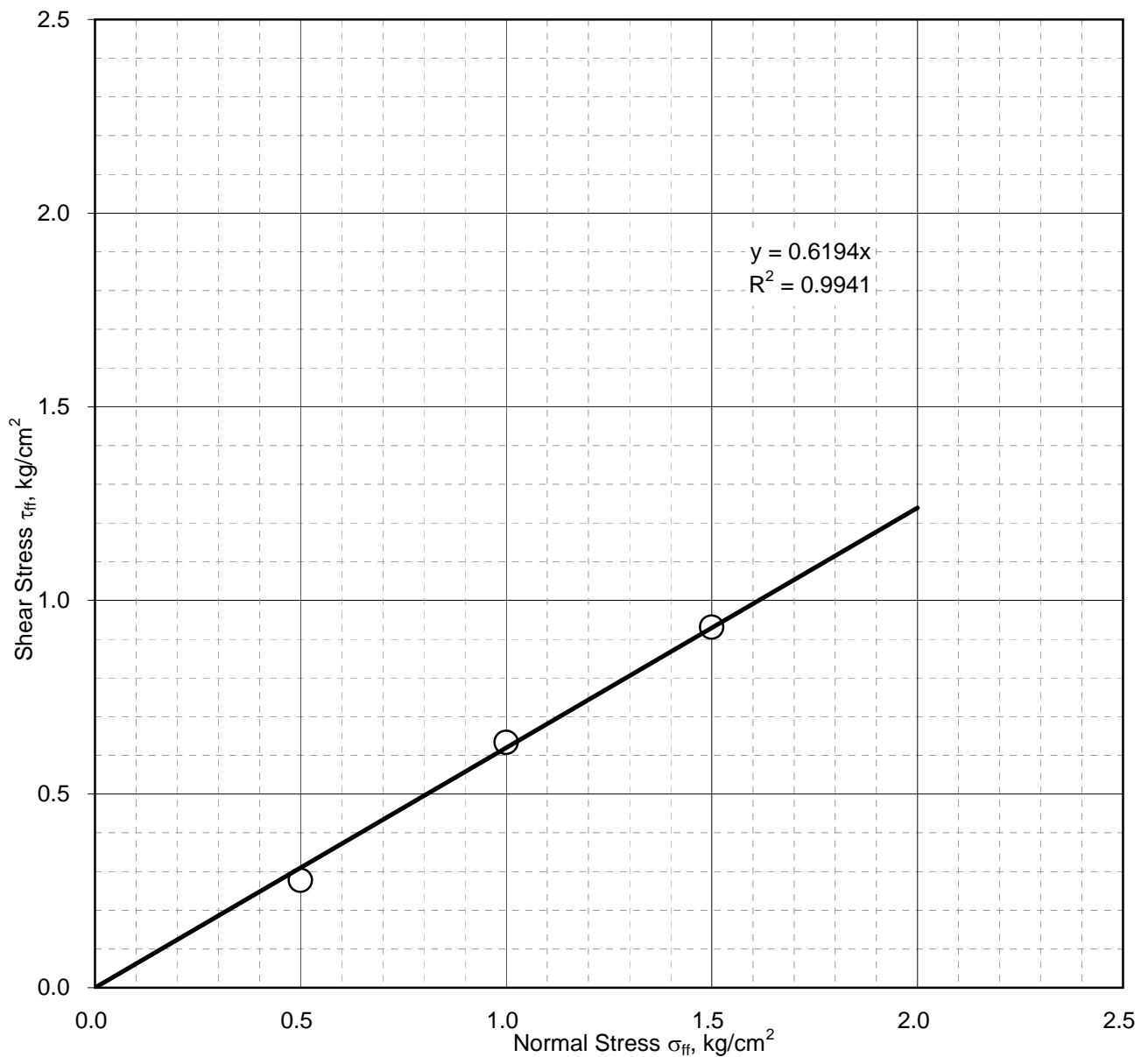




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-90	Sample Depth: 8 m
	Sample No.: UDS-4	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.59
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.8 degrees



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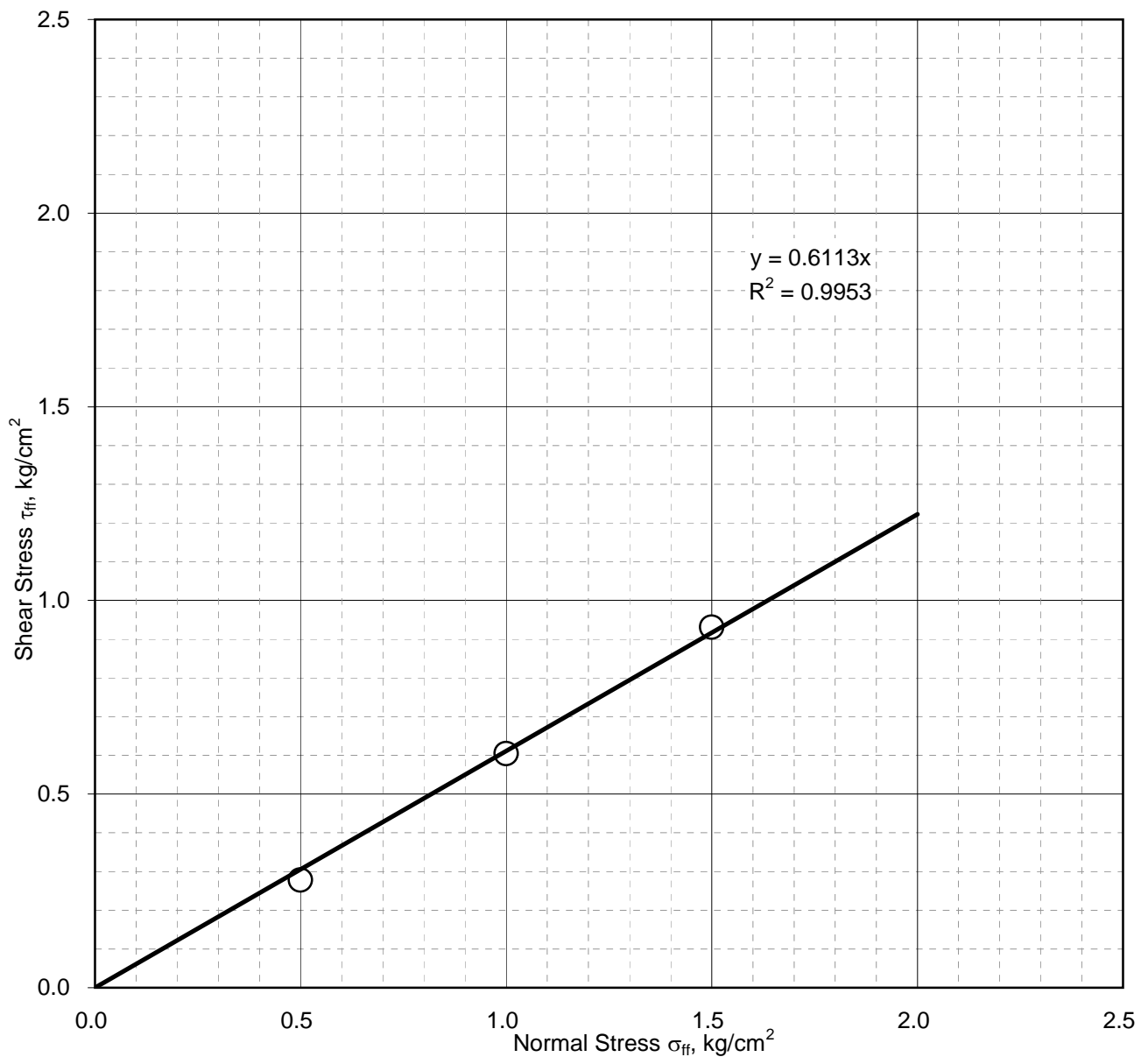




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Test Results	Borehole No.: BH-91		Sample Depth: 4 m	
	Sample No.: UDS-2		Sample Description: Sandy silt	
	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.55	
	Moisture Content (%):		Saturated	
	Cohesion Intercept, $c$ :		0.00	$\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		31.4	degrees



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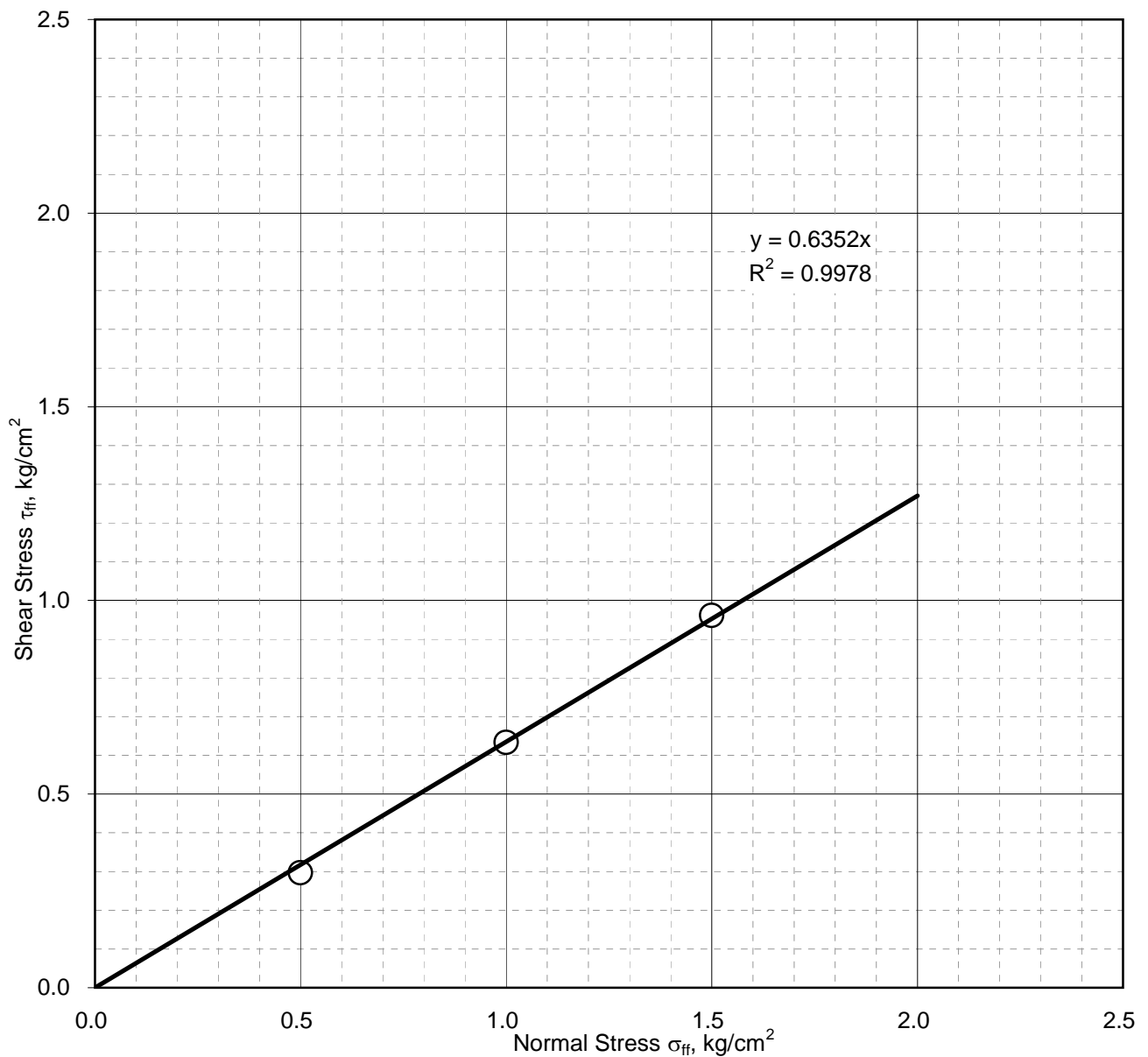




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-92	Sample Depth: 6 m
	Sample No.: UDS-3	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.62
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.4 degrees



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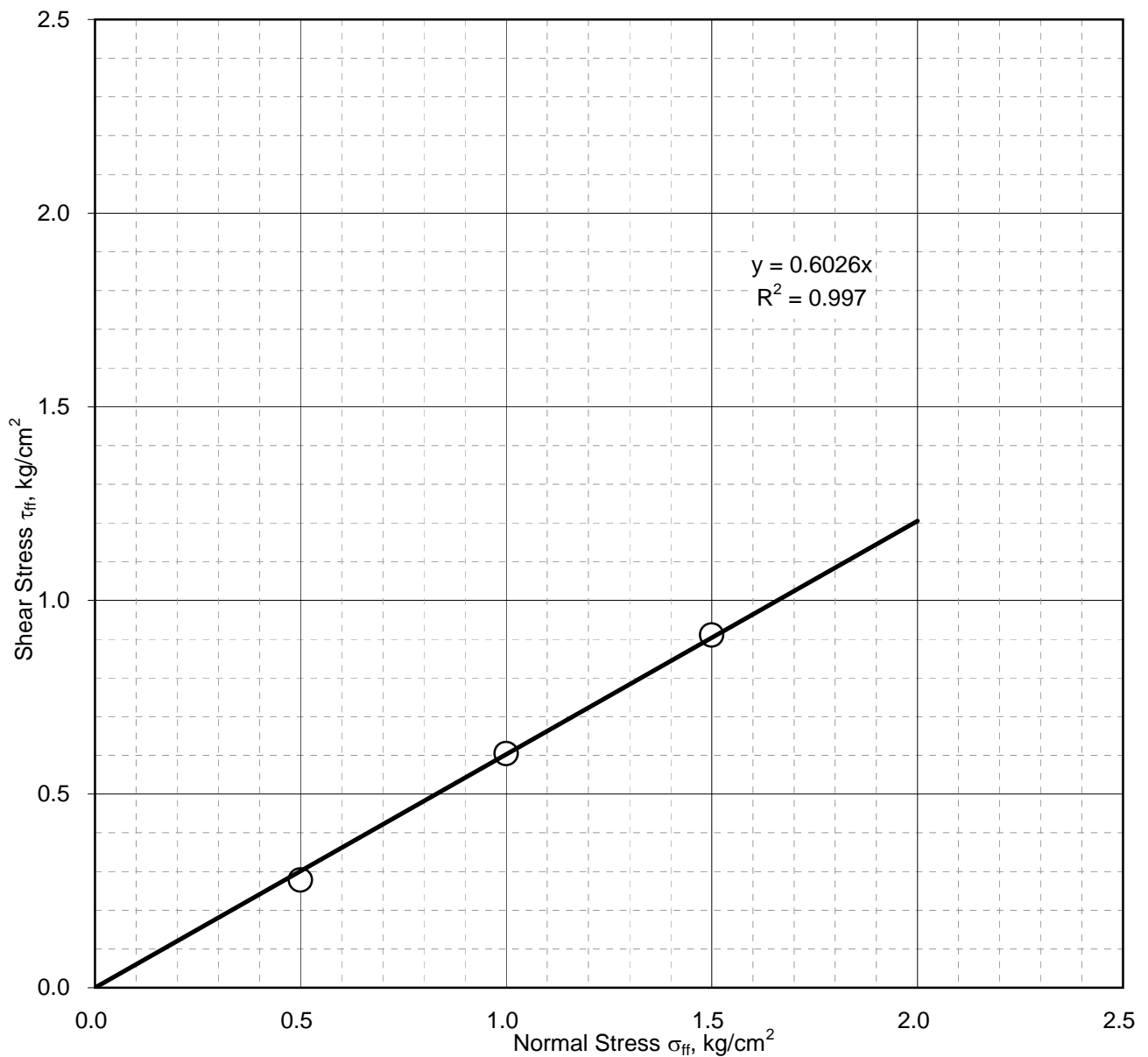




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-93	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.56
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.1 degrees



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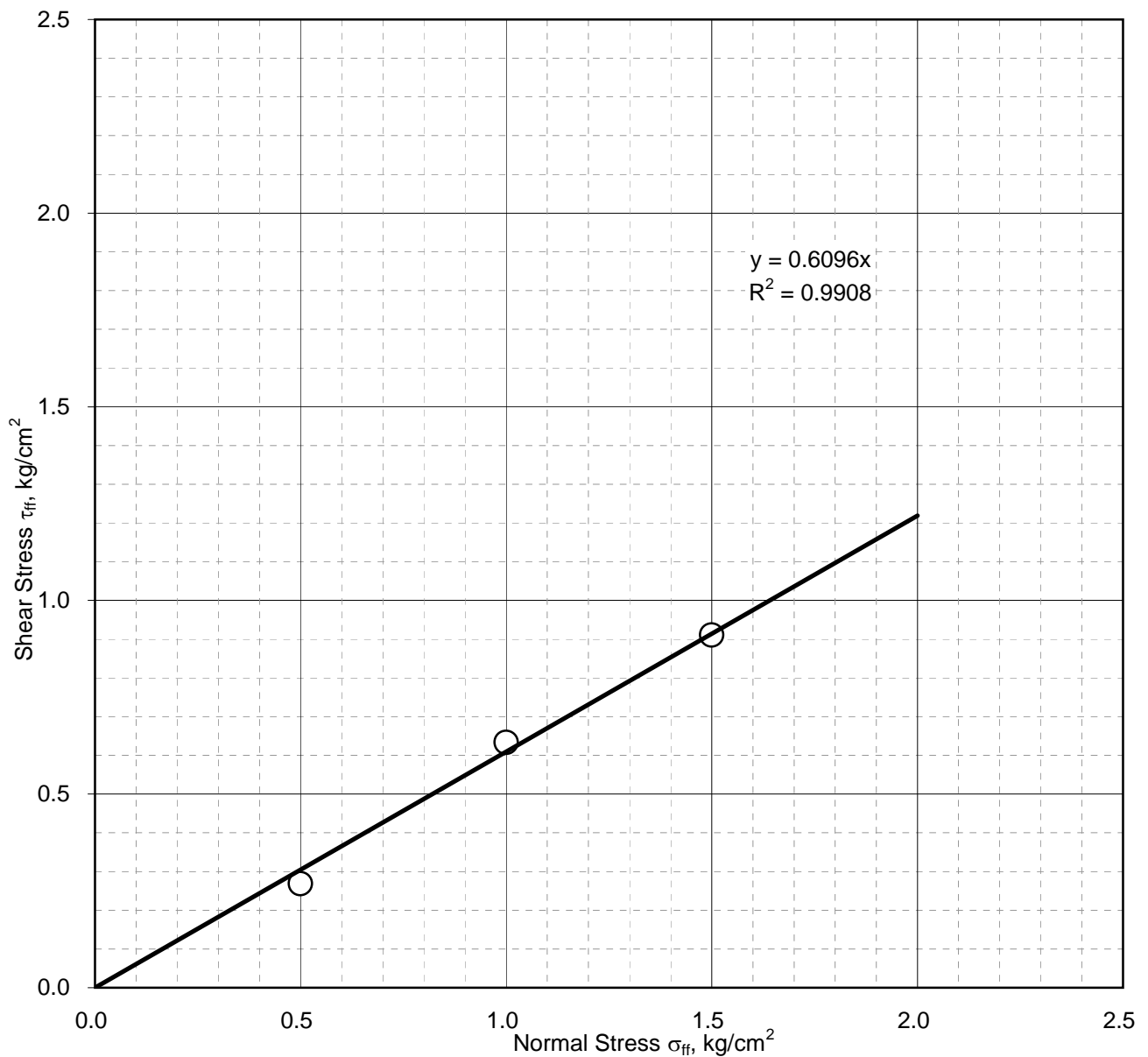




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-94	Sample Depth: 6 m
	Sample No.: UDS-3	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.57
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.4 degrees



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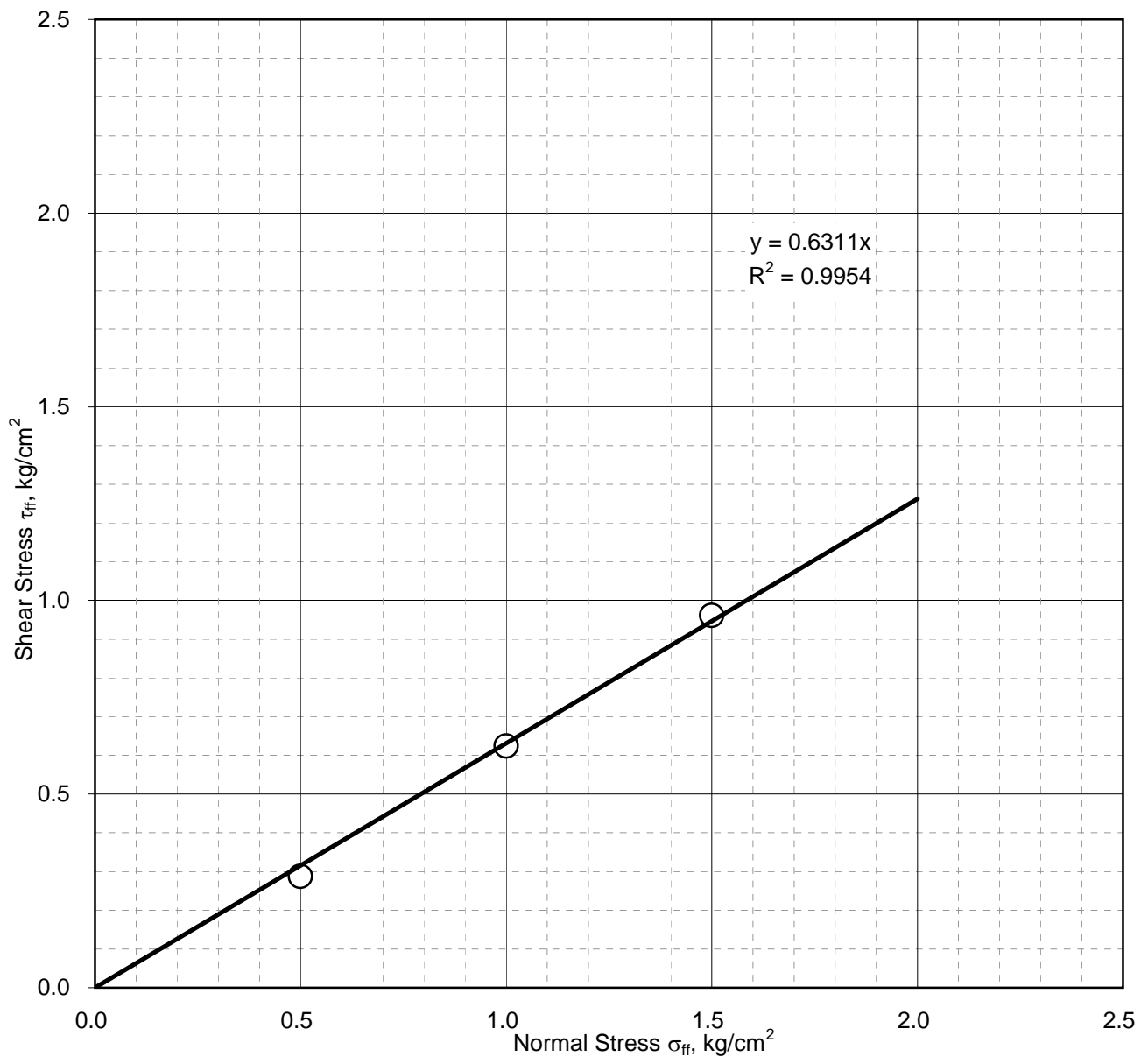




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-95	Sample Depth: 14 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.62
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.3 degrees



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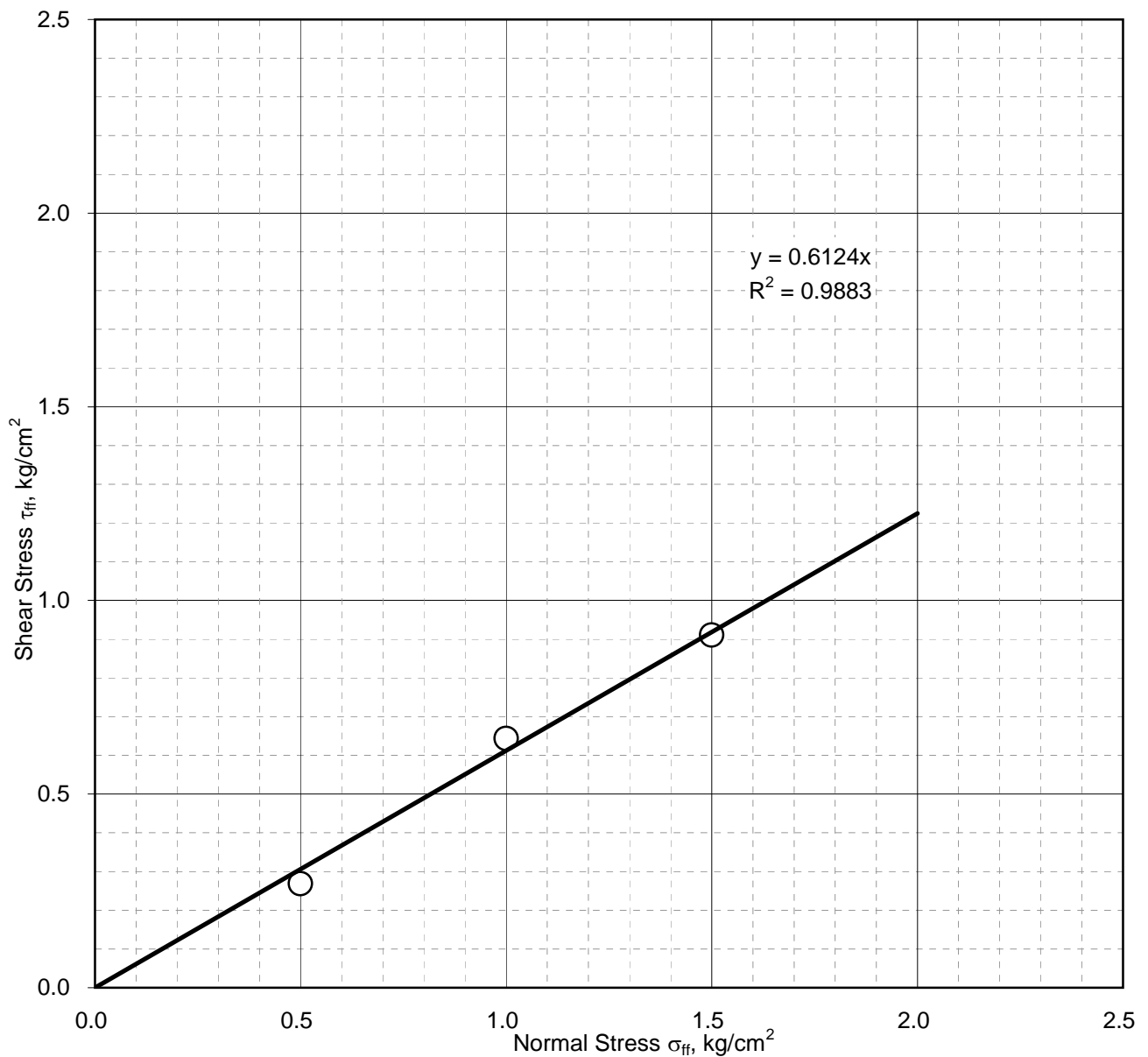




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-96	Sample Depth: 11 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.57
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.5 degrees



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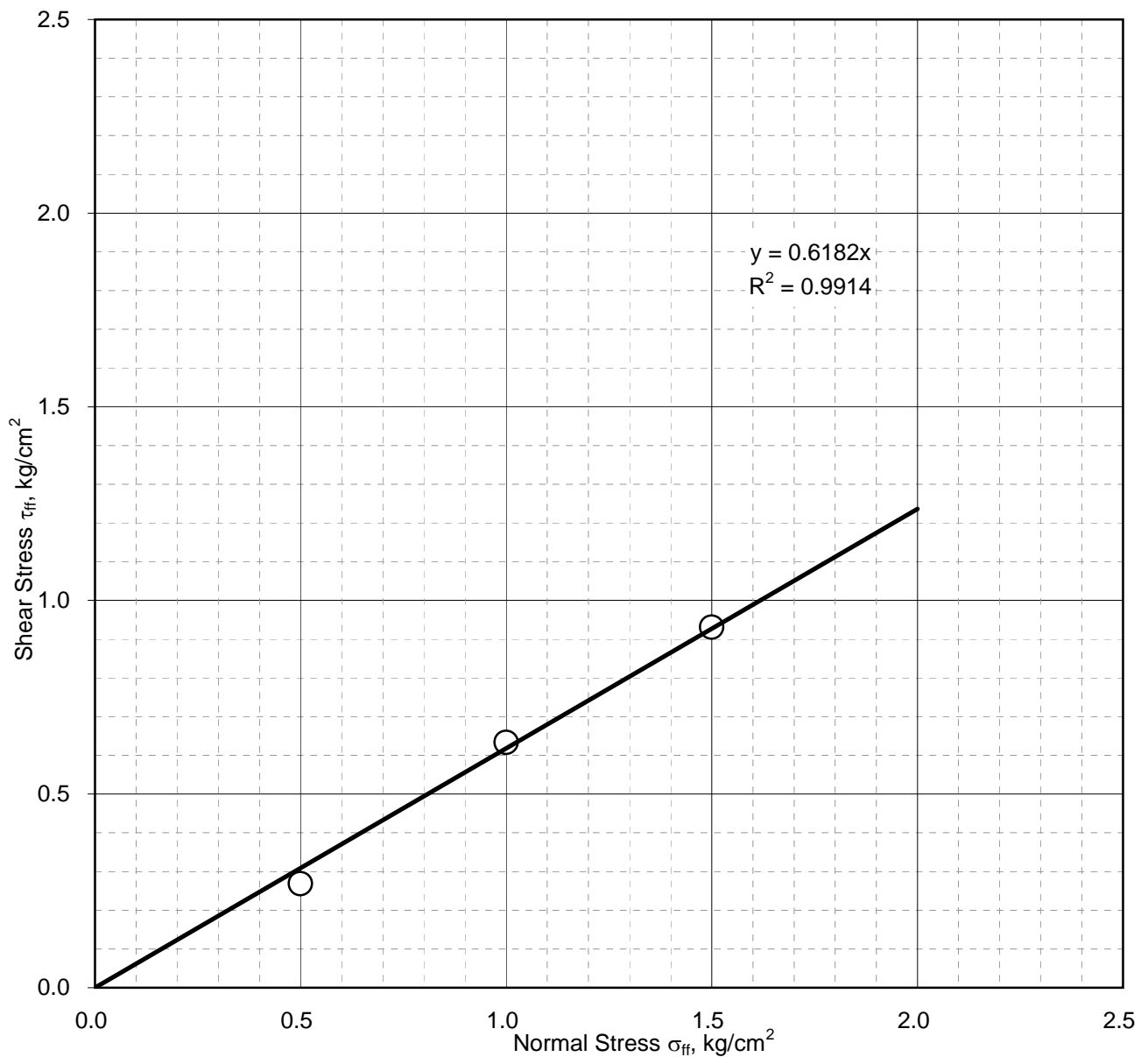




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-98	Sample Depth: 11 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.59
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.7 degrees



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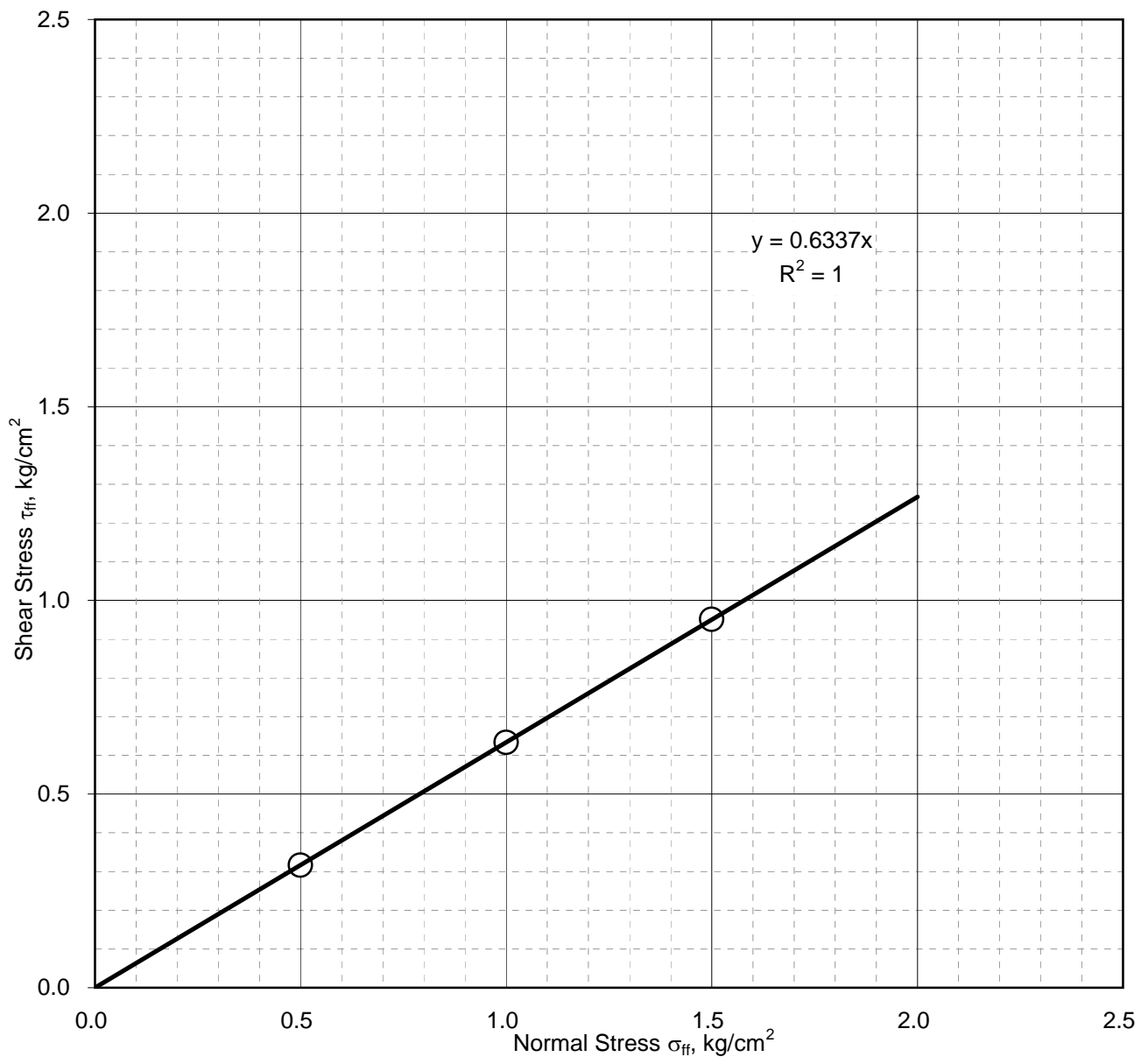




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-99	Sample Depth: 6 m
	Sample No.: UDS-3	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.61
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.4 degrees



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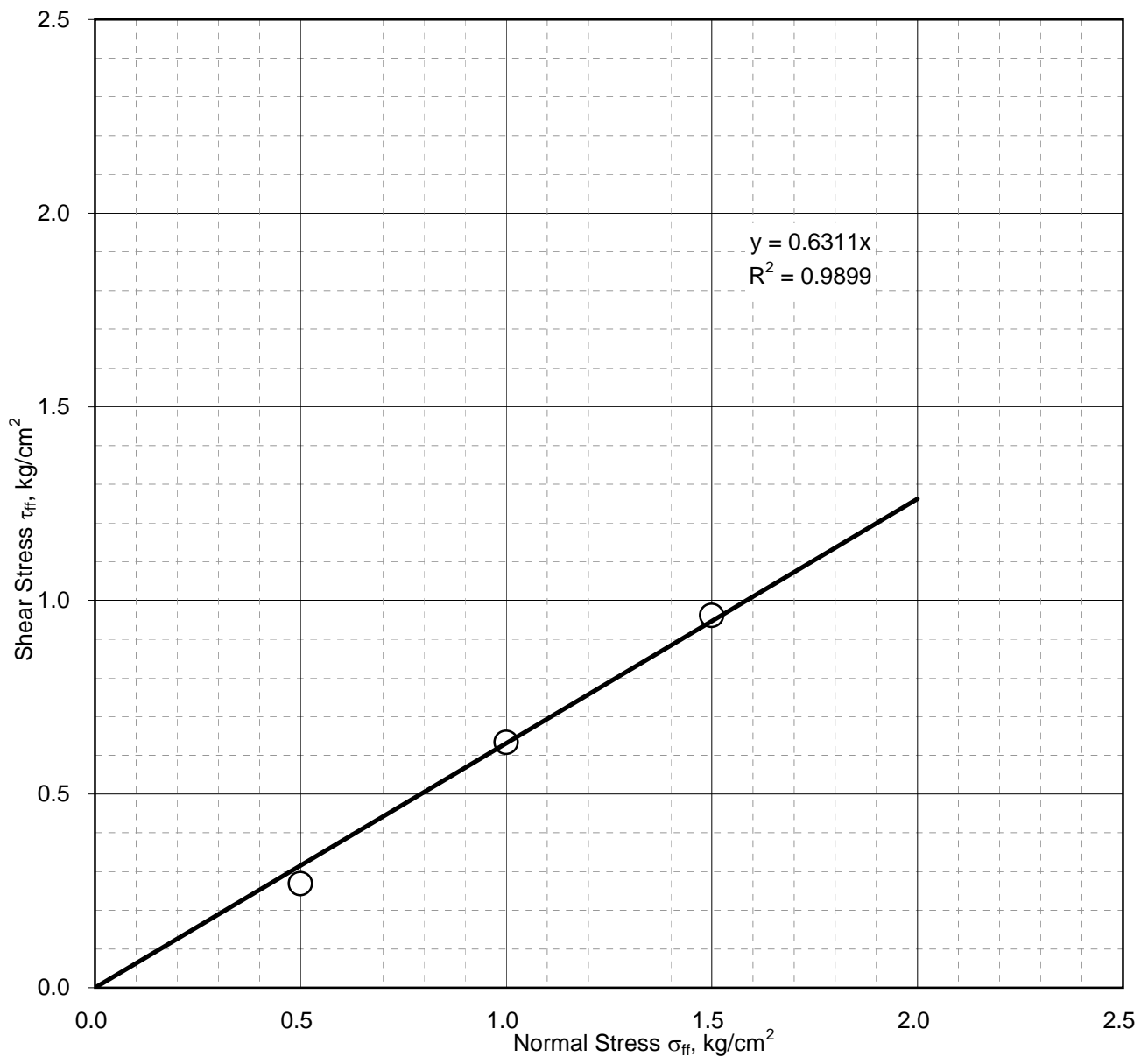




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-100	Sample Depth: 11 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.61
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.3 degrees



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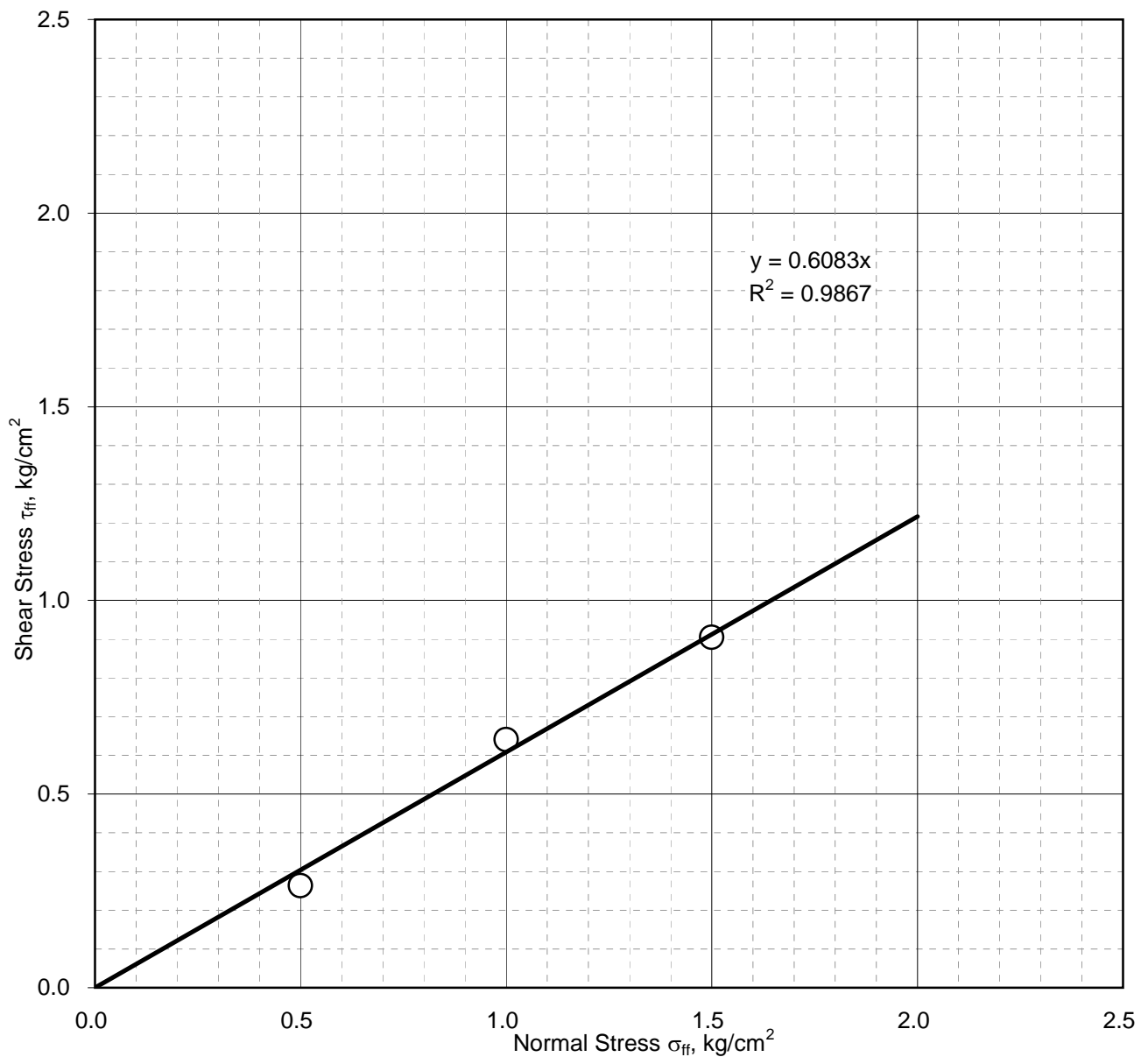




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Test Results	Borehole No.: BH-101		Sample Depth: 6 m	
	Sample No.: UDS-3		Sample Description: Sandy silt	
	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.56	
	Moisture Content (%):		Saturated	
	Cohesion Intercept, $c$ :		0.00	$\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		31.3	degrees



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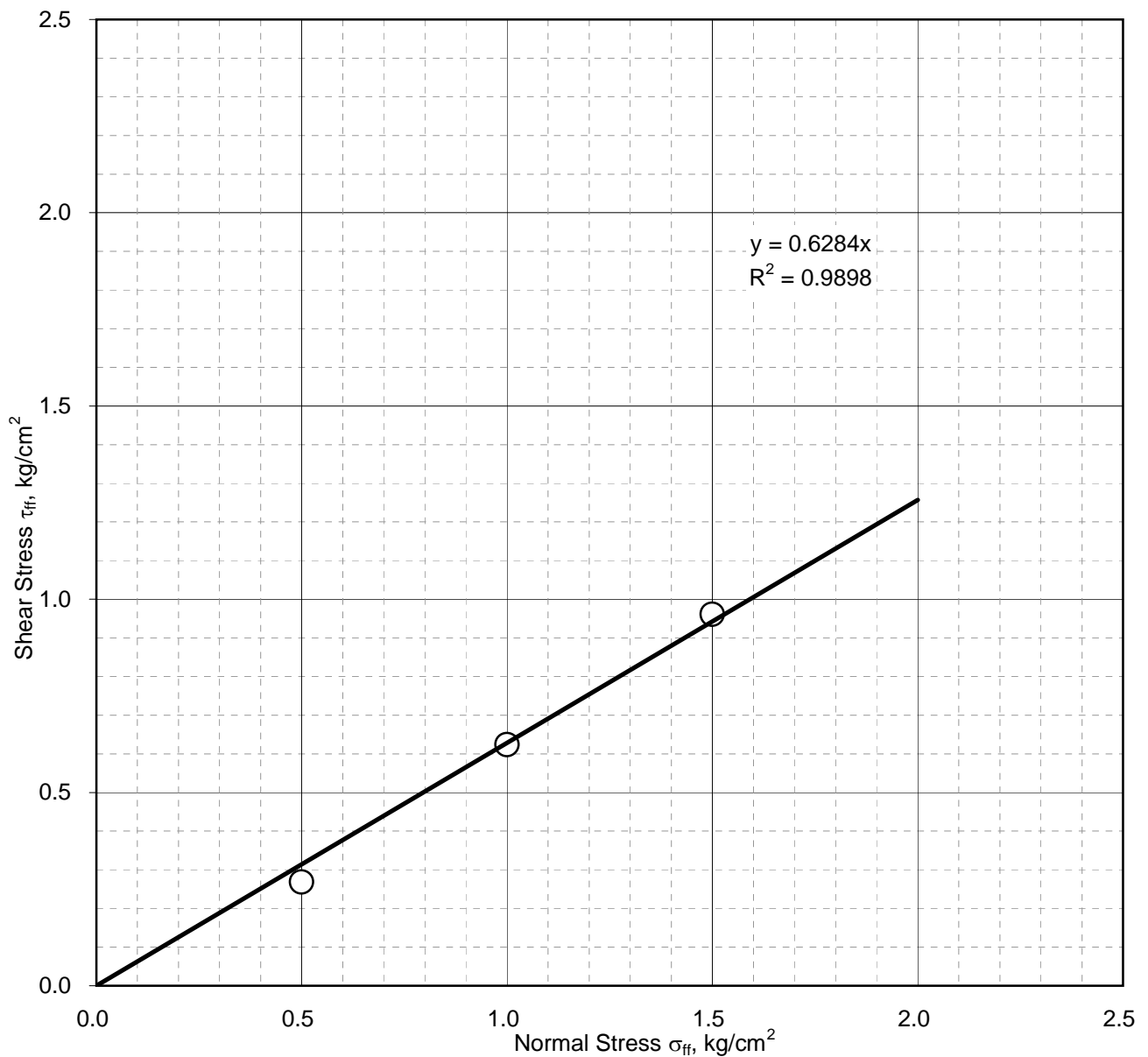




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-102	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.60
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.1 degrees



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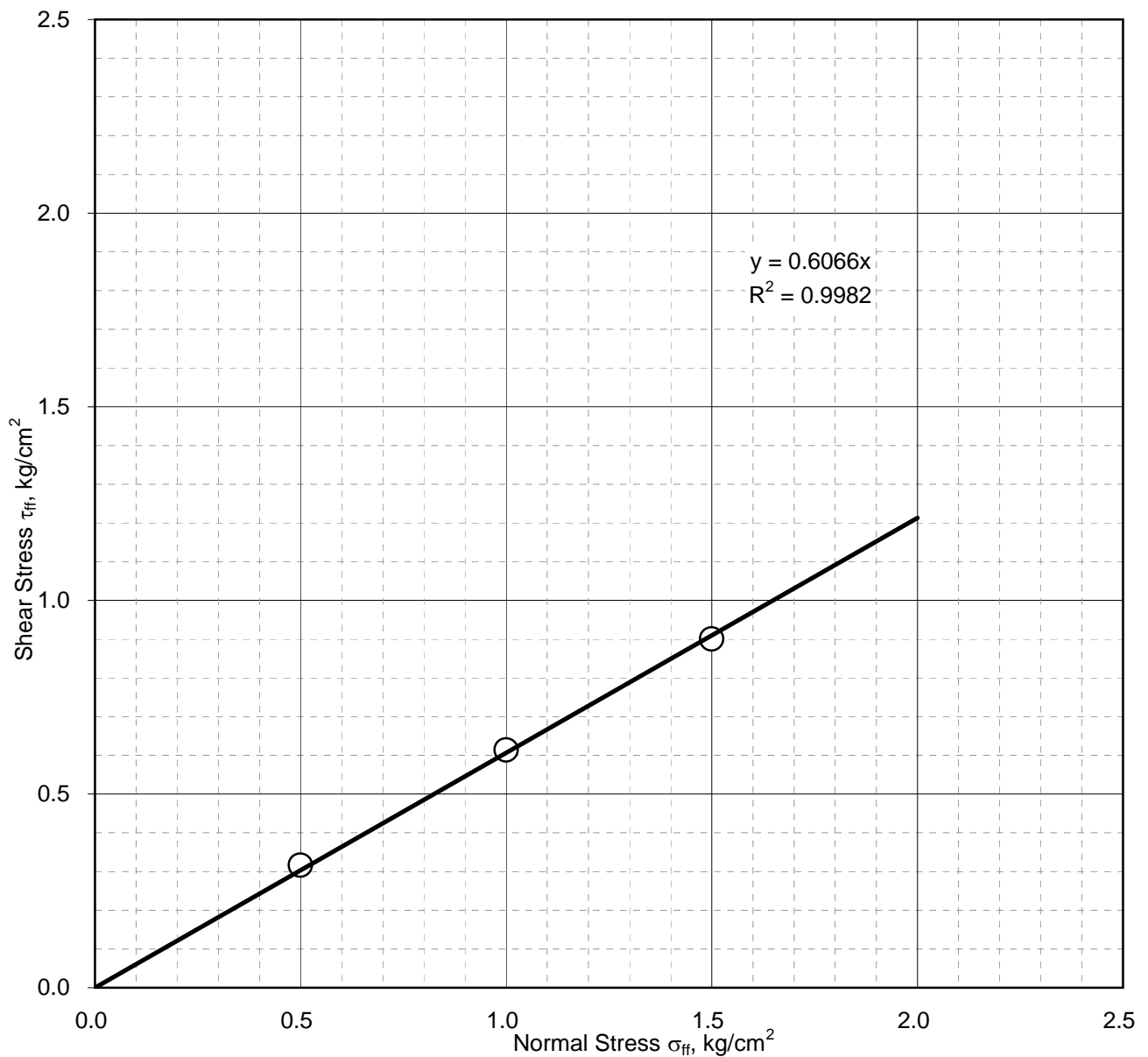




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Test Results	Borehole No.: BH-103		Sample Depth: 8 m	
	Sample No.: UDS-4		Sample Description: Sandy silt	
	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.56	
	Moisture Content (%):		Saturated	
	Cohesion Intercept, $c$ :		0.00	$\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		31.2	degrees



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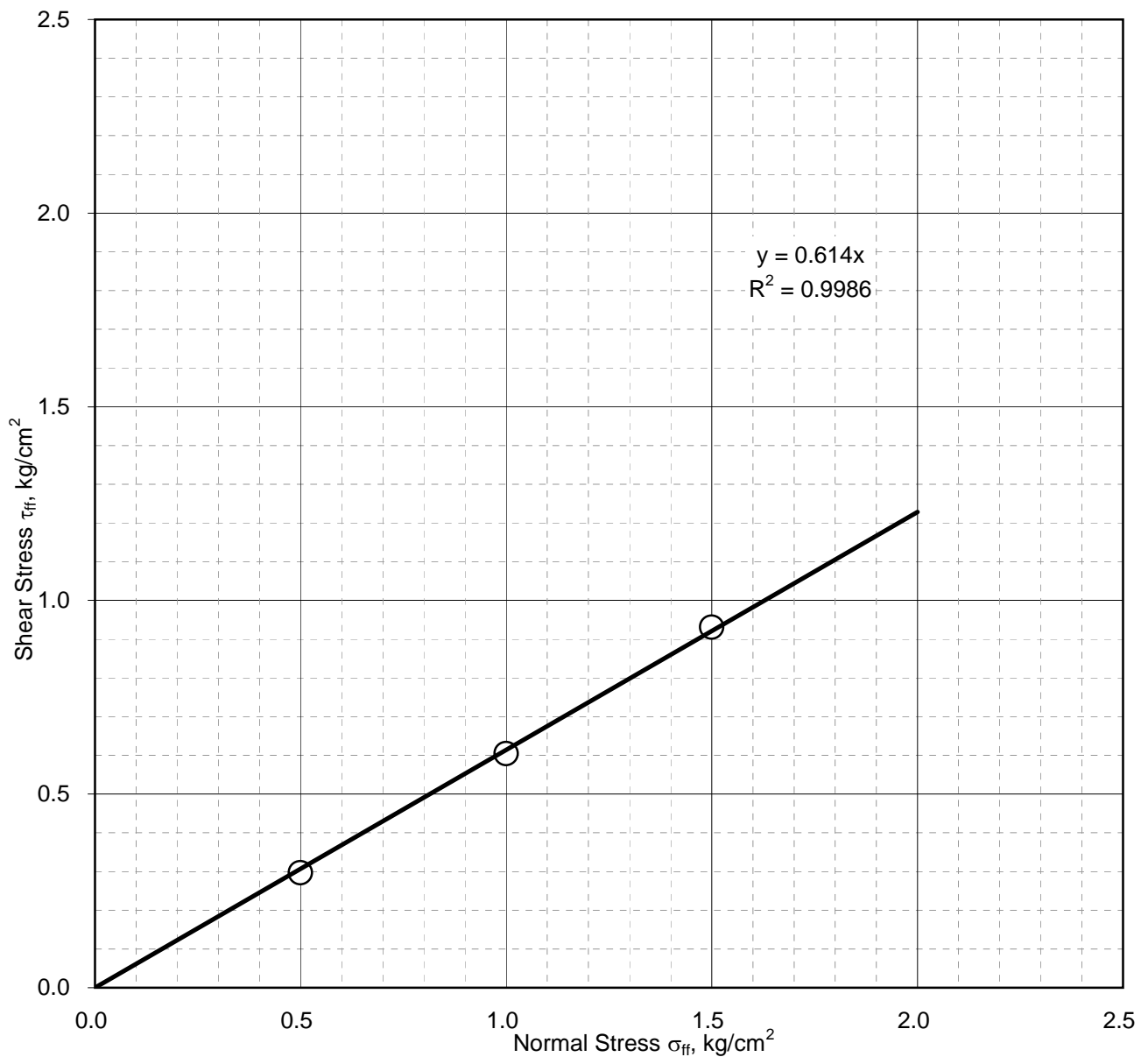




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-104	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.58
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.5 degrees



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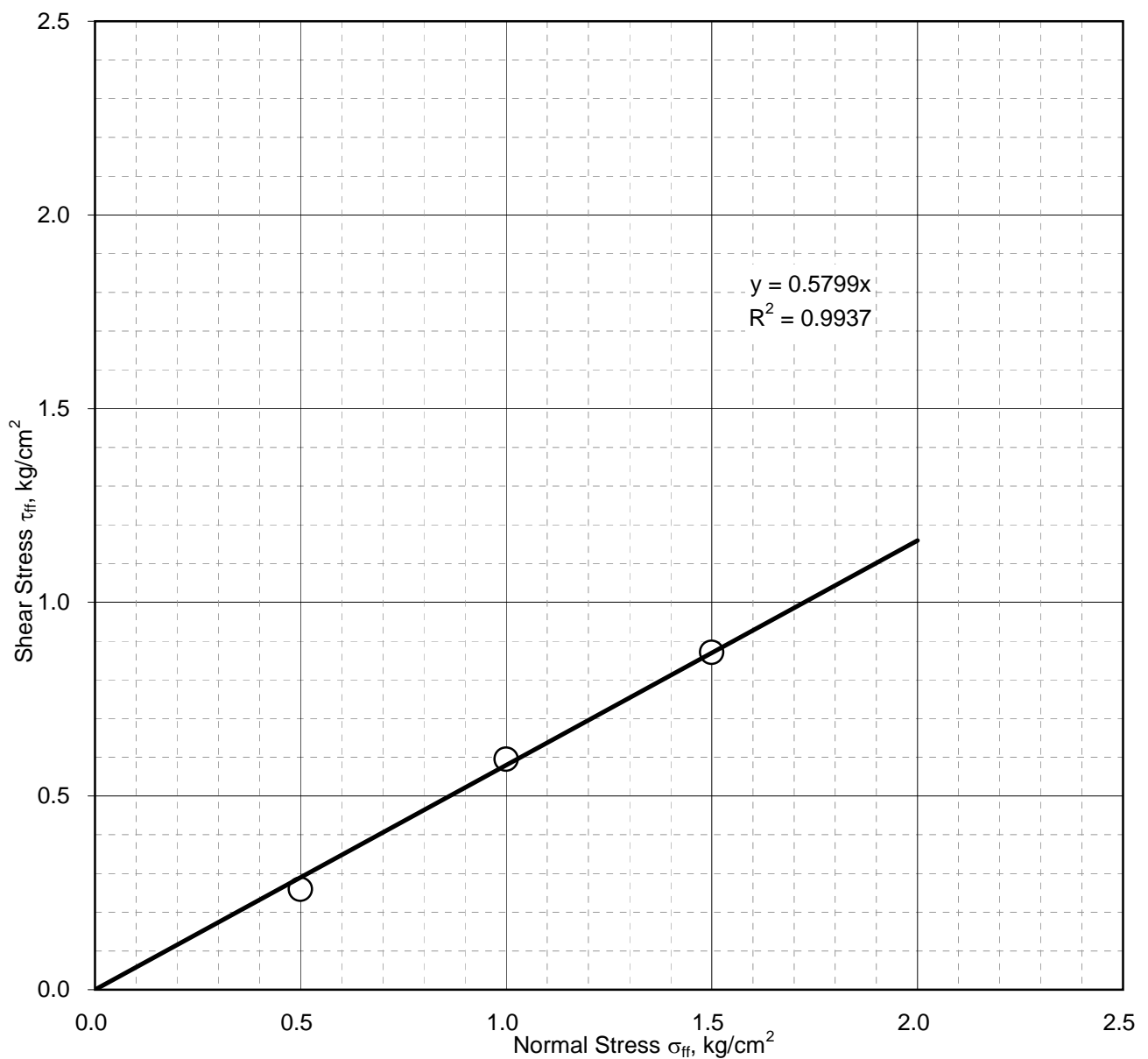




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Test Results	Borehole No.: BH-105		Sample Depth: 8 m	
	Sample No.: UDS-4		Sample Description: Sandy silt	
	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.51	
	Moisture Content (%):		Saturated	
	Cohesion Intercept, $c$ :		0.00	$\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		30.1	degrees



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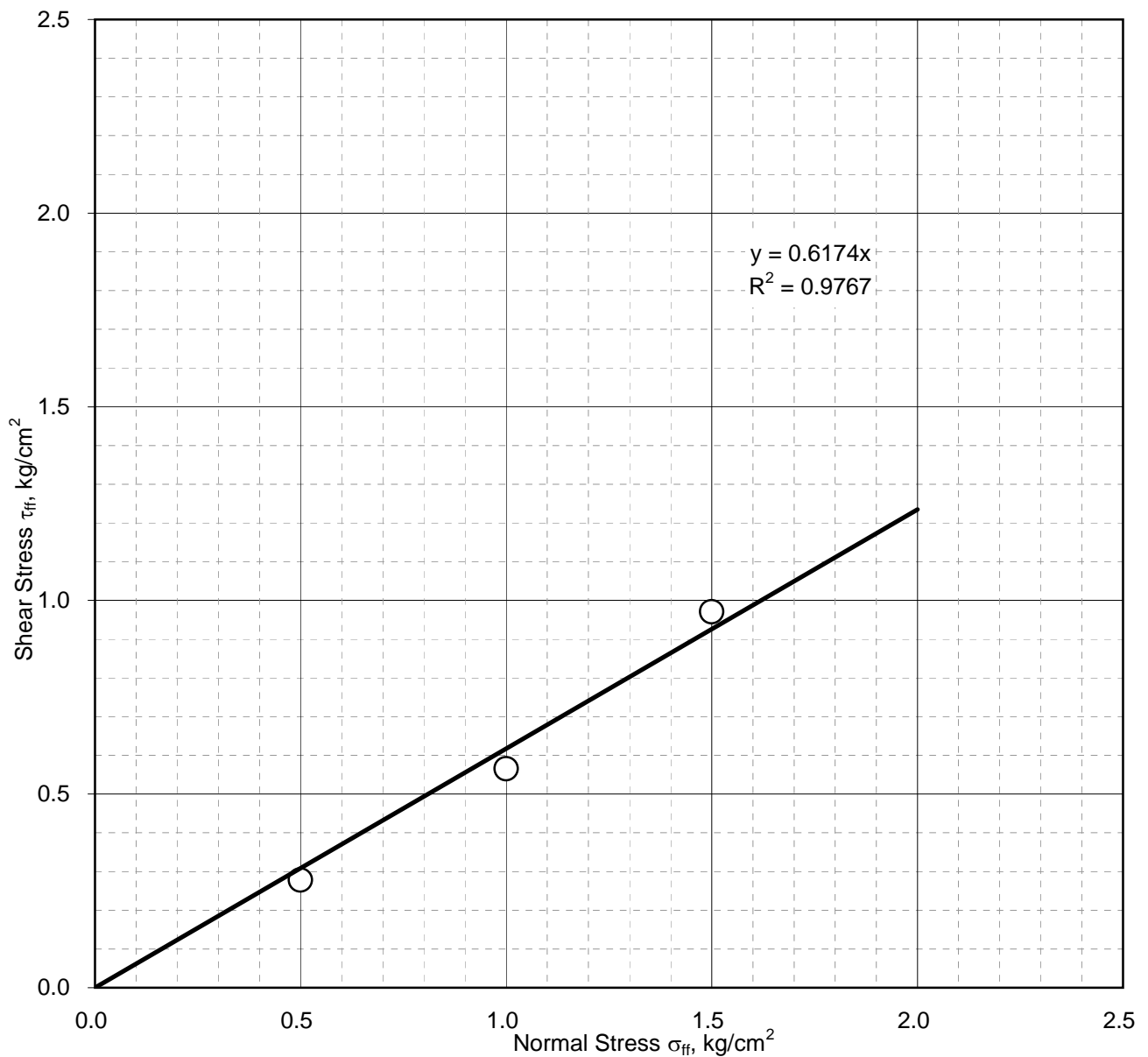




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-106	Sample Depth: 11 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.59
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.7 degrees



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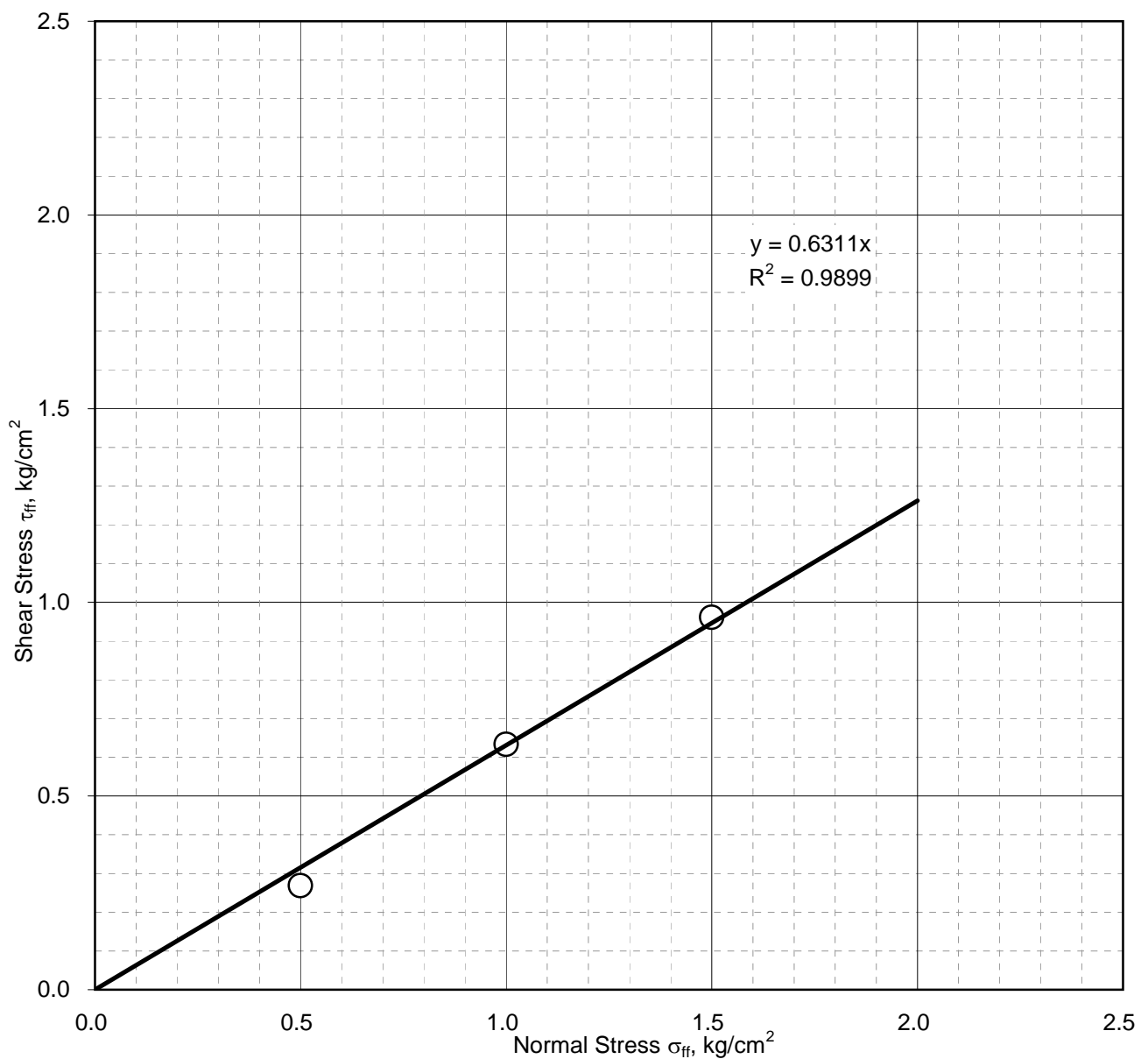




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Test Results	Borehole No.: BH-107		Sample Depth: 4 m	
	Sample No.: UDS-2		Sample Description: Sandy silt	
	Dry Density of Soil ( $\text{g/cm}^3$ ):		1.62	
	Moisture Content (%):		Saturated	
	Cohesion Intercept, $c$ :		0.00	$\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :		32.3	degrees



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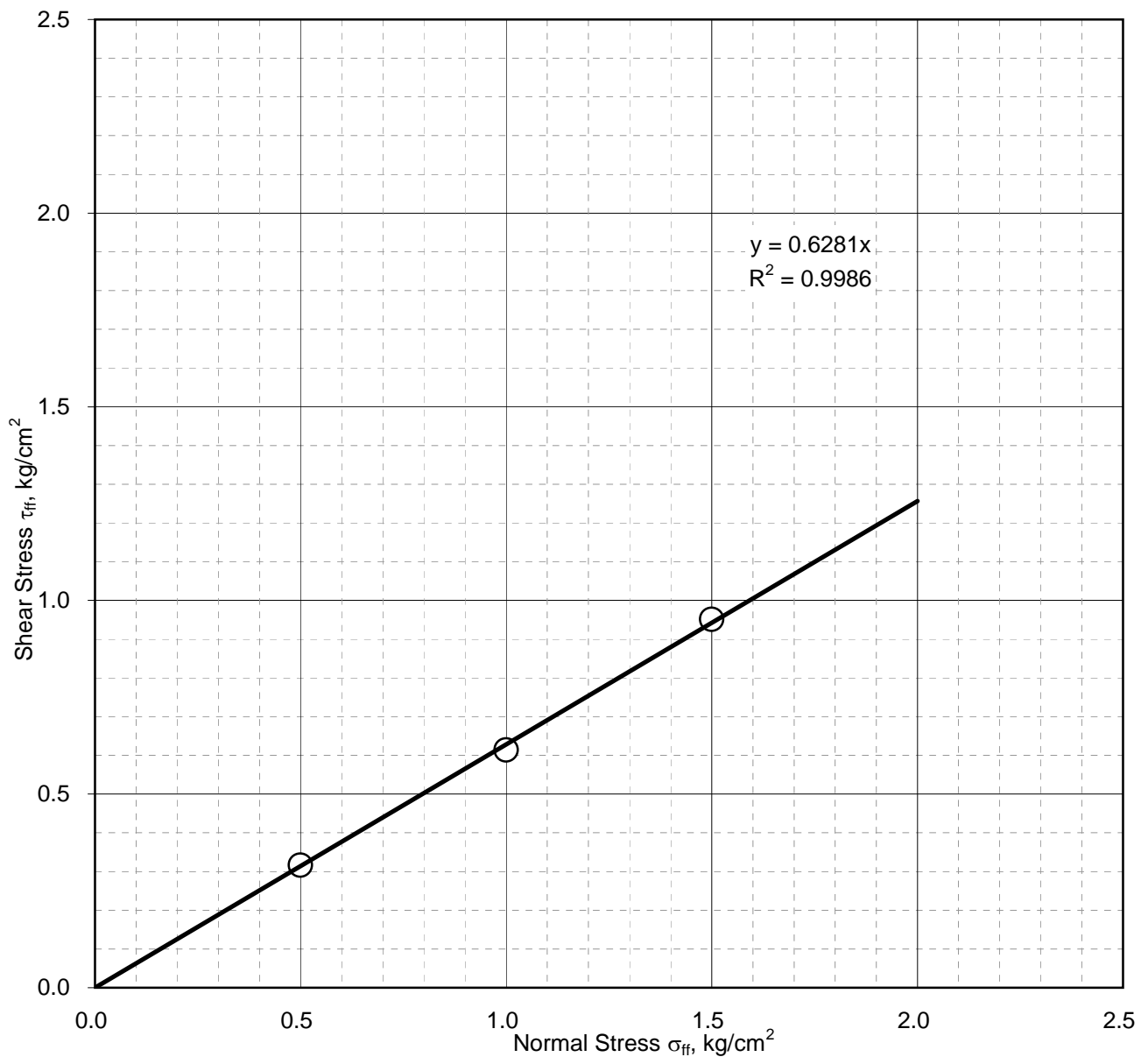




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-108	Sample Depth: 11 m
	Sample No.: UDS-4	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.61
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.1 degrees



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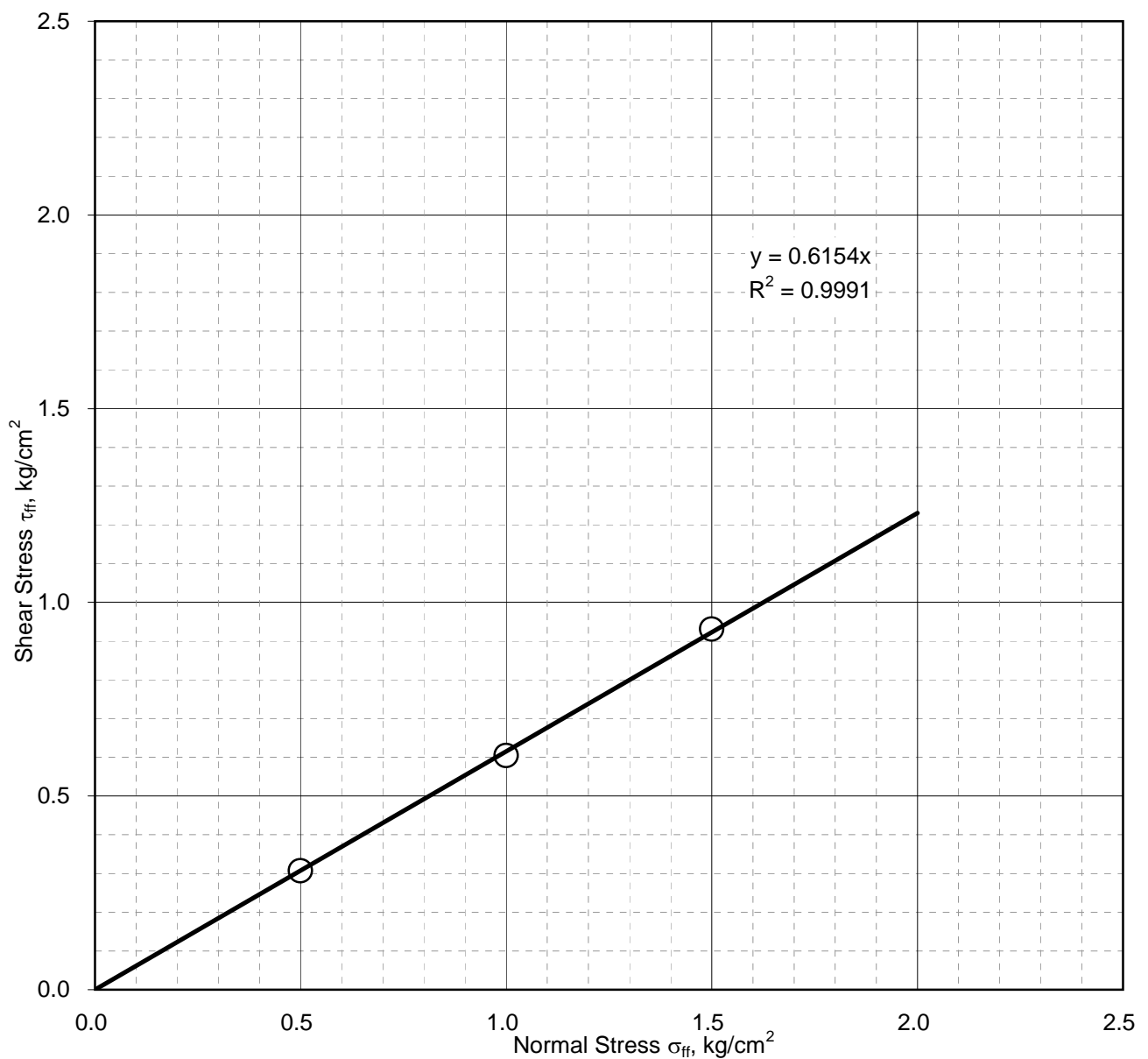




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-109	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.59
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.6 degrees



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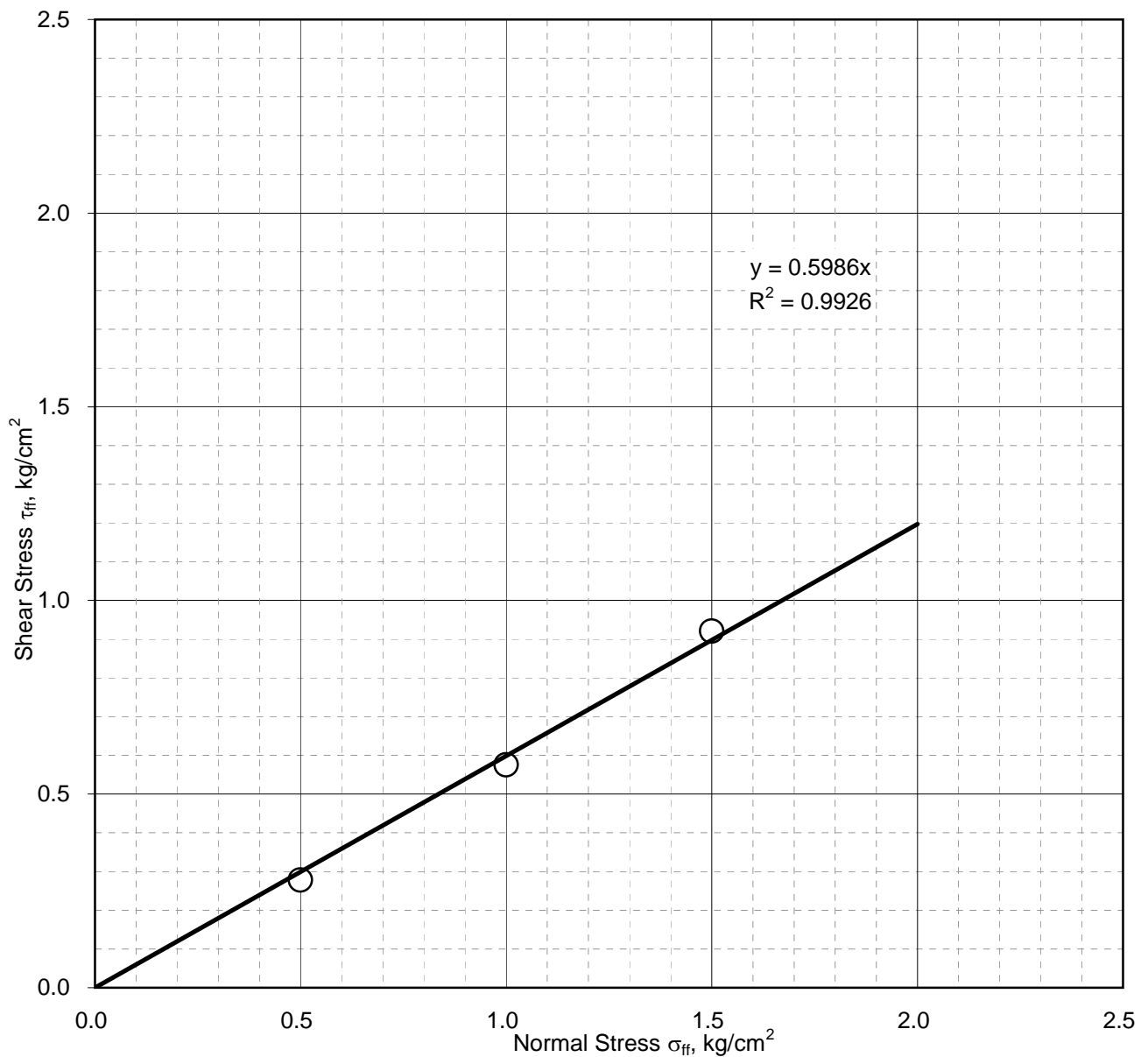




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-150	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.57
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	30.9 degrees



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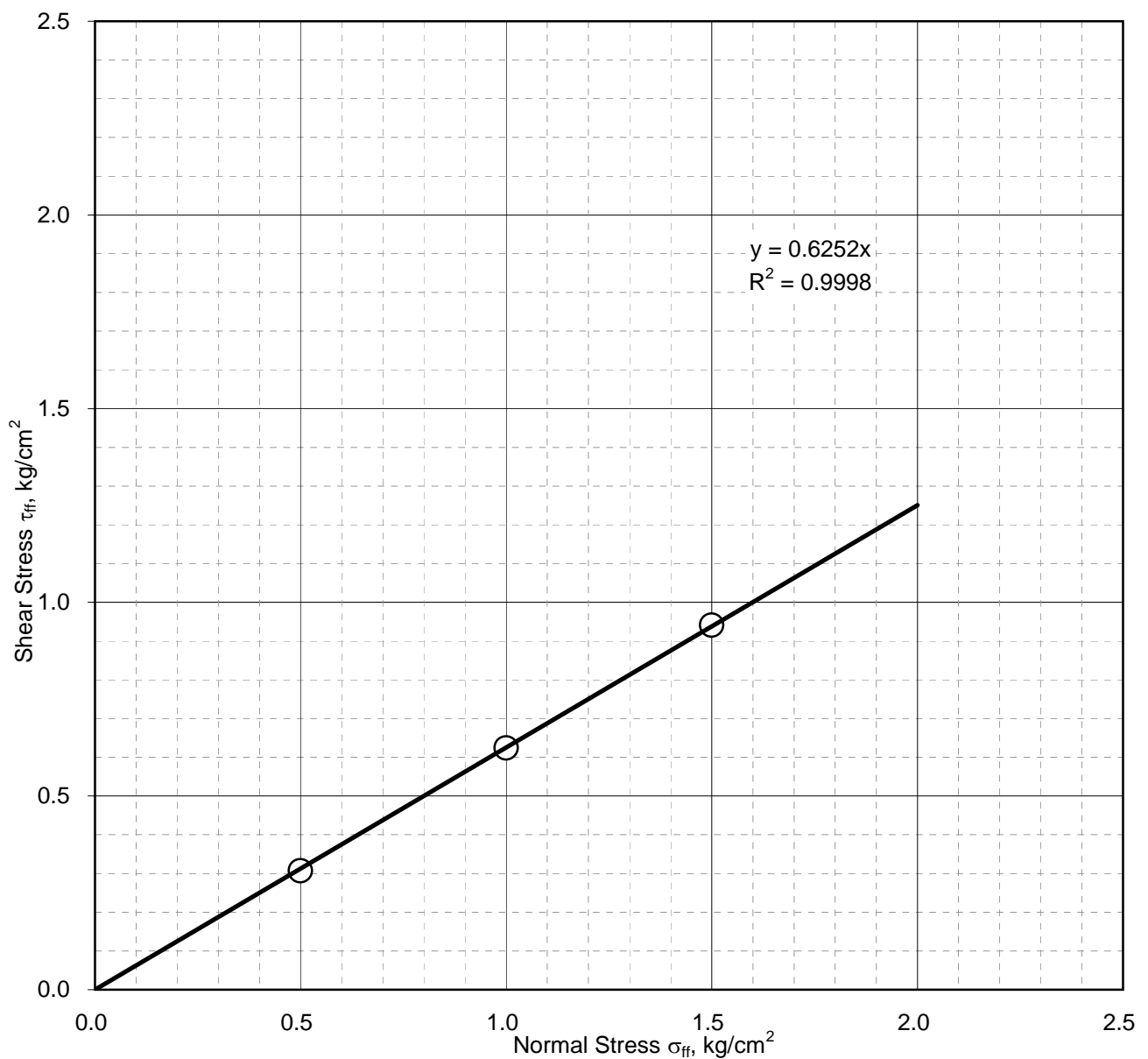




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-151	Sample Depth: 6 m
	Sample No.: UDS-3	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.60
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.0 degrees



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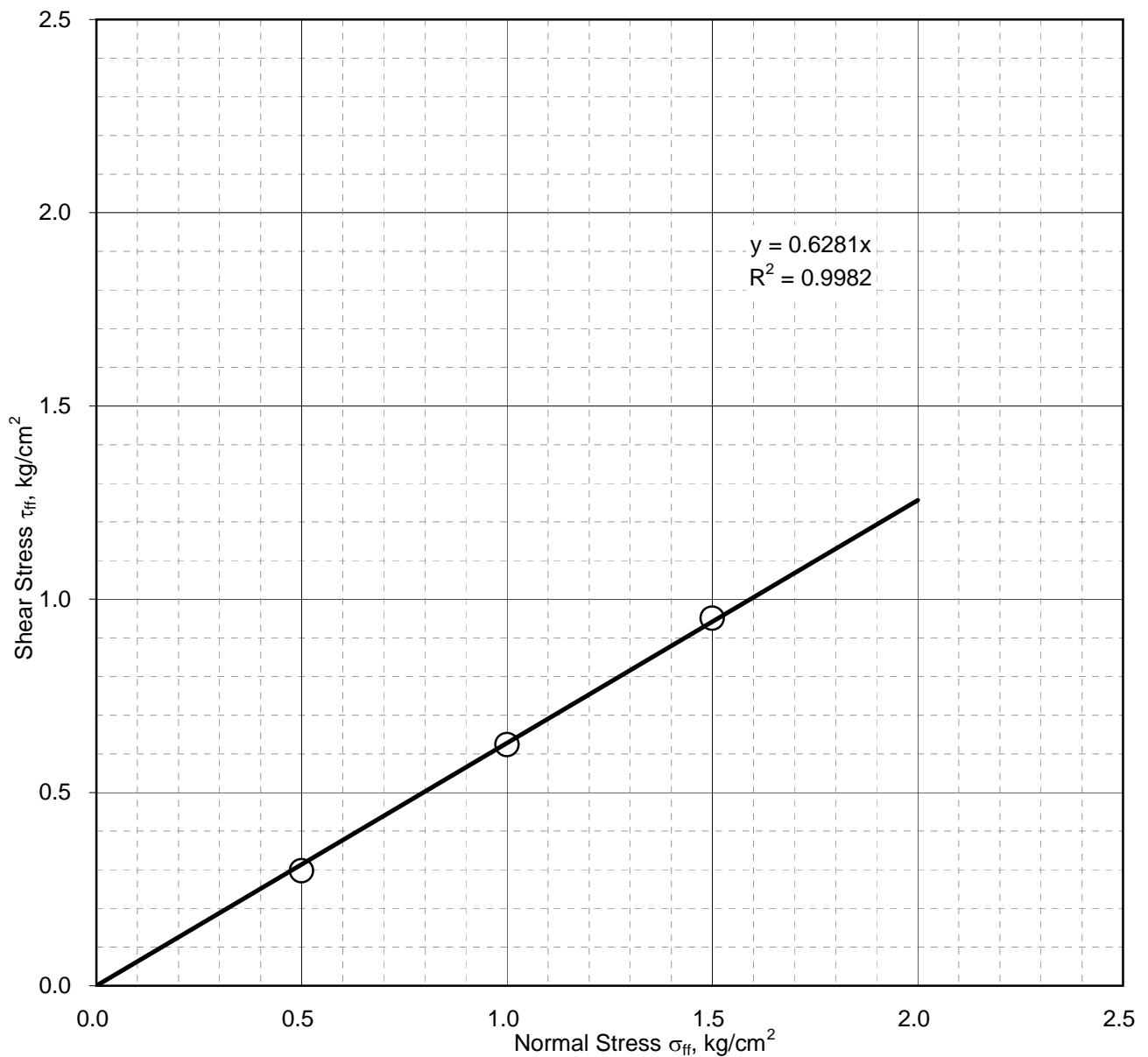




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-152	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.60
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.1 degrees



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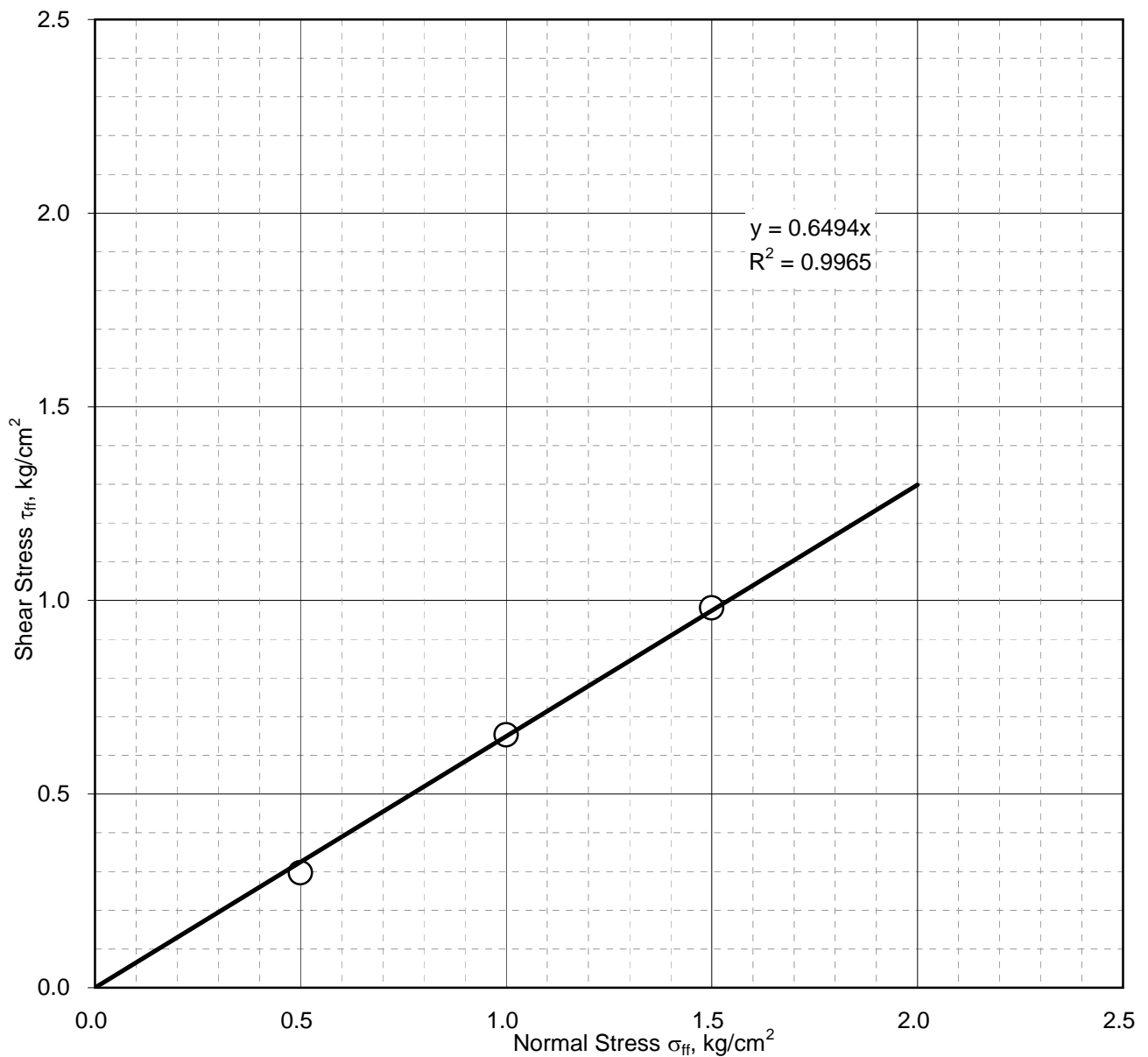




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-153	Sample Depth: 14 m
	Sample No.: UDS-6	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.58
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	33.0 degrees



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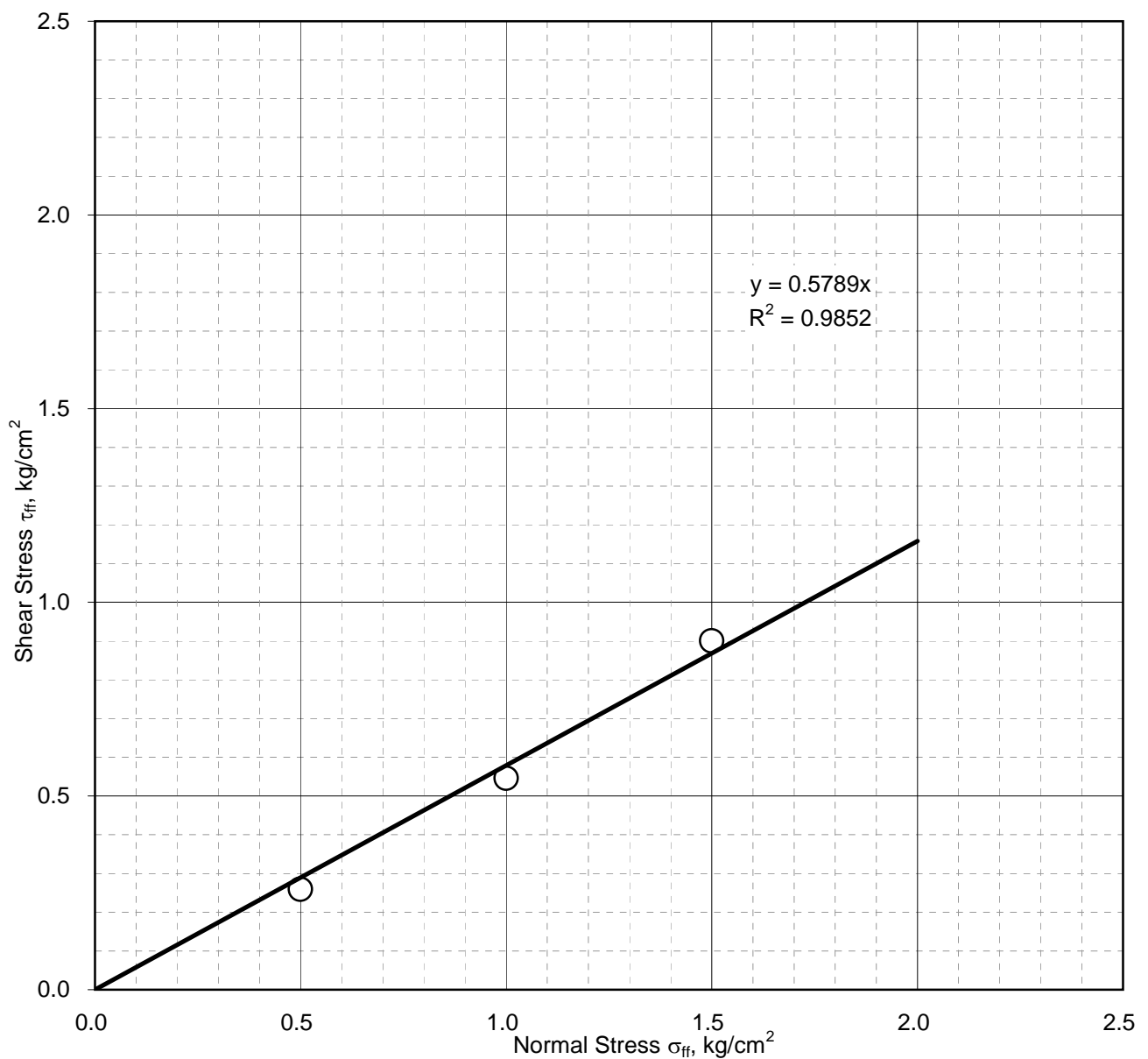




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-154	Sample Depth: 6 m
	Sample No.: UDS-3	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.51
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	30.1 degrees



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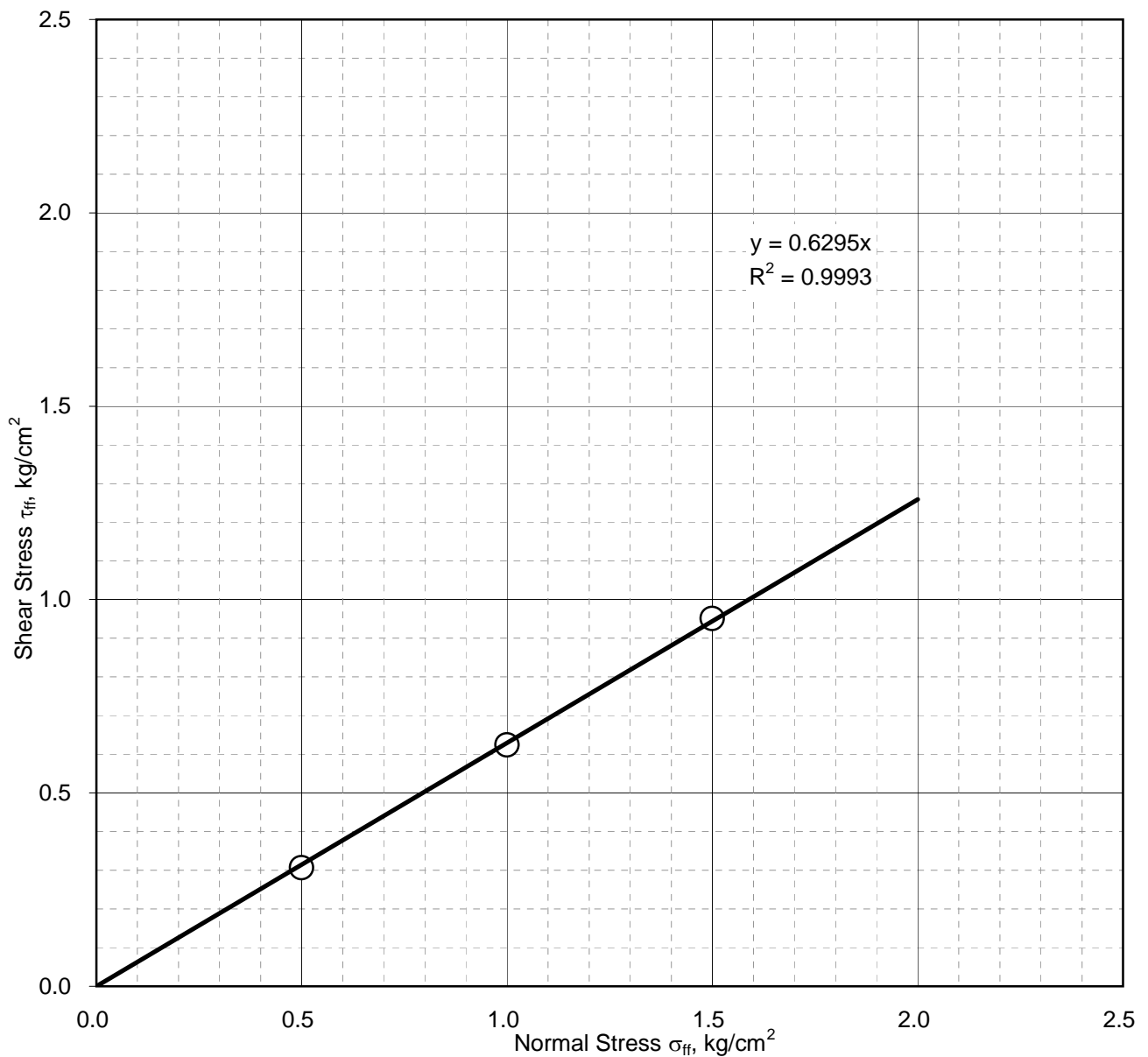




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-155	Sample Depth: 8 m
	Sample No.: UDS-4	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.60
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	32.2 degrees



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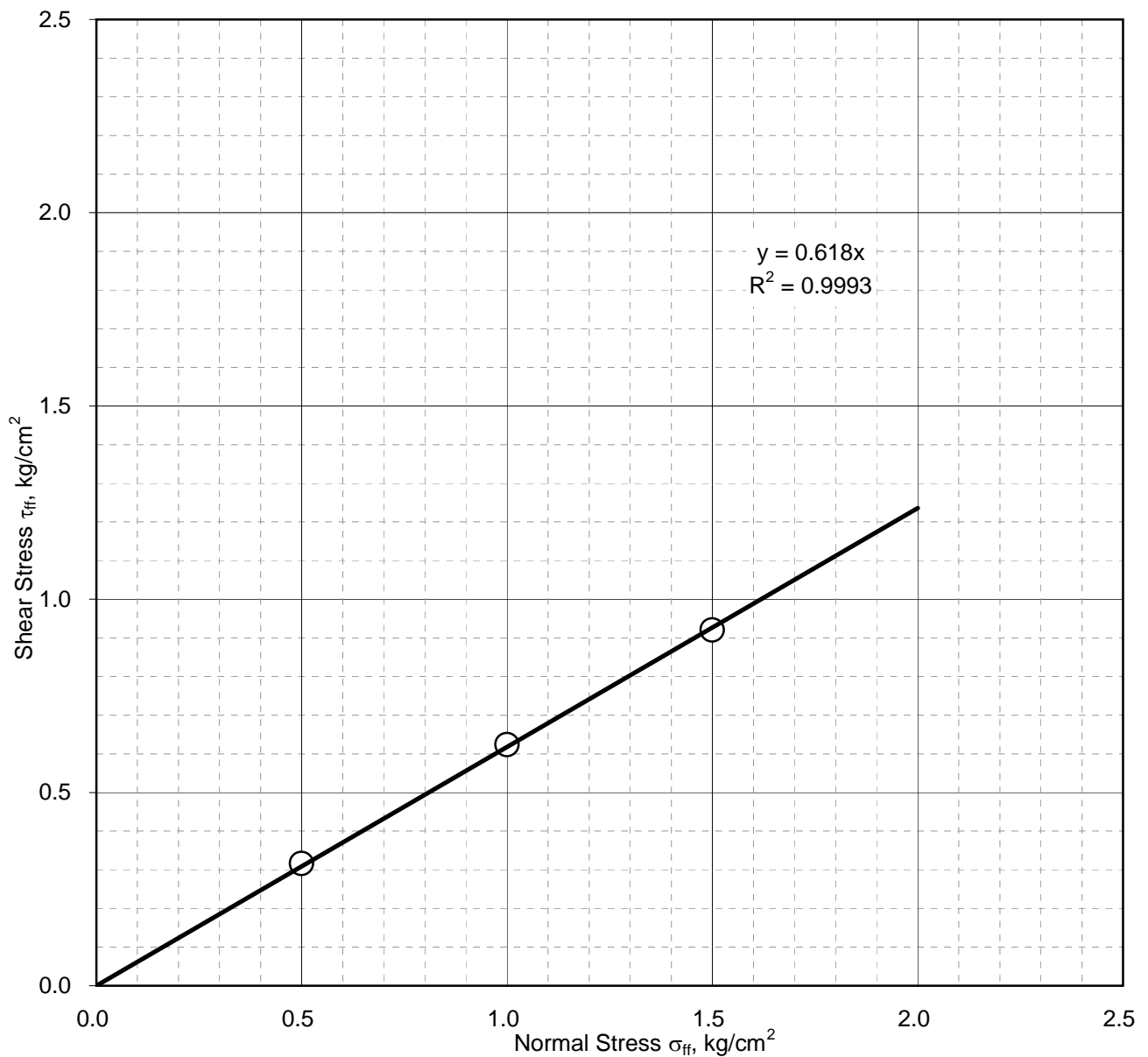




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-156	Sample Depth: 11 m
	Sample No.: UDS-5	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.59
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	31.7 degrees



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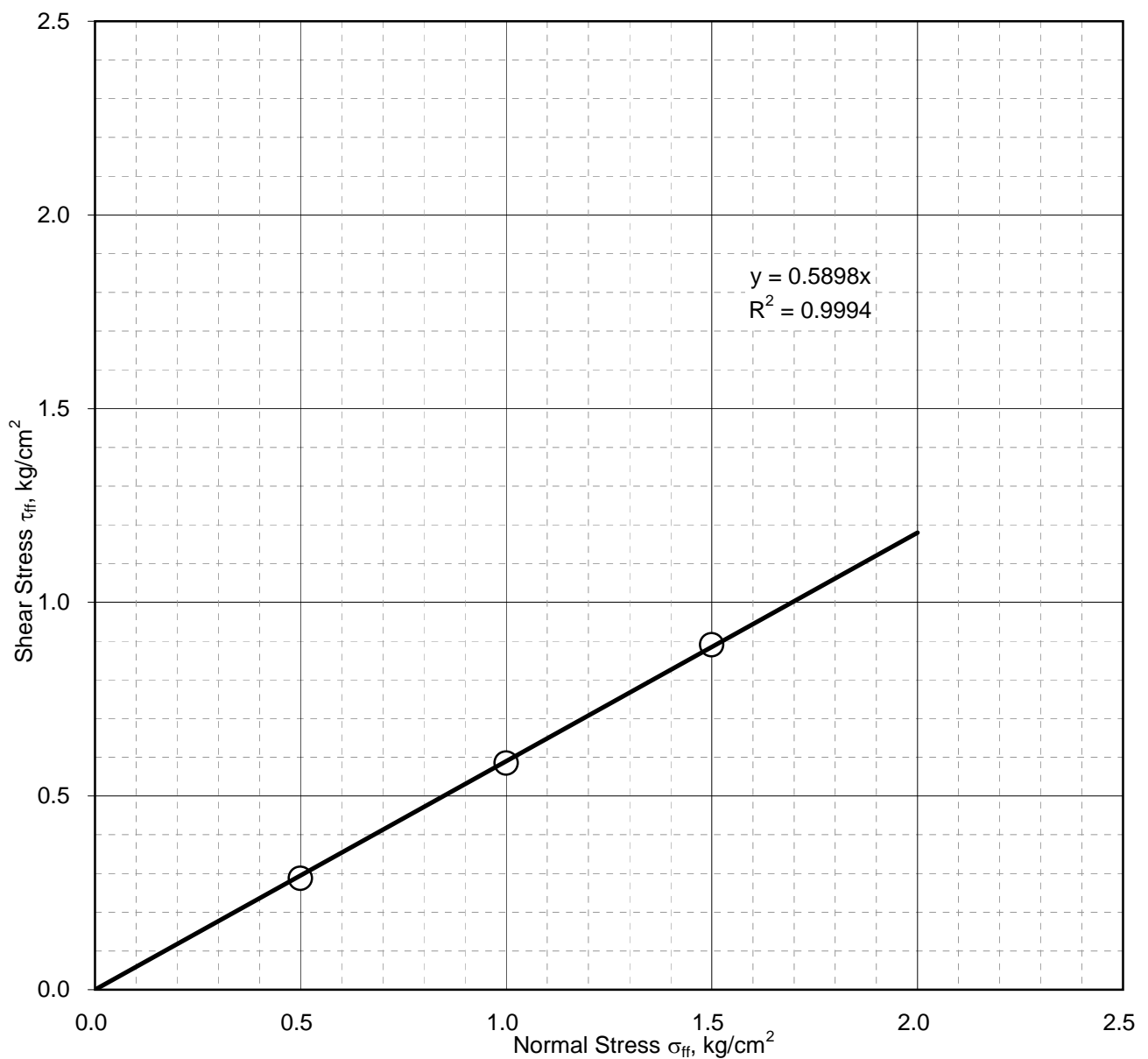




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-157	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.53
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	30.5 degrees



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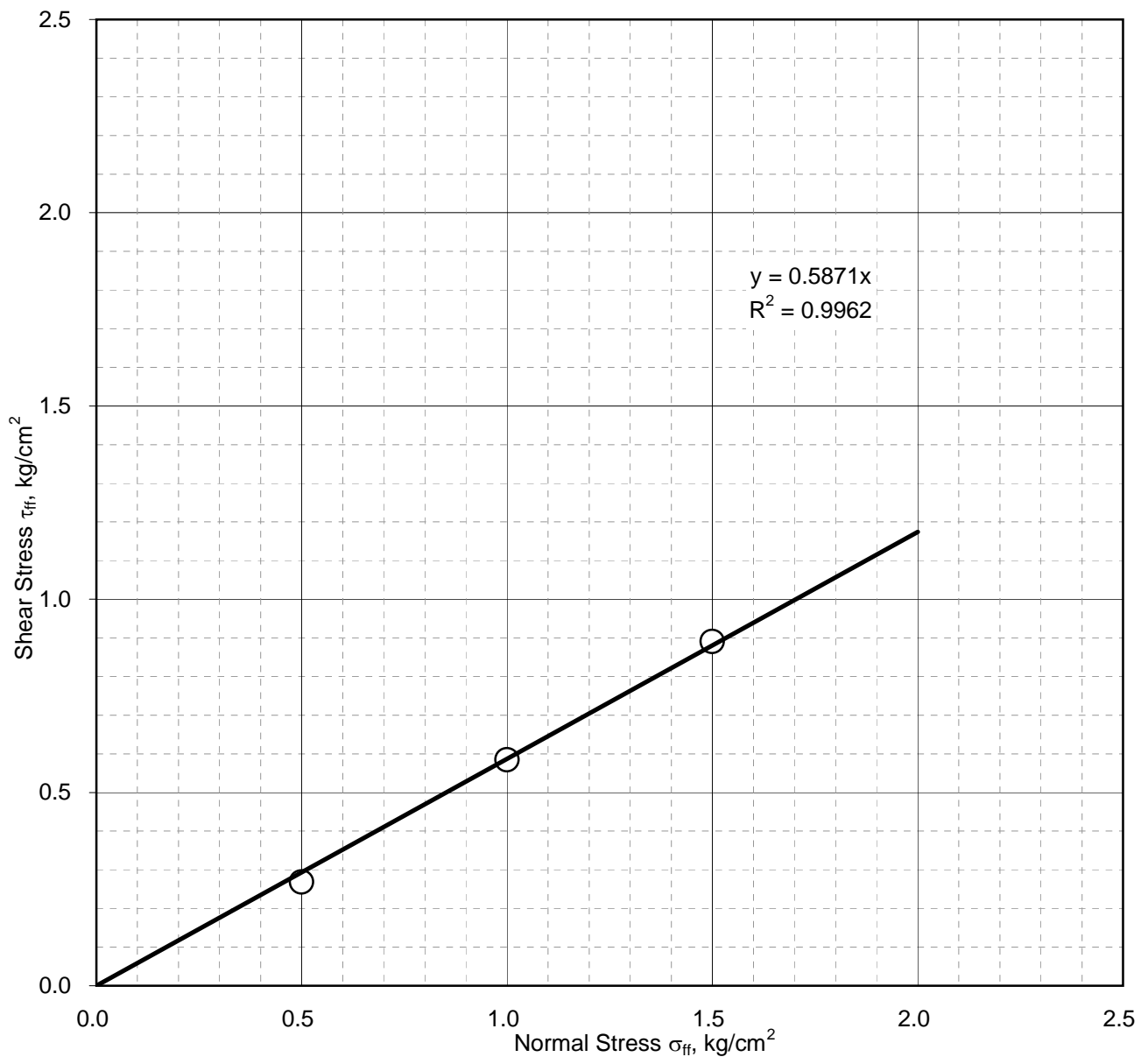




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-158	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.53
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	30.4 degrees



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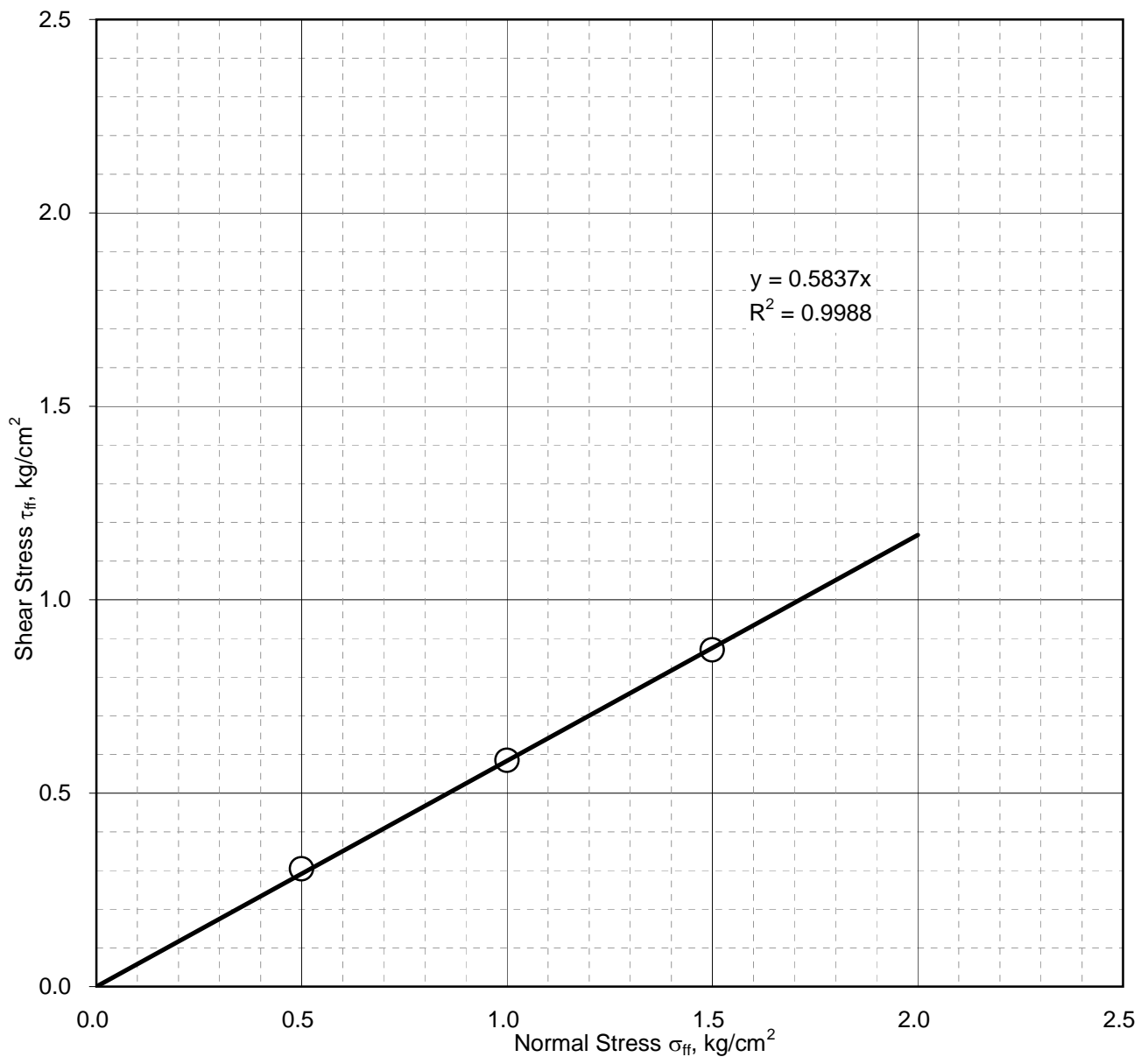




### Drained Direct Shear Test

IS : 2720 (Part-13)-1986, RA-2010

Sample Details	Borehole No.: BH-162R	Sample Depth: 4 m
	Sample No.: UDS-2	Sample Description: Sandy silt
Test Results	Dry Density of Soil ( $\text{g/cm}^3$ ):	1.58
	Moisture Content (%):	Saturated
	Cohesion Intercept, $c$ :	0.00 $\text{kg/cm}^2$
	Angle of Internal Friction, $\phi$ :	30.3 degrees



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**APPENDIX-A**  
**SITE PHOTOGRAPHS**



Borehole No. 98



Borehole No. 100



Borehole No. 108



Borehole No. 154

### Site Photographs