CORRIGENDUM 3

Tender ID: 2025_IITS_846154_1, Dt. 25.01.2025

Tender Reference No.: IIITS_NIT_029_2025

Name of the Work: Civil, PHE, Fire Fighting, Electrical and associated External Development Works for the Construction of Academic Block (AB2) with B+G+2 floors as RCC framed structure and Boys Hostel Block (BH5) with G+10 floors as shear wall structure at IIIT Sri City Campus.

Corrigendum Details: Minutes of Pre-bid meeting held at IIIT Sri City.

Pre-bid Meeting Schedule: 03.02.2025 at 11:00 Hrs. (Hybrid Mode)

The following bidder's representatives attended the pre-bid meeting:

S. No.	Name of the Prospective Bidder	Bidder's Representative
1	M/s Casa Grande Civil Engineering Pvt. Ltd., Chennai	Mr. E Venkata Subraminian
2	M/s KPC Projects Ltd., Hyderabad	Mr. AV Raghava Rao
3	M/s NJR Constructions Pvt. Ltd., Hyderabad	Mr. Ramkumar Singh
4	M/s Starworth Infrastructure Pvt. Ltd., Bangalore	Mr. Solairajan N
5	M/s Uniqcore Constructions India Pvt. Ltd., Chennai	Mr. Kiruba Kingsly J
6	M/s Shri Gurmukhdas Contractor Pvt. Ltd., Chennai	Mr. Subhash Bhawnani

Architects & Project Management Consultants were present in the pre-bid meeting to provide clarification to the queries.

In order to bring the uniformity and clarity among the prospective bidders on various terms and conditions as mentioned in the NIT document, the queries received from bidder(s) during pre-bid meeting were discussed and clarified.

The clarifications arrived thereof are indicated as under:

Enclosure:

1. ANNEXURE 1: Bill of materials for Rising Mains of BBT
2. ANNEXURE 2: Bill of materials for Structural Earthing
3. ANNEXURE 3: Plumbing & Electrical Items – Model Nos & Makes
4. ANNEXURE 4: BoQ1 – Description of requested items
5. ANNEXURE 5: Soil Investigation Report with Bore log details

Note:

a. These minutes of pre-bid meeting shall form the part of bid document/Agreement.
b. Rest of the terms and conditions and specifications of the bid document shall continue to remain same.
c. The above amendments/ clarifications are issued for the information for all the intending bidders.
d. The submission of bid by the firm shall be construed to be in conformity to the bid document and amendments/ clarifications given above.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
1	Page 78	Clause 56, Batching Plant	Batching plant of adequate capacity-01 set	Kindly confirm whether concrete can be procured from Third Party RMC.	Allowed for 3rd party RMC, but setting up of batching plant will gain score in technical bid evaluation. Refer NIT - GCC - Page No. 10
2	Page 78	Clause 56 Tower Crane	Tower crane- 10MT capacity- 01 set	Tower cranes capacity shall be decided based on actual site requirement. Our presumption-5MT capacity with 1.1MT Tip load capacity	Tower crane capacity shall be choosen by the contractor to suit the project / construction requirements
3	TILES, GRANITE, MARBLE, KOTA STONE	Sub Head -5.00 BOQ Item 36.1	Double Charged Vitrified Tiles- Rs. 950 per sqm delivered at site	Kindly provide Basic Prices for the following materials Granite 18mm thick Kota stone 25mm and 20mm thick Polished Marble Glazed Rectified Wall and Floor Tiles Tactile Tiles Heat Resistant Tiles	Basic Prices for various items (without GST F.O.R. at site) are as follows :- 1. Granite 18mm thick:- Rs. 1940 per Sqm. 2. Kota stone 25mm thick :- Rs. 380 per Sqm. 3. 20mm thick Polished Marble :- Rs. 2150 per Sqm. 4. Glazed Rectified Wall and Floor Tiles:- Rs. 500 per Sqm. 4. Glazed/ Matt Rectified Floor Tiles 600mm x 600mm:- Rs. 550 per Sqm. 5. Tactile Tiles :- Rs. 915 per Sqm. 6. Heat Resistant Tiles :- Rs. 645 per Sqm. 7. Vitrified Tiles :- Rs. 500 per Sqm. 8. Double charged Vitrified tiles :- Rs. 950 per Sqm.
4	SANITARY FIXTURES, CP FITTINGS and JOINERY HARDWARES	Internal Plumbing Works, Joinery Works	NA	Sanitary Fixtures, Joinery hardwares and CP fittings Model no not provided; Kindly provide the Model no for the Joinery Hardwares ,sanitary fixtures and CP fittings for the item of works	Sample makes & model lists are shared for quotation purposes. The furnished model and makes are indicative, the same shall be finalized in consultation with Client / Consultant / Architects **Refer to Annexure 3 of this Prebid MOM document**
5	ELECTRICAL WORKS	BOQ Item No: 231 Hostel Block BOQ BOQ Item No: 238 Academic Block BOQ	NA	Model Nos for Light fittings not provided; Kindly provide model nos for the light fittings	Sample makes & model lists are shared for quotation purposes. The furnished model and makes are indicative, the same shall be finalized in consultation with Client / Consultant / Architects **Refer to Annexure 3 of this Prebid MOM document**
6	RISING MAINS	BOQ Item No: 243 Hostel Block BOQ	Supplying, installation, testing and commissioning of 415V/690V/1000V Sandwich construction Busbar trunking system with Multilayer Class-F PET insulation and; Conductors : Aluminium Rating : 630A Configuration : 3P4W IP Rating : IP54 Enclosure : GI 1.6mm thickness Impulse Withstand Voltage : 8kV Paint Shade : RAL7015 Epoxy Powder Coating With necessary flange end, plug in point, plug in box, hanger, End cover, nuts & bolts, Earth strip, C channel etc. VENDOR: Lauritz Knudsen Electrical and Automation	Supplying, installation, testing and commissioning of 415V/690V/1000V Sandwich construction Busbar trunking system with Multilayer Class-F PET insulation and; Conductors : Aluminium Rating : 630A Configuration : 3P4W IP Rating : IP54 Enclosure : GI 1.6mm thickness Impulse Withstand Voltage : 8kV Paint Shade : RAL7015 Epoxy Powder Coating With necessary flange end, plug in point, plug in box, hanger, End cover, nuts & bolts, Earth strip, C channel etc. VENDOR: Lauritz Knudsen Electrical and Automation **Quantity- 01 Job** **Kindly provide the Quantities and Tap off Box details for the item of work**	Refer to Annexure 1 of this Prebid MOM document
7	Structural Earthing	BOQ Item No: 249 Hostel Block BOQ	Supplying, installation, testing and commissioning TNS-PME INTEGRATED EARTHING SYSTEM CONFORMING TO NEC 2023, IS 732, IS 3043, NBC-2016, IEC 60364-5-54 & IS/IEC 62305-3 VENDOR: CAPE ELECTRIC	Supplying, installation, testing and commissioning TNS-PME INTEGRATED EARTHING SYSTEM CONFORMING TO NEC 2023, IS 732, IS 3043, NBC-2016, IEC 60364-5-54 & IS/IEC 62305-3 VENDOR: CAPE ELECTRIC **Quantity- 01 Job** **Kindly provide the Data and Bill Of Materials for the item of work**	Refer to Annexure 2 of this Prebid MOM document

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
8	Page 1	Name of the Work	Civil, PHE, Fire Fighting, Electrical and associated External Development Works for the Construction of Academic Block (AB2) with B+G+2 floor as RCC framed Structure and Boys Hostel Block [BH5] with G+10 floors as Shear wall Structure at IIIT Sri City Campus	Hostel building consists of G+10 floors, the same needs to be executed in shear wall technology. In this regard due to less number of shear wall repetations the project cost will increase. So we request to change the construction technology from sheal wall to technology neutral tender.	NIT condition Remains same. No change.
9	Page 7	Section 3: Point No. 4	4. The proposed buildings are to be constructed and completed in all respects on FAST TRACK. The time allowed for completion of i. Academic Block – 2 [AB2] is 12 months including monsoon period and ii. Hostel Block – 5 [BH5] is 15 months including monsoon period.	Project duration of 12 months for Academic building & 15 months for Hostel building is not sufficient. We request to increase the project duration to 18 Months	NIT condition Remains same. No change.
10	Page 70	B-iii, Initial Security Deposit / Performance Bank Guaranteee	The successful bidder shall have to pay the initial security deposit of 5% of approved final contract value prior to the signing of agreement.	In all the Govt tenders the Initial security deposit / Performance bank guarentee is 3%, so we request to consider the same in this project also.	NIT condition Remains same. No Change.
11		Shear Wall	NA	The capex for shearwall will be higher so we request release payment against Aluminium formwork delivery as per actuals and deduct the same in proportionate basis	Payment for formwork material shall not be considered.
12		Bid Submission	Last Date for submission of e-bids - 10 February 2025 up to 16:00 Hrs	We request to extend the Bid due date by minium 15 days (from the date of clarifications) for offering our competative price	**Extended till 17.02.2025 up to 16:00 Hours**
13			EMD	We have to pay Rs 80 L, EMD as RTGS/NEFT. There is no slot to upload proof of receipt	Transaction Receipt of EMD shall be attached as part of technical bid submission. Please contact CPP Portal help desk
14	Page 7		3. The proposed Hostel Block 5 will be a high rise building with shear wall (form faced concrete using SCC) construction by using suitable formwork for good finish. Total BUA of approximately 1,27,000 Sqft. The building shall be used as student accommodation operated by the Institute.	Page 7,s.n 3 using suitable formwork for a good finish. hence asking for MIVAN shuttering as a condition for eligibility is not required since plywood shuttering issufficient	MIVAN shuttering is not an eligibility condition, the formwork material used shall be either MIVAN / PERI / DOKA or equivalent for form finish surface. Please read the tender conditions holistically.
15	Page 7		i. Three similar completed works each of value not less than Rs. 40 Crores OR ii. Two similar completed works each of value not less than Rs. 60 Crores OR iii. One similar completed work of value not less than Rs. 80 Crores	Since the estimated contract value is now Rs 80 cr hence as per the Ministry ofFinance guideline or CPWD norms 80%/50%/40%(A-2) of the estimated value issufficient for eligibility for one/two/three works respectively. hence kindly modify thecriteria from Rs80 cr/60 cr/40 cr respectively to Rs64 cr/Rs 40 cr/Rs 32 crrespectively for wider competitive rates for 1/2/3 works respectively	In the Tender, no where it is written that we are following CPWD Norms. We are an PPP Model autonomous institute. Our NIT condition Remains same
16	Page 7		4. Similar completed works under this clause shall mean successful completion of Civil & MEP works for multistoried Institutional / Residential / Commercial buildings (both Conventional RCC framed structure & shear wall construction) which includes concrete works, steel works, internal & external finishes, road & drainage works etc., at any University, reputed educational institute, Government / Semi-Government / PSU Organizations and in any reputed Private companies.	Page 7 s.n 4 both conventional & shearwall construction shall be replaced witheither conventional or shearwall construction or both may serve the purpose, sinceshearwall is a new technology and although contractors are doing MIVAN shutteringworks but are in progress and not completed. Instead, an undertaking to use MIVANshuttering for the hostel block may also serve the purpose	It seems the point is not well understood. The bidders should have previous experience as a single contractor in both conventional frame structure building construction **AND** in shear wall method building construction. Please read the clause carefully once again.
17	Page 10		Combined technical and financial score (H) of the bidder = M×0.6+ F×0.4 =H	The CSQCCBS method ---NON FINANCIAL PARAMETERS SHALL IN NO CASEEXCEED 30%HENCE KINDLY MODIFY H=M*.3+F*.7	The query reference is based on Procurement of Consultancy services only and it is not relevant to our tender. Please refer GFR Rule 192, Page No.56. Since criteria of evaluation is announced upfront in tender, the criteria stands valid. As such no modification is considered. NIT condition Remains same
18	NIT		NA	there are no specific slots to upload technical documents kindly provide a link for pre-bid meeting scheduled on 3.2.25	Please contact CPP Portal Help desk regarding any of your bidding process queries.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
20	BOQ Item No.237.1		300KVA 3ph/3ph, Battery Bank suitable for the UPS to provide 20 Min Back up	300 kVA appears to be higher.. Can it be 30kVA	The bidders are required to provide price for the item described in the BOQ. No suggestions or design changes are accepted.
21	BOQ Item No.237.2		15KVA 3ph/3ph, Battery Bank suitable for the UPS to provide 90 Min Back up	Kindly check the back up of 20 minutes for 300 Kva and 90 minutes for 15 kVA	Design parameters are correct and requires no change
22	BOQ Item No. 19.1 & 19.2		Item No. 19.1: With New FRP Waffle Slab Moulds	Waffle slab item 19.1 quantity is 3256 Sqmand item 19.2 is 1 Sqm. Please check up the quantity given as 1 Sqm	The Item No. 19.2 and wherever applicable, quantity 1 Sqm refers to rate only item. Please read the BOQ carefully.
23	BOQ Item No. 19.1 & 19.2		Item No. 19.2: With Used / rectified FRP Waffle Slab Moulds	Please allow similar other viable shuttering like plastic quoted or waterproofing shuttering in place of FRP.	NO Change in specification as described.
24	BOQ		NA	Clarification regarding entering GST value in the CPP portal format BOQ	The online BOQ format is formulated and given by CPP Portal. For any query or discrepency you may contact the CPP Portall help desk
25	BOQ		NA	The description of items Sl.no. 3, 5, 48, 91, 106, 108 155, 157, 478, 490, 498 of BOQ 1 is hidden. it should be seen in the script similar items of BoQ may kindly be examines	**Refer Annexure 4**
26	Page 5	SCHEDULE OF FISCAL ASPECTS B ii NOTICE INVITING TENDER	The Earnest Money Deposit amounting to 1% of the total quoted bid value must be credited in the form of NEFT / RTGS to the below account. The bids will be summarily rejected if the EMD is not submitted for the stipulated value. No exemption for EMD is allowed for any category.	We request you to allow the submission of EMD in the form of Bank guarantee & also please provide the BG format.	NIT Condition Remains same
27	Page 16	1.9 Contract Price NOTICE INVITING TENDER	No escalation on prices and wages shall be paid in this fixed and firm Contract. The BOQ Rates are firm and fixed and are inclusive of all Variations and Cost escalations till Completion of the Contract	We request you to please pay Price escalation.	No price escalation will be considered. Please refer the NIT - GCC - Clause No.5, Page 26.
28	Page 69	SCHEDULE OF FISCAL ASPECTS A iii NOTICE INVITING TENDER	Academic Block NE – 12 Months Hostel Block [BH5] – 15 Months	We Request you to please consider the followings as project duration considering the scope of works: Academic Block NE – 16 Months Hostel Block [BH5] – 18 Months	NIT condition Remains same
29	Page 69	SCHEDULE OF FISCAL ASPECTS B ii NOTICE INVITING TENDER	Contract shall be valid up to 6 months from project Handing over and all rates are valid till that period.	Kindly elaborate this clause.	After handing over of the project by the contractor to client, if any additional work in the handed over building is requested by client, it should be mutually agreed and excuted in the same contract price.
30	Page 69	SCHEDULE OF FISCAL ASPECTS B i NOTICE INVITING TENDER	After the contract agreement is signed, if required, 10% of the contract value shall be paid as Interest Free mobilization advance against submission of bank guarantee from any Nationalized Bank for an amount equivalent to 10% of contract value valid up to contract duration + 3 months, which shall be recovered in full through the Running Account Bills on Prorata basis starting from the subsequent Running Bill to that in which the total value of work done exceeds 10% of contract value and shall be fully recovered by the time the Cumulative Work Done Certified Amount / Bill Value reaches 80% of the Contract Value. Contractor shall submit the bank guarantee extension 20 days prior to its expiry date; if any required. Mobilization advance shall be recovered on pro rata basis from the running account bills.	We request you to recover the Mobilization Advance from 2nd RA Bill and till 80 % Contract Value when reaches.	Request agreed. But the advance recovery of the 1st RA Bill will be carried over to the RA Bill No.2. Advance recovery from RA Bills will standard till the full advance amaount paid is recovered.
31	Page 70	SCHEDULE OF FISCAL ASPECTS B ivy NOTICE INVITING TENDER	Deduction towards retention money shall be made in every Running bill at 5% of the value of work certified, towards retention.	We request you to consider 2.5% of contract value as retention money. 50% of retention money shall be released on virtual completion and balance 50% shall be released after DLP.	NIT condition Remains same

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
32	Page 70	SCHEDULE OF FISCAL ASPECTS -B V NOTICE INVITING TENDER	A 75% of material advance shall be paid on specified material which intended to be consumed in the project within a month. Balance will be paid after measurement approval by PMC.	Advance Recovery period shall be mutually discussed and agreed at execution stage since all the materials cannot be consumed with in a month as specified in the tender conditions. For example Electrical Panels, Plumbing fixtures, Electrical wires, Joineries, etc., can be procured in single lot only and it will be consumed in phase manner.	NIT condition Remains same
33	Page 73	SCHEDULE OF FISCAL ASPECTS B X NOTICE INVITING TENDER	Liquidated damages of work: @ 1% per week of delay to be computed on per day basis. Provided always that the total amount of compensation for delay to be paid under this condition shall not exceed 10% of the tendered value of work for which a separate period of completion is originally given	We request you to consider LD for the overall completion of project duration not for weekly or Milestones. Also please consider the Liquidated damages percentages 1% of overall contract value for project.	NIT condition Remains same
34	Page 75	SCHEDULE OF FISCAL ASPECTS D iii NOTICE INVITING TENDER	Limited Space shall be provided outside the campus for labour hutment or staff quarters on chargeable basis tentatively Rs. 4.0 lakhs per acre per annum. Sewage disposal charges are as per the prevailing rates of IIIT Sri City.	Kindly Provide the land space for Labour camp near by / with in site at free of cost	The nearby sites belong to third party and hence providing it on free of cost is not possible.
35	Page 75	SCHEDULE OF FISCAL ASPECTS C iii NOTICE INVITING TENDER	Documents listed in C (iv) shall be submitted along with the draft invoice shall be approved with in 3days the vendor is authorized to raise tax invoice and 60% of bill value as ADHOC advance shall be paid within 10 days (10 working days) (excluding GST) of receipt of complete bill tax invoice and remaining 35% shall be paid after PM certification and accounting of all the deductions and IT (income tax) as per the prevailing rates shall also be deducted and balance amount released within 30 days from date of receipt of bill to accounts.	75% of the RA bill value shall be paid as adhoc Payment with in 7 working days from the date of bill submission and balance amount shall be paid with in 21 working days from the date of bill submission.	NIT condition Remains same
36	Page 75	SCHEDULE OF FISCAL ASPECTS C iii NOTICE INVITING TENDER	The bills in Quadruplicate (1 copy will be returned to contractor after approval) shall be submitted to the Project Managers along with all supporting documents. Only one bill per calendar month shall be admitted subject to invoice value not less than 1 Crore excluding GST. RA Bills should be submitted only for the completed work.	We shall be submitting our RA Bills on monthly basis irrespective of any value of work done.	Mutiple RA bills of value 1 Crore and above can be done.
37	Page 75	SCHEDULE OF FISCAL ASPECTS C iii NOTICE INVITING TENDER	Within 4 weeks of virtual completion of works and submission of handing over documents duly approved by the Architect/ PMC team. Final bill certification period shall be 6 months from the date of submission	Please consider, Final bill certification period shall be maximum 2 months from the date of bill submission.	No change in NIT Condition. The period given is maximum of 6 months.
38	Page 75	SCHEDULE OF FISCAL ASPECTS D i NOTICE INVITING TENDER	The Contractor shall be provide space for store & office at free of cost and store to be done by vendor with GI sheeting, Space to be returned in clean and good condition within a month after completion of work, Else space shall be charged Rs.5/- per sft per month till clearing of the space to the good condition. Contractor to restrict to the space allocated strictly.	Kindly provide space for store & office at site at free of cost.	Space for Stores & Site office shall be provided at free of cost only. Refer the NIT -GCC - Clause No. 55, Page 75.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
39	Page 80	62. BID OFFER NOTICE INVITING TENDER	Bill of Quantities called Schedule "A" and the bid offer accompanies the tender document. It shall be explicitly understood that the Tender Inviting Officer does not accept any responsibility for the correctness or completeness of this schedule 'A' and this schedule 'A' is liable to alterations by omissions, deductions or additions at the discretion of the Registrar or as set forth in the conditions of the contract. 1. Each and every page of the tender document must be signed by the authorized person. The tenders must be submitted in the prescribed format only. The tenderer must quote the rates and amount in the schedule of quantities. 2. The bid offer shall be for the whole work and rates quoted for all the items and the quoted rates shall remain consistent for the duration of the tender period. Additionally, these rates shall be applicable even if there is a quantity variation within a range of approximately +/-25% of the Bill of Quantities (BOQ) quantity.	We request you to consider quantity Variation limit as +/-5% of the each BOQ line items. If any variation beyond +/- 5% our rates will be re-visited.	NIT condition Remains same
40	Page 83	69. PAYMENT FOR AUTHORIZED EXTRAS & SUPPLEMENTAL ITEMS NOTICE INVITING TENDER	Non-Tendered Items rates shall be arrived at by considering actual material cost plus labour cost plus 5% towards tools and tackles plus 10% Over head and contractor profits excluding the taxes in the material part as GST shall be paid separately.	We request you to consider Actual Cost Plus 25% OHP + Taxes	NIT condition Remains same
41	Page 32	Clause No 11.8 NOTICE INVITING TENDER	Rate at which contractor will be charged - Water for Construction Purpose & Labour hutments - Rs. 60 per kilo liter [Applicable changes from Sri City will be intimated Electricity for Construction Purpose & Labour hutments - As per the prevailing rate from time to time. One source point at the site of work will be issued.	Kindly provide the Electricity & Water at site at free of cost.	NIT condition Remains same
42	Page 90	VOLUME II TECHNICAL SPECIFICATIONS CIVIL & FINISHING WORKS	Soil investigation Report	Kindly Share detailed Bore Log details since the available datas are not clear to understand the soil strata.	**Complete soil investigation Report including Bore Log details is attached with this as Annexure 5**
43		VOLUME II TECHNICAL SPECIFICATIONS CIVIL & FINISHING WORKS	Providing and laying in position ready mixed or site batched design mix cement concrete for plain cement concrete work; using coarse aggregate and fine aggregate derived from natural sources, Portland Pozzolana/ Ordinary Portland/ Portland Slag cement, admixtures in recommended proportions as per IS: 9103 to accelerate I retard setting of concrete, to improve durability and workability without impairing strength	Please confirm, can we use Fly ash or GGBS in concrete works. Also please mention the percentage of replacement.	Fly Ash / CGBS can be used in Design Mix as per the IS code recommendations and submit the same for approval. Fly Ash shall be sourced directly from a Thermal Power Plant to avoid any contamination.
44		Boys Hostel BoQ 2 Item no.44 to 49	Expansion Joint	Please share the drawings for the same.	Please refer to the typical details for expansion joint. Same is attached again with this MOM

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
45		Academic Block BoQ. Sub Head.3 BOQ S.40	Extra for providing and fixing of customized formwork for Waffle slab shuttering (over general shuttering beams & slab) using FRP Waffles of size as per design, including all necessary supports, alignment, and sealing to prevent leakage of concrete slurry. The work includes the supply of materials, installation, and removal after the concrete has set. Waffle should be Smooth finish to ensure easy removal and clean surface post-concreting. All materials and installation work will be subject to inspection by the project engineer. Materials must comply with relevant industry standards and specifications....	Please clarify, whether this item is paid extra over and above item no. 18.30 from Conventional slab shuttering works.	Item No. 48 in the BOQ of Academic Block, This item is to be used for extra price over the general shuttering of beam & slab (Item No. 43 & 45) using FRP waffle moulds.
46		Academic Block BOQ S.No 48 to 50	Layout of Ground Floor Roof Slabs & Beams - Drawings IIITS / ABNE / TD / ST-03 mentioned size 900mmX900mmX780mm	We request you to allow us to use the following any one of the sizes, since the mentioned moulds size not readily available in the market. 1. 900 x 900 x 325 Mm Rib size 150 mm x 250 mm 2. 900 x 900 x 400 Mm. Rib size 150 mm x 300 mm. 3. 1000 x 1000 x 325 Mm.rib size 150 mm x 250 mm. 4. 850 x 850 x 250 Mm. Rib size is 150 mm x 250 mm.	Depth of waffle for 20m span is minimum 900mm including slab thickness of 120mm. 350mm or 400mm rib depth is not structurally sufficient for 20m span.
47		Academic Block BOQ S.137 & 139	Fire Door vision Panel size as per Drawing No - IIITS / ABNE / TD /AR-102 As Per BOQ 200 x 300 with 6mm clear fire rated glass.	Please confirm the Vision panel size.	Vision panel size is 200mm x 300mm
48		Boys Hostel BoQ. Sub Head.3 BOQ S.No 36 to 43	Form finish shuttering for R.C.C work. The contractor should arrange suitable shuttering material (Mivan/ Peri/ Doka or equivalent) for RCC formwork and removal. It is the contractor's responsibility to provide smooth Form Finished RCC surface and work should to carried by appropriate technical team specialized in formwork construction. No plastering is permitted at any RCC surface, including walls or ceiling. Any bulging, honeycombing or any other deficiency is not acceptable under any circumstances. Nothing shall be paid for any rectification required to get smooth surface finishing of RCC surface. RCC surface will be measured for payment.	We request you to please confirm wheather all the items (BOQ S.no 36 to 43) shall be done with form finishes or only for Cloumn, Walls, beam, Slab etc., Please Clarify.	Form finish shuttering to be consider for all structural members except for foundation.
49		BH BOQ S.No - 420	Providing, laying, testing & commissioning of 'C' class heavy duty MS pipe conforming to IS 3589/IS 1239 including Welding, fittings like elbows, tees, flanges, tapers, nuts bolts, gaskets etc. and fixing the pipe on the wall/ceiling with suitable clamp/ support frame and painting with two or more coats of synthetic enamel paint of required shade complete as required	We shall be considering 2 coats of Red Colour paint for pipes and Black colour paint for supports as per standards.	Confirming 2 coats of Red Colour paint for pipes and Black colour paint for supports as per standards.
50		General		We request you to please share the basic prices for Cement and Reinforcement steel.	Please consider cement & reinforcement prices as per current market rate and refer to NIT document at page No. 17, where it is clearly mentioned: "No escalation on prices and wages shall be paid in this fixed and firm Contract. The BOQ Rates are firm and fixed and are inclusive of all Variations and Cost escalations till completion of the Contract." There is no client issue condition in the NIT for steel & cement.
	COMMERCIAL				
51	NIT, Table, Page No. 1, Earnest Money Deposit (EMD) & Vol-1 Section 2 point 7 page7		The Earnest Money Deposit amounting to 1% of the total quoted bid value must be deposited through RTGS / NEFT to IIIT Sri City Chittoor Opex Account.	We propose fixed value of EMD instead of quoted amount that means before opening of the tender the final quoted amount may be guessed . In addition to that allow us to provide Bank Guarantee form any nationalized Bank as accepted even CPWD tenders accordingly provide the Bank guarantee format for the same also	NIT condition Remains same.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
52	Vol-1 NIT contents S.no 4 Eligibility criteria , point 5		It is mandatory that the bidder as an individual firm (Joint venture will not be considered) should have completed similar Shear wall construction methodology adopted high rise buildings using MIVAN Shuttering technology OR DOKA OR PERI or any suitable shuttering technology to have fair faced concrete surfaces. The bids of bidders without the experience of shear wall construction methodology will not be considered for evaluation. The contractor to choose one of the methodology only and pricing to be given for that will be evaluated	1). As per industry practice , Aluminium Form Work material used as wall panel and slab panel included misc. components used in shear wall technic . But even though SCC concrete is used (For smooth flow we will not obtain the Fair face Concrete surface). every joint @ 600mm need grinding to match the surface. 2). Peri and Doka will supply the H frames and other components by using of 18mm thick ply (Birch Ply) we may get the fair face and also the casting to be individual / continuous vertical components only, not able to work for casting of vertical and slab monolithic casting. This process is time taking process and also more costly	Shear wall & Slabs need not be cast monolithically. However, shear walls with any of the mentioned formwork should have form finish surface. The onus lies on the contractor to make a full height & length of sample shear wall cast at site at his cost and show & get approval for the form finish surface to the full satisfaction of the Client before proceeding with the casting of any shear wall. Also the sample form finish surface shown shall be achieved in all shear walls in both internal & external surfaces of all shear walls.
53	Vol-1 NIT contents S.no 6 GCC point 6 under Taxes and duties etc specified in page 27		TAXES, DUTIES ETC. As part of the Contract Price, the Contractor shall, in connection with the Work, include all applicable taxes including but not limited to GST for the above Work, and include all levies or royalties' payable on the materials and equipment forming part of the Work, now or hereafter imposed, increased or modified from time to time and shall also include any other statutory obligations. No claims on this account shall be entertained or allowed at any stage subsequently by the Owner. The Contractor shall co-operate with and render all necessary assistance to the Owner to enable the Owner to recovery of other indirect taxes, duties and the like. **The GST paid on purchase of Materials shall be transferred as "Input Tax Credit" to the IIIT Sri City, Chittoor by the contractor.**	For the composite works GST is fixed i.e. 18% of total value of contract not for the induvial item , Even though material components has different values of GST. While quoting of the rate the rate analysis is deriving considering the basic rate only not the rate including GST values. **So The GST paid on purchase of material transfer of Input tax credit not exists and also not possible**	NIT condition Remains same
54	GCC, Clause No 1.9, Page No. 16, Contract Price		Provided however that in case of any increase in current taxes or fresh imposition of any tax or other duties, such tax or other duties shall be borne by the party responsible to bear the same as per the applicable laws. The Owner shall not be responsible in any way \whatsoever to pay any additional amount over and above the Contract Price.	Any implication of new taxes & levies and revision in existing tax structures after the date of submission of tender shall be reimbursed to us at actuals along with the monthly RA Bills.	NIT condition Remains same
55	GCC, Clause No 2.6, Page No. 22, Increase/Decrease to scope of Work		The Owner reserves the right to increase or decrease the scope of the Work on any or all items or to change the nature of the Work involved in any or all items or to completely delete any items of the Work under the Contract. The Contractor shall not be entitled to claim for loss of anticipated profits, for mobilization of additional resources, or for any other such reason on account of these change orders. In the event that the Owner elects in writing to add an item to scope of the project or to delete an item from its scope, the Owner shall be entitled to increase/ reduce (as the case may be) an appropriate amount from the Contract Price.	We request to limit of contract value variation up to minus (-) 10%.	NIT condition Remains same
56	GCC, Clause No 10.1, ii, Page No. 28, CAR Policy		Contractor's All Risk Insurance Policy to inter alia coverthe following: ii. Electrical commotion, riots, war and other disturbances.	The CAR policy does not cover war. We request you to remove this word **(WAR)** in this Clause.	WAR need not be considered.
57	GCC, Clause No 11.8, a Page No. 32, Electricity		Electric power both for construction and lighting shall be made available by the Owner at one point within site or near site on chargeable basis as actual shall be recovered progressively from R.A. Bills, minimum power factor 0.95, power factor below than 0.95, penalty as per APDISCOM tariff.	Request you to confirm the Electric power charges per Unit that were recovered from our RA bill. The location assuming that nearer with in 50m radius of construction site	Electricity charges as per actual paid by IIIT to APSPDCL shall be recofered from RA Bills only. Distance need to be decided later based on the nearest avaialable taping point.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
58	GCC, Clause No 33.5 Page No. 58, Delection and changes in the scope of work		Should any deletions or changes in the scope of the Work reduce the time required to complete the Work under the Contract, then the time savings accruing from such deletions may be considered by the PMC team/owner in off- setting the durations awarded for an extension of time.	If any deletions within the scope of work do not affect the schedule, time savings cannot be considered. The deleted work may not be part of the Critical path activity . So possibility of saving on time is minimal	Accepted
59	GCC , Clasue no 44, page 61 , Project close-out deliverables		Vii. Statutory Approvals	Kindly clarify Point (vii) which statutory approvals need to be submitted during the project closure?.	Coordination with the consultants and clients for obtaining necessary statutory approvals is required from the contractors.
60	GCC , Clasue no 42.3.iii , page 61 , warrants and Guarantees		The Work shall, for a period of 24 months from the date of issue of the Virtual Completion Certificate, be free from all defects and the Project shall be of structural soundness, durability, ease of maintenance, weather tightness etc.	According to clause GCC 1.10, the Defect Liability Period is mentioned as 12 months, not 24 months as stated in this clause. Therefore, this clause should be revised accordingly.	It may be read as 12 Months instead of 24 months.
61	Schedule of Fiscal Aspects, Table No A,I,ii Page No. 69, Commencement of work & Mobilization Period		The Work shall commence on date of issue of LOI. From the date of issuance of LOI, a mobilization period of 14 days shall be allowed to the Contractor to mobilize its resources at site.	The effective date of commencement shall be later of the following events/ activities: i) 30 days after the date of LOI/LOA towards mobilization period. ii) Handing over of encumbrance free clear site. ii)Issue of Good for Construction Architectural Drawings up to Ground floor. iv) Receipt of the mobilization advance. v). Signing of agreement The commencement date shall be reckoned as whichever is later as mentioned above.	NIT condition Remains same
62	Schedule of Fiscal Aspects, Table No A,iv Page No. 69, Contract Validity		Contract shall be valid up to 6 months from project Handing over and all rates are valid till that period.	We request you to considered price valid up to the contract period of 15 months.	Refer the clarification no.29 given above for the same subject.
63	Schedule of Fiscal Aspects, Table No B,i Page No. 69, Mobilization Advance		After the contract agreement is signed, if required, 10% of the contract value shall be paid as Interest Free mobilization advance against submission of bank guarantee from any Nationalized Bank for an amount equivalent to 10% of contract value valid upto contract duration + 3 months, which shall be recovered in full through the Running Account Bills on Pro□rata basis starting from the subsequent Running Bill to that in which the total value of work done exceeds 10% of contract value and shall be fully recovered by the timethe Cumulative Work Done Certified Amount / Bill Value reaches 80% of the Contract Value. Contractor shall submit the bank guarantee extension 20 days prior to its expiry date; if any required. Mobilization advance shall be recovered on pro rata basis from the running account bills	Request to provide an interest free mobilization advance @ 10% of the contract value shall be released against equivalent value of bank guarantee in single installment. We will submit the split Bank Guarantee and the same shall be released once the equivalent amount of Split BG recovered while certiifying the RA Bills	Not accepted. Single PBG only will be accepted.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
64	Schedule of Fiscal Aspects, Table No B, IV Page No. 69, Retention Money		Deduction towards retention money shall be made in every Running bill at 5% of the value of work certified, towards retention. In total, 5% of the contract value shall be retained during the defects liability period, provided the Works are free from defects and the contractor has rectified all defects identified by Architect/ PMC team/ Owner. The retention money shall not carry any interest. Out of the 5% Retention money, an amount of 2.5% of retention money shall be released after 6 months from the date of issue of virtual completion certificate; Balance 2.5% shall be released after completion of DLP	Since this is a fast-track project and to improve the cash flow. We intend to submit advance Split bank guarantee equivalent to five percent (5%) of the contract value. Of the total 5% retention bank guarantee, a portion of 2.5% shall be released upon the issuance of the virtual completion certificate. The remaining 2.5% shall be released upon the successful completion of the Defects Liability Period (DLP).	NIT condition Remains same
65	SCHEDULE OF FISCAL ASPECTS, Refer Annexure-X, page 72 , Liquidity Damages		Part-1 Liquidity damges for Milestones - 5 Nos	Persuming that Mile stones as given in Annexue -X are only indicative . The milstones will be finlazed after award of the workon mutually agreed terms - clarification requried	NIT Conditions remains same.
			Part-2 : liquidity damges for over all compeltion	Clarity is requried	Clearly given in the NIT. Bidders to read it carefully and hollistically.
			Part 3: Extended PMC Service charges shall be borne by the contractor for the extended period of construction even if the EOT is granted without penalty/LD as per clause.	Please review once again and also All the specifide points are not applicable when EOT is granted	NIT condition Remains same
66	GCC, Clause No 56 Page No. 78, Accounts & Audit		BASIC MINIMUM PLANT AND MACHINERY REQUIRED AT SITE Availability (owned/Leased) of the following key and critical equipment for the work. Tower Crane of 10 Tons Capacity	For review : As per site condition and building plan we required the following equipments 1). Tower crane -50 mts boom radius : 2 nos 2). 125 KG DG sets - 3nos (2 nos for tower crane and one number for Illumination of the site 3). Builder hoist for materila shifting - 2nos Note : Considering the quantity of concrete installing of batching plant with minimum capacity CP-30 is also not viable. it will increase the item quoted rate subsequently contract quoted price	Plant & Machinery shall be choosen by the contractor to suit the construction requirements
67	Section -7 SCC s.no 16 page 87		The main contractor should cooperate with other vendors/contractors who are appointed / nominated by IIIT Sri City. Any scaffolding material / power / water for their works should be given by the main contractor. All the coordination with respect to other vendor / contractors to be done by the main contractor. Cost of coordination should be considered in this BoQ. No further additional cost shall be considered / paid later.	1). The contractor will provide scaffolding material if available in excess on chargible basis. 2) water and power we are taking from client on chargible basis. So the same can adopt other vendors also excpet the vendor engaed by us for our contract items	No change in the NIT Conditions. Necessary supports to be given to the client nominated subcontractors.
68	Section -7 SCC s.no 24 page 91		Guarantee for Aluminium Work	Since Aluminium structural design is not in scope , we have to follw as per the Boq item and drawing So this clause may not applicable. Please rellook into it	NIT condition Remains same
	TECHNICAL - CIVIL				
69	BOQ Item -new item		For concreting of waffle slab	Self Compacting Concrete of grade is required. The same is missing	Self Compacting Concrete, if required, shall be of the same grade of concrete mentioned in the Structural Tender drawing & BOQ items. It shall be paid extra over regular concrete item.
70	BOQ Item SL.No : 25		Providing & constructing solid concrete block masonry in cement mortar 1:4 using precast blocks of specified sizes with minimum crushing strength of 40 kg/Sq cm raking out joints, scaffolding, curing etc. including providing & fixing wall ties, staging, raking of joints, curing of block before & after etc, complete in all respect and at all heights & Levels all complete as directed at all levels.	Normal available crushing strength of material is 35kg/cum. Please review once again.	Solid concrete block with crushing strength of 40 kg/ Sq cm are easily available. Please proceed as per specification mentioned in BOQ.
71	BOQ Item SL.No : 34,35		use of Rectified ceramic tiles	As per present manufactures the rectified ceramic tiles manufacturing is almost nil. The same is to be reconsidered	Paper cut edge/ Straight edge tiles are known as rectified ceramic tiles, which are manufactures by all leading brands.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
72	BOQ Item SL.No : 38		Providing and fixing granite steps 20mm thick, each step comprising both the tread and riser. The granite shall be of premium quality, free from cracks, stains, and other defects, with a uniform color and texture. The tread shall have a width of 300 mm, while the riser shall have a height of 150 mm. The granite shall be cut to size and polished to a smooth, non-slip finish. The surface to receive the granite steps shall be cleaned and prepared to ensure proper adhesion. Cement mortar mix (1:4) shall be used to fix the granite securely in place. The joints between the treads and risers shall be filled with a matching grout to ensure a seamless appearance. All exposed edges of the granite shall be chamfered or rounded to prevent sharp edges and enhance safety. The installation shall be carried out with precision to ensure that the steps are level, aligned, and securely fixed. The finished work shall be cleaned and polished to remove any adhesive residues and to achieve a high-quality finish. All work shall be carried out in accordance with relevant IS codes and best practices, ensuring durability and aesthetic appeal.	Please specify whether the Mode of measurement for this item includes both Tread and Riser as one unit or Tread and Risers are to measured saparately as Rm	Mode of measurement for this item includes both Tread and Riser as one unit.
73	BOQ Item Subhead 8.0 - BOQ item no 54 to 75		Door, Window, Glazing & Aluminium Works	We request you to provide the Structural glazing drawings including Joineries	Door/ Window Schedule with opening sizes are a part of the Tender Drawings. Joinery details would be a part of the Shop Drawings from the Contractor.
	Boys Hostel Block				
74	BOQ Item SL.No : 16		Form finsh shuttering proposed makes : Mivan/ Peri/doka / equivalent	1) For Shear wall technique useful is only panels made of Aluminium material only of different manufacturers . Not the other proposed makes. The finish obtained is smooth but at joints grinding is requried. 2). Plastering is not requried but 6mm Thick Internal coarse putty is requried before application of painting works putty, primer and paint etc. 3). based on the GFC some areas we have to go with using ply and runners conventional shuttering.	Proceed according to specification mentioned in BOQ.
75	BOQ Item SL.No : 76		Cub board shutter 25mm thick with prelamination including 2nd class teak wood lipping 25mmx12mm	For facoty made shutters with pressing of laminations and proper termination at the edges, with teak wood lipping not possible . Please review once again	Proceed according to specification mentioned in BOQ.
76	Genral		Site Master Plan	Please share Site master plan in Auto CAD Format	Attached in PDF format.
	TECHNICAL - ELECTRICAL				
77	BOQ - Electrical item 224		AC Distribution board panels	Please confirm whether the LT Panles are of TTA or PTTA type	The LT panel fabricators shall be CPRI approved.
78	BOQ - Electrical - Academic Block - 554		For concreting of waffle slab	Please confirm the thickness of the Distribution Boards and also IP rating	2. The thickness of the MCB DB is 1.6 mm. 3. The depth of the MCB distribution boards shall be 100 mm (approx.). 3. All the MCB DBs are shall be suitable for INDOOR applications.
79	BOQ - Electrical - Academic Block - 568		Light Fittings	Please confirm the warranty period for light fixtures	The warranty period given by vendors is usually 2 years from the date of purchase (differs from vendor to vendor).The warranty should start from the date of taking over the project from the contractor by the cleitn.
80				Please clarify if we can specify the model nos for light fixtures, since there are many ranges of light fixtures available with the specifications given in the tender.	Design Model Numbers are provided as Annexure 3 to this MOM.
81	BOQ - Electrical - Academic Block - 668		Aruba acess point	Request to provide technical details for the Aruba Access point	HP ARUBA networking 610 series campus access points. WIFI 2.4/5/6 GHZ

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
82	BOQ - Electrical - Academic Block - 673		Video Balloon	Request to provide technical details for Video Balloon	For network systems, video baluns are not required. Bidders are requested not to put any price for the item in the online BOQ.
83	BOQ - Electrical - Academic Block - 674		NRV Port	Request to provide technical details for NVR	The 8/16/32 Channel NVR. This Network Video Recorder can be connected through the network to 16 IP cameras set at D1 (720x480) resolution, or 8 Megapixel IP cameras set at 720p resolution, or up to 4 Megapixel security cameras set at 1080p (2 megapixel - 1920x1080). It should be able to connect through the network to 8/16/32 different cameras that are connected to any of the DVRs and can be used to other a backup recording system. The NVR can hold up to 8 SATA hard drives at 3 Terabytes each or a total storage capacity and 24 Terabytes internally. Port that can be connected to the new SATA storage units NAS-4 which should allow additional 12TB of storage.
84	BOQ - Electrical - Academic Block - 684		Flexi Fibre Optical cable	Please confirm whether 2 core FOC is of Single mode or multi mode type	Multi mode type
85	BOQ - Electrical - Academic Block - 671, 672, 673, 674, 684			Please share the approved makes list for these items	Make: D-Link or equivalent.
	Boys Hostel Block				
86	BOQ - Electrical - Hostel Block Electrical Works - 598, 599, 600			Please share the approved makes list for these items	List of makes are already available.
87	BOQ - Electrical - Academic Block - 637 to 645		Cable tray Supports & Cover	1. Exposed conduit supporting and Cable tray supporting will be considered from additional surface supports using Anchor fastener. 2. Cable tray covers not be shown in the tender document request you to provide as same.	Cable tray supports are included as part of the cable tray (refer Sl. No. 637 and 640)
88	BOQ - Electrical - Academic Block - 637 to 645		Raceway & DB Frame	No raceway or DB frame shown in the BOQ for providing vertical drop to DB.	We will use 32 dia conduits for DB drop, wiring dressing will be done inside the DB's
89	Technical specification for Electrical- Clause no 5.44, Page no : 14		Conduit pipes shall be fixed by 16-gauge GI saddles on 25 x 6 mm GI Saddle bars in an approved manner at intervals of not more than 25 cms. Saddles shall be fixed on either side of couplers, bends or similar fittings, at a distance of 30 mm from the center of such fittings.	As mentioned in the clause GI shadles required to be fixed for each and every 250mm interval which is not there in practice or standards We are proposing Sadle / Clamp @ 600mm interval.	Agreed. 25cms shall be read as 600mm
90	Drawings no.: IIITS/ABNE/TD/EL-019A,B,C,D		Power Junction Boxes	Specification required for power junction Boxes.	These floor mounted Junction boxes are GI (standard sizes are available), we have listed out the makes in the list of vendors.
91	General		Down Rod for Fan	Down rod for Fan details not available in the tender document and BOQ. Request you to provide same.	Suitable down rods to be used. The same is mentioned in the BOQ.

S. No.	Tender Page No.	Clause No.	Actual Decription in NIT	Query raised by Bidder	Clarification given for the query
92	General		Point Wiring	There is no average length specified for point wiring. Request you to provide same.	The wiring is given based on standard, if you require split up please refer below. One light point controlled by one 6A one way switch (6meters) Two light point controlled by one 6A one way switch (8meters) Three light point controlled by one 6A one way switch (10meters) Four light point controlled by one 6A one way switch (12meters) Five light point controlled by one 6A one way switch (14meters) One light point controlled by Two 6A Two way switch (6meters) One ceiling fan point controlled by one 6A one way switch, hexagonal fan box including hook, electronic step regulators, and all required accessories (6meters) One wall fan point controlled by one 6A one way switch and all required accessories (10meters) 1 no Exhaust fan point controlled by one 6A switch (6meters) 6A onboards socket point controlled by 6A switch 6A away board socket point controlled by 6A switch (for lift 10meters)
93	General		Switch gear	Domestic pumps, Fire pumps related switch gear not mentioned in the electrical Panel drawings	Details will be provided soon.
	Firefighting Works				
94	General		Schemetic Drawings for Hostel Block	Fire Fighting Schematic drawing are not available in the tender document. Only Floor Plans and terrace layout plans are available	Details will be provided soon.
	PHE Works				
95	Drawings no.: IIITS / BH5 / TD / PLFF-001		Gully Chambers(GT) , Inspection Manhole	Sizes of GT and MH are not Shown in Legend. Request you to provide the same.	GT and manhole size is given the BOQ it will vary as per depth in legend it is mentioned.
96	Drawings no.: IIITS / BH5 / TD / PLFF-101		Gully Chambers(GT) , Inspection Manhole	PHE Ground Floor Drawing Details are not provided for Gully Chambers(GT) , Inspection Manhole	Details will be provided soon.
97	General		Schemetic Drawings for Hostel Block	Plumbing Schematic drawing are not available in the tender document. Only Floor Plans and terrace layout plans are available	Details will be provided soon.

ANNEXURE 1					
	RISING MAINS, BOQ 2, ITEM NO 243				
SN	**Item Description (for Boys Hostel 5)**	**Unit**	**Qty.**	**Rate (Rs.)**	**Amount**
Aluminium BBT Offer - 3P4W (100% N)					
1	Supply & Installtion of 415V/690V/1000V Sandwich construction Busbar trunking system with Multilayer Class-F PET insulation and; Conductors : **Aluminium** Rating : **630A** Configuration : **3P4W** IP Rating : **IP54** Enclosure : **GI 1.6mm thickness** Impulse Withstand Voltage : **8kV** Paint Shade : **RAL7015 Epoxy Powder Coating**				
a	Straight Run Feeder IP54	Mts.	68		
b	Flange End **(fabrication cost only)**	Nos.	2		
c	Plug-in Point **(fabrication cost only)**	Nos.	68		
d	Vertical Spring Hanger/Fix hanger (1 No per Floors per Riser)	Nos.	25		
e	End Cover	Nos.	2		
f	Tinned Copper Braided Flexibles -360mm (with Hardware - Nuts and Bolts)	set	2		
g	Al Earthing strip - 25x6 (with Hardware - Nots and Bolts)	Mtrs	160		
	Note :- Usually 2 runs will be required and hence the Mtrs should be double the length of Straight Length				
h	Shaft Cantiliver angle support with C Channel for Vertical spring or Rigid hangers	Set	25		
i	End feed Panel with switchgear (Suitable for 630A 4P MCCB) - Al Busbar Arrangement	Nos	2		
	Complete with Aluminium busbar or Cu Flexible with provision for rotary handle mechanism with bottom Cable entry and top Busduct outgoing provision.				
	Note : Price is subjected to change with change in of cable entry and Metering provisions.				
2	**Supply & Installation of Plug-in Box / Tap-off Box suitable for L&T MCCB/MCB**				
a	63A Plug In Box with 63A 4P MCB	Nos.	22		
b	40A Plug In Box with 40A 4P MCB	Nos.	22		
c	Tool Kit	Nos	1		
				Total	

ANNEXURE 2					
	STRUCTURAL EARTHING BOQ1: ITEM 259				
Sl.No	**Description**	**Unit**	**QTY**	**Rate (Rs.)**	**Amount (Rs.)**
	Foundation Earthing				
1	Supply Installation of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no seperation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : SRC 10 CuB	Meters	1165		-
2	Supply Installation of 18 mm copper bonded Solid Steel Round Conductor with minimum coating thickness 70µm as integrated down conductor. Material should be tested Tensile strength, Electrical Resistivity, salt mist, and condition of Bend to meet the requirements of IS/ IEC 62305 and IEC 62561-2. CAPE Type : CBSR 18	Meters	10		-
3	Supply Installation of Exothermic Welding - a complete installation part including welding mould and other accessories for welding to meet the requirements of IEC 62561-2. CAPE Type : EXO WELD - Straight Joint/Cross Joint/T Joint/L Joint	Nos	87		-
4	Supply Installation of Stainless steel 304 Grade cross connector for 16-18 mm dia round conductor inside concrete and soi to meet the requirement of IS/IEC - 62305 and IEC 62561-1. Test Parameter a) Static Mechanical Test b) Environmental Test Tested for IEC 62561-1. CAPE Type : CCSS 16-18	Nos	6		-
5	Supply Installation of Corrosion proof tape to avoid corrosion inside Soil. CAPE Type : CT5	Nos	12		-
6	Supply Installation of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	56		-

Sl.No	Description	Unit	QTY	Rate (Rs.)	Amount (Rs.)
	STRUCTURAL RISER				
7	Supply Installation of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Used as vertical riser in column. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no separation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : CBSR 10	Meters	440		-
8	Supply Installation of Multi Conductor Bonding Clamp Copper Coated for interconnecting 10 - 18 mm Round Conductor with reinforcement rebar ranging 16 to 32mm at every interval of 3Mtr inside the concrete to meet the requirements of IS/IEC 62305 and IEC 62561-1. CAPE Type : MCBC - 101832	Nos	147		-
9	Supply Installation of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	88		-
10	Supply Installation of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	24		-
	AIR TERMINATION SYSTEM				
11	Supply Installation of 8mm dia Aluminium alloy Solid Round Conductor of material AlMgSi used in air termination and down conductor system . Cross sectional area of conductor should be 50 mm². Meets the requirement for IS/IEC 62305. Test Parameter: a. Lightning impulse current of 100kA for 10/350 µs b. Electrical resistivity - 0.034 m, c. Tensile strength - 178 MPa or N/mm² d. Salt spray - No Sign of Corrosion. Tested as per IEC 62561-2. CAPE Type : SRC 8-AL	Meters	805		-
12	Supply Installation of Polyamide Conductor Holder for Parapet wall for holding 8 mm dia Aluminium alloy round Conductor horizontal air termination and in down conductors. Meets the requirements as per IS/IEC 62305, IEC 62561-4. Test Parameter: a) Environmental influence test b) Lateral load test c) Impact test CAPE Type : PCH 8-L	Nos	420		-

Sl.No	Description	Unit	QTY	Rate (Rs.)	Amount (Rs.)
13	Supply Installation of Terrace roof conductor holder for flat roof with concrete mounting block for fixing 8 mm dia Aluminium alloy Solid Round Conductor in the terrace flat surface at every interval of 1 mtr. Tested for Environmental influence test, Lateral load test, Impact test to meets the requirement of IS/IEC 62305, IEC 62561-4. CAPE Type : MBPCH 8-L	Nos	125		-
14	Supply Installation of Stainless steel SS 304 Grade Metal roof conductor holder with bottom plate to fix the 8-10 mm dia Aluminium alloy Solid Round Conductor for horizontal air terminal above metal sheet to meet the requirements as per IS/IEC 62305 and IEC 62561-4. Test Parameter: a) Mechanical Load b) Environmental Test CAPE Type : MRMCH 8-10	Nos	0		-
15	Supply Installation of Adhesion Glue for fixing metal roof conducter holder over the metal surface to meet the requirment of IS/IEC - 62305. CAPE Type : AG10	Nos	3		-
16	Supply Installation of Aluminuim folding seam conductor holder as per sheet profile for an 8 mm dia aluminium alloy solid round conductor for fixing a horizontal air terminal above the metal sheet to meet the requirements for IS/IEC 62305 and tested as per IEC 62561-4. CAPE Type : FSCH 14-8	Nos	260		-
17	Supply Installation of Stainless steel 304 Grade Cross Connector for 8-10 mm dia Aluminium alloy round conductor & 10 mm Copper bonded conductor at cross/Tee junction to meet the requirement for IS/IEC - 62305. Test Parameter a) Mechanical Load b) Electrical Test c) Environmental Test Tested for IEC 62561-1 CAPE Type : CCSS 8-10	Nos	78		-
18	Supply Installation of Expansion Joint with connector to compensate the expansion and contraction of 8mm dia Solid Round Al. Conductor during temperature variations. Expansion Joint should be consider at every 20 mtr length of straight horizontal air termination and connected at both the end with use of straight connector conductor. CAPE Type : EPC 8	Nos	33		-
19	Supply Installation of Aluminium Straight conductor connector for interconnecting 8mm Aluminium conductor to meets the requirement of IS/IEC 62305. Test Parametres: a) Mechanical Load b) Electrical Resistivity c) Environmental Test Tested as per IEC 62561-1 CAPE Type : CJ 8	Nos	22		-

Sl.No	Description	Unit	QTY	Rate (Rs.)	Amount (Rs.)
20	Supply Installation of VAT 2mtr length of material AlMgSi of diametre ø 16/10 mm crimped on both the ends (Tappered Type). The rod shall be mounted with stainless steel clamp and fixing accessories . Test Parameter for 2 mtr vertical air terminal a) Electrical Resistivity b) Tensile Strength c) Condition of Salt Mist Tested as per IEC 62561-2. Test Parametrer for Wall clamp a) Mechanical load as per IEC 62561-1 CAPE Type : VATW2	Nos	9		-
21	Supply Installation of VAT 3 mtr length of material AlMgSi of diametre ø 16/10 mm crimped on both the ends(Tappered Type). The rod shall be mounted with stone and fixing accessories . Test Parameter for 3 mtr vertical air terminal a)ELectrical Resistivity b) Tensile Strength c) Condition of Salt Mist Tested as per IEC 62561-2. CAPE Type : VATF3	Nos	8		-
22	Supply Installation of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	26		-
23	Supply Installation of Connecting point made of stainless steel for terminating the 8-10mm dia conductor to meets the requirement of IS/IEC 62305 / IEC62561-2 CAPE Type : CPES 10	Nos	26		-
24	Supply Installation of Bridging cable of 2000mm length to interconnect the air terminal and down conductor / metal column structure to meet the requirement of IS/IEC 62305-3. CAPE Type : BC 2000	Nos	5		-
	TN-S PME Earthing System				
25	Supply Installation of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Used as vertical riser in column. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no separation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : CBSR 10	Meters	60		-
26	Supply Installation of 18 mm copper bonded Solid Steel Round Conductor with minimum coating thickness 70µm as integrated down conductor. Material should be tested Tensile strength, Electrical Resistivity, salt mist, and condition of Bend to meet the requirements of IS/ IEC 62305 and IEC 62561-2. CAPE Type : CBSR 18	Meters	55		-

Sl.No	Description	Unit	QTY	Rate (Rs.)	Amount (Rs.)
27	Supply Installation of Multi Conductor Bonding Clamp Copper Coated for interconnecting 10 - 18 mm Round Conductor with reinforcement rebar ranging 16 to 32mm at every interval of 3Mtr inside the concrete to meet the requirements of IS/IEC 62305 and IEC 62561-1. CAPE Type : MCBC - 101832	Nos	38		-
28	Supply Installation of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	12		-
29	Supply Installation of 18mm stainless steel straight connector at every interval of 5 mtr or as per site condition is considered in an integrated down conductor and grid. It should be tested for static mechanical and environmental tests to meet the requirements for IS/IEC 62305 and IEC 62561-1. CAPE Type : SC 16-18	Nos	11		-
30	Supply Installation of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	3		-
31	Supply Installation of Stainless steel Earthing stud - 3 with fixing clamp accessories of dimension 69 x 99 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 8 KA; Ipeak- 17 KA Per sec CAPE Type : ES 3 RA1	Nos	16		-
			Grand Total		**-**

ANNEXURE 2					
	STRUCTURAL EARTHING BOQ2: ITEM 249				
Sl.No	**Description**	**Unit**	**Qty.**	**Rate (Rs.)**	**Amount (Rs.)**
	Foundation Earthing				
1	Supply of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no seperation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : SRC 10 CuB	Meters	490		0.00
2	Supply of 18 mm copper bonded Solid Steel Round Conductor with minimum coating thickness 70µm as integrated down conductor. Material should be tested Tensile strength, Electrical Resistivity, salt mist, and condition of Bend to meet the requirements of IS/ IEC 62305 and IEC 62561-2. CAPE Type : CBSR 18	Meters	5		0.00
3	Supply of Exothermic Welding - a complete installation part including welding mould and other accessories for welding to meet the requirements of IEC 62561-2. CAPE Type : EXO WELD - Straight Joint/Cross Joint/T Joint/L Joint	Nos	40		0.00
4	Supply of Stainless steel 304 Grade cross connector for 16-18 mm dia round conductor inside concrete and soi to meet the requirement of IS/IEC - 62305 and IEC 62561-1. Test Parameter a) Static Mechanical Test b) Environmental Test Tested for IEC 62561-1. CAPE Type : CCSS 16-18	Nos	1		0.00
5	Supply of Corrosion proof tape to avoid corrosion inside Soil. CAPE Type : CT5	Nos	5		0.00
6	Supply of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	23		0.00
	STRUCTURAL RISER				

Sl.No	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
7	Supply of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Used as vertical riser in column. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no separation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : CBSR 10	Meters	465		0.00
8	Supply of Multi Conductor Bonding Clamp Copper Coated for interconnecting 10 - 18 mm Round Conductor with reinforcement rebar ranging 16 to 32mm at every interval of 3Mtr inside the concrete to meet the requirements of IS/IEC 62305 and IEC 62561-1. CAPE Type : MCBC - 101832	Nos	155		0.00
9	Supply of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	93		0.00
10	Supply of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	11		0.00
	AIR TERMINATION SYSTEM				
11	Supply of 8mm dia Aluminium alloy Solid Round Conductor of material AlMgSi used in air termination and down conductor system Cross sectional area of conductor should be 50 mm². Meets the requirement for IS/IEC 62305. Test Parameter: a. Lightning impulse current of 100kA for 10/350 µs b. Electrical resistivity - 0.034 m, c. Tensile strength - 178 MPa or N/mm² d. Salt spray - No Sign of Corrosion. Tested as per IEC 62561-2. CAPE Type : SRC 8-AL	Meters	385		0.00
12	Supply of Polyamide Conductor Holder for Parapet wall for holding 8 mm dia Aluminium alloy round Conductor horizontal air termination and in down conductors. Meets the requirements as per IS/IEC 62305, IEC 62561-4. Test Parameter: a) Environmental influence test b) Lateral load test c) Impact test CAPE Type : PCH 8-L	Nos	385		0.00

Sl.No	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
13	Supply of Stainless steel 304 Grade Cross Connector for 8-10 mm dia Aluminium alloy round conductor & 10 mm Copper bonded conductor at cross/Tee junction to meet the requirement for IS/IEC - 62305. Test Parameter a) Mechanical Load b) Electrical Test c) Environmental Test Tested for IEC 62561-1 CAPE Type : CCSS 8-10	Nos	38		0.00
14	Supply of Expansion Joint with connector to compensate the expansion and contraction of 8mm dia Solid Round Al. Conductor during temperature variations. Expansion Joint should be consider at every 20 mtr length of straight horizontal air termination and connected at both the end with use of straight connector conductor. CAPE Type : EPC 8	Nos	17		0.00
15	Supply of Aluminium Straight conductor connector for interconnecting 8mm Aluminium conductor to meets the requirement of IS/IEC 62305. Test Parametres: a) Mechanical Load b) Electrical Resistivity c) Environmental Test Tested as per IEC 62561-1 CAPE Type : CJ 8	Nos	12		0.00
16	Supply of VAT 1mtr length of material AlMgSi of diametre ø 16/10 mm crimped on both the ends (Tappered Type). The rod shall be mounted with stainless steel clamp and fixing accessories. Test Parameter for 1 mtr vertical air terminal a) Electrical Resistivity b) Tensile Strength c) Condition of Salt Mist Tested as per IEC 62561-2. Test Parametrer for Wall clamp a) Mechanical load as per IEC 62561-1 CAPE Type : VATW1	Nos	5		0.00
17	Supply of VAT 2mtr length of material AlMgSi of diametre ø 16/10 mm crimped on both the ends (Tappered Type). The rod shall be mounted with stainless steel clamp and fixing accessories . Test Parameter for 2 mtr vertical air terminal a) Electrical Resistivity b) Tensile Strength c) Condition of Salt Mist Tested as per IEC 62561-2. Test Parametrer for Wall clamp a) Mechanical load as per IEC 62561-1 CAPE Type : VATW2	Nos	3		0.00
18	Supply of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	13		0.00
19	Supply of Connecting point made of stainless steel for terminating the 8-10mm dia conductor to meets the requirement of IS/IEC 62305 / IEC62561-2 CAPE Type : CPES 10	Nos	13		0.00

Sl.No	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
20	Supply of Aluminuim folding seam conductor holder as per sheet profile for an 8 mm dia aluminium alloy solid round conductor for fixing a horizontal air terminal above the metal sheet to meet the requirements for IS/IEC 62305 and tested as per IEC 62561-4. CAPE Type : FSCH 14-8	Nos	5		0.00
	TN-S PME Earthing System				
21	Supply of Rust resistant non corrosive 10 mm Dia Copper Bonded solid Steel round conductor used for Earth termination inside the concrete and soil. Used as vertical riser in column. Meets the requirement of IS/IEC 62305. Test parameter: a) Short circuit current test for copper bonded conductor: Test 6.6 kA ratings, as per cross sectional area for 1 sec (IS3043/IEEE80). b) Electrical Resistivity : 0.1 m c)Tensile strength 672 N/mm². d)Adhesion no peel or crack & Bend test no separation of Cu, e) Cu Coating thickness min. 70µm. Tested as per IEC 62561-2. CAPE Type : CBSR 10	Meters	50		0.00
22	Supply of 18 mm copper bonded Solid Steel Round Conductor with minimum coating thickness 70µm as integrated down conductor. Material should be tested Tensile strength, Electrical Resistivity, salt mist, and condition of Bend to meet the requirements of IS/ IEC 62305 and IEC 62561-2. CAPE Type : CBSR 18	Meters	45		0.00
23	Supply of Multi Conductor Bonding Clamp Copper Coated for interconnecting 10 - 18 mm Round Conductor with reinforcement rebar ranging 16 to 32mm at every interval of 3Mtr inside the concrete to meet the requirements of IS/IEC 62305 and IEC 62561-1. CAPE Type : MCBC - 101832	Nos	29		0.00
24	Supply of Stainless steel Straight Connector for interconnecting 10 mm dia copper bonded round conductor at straight connection to meets the requirement of IS/IEC 62305. Test Parametres: a) Static Mechanical Test b) Environmental Test Tested as per IEC 62561-1 CAPE Type : SC 8-10	Nos	10		0.00
25	Supply of 18mm stainless steel straight connector at every interval of 5 mtr or as per site condition is considered in an integrated down conductor and grid. It should be tested for static mechanical and environmental tests to meet the requirements for IS/IEC 62305 and IEC 62561-1. CAPE Type : SC 16-18	Nos	9		0.00
26	Supply of Trivalent Coated MS cross connector for 10 mm dia round conductor to meet the requirement for IS/IEC - 62305. Test Parameter a) Static Mechanical Test b) Lightning Impilse Current (Iimp) Tested for IEC 62561-1 CAPE Type : CCMS 8-10	Nos	1		0.00
27	Supply of Diagonal clamp MS for interconnecting 10 - 18 mm dia round conductor with reinforcement rebar at every interval of 3Mtr inside the concrete to meet the requirements of IS/IEC 62305 and IEC 62561-1. CAPE Type : DCMS	Nos	3		0.00

Sl.No	Description	Unit	Qty.	Rate (Rs.)	Amount (Rs.)
28	Supply of Stainless steel Earthing stud -1 with fixing clamp accessories of dimension 69 x 69 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 5 KA; Ipeak- 10.5 KA Per sec CAPE Type : ES 1 RA1	Nos	13		0.00
29	Supply of Stainless steel Earthing stud - 3 with fixing clamp accessories of dimension 69 x 99 mm used in structural steel ring earthing system to meet the requirements of IS/IEC 62305 and tested as per IEC 62561-1. Rated Current (CPRI TESTED): Irms- 8 KA; Ipeak- 17 KA Per sec CAPE Type : ES 3 RA1	Nos	29		0.00
				Grand Total	**0.00**

ANNEXURE 3					
IIIT SRICITY, PLUMBING FIXTURES LIST					
			JAQUAR	**HINDWARE**	**BATHSENSE**
			MODEL NO.	**MODEL NO.**	**MODEL NO.**
1.01	FLOOR MOUNTED WC WITH CISTERN	Each	ARS-WHT-39751P180UFSMZ	Cat. No.: 20089 (S-10) Cist.: 21038 Pastel Complete Set	OP-62-UF OP-62 WITH UF SEAT COVER 355X630X740
1.02	WASH BASIN	Each	ARS-WHT-39903	Cat. No.: 91065 Starwhite	INVICTUS TT-35-X TABLE-TOP BASIN - 390X390X135
1.03	WASH BASIN MIXTER	Each	COP-001BPM Single Lever Basin Mixer without Popup Waste with 450mm Long Braided Hoses	Cat. No.: F460009	
1.04	BOTTLE TRAP	Each	ALD-769L250x190 Bottle Trap 32mm Size with 250mm & 190mm Long Wall Connection Pipes & Wall Flange	Cat. No.: F850004	C231A* BOTTLE TRAP HEAVY WITH 300MM PIPE CP
1.05	GLASS SHELF	Each	ACN-1171N Glass Shelf 600mm Long	Cat. No.: F870011	AC107 GLASS/ACRYLIC SHELF (56CMX13CM)
1.06	WASTE COUPLING	Each	ALD-727 Click Clack Waste 32mm Size Full Thread With 80mm Height	Cat. No.: F860032	C230B 3" WASTE COUPLING HEAVY FULL THREADED
1.07	ANGLE VALVE	Each	VGP-81053 Angular Stop Cock with Wall Flange	Cat. No.: F850073	OBAC101 ANGLE COCK WITH WF
1.08	HEALTH FAUCET	Each	ALD-573 Hand Shower (Health Faucet) with 8mm Dia, 1.2 Meter Long Flexible Tube & Wall Hook	Cat. No.: F160068	REHF101 WHITE CHROME HEALTH FAUCET
1.09	TOILET PAPER HOLDER	Each	AKP-35751P Toilet Roll Holder	Cat. No.: F450027	HXTP201 TOILET PAPER HOLDER WITH COVER

IIIT SRICITY, PLUMBING FIXTURES LIST					
			JAQUAR	**HINDWARE**	**BATHSENSE**
			MODEL NO.	**MODEL NO.**	**MODEL NO.**
1.10	COAT HOOK	Each	AQN-7761 Double Coat Hook	Cat. No.: F870007	HXRH101 ROBE HOOK
1.11	SOAP DISPENSER	Each	ACN-1135N Soap Dispenser with Glass Bottle		S1LS101 LIQUID SOAP DISPENSER
1.12	2-WAY BIB COCK	Each	QQP-7041PM 2-Way Bib Cock with Wall Flange	Cat. No.: F520005	OBBC102 BIB COCK 2-IN-1 WITH WF
1.13	KITCHEN SINK	Each	JAYNA -SBSD 05 (RR) Glossy		DRM37188 DRAINBOARD 37X18X8 MATTE
1.14	KITCHEN SINK MIXER	Each	COP-179BPM Side Single Lever Sink Mixer with Swinging Spout (Table Mounted) with 450mm Long Braided Hoses	Cat. No.: F520028	OBSM401 SL SINK MIXER
1.15	LONG BODY BIB TAP	Each	CON-107KN Long Body Bib Cock with Wall Flange	Cat. No.: F730011	MABC102 LONG BODY BIB COCK (FF) WF
1.16	TOWEL RING	Each	ACN-1121BN Towel Ring Round with Round Flange	Cat. No.: F450023	SQTW201 TOWEL RING
1.17	SHOWER DIVERTER	Each	ARC-87681K Aquamax Exposed Part Kit of Thermostatic Shower Mixer with 2-way diverter (Suitable for ALD-681)	Cat. No.: F320019	MYWM101 WM TSA SHOWER SOLD SEPARATELY
1.18	SHOWER ARM	Each	SHA-477 Shower Arm Casted 160mm Long Light Body Round Shape for Wall Mounted Showers with Flange	Cat. No.: F110031	MYWM101 WM TSA SHOWER SOLD SEPARATELY

IIIT SRICITY, PLUMBING FIXTURES LIST					
			JAQUAR	**HINDWARE**	**BATHSENSE**
			MODEL NO.	**MODEL NO.**	**MODEL NO.**
1.19	RAIN SHOWER	Each	OHS-1759 Overhead Shower ø180mm Round Shape Single Flow (ABS Body Chrome Plated with Gray Face Plate) with Rubit Cleaning System	Cat. No.: F500008	MYWM101 WM TSA SHOWER SOLD SEPARATELY
1.20	SOAP DISH HOLDER	Each	ACN-1131N Soap Dish Holder	Cat. No.: F870004	HXSD101 SOAP DISH
1.18	TOWEL RAIL	Each	AKP-35711PS Single Towel Rail 600mm Long, Stainless Steel	Cat. No.: F450024	HXTW102 DOUBLE TOWEL RAIL

ANNEXURE 3			
IIIT SRICITY, LIGHTING FIXTURES MAKE & MODELS			
1.01	NS	18W surface mounted led tube light	PHILIPS (BN170 LED20S) / HAVELLS (LUMILINE 18W)
1.02	NS	20W surface mounted led down light	PHILIPS (SM296C LED20S) / HAVELLS (INTEGRA NXT 18W SURFACE)
1.03	NS	9W recess mounted led down light	PHILIPS (DN295B LED10S) / HAVELLS (VIBE 9W)
1.04	NS	20W recess mounted led down light	PHILIPS (DN296B LED20S) / HAVELLS (INTEGRA NXT 18W)
1.05	NS	9W surface mounted bulk head light	PHILIPS (WT202W LED10S) / HAVELLS (HEXA 10W)
1.06	NS	63W surface mounted led down light medium bay	PHILIPS (BY712 LED 100S) / HAVELLS (ENDURA WELL GLASS 70W)
1.07	NS	9W surface mounted led mirror light	PHILIPS (SM296C LED10S) / HAVELLS (LUMILINE 10W)
1.08	NS	36W (2'x2') recess mounted led light	PHILIPS (RC380 LED 42S) / HAVELLS (VENUS TREND 36W)
1.09	NS	11W surface mounted led mirror light	PHILIPS (BN021 LED12S) / HAVELLS (LUMILINE 10W)
1.10	NS	18W surface mounted led down light	PHILIPS (SM296C LED20S) / HAVELLS (INTEGRA NXT 18W SURFACE)
1.11	NS	9W surface mounted led down light	PHILIPS (SM296C LED10S) / HAVELLS (INTEGRA NXT 12W SURFACE)

ANNEXURE 4

BOQ1	Item Description
Sl. No. 3	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including disposal of excavated earth, lead upto 500m and lift upto 1.5m, disposed earth to be levelled and neatly dressed as directed by Engineer-in- charge.
Sl. No. 5	During the excavation if required Contractor has to arrange & run Dewatering Bore to maintain site water table below 1 mtr from deepest foundation level including casing, perforated pipes, soil filter, Submersible pumps, connecting wire, including all tools and tackles, connecting the discharge pipe to nearest drain from site premises. Contractor must ensure all safety and ensure backup pumps in case of any breakdown. The complete system is to be installed as per engineer's satisfaction. Cost is inclusive of Providing and running Diesel Generator (1 Running/ 1 Standby) with required fuel. Contractor has to arrange & maintain temporary drainage system till completion of Foundation casting & curing period of foundation. disposal of extracted water in accordance with environmental regulations; and restoration of the site post-dewatering. All work should comply with relevant safety standards and local regulations, ensuring minimal disruption to the surrounding environment and structures.No extra amount shall be claimed by the contractor on this account and his quoted rates shall be deemed to include dewatering if required. The Contractor to make his assessment for the same.
Sl. No. 48	Extra for providing and fixing of customized formwork for Waffle slab shuttering (over general shuttering beams & slab) using FRP Waffles of size as per design, including all necessary supports, alignment, and sealing to prevent leakage of concrete slurry. The work includes the supply of materials, installation, and removal after the concrete has set. Waffle should be Smooth finish to ensure easy removal and clean surface post-concreting. All materials and installation work will be subject to inspection by the project engineer. Materials must comply with relevant industry standards and specifications. Proper handling procedures to be followed to avoid damage to the FRP Waffles. Thorough cleaning of points and shuttering surface, greasing of pins, and oiling of shuttering surface before fixing. Waffles must be aligned accurately to ensure uniform beam thickness. Adequate support system to be provided to prevent any movement during concreting. Proper sealing to prevent leakage of concrete slurry. Contractor to provide smooth form-finished RCC surface. No plastering permitted on RCC surface. Any bulging, honeycombing, or other deficiencies are not acceptable and must be rectified at the contractor’s expense. Selection of either new or used slab moulds is at the decision of Engineer In-Charge.

Sl. No. 91	Providing & applying 18 mm thick cement plaster in two coats under layer 12 mm thick cement plaster 1:5 (1 cement : 5 coarse sand) finished with a top layer 6 mm thick cement plaster 1:6 (1 cement : 6 fine sand). The work includes providing and applying 18mm thick cement plaster in two coats on external walls and other surfaces at all heights and levels with required scaffolding. The first coat, or under layer, shall be 12mm thick and composed of a mix of cement and coarse sand in the ratio of 1:5 (one part cement to five parts coarse sand by volume). Price is inclusive of use of chicken mesh/wire mesh at the RCC and masonry joints wherever required/ as directed by Engineer-in-charge. The surface to be plastered shall be thoroughly cleaned and wetted before the application of the under layer. This layer shall be applied uniformly and allowed to set sufficiently before the application of the top layer. The top layer shall be 6mm thick and composed of a mix of cement and fine sand in the ratio of 1:6 (one part cement to six parts fine sand by volume). The top layer shall be applied over the under layer, ensuring a smooth and even finish with a trowel. All corners, edges, and junctions shall be neatly finished. The entire plastered surface shall be cured for a minimum of 7 days to achieve the desired strength and durability. All work shall be carried out in accordance with relevant standards and best practices, ensuring a high-quality finish.
Sl. No. 106	Providing and Fixing of Semi Unitized (Open Groove System) Structural Glazing system from Technal/ Fasado/ Kawneer/ Wicona/ Sapa/ Vitrosca/ Vs1 with inbuilt drainage and pressure equalization with structure designed for wind load as per IS-875 Part III and shall not be less than 1.75 Kpa for this project, fixed to existing RCC / Building structure with suitable HDG brackets and G.I. anchor fasteners (to existing RCC/ Steel structure at floor to floor level) duly powder coated as per requirement. - SYSTEM COST ONLY. 1. Performance Criteria: System must follow the relevant ASTM Standards ASTM E 283-04, ASTM E 331-09, ASTM E 330-10 and AAMA Standard AAMA 501.1-05, AAMA 501.4.9. System must be tested for Air infiltration at +300 Pascal, Static & dynamic Water penetration at +600 Pascal, wind load serviceability at +/- 1750 Pascal, Seismic floor displacement +/- 10mm and proof load for 150% of design wind pressure. System selected must have tested from International Testing laboratories/ NABL Test House and Test reports must be submitted with the tender. 2. For Profiles : Using heavy duty aluminium extruded built up profiles of approved make i.e. Mullion & Transome confirming to alloys per grade 6063 T5 or T6 as per BS 1474. All gaskets shall be micro wave cured EPDM gaskets with necessary shore hardness and with warranty of 10 years. All mullion transom connections will be using specially developed connectors and with SS screws.

Sl. No. 108	7. For Alignment : The glazing frame shall be aligned for the entire height and for the entire width of each transom. a. The Expansion joints between two mullions should be created by inserting 200 mm long Aluminium Expansion Sleeve Tube, and the expansion gap should not be more than 10 mm. The Expansion joint must be properly sealed all around with weather sealant to make it water tight. b. The periphery of the glazing shall be sealed both from inside and outside with silicone weather sealant of approved grade to make the glazings water / airtight. c. Gaps up to 10mm between the peripheral aluminum member and masonry / R.C.C. / stone shall be sealed by inserting Backer Rod and weather silicon sealant. Wherever the gaps are expected to be more than 10 mm, shall be sealed by providing and fixing of 2mm thick aluminium sheet / 4 mm thick ACP flashing)s (To be paid in separate line item)duly Pure Polyester powder coated to 50-60 Micron thickness in approved colour / anodized to 20 - 25 microns bent to required profile as per site requirement d. A 10 year warranty shall be obtained from the structural sealant manufacturer for all structural sealant applied at site and submitted to the owners on completion of the work.
Sl. No. 155	Providing and Installing of Acoustical micro look edge 600x600mm and 15 mm thickness, easily demountable tile, Option of weekly dusting, vacuum cleaning, manufactured from High density glass wool utilizing the 3RD Technology, visible surface is a batch painted glass tissue in white, back of the tile covered with glass tissue. 83% light reflectance. Tiles classified under sound absorption class A with "alpha w " value of 0.95 at minimum 200mm o.d.s. Sound absorption test results measured according to EN ISO 354 and classification according to EN ISO 11654 and the single value rating for NRC value - 0.9 according to ASTM C 423 . Tiles should have white colour " White 500 " nearest NCS colour sample S 0500 - N with tiles withstand a permanent ambient RH up to 95% at 30 degree C without sagging , warping and delaminating (ISO 4611).Ceiling is consist of Axiom profile for hanging effect wherever required. Axioms channels 50mm mm wide face with 19.3mm(+/-0.50mm) horizontal legs, straight sections with special bosses formed for attachment to the Axiom tee-bar connection clip or hanging clip, extruded Aluminum, factory finished (minimum 34-50 microns factory - applied baked polyester paint). These are Aluminum Extrusions formed with distinct architectural detail groove on top and bottom flanges and special bosses to receive the tee bar connection clips and splice plates, to provide positive mechanical lock with no visible fasteners. Hang the sections of Axiom Trim onto the grid system by engaging the top ear of the connection clip under the boss of the channel trim. Slide the lower leg downward to engage the lower boss on the trim and secure by tightening the locking screw.

Sl. No. 157	Framing system:- Providing and fixing Gypsteel pre coated (Exposed portion only) GI T Grid system in 600x600mm module which includes providing and fixing wall angle along the perimeter of the room with help of nylon sleeves and wooden screws at 300mm centers. Then suspending the main tee of size from the soffit with help of soffit cleat, rawl plugs and wire rod with Leveling spring clip at 1200mm c/c. 1200mm Cross Tee is then interlocked into the pre-cut slots in the main Tees at 600mm centers in direction perpendicular to the main Tee to make a grid of 600x600mm.Finally 600mm Cross tees are then interlocked into the pre cut slots in the 1200mm tees at 1200mm centers and in direction parallel to the main tee. Cross Tees having length more than 600mm are to be supported independently. Dimensions:- Main Runner 'T' section of size 14x38mm hot dipped galvanized steel body and capped with precoated of dipped galvanized steel and 3.6mtr. Long. Cross Runner 'T' section of size 14x25mm hot dipped galvanized steel body and capped with precoated of dipped galvanized steel and 1.2/0.6mtr. Long. Perimeter wall angle of hot dipped galvanized steel angle body of size 19x19mm and 3.05mtr. long. Complete in all respect as per the direction of Architect/Engineer-in-charge. Cost is inclusive of all necessary scaffolding.
Sl. No. 478	Supplying, installation, testing and commissioning of floor mounted indoor type cubicle panel of size not less than 2.1 m (H) x 2.4 m (W) x 0.3 m (D) made out of 2 mm thick CRCA sheet for frame work and covers, compartmentalised, dust and vermin proof, hinged doors with knobs 3 mm thick gland plate i/c cleaning and finishing with 7 tank process for powder coating in approved shade, 1000 amps capacity TPN aluminium bus bars of high conductivity and all connection to individual circuits from the bus bar shall prefebly be solid connections, DMC/ SMC bus bar supports and necessary cable supports for clamping the cable in the cable alley, PVC sleeves or insulated in approved manner for all connections and bus bar, bottom base channel of ISMC 100 x 50 mm (9.2 Kg/m), G.I earth bar of size 50 mm x 6 mm at the rear for the entire width of the panel with 2 Nos. earth studs, connections from bus bar to switchgear and control wiring with required size FRLS PVC insulated copper conductor cable of suitable size, cable alley, separate gland plate for each cable entry 3mm thick gland plates including providing and fixing the following switchgear, as per attached technical specifications, as required. (MDB-AB)
Sl. No. 490	Supplying, installation, testing and commissioning of floor mounted indoor type cubicle panel of size not less than 2.1 m (H) x 1 m (W) x 0.3 m (D) made out of 2 mm thick CRCA sheet for frame work and covers, compartmentalised, dust and vermin proof, hinged doors with knobs 3 mm thick gland plate i/c cleaning and finishing with 7 tank process for powder coating in approved shade, 630 amps capacity TPN aluminium bus bars of high conductivity and all connection to individual circuits from the bus bar shall prefebly be solid connections, DMC/ SMC bus bar supports and necessary cable supports for clamping the cable in the cable alley, PVC sleeves or insulated in approved manner for all connections and bus bar, bottom base channel of ISMC 100 x 50 mm (9.2 Kg/m), G.I earth bar of size 50 mm x 6 mm at the rear for the entire width of the panel with 2 Nos. earth studs, connections from bus bar to switchgear and control wiring with required size FRLS PVC insulated copper conductor cable of suitable size, cable alley, separate gland plate for each cable entry 3mm thick gland plates including providing and fixing the following switchgear, as per attached technical specifications, as required. SDB -1

Sl. No. 498	Supplying, installation, testing and commissioning of floor mounted indoor type cubicle panel of size not less than 2.1 m (H) x 1 m (W) x 0.3 m (D) made out of 2 mm thick CRCA sheet for frame work and covers, compartmentalised, dust and vermin proof, hinged doors with knobs 3 mm thick gland plate i/c cleaning and finishing with 7 tank process for powder coating in approved shade, 630 amps capacity TPN aluminium bus bars of high conductivity and all connection to individual circuits from the bus bar shall prefebly be solid connections, DMC/ SMC bus bar supports and necessary cable supports for clamping the cable in the cable alley, PVC sleeves or insulated in approved manner for all connections and bus bar, bottom base channel of ISMC 100 x 50 mm (9.2 Kg/m), G.I earth bar of size 50 mm x 6 mm at the rear for the entire width of the panel with 2 Nos. earth studs, connections from bus bar to switchgear and control wiring with required size FRLS PVC insulated copper conductor cable of suitable size, cable alley, separate gland plate for each cable entry 3mm thick gland plates including providing and fixing the following switchgear, as per attached technical specifications, as required. SDB -2

GEOTECHNICAL INVESTIGATION REPORT
for Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India

EXECUTIVE SUMMARY

M/s. Indian Institute of Information Technology, Sricity, Chittoor, Andhra Pradesh, India are proposing Campus Infrastructure Development Works at their existing campus in Sricity, Chitoor, Andhra Pradesh, India.

The site for the proposed project is situated within the existing campus of M/s IIIT at Sri city, Chittoor District, Andhra Pradesh. The site is open on all the sides and is fairly level in topography.

As per the clients information, the proposed campus infrastructure development consists of an Entrance Arch (of about 25m width and 6.5m height), Academic block (having single basement, Ground floor and 2 upper floors), a Student activity centre (having ground floor and 1 upper floor) and Boys Hostel 5 (having a ground floor and 10 upper floors).

Geotechnical investigations have been undertaken at the site as per the scope of investigations stipulated by the client, which consisted of conducting a total of 10 boreholes, out of which boreholes BH1, BH2, BH6 & BH7 were to be conducted down to 10m depth and boreholes BH3, BH4, BH5, BH8, BH9 & BH10 were to be conducted down to refusal/rock strata (where N-value is >100) and further drilling in refusal strata by 1.5/3m depth.

The results of borehole investigations indicate the presence of filled-up strata (soil with brick bats only at the location of borehole BH1) down to 0.8m depth below which virgin soil was encountered. The virgin soil is Brown/Grey/White with brown/ Brownish red/ Brownish grey/Brownish white clayey silty sand with or without gravel down to the depths of refusal strata encountered at 13.5-16.5m depths below existing ground level. The refusal strata encountered is in the form of brown clayey silty sand with/without gravel and continued down to the termination depths of 15-18m depth below existing ground level. A layer of clayey silty sand with gravel & pebbles/ clayey sandy slit with gravel & pebbles was encountered between 2.1-5.6 to 6.8-10.5m

depth below existing ground level. A layer of brownish red silty sand with gravel was encountered between 4m to 5.7m depth only at the location of borehole BH2.

The soil strata is in a medium dense state from existing ground level down to the depths of refusal strata encountered at 13.5-16.5m depths below existing ground level.

Ground water table was encountered between 0.8m and 3.8m depths in the boreholes during the period of field investigations.

In view of the observed subsoil conditions, the proposed Buildings can be supported on *Shallow Foundations - Isolated/Strip Footings or Raft foundations.*
For Entrance Arch and Student Activity centre, the Isolated/Strip Footings can be laid at a minimum depth of 2m below existing ground level with a Net allowable bearing pressure of 11t/m² for widths of foundations >1.5m.
For Academic Block ,the Isolated/Strip Footings can be laid at about 4m depth below existing ground level with a net allowable bearing pressure of 12t/m² for widths >1.5m.
For Boys Hostel 5*, the Raft foundations can be laid at a minimum depth of 2m below existing ground level with a net allowable bearing pressure of 18t/m².*

The excavated soil can be used for backfilling purposes.
After the excavations for the foundations, the foundation surface should be watered for at least 24 hours. The top slush should then be removed and the surface compacted heavily. If any loose pockets are observed, the same shall be filled with brickbats/ gravel and compacted well. Foundations can subsequently be placed over such a prepared surface.
Stiff Tie-beams connecting the columns in both directions may be provided which will render additional rigidity to the structure.

REPORT ON GEOTECHNICAL INVESTIGATION FOR

CAMPUS INFRASTRUCTURE DEVELOPMENT WORKS AT IIIT,

SRICITY, CHITOOR, ANDHRA PRADESH, INDIA

1.0 INTRODUCTION

1.1 Overview

1.1.1 M/s. Indian Institute of Information Technology, Sricity, Chittoor, Andhra Pradesh, India are proposing Campus Infrastructure Development Works at their existing campus in Sricity, Chitoor, Andhra Pradesh, India.

1.1.2 The geotechnical investigations have been carried to ascertain the soil conditions for the design of foundations of the proposed Building.

1.2 Authority

A detailed geotechnical investigations programme has been conducted as per the authorisation by M/s. Indian Institute of Information Technology, Sricity, Chittoor, Andhra Pradesh vide their Work Order no: IIITS/PMC/WORKS/2024/07026 dated 26.07.2024.

2.0 PROJECT DETAILS

2.1 Site Location

The site for the proposed project is situated within the existing campus of M/s IIIT at Sri city, Chittoor District, Andhra Pradesh.

2.2 Site Layout and Topography

2.2.1 The site is open on all the sides and is fairly level in topography.

2.2.2 The colour of the exposed soil surface is Brown.

2.3 The Structure

As per information provided by the client, the proposed campus infrastructure

development consists of

a) Entrance Arch (of about 25m width and 6.5m height)

b) Academic block (having a single basement, Ground floor and 2 upper floors)

c) Student activity centre (having a ground floor and 1 upper floor)

d) Boys Hostel 5 (having a ground floor and 10 upper floors)

2.4 Seismic Zone

Site for the proposed project is situated in Sricity, Andhra Pradesh near Chennai which falls under Seismic Zone III as per IS 1893 (Part 1) - 2016.

2.5 Geographical Information

2.5.1 The site for the proposed campus infrastructure development is located at:

a) Latitude : 13˚31'

b) Longitude : 79˚59'

3.0 OBJECT OF INVESTIGATIONS

3.1 For designing the foundation system of the proposed campus development strucures, the following data are required:

a) Type of foundation system.

b) Depth below the ground level at which the foundation system is to be laid.

c) Allowable bearing pressure at the foundations levels.

3.2 To determine above factors, the following information would be required:

a) The subsoil profile indicating thicknesses of the various soil strata, to a depth down to the influence zone below the foundations.

b) Engineering properties of the soil strata at various levels.

c) Physical characteristics of the soil strata.

d) Variation of the strength of the strata with depth.

3.3 For evaluating the above parameters, field investigations and laboratory investigations on the soil samples collected during the field investigations, have been carried out.

3.4 The results from these investigations have been analysed to provide the recommendations for the design of foundations.

4.0 SCOPE OF INVESTIGATIONS

4.1 Scope of investigations as given in the work order consisted of:

a) Conducting total 10 boreholes, out of which 6 boreholes were to be conducted down to refusal/rock strata (where N-value is >100) and further drilling in refusal/rock strata by 1.5/3m and the other 4 boreholes were to be conducted down to 10m depth, as required by the client.

b) Conducting standard penetration tests at 1.5m intervals.

c) Recovering undisturbed soil samples from various levels of the subsoil strata.

d) Recording ground water table levels, if met with.

e) Conducting relevant laboratory tests on soil samples recovered.

f) Preparation and submission of a technical report containing the details of the tests carried out, their analysis and recommendations regarding the foundation system to be adopted. Two copies of the report are to be submitted.

5.0 FIELD INVESTIGATIONS

5.1 Preliminary Details

5.1.1 The locations of the boreholes were shown at site by the client's representative. A schematic site plan showing the location of the boreholes is given in fig. 1.

5.1.2 Weather was clear during field investigations which were carried out in the month of August 2024. There were few spells of rain during the period of field investigations.

5.2 Boreholes

5.2.1 The boreholes were progressed by mechanically operated rotary core drill method.

5.2.2 Boreholes designated as BH3, BH4, BH5, BH8, BH9 & BH10 were terminated after drilling a minimum of 1.5/3m in refusal strata (where N-value is >100). The refusal strata encountered is in the form of clayey silty sand with or without gravel. The boreholes designated as BH1, BH2, BH6 & BH7 were terminated at 10m depth below existing ground level. All the three boreholes were terminated as per the stipulated scope of work.

5.2.3 The depths at which ground water table was encountered in the boreholes during the period of field investigations and the termination depths of the boreholes are given in the following table.

Location	BH No.	Depth of Ground Water Table Below EGL (m)	Termination Depth Below EGL (m)
Entrance Arch	1	3.8	10
	2	3.8	10
Academic block	3	2.4	18
	4	2.4	17.5
	5	2.4	18
Student activity	6	2.9	10
	7	3.2	10
Boys Hostel 5	8	0.8	16.5
	9	1	16
	10	1	15

5.2.4 Ground water table was encountered between 0.8m and 3.8m depths in the boreholes during the period of field investigations.

5.2.5 Standard Penetration Tests were conducted in soil strata at 1.0m depth intervals.

5.2.6 Disturbed soil samples recovered from split spoon sampler were packed in polythene bags, labelled and retained for identification purposes.

5.2.7 Undisturbed soil samples were recovered by thin walled tubes conforming to IS 2132. These tubes had an area ratio of less than 10%. The diameter of soil samples were 50mm and length 45cm.

6.0 LABORATORY INVESTIGATIONS

6.1 The soil samples brought to the laboratory were subjected to various tests to determine the following properties

a) Type of soil and its gradation

b) Consistency limits

c) Natural density

d) Natural water content

e) Shear strength properties

6.2 In order to determine the above properties listed in 6.1, the following tests were conducted.

a) Sieve analysis on the coarse grained soil fraction

b) Hydrometer analysis on the fine grained soil fraction

c) Liquid and plastic limits

d) Natural Density and Water Content tests

e) Triaxial compression tests

f) Free Swell Index tests

7.0 RESULTS AND ANALYSIS

7.1 Presentation of Results

7.1.1 The results of borehole investigations and of the laboratory investigations conducted on

the soil samples collected from the boreholes have been presented in the form of soil profile tables in Table Nos. 1 to 15.

7.1.2 The soil profile tables indicate the following:

a) Standard Penetration Test Values (i.e. N- values observed) at various depths

b) Soil description identifying the type of soil

c) Grain size analysis indicating composition of subsoil

d) Consistency limits

e) In-situ bulk density and Water content

f) Triaxial test results

7.2 Analysis of Soil Profile

7.2.1 A perusal of the data presented in the soil profile tables indicate the presence of the following soil strata.

a) Stratum - I : Filled up (Soil with brickbats)

b) Stratum - II : Brown/brownish white/white with brown/brownish red/brownish grey/grey clayey silty sand with or without gravel

c) Stratum - III : Brownish red silty sand with gravel

d) Stratum - IV: Brown/brownish grey/grey clayey silty sand with gravel & pebbles / clayey sandy silt with gravel & pebbles

7.2.2 The thicknesses in each borehole of each strata described in 7.2.1 are given in the table below:

BH No.	Depth (m) : from - to			
	Stratum - I	**Stratum - II**	**Stratum - III**	**Stratum - IV**
1	0.0 - 0.8	0.0 - 10	-	-
2	-	0.0 - 4 5.7 - 10	4 - 5.7	-

BH No.	Depth (m) : from - to			
	Stratum - I	**Stratum - II**	**Stratum - III**	**Stratum - IV**
3	-	0.0 - 3.3 9.0 - 18	-	3.3 - 9
4	-	0.0 - 2.3 6.8 - 17.5	-	2.3 - 6.8
5	-	0.0 - 4.2 9 - 18	-	4.2 - 9
6	-	0.0 - 2.6 8.4 - 10	-	2.6 - 8.4
7	-	0.0 - 3.8 6.5 - 10	-	3.8 - 6.5
8	-	0.0 - 5.6 10.5 - 16.5	-	5.6 - 10.5
9	-	0.0 - 2.1 9.5 - 11 13 - 16	-	2.1 - 9.5 11 - 13
10	-	0.0 - 4.1 7.3 - 8.9 12 - 15	-	4.1 - 7.3 8.9 - 12

7.2.3 The above results show that :

a) Stratum - I consisting of Filled-up strata (soil with brickbats) has been encountered down to the depth of 0.8m below existing ground level only at the location of borehole BH1.

b) Stratum - II consisting of Brown/brownish white/white with brown/brownish red/brownish grey/grey clayey silty sand with or without gravel having significant percentages of sand and varying percentages of silt, clay and gravel, has been generally encountered from the ground level down todepths varying from 2.1m to 10m below existing ground level and also from about 6.5m to 10m down to the termination depths of the boreholes of 10m to 18m below existing ground level.

c) Stratum - III consisting of Brownish red silty sand with gravel having significant percentages of sand and varying percentages of silt and gravel, has been encountered from 4m to 5.7m depths below existing ground level, only at the location of borehole BH2.

d) Stratum - IV consisting of Brown/brownish grey/grey clayey silty sand with gravel & pebbles / clayey sandy silt with gravel & pebbles having significant percentages of sand and varying percentages of silt, clay and gravel & pebbles, has been encountered as layers in between Stratum - II from about 2.1m to 5.6m down to about 6.5m to 13m below existing ground level, only at the locations of boreholes BH3 to BH10.

7.3 Soil Composition

7.3.1 The grain size distribution of the soil samples at various depths, as determined in the laboratory have been presented in the form of grain size analysis curves in figs. 3a to 3m.

7.3.2 The variations in the grain size distribution - strata wise across the boreholes are as follows:

a) Stratum - II : Brown/brownish white/white with brown/brownish red/brownish grey/grey clayey silty sand with or without gravel

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
1	0 - 19	50 - 75	18 - 28	7 - 13
2	0 - 3	48 - 76	16 - 33	5 - 20
3	0 - 8	51 - 74	19 - 28	6 - 14
4	0 - 28	49 - 79	16 - 21	5 - 10
5	0 - 11	53 - 74	19 - 30	7 - 16

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
6	21 - 27	45 - 56	17 - 24	4 - 10
7	0 - 23	50 - 60	17 - 25	6 - 19
8	0 - 27	52 - 58	14 - 30	5 - 16
9	0 - 2	51 - 74	19 - 29	7 - 18
10	0 - 18	48 - 75	18 -32	8 - 20

b) Stratum - III : Brownish red silty sand with gravel

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
2	50	39	11	0

This stratum was encountered only at the location of borehole BH2.

c) Stratum - IV : Brown/brownish grey/grey clayey silty sand with gravel & pebbles / clayey sandy silt with gravel & pebbles

BH No.	Gravel (%)	Sand (%)	Silt (%)	Clay (%)
3	4 - 11	50 - 65	19 - 30	7 - 16
4	3 - 26	46 - 58	20 - 29	8 - 16
5	6 - 17	28 - 69	19 - 39	6 - 27
6	4 - 32	32 - 54	18 - 38	6 - 26
7	3 - 6	29 - 33	38 - 40	24 - 26
8	11 - 24	47 - 60	17 - 23	6 - 10
9	5 - 23	49 - 57	16 - 30	6 - 16
10	2 - 18	50 - 58	22 - 30	8 - 18

This stratum was not encountered at the locations of boreholes BH1 &BH2.

7.3.3 The above results indicate that the soil in :

a) Stratum - II consists of about 4-20% of clay, 14 - 33% of silt, 45 - 79% of sand and 0 - 28% of gravel.

b) Stratum - III consists of about % of silt, 39% of sand and 50% of gravel.

c) Stratum - IV consists of about 6 - 27% of clay, 13 - 38% of silt, 46 - 69% of sand and 2 - 32% of gravel & pebbles/24 - 26% of clay, 29 - 33% of sand, 38 - 40 % of silt and 3 - 6% of gravel & pebbles.

7.4 In-situ Density and Water Content

7.4.1 The bulk/in-situ bulk densities, water contents and dry densities obtained from undisturbed soil samples are tabulated below.

BH No.	Depth (m)	In-situ Bulk Density (g/cm^3)	Water Content (%)	Dry Density (g/cm^3)
1	1.5	1.81	12.6	1.61
	3	1.88	11.1	1.69
	4.5	1.83	10.9	1.65
	6	1.96	11.2	1.76
	7.5	1.99	9.6	1.82
2	2	1.85	13.7	1.63
	3.5	1.87	13.5	1.65
3	2	1.91	11.2	1.72
4	1.5	1.77	12.2	1.58
5	2	1.82	12.1	1.62
	3.5	1.91	13.2	1.69
	9.5	1.98	11.2	1.78
	11	1.99	10.8	1.80
6	2	1.81	11.6	1.62
7	1.5	1.80	12.1	1.61
	3	1.85	13.2	1.63
8	2	1.81	11.9	1.62
	3.5	1.85	10.8	1.67

BH No.	Depth (m)	In-situ Bulk Density (g/cm^3)	Water Content (%)	Dry Density (g/cm^3)
	5	1.91	9.7	1.74
9	1.5	1.79	9.6	1.63
	2	1.79	12.1	1.60
10	3.5	1.93	14.7	1.68
	8	2.03	13.2	1.79

7.4.2 The above results indicate that the soil strata is in a medium dense state. Undisturbed soil samples could not be collected satisfactorily at some depths beyond 4m, as pebbles were encountered and the tubes got damaged and in some cases, the samples were cohesionless and sampling was done below ground water table level.

7.5 Consistency Limits

7.5.1 The Consistency Limit determined for the soil in Stratum - II (Brown/brownish white/white with brown/brownish red/brownish grey/grey clayey silty sand with or without gravel) indicates that the liquid limit varies between 20% to 28%, plastic limit varies between 13% to 15% and plasticity index varies between 7% to 13%.

7.5.2 The Consistency Limits determined for the soil in Stratum - III Brownish red silty sand with gravel) indicate that the soil in this strata is non plastic in nature.

7.5.3 The Consistency Limits determined for the soil in Stratum - IV (Brown/brownish grey/grey clayey silty sand with gravel & pebbles / clayey sandy silt with gravel & pebbles) indicates that the liquid limit varies between 20% to 38%, plastic limit varies between 13% to 17% and plasticity index varies between 7% to 21%.

7.5.4 The Consistency Limits indicate that the soil in :

a) Stratum - II (Brown/brownish white/white with brown/brownish red/brownish grey/grey clayey silty sand with or without gravel) is low to medium plastic in

nature.

b) Stratum - III (Brownish red silty sand with gravel) is non plastic in nature.

c) Stratum - IV (Brown/brownish grey/grey clayey silty sand with gravel & pebbles / clayey sandy silt with gravel & pebbles) is low to medium plastic in nature.

7.6 Standard Penetration Tests

7.6.1 Standard Penetration Test values (N-values observed) are presented in the soil profile table nos.1 to 15.

7.6.2 Standard Penetration Test values (N-values observed) have also been presented in form of plots of N-values vs depth in figs. 4a & 4b.

7.6.3 The N-values indicate that the soil strata is in a medium dense state down to the depths of refusal strata encountered at 13.5/16.5m depth below existing ground level or down to the termination depths of the boreholes, with N-values ranging between 7 and 94.

7.7 Triaxial Test Results

7.7.1 The cohesion 'c' obtained from consolidated drained triaxial compression test varies between negligible to 0.15kg/cm² and the angle of shearing resistance 'ϕ' of the soil varies between 25˚ & 28˚.

7.8 Free Swell Index

7.8.1 The free swell index of the soil samples collected at various depths are given below:

BH No.	Free Swell Index (%) at Depth (m)			
	1	1.5	2.5	3
1	8.9	-	6.5	-
2	-	14.4	-	16.2
3	-	11.1	-	10.8

BH No.	Free Swell Index (%) at Depth (m)			
	1	1.5	2.5	3
4	5.1	-	8.9	-
5	-	7.7	-	13.7
6	-	8.9	-	13.6
7	16.2	-	11.8	-
8	-	13.8	-	14.2
9	8.2	-	14.3	-
10	-	9.8	-	17.2

7.8.2 The above results indicate that the soil strata is low swelling in nature. Hence, the excavated soil can be used for backfilling purposes.

7.9 Chemical Analysis of Soil

7.9.1 The results of chemical analysis of soil are given in the table below.

Description	Test Results					Limits as per IS 456-2000
	BH1	BH2	BH3	BH4	BH5	
Depth below EGL (m)	1	3	1.5	1	1.5	
Chloride (as Cl) %	0.009	0.005	0.008	0.009	0.008	-
Sulphate as (SO_3) %	0.002	BDL	0.003	0.004	0.003	< 0.2
pH value	7.3	7.2	7.6	7.8	7.7	-

Description	Test Results					Limits as per IS 456-2000
	BH6	BH7	BH8	BH9	BH10	
Depth below EGL (m)	1.5	1	3.5	1	1.5	
Chloride (as Cl) %	0.007	0.006	0.004	0.008	0.007	-
Sulphate as (SO_3) %	0.003	0.002	BDL	0.003	0.003	< 0.2
pH value	7.8	7.6	7.5	7.6	7.6	-

BDL - Below detectable limit

7.9.2 The above test results indicate that the sulphate content is less than 0.2%. Hence Ordinary Portland Cement/ Portland Slag Cement/ Portland Pozzolana Cement may be used for construction purposes as per IS 456-2000.

7.10 Chemical Analysis of Water

7.10.1 The results of chemical analysis of water is given in the table below.

Description	Test Results					IS 456-2000 limits
	BH1	BH2	BH3	BH4	BH5	
Chloride (as Cl) g/l	163	177	186	188	194	< 500 for Reinforced Concrete
Sulphate as (SO_3) g/l	71	63	89	96	91	< 400
pH value	7.3	7.4	7.9	7.8	7.7	> 6

Description	Test Results					IS 456-2000 limits
	BH6	BH7	BH8	BH9	BH10	
Chloride (as Cl) g/l	203	211	169	181	179	< 500 for Reinforced Concrete
Sulphate as (SO_3) g/l	101	94	81	86	77	< 400
pH value	7.8	7.7	7.6	7.2	7.3	> 6

7.10.2 The test results of water samples collected from the ground indicate that the ground water can be used for construction purposes as per IS 456-2000 and Normal cover as per IS specification may be provided to the reinforcement.

7.11 Compiled Soil Profile

7.11.1 An overview of the results and their analysis has been presented in the form of a compiled soil (fig. 2).

7.11.2 The above figure shows the various strata encountered and their thicknesses in each of the boreholes and also gives the soil composition and the observed N-values at various

depths along with the depth at which undisturbed soil samples were collected.

8.0 DESIGN CRITERIA

8.1 Primary Parameters

8.1.1 The parameters required for the design of foundation system for the proposed Building are:

a) Type of foundation to be adopted

b) Depth at which the foundations have to be laid

c) Allowable bearing pressure on the soil at the foundation level

8.1.2 On the basis of the analysis of the results of investigations, the required design parameters have been arrived at and are given in the following sections.

8.2 Type of Foundations

8.2.1 The type of foundation depends on the following:

a) Subsoil conditions

b) Type of structure

c) Configuration at loading points

d) Loading intensity on each sub-structure/structural element.

8.2.2 As per information provided by the client, the proposed campus infrastructure development consists of an Entrance Arch (of about 25m width and 6.5m height), Academic block (having a single basement, Ground floor and 2 upper floors), a Student activity centre (having a ground floor and 1 upper floor) and Boys Hostel 5 (having a ground floor and 10 upper floors).

8.2.3 The results of the investigations have shown that the soil strata is in a medium dense state from existing ground level down to the depths of refusal strata encountered at 13.5/16.5m depths below existing ground level.

8.2.4 In view of the above, *Shallow Foundations - Isolated/Strip Footings* can be adopted for the Entrance Arch, Academic Block and the Student Activity Centre while *Shallow Foundation - Raft Foundation* can be adopted for the Hostel Block 5.

8.3 Depth of Foundations

8.3.1 The depth at which foundations should be laid will be governed by the following criteria.

a) Top filled up strata/loose soil, if any

b) There should be sufficient thickness of soil above the footing/foundations so that the bearing capacity of the soil can be fully mobilised.

c) Soil below the level of footings/foundations should have the requisite strength to support the anticipated bearing pressures on the foundations without allowing the settlement of footings/foundations to exceed the acceptable limits.

d) Requirements of the type of structure (Entrance Arch of about 25m width and 6.5m height, Academic block having a single basement, Ground floor and 2 upper floors, a Student activity centre having a ground floor and 1 upper floor and Boys Hostel 5 (having a ground floor and 10 upper floors)).

8.3.2 The results of investigations have shown that the soil strata is in a medium dense state from existing ground level down to the depths of refusal strata encountered at 13.5-16.5m depth below existing ground level.

8.3.3 In view of the above factors, the minimum depth at which the foundations of the proposed structures can be laid are given below:

BH No.	Structure	Minimum Depth of Foundations Below EGL (m)
1 & 2	Entrance Arch	2

3, 4 & 5	Academic block	4
6 & 7	Student activity	2
8, 9 & 10	Boys Hostel 5	2

8.3.4 The soil available at the founding level will be Brown clayey silty sand with or without gravel and pebbles.

8.4 Allowable Bearing Pressure

8.4.1 An allowable settlement of 50mm has been considered to evaluate the allowable bearing pressure for Isolated/Strip footings and an allowable settlement of 75mm has been considered to evaluate the allowable bearing pressure for Raft Foundations.

8.4.2 Allowable bearing pressure has been evaluated by:

a) Shear failure criteria based on the average soil data

b) Settlement criteria based on the SPT values (N-values)

c) Settlement criteria based on deformation modulus

8.4.3 A water table correction factor of 0.5 has been considered.

8.4.4 On the basis of the above analysis, *recommended net allowable bearing pressures* for different structures are :

a) 11t/m² for widths of foundations >1.5m for Entrance Arch and Student Activity Centre

b) 12t/m² for widths of foundations >1.5m for Academic block

c) 18t/m² for Raft foundation for Boys Hostel 5

9.0 RECOMMENDATIONS

9.1 Type of Foundations

Shallow Foundations - Isolated/Strip Footings or Raft Foundations

9.2 Depth of Foundations and Allowable Bearing Pressure

Structure	*BH No.*	*Minimum Depth of Foundations Below EGL (m)*	*Net Allowable Bearing Pressure for Widths of Foundations > 1.5m*
Entrance Arch	*1 & 2*	*2*	*11*
Academic block	*3, 4 & 5*	*4*	*12*
Student activity	*6 & 7*	*2*	*11*

For Boys Hostel 5*, Net Allowable Bearing Pressure of 18t/m^2 can be adopted for Raft Foundation laid a minimum depth of 2m below existing ground level.*

9.3 Construction Advisories

9.3.1 The soil of each strata has been described with name, colour etc. During excavation, any variations observed in the nature and condition of the soil from those given in this Report should be noted and appropriate action should be taken.

9.3.2 The excavated soil can be used for backfilling purposes.

9.3.3 After the excavations for the foundations, the foundation surface should be watered for at least 24 hours. The top slush should then be removed and the surface compacted heavily. If any loose pockets are observed, the same shall be filled with brickbats/ gravel and compacted well. Foundations can subsequently be placed over such a prepared surface.

9.3.4 Stiff Tie-beams connecting the columns in both directions may be provided which will render additional rigidity to the structure.

9.4 Appendices

9.4.1 The calculations for the allowable bearing pressure have been provided in Appendix-A of this report.

9.4.2 The List of IS codes referred for providing the recommendations and that which might be required to implement the same have been given in Appendix-B of this report.

9.5 Notes

9.5.1 The recommendations given in this report have been arrived at on the basis of design parameters which have been judiciously adopted by giving due consideration to the results of field and laboratory investigations as well as NAGADI's experience of over four decades in working in various types of soil and rock conditions all over India.

9.5.2 The entire report should be studied before adopting the recommendations given in the report.

10.0 LIMITATIONS

This Geotechnical investigation has been carried out at locations in the site chosen by the client as representing the entire site. The recommendations provided in this Report are hence valid only for those test locations. However, if there is any change in the subsoil conditions and properties at places between or beyond the chosen test locations, Nagadi may be contacted for further actions. Fresh investigations will have to be carried out at such locations.

Dr. N. Santosh Rao
Technical Director
*For **NAGADI CONSULTANTS PVT. LTD.***

G(C)9966

ANALYSIS FOR ALLOWABLE BEARING PRESSURE

(BH 1 & BH 2)

Data

(i) Soil Properties :

c (kg/cm^2) = 0.10 $\phi = 25^\circ$ γ (g/cm^3) = 1.8

(ii) Depth of Foundation, D (m) = 2

(iii) Allowable Settlement, s (mm) = 50

Shear Failure Criterion (Ref. IS : 6403)

$N_c = 17.92$ $N_q = 8.69$ $N_\gamma = 8.42$ $R_w = 0.50$ $R_w' = 0.50$

$$q_s = \frac{1}{3}\left(c \cdot N_c + \gamma \cdot D \cdot N_q \cdot R_w + 0.5 \cdot \gamma \cdot B \cdot N_\gamma \cdot R'_w\right) - \gamma \cdot D \cdot R_w$$

B (m)	1.5	≥3
q_s (t/m^2)	11.3	13.2

Settlement Criterion (Ref. IS : 8009)

(i) From N Values

B (m)	1.5	≥3
H (m)	3	6
N_{av}	19	23
q_a (t/m^2)	19.9	20.9

(ii) From Triaxial Compression Tests* : $q_a = \dfrac{s \cdot E}{0.7 \cdot H}$

B (m)	1.5	≥3
H (m)	3	6
E (kg/cm^2)	85	95
q_a (t/m^2)	20.2	11.3

ADOPT	**B (m)**	**1.5**	**≥3**
	q (t/m^2)	**11**	**11**

Note : q_s and q_a are NET VALUES, Weight of backfill etc. need not be added to the loading except in case of filling above original G.L.

LIST OF IS CODES

Field Investigation

1. IS : 1498 - 1970 : Classification and identification of soils for general engineering purposes (First Revision) (Amendment 2)
2. IS : 1892 - 1979 : Code of practice for sub surface investigations for foundations (First revision)
3. IS : 2131 - 1981 : Method of Standard Penetration Tests for soils (First revision)
4. IS : 2132 - 1986 : Code of practice for thin walled tube sampling of soils (Second revision)

Laboratory Tests

1. IS : 2720 - 1983 (Part 1) : Methods of test for soils: Preparation of dry soil samples for various tests (Second revision)
2. IS : 2720 - 1980 (Part 2) : Method of test for soils: Determination of water content (Second revision) Amendment 1
3. IS : 2720 - 1980 (Part 3/Sec 1) : Method of test for soils : Determination of Specific Gravity : Fine grained soils. (First revision)
4. IS : 2720 - 1980 (Part 3/Sec 2) : Method of test for soils : Determination of Specific Gravity : Fine, Medium & Coarse grained soils. (First revision).
5. IS : 2720 - 1985 (Part 4) : Method of test for soils : Grain size analysis (Second revision)
6. IS : 2720 - 1985 (Part 5) : Method of test for soils : Determination of liquid and plastic limit (Second revision)
7. IS : 2720 - 1977 (Part 40) : Methods of tests for soils: Determination of free swell index of soils.

Foundation Construction

1. IS : 1080 - 1986 : Code of practice for design and construction of shallow foundations on soils (other than raft, ring and shell) (Second revision)
2. IS : 1904 - 1986 : Code of practice for design and construction of foundation in soils: General requirements (Third revision)
3. IS 6403 - 1981 : Code of practice for determination of bearing capacity of shallow foundations : First revision (Amendment 1)
4. IS 8009 - 1976 (Part 1) : Code of practice for calculation of settlements of foundations : Shallow foundations subject to symmetrical static vertical loads (Amendment 2)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 3.8m | Term. Depth : 10m | B.H. No. : 1

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (°)
	0.0	Ground level											
		Filled up (Soil with brickbats)											
	0.8	Change of strata											
12	1.0	Brown clayey silty sand with gravel	9	50	28	13	20	13					
	1.5	Brown clayey silty sand with gravel							1.81	12.6	CD	0.10	25
28	2.5	Brown clayey silty sand with gravel	14	52	24	10	-	NP					
	3.0	Brown clayey silty sand with gravel							1.88	11.1	CD	0.07	27
24	4.0	Brown clayey silty sand with gravel	19	50	21	10	-	NP					
	4.5	Brown clayey silty sand with gravel							1.83	10.9	CD	0.07	26
38	5.5	Brownish white clayey silty sand with gravel	3	63	23	11	-	NP					
	6.0	Brownish white clayey silty sand with gravel							1.96	11.2	CD	0.08	27
	6.8	Change of strata											
47	7.0	White with brown clayey silty sand	0	75	18	7	-	NP					
	7.5	White with brown clayey silty sand							1.99	9.6	CD$	0.06	28
59	8.5	White with brown clayey silty sand	0	63	25	12	-	NP					
	9.0	White with brown clayey silty sand											
	9.1	Change of strata											
61	10.0	White with brown clayey silty sand with gravel	3	68	20	9	-	NP					

*-Natural Bulk Density # -N Values (Observed)

$ - Remoulded Sample

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 3.8m | Term. Depth : 10m | B.H. No. : 2

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
15	1.5	Brown clayey silty sand	0	49	33	18	24	14					
	2.0	Brown clayey silty sand							1.85	13.7	CD	0.12	26
16	3.0	Brown clayey silty sand	0	48	32	20	28	15					
	3.5	Brown clayey silty sand							1.87	13.5	CD	0.15	26
	4.0	Change of strata											
27	4.5	Brownish red silty sand with gravel	50	39	11	0	-	NP					
	5.0	Brownish red silty sand with gravel									Sample slipped		
	5.7	Change of strata											
53	6.0	Brownish white clayey silty sand	0	75	18	7	-	NP					
	7.0	Change of strata											
63	7.5	Brownish white clayey silty sand with gravel	3	76	16	5	-	NP					
	8.7	Change of strata											
62	9.0	Brown clayey silty sand	0	56	29	15	22	13					
53	10.0	Brown clayey silty sand	0	59	28	13	20	13					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 18m | B.H. No. : 3

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
23	1.5	Brown clayey silty sand with gravel	8	51	28	13	20	13					
	2.0	Brown clayey silty sand with gravel							1.91	11.2	CD	0.09	26
21	3.0	Grey clayey silty sand with gravel	3	63	22	12	-	NP					
	3.3	Change of strata											
	3.5	Grey clayey silty sand with gravel & pebbles									Tube	damaged	
17	4.5	Grey clayey silty sand with gravel & pebbles	4	50	30	16	22	14					
	5.0	Grey clayey silty sand with gravel & pebbles									Tube	damaged	
24	6.0	Grey clayey silty sand with gravel & pebbles	7	65	21	7	-	NP					
	6.5	Grey clayey silty sand with gravel & pebbles									Tube	damaged	
29	7.5	Brownish Grey clayey silty sand with gravel & pebbles	11	61	19	9	-	NP					
	8.0	Brownish Grey clayey silty sand with gravel & pebbles									Tube	damaged	
	9.0	Change of strata											
42		Brown clayey silty sand	0	66	22	12	-	NP					

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 18m | B.H. No. : 3

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	9.5	Brown clayey silty sand									Sample slipped		
48	10.5	Brown clayey silty sand	0	63	25	12	-	NP					
	11.0	Brown clayey silty sand									Sample slipped		
41	12.0	Brown clayey silty sand	0	59	27	14	20	13					
	13.5	Brown clayey silty sand	0	60	27	13	20	13					
	14.3	Change of strata											
64	15.0	Brown clayey silty sand with gravel	2	67	22	9	-	NP					
	16.5	Change of strata											
>100 (104)		Brown clayey silty sand	0	72	20	8	-	NP					
>100 (136/39cm)	18.0	Brownish grey clayey silty sand	0	74	20	6	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 17.5m | B.H. No. : 4

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
7	1.0	Brown clayey silty sand	0	78	17	5	-	NP					
	1.5	Brown clayey silty sand							1.77	12.2	CD	0.02	27
	2.3	Change of strata											
18	2.5	Brown clayey silty sand with gravel & pebbles	26	46	20	8	-	NP					
	3.0	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
19	4.0	Brown clayey silty sand with gravel & pebbles	3	52	29	16	23	14					
	4.5	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
21	5.5	Brown clayey silty sand with gravel & pebbles	3	58	27	12	20	13					
	6.0	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
	6.8	Change of strata											
25	7.0	Brownish white clayey silty sand with gravel	28	49	17	6	-	NP					
	7.5	Brownish white clayey silty sand with gravel									Sample slipped		
32	8.5	Brownish white clayey silty sand with gravel	18	52	21	9	-	NP					
	9.0	Brownish white clayey silty sand with gravel									Sample slipped		
	10.0	Change of strata											

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 17.5m | B.H. No. : 4

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	Φ (^{o})
39	10.0	Brown clayey silty sand	0	73	20	7	-	NP					
	10.5	Brown clayey silty sand									Sample slipped		
57	11.5	Brownish grey clayey silty sand	0	70	20	10	-	NP					
	12.6	Change of strata											
60	13.0	Brownish grey clayey silty sand with gravel	2	70	19	9	-	NP					
	14.5	Change of strata											
67		Brown clayey silty sand	0	76	17	7	-	NP					
	16.5	Change of strata											
>100 (101)		Brown clayey silty sand	0	79	16	5	-	NP					
>100 (35/41cm)	17.5	Brown clayey silty sand	0	70	21	9	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 18m | B.H. No. : 5

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
9	1.5	Brown clayey silty sand with gravel	4	62	25	9	-	NP					
	2.0	Brown clayey silty sand with gravel							1.82	12.1	CD	0.08	26
19	3.0	Brown clayey silty sand with gravel	1	53	30	16	23	14					
	3.5	Brown clayey silty sand with gravel							1.91	13.2	CD	0.11	25
	4.2	Change of strata											
23	4.5	Grey clayey silty sand with gravel & pebbles	6	28	39	27	35	17					
	5.0	Grey clayey silty sand with gravel & pebbles									Tube damaged		
26	6.0	Brownish grey clayey silty sand with gravel & pebbles	17	53	22	8	-	NP					
	6.5	Brownish grey clayey silty sand with gravel & pebbles									Sample slipped		
31	7.5	Brownish grey clayey silty sand with gravel & pebbles	6	69	19	6	-	NP					
	8.0	Brownish grey clayey silty sand with gravel & pebbles									Sample slipped		

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.4m | Term. Depth : 18m | B.H. No. : 5

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	9.0	Change of strata											
33		Brownish grey clayey silty sand	0	55	29	16	22	14					
	9.5	Brownish grey clayey silty sand							1.98	11.2	CD	0.11	26
	10.5	Change of strata											
39		Brown clayey silty sand with gravel	2	57	28	13	20	13					
	11.0	Brown clayey silty sand with gravel							1.99	10.8	CD	0.08	27
41	12.0	Brown clayey silty sand with gravel	3	61	26	10	-	NP					
	12.5	Brown clayey silty sand with gravel									Sample slipped		
59	13.5	Brown clayey silty sand with gravel	11	59	22	8	-	NP					
	15.0	Change of strata											
66		Brownish grey clayey silty sand	0	65	24	11	-	NP					
	16.5	Change of strata											
>100 (110)		Brown clayey silty sand	0	74	19	7	-	NP					
>100 (127/40cm)	18.0	Brown clayey silty sand	0	70	21	9	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 2.9m | Term. Depth : 10m | B.H. No. : 6

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	Φ (°)
	0.0	Ground level											
11	1.5	Brown clayey silty sand with gravel	21	45	24	10	21	13					
	2.0	Brown clayey silty sand with gravel							1.81	11.6	CD	0.07	26
	2.6	Change of strata											
14	3.0	Brown clayey silty sand with gravel & pebbles	13	44	29	14	23	14					
	3.5	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
22	4.5	Brown clayey silty sand with gravel & pebbles	27	54	13	6	-	NP					
	5.0	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
31	6.0	Brown clayey silty sand with gravel & pebbles	4	32	38	26	35	16					
	6.5	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
36	7.5	Brown clayey silty sand with gravel & pebbles	32	43	18	7	-	NP					
	8.0	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
	8.4	Change of strata											
40	9.0	Brown clayey silty sand with gravel	23	56	17	4	-	NP					
	9.5	Brown clayey silty sand with gravel											
59	10.0	Brown clayey silty sand with gravel	27	50	18	5	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 3.2m | Term. Depth : 10m | B.H. No. : 7

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (°)
	0.0	Ground level											
7	1.0	Brown clayey silty sand	0	50	31	19	27	15					
	1.5	Brown clayey silty sand							1.80	12.1	CD	0.10	25
	2.3	Change of strata											
15	2.5	Brown clayey silty sand with gravel	3	60	25	12	22	13					
	3.0	Brown clayey silty sand with gravel							1.85	13.2	CD	0.08	27
	3.8	Change of strata											
16	4.0	Brown clayey sandy silt with gravel & pebbles	6	29	38	26	38	16					
	4.5	Brown clayey sandy silt with gravel & pebbles									Tube	damaged	
22	5.5	Brown clayey sandy silt with gravel & pebbles	3	33	40	24	35	16					
	6.0	Brown clayey sandy silt with gravel & pebbles									Tube	damaged	
	6.5	Change of strata											
38	7.0	Brown clayey silty sand with gravel	14	59	19	8	-	NP					
	7.5	Brown clayey silty sand with gravel									Tube	damaged	
41	8.5	Brown clayey silty sand with gravel	17	59	17	6	-	NP					
	9.0	Brown clayey silty sand with gravel											
61	10.0	Brown clayey silty sand with gravel	23	50	19	8	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 0.8m | Term. Depth : 16.5m | B.H. No. : 8

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density* (g/cm^3)	Water Cont	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
10	1.5	Brown clayey silty sand	0	55	29	16	25	14					
	2.0	Brown clayey silty sand							1.81	11.9	CD	0.11	25
19	3.0	Brown clayey silty sand	0	54	30	16	25	14					
	3.5	Brown clayey silty sand							1.85	10.8	CD	0.11	26
24	4.5	Brown clayey silty sand	0	56	30	14	22	14					
	5.0	Brown clayey silty sand							1.91	9.7	CD	0.09	28
	5.6	Change of strata											
43	6.0	Grey clayey silty sand with gravel & pebbles	11	60	22	7	-	NP					
	6.5	Grey clayey silty sand with gravel & pebbles									Tube	damaged	
66	7.5	Grey clayey silty sand with gravel & pebbles	24	53	17	6	-	NP					
75	9.0	Grey clayey silty sand with gravel & pebbles	20	47	23	10	-	NP					
85	10.5	Grey clayey silty sand with gravel & pebbles	26	54	15	5	-	NP					
94	12.0	Grey clayey silty sand with gravel & pebbles	15	55	21	9	-	NP					
	13.5	Change of strata											
>100 (108)		Grey clayey silty sand with gravel	25	52	15	8	-	NP					
>100 (135/40cm)	15.0	Grey clayey silty sand with gravel	27	53	14	6	-	NP					
>100 (50/10cm)	16.5	Grey clayey silty sand with gravel	14	58	19	9	-	NP					
		*-Natural Bulk Density # -N Values (Observed)											

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 1m | Term. Depth : 16m | B.H. No. : 9

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	Φ (^{o})
	0.0	Ground level											
8	1.0	Brown clayey silty sand	0	74	19	7	-	NP					
	1.5	Brown clayey silty sand							1.79	9.6	CD	0.08	26
	2.1	Change of strata											
25	2.5	Brownish grey clayey silty sand with gravel & pebbles	5	49	30	16	23	14					
	3.0	Brownish grey clayey silty sand with gravel & pebbles									Tube	damaged	
29	4.0	Brownish grey clayey silty sand with gravel & pebbles	15	52	22	11	-	NP					
	4.5	Brownish grey clayey silty sand with gravel & pebbles									Tube	damaged	
39	5.5	Brownish grey clayey silty sand with gravel & pebbles	23	52	18	7	-	NP					
	6.0	Brownish grey clayey silty sand with gravel & pebbles									Tube	damaged	
42	7.0	Brownish grey clayey silty sand with gravel & pebbles	21	57	16	6	-	NP					
	7.5	Brownish grey clayey silty sand with gravel & pebbles									Tube	damaged	

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 1m | Term. Depth : 16m | B.H. No. : 9

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
49	8.5	Brownish grey clayey silty sand with gravel & pebbles	18	51	21	10	-	NP					
	9.0	Brownish grey clayey silty sand with gravel & pebbles											
	9.5	Change of strata											
52	10.0	Brownish grey clayey silty sand	0	66	23	11	-	NP					
	11.0	Change of strata											
56	11.5	Brownish grey clayey silty sand with gravel & pebbles	2	51	29	18	26	15					
	13.0	Change of strata											
60		Brownish grey clayey silty sand	0	67	22	11	-	NP					
	14.5	Change of strata											
>100 (102)		Brownish grey clayey silty sand	0	74	18	8	-	NP					
>100 (83/21cm)	16.0	Brownish grey clayey silty sand	0	70	21	9	-	NP					

*-Natural Bulk Density # -N Values (Observed)

SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 1m | Term. Depth : 15m | B.H. No. : 10

N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	0.0	Ground level											
10	1.5	Brown clayey silty sand	0	70	20	10	-	NP					
	2.0	Brown clayey silty sand							1.79	12.1	CD	0.10	26
24	3.0	Brown clayey silty sand	0	48	32	20	28	15					
	3.5	Brown clayey silty sand							1.93	14.7	CD	0.14	26
	4.1	Change of strata											
27	4.5	Brown clayey silty sand with gravel & pebbles	2	58	35	15	23	14					
	5.0	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
32	6.0	Brown clayey silty sand with gravel & pebbles	2	50	30	18	26	15					
	6.5	Brown clayey silty sand with gravel & pebbles									Tube	damaged	
	7.3	Change of strata											
35	7.5	Brown clayey silty sand	0	61	25	14	25	14					
	8.0	Brown clayey silty sand							2.03	13.2	CD	0.14	26
	8.9	Change of strata											
45	9.0	Brownish white clayey silty sand with gravel & pebbles	4	57	27	12	-	NP					

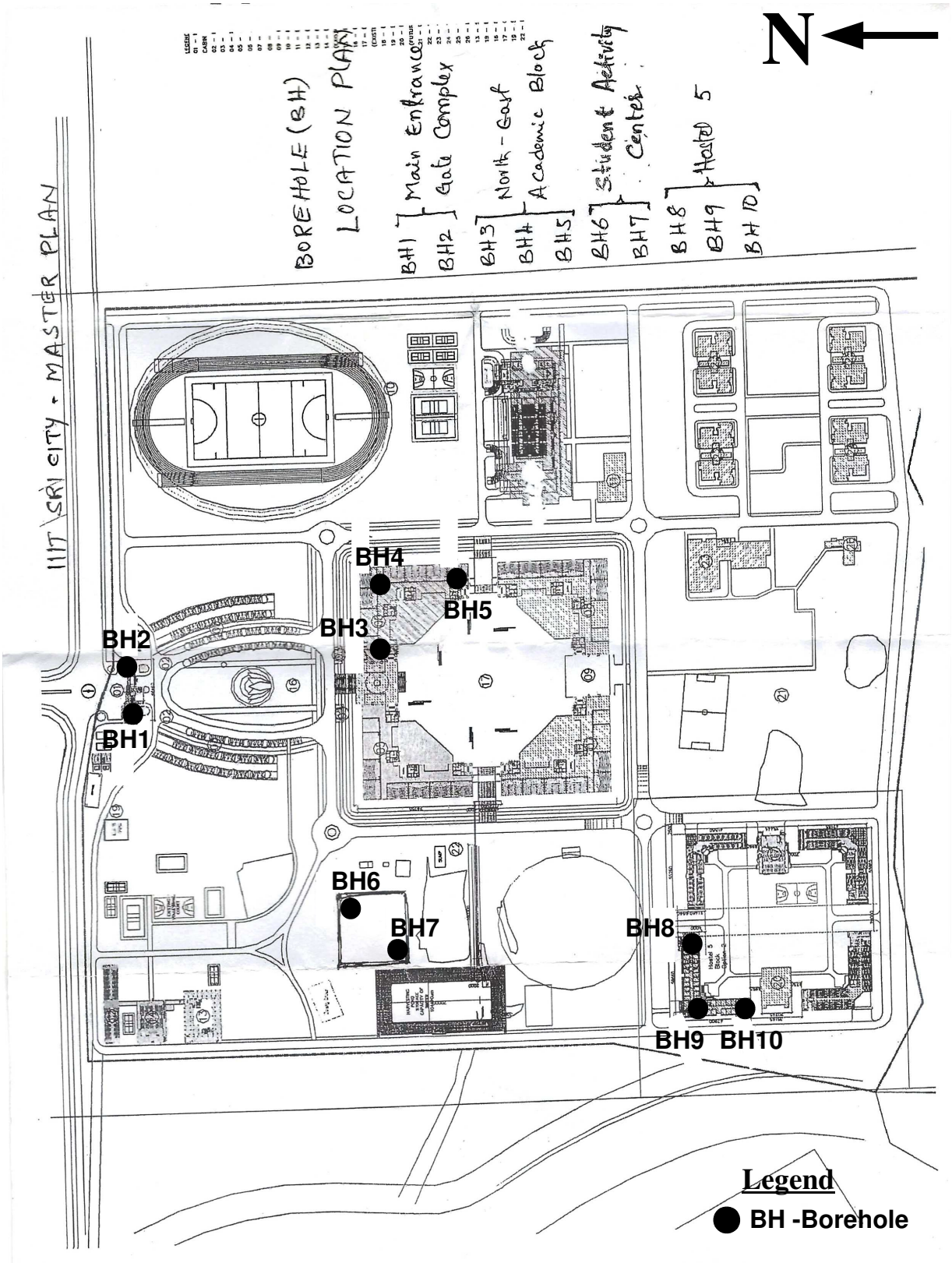
SOIL PROFILE

Project: Campus Infrastructure Development Works at IIIT, Sricity, Chitoor, Andhra Pradesh, India.

B. H. Location: | Water Table: 1m | Term. Depth : 15m | B.H. No. : 10

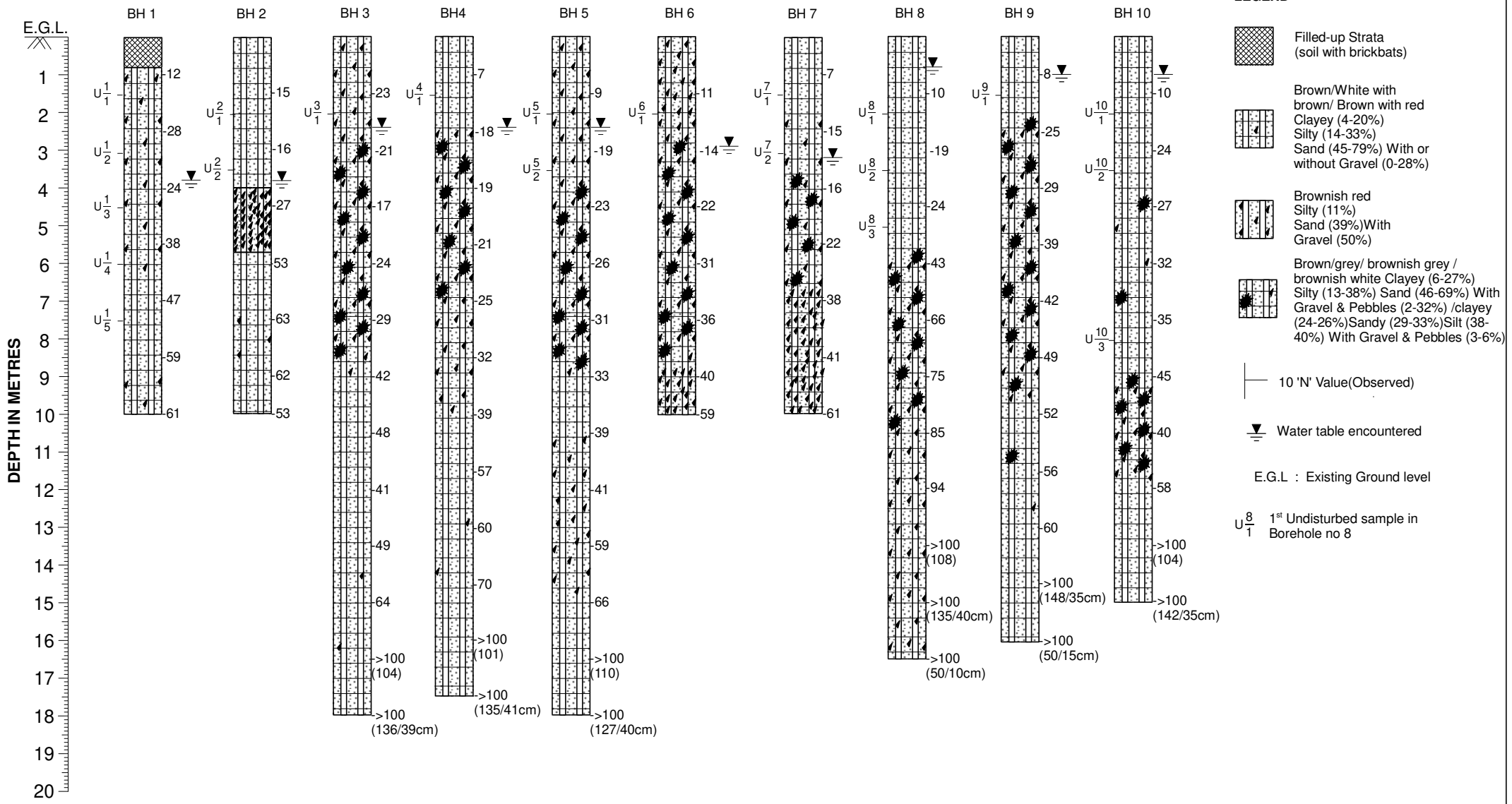
N - Value#	Depth (m)	Soil Description	Grain Size Analysis				Atterberg Limits		In-situ properties		Triaxial Test		
			Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid (%)	Plastic (%)	Density * (g/cm^3)	Water Cont (%)	Type	c (kg/cm^2)	ϕ (^{o})
	9.5	Brownish white clayey silty sand with gravel & pebbles									Sample slipped		
40	10.5	Brownish white clayey silty sand with gravel & pebbles	18	52	22	8	-	NP					
	11.0	Brownish white clayey silty sand with gravel & pebbles									Sample slipped		
	12.0	Change of strata											
58		Brown clayey silty sand	0	63	25	12	-	NP					
	13.5	Change of strata											
>100 (104)		Brown clayey silty sand	0	68	23	9	-	NP					
>100 (142/35cm)	15.0	Brown clayey silty sand	0	75	18	7	-	NP					

*-Natural Bulk Density # -N Values (Observed)



SCHEMATIC SITE PLAN
(Not to Scale)

G(C)9966



COMPILED SOIL PROFILE

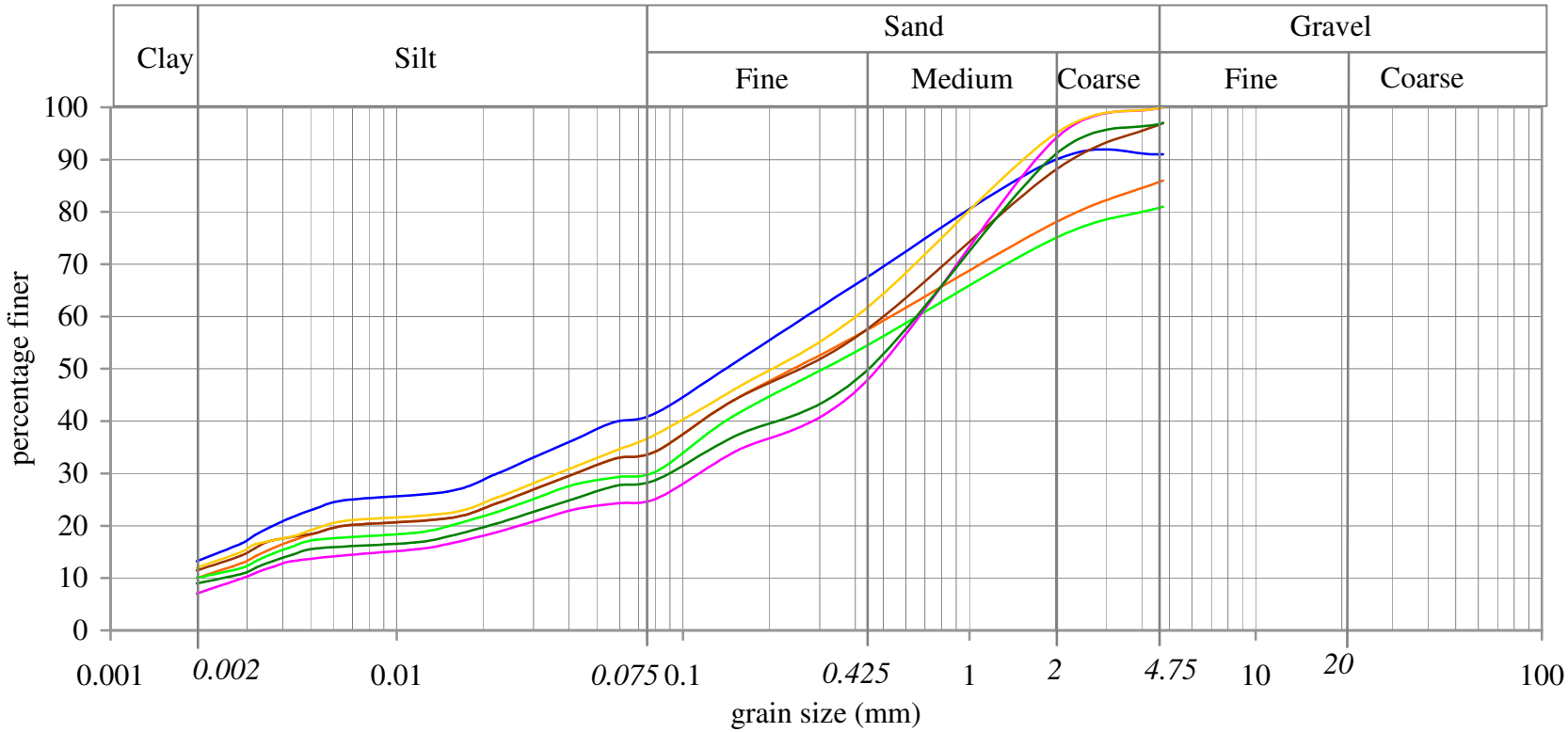
NAGADI CONSULTANTS PRIVATE LIMITED
GEOTECHNICAL CONSULTANTS

Delhi	: 011 (T) 26891980	(F) 26897403	delhi@nagadi.co.in
Bangalore	: 080 (T) 23156076	(F) 23303007	bangalore@nagadi.co.in
Chennai	: 044 (T) 24487870	(F) 24488957	chennai@nagadi.co.in
Secunderabad	: 040 (T) 27754446	(F) 27751194	secunderabad@nagadi.co.in

GEOTECHNICAL INVESTIGATION FOR THE PROPOSED CAMPUS INFRASTRUCTURE DEVELOPMENT AT IIIT, SRICITY, CHITTOOR, ANDHRA PRADESH

Job No. : G(C)9966

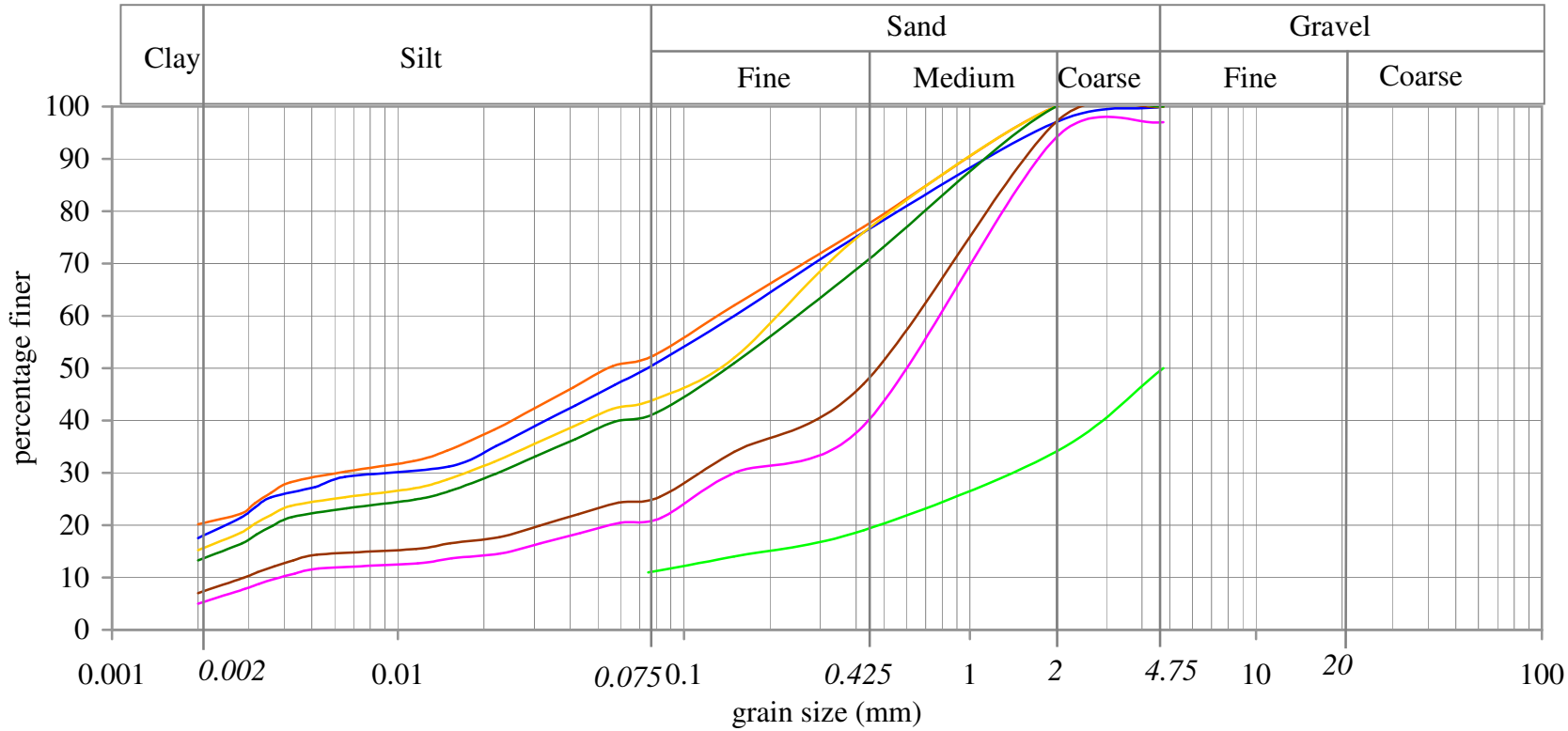
Sheet No. : 2



Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	1	1.0	Clayey silty sand with gravel	9	50	28	13	0.270	-	-
	1	2.5	Clayey silty sand with gravel	14	52	24	10	0.525	0.002	262.5
	1	4.0	Clayey silty sand with gravel	19	50	21	10	0.650	0.002	325.0
	1	5.5	Clayey silty sand with gravel	3	63	23	11	0.500	-	-
	1	7.0	Clayey silty sand	0	75	18	7	0.675	0.003	225.0
	1	8.5	Clayey silty sand	0	63	25	12	0.400	-	-
	1	10.0	Clayey silty sand with gravel	3	68	20	9	0.650	0.0025	260.0

G(C)9966

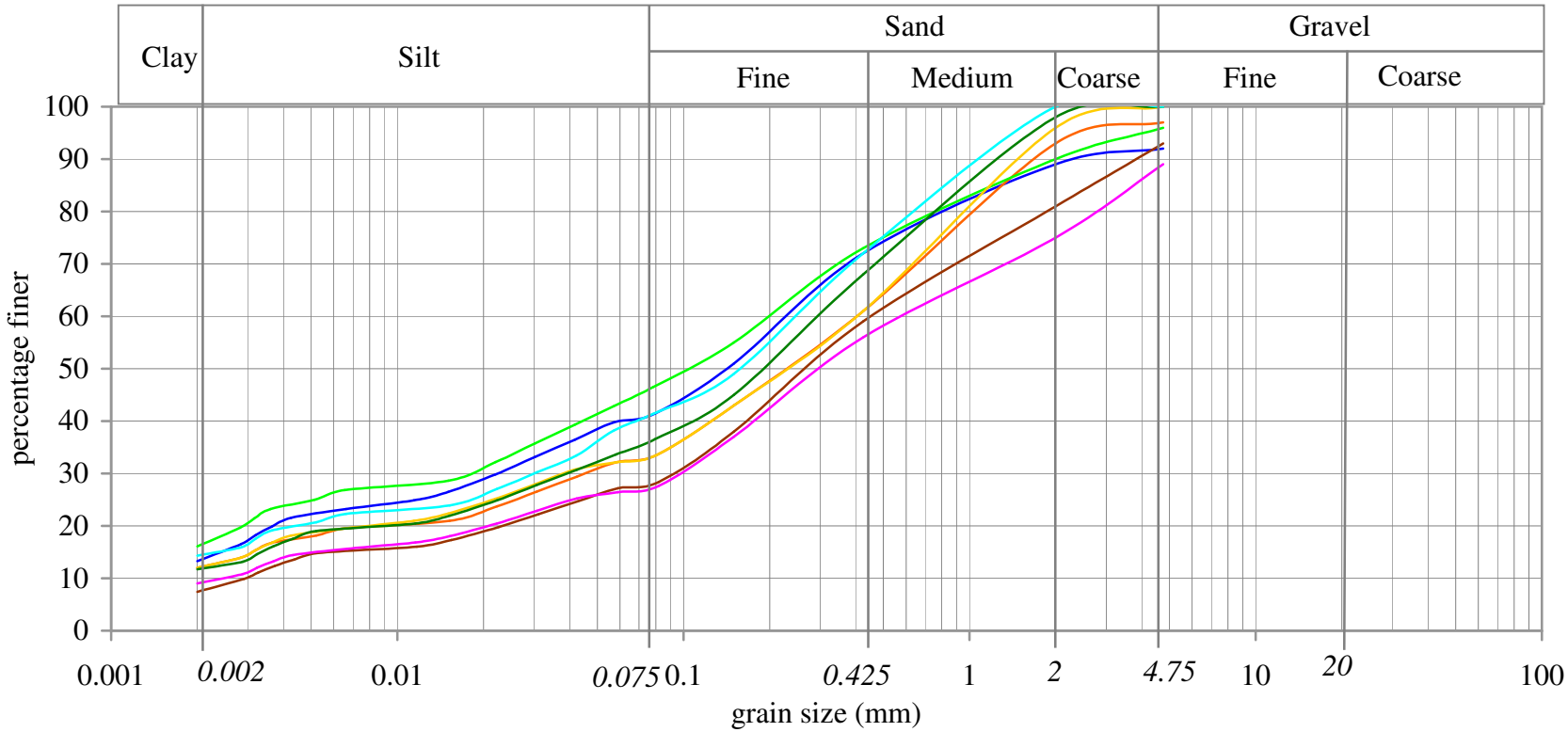
3a



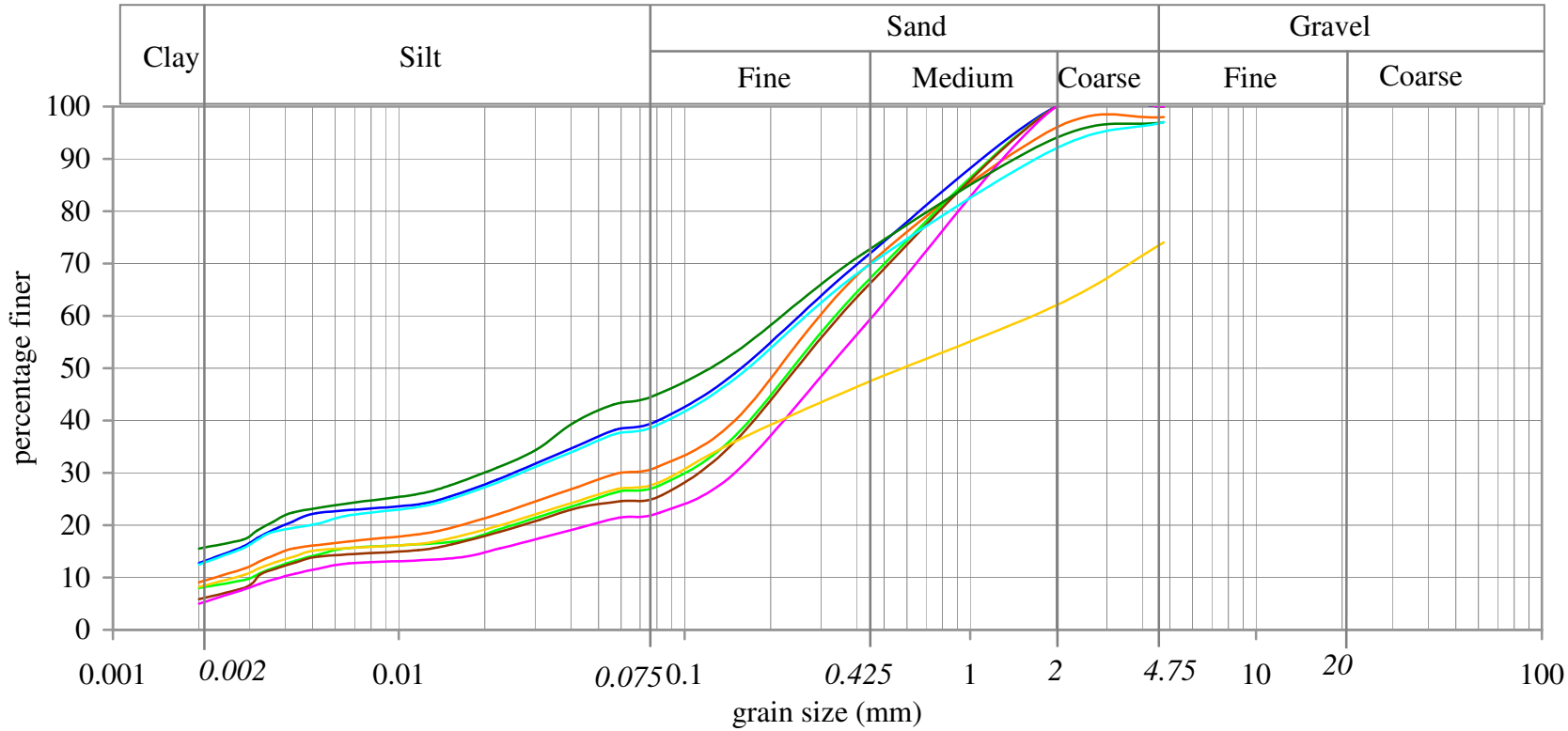
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	2	1.5	Clayey silty sand	0	49	33	18	0.160	-	-
	2	3.0	Clayey silty sand	0	48	32	20	0.140	-	-
	2	4.5	Silty sand with gravel	50	39	11	0	-	-	-
	2	6.0	Clayey silty sand	0	75	18	7	0.650	0.003	216.7
	2	7.5	Clayey silty sand with gravel	3	76	16	5	0.790	0.004	197.5
	2	9.0	Clayey silty sand	0	56	29	15	0.220	-	-
	2	10.0	Clayey silty sand	0	59	28	13	0.250	-	-

G(C)9966

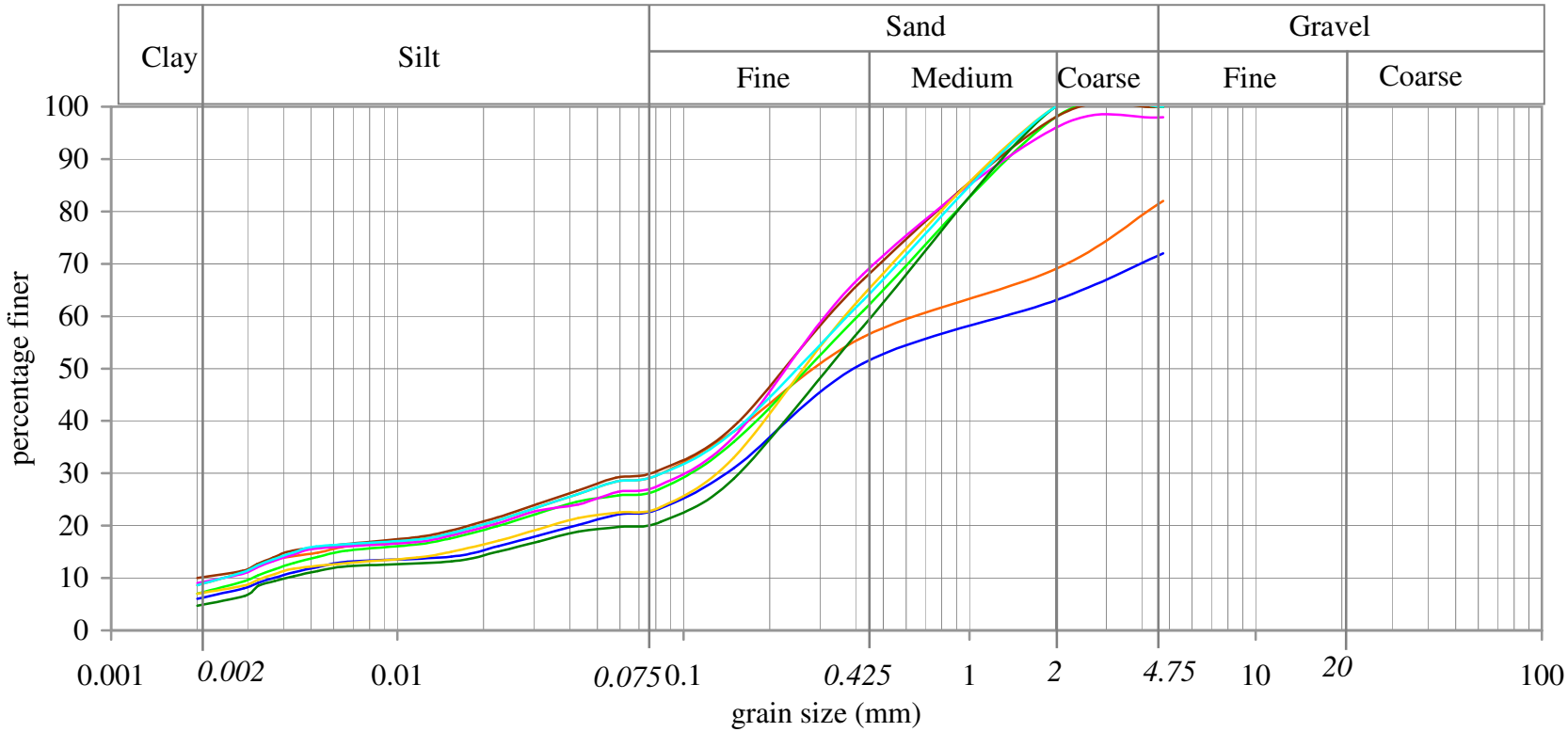
3b



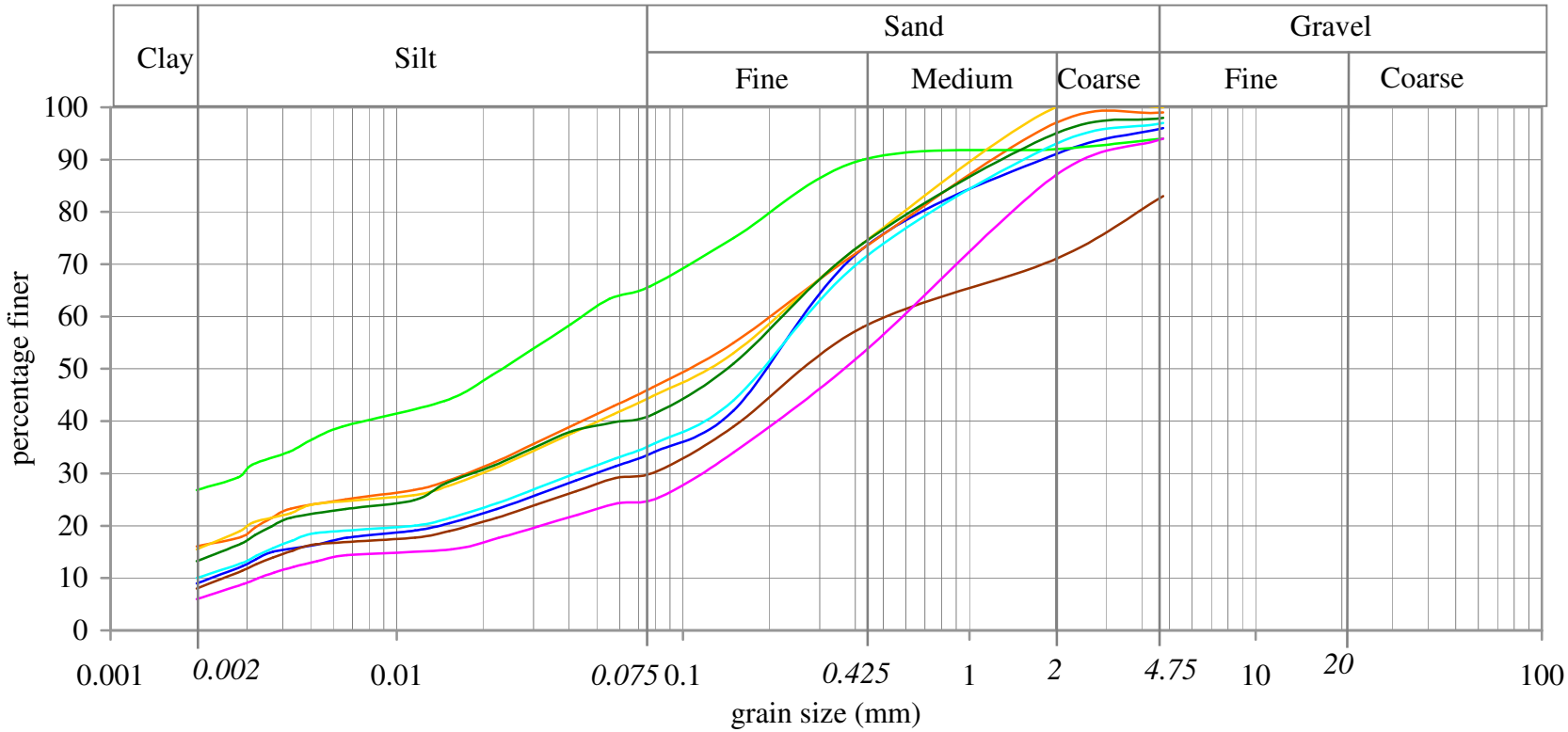
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	3	1.5	Clayey silty sand with gravel	8	51	28	13	0.230	-	-
	3	3.0	Clayey silty sand with gravel	3	63	22	12	0.400	-	-
	3	4.5	Clayey silty sand with gravel with pebbles	4	50	30	16	0.200	-	-
	3	6.0	Clayey silty sand with gravel with pebbles	7	65	21	7	0.425	0.003	141.7
	3	7.5	Clayey silty sand with gravel with pebbles	11	61	19	9	0.575	0.0025	230.0
	3	9.0	Clayey silty sand	0	66	22	12	0.400	-	-
	3	10.5	Clayey silty sand	0	63	25	12	0.290	-	-
	3	12.0	Clayey silty sand	0	59	27	14	0.25	-	-



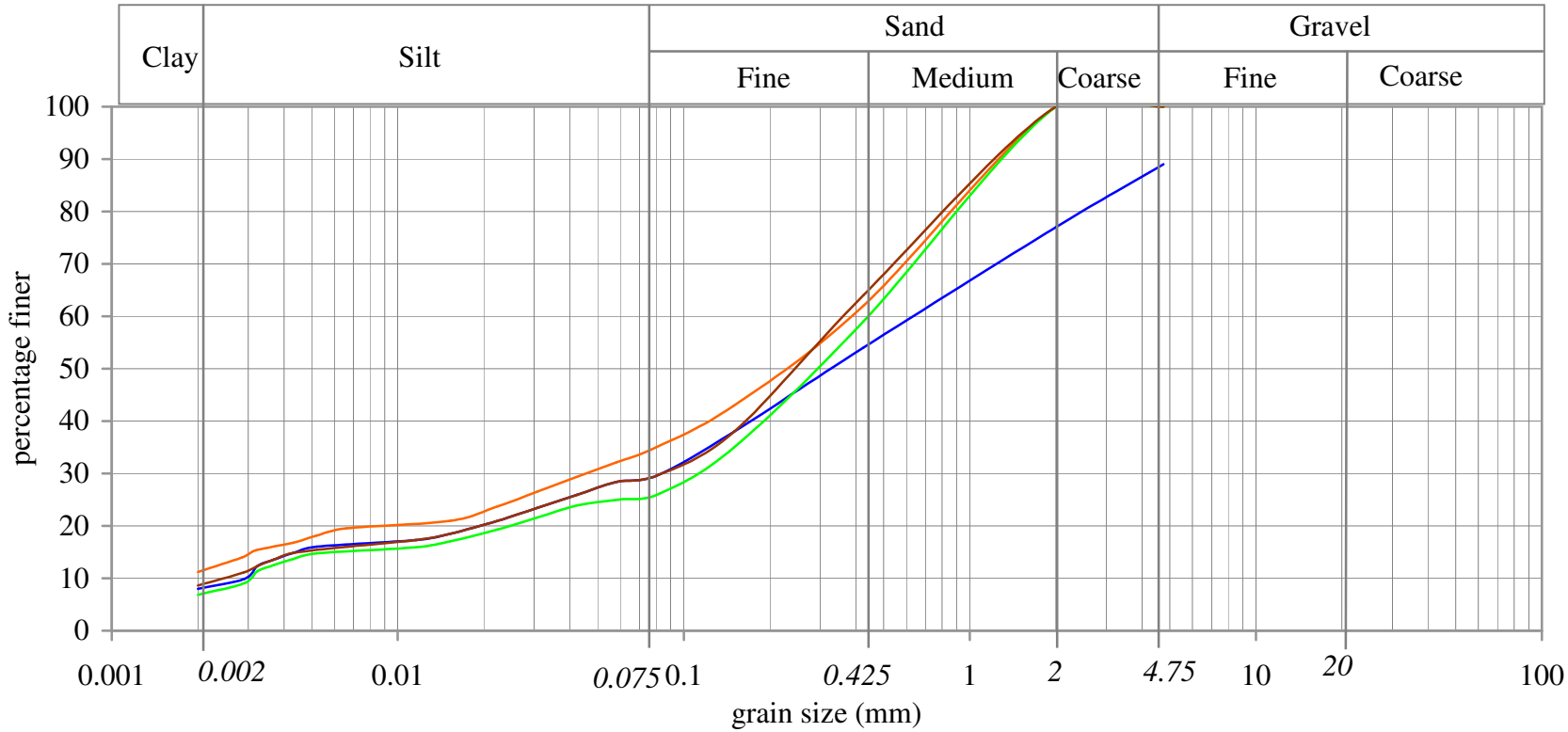
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	3	13.5	Clayey silty sand	0	60	27	13	0.250	-	-
	3	15.0	Clayey silty sand with gravel	2	67	22	9	0.300	0.0023	130.4
	3	16.5	Clayey silty sand	0	72	20	8	0.340	0.003	113.3
	3	18.0	Clayey silty sand	0	74	20	6	0.350	0.0032	109.4
	4	1.0	Clayey silty sand	0	78	17	5	0.450	0.004	112.5
	4	2.5	Clayey silty sand with gravel with pebbles	26	46	20	8	1.700	0.0026	653.8
	4	4.0	Clayey silty sand with gravel with pebbles	3	52	29	16	0.230	-	-
	4	5.5	Clayey silty sand with gravel with pebbles	3	58	27	12	0.260	-	-



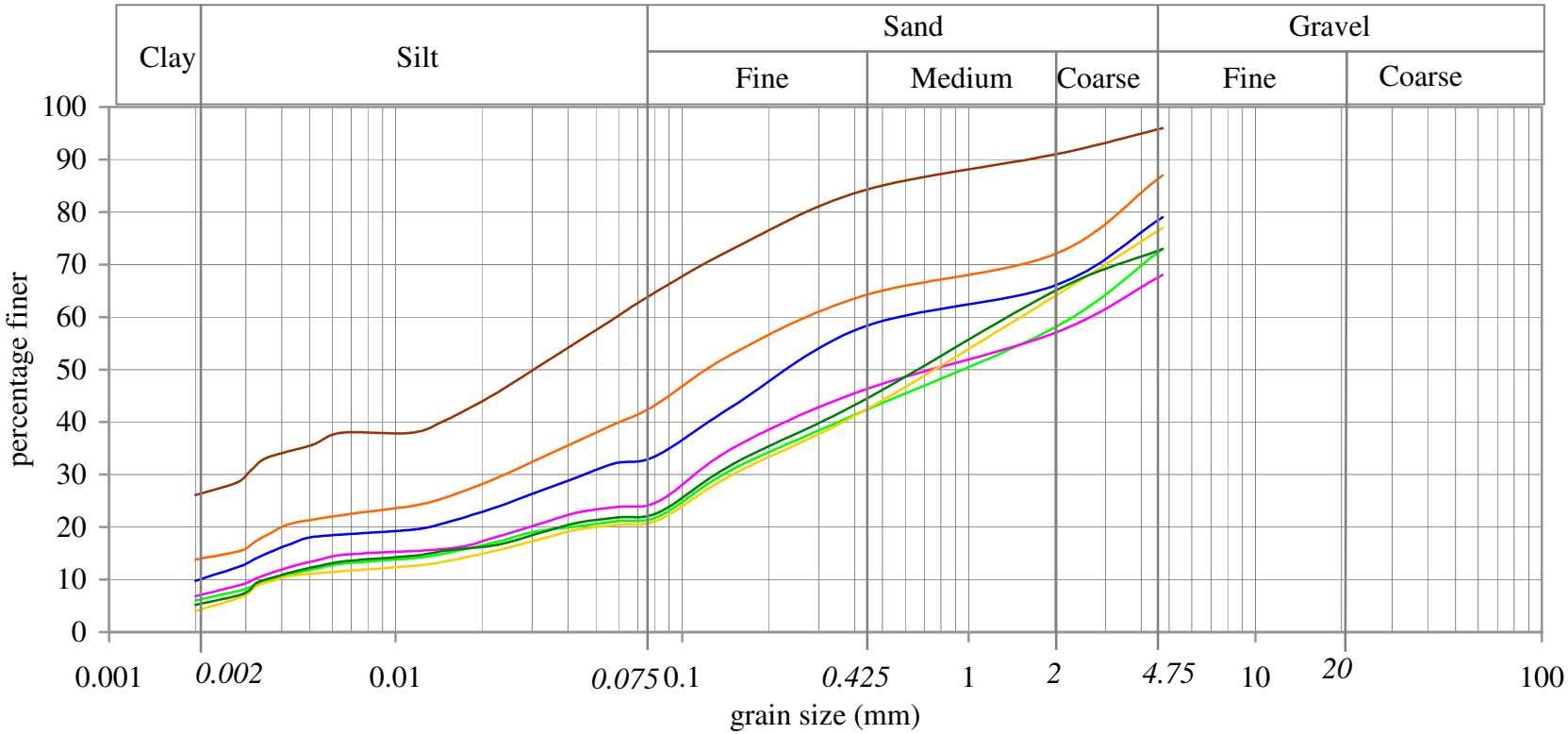
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	4	7.0	Clayey silty sand with gravel	28	49	17	6	1.400	0.0035	400.0
	4	8.5	Clayey silty sand with gravel	18	52	21	9	0.650	0.0025	260.0
	4	10.0	Clayey silty sand	0	73	20	7	0.400	0.003	133.3
	4	11.5	Clayey silty sand	0	70	20	10	0.320	0.002	160.0
	4	13.0	Clayey silty sand with gravel	2	70	19	9	0.310	0.0025	124.0
	4	14.5	Clayey silty sand	0	76	17	7	0.370	0.0034	108.8
	4	16.0	Clayey silty sand	0	79	16	5	0.450	0.004	112.5
	4	17.5	Clayey silty sand	0	70	21	9	0.38	0.0025	152.0



Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	5	1.5	Clayey silty sand with gravel	4	62	25	9	0.260	0.0022	118.2
	5	3.0	Clayey silty sand with gravel	1	53	30	16	0.200	-	-
	5	4.5	Clayey silty sand with gravel with pebbles	6	28	39	27	0.044	-	-
	5	6.0	Clayey silty sand with gravel with pebbles	17	53	22	8	0.500	0.0025	200.0
	5	7.5	Clayey silty sand with gravel with pebbles	6	69	19	6	0.590	0.0034	173.5
	5	9.0	Clayey silty sand	0	55	29	16	0.220	-	-
	5	10.5	Clayey silty sand with gravel	2	57	28	13	0.230	-	-
	5	12.0	Clayey silty sand with gravel	3	61	26	10	0.270	0.0022	122.7



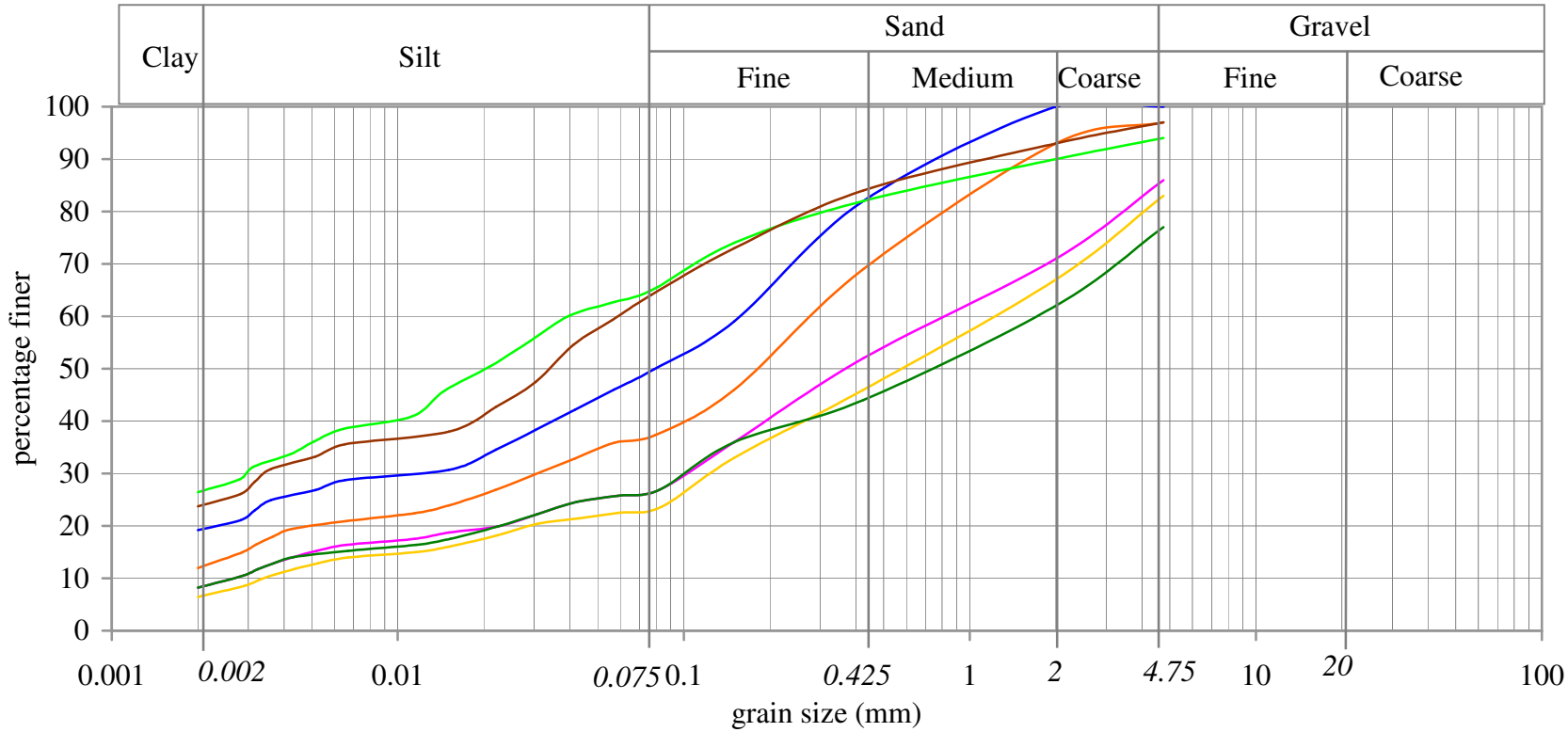
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	5	13.5	Clayey silty sand with gravel	11	59	22	8	0.625	0.003	208.3
	5	15.0	Clayey silty sand	0	65	24	11	0.390	-	-
	5	16.5	Clayey silty sand	0	74	19	7	0.425	0.0031	137.1
	5	18.0	Clayey silty sand	0	70	21	9	0.360	0.0025	144.0



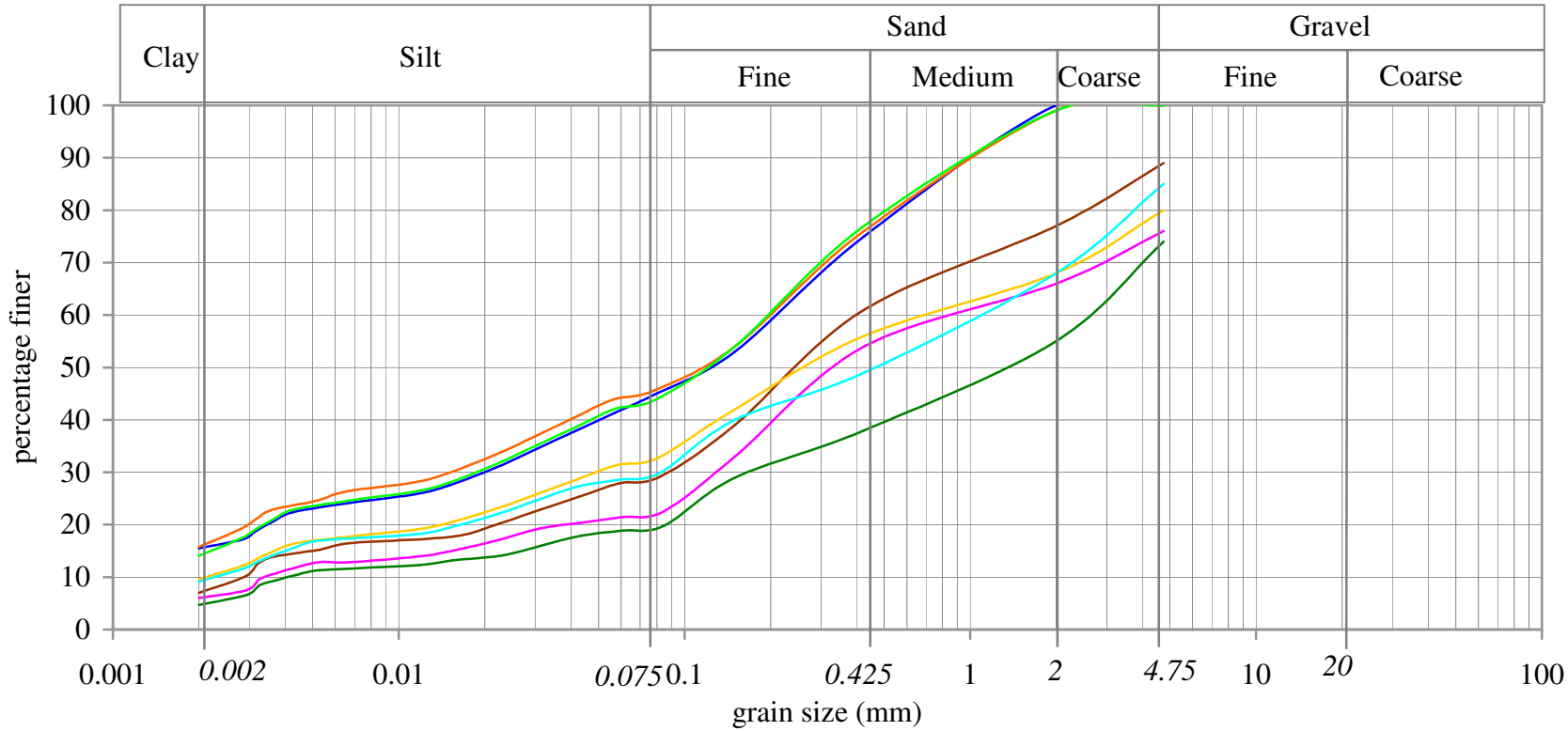
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	6	1.5	Clayey silty sand with gravel	21	45	24	10	0.590	0.002	295.0
	6	3.0	Clayey silty sand with gravel with pebbles	13	44	29	14	0.280	-	-
	6	4.5	Clayey silty sand with gravel with pebbles	27	54	13	6	0.230	0.0038	60.5
	6	6.0	Clayey silty sand with gravel with pebbles	4	32	38	26	0.059	-	-
	6	7.5	Clayey silty sand with gravel with pebbles	32	43	18	7	0.270	0.0032	84.4
	6	9.0	Clayey silty sand with gravel	23	56	17	4	1.600	0.004	400.0
	6	10.0	Clayey silty sand with gravel	27	50	18	5	1.400	0.0035	400.0

G(C)9966

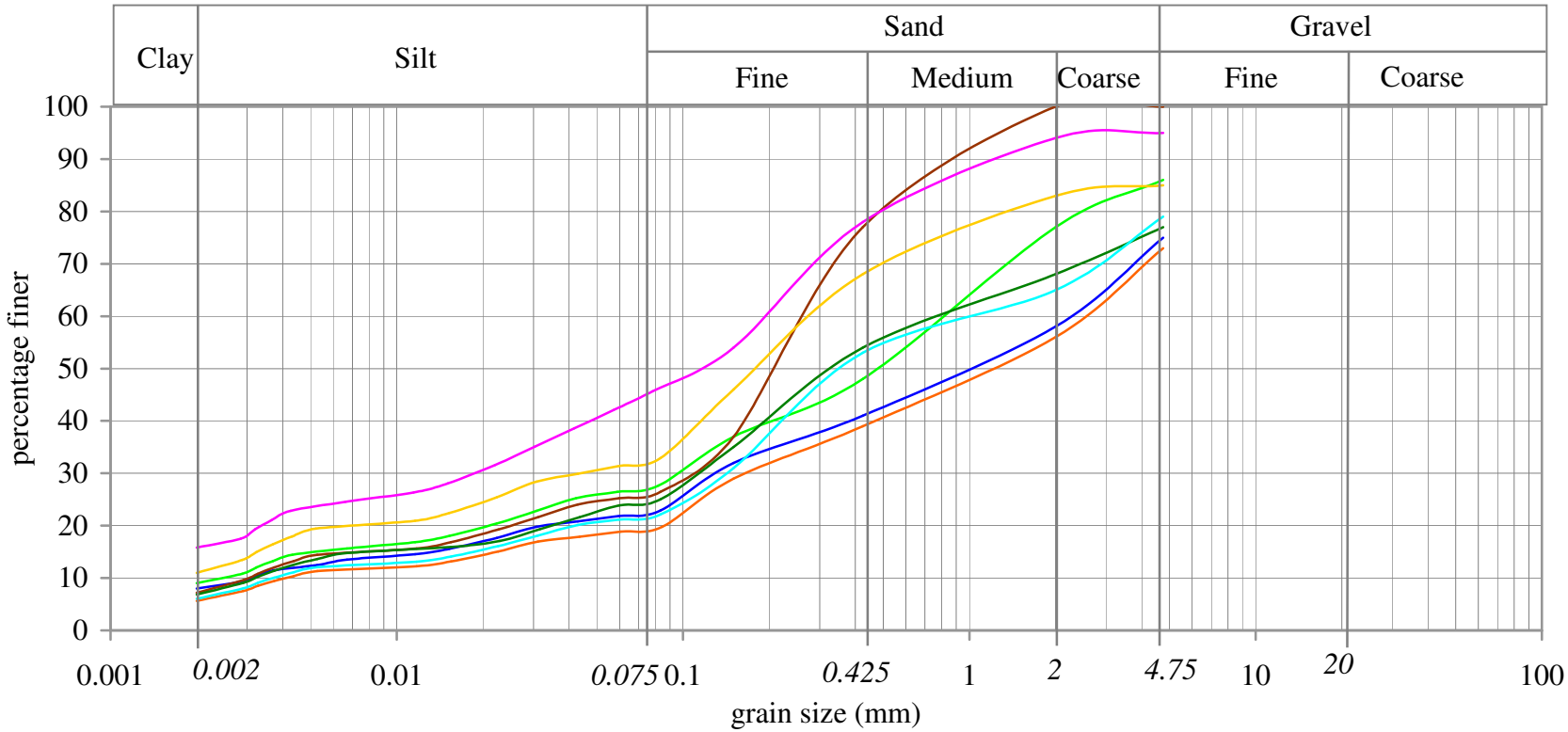
3h



Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	7	1.0	Clayey silty sand	0	50	31	19	0.170	-	-
	7	2.5	Clayey silty sand with gravel	3	60	25	12	0.280	-	-
	7	4.0	Clayey sandy silt with gravel with pebbles	6	29	38	26	0.040	-	-
	7	5.5	Clayey sandy silt with gravel with pebbles	3	33	40	24	0.060	-	-
	7	7.0	Clayey silty sand with gravel	14	59	19	8	0.825	-	-
	7	8.5	Clayey silty sand with gravel	17	59	17	6	1.300	0.0035	371.4
	7	10.0	Clayey silty sand with gravel	23	50	19	8	1.700	0.0027	629.6



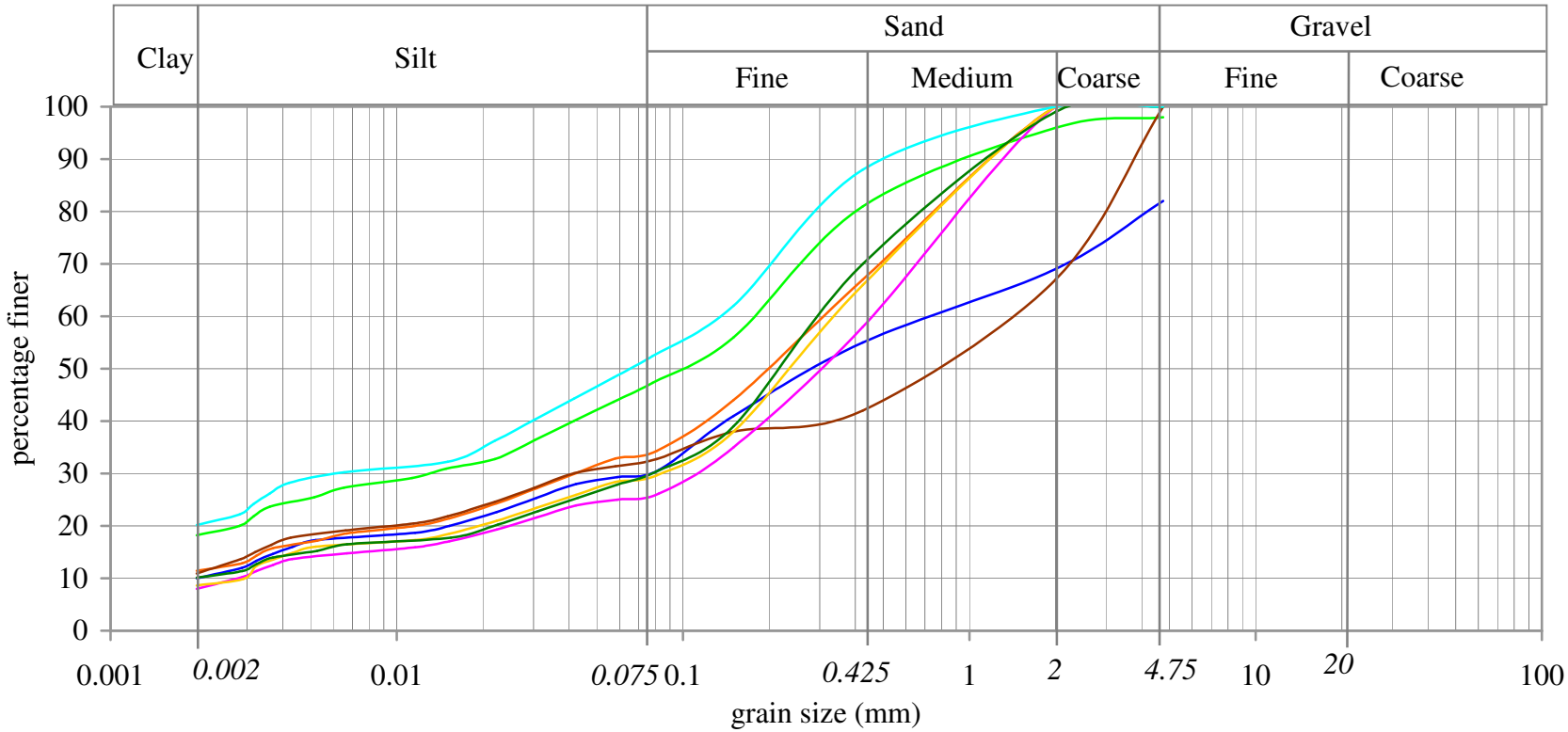
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	8	1.5	Clayey silty sand	0	55	29	16	0.210	-	-
	8	3.0	Clayey silty sand	0	54	30	16	0.200	-	-
	8	4.5	Clayey silty sand	0	56	30	14	0.200	-	-
	8	6.0	Clayey silty sand with gravel with pebbles	11	60	22	7	0.400	0.003	133.3
	8	7.5	Clayey silty sand with gravel with pebbles	24	53	17	6	0.850	0.0034	250.0
	8	9.0	Clayey silty sand with gravel with pebbles	20	47	23	10	0.675	0.0023	293.5
	8	10.5	Clayey silty sand with gravel with pebbles	26	54	15	5	2.700	0.004	675.0
	8	12.0	Clayey silty sand with gravel with pebbles	15	55	21	9	1.2	0.0024	500.0



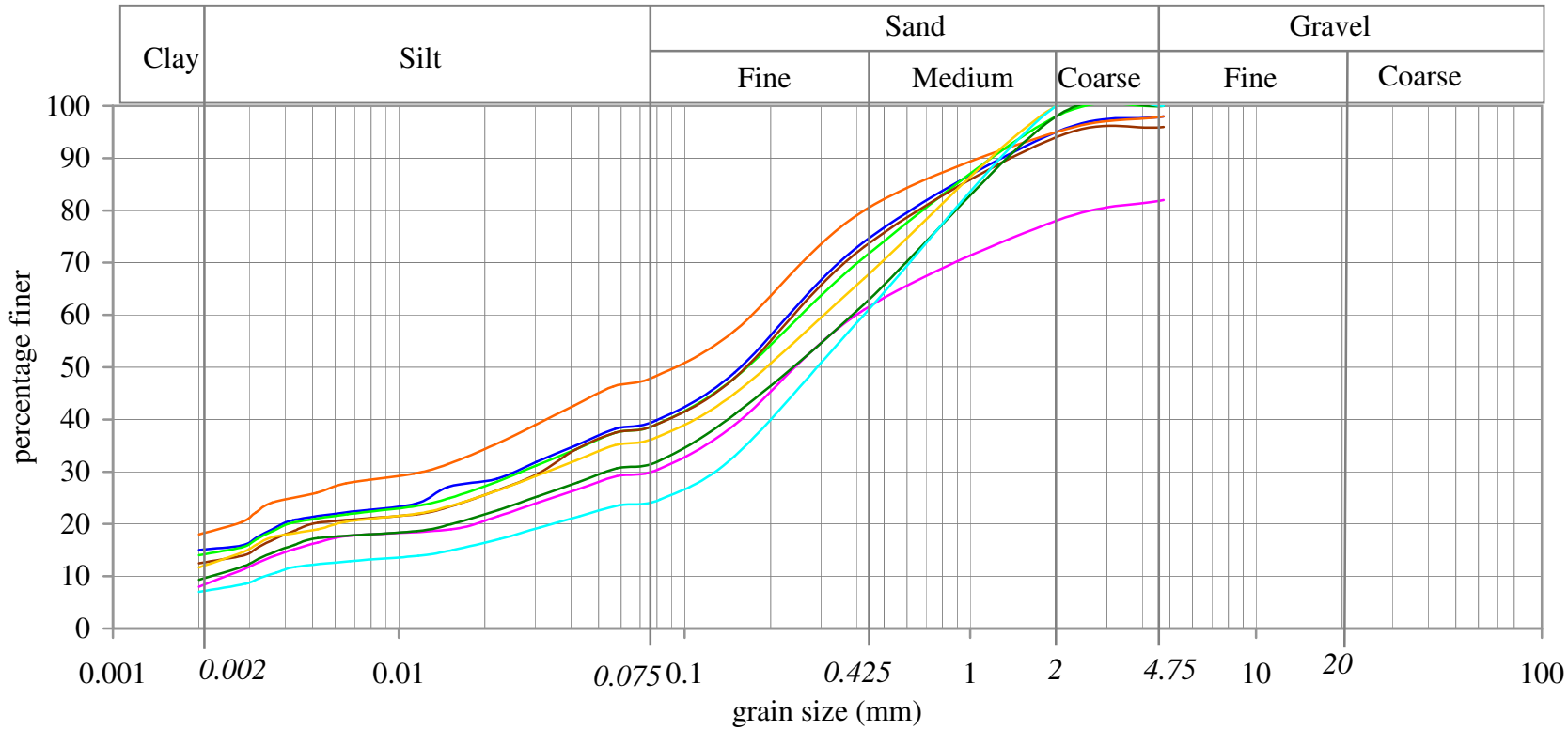
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	8	13.5	Clayey silty sand with gravel with pebbles	25	52	15	8	2.300	0.0033	697.0
	8	15.0	Clayey silty sand with gravel with pebbles	27	53	14	6	2.600	0.0041	634.1
	8	16.5	Clayey silty sand with gravel with pebbles	14	58	19	9	0.810	0.0025	324.0
	9	1.0	Clayey silty sand	0	74	19	7	0.260	0.0032	81.3
	9	2.5	Clayey silty sand with gravel with pebbles	5	49	30	16	0.190	-	-
	9	4.0	Clayey silty sand with gravel with pebbles	15	52	22	11	0.280	-	-
	9	5.5	Clayey silty sand with gravel with pebbles	23	52	18	7	0.790	0.0032	246.9
	9	7.0	Clayey silty sand with gravel with pebbles	21	57	16	6	1.000	0.0039	256.4

G(C)9966

3k



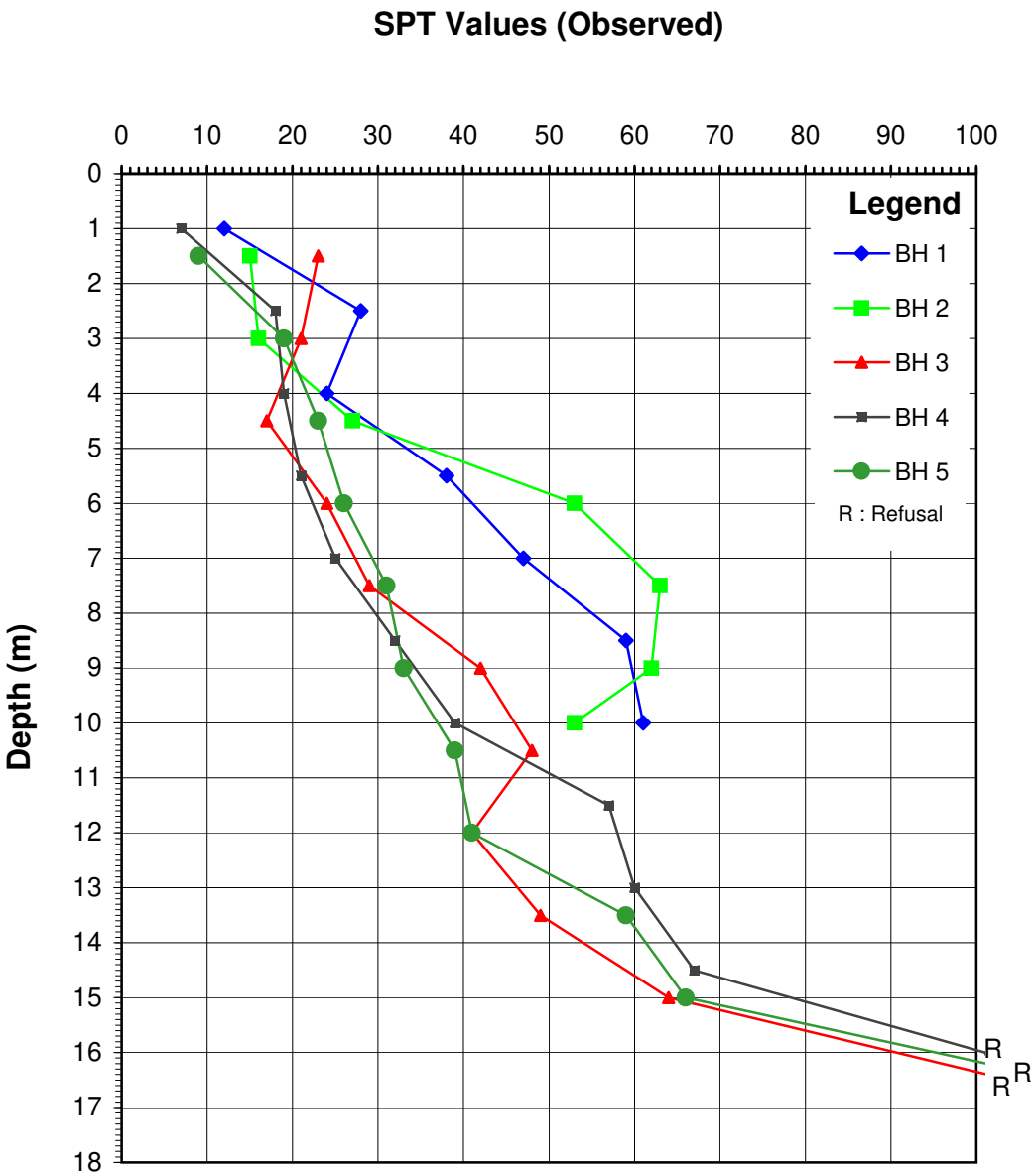
Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	9	8.5	Clayey silty sand with gravel with pebbles	18	51	21	10	0.700	0.002	350.0
	9	10.0	Clayey silty sand	0	66	23	11	0.300	-	-
	9	11.5	Clayey silty sand with gravel with pebbles	2	51	29	18	0.170	-	-
	9	13.0	Clayey silty sand	0	67	22	11	1.500	-	-
	9	14.5	Clayey silty sand	0	74	18	8	0.450	0.003	150.0
	9	16.0	Clayey silty sand	0	70	21	9	0.330	0.003	110.0
	10	1.5	Clayey silty sand	0	70	20	10	0.290	0.002	145.0
	10	3.0	Clayey silty sand	0	48	32	20	0.14	-	-



Line Style	Bore hole	Depth (m)	Description	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	d_{60}	d_{10}	U
	10	4.5	Clayey silty sand with gravel with pebbles	2	58	25	15	0.230	-	-
	10	6.0	Clayey silty sand with gravel with pebbles	2	50	30	18	0.170	-	-
	10	7.5	Clayey silty sand	0	61	25	14	0.260	-	-
	10	9.0	Clayey silty sand with gravel with pebbles	4	57	27	12	0.240	-	-
	10	10.5	Clayey silty sand with gravel with pebbles	18	52	22	8	0.400	0.0025	160.0
	10	12.0	Clayey silty sand	0	63	25	12	0.310	-	-
	10	13.5	Clayey silty sand	0	68	23	9	0.390	0.0023	169.6
	10	15.0	Clayey silty sand	0	75	18	7	0.42	0.0035	120.0

G(C)9966

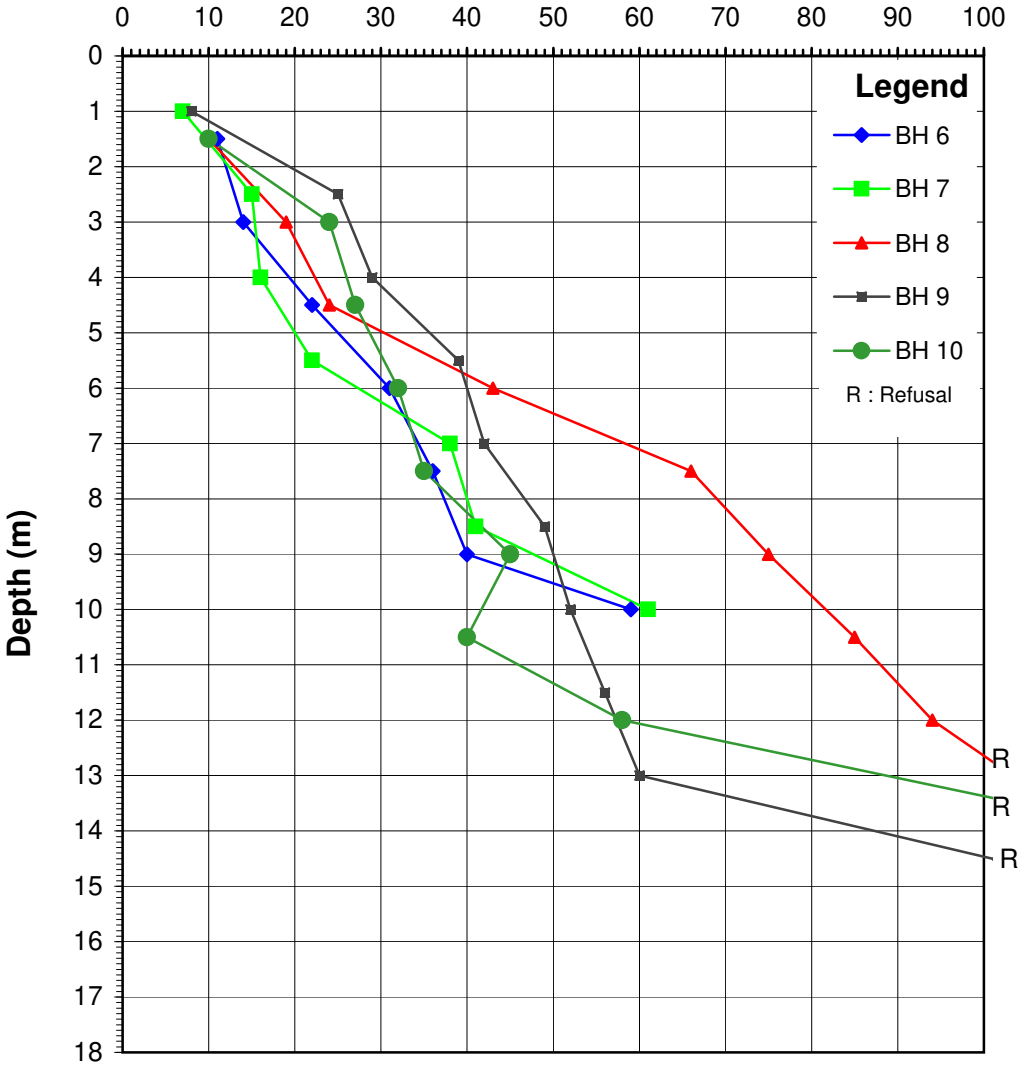
3m



SPT Values (Observed) Vs Depth Curves

G(C)9966

SPT Values (Observed)



SPT Values (Observed) Vs Depth Curves

G(C)9966