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NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

TENDER NO. BHEL/NR/SCT/PANKI/EW/1101

Bharat Heavy Electricals Limited

Ref:BHEL/NR/SCT/PANKI/EW/1101 **Date: 25/04/2018**

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NOTICE INVITING E-TENDER (NIT)
BIDDER TO SUBMIT OFFERS ON PORTAL
https://bhel.abcprocure.com

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To

Dear Sir/Madam

Sub : NOTICE INVITING E-TENDER

Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting PRE QUALIFICATION CRITERIA as mentioned in Annexure-I) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1. **Salient Features of NIT**

SL NO	ISSUE	DESCRIPTION	
i	**TENDER NUMBER**	**BHEL/NR/SCT/PANKI/EW/1101**	
ii	**Broad Scope of job**	**CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM.), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM.), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM.) AND OPEN STORAGE YARD (APPROX. 80,000 SQM.) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.**	
iii	**DETAILS OF TENDER DOCUMENT**		
a	Volume-IA	*Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc*	*Applicable*
b	Volume-IB	*Special Conditions of Contract (SCC)*	*Applicable*
c	Volume-IC	*General Conditions of Contract (GCC)*	*Applicable*
d	Volume-ID	*Forms and Procedures*	*Applicable*
e	Volume-II	*Price Schedule (Absolute value).*	*Applicable*
iv	**Issue of Tender Documents**	**From BHEL website (www.bhel.com) and https://bhel.abcprocure.com** Tender documents will be available at website till due date of submission	*Applicable*
v	**DUE DATE & TIME OF OFFER SUBMISSION**	***Date : 08/05/2018 , Time : 1500 HRS*** ***Place : on https://bhel.abcprocure.com***	*Applicable*
vi	**OPENING OF TENDER**	***At due date / time*** ***Date : 08/05/2018 , Time : 1530 HRS*** *Notes:* *(1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day.* *(2) Bidder may depute representative to witness the opening of tender.* ***However it being an e-tender it shall be opened online***	*Applicable*

vii	**EMD AMOUNT**	***Rs. 18,74,000/-***	**Applicable for all Bidders (including MSE Bidders)**
viii	**COST OF TENDER**	***Rs 2,000/-***	**Applicable for all Bidders (including MSE Bidders)**
ix	**LAST DATE FOR SEEKING CLARIFICATION**	***Five days before bid submission due date.*** *Along with soft version also, addressing to contact address given below* *1) Name: **SUSMITA BASU*** *Designation: SR. DGM* *Deptt: SCT* *Address: BHEL-PSNR, PLOT NO. 25, SECTOR – 16A, NOIDA - 201301* *Phone: (Landline/Mobile) 0120-2416262* *Email : susmitabasu@bhel.in* *2) Name: **CHITTARANJAN SWAIN*** *Designation: DY. MANAGER* *Deptt: SCT* *Address: BHEL-PSNR, PLOT NO. 25, SECTOR – 16A, NOIDA - 201301* *Phone: (Landline/Mobile) 0120 - 2416500* *Email : cs@bhel.in*	*Applicable*
x	**SCHEDULE OF Pre Bid Discussion (PBD)**		*Not applicable.*
xi	**INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)**	*Shri D.R.S. Chaudhary* *E-1/164 Arera Colony* *Bhopal 462016* *dilip.chaudhary@icloud.com*	*Applicable*
xii	**Latest updates**	Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) & portal **https://bhel.abcprocure.com** **and not in the newspapers**. Bidders to keep themselves updated with all such information	
xiii	**Tender submission**	On portal **https://bhel.abcprocure.com**	

2. The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**

3. Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn **in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Noida** issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Noida, Sundays and second/ last Saturdays.

   As this tender is an E-Tender and no paper bids will be accepted therefore the scanned copy of the Demand Draft or the Cash Receipt issued by BHEL PSNR should be uploaded in the E procurement portal. Hard Copy

of the demand draft should reach BHEL PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.

4. Unless specifically stated otherwise, bidder shall deposit EMD through Cash Deposit (as permissible under the extant Income Tax Act) (before tender opening), Electronic Fund Transfer credited in BHEL account (before Tender Opening) or Banker's Cheque/ Demand Draft/ Pay Order **in favour of Bharat Heavy Electricals Ltd, payable at Noida** (along with offer).

'One Time EMD' will not be considered for this tender. All the bidders who have 'One Time EMD' with BHEL and want to participate in this tender, would also submit the requisite amount of EMD as mentioned in Clause No. 1, Salient Features of NIT, Sl. No. (vii) above.
However, the One Time EMD can be adjusted against the EMD applicable against this tender on specific request of bidder.

For Electronic Fund Transfer the details are as below-:

a) Name of the Beneficiary -: Bharat Heavy Electricals Limited

b) Bank Particulars

i).	Bank Name -:	STATE BANK OF INDIA
ii).	Bank Telephone No.(with STD code)-:	011-23352180
iii).	Branch Address-:	CAG BRANCH, NEW DELHI
iv).	Bank Fax No. (with STD code) -:	011-23353101
v).	Branch Code -:	SBIN0009996
vi).	9 Digit MICR Code of the Bank Branch -:	110002201
vii).	Bank Account Number -:	10813608647
viii).	Bank Account Type -:	CASH CREDIT
ix).	11 Digit IFSC Code of Beneficiary Branch-:	SBIN0009996

(Note-: In case of E-Tenders, no paper bids shall be accepted, therefore, the scanned copy of the Banker's Cheque/ Demand Draft/ Pay Order/ Details of payment made through Electronic Fund Transfer should be uploaded in the E-Procurement Portal and hard copy of the same should reach BHEL-PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.)

For other details please refer General Conditions of Contract.

5. **Procedure for Submission of Tenders**: This is an E-tender floated online through our E-Procurement Site ***https://bhel.abcprocure.com***. The bidder should respond by submitting their offer online only in our e-Procurement platform at ***https://bhel.abcprocure.com.*** Offers are invited in two-parts only.

Documents Comprising the e-Tender

The tender shall be submitted online ONLY, EXCEPT TENDER FEE & EMD (in physical form), as mentioned below:

a. Technical Tender (UN priced Tender)

All Technical details (e.g. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- **i.** Tender Cost and Earnest money Deposit (EMD) furnished in accordance with NIT Clause 3.0 & 4.0.
- **ii.** Technical Bid (without indicating any prices).

b. Price Bid:

i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
ii. The price should be quoted for the accounting unit indicated in the e-tender document.

iii. Note: It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.

iv. A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.

v. A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

vi. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, same shall not be considered.

DO NOT"S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered. **Also, uploading of the price bid in prequalification bid or technical bid may RESULT IN REJECTION of the tender**.

Digital Signing of e-Tender

Tenders shall be uploaded with all relevant PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION digital signature certificate (DSC).

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The Requirement:

1. A PC with Internet connectivity &
2. DSC (Digital Signature Certificate)(**Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION**)

BHEL has finalized the e-procurement service Provider-:

M/s AbcProcure, Ahmedabad

A-202/208, Wall Street-II, Opp. Orient Club, Nr. Gujarat College,

Ellis Bridge, Ahmedabad-380006

The contact details of the service provider are given below:

Name	Contact Nos.	e-mail ID	Role	Location
Swapnil Hamilton	+91 79 40270549	swapnil.h@eptl.in	Support Executive	HO – Ahmedabad
Hardik Oza	+91 79 40270560	Hardik.oza@eptl.in	Support Executive	HO – Ahmedabad
Ankur Bhatt	+91 79 40270590	ankur.bhatt@eptl.in	Support Executive	HO – Ahmedabad
Prashant Rajyaguru	+91 79 40270545 / 9016859416	prashant@eptl.in	Ast. Manager – Implementation & Support	HO – Ahmedabad
Dharam Rathod	+91 79 40270596 / 9374519754	dharam@eptl.in	Manager – Implementation & Support	HO – Ahmedabad
Pradip Parmar	+91 79 40270532 / 9328657215	pradip@eptl.in	Sr Manager – Implementation & Support	HO – Ahmedabad
Devang Patel	+91 79 40270576 / 99983 05442	devang@eptl.in	Sr Manager – Implementation & Support	HO – Ahmedabad

The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)** and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

1. The contact details of the DSC Certifying Authority as given below

1	**GNFC**	www.ncodesolutions.com
2	**e-Mudhra**	http://www.e-Mudhra.com
3	**Safescrypt**	www.safescrypt.com

Vendors are also requested to go through seller manual available on ***https://bhel.abcprocure.com***.

6. **Not Used**

7. Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.

8. BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9. **Assessment of Capacity of Bidders:**

Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:

I. **LOAD**: Load takes into consideration **ALL** the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the 3rd Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -

(**Note:** For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as on the cut off month defined above, including packages yet to be commenced, excepting packages which are on Long Hold.

II. **PERFORMANCE**: Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the 3rd Month preceding the month corresponding to 'latest date of bid submission', in the following manner:

(**Note**: For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table -1))

i). Calculation of Overall 'Performance Rating' for 'Similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

a) P_1, P_2, P_3, P_4, P_5 , …. P_N etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = $\mathbf{P_T}$ (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \ldots P_N$)

b) Number of Months 'T_1' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P_1. Similarly T_2 for package P_2,T_3 for package P_3, etc. for the tendered scope. Now calculate cumulative total months '$\mathbf{T_T}$' for total similar Packages '$\mathbf{P_T}$' for all Regions (i.e. $\mathbf{T_T} = T_1 + T_2 + T_3 + T_4 + ..T_N$)

c) Sum 'S_1 'of 'Monthly Performance Evaluation' Scores ($S_{1\text{-}1}$, $S_{1\text{-}2}$, $S_{1\text{-}3}$, $S_{1\text{-}4}$, $S_{1\text{-}5}$…. $S_{1\text{-}T1}$) for similar package P_1, for the 'period of assessment' 'T_1' (i.e. $\mathbf{S_1 = S_{1\text{-}1} + S_{1\text{-}2} + S_{1\text{-}3} + S_{1\text{-}4} + S_{1\text{-}5} + \ldots S_{1\text{-}T1}}$). Similarly, $\mathbf{S_2}$ for package P_2 for period T_2, $\mathbf{S_3}$ for package P_3 for period T_3 etc. for the tendered scope for all Regions. Now calculate cumulative sum 'S_T' of 'Monthly Performance Evaluation' Scores for total similar Packages '$\mathbf{P_T}$' for all Regions (i.e. 'S_T'$= S_1 + S_2 + S_3 + S_4 + S_5 + \ldots S_N$.)

d) **Overall Performance Rating 'R_{BHEL}' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

$$= \frac{\text{Aggregate of Performance scores for all similar packages in all the Regions}}{\text{Aggregate of months for each of the similar packages for which performance should have been evaluated in all the Regions}}$$

$$= \frac{S_T}{T_T}$$

e) Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.

f) Table showing methodology for calculating 'a', 'b' and 'c' above

Sl. No.	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P_1	P_2	P_3	P_4	P_5	…	P_N	Total No. of similar packages for all Regions = $\mathbf{P_T}$ i.e. Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment' for corresponding Similar Packages (as in row 1)	T_1	T_2	T_3	T_4	T_5	…	T_N	Sum (Σ) of columns (iii) to (ix) = $\mathbf{T_T}$
3	Monthly performance scores for the corresponding period (as in Row 2)	$S_{1\text{-}1}$, $S_{1\text{-}2}$, $S_{1\text{-}3}$, $S_{1\text{-}4}$, … $S_{1\text{-}T1}$	$S_{2\text{-}1}$, $S_{2\text{-}2}$, $S_{2\text{-}3}$, $S_{2\text{-}4}$, … $S_{2\text{-}T2}$	$S_{3\text{-}1}$, $S_{3\text{-}2}$, $S_{3\text{-}3}$, $S_{3\text{-}4}$, … $S_{3\text{-}T3}$	$S_{4\text{-}1}$, $S_{4\text{-}2}$, $S_{4\text{-}3}$, $S_{4\text{-}4}$, … $S_{4\text{-}T4}$	$S_{5\text{-}1}$, $S_{5\text{-}2}$, $S_{5\text{-}3}$, $S_{5\text{-}4}$, … $S_{5\text{-}T5}$	.. … … … …	$S_{N\text{-}1}$, $S_{N\text{-}2}$, $S_{N\text{-}3}$, $S_{N\text{-}4}$, … $S_{N\text{-}TN}$	--------
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S_1	S_2	S_3	S_4	S_5	…	S_N	Sum (Σ) of columns (iii) to (ix) = $\mathbf{S_T}$

ii). Calculation of Overall 'Performance Rating' ($\mathbf{R_{BHEL}}$) in case at least 6 evaluation scores for 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which

evaluation should have been done. 'R_{BHEL}' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

a) 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
b) 12 months preceding and including the cut-off month
c) 24 months preceding and including the cut-off month
d) 36 months preceding and including the cut-off month

In case, R_{BHEL} cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

iii). Factor "L" assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions:

Sl. no.	Overall Performance Rating (R_{BHEL})	Corresponding value of 'L'
1	=60	NA
2	> 60 and ≤ 65	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2
6	≥ 80	NA

III. 'Assessment of Capacity of Bidder':

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages P_{Max}= (R_{BHEL} - 60) divided by corresponding value of 'L', i.e. (R_{BHEL}- 60)/L

Note:

i). In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number
ii). For R_{BHEL} = 60, P_{Max} = '1'
iii). For R_{BHEL} ≥ 80, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if P ≤ P_{Max}
(Where P is calculated as per clause 'I' above)

IV. **Explanatory note**:

i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

ii). Identified Packages (Unit wise)

Table-1

Civil	Electrical and C&I	Mechanical
i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	i). Electrical ii). C&I iii). Others (Elect. and C&I)	i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). ESP iv). LP Piping v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). Others (Mechanical)

iii). Bidders who have not been evaluated for at least six package months in the last 36 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions.

A 'NEW VENDOR' if awarded a job (of package/packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI/LOA from BHEL.

The "FIRST TIMER" tag shall remain till completion of all the contracts against which vendors has been tagged as First Timer or availability of 6 evaluation scores within last 36 months preceding and including the cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions.

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Assessment of Capacity of Bidders'.

iv). In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on 'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' OR due to non-approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating** 'R_{BHEL}' only, starting from the upper band.

v). 'Under execution' shall mean works in progress as per the following:

a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages

b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages

c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.

vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.

vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 25th of Evaluation Month or 3 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.

viii). Project on Hold due to reasons not attributable to bidder -

a. **Short hold:** Evaluation shall not be applicable for this period, however Loading will be considered.

b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.

ix). Performance evaluation in CL 9 above is applicable to prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.

10. Since the job shall be executed at site**,** bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

11. For any clarification on the tender document, the bidder may seek the same over e-procurement portal as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12. BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

13. In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.

14. Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.

15. Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at Clause No. 1, Salient Features of NIT, Sl. No. (xi) above.**

15a. **Integrity Pact (IP)**

i) IP is a tool to ensure that activities and transactions between the Company and its Bidders / Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification. Details of IEM for this tender is given at point 1 (xi) above.

ii) Please refer Section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

No routine correspondence shall be addressed to the IEM (phone / post / email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification / issues shall be addressed directly to the tender issuing (procurement) department.

For all clarifications/issues related to the tender, contact details are as per **Clause No. 1, Salient Features of NIT, Sl. No. (ix) above.**

16. The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.

17. In case BHEL decides on a `Public Opening', the date & time of opening of the PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.

18. Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise

19. (a) BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on www.bhel.com) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

(b) Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

(c) The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**

(d) If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on www.bhel.com).

(e) If reverse auction process is unsuccessful, sealed envelope price bids of all the techno-commercially qualified bidders shall be opened and the tender shall be processed accordingly. However, the envelope sealed bid(s) of techno-commercially acceptable bidder(s) who had agreed to participate in the RA and had failed to submit the online sealed bid shall not be opened.

20. On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.

21. In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.

22. The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.

23. **Consortium Bidding** (or Technical Tie up): **NOT APPLICABLE**

24. The bidder shall upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.

25. The bidder may have to produce original document for verification if so decided by BHEL.

26. It may please be noted that guidelines/rules in respect of Suspension of Business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', milestone/ completion certificate, etc may undergo change from time to time and the latest one shall be followed. The abridge version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "**supplier registration page**".

27.0 The offers of the bidders who are on the banned/ hold list as also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com

27.1 Integrity commitment, performance of the contract and punitive action thereof:

27.1.1 **Commitment by BHEL:**

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

27.1.2 **Commitment by Bidder/ Supplier/ Contractor:**

(i) The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.

(ii) The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.

(iii) The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

28.0 **NOT APPLICABLE**

29.0 The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website http://www.bhel.com and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice.

30.0 **Order of Precedence**:

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
b. Notice Inviting Tender (NIT)
c. Price Bid
d. Technical Conditions of Contract (TCC)—Volume-1A
e. Special Conditions of Contract (SCC) —Volume-1B
f. General Conditions of Contract (GCC) —Volume-1C
g. Forms and Procedures —Volume-1D

for BHARAT HEAVY ELECTRICALS LTD
(SCT)

Enclosure:-

(i) Annexure-1: Pre Qualifying criteria.
(ii) Annexure-2: Check List.
(iii) Annexure-3: Authorization of representative who will participate in the online Reverse Auction Process
(iv) Annexure-4: Feedback form
(v) Annexure-5: Integrity Pact
(vi) Other Tender documents as per this NIT.

ANNEXURE - 1

PRE QUALIFYING REQUIREMENTS

JOB	**CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM.), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM.), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM.) AND OPEN STORAGE YARD (APPROX. 80,000 SQM.) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.**
TENDER NO	**BHEL/NR/SCT/ PANKI/EW/1101**

Sl. No.	**Name and Description of Pre-Qualification criteria**	**Bidder's claim in respect of fulfilling the PQR Criteria**
A	Submission of Integrity Pact	**Applicable**
B	Assessment of Capacity of bidder to execute the work as per clause 9.0 of NIT	**Applicable – by BHEL**
C	**Technical**	**Applicable**
C-1	**Bidder who wish to participate should have**: Executed '**Similar Work'** for any one of the following in the last seven (7) years from latest date of bid submission:	
C-1.1	One (01) work of value not less than **Rs. 749.60 Lakhs**.	
	OR	
C-1.2	Two (02) works each of value not less than **Rs. 468.50 Lakhs**.	
	OR	
C-1.3	Three (03) works each of value not less than **Rs. 374.80 Lakhs**.	
D	**Financial**	**Applicable**
D-1	**TURNOVER:** Bidders must have achieved an average annual financial turnover (Audited) of **Rs. 281.10 Lakhs or more** over last three Financial Years (FY) i.e. (2014-2015, 2015-2016, 2016-2017). Bidder shall submit audited accounts (balance sheets and profit & loss account) in support of this. In case audited financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e. total divided by three. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant.	
D-2	**Net worth**: Net Worth (Only in case of companies) of the bidder should be positive. Net worth of the Bidder based on the latest Audited Accounts as furnished for 'D-1' above should be positive. Net worth = Paid up share capital* + Reserves (* : Share Capital OR Partnership Capital OR Proprietor Capital as the case may be)	

D-3	**Profit:** Bidder should have earned profit in any one of the three financial years as applicable in the last three financial years defined in 'D-1' above based on latest Audited accounts. PROFIT shall be PBT earned during any one year of last three financial years as in 'D-1' above	
E	**Approval of Customer**	Not Applicable
F	**Consortium Criteria**	Not Applicable

Explanatory Notes:

1. The word **'Similar Work'** means "Civil works related to Construction and Development of Covered/ Semi Covered Stores AND/ OR Offices AND/ OR Buildings (Commercial / Industrial/ Residential) AND/ OR Open Storage Yards".

2. For evaluation of PQR, the credentials of the bidder alone, and not that of the Group Company shall be considered.

3. Time period for achievement of the Qualification Requirements is in the last 7 years ending on the 'latest date of Bid Submission' of Tender.

4. For sl. no. 'C.1', 'Executed' means the bidder should have achieved this criteria, even if the total contract has not been completed or closed. Actual executed value shall be considered, irrespective of completion status of contract (s) under consideration. (The bidder shall submit the copy of Work orders and work completion certificate issued by Customer/ Contractor.)

5. Relevant documents, meeting above requirements at sl. no. (C) & (D) shall be submitted by bidders.

6. For sl.no. 'C.1' above Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula-

$$P = \left\{ R + 0.425 \times R \times \frac{(X_N - X_0)}{X_0} + 0.425 \times R \times \frac{(Y_N - Y_0)}{Y_0} \right\}$$

Where

P = Updated value of work

R = Value of executed work

X_N = All India Avg. Consumer Price index for industrial workers for the month, three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 03-Apr-17, then bid submission month shall be reckoned as April'17 and index for Jan'17 shall be considered).

X_0 = All India Avg. Consumer Price index for industrial workers for last month of work execution

Y_N = Monthly Whole Sale Price Index for All Commodities for the month, three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 03-Apr-17, then bid submission month shall be reckoned as April'17 and index for Jan'17 shall be considered).

Y_0 = Monthly Whole Sale Price Index for All Commodities for last month of work execution.

BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

ANNEXURE - 2

CHECK LIST

NOTE:- Tenderers are required to fill in the following details and no column should be left blank

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount:	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY(BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with **PRE QUALIFICATION CRITERIA** (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
7	Audited profit and Loss Account for the last three years	Applicable	YES/NO
8	Copy of PAN Card	Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable	YES/NO
10	Integrity Pact	Applicable	YES/NO
11	Declaration by Authorised Signatory	Applicable	YES/NO
12	No Deviation Certificate	Applicable	YES/NO
13	Declaration confirming knowledge about Site Conditions	Applicable	YES/NO
14	Declaration for relation in BHEL	Applicable	YES/NO
15	Non-Disclosure Certificate	Applicable	YES/NO
16	Bank Account Details for E-Payment	Applicable	YES/NO
17	Capacity Evaluation of Bidder for current Tender	Applicable	BY BHEL
18	Tie Ups/Consortium Agreement are submitted as per format	Not Applicable	YES/NO
19	Power of Attorney for Submission of Tender/Signing Contract Agreement	Applicable	YES/NO
20	Analysis of Unit rates	Applicable	YES/NO

NOTE : STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS** ARE LIABLE TO BE SUMMARILY REJECTED.

DATE :

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

ANNEXURE - 3

Authorization of representative who will participate in the on line Reverse Auction Process;

1	NAME & DESIGNATION OF OFFICIAL	
2	POSTAL ADDRESS (COMPLETE)	
3	TELEPHONE NOS. (LAND LINE & MOBILE BOTH)	
4	FAX NO.	
5	E-MAIL ADDRESS	
6	NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION	

ANNEXURE – 4

Feedback Form: From where did you get information reg. this tender

1	NEWSPAPER ADVERTISEMENT (NAME)	
2	BHEL WEBISTE (TENDER NOTIFICATION)	
3	CENTRAL PUBLIC PROCUREMENT PORTAL OF GOVERNMENT OF INDIA (CPP PORTAL)	
4	EMAIL COMMUNICATION FROM BHEL	
5	ANY OTHER SOURCE	

INTEGRITY PACT

Between

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi – 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____, (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for _____

_____

_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint Independent External Monitor(s), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 – Commitments of the Principal

1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-

1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.

1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.

1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 – Commitments of the Bidder(s)/ Contractor(s)

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/ PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

Section 3 – Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors". framed by the Principal.

Section 4 – Compensation for Damages

4.1 If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/Bid Security.

4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/Performance Bank Guarantee, whichever is higher.

Section 5 – Previous Transgression

5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 – Equal treatment of all Bidders/ Contractors/ Sub-contractors

6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20 % of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/ Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).

6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.

6.3 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

Section 7 – Criminal Charges against violating Bidders/ Contractors /Sub-contractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 –Independent External Monitor(s)

8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.

8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.

8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.

8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.

8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC / PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the

Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.

8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.

9.2 If any claim is made / lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as above, unless it is discharged/ determined by the CMD, BHEL.

Section 10 – Other Provisions

10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.

10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.

10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

10.5 Only those bidders/ contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

----------	----------
For & On behalf of the Principal	For & On behalf of the Bidder/ Contractor
(Office Seal)	(Office Seal)

Place----------

Date----------

Witness: _____	Witness: _____
(Name & Address) _____	(Name & Address)_____
_____	_____

VOLUME- IA: TECHNICAL CONDITIONS OF CONTRACT (TCC)

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

TENDER NO. BHEL/NR/SCT/PANKI/EW/1101

BHARAT HEAVY ELECTRICALS LIMITED

PANKI THERMAL POWER STATION (1x660 MW)

UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LTD., LUCKNOW has entrusted BHEL a turnkey contract to setup Panki Thermal Power Station (1X660 MW), Kanpur (U.P.).

Sl. No.	Title	Description
1	**Owner**	**UTTAR PRADESH RAJYA VIDYUT UTPADAN NIGAM LIMITED (UPRVUNL), LUCKNOW**
2	**Project Title**	Panki Thermal Power Station (1X660 MW)
3	**Project Site Location**	Panki, Kanpur, U.P., India
4	**Nearest Railway Station**	Panki (5 Km.)
5	**Nearest Airport**	Lucknow (80 Km.)
6	**Extreme Recorded DBT**	Maximum (47.3^{o}C) , Minimum (-0.9^{o}C)
7	**Average Relative Humidity**	Annual Average (65%)
8	**Rainfall**	Annual Average (832.6 mm)
9	**Nearest Water Body**	Lower Ganga Canal (adjacent to site)
10	**Basic Wind Speed**	47.0 m/s (As per IS: 875 Part-III)
11	**Seismic Data**	Zone-III (As per IS: 1893)

The Nearest Town Kanpur is about 16 Km from site and is easily accessible by Road/ Railway.

Note:- The bidder is advised to visit and examine the site of WORKS and its surroundings and obtain for himself on his own responsibility all information that may be necessary for preparing the bid and entering into the Contract. All costs for and associated with site visits shall be borne by the bidder.

2.0	**GENERAL SCOPE OF WORK**
2.1	The tender specification covers all the works for **"DESIGNING, CONSTRUCTION & DEVELOPMENT OF 01 NOS. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN YARD OF APPROX. 80,000 SQM AREA INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P."** Work under this tender includes supply of all required materials, labour, consumables, transportation, sample testing such as cement, aggregates, TMT, Structural Steel, Permanently colour coated GI Sheets, false ceiling, steel / wooden doors, aluminium work, brick work, sanitary and water supply work, electrical works etc. for completion of Tender Scope in all respect.
2.2	The complete works shall be carried out as per BOQ cum Rate schedule. If any work covered in the scope of contract cannot be executed using items available in BOQ cum Rate Schedule, additional / extra items shall be made and rates for such items shall be worked out as per **GCC clause 2.15.7**. However contractor shall be bound to execute all the works under the scope of the contract and decision whether an extra item is applicable or not, shall be taken by BHEL, which will be final and binding on the contractor.
2.3	Any activity which is necessarily required for satisfactory execution of any item of 'BOQ cum Rate Schedule' in line with technical specifications shall be deemed to be included in BOQ item even if it is not described in the item description and no extra payment shall be made against such activity.
2.4	In case the description / specifications as per BOQ are found to be incomplete, Indian Standard Codes (IS Codes) specifications shall be followed. Quantities mentioned in the 'BOQ cum Rate Schedule', are approximate only and liable for variation due to change of scope of work / variation in schedule of quantities, changes in design etc. The tenderers shall undertake to execute actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually executed at site and payments will also be regulated for the same. The quantities indicated against each item may vary to any extent and no compensation will be payable in variation of Individual quantity.
2.5	**The Scope of Work comprise but not limited to the following:** **A.** Design, Manufacturing, Supply, Receipt at site, Erection & Finishing works (if any) and handing over to site Removable / Re-erectable type Pre-Engineered, Pre-fabricated Office- **1 no. (Size: Approx. 660 SQM)** using insulated / PUF Panels including Foundations, Super structure, Electricals, Sanitary, Internal / External Plumbing Works & Sewage connections etc. all complete.

	B. Design, Manufacturing, Supply, Receipt at site, Erection & Finishing works (if any) and handing over to site of Mess Building including Foundations, Super structure, Electricals, Sanitary, Internal / External Plumbing Works & Sewage connections etc. all complete- **1 no. (Size: Approx. 72 SQM)** **C.** Design, Manufacturing, Supply, Receipt at Site, Erection, Site Painting etc. including Civil Works, Foundations, Super structure, Electricals, Sanitary, Internal / External Plumbing Works & Sewage connections etc. all complete and Handing over to site, Removable/Re-erectable type Pre-Engineered, Pre-fabricated Steel Storage Shed with C&I Room, In-charge Room, Common Hall, Computer Room, Side Racks, Pantry & Toilet etc. – **01 No. (Size: 15mx60mx6m).** **D.** Design, Manufacturing, Supply, Receipt at Site, Erection, Site Painting etc. including Civil Works, Foundations, Super structure, Electricals, Sanitary, Lighting & Fixtures etc. all complete and Handing over to site, Removable/Re-erectable type Pre-Engineered, Pre-fabricated Steel Storage Shed with side racks for storage purpose etc.- **07 Nos. (Size: 15mx60mx6m)** **E.** Construction and development of Open Storage Yard including development of storage yards, Internal/External Roads, Side /internal, Drains, illumination, Fencing, Security Post etc.- **Approx. Size 80,000 SQM.** All above jobs shall be executed as per BHEL Engineer's instructions, drawings, detailed specifications and respective BOQ cum Rate Schedule.
2.6	**RESPONSIBILITY OF CONTRACTOR**
2.6.1	Furnishing all labour (skilled, unskilled etc.), materials (except those specified in BHEL scope), supervision, construction plans, equipment, supplies, transport to and from the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown or specified but reasonably implied or necessary for the proper completion, maintenance and handing over the works, in accordance with the stipulations and specifications laid down in the contract documents and additional stipulations as may be provided by the BHEL Engineer during the course of works.
2.6.2	Furnishing samples of all materials required by the BHEL Engineers for testing / inspection and approval, for use in the works. The samples may be retained by the BHEL Engineer for final incorporation in the works.
2.6.3	Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the BHEL Engineer.
2.6.4	Giving all notices, paying all fees, taxes etc., in accordance with the General conditions of contract that is required for all works including temporary works.
2.6.5	Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.

2.6.6	Carrying out survey of the work area to establish levels and coordinates at suitable intervals from existing grid levels and coordinates furnished by the owner established bench marks, setting out the locations and levels of proposed structures, constructions and marking of reference pillars and other identification works etc. as required, The contractor shall provide the Customer / BHEL such assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
2.7	**GENERAL**
2.7.1	Contractor shall furnish the **manufacturers test certificate** for the steel & cement procured by them. Apart from this all the field test shall be arranged by contractor for cement, bricks, coarse & fine aggregate either at site or nearby Field Quality Lab. approved by BHEL if so desired by BHEL's Engineer. All the expenses in these regards shall be borne by contractor. **Contractor shall procure reinforcement steel, structural steel & Cement* from reputed manufacturer** & approval for the same shall be obtained from BHEL well in advance before ordering for the materials. *Cement shall be 'PPC CONFIRMING TO IS 1489 (Part-I)' OR 'OPC GRADE 43 or Higher'.
2.7.2	The contractor shall visit the site and ascertain the local conditions, entry/traffic restrictions, all obstructions in the area and also ascertain all site conditions and particularly the sub-soil conditions etc. **The contractor at his own cost shall carry out the survey to study the properties of soil/sub soil like strength to withstand the weight of structure during all weather conditions without sinking of foundation**. If any of such defects like cracks, sinking of foundation etc. occur after completion of work till the performance guarantee period, it shall be rectified by contractor free of cost including the supply of materials required. No claim shall be entertained on this account under any circumstances from the contractor.
2.7.3	The contractor shall provide and maintain at his own cost pumps and other equipment to keep the work free from water and continue to do so until the handing over of the work. The contractor shall clear all trees, rubbish, vegetation, brickbats etc. and dispense them suitably in allotted areas at own cost.
2.8	**DRAWINGS**
2.8.1	The detailed tentative drawings and specifications will form part of the tender documents. BHEL reserves the right to modify/alter the tender drawings, if necessary during the actual execution at site. However, the Drawings/Sketches are

	to be read along with specifications and shall be treated as in the scope of work. Please refer **Volume IA Part – II, for Drawings.**
2.8.2	**Drawings are indicative and strictly for tendering purpose, only meant to give an idea to tenderers about nature of job.** If any changes in the layout, plan, section, partition, truss, etc. are felt necessary to suit the site / work requirement, the same shall be done by contractor as per revised sketches / drawings prepared by contractor in consultation with BHEL Engineer after approval of these drawings by BHEL. Contractor shall ensure/ascertain the stability, safety of the said work. **Any modification/variation from the said drawings, if necessary as suggested by the contractor will have to be approved from BHEL in writing**.
2.9	**SPECIFICATION FOR CIVIL WORK, PLUMBING WORK, SANITARY WORK, ELECTRIFICATION WORK FOR OFFICE, MESS BUILDING, CLOSED STORAGE SHEDS, OPEN YARD ETC.:**
2.9.1	Standard specifications for various items of work for building construction as per the relevant IS-codes (latest edition) shall be applicable for this work. The work has to be executed as per relevant standards, IS Codes specifications, approved drawings and as directed by BHEL Engineer to the satisfaction of BHEL.
2.9.2	**OFFICE:**
2.9.2.1	SIZE: 11M X 60 M (APPROX.) Clear Height between FFL and False Ceiling: Approx. 3.0 Mtr.
2.9.2.2	**FRAME STRUCTURE:** Office shall be designed as frame structure with Structural Columns, Trusses, Foundations and Plinth Beam for supporting self-loads, live-loads, wind loads, seismic loads etc. Contractor shall carry out the designing work considering the requirements as per IS Standard specifications and detailed design drawings along with detail calculations shall be submitted to BHEL for approval before start of work. Drawings provided herein are tentative only for tendering purpose only, works shall be carried out as per the detail drawings to be prepared by vendor and approved from BHEL.
2.9.2.3	**Main External Walls:** Main structural walls shall be made out of insulated sandwich panels min. 60 mm thick, of 3 m height, in suitable width panels with color coated GI Sheet of 0.5 mm thickness on inner and outer side using pre coated galvanized iron profile sheets (size, shape and pitch of corrugation as approved by engineer-in-charge) 0.50 mm (+ 0.05 %) total coated thickness with zinc coating 120 grams per sqm as per IS: 277, in 240 MPA steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns. sheet should have protective guard film of 25 microns minimum to avoid scratches during transportation. insulation shall be done using 60 mm thick Poly Urethane Foam (PUF) of 38 kg /m3 or Glass Wool of 35 kg/m3 sandwiched between the sheets. Insulated Sandwich panels shall be pre-fabricated and supplied at site for installation.

	The fixture / panels should be joined together by tongue and groove method, joints shall be sealed with silicon sealant or other suitable sealant to ensure 100% leak proof. The outer framing structure shall be fabricated with ISMC 75x40x3mm or as per approved design, MS "T" welded for securing panels. The above outer frame shall be grouted to the plinth beam / floor by means of expansion fasteners. The entrance will be provided with 1no-portico of size min. 4m x 3m, made up of sandwiched panels shall be provided and should have an aesthetic look.
2.9.2.4	**ROOF:** Roof truss should be made up of anti-corrosive painted tubular section or as per approved design to suit roof structure with 0.5 mm thick pre-coated profiled GI (i.e. PPGI) roof sheet fixed with flashings, fasteners all complete.
2.9.2.5	**FLOORING:** Office flooring shall be consisting of all around RCC 1:2:4 plinth beam of section 230 x 300 mm with reinforcement (04 nos. 16 mm dia. bars at bottom, 02 nos. 20 mm dia. bars at top and 08 mm dia. stirrups @ 200mm c/c) 300 mm high brick work, 230 mm wide (with cement mortar 1:6) shall be provided over Plinth Beam. Floor Level shall be raised by filling the Earth / Sand in Layers not more than 150 mm, Stone Soling (approx. 100 mm thick) including watering and compaction etc. complete. 100 mm thick CC (1:3:6) with reinforcement (08 mm dia. bars @ 200 mm c/c in both direction longitudinal & lateral) shall be provided below finish floor. Finish flooring above CC shall be of vitrified floor tiles (min 5.5 mm thick) of 1st quality conforming to IS: 15622 of approved make in colors such as White, Ivory, Grey, Fume Red Brown, to be laid on 20 mm thick cement mortar 1:4 (1 cement: 4 coarse sand) including pointing the joints with white cement and matching pigment etc. all complete. The Finished Floor Level (FFL) shall be minimum 400 mm up from the Natural Ground Level (NGL).
2.9.2.6	**FALSE CEILING:** False ceiling shall be provided to entire office area including corridors, toilet blocks etc. Frame works shall be made of anodized aluminium members i.e. Tees, Angles, Channels etc. to form a grid pattern, the frame work shall be suspended from the Roof Trusses with the help of level adjusting hangers and False ceiling shall be done with 12.5 mm thick tapered edge gypsum plain board. Cut-outs should be made where ever necessary for Fixing of electrical fittings.
2.9.2.7	**WORK STATIONS:** Double side partition for cubicles/work stations of approx. 4ft - 5ft height made up of powder coated aluminum frame of size 25mm x 50mm and double side paneling with laminated particle board (12 mm thick) up to desk level (750 mm height), Pin up board with fabric upholstery (approx. 450 mm) and part glazed section (glazing with min. 5.5 mm thick float glass) of approx. 300mm with an air gap of minimum 4 mm, these panels are joined together by tongue and groove using self-tapping screws, necessary fittings, fixture, neoprene gasket, beading etc. complete. Partitions frames shall be provided with the provisions for fixing electrical switches, sockets, telephone boxes, LAN connection boxes, recessed cabling /conducting work etc. as directed by BHEL Engineer-In-charge. **PART CABINS:** Part Cabins shall be made up of insulated sandwiched wall panels (min. 60 mm thick), same as used for Main Structure Walls. The fixture / panels should be joined together by tongue and groove method, joints shall be sealed with silicon sealant or other suitable sealant to ensure 100% leak proof. The outer

	framing structure shall be fabricated with ISMC 75x40x3mm or as per approved design, MS "T" welded for securing panels. The above outer frame shall be grouted to the plinth beam / floor by means of expansion fasteners. Proper opening shall be provided in the wall panels for doors, windows, ventilators etc.
2.9.2.8	**DOORS AND WINDOWS:** **Outer Doors (Approx. Size: 2mx1.95m):** Outer Doors shall be Powder Coated Aluminum framed with pre laminated particle board paneling (min. 12 mm thick confirming to IS: 12823 Grade I type II, with decorative lamination on both side) with necessary EPDM rubber/ neoprene gasket, aluminum snap beading for glazing/ paneling, C.P. Brass / stainless steel screws, hinges, handle, door stopper, Double Action Hydraulic Floor Springs, mortise lock and pad locks etc. complete with all accessories. A covered portico of approx. size 4m x 3m, shall be provided at the entrance as per the layout drawings. **Windows:** All Windows shall be made of Aluminium Frame with glazing of 4 mm thick clear float glass. The aluminium windows shall be of sliding type, suitable nos. of windows shall be provided for enough ventilation & natural light. **Internal Doors:** Internal Doors shall be of following type: i.) **Aluminium Doors (Approx.Ssize 1mx1.95m):** Made up of powder coated aluminum extruded built up standard tubular sections/ appropriate z sections and other sections, partly glazed with pre-laminated particle board (12 mm thick) and 5.5 mm thick float glass, including necessary fittings and fixtures i.e. handles, door locks, latches, stoppers etc. Aluminum doors are to be provided for Part-Cabins, Conference Hall and Site In-charge Room and at other suitable locations as directed by BHEL Engineer. ii.) **Wooden Doors (Approx. Size: 1mX1.95m):** Best quality country wood doors comprising of frame 95 x 70mm and 38/40mm thick flush shutters of solid core type using commercial ply including hold fasts, wind appliances, handles, tower bolts and AL drops, mortise or suitable

	locks etc. Wooden Doors are to be provided for Toilets and other suitable locations as directed by BHEL Engineer. iii.) **PVC Doors (Approx. Size: 0.88mx1.95m):** Best quality PVC paneled doors of thickness 29mm, sintex/bajaj make or approved equivalent for toilets including all fittings and fixtures i.e. handles, tower bolts and AL drops, mortise or suitable locks etc., MS angle frame of size 40x40x6mm etc. all complete. PVC Paneled Doors are to be provided inside toilets and at other suitable locations as directed by BHEL Engineer.
2.9.2.9	**<u>TOILET:</u>** All toilets as per approved drawing should have required EWC with Health Faucet, Urinal, Wash Basin Towel Rods, Soap Dispenser and Glazed Mirrors etc. with flushing system including total required Plumbing. All toilets should also contain Paper Holder, Bottle Traps, Brass Bib Cocks, Stop Cocks, Gate Valves etc. all complete.
2.9.2.10	**PANTRY:** Pantry shall be provided with a SS kitchen Sink with drain board (size: 510X1040 with min bowl depth 200 mm) including stop cocks, pillar taps, waste water pipe, necessary fittings and connections etc. all complete and a Granite working platform of min. 18 mm thick Black Granite Stone as per approved drawings and as directed by BHEL Engineer.
2.9.2.11	**WATER SUPPLY:** A separate structure shall be provided with steel sections to support requisite no. of water tank as per approved drawing at a minimum height of 4m. The structure shall be designed with steel as per standard IS specification to withstand the water tank load and wind load in full & the legs of structure shall be suitably anchored to the ground. Supply and Fixing of Water Tank as approved by BHEL Engineer including inlet connection to Water Tank from the Existing nearby water supply line and further Distribution of water from the Water Tank to the Office Toilets, Pantry etc. using the GI / PVC Pipes of approved specifications and make, laying on surface/ recessed is also included in contractors scope.

2.9.2.12	**SEWAGE / WATER SUPPLY CONNECTIONS:** Sanitary fitting (EWCs, wash basins, urinals etc.) along with sewage connections shall be provided with septic tank and soak pit. All internal and external plumbing (from water tank to distribution system like toilet and pantry) including providing and fixing necessary GI / PVC Pipe, SW Pipe, stop cocks, bib cocks, full way valves, Gully Traps, Nahni Traps, water faucet etc. shall be provided as per approved drawings, BOQs and as directed by BHEL Engineer.
29.2.13	**ELECTRICAL WORKS:** Bidder to supply & install electrical items like Distribution Boards, LT Cables, Main switch with Earth leakage protection (30A TPN), suitable sockets/switch units for required A/C points, wires, PVC conduits, tees, bends, clamps, JBs, 5amps socket, Modular Switch boards & points for computers & telephone for each table/desk, earthing wires, Lighting system shall be designed as modular type suitable for False ceilings. Also, the bidder should take care of aesthetics and energy conservation. A detailed schematic with BOM of the electrical fittings shall be submitted to BHEL for approval before execution. Supplying and Installation of Main Distribution Board and making the connection from the Single Point Source (as and where made available by customer) to the Distribution Board using the PVC Insulated aluminum armored LT Cables (3&1/2 core) of appropriate size and capacity, including laying underground as per standard procedures and specifications and making the connections from the Main Distribution Board to the Office through a Wall mounted MCB Distribution Board, including supplying, Installation and commissioning of MCB distribution board for safe and leak proof Electrical Installation is also in the scope of Bidder. Electrical Wires, Fitting / Equipment of approved make shall be provided as per the approved Electrical Layout, BOQ cum Rate Schedule, the quantity is only indicative, the final quantities shall be as per the approved drawings / BOM.

2.9.2.14	**NETWORKING**: Bidder to Supply, Install and commission the networking equipment in appropriate quantities required for Modular Office as per approved drawings, BOQ cum Rate Schedule and as directed by BHEL Engineer. Following Networking Equipment / Cables are in the scope of contractor: 1. Erection of LAN system equipment such as jack/patch cord. etc. including I/O and CAT6 cable inside 20 mm dia PVC conduits etc. 2. Erection of voice line system equipment such as I/O and 2pair telephone cable inside 20 mm dia PVC conduits etc.
2.9.2.15	**AIR CONDITIONING:** Split Air-conditioner (1.5 T / 2T) shall be provided in adequate nos. with complete installation including ancillary works, voltage stabilizer, testing and commissioning as per manufacturers guidelines and specification.
2.9.2.16	• **SALIENT TECHNICAL REQUIREMENTS:** • Contractor shall submit two sets of proposed drawings of office along with foundation, layout, Plumbing & other fittings etc., to BHEL before commencement of work for approval within ten (10) days from the receipt of LOI. • All designs have to be carried out as per relevant IS/International codes. • Since this is a detachable office shed & to be in repetitive use at other locations, proper marking (permanent) shall be made for identification to ease of re-erection. The shed shall be so designed that it can be dismantled at any time and may be transported to be re-erected at other location. • The roof truss should have bolted joints at crown /at both ends. Both roof and side cladding are to be made "Water Tight". • The bidder should submit a guarantee for 1 year of operations for the materials supplied and erected by him. • Bidder shall submit two sets of proposed drawings of the Office to BHEL before commencement of work. Two sets of final drawings, along with one

<table>
<tr><td></td><td>soft copy in CD and one reproducible, shall be handed over to BHEL immediately after finalization of design.
• Bidders should take care of all Indian site conditions, prevailing local laws etc.
• No claim shall be entertained to lack of knowledge of site condition.
• After completion of work, the building and areas around it should be cleared of all rubbish, debris etc. and handed over in fit condition for occupation.
• Design & Execution of civil works shall be carried out as per latest IS codes, standard specification and drawings as per the instruction of BHEL Engineer.</td></tr>
<tr><td>2.9.2.17</td><td>The materials and workmanship must be of good quality and accepted standards and specifications. The BHEL Engineer reserves the right to reject any material not up to the specification</td></tr>
<tr><td>2.9.2.18</td><td>Any one of the following make for various items to be installed:

<table>
<tr><th>Item</th><th>Brand</th></tr>
<tr><td>STRUCTURAL/REINF. STEEL</td><td>SAIL/ TATA / JINDAL / ESSAR STEEL / JSW / BHUSHAN STEELS / RATHI STEELS / KAMDHENU</td></tr>
<tr><td>PPC / OPC 43</td><td>ACC/ BIRLA/ JAYPEE/ ULTRATECH/ AMBUJA</td></tr>
<tr><td>ENAMEL PAINTS</td><td>JOHNSON & NICHOLSON / BERGER/ ASIAN PAINT / NEROLAC/DULUX / NIPPON</td></tr>
<tr><td>GI & MS PIPES</td><td>SURYA/ PRAKASH/ JINDAL/ TATA / APOLLO</td></tr>
<tr><td>Cladding/Roof Sheeting</td><td>BLUE SCOPE/LLOYDS/PENNAR/UNIMET/AURA /EPACK</td></tr>
<tr><td>Toilet/Sanitary Items</td><td>HIND WARE / PARRY WARE/PRAYAG/ CERA /VARMORA</td></tr>
<tr><td>AC with Stabilizer</td><td>LG/ BLUE STAR/ VOLTAS/ PANASONIC/ SAMSUNG/ LLOYD/ GODREJ/ WHIRLPOOL</td></tr>
<tr><td>Furniture / Furnishing Items</td><td>DELITE / AFC / GEEKEN/ HNI</td></tr>
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	Electrical Component	**Brand**
	LT ACB	L&T /TM/SIEMENS/GEC ALSTOM/GE POWER CONTROLS / SCHNEIDER / C&S / SPACEAGE HYUNDAI
	Fuse Switch Unit	ALSTOM / SIEMENS / L&T / CGL / STANDARDS / HAVELS / SCHNEIDER / C&S / GE POWER
	MCB	STANDARD / MDS / INDO KOPP / C&S / SIEMENS / ABB
	MCCB	STANDARD / MDS / INDO KOPP / C&S / SIEMENS / ABB
	HRC Fuses	SIEMENS / L & T / ALSTOM / S & S / STANDARD / INDO ASIAN / HAVELS / GE POWER
	Control switches	SIEMENS / ALSTOM / L & T / KAYCEE
	Indicating lamps (LEDs)	SIEMENS / L & T / GE.
	Lighting Fittings	PHILIPS / BAJAJ / CROMPTON / GE.
	Switch Socket outlet	ALSTOM / CGL / BEST & CROMPTON / ESSEN/ GREATWHITE
	Modular switches	ANCHOR / ELLORA / MAK ELECTRIC / ALSTOM / GREATWHITE
	Power & Control Cables	ASIAN CABLES / CCI / UNIVERSAL / NICCO / DELTON CABLES / FINOLEX / OMEGA / RADIANT CABLES / POLYCAB / KEI/ GREATWHITE
	Terminal Blocks	ESSEN / CONNECT WELL / ELMEX / PHOENIX / WAGO
	Note: Approval of BHEL Engineer is to be obtained before procurement of materials. The make of material mentioned if not available in the market or is not suiting the site conditions or the make of any material is not mentioned in the above list equivalent make may be used after the approval from BHEL Engineer.	
2.9.3	**CLOSED STORAGE SHED AND OPEN YARD**	
2.9.3.1	**SCOPE:** **1.** Design, Manufacturing, Supply, Receipt at Site, Erection, Site Painting etc. including Civil Works, Foundations, Super structure, Electricals, Sanitary,	

	Internal / External Plumbing Works & Sewage connections etc. all complete and Handing over to site, Removable/Re-erectable type Pre-Engineered, Pre-fabricated Steel Storage Shed with C&I Room, In-charge Room, Common Hall, Computer Room, Side Racks, Pantry & Toilet etc. – **01 No. (Size: 15mx60mx6m).** **2.** Design, Manufacturing, Supply, Receipt at Site, Erection, Site Painting etc. including Civil Works, Foundations, Super structure, Electricals, Sanitary, Lighting & Fixtures etc. all complete and Handing over to site, Removable/Re-erectable type Pre-Engineered, Pre-fabricated Steel Storage Shed with side racks for storage purpose etc.- **07 Nos. (Size: 15mx60mx6m)** **3.** Construction and development of Open Storage Yard including development of storage yards, Internal/External Roads, Side /internal, Drains, illumination, Fencing, Security Post etc.- **Approx. Size 80,000 SQM.**
2.9.3.2	**DESIGN CONSIDERATIONS FOR CLOSED STORAGE SHED** 1. Size of Closed Shed – 15Mc/c X 60Mc/c X 6.0M (approximate). 2. Clear Height of closed Shed (between FFL & Bottom of truss/ Structural Member) – 6.0M. 3. Columns shall be spanning – 6.0M c/c long span & 5.0M c/c short span. 4. All side cladding/ roof sheets shall be fitted in such a way that they can be removed at any point of time. 5. 20 gauge MS Rolling Shutters of size 5m x 5m or 5m x 6m (approx.) as per IS code specifications, complete, mechanically operated from inside and outside both, as instructed by BHEL Engineer including two coats of synthetic enamel paint of approved color and quality over one coat of red oxide primer, with locking arrangement etc.. Suitable arrangement shall be made for easy operation of shutters (mechanical gear operated). 6. One man-entry gate to be provided on at one side of shed (front entrance by the side of rolling shutter). 7. The bidder should submit a guarantee for 12 months of operations for the materials supplied and erected by him. 8. All designs have to be carried out as per relevant IS code.
2.9.3.3	**FRAME STRUCTURE:** Closed Storage Sheds shall be designed as frame structure with Structural Columns, Trusses, Foundations and Plinth Beam for supporting self-loads, live-loads, wind loads, seismic loads etc. Contractor shall carry out the designing work considering

	the requirements as per IS Standard specifications and detailed design drawings along with detail calculations shall be submitted to BHEL for approval before start of work. Drawings provided in Technical Specifications (Part-II) are tentative only for tendering purpose only, works shall be carried out as per the detail drawings to be prepared by vendor and approved from BHEL.
2.9.3.4	**EXCAVATION:** Excavation for Column Foundations, Walls, Plinth Beam and Trenches etc. shall be made as per IS specifications. Marking of Area shall be done and Levels shall be measured and recorded before start of Excavation in presence of BHEL Engineer. In case of any discrepancy regarding measurement BHEL Engineer's decision shall be binding.
2.9.3.5	**FILLING** Any filling/loose soil met below the foundation shall be made up with lean cement concrete 1:4:8 mix (min).
2.9.3.6	**Granular Murrum Filling:** 150 mm thick granular murrum filling shall be done as per drawings and as per relevant IS code specifications, including watering, ramming, compaction etc. below soling of column foundations in the plan area of 2m X 2m (if black cotton soil/ash/newly backfilled soil is found at the bottom level of soling), Roads, Storage Yard, Ramps etc.
2.9.3.6	**Stone Soling:** Stone soling of required thickness (250 mm to 300 mm) shall be provided as per drawing below Flooring, Ramp & Column foundations of storage shed etc. by using 80 mm size hard broken black granite/ quartzite/ gneiss/ trap stone metal including granular murrum packing, watering & compaction etc. complete, as per standard specification and instructed by BHEL Engineer. However requirement of Stone Soling can be eliminated in case a hard strata/good stratum is met within foundation level & PCC shall be done directly in such cases. However this can be decided as per site requirement in consultation with BHEL Site Engineer.
2.9.3.7	**Excavated Earth Filling:** Filling under floors, sides of foundations, drains, roads with 100mm/ 150mm thick layer of compacted selected earth/ river sand including watering, consolidation etc. shall be executed as per IS specification and drawings (if any). Basement and sides of the foundation wall shall be filled in with selected excavated earth in the layers not exceeding 150 mm including watering, consolidation etc. complete as per IS specification and as directed by BHEL Engineer.
2.9.3.8	**DISPOSAL:** The excess/unutilized suitable earth and debris shall be disposed & levelled to the proposed mentioned area for development. All unusable earth, debris, trees, vegetation etc. shall be disposed off at a location embarked by BHEL / Client.
2.9.3.9	**PCC:**
2.9.3.10	**PCC (1:4:8):**

	100 mm thick PCC (1:4:8) shall be provided for following: i) Below RCC Footing of Columns. ii) Plinth Beam Base. iii) Floor Filling for Plinth raising. iv) Floor Filling for Plinth Raising at Pantry and Bathroom. v) Below Ramp and Internal Wall Foundations. vi) In the Base of Soak Pit Slab. 200 mm thick PCC (1:4:8) shall be provided for the base of septic tank as per drawings and as directed by BHEL Engineer. **PCC (1:3:6):** 100 mm thick PCC (1:3:6) shall be provided in the width of approx. 750 mm around the perimeter of the Closed Sheds for Plinth Protection as per standard specifications and as directed by BHEL Engineer. **Coping (1:2:4):** 40 m thick coping of Cement Concrete (1:2:4) shall be provided over the side walls (230 mm thick) of the Drains in the Open Storage Yard. This shall include supplying and placing PCC at all depths below plinth level including form work, curing, all materials, tools and plants and labour complete. Concrete of 1:4:8/ 1:3:6/ 1:2:4 grade as defined in IS- 456 with 40mm/20mm and downgraded stone aggregates as per drawing and BOQ cum Rate Schedule. Nominal mix (volumetric) shall be allowed to use as per the guidelines of IS-456 (latest edition) with min. W/C ratio & cement content as per IS stipulation for moderate condition. Concrete shall be produced by concrete mixer machine & hand mix is generally not acceptable. **Note:** However in certain unavoidable circumstances, hand mix shall be permitted with 10% extra cement content as per the discretion of BHEL Engineer**.**
2.9.3.11	**RCC 1:2:4 shall be provided for following Works:** i) **RCC Footings:** 250 mm thick RCC (1:2:4) Footings for Columns, of size 1.5m X 1.5m with the reinforcement of 12 mm dia. bars both ways (Lateral and Longitudinal) @ 150 mm c/c spacing, shall be provided below the column pedestals as per drawings. ii) **RCC Pedestals:** RCC (1:2:4) Column pedestals of size 400mm X 400mm from top of the Column Footing (for closed sheds) up to G.L., with the reinforcement of 4 Nos. 16 mm dia at the corners and stirrups of 8 mm dia @ 200 mm c/c spacing shall be provided as per drawings. iii) **RCC Columns:** RCC (1:2:4) Column of size 300mm X 300mm, height of 3 m (from F.F.L.) from top of the RCC Footing (for Security Rooms) with the reinforcement of 4 Nos. 16 mm dia. at the corners and stirrups of 8 mm dia @ 200 mm c/c spacing shall be provided. iv) **Plinth beam for Closed Sheds:** RCC (1:2:4) plinth Beam of size 400mm X 500mm WXD, with the reinforcement of 02 Nos. 20 mm dia. bars at Top,

	04 Nos. 16 mm dia. bars at bottom and 8 mm dia. Stirrups (2 Legged) @ 200 mm c/c spacing, shall be provided throughout the perimeter of the Closed Sheds along the Column Foundations as per drawings. v) **Plinth beam for Security Room:** RCC (1:2:4) plinth Beam of size 230mm X 300 mm (W X D), with the reinforcement of 02 Nos. 20 mm dia. bars at Top, 03 Nos. 16 mm dia. bars at bottom and 8 mm dia. Stirrups (2 Legged) @ 200 mm c/c spacing, shall be provided throughout the perimeter of the Security Room along the Column Foundations as per drawings. vi) **Concrete Sleepers:** Concrete sleepers (Aprrox. 4000 nos.) of size 200 mm wide x 150mm depth x 800 mm length using 1:2:4 concrete mix including moulding and reinforcement (2-10 mm dia t&b and stirrups @ c/c 200mm). vii) **RCC (1:2:4)** for Baffle Beam, Slab of Septic tank, Side racks and Ramp etc. shall be provided as per drawings and as directed by BHEL Engineer. This shall include supplying and placing RCC at all depths / levels including form work, curing, all materials, tools and plants and labour complete. Concrete of 1:2:4 grade as defined in IS- 456 with 40mm/20mm and downgraded stone aggregates as per drawing and BOQ cum Rate Schedule. Nominal mix (volumetric) shall be allowed to use as per the guidelines of IS-456 (latest edition) with min. W/C ratio & cement content as per IS stipulation for moderate condition. Concrete shall be produced by concrete mixer machine & hand mix is generally not acceptable. For Reinforcement the IS Specifications as per SP-34 (latest addition) shall be followed. HYSD- TMT Steel bars of Grade Fe-415/500 form reputed manufacturer shall be used by contractor for reinforcement purpose.
2.9.3.12	**BRICK MASONRY** Brick masonry shall be done by using best quality locally available Burnt clay bricks / Fly Ash Lime (FAL) bricks of standard size. Minimum strength of the bricks should not be less than 75 KG/SqCm. Other quality requirement shall be in line with the relevant IS Code. One-brick thick & Half-brick thick brickwork shall be constructed as specified, in Cement Mortar 1:6 & 1:4 respectively including linking, plumbing, levelling, pacing, joints, curing etc. Including all materials, tools & plants and labour complete at all level/elevation.
2.9.3.13	**FORMWORK:** The formwork should be capable of carrying the dead load of concrete, the reinforcements and the forces of vibration. The form works shall be designed by the contractor and approved by BHEL Engineer. After sufficient curing period & after attaining adequate strength of concrete the formwork shall be removed with the approval of BHEL Engineer. The item of PCC/RCC shall be deemed as completed after removal of forms and required finishing is completed.
2.9.3.14	**ROOFING & SIDE CLADDING:** 0.63 mm thick Permanently Profiled Color Coated GI (PPGI) Sheets over the roof trusses of sheds and for side cladding shall be supplied and fixed as per BHEL

	drawing including providing and fixing suitable flashing, trim closure caps, hips, ridges, Polymer Coated J or L hook, bolts, bituminous washers, GI cramp bolts, nuts, or self-tapping screws, scaffolding etc. complete, all as per latest IS 459, 3307 and 730. Roof cover with FRP/RMP (2.0mm thick) sheet of size 3m X 0.9m at 5-6 m c/c on both side of Truss, for natural lighting shall be provided with suitable 'J' bolts, GI Cup Washers, GI Plain Washers, and Bitumen Washers / self-tapping screws etc. including cutting of GI sheets in shape and size as required for fixing FRP /RMP sheets complete. Wind ties for protection against lifting of roof by wind etc. if any as per standard practice shall be provided by the contractor.
2.9.3.15	**STRUCTURAL WORKS:** All structural works for Columns, Roof truss, Fencing, Steel gates, doors etc. shall be carried out as per BHEL Engineer's Instructions, drawings and relevant IS Code Specifications. All Associated Fitting and Fixing materials such as foundation bolts, J / L hooks, bolts, nuts, washers, cleats, stiffeners etc. shall be paid along with the weight of Structure (Columns / Trusses etc.) and No extra payments shall be made on this account or on account of scrap generated. Design and Fabrication drawings for structure steel works i.e. Columns, Trusses, Wind Ties, Purlins etc. shall be prepared by contractor and get approved from BHEL before start of work / procurement of materials.
2.9.3.15.1	Contractor is permitted to get steel truss & other structures fabricated at workshop outside of the plant premises with prior permission of BHEL. In this case contractor has to arrange for shop inspections periodically as required by BHEL Engineer to ensure the quality of fabrication work. Fabricated structures without inspection/ certification by BHEL shall not be allowed for erection.
2.9.3.15.2	The trusses shall be tubular, fabricated in pieces of convenient length for transportation by truck and speedy erection at site. The base plates shall be welded to the trusses for fixing/resting the same on supports. Suitable cleats or fixing plates shall be provided on the trusses for holding the purlins and the bottom tie runners. Bolts shall be fixed in columns and posts by using templates for fixing truss. These foundation bolts, base plates, cleats etc. fixed with truss shall be paid under tonnage of truss only. Work shall be done as per approved drawings. No separate payment shall be made for templates.
2.9.3.15.3	Structure Steel materials required shall be brought to the notice of BHEL Engineer prior to ordering and procured only after the approval of BHEL Engineer. Structural Steel materials shall be bought from the BHEL approved manufacturer only and shall be confirming to the relevant IS Code specifications; contractor shall submit the manufacturing test certificate and other relevant documents for the materials as per BHEL requirement.

2.9.3.16	**FENCING:** Barbed Wire Fencing along the perimeter of Open Storage Yard shall be provided as per the BOQ cum Rate Schedule, Drawing and as directed by BHEL Engineer. Angle Posts shall be spaced 3 m c/c and struts at 30 m c/c and at all turnings.
2.9.3.17	**SANITARY & DRAINAGE WORKS:**
2.9.3.17.1	Necessary sanitary and plumbing works shall be provided with necessary water taps and all connections with supply lines/septic tank shall be provided by the contractor for BHEL Storage Sheds. The materials used and the location etc. shall be as per the directions of BHEL Engineer. Contractor shall procure the materials form the reputed manufacturers only as approved by BHEL Engineer. Prior Approval of sample from BHEL Engineer is necessary before supplying the materials at site.
2.9.3.17.2	Septic tanks with soak pit/leaching cesspool shall be provided by the contractor at the location specified by BHEL complete in all respects as per IS specification. **The drawing attached with tender is indicative only & any changes required at site shall be done as per the instruction of BHEL Engineer.**
2.9.3.18	**ELECTRICAL INSTALLATIONS**
2.9.3.18.1	The electrical installation shall generally be carried out in conformity with the requirements of the Indian electricity act, 1910 as amended up to date and the Indian electricity rules, 1956 framed there under and also the relevant regulations of the electric supply authority concerned as well as IS: 732-1963 (latest edition). Before commencement of work, contractor has to submit detail electrical layout drawings prepared by experienced & licensed electrical agency/engineer indicating the cable route, internal/external panels, cable sizing, fittings & fixtures etc. in line with the BOQ cum Rate Schedule.
2.9.3.18.2	Good workmanship is an essential requirement for compliance with the rules in the code. The work shall be carried out under the direct supervision of a person holding a valid certificate of competency, concerned for the type of work involved.
2.9.3.18.3	All outdoor/external lamps shall have weather-proof fittings of design approved by BHEL Engineer so as to effectively prevent the admission of moisture.
2.9.3.18.4	All main switches shall be of metal clad enclosed pattern, which shall be fixed at close proximity to the point of entry of supply.
2.9.3.18.5	Main and branch distribution boards shall be in accordance with Indian Standard IS 732-1963 “Code of practice for electrical wiring installation".
2.9.3.18.6	PVC conduit (concealed type) wiring system should be adopted throughout and all conduit pipes/channel shall be conforming to latest IS.
2.9.3.18.7	Approved and good quality copper wire with adequate current carrying capacity/voltage rating with proper insulation as per relevant IS should be used for the entire electrical wiring/installation.

2.9.3.18.8	The service connection from outside mains to the switchboard inside the building shall also be carried out by the contractor.
2.9.3.19	**EARTHING**
2.9.3.19.1	All Earthing system shall be in accordance with IS: 3043-1966 "Code of practice for Earthing".
2.9.3.19.2	The Installation and Earthing shall generally be carried out in accordance with the Indian electricity rules 1956 as amended from time to time and the relevant regulations of the electricity supply authority concerned.
2.9.3.19.3	All plugs and sockets shall be of three-pin type, one of the pins being connected to earth.
2.9.3.19.4	Bodies of all electrical appliances shall be earthed by the use of three pin plugs. The covers of the regulators if of metallic construction shall be earthed by means of a separate earth wire. A separate earth wire shall be used for earthing these appliances.
2.9.3.19.5	All earth wires and earth continuity conductors shall be of copper/ galvanized iron. They shall be either stranded or solid bars of flat rectangular strips, due care is taken to avoid corrosion and mechanical damage to it. Inter connections of earth continuity conductors and main and branch earth wires shall be made in such a way that reliable and good electrical connections are permanently ensured.
2.9.3.19.6	The neutral conductor shall not be used as earth wire.
2.9.3.19.7	Welded, bolted and clamped joints only are permissible. For stranded conductor, sleeve connectors are permissible. Bolted connectors and their screws shall be protected against any possible corrosion.
2.9.3.19.8	The path of the earth wire shall, as far as possible, be out of reach of any person and shall be visible for inspection.
2.9.3.19.9	**Earthing Pits:** The galvanized iron pipe electrodes shall be used, which is not smaller than 38MM internal diameter and shall not be less than 4M in length and shall, as far as possible, be embedded below permanent moisture level with charcoal & salt and shall be one piece only without any joints. Earthing Pits shall be provided as per relevant IS Code specifications to fulfil the functional and statutory requirements.
2.9.3.20	**DEWATERING**: It is the responsibility of the contractor to engage sufficient dewatering pump (Diesel, electrically operated) of adequate capacity for dewatering of sub-soil, rain water from excavated pit and other localized area and keep the area dry and workable till completion of entire work within their quoted rate.

<table>
<tr><td>2.9.3.21</td><td>GENERAL NOTES FOR STEEL DOOR, WINDOWS, AND VENTILATORS</td></tr>
<tr><td>2.9.3.21.1</td><td>Steel Door: - Pressed steel doors as per standard specification, relevant IS code and sizes shall be supplied along with frames and fixed with suitable hold fasts, fixtures and fittings.</td></tr>
<tr><td>2.9.3.21.2</td><td>Steel Window: - All steel Windows shall be supplied and fixed as per standard specifications of relevant IS code and instructions of BHEL Engineer with all fixtures (i.e. handles, locks, latches, hooks etc.), glazing, fittings, holdfasts etc. Complete.</td></tr>
<tr><td>2.9.3.21.3</td><td>Rolling Shutters & Steel Ventilators: - All rolling shutters & steel ventilators shall be supplied and fixed as per standard specifications, relevant IS code and instructions of BHEL Engineer with all fixtures (i.e. handles, locks, latches, hooks etc.), glazing, fittings, holdfasts etc. Complete.</td></tr>
<tr><td></td><td>Note: Contractor shall arrange for shop inspection for all steel doors, windows, rolling shutters & trusses etc. if fabricated outside the plant before delivery at site for Engineer’s clearance.</td></tr>
<tr><td>2.9.3.22</td><td>PAINTING</td></tr>
<tr><td>2.9.3.22.1</td><td>All the steel items such as doors, windows, ventilators, roof trusses, purlins, columns etc. shall be provided with one coat of red oxide primer & two coats of synthetic enamel paint of approved make, colour and quality. Paint shall be applied after fixing in position to achieve uniform finishing. Rates shall be quoted taking into account cost of painting for woodwork, steel work etc.</td></tr>
<tr><td>2.9.3.22.1</td><td>Three coats of white/color washing shall be provided uniformly on all wall surfaces as per IS specification.</td></tr>
<tr><td>2.9.3.23</td><td>PVC water tank of Syntax or any approved make shall be supplied and erected on steel staging and to be constructed on location shown as per item rate given in BOQ cum Rate schedule</td></tr>
<tr><td>2.9.3.24</td><td>Prior Approval from BHEL Engineer:
Contractor shall take prior approval from BHEL Engineer for use of Sanitary items, FRP/RMP sheets, Overhead water tanks, Doors, Windows, ventilators, Cement, Brick, Steel, structural steel and for other items as specified in respective items description and necessary manufacturer’s test certificate (MTC) and laboratory test as required by BHEL shall be arranged by contractor within their quoted rate.</td></tr>
<tr><td>2.9.3.25</td><td>APPROVED MAKE OF MATERIALS
<table>
<tr><th>Sl. No.</th><th>MATERIAL</th><th>MAKE</th></tr>
<tr><td>1</td><td>STRUCTURAL/REINF. STEEL</td><td>SAIL/ TATA / JINDAL / ESSAR STEEL / JSW / BHUSHAN STEELS / RATHI STEELS</td></tr>
</table></td></tr>
</table>

2	PPC / OPC 43	ACC/ BIRLA/ JAYPEE/ ULTRATECH/ AMBUJA
3	ENAMEL PAINTS	JOHNSON & NICHOLSON / BERGER/ ASIAN PAINT / NEROLAC/DULUX / NIPPON
4	GI & MS PIPES	SURYA/ PRAKASH/ JINDAL/ TATA / APOLLO
5	ELECTRICAL ACCESSORIES	
a)	SWITCHES AND SOCKETS (MODULAR TYPE)	ANCHOR / MK / LK/HAVELLS / GREATWHITE
b)	WIRES / CBALES	KEI/ FINOLEX/ POLYCAB/ HAVELLS/ RR KABEL / GREATWHITE
6	ELECTRICAL EQUIPMENT	
a)	EXHAUST FANS	ALSTOM / CROMPTON/HAVELS/BAJAJ
b)	LIGHT FITTINGS	CROMPTON/PHILIPS /WIPRO/SYSKA / GREATWHITE
c)	WALL MOUNTING FANS	ORIENT/ CROMPTON/ USHA/BAJAJ
d)	CFL & FL LAMPS	PHILIPS/ OSRAM/ WIPRO/ BAJAJ/ SYSKA
e)	KWH METERS ETC	BHEL/ GE/ L&T/HAVELS
f)	MCBs & MCB DBs (10 KA)	MDS/ L&T-HAGGER/ RAJ.L/HAVELLS

Approval of BHEL Engineer is to be obtained before procurement of materials. The make of material mentioned if not available in the market or is not suiting the site conditions or the make of any material is not mentioned in the above list, equivalent make may be used after the approval from BHEL Engineer.

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1.0	***ESTABLISHMENT***			
3.1.1	***FOR CONSTRUCTION PURPOSE:***			
A	***OPEN SPACE FOR OFFICE***	YES		BHEL shall provide free of charge limited open space for office and store as and where made available by its Customer.
B	***OPEN SPACE FOR STORAGE***	YES		
C	***CONSTRUCTION OF BIDDER'S OFFICE, CANTEEN AND STORAGE BUILDING INCLUDING SUPPLY OF MATERIALS AND OTHER SERVICES***		YES	
D	***BIDDER'S ALL OFFICE EQUIPMENT, OFFICE / STORE / CANTEEN CONSUMABLES***		YES	
E	***CANTEEN FACILITIES FOR THE BIDDER'S STAFF, SUPERVISORS AND ENGINEERS ETC.***		YES	
F	***FIRE FIGHTING EQUIPMENT LIKE BUCKETS, EXTINGUISHERS ETC.***		YES	
G	***FENCING OF STORAGE AREA, OFFICE, CANTEEN ETC. OF THE BIDDER***		YES	
3.1.2	*FOR LIVING PURPOSES OF THE BIDDER*			
A	***OPEN SPACE***		YES	
B	***LIVING ACCOMMODATION***		YES	
3.2.0	***ELECTRICITY***			

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.2.1	***ELECTRICITY FOR CONSTRUCTION PURPOSES***		**YES**	Construction Power can be provided at single point source on chargeable basis as and where made available by Owner, however contractor has to deploy DG Sets at no extra cost to BHEL.
3.2.1.1	***SINGLE POINT SOURCE***	YES		
3.2.1.2	***FURTHER DISTRIBUTION FOR THE WORK TO BE DONE WHICH INCLUDE SUPPLY OF MATERIALS AND EXECUTION***		YES	
3.2.2	***ELECTRICITY FOR THE OFFICE, STORES, CANTEEN ETC. OF THE BIDDER WHICH INCLUDE:***		YES	
3.2.2.1	***DISTRIBUTION FROM SINGLE POINT INCLUDING SUPPLY OF MATERIALS AND SERVICE***		YES	
3.2.2.2	***SUPPLY, INSTALLATION AND CONNECTION OF MATERIAL OF ENERGY METER INCLUDING OPERATION AND MAINTENANCE***		YES	
3.2.2.3	***DUTIES AND DEPOSITS INCLUDING STATUTORY CLEARANCES FOR THE ABOVE***		YES	
3.2.2.4	***LIVING FACILITIES FOR OFFICE USE INCLUDING CHARGES***		YES	
3.2.2.5	***DEMOBILIZATION OF THE FACILITIES AFTER COMPLETION OF WORKS***		YES	
3.2.3	***ELECTRICITY FOR LIVING ACCOMMODATION OF THE BIDDER'S STAFF, ENGINEERS, SUPERVISORS ETC ON THE ABOVE LINES.***		YES	

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.3.0	***WATER SUPPLY***			
3.3.1	***FOR CONSTRUCTION PURPOSES:***			
3.3.1.1	***MAKING THE WATER AVAILABLE AT SINGLE POINT***		**YES**	Construction Water may be made available at single point source, as per availability. However Bidder has to ensure an alternate arrangement for construction water at his own cost by resorting to the methods like bore well, water tankers etc.
3.3.1.2	***FURTHER DISTRIBUTION AS PER THE REQUIREMENT OF WORK INCLUDING SUPPLY OF MATERIALS AND EXECUTION***		YES	
3.3.2	***WATER SUPPLY FOR BIDDER'S OFFICE, STORES, CANTEEN ETC.***		YES	
3.3.2.1	***MAKING THE WATER AVAILABLE AT SINGLE POINT***		**YES**	Bidder shall arrange for safe drinking water for staff and labour at his own.
3.3.2.2	***FURTHER DISTRIBUTION AS PER THE REQUIREMENT OF WORK INCLUDING SUPPLY OF MATERIALS AND EXECUTION***		YES	
3.4.0	***LIGHTING***			
2.4.1	***FOR CONSTRUCTION WORK (SUPPLY OF ALL THE NECESSARY MATERIALS)*** 1. At office storage area 2. At the preassembly area 3. At the construction site /area		YES	

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.4.2	***FOR CONSTRUCTION WORK (EXECUTION OF THE LIGHTING WORK/ ARRANGEMENTS)*** 1. At office storage area 2. At the preassembly area 3. At the construction site /area		YES	
3.4.3	***PROVIDING THE NECESSARY CONSUMABLES LIKE BULBS, SWITCHES, ETC. DURING THE COURSE OF CONSTRUCTION***		YES	
3.4.4	***LIGHTING FOR THE LIVING PURPOSES OF THE BIDDER AT THE COLONY / QUARTERS***		YES	
3.5.0	***COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER***			
3.5.1	***TELEPHONE, FAX, INTERNET, INTRANET, E-MAIL ETC.***		YES	
3.6	***CONSTRUCTION FACILITIES***			
3.6.1	***ENGINEERING WORKS FOR CONSTRUCTION:***			
3.6.1.1	***PROVIDING THE CONSTRUCTION DRAWINGS***	**YES**		BHEL shall provide tentative drawings only for tendering purpose only.
3.6.1.2	***DRAWINGS FOR CONSTRUCTION METHODS / DETAILED DRAWINGS AS PER SITE REQUIREMENT***		YES	**In consultation with BHEL.**

Sl.No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.6.1.3	***AS-BUILT DRAWINGS – WHERE EVER DEVIATIONS OBSERVED AND EXECUTED AND ALSO BASED ON THE DECISIONS TAKEN AT SITE***		YES	
3.6.1.4	***SHIPPING LISTS / PROCUREMENT PLAN ETC. FOR REFERENCE AND PLANNING THE ACTIVITIES***		YES	
3.6.1.5	***PREPARATION OF SITE CONSTRUCTION SCHEDULES AND OTHER INPUT REQUIREMENTS***		YES	
3.6.1.6	***REVIEW OF PERFORMANCE AND REVISION OF SITE CONSTRUCTION SCHEDULES IN ORDER TO ACHIEVE THE END DATES AND OTHER COMMITMENTS***	**YES**	YES	
3.6.1.7	***WEEKLY CONSTRUCTION SCHEDULES BASED ON SL. NO 2.1.5***		YES	
3.6.1.8	***DAILY CONSTRUCTION / WORK PLAN BASED ON SL. NO 2.1.7***		YES	
3.6.1.9	***PERIODIC VISIT OF THE SENIOR OFFICIAL OF THE BIDDER TO SITE, REVIEW THE PROGRESS SO THAT WORKS ARE COMPLETED AS PER SCHEDULE. IT IS SUGGESTED THIS REVIEW BY THE SENIOR OFFICIAL OF THE BIDDER SHOULD BE DONE ONCE IN EVERY TWO MONTHS.***		YES	
3.7	***PREPARATION OF PREASSEMBLY BAY***		YES	**As per Work Requirement.**

4.1	**<u>TOOL & PLANTS (T&Ps)-</u>** INDICATIVE LIST OF T & Ps
Sl. No.	**EQUIPMENT**
1	CONCRETE MIXER M/C OF SUITABLE CAPACITY
2	CONCRETE VIBRATORS
3	JCB/ EXCAVATOR/ DOZER/ JACK HAMMER WITH COMPRESSOR.
4	TRUCKS/LORRIES/TRACTORS/DUMPERS
5	WATER TANKER
6	DEWATERING PUMP
7	WINCHES
8	WELDING MACHINES
9	TYRE MOUNTED MOBILE CRANES / HYDRA (14MT TO 20MT)
NOTES:	1 The above list is only indicative and these T&Ps may not be required for entire contract period but contractor will ensure that these T & Ps are provided as per need. Contractor will assess actual quantity and period of requirement based on his experience. **Contractor has to mobilize / maintain adequate numbers of equipment for meeting the work schedule and intermediate milestones as notified by BHEL Engineer.** 2 Other terms and conditions regarding T&Ps / MMEs please also refer clause for T&Ps & MMEs in SCC. **3 If the work related to T & Ps mentioned above list - (A) is completed then, Engineer I/c can release the T & P during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL Construction Manager before releasing T&P.** 4 **No idle charges shall be payable during contract/extended period if any.** 5 All the tools and plants required for this scope of work are to be arranged by the contractor within the quoted rates during the contract/extended period if any. The list is suggestive in nature. Any additional T&Ps required for completion of scope is to be arranged by the contractor without any extra cost. 6 If work gets delayed due to non-availability of T&Ps, BHEL reserves the right to get the work done at the risk and cost of contractor without prejudice to rights of BHEL as in GCC.

4.2	**MONITORING AND MEASURING EQUIPMENTS (MMEs)-** INDICATIVE LIST OF MMEs
SL NO	**EQUIPMENT**
1	TOTAL STATION
2	AUTO LEVEL
3	MEASURING TAPE
4	PLUMB BOBS
5	COMPRESSION STRENGTH TESTING EQUIPMENT
6	CONSTRUCTION MATERIAL TEST EQUIPMENT
7	CONCRETE CUBE MOULD (150mm X 150mm X 150mm)
8	CONCRETE SLUMP CONE
9	COARSE AGGREGATE SIEVES & SAND SIEVES
10	SIEVE SHAKER
NOTES:	1. The above list is only indicative and these MMEs may not be required for entire contract period but contractor will ensure that these T & Ps are provided as per need. Contractor will assess actual quantity and period of requirement based on his experience. 2. Other terms and conditions regarding T&Ps / MMEs please also refer clause for T&P& MMEs in SCC. 3. All the MMEs required for this scope of work are to be arranged by the contractor within the quoted rates during the contract/extended period if any. The list is suggestive in nature. Any additional MMEs required for completion of scope is to be arranged by the contractor without any extra cost. **4. If the work related to MMEs mentioned in above list - (B) is completed then, Engineer I / C can release the MMEs during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL construction Manager before releasing MMEs.** 5. **No idle charges shall be payable during contract/extended period if any.** 6. Contractor should set up the field laboratory with facilities required for material & concrete testing, alternatively all the materials used and proposed to be used for

	construction may be tested in an authorized and accredited laboratory outside and the material test reports shall be furnished to BHEL Engineer before use of material in work. 7. If work gets delayed due to non-availability of MMEs, BHEL reserves the right to get the work done at the risk and cost of contractor without prejudice to rights of BHEL as in GCC.
4.3	No recovery will be effected from the contractor, if any of the listed T&P/IMTE in this chapter is not needed for proper execution of the work, provided contractor has not utilized BHEL free issued T&P for completing the work.
4.4	In case T&P as per this chapter or as per any additional requirement as decided by BHEL is required for proper execution of work, contractor will be communicated in writing regarding such requirement by giving 15 days of notice for deployment of the T&P/IMTE etc. The same may also be mutually decided in monthly Form F-14. If the respective work is completed before the schedule deployment period as provided by site, then no recovery shall be applicable.
4.5	In case of requirement (given by site), if the T&P is delayed or deployed for shorter period or had abnormal down time and BHEL had to deploy either its own T&P or from outside for completion of work, the recovery shall be done from the contractor. The method of recovery shall be as under: i.) In case BHEL had to deploy its own T&P, hire charges of T&P applicable for Outside agencies as per extant BHEL guidelines for "Hire charges on issue of Capital Tools & Plants" shall be recovered. ii.) In case BHEL had to deploy the T&P from outside, actual hiring cost plus applicable overheads shall be recovered.

NOT APPLICABLE

TIME SCHEDULE	
6.0	**MOBILIZATION, TIME SCHEDULE, CONTRACT PERIOD AND GRACE PERIOD**
6.1	**INITIAL MOBILIZATION** After receipt of LOI, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources within 2 weeks of issue of letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones as directed by BHEL Engineer.
6.2	**START DATE / ZERO DATE** The schedule date of start of work shall be the date after 2 weeks of issue of LOI; The Actual Date of Start of Contract Period (Zero Date) shall be date of handing over of site to contractor for work and shall be certified by the BHEL Engineer**.**
6.3	**COMPLETION PERIOD** Entire work as detailed in tender specification **shall be completed within 10 months from the actual date of start of contract period (Zero Date).** Contractor has to mobilize adequate resources to meet BHEL's commitments to their customer as indicated from time to time. Detailed Work completion Schedule will be submitted for approval by the successful bidder within 2 weeks of issue of LOI.
6.4	In case due to reasons not attributable to the contractor, the work gets delayed and scheduled completion gets extended, time extension will be accordingly granted by BHEL.
6.5	The work under the scope of this contract is deemed to be completed in all respects, only when all the works are carried out as per satisfaction of BHEL. The decision of BHEL on completion date shall be final and binding on the contractor.
6.6	In order to meet above schedule in general, and any other intermediate targets set to meet customer/ project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.
6.7	**CONSEQUENCE OF DELAY** In case of delay in completion is solely attributable to the contractor, BHEL may impose LD on the contractor as per GCC clause 2.7.9.

7.0	**TERMS OF PAYMENT**
7.1	The 'Engineer' will certify regarding the actual work executed in the measurement books and bills, which shall be accepted by the contractor in measurement book.
7.2	**The Contractor shall be paid monthly running bill as per chapter – X of SCC and Clause Nos. 2.22 & 2.23 of GCC.** The format for billing shall be approved by BHEL before raising invoices.
7.3	The contractor on certification of the engineer at site is entitled for payments of his running bills which shall be subject to any deduction/retention specifically under clauses 2.22 of GCC and 10.0 of SCC.
7.4	**Interest bearing recoverable advance: Not Applicable**

8.0	**TAXES AND DUTIES**
8.1.1	Price quoted should be inclusive of all applicable Taxes/charges but **Excluding GST.** The Contractor shall pay all other taxes, fees, royalty, commission etc. which may be levied on the contractor in executing the contract. In case BHEL is forced to pay any of such taxes, it shall be recovered from Contactor's bills or otherwise as deemed fit. **GST Shall be payable extra as per following :**
8.1.2.	Contractor/Vendor has to issue invoice indicating HSN/SAC code, Description, Value, Rate, applicable tax and other particulars in compliance with the provisions of relevant GST Act and Rules made thereunder. With the implementation of e way bill provisions, contractor shall comply with same as applicable.
8.1.3	Vendor has to submit GST compliant invoice within seven days from the due date of invoice as per GST Law. In case of delay, BHEL reserves the right of denial of GST payment if there occurs any hardship to BHEL in claiming the input thereof. In case of goods, vendor has to provide scan copy of invoice & GR/LR/RR to BHEL before movement of goods starts. Special care should be taken in case of month end transactions.
8.1.4.	GST amount claimed in the invoice shall be released on fulfilment of all the following conditions by the Contractor : - a. Supply of goods and/or services have been received by BHEL. b. Original Tax Invoice has been submitted to BHEL. c. Respective invoice has appeared in BHEL's GSTR - 2A for the month corresponding to the month of invoice. Alternatively, BG of appropriate value may be furnished which shall be valid at least one month beyond the due date of confirmation of relevant payment of GST on GSTN portal or sufficient security is available to adjust the financial impact in case of any default by the contractor.
8.1.5	Contractor shall be solely responsible for discharging his GST liability according to the provisions of GST Law and BHEL will not entertain any claim of GST/interest/penalty or any other liability on account of failure of contractor in complying the provisions of GST Law or discharging the GST liability in a manner laid down thereunder
8.1.6	In case declaration of any invoice is delayed by the vendor in his GST return or any invoice is subsequently amended/altered/deleted on GSTN portal which results in any adverse financial implication on BHEL, the financial impact thereof including interest/penalty shall be recovered from the Contactor's due payment.
8.1.7	Any denial of input credit to BHEL or arising of any tax liability on BHEL due to non-compliance of GST Law by the Contractor in any manner, will be recovered along with liability on account of interest and penalty (if any) from the payments due to the Contactor.
8.1.8	The admissibility of GST, taxes and duties referred in this chapter or elsewhere in the contract is limited to direct transactions between BHEL & its Contractor. BHEL is not responsible for any liability that may arise due to any transaction beyond the direct transaction between BHEL & its Contractor.
8.1.9	**Variation in Taxes & Duties**: Any upward variation in GST shall be considered for reimbursement provided supply of goods and services are made within schedule date stipulated in the contract or approved extended schedule for the reason solely attributable to BHEL. However downward variation shall be subject to adjustment as per actual GST applicability. In case the Government imposes any new levy/tax on the output service/goods after price bid opening, the same shall be reimbursed by BHEL at actual. The reimbursement under this clause is restricted to the direct transaction between BHEL and its contactor only and within the contractual delivery period only.

	In case any new tax/levy/duty etc. becomes applicable after the date of Bidder's offer but before opening of the price Bid, the Bidder/Contractor must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of price bid. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.
8.1.10	**Modalities of Tax Incidence on BHEL:** Where GST law permits more than one option or methodology for discharging liability of tax/ levy/ duty; the contractor shall approach BHEL before choosing any option to discharge his tax liability. BHEL shall have the right to direct the contractor to adopt the appropriate option considering the amount of tax liability on BHEL as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the contractor for discharging the obligation of BHEL in respect of the tax liability to the contractor.
8.2	**BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING & OTHER CONSTRUCTION WORKERS CESS Act, 1996 & CESS RULES, 1998.**
	In case any portion of work involves execution through building or construction workers, then compliance to the above titled Acts shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-
8.2.1	It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a licence to the Competent Authority under the BOCW Act and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of licence / permission to BHEL within a period of one month from the date of award of contract.
8.2.2	It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these act and rules including that of payment / deposit of 1% cess on gross payment made for value of work involving building or construction workers engaged by the contractor within a period of one month from the receipt of payment.
8.2.3	It shall be the responsibility of the sub-contractor to furnish the receipts /challans towards deposit of the cess together with the number, name and other details of beneficiaries (building workers) engaged by the sub-contractor during the preceding month.
8.2.4	It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923.
8.2.5	The contractor shall, however ensure before deposit of any BOCW Cess, that customer is not depositing the same in order to avoid excess deposit of cess.
8.2.6	The contractor shall bear cost of BOCW cess either by way of deposit or through recovery by BHEL in case the same is deposited by the customer.
8.2.7	In case of failure in above mentioned compliances, BOCW Cess @ 1% as well as applicable penalty as specified in BOCW Act/Rules shall be deducted from the contractor.

9.0	**MATERIALS**
9.1	The contractor shall, at his own expenses (Inclusive of Taxes), provide all materials required for the work.
9.2	All materials to be provided by the Contractor shall be of the best kind in conformity with the specifications laid down in the contract or as per relevant Indian standard and the Contractor shall, if requested by the BHEL Engineer, furnish proof to the satisfaction of BHEL Engineer that the materials so comply.
9.3	The Contractor shall, at his own expense and without delay, supply to the BHEL Engineer samples of materials proposed to be used in the works. The BHEL Engineer shall within seven days of supply of samples or within such further period as he may require will intimate to the Contractor in writing, whether samples are approved by him or not. If samples are not approved, the Contractor shall forthwith arrange to supply to the BHEL Engineer for his approval fresh samples complying with the specifications laid down in the Contract. Any delay in approval of samples (original or fresh ones) shall not make the contractor eligible for any compensation.
9.4	The BHEL Engineer shall have full powers for removal of any or all of the materials brought to site by the Contractor which are not in accordance with the Contract specifications or do not conform in character or quality to samples approved by him. In case of default on the part of the Contractor in removing rejected materials, the BHEL Engineer shall be at liberty to have them removed by other means. The BHEL Engineer shall have full powers to procure other proper material to be substituted for rejected materials and in the event of the Contractor refusing to comply; he may cause the same to be supplied by other means. All costs, which may attend upon such removal and / or substitution, shall be borne by the Contractor.
9.5	The Contractor shall indemnify BHEL, its representatives or employees against any action, claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof included in the Contract. In the event of any claim being made or action being brought against BHEL or any agent, servant or employee of BHEL in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof, provided that such indemnity shall not apply when such infringement has taken place in complying with the specific directions issued by BHEL but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to the Contractor only if the use was the result of any drawings / specifications issued after submission of the tender.
9.6	The BHEL Engineer shall be entitled to have tests carried out as specified in the Contract for any materials supplied by the Contractor other than those for which, as stated above, satisfactory proof has already been furnished, at the cost of the Contractor and the Contractor shall provide at his expense all facilities which the Engineer may require for the purpose. If no tests are specified in the Contract, and such tests are required by the Engineer, the Contractor shall provide all facilities required for the purpose and the charges for these tests shall be borne by the Contractor only. The cost of

	materials consumed in tests shall be borne by the Contractor in all cases except when otherwise provided.
9.7	In addition, the Contractor shall perform / submit at his own cost such tests / samples as may be required by the BHEL Engineer out of the materials used by the company except for the costs of materials used in such tests/ samples.
9.8	After acceptance of the Contract, if Contractor desires BHEL to supply any other materials, such material may be supplied by BHEL, if available, at rates to be fixed by the BHEL Engineer along with prevailing departmental charges (current rate of 30%). BHEL reserve the right not to issue any material. The non-issue of such material will not entitle the Contractor for any compensation whatsoever either in time or in cost.
9.9	Material required for the works, whether brought by the Contractor or supplied by BHEL, shall be stored by the Contractor only at places approved by the Engineer. Storage and safe custody of material shall be the responsibility of the contractor.
9.10	BHEL's officials concerned with the Contract shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either on the Site or at factory or workshop or other place(s) where such materials are assembled, fabricated, manufactured or at any place (s) where these are lying or from which these are being obtained and the Contractor shall give such facilities as may be required for such inspection and examination.
9.11	All materials brought to the Site shall become and remain the property of BHEL and shall not be removed off the Site without the prior written approval of the BHEL Engineer. But whenever the Works are finally completed and advance, if any, in respect of any such material is fully recovered, the Contractor shall at his own expense forthwith remove from the Site all surplus material originally supplied by him and upon such removal, the same shall re-vest in and become the property of the Contractor.

10.0	**EXECUTION OF WORK**
10.1	The work shall be executed in a workman like manner and to the entire satisfaction of the BHEL Engineer and as per technical specification issued with tender, IS codes, CPWD specifications as applicable. In case of conflict, the decision of the **BHEL** Engineer shall be final & binding.
10.2	**SETTING OUT**
10.2.1	All the works shall be set out to the true lines, grades and elevation indicated on the drawing. The contractor shall be responsible to locate and set out the works. Only one grid reference line and bench mark shall be made available for setting out the works under the contract. This reference lines shall be used as datum for the works under the contract and the contractor has to establish for his work area at available points horizontal and vertical control points. The contractor shall inform BHEL well in advance of the times & places at which he wishes to do work in the area allotted to him so that suitable datum points established by him are checked by BHEL / Customer to enable the contractor to proceed with the works. Any work done without being properly located may be removed and / or dismantled by BHEL / Customer at contractor's expenses.
10.2.2	The contractor shall at his own expense take all proper and responsible precautions to preserve and maintain these datum marks to its true position In the event of these marks being disturbed or obliterated by accident or due to any other cause whatsoever, the same may be deemed necessarily placed by BHEL / Customer at contractor's expenses.
10.3	**SITE DRAINAGE**
10.3.1	All water including sub-soil water which may accumulate on the Site during the progress of the works or in trenches and excavations, including monsoon period shall be removed by the contractor from the Site to the satisfaction of the BHEL Engineer. It will also be responsibility of the contractor to de-water all the foundation pits, trenches with suitable de-watering methods like, pumping out, well point system etc. Considering the depth of water table at plant site. All such expenditure on de-watering shall be deemed to be included in quoted rates.
10.4	**INSPECTION AND STAGE APPROVAL OF THE WORK**
10.4.1	All work embracing more than one process shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice in writing to the BHEL Engineer when each stage is ready. In default of such notice being received, the BHEL Engineer shall be entitled to approve the quality and extent thereof at any time he may choose and in the event of any dispute, the decision of the BHEL Engineer thereon shall be final and conclusive.
10.5	**UNCOVERING AND MAKING GOOD**
10.5.1	The Contractor shall uncover any part of the Works and/or make openings in or through the same as the Engineer may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the BHEL Engineer. If any such part has been covered up or put out of view after being approved by the

	Engineer and is subsequently found on uncovering to be executed in accordance with the Contract, the expenses of uncovering and / or making opening in or through, reinstating and making good the same shall be borne by BHEL. In any other case all such expenses shall be borne by the Contractor.
10.6	**NUISANCE**
10.6.1	The Contractor shall not at any time do, cause or permit any nuisance on Site or do anything which shall cause unnecessary disturbance or inconvenience to owners, tenants or occupiers of other properties near the Site and to the public generally.
10.7	**MATERIAL OBTAINED FROM EXCAVATION**
10.7.1	Materials of any kind obtained from excavation on the Site shall remain the property of BHEL / its client and shall be disposed of as the BHEL Engineer may direct.
10.8	**TREASURE, TROVE, FOSSILS etc.**
10.8.1	All fossils, coins, articles of value or antiquity and structures and other remains or things of geological or archaeological interest discovered on the site shall be the absolute property of BHEL / BHEL's client and the Contractor shall take reasonable precautions to prevent his workmen or any other person from removing or damaging any such article or thing and immediately upon discovery thereof and before removal, acquaint the BHEL Engineer with such discovery and carryout the BHEL Engineer's directions as to the disposal of the same.
10.9	**PROTECTION OF WORKS**
10.9.1	Trees designated by the Engineer shall be protected from damage during the course of the Works and earth level within 1 meter of each such tree shall not be charged. Where necessary, such trees shall be protected by providing temporary fencing.
10.9.2	The contractor shall provide and maintain at his own expense all lights, guards, fencing and watching when and where necessary or required by the BHEL Engineer for the protection of the Works or for the safety and convenience of those employed on the Works or the public.
10.9.3	The contractor shall have total responsibility for protecting his works till it is finally taken over by the BHEL. No claim will be entertained by the BHEL Engineer for any damage or loss to the contractor's works and the contractor shall be responsible for the complete restoration of the damaged works to its original condition to comply with the specifications and drawings. Should any such damage to the contractor's works occur because of other party not under his supervision or control, the contractor shall make his claim directly with the party concerned. The contractor shall not cause any delay in the repair of such damaged works because of any delay in the resolution of such disputes. The contractor shall proceed to repair the work immediately and no cause thereof will be assigned pending resolution of such disputes.
10.10	**PROTECTION OF EMBEDMENTS BOLTS ETC.**
10.10.1	The contractor shall ensure proper protection to the satisfaction of the BHEL Engineer, of all bolts, inserts, embedment etc. from weather etc. by greasing, rapping them with gunny bags or canvas or by any other means as directed by BHEL Engineer. Cost of such protections shall be deemed to be included in the rates quoted for the item.
10.11	**CLEARANCE OF SITE AND REPAIRS.**

10.11.1	Contractor has to clear the site / area where mechanical and electrical erection work is to be commenced / or in progress. The contractor shall remove construction materials and equipment lying in the vicinity and causing obstruction in the erection work within 24 hrs. notice, In case he fails to clear the site, this will be done at his risk & cost by BHEL.
10.12	**QUALITY ASSURANCE**
10.12.1	The contractor has to establish / arrange at site the field testing facilities for testing of civil construction materials and concrete cubes for ensuring the proper quality, grade and strength of the materials used in the construction in line with approved field quality check list of BHEL/ its client. Contractor has to submit detailed report for testing of all material used etc. All testing shall be done as per IS code specifications/ BHEL's quality plan. If further test is required by the engineer to be carried from outside laboratory, the cost of the same shall be borne by the contractor.
10.13	**COMPLETION OF WORK**
10.13.1	The works shall be completed to the entire satisfaction of the BHEL Engineer and in accordance with the completion schedule as specified in the Contract, and all unused stores and materials, tools, plant, equipment, temporary buildings, site office, labour hutments and other things shall be removed and the site and work cleared of rubbish and all waste materials and delivered up clean and tidy to the satisfaction of the BHEL Engineer at the Contractor's expenses.
10.13.2	BHEL shall have power to take over from the Contractor from time to time such sections of the work as have been completed to the satisfaction of the BHEL Engineer. Such work however shall not be treated as have been completed until the extra works are executed to the satisfaction of BHEL Engineer.
10.14	**COMMENCEMENT OF GUARANTEE PERIOD**
10.14.1	**The Guarantee period shall commence only after completion & handing over of the entire works.** The BHEL Engineer shall certify to the contractor the date on which the work is completed & handed over and the date thereof for commencement of Guarantee Period. The duration of Guarantee Period shall be as per GCC.
10.15	**METHOD OF MEASUREMENT**
10.15.1	Method of measurements if not specified in the tender, shall be as per relevant IS Codes / CPWD codes.
10.16	**EMERGENCY VEHICLE:** Contractor shall arrange / tie-up with nearest Hospital / Nursing Home to deal with any emergency situation including arrangement of ambulance as and when needed.
10.17	**HSE & OHSAS:**
	The contractor shall comply with the requirements / stipulations of Chapter-IX of SCC towards Health, Safety and Environment.
10.18	**In order to give phillip to Pradhan Mantri Kaushal Vlkas Yojna:** "The contractor shall, at all stages of work deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/

	Industrial Training Institute/ National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/ Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/ semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.
10.19	**DISCREPANCIES AND ADJUSTMENT OF ERRORS:**
10.19.1	The several documents forming the Contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small scale drawings and figures dimensions in preference to scale and special conditions in preference to general conditions.
10.19.2	In case of discrepancies between schedules of quantities, the specification and / or the drawings, the following order of preference shall be observed: (a) Description in schedule of quantities. (b) Technical Condition of Contract. (c) Special Conditions of Contract (d) General conditions of contract
10.19.3	If there are varying or conflicting provisions made in any one document forming part of the contract, the BHEL Engineer shall be the deciding authority with regard to the document.
10.19.4	Any error in description, quantity in schedule of quantities or any omission therefrom shall not vitiate the contract or release the contractor from the execution of the whole or any part of the works comprised therein according to the drawings and specifications or from any of his obligations under the contract.

10.20	**MODIFICATION/ DELETION OF GCC & SCC CLAUSES:** **A. GCC Clauses:** i. Clause No. 2.17 of GCC (PVC) shall not be applicable ii. Clause No. 2.12 of GCC (ORC) shall not be applicable iii. Clause No. 2.13 of GCC (Interest bearing recoverable advance) shall not be applicable. **B. SCC Clauses:** i. Clause No. 4.1.4, 4.1.9 & 4.1.10 of SCC (Consumables & Other Items) shall not be applicable. ii. Clause No. 4.2.2 of SCC (Obligations in respect of T&Ps and MMEs provided by BHEL) shall not be applicable. iii. Clause No. 8.3.2, 8.3.3 and 8.3.4 of SCC (Statutory Inspection of Work) shall not be applicable.

Annexure-I (attached): BOQ cum Rate Schedule for the Work of "CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P."

Following Drawings are attached for reference purpose only.

OFFICE DRAWINGS:

SL.NO.	DRAWING NO.	DESCRIPTION
1.	BHEL:PSNR:PMX:OFC:001	SCHEMATIC SKETCH OF OFFICE BUILDING
2.	BHEL:PSNR:PMX:OFC:003	SEPTIC TANK AND WATER TANK STRUCTURE
3.	BHEL:PSNR:PMX:OFC:004	FOOTING CROOS SECTIONAL VIEW
4.	BHEL:PSNR:PMX:OFC:005	FLOORING DETAILS FOR OFFICE

CLOSED STORAGE SHED:

SL. NO.	DRAWING NO.	DESCRIPTION
1.	BHE/PW/CS/01	PLAN AT PLINTH LEVEL FOR CLOSED STORAGE SHED (15M x 60M)
2.	BHE/PW/CS-02	SECTIONAL DETAILS OF RCC FOOTING & ISMB COLUMNS FOR CLOSED STORAGE SHEDS
3.	BHE/PW/CS-03	PLAN & RCC DETAILS FOR CLOSED SHED
4.	BHE/PW/CS-04	SECTION OF PLINTH BEAM (400MM X 500MM)
5.	BHE/PW/CS-05	SECTION OF BEAM (230MM X 300MM)
6.	BHE/PW/ST-SP-01 (SHEET 01 OF 02)	DETAILS OF SEPTIC TANK AND SECTION
7.	BHE/PW/ST-SP-01 (SHEET 02 OF 02)	SECTION A-A
8.	BHE/PW/ST-SP-03	DETAILS OF SOAK PIT
9.	BHE/PW/C0S-01	PLAN FOR CLOSED SHED WITH OFFICE (60M x 15M)
10.	BHE/PW/COS-02	SECTION OF LINTEL & SUNSHED PROJECTION FOR CLOSED SHED
11.	BHE/PW/COS-03	INTERNAL WALL FOUNDATION DETAILS AND PARTITION WALL FOUNDATION DETAILS
12.	BHE/PW/SS-08	DETAILS OF 15.0 M SPAN TUBULAR TRUSS FOR CLOSED/ SEMI CLOSED SHED

13.	BHE/PW/STAG-01	STAGING OF OVER HEAD WATER TANK

OPEN STORAGE YARD:

SL. NO.	DRAWING NO.	DESCRIPTION
1.	BHE/PW/OY-01	TYPICAL LAYOUT FOR OPEN STORAGE YARD - 60,000 SQM
2.	BHE/PW/OY-02-A	RAISED CONCRETE PLATFORM 12 M WIDE
3.	BHE/PW/OY-02-B	SECTION OF 6 M WIDTH WBM ROAD
4.	BHE/PW/OY-02-C	SECTION OF 8 M WIDTH WBM ROAD
5.	BHE/PW/OY-02-D	SECTION OF STORAGE YARD BLOCK
6.	BHE/PW/OY-03	DETAILS OF 0.4M DEPTH DRAIN
7.	BHE/PW/OY-04	DETAILS OF 0.5M DEPTH DRAIN
8.	BHE/PW/OY-05	DETAILS OF 0.6M DEPTH DRAIN
9.	BHE/PW/OY-08	DETAILS OF 1M DEPTH DRAIN
10.	BHE/PW/OY-09	CULVERT DETAILS FOR 400 MM DIA RCC HUME PIPE
11.	BHE/PW/OY-10	CULVERT DETAILS FOR 600 MM DIA RCC HUME PIPE
12.	BHE/PW/OY-11	DETAILS OF BARBED WIRE FENCING
13.	BHE/PW/GATE	MS PIPE GATE

<u>Note:</u> Drawings are indicative and strictly for tendering purpose, only meant to give an idea to tenderers about nature of job.

ANNEXURE-I

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
	C	**CIVIL WORKS**					
1	C1	**SUB GRADE PREPARATION: CUTTING & DISPOSAL OF GRASS, VEGITATIONS, BUSHES, TREES (GIRTH LESS 300MM**), **LEVELLING, WATERING AND CONSOLIDATION (90% OF PROCTOR DENSITY)** BY MEANS OF 10-12 MT CAPACITY POWER/VIBRO ROLLER FOR SUB BASE PREPARATION. THIS WILL INCLUDE AVERAGE CUTTING & FILLING UP TO ± 250MM THICK, GRADING THE AREA WITH PROPER SLOPE FOR DRAINING OUT THE RAIN WATER WITH ALL T&P, LABOURS, MATERIALS, DEWATERING (IF REQUIRED) ETC. COMPLETE. FOR DEVELOPMENT OF OPEN STORAGE YARD INCLUDING DISPOSAL OF UNUSABLE MATERIAL UPTO THE LEAD OF 1 KM.	SQM	80,000	0.06031	-	-
2	C2	**EXCAVATION /CUTTING OF EARTH BEYOND INITIAL 250MM THICK WHICH IS COVERED UNDER ITEM NO. C1** ABOVE IF REQUIRED AND SPREADING THE SAME IN LOW LYING AREA, WATERING, COMPACTION BY MEANS OF 10-12 MT CAPACITY POWER/VIBRO ROLLER FOR DEVELOPMENT OF OPEN STORAGE YARD AS PER INSTRUCTION OF BHEL ENGINEER.	CUM	2,000	0.1284	-	-
3	**C3**	**EXCAVATION FOR ROADWAY IN ALL TYPES OF SOILS, SAND AND GRAVEL OR SOFT MURAM** INCLUDING DRESSING OF SECTION TO THE **REQUIRED GRADE, CAMBER & SIDE SLOPES AND SPREADING OF SURPLUS EXCAVATED EARTH UNIFORMLY OVER THE SPECIFIED AREA** FOR SITE LEVELING & DEVELOPMENT OF REQUIRED DEPTH TO MAINTAIN UNIFORM GROUND LEVEL AS DIRECTED BY THE BHEL ENGINEER AND CONSOLIDATION OF THE SURFACE INCLUDING SUB- BASE BY ROLLING THE SURFACE WITH 8 - 10 MT CAPACITY POWER/VIBRO ROLLER, DEWATERING (BOTH GROUND WATER AS WELL AS RAIN WATER) AND KEEP THE AREA DRY TILL COMPLETION OF ALL THE WORKS, LABOURS, MATERIALS AND REQUIRED T&Ps ETC. COMPLETE.AS PER DRAWINGS & SPECFICATIONS.	CUM	15,291	0.1284	-	-
4	C4	EARTH WORK IN **EXCAVATION FROM 0 (ZERO) TO 2 M** DEPTH IN ALL KINDS OF SOIL (EXCEPT HARD ROCK AND SOFT ROCK) FOR **FOUNDATION , SEPTIC TANK, SOAK PIT , SIDE DRAINS/ DRAINS ETC., SPREADING THE EARTH UNIFORMLY AROUND THE OPEN STROAGE YARD ETC**. AS DIRECTED BY BHEL ENGINEER AND INCLUDING DISPOSAL OF SURPLUS EARTH (IF ANY) , DEWATERING WITH ALL T&P, LABOURS, MATERIALS ETC. COMPLETE.	CUM	4,360	0.1183	-	-
5	C5	EARTH WORK IN **EXCAVATION FROM 0 (ZERO) TO 2 M** DEPTH IN ALL KINDS OF SOIL INCLUDING **SOFT ROCK AND HARD ROCK (MANUALLY OR MECHANICALLY WITHOUT BLASTING) FOR FOUNDATION,SEPTIC TANK, SOAK PIT ETC.**, AS DIRECTED BY BHEL ENGINEER INCLUDING REMOVING THE EXCAVATED MATERIALS UP TO A DISTANCE OF 50M, DEWATERING , ALL T&P, LABOURS, MATERIALS ETC. COMPLETE.	CUM	539	0.2077	-	-
6	C6	EARTH WORK IN **EXCAVATION FROM 2.0M TO 4.0 M DEPTH** IN ALL KINDS OF SOIL (EXCEPT HARD ROCK AND SOFT ROCK) FOR **SEPTIC TANK, SOAK PIT ETC.**, AS DIRECTED BY BHEL ENGINEER INCLUDING REMOVING THE EXCAVATED MATERIALS UP TO A DISTANCE OF 50M, DEWATERING (BOTH GROUND WATER AS WELL AS RAIN WATER) AND KEEP THE AREA DRY TILL COMPLETION OF ALL THE WORKS, LABOURS, MATERIALS AND REQUIRED T&Ps ETC. COMPLETE.	CUM	105	0.1503	-	-
7	C7	EARTH WOTK IN EXCAVATION IN **ALL KINDS OF SOIL INCLUDING SOFT & HARD ROCK** (BY MANUAL CHISELING OR BY MECHANICAL MEANS BUT WITHOUT BLASTING) **FROM 2 TO 4M DEPTH FOR SEPTIC TANK AND SOAK PIT ETC.**, WHEREVER REQUIRED INCLUDING REMOVING THE EXCAVATED MATERIALS UP TO A DISTANCE OF 50M, DEWATERING (BOTH GROUND WATER AS WELL AS RAIN WATER) AND KEEP THE AREA DRY TILL COMPLETION OF ALL THE WORKS, LABOURS, MATERIALS AND REQUIRED T&Ps ETC. COMPLETE.	CUM	158	0.2139	-	-
8	C8	**SURFACE DRESSING OF GROUND INCLUDING REMOVING VEGETATION AND IN-EQUALITIES NOT EXCEEDING 30 CM** DEEP AND DISPOSAL OF RUBBISH FOR OFFICE AREA, MEES BUILDING AREA AND PLINTH PROTECTION AREA OF CLOSED SHEDS BEFORE LAYING THE PCC WITH ALL T&Ps, LABOURS, MATERIALS ETC. COMPLETE AS DIRECTED BY BHEL ENGINEER.	SQM	2,050	0.0131	-	-
9	C9	**DISPOSAL OF EXCAVATED EARTH/ROCK (NOT SUITABLE FOR BACK FILLING)** BEYOND INITIAL LEAD OF 50M AND UPTO A MAXIMUM LEAD OF 2 KM OR PART THEREOF INCLUDING LOADING, UNLOADING , TRANSPORTING AND SPREADING AS PER DIRECTION OF BHEL ENGINEER .	CUM	9,671	0.1048	-	-
10	C10	**BACKFILLING OF FOUNDATION ,FLOORS, SIDES OF DARINS, LOW LYING AREA AND PLINTH** IN LAYERS NOT EXCEEDING **150MM THICK**. INCLUDING WATERING AND CONSOLIDATING ETC. COMPLETE AS PER STANDARD SPECIFICATION AND INSTRUCTED BY BHEL ENGINEER.		-	-	-	-
11	I	WITH **GOOD EXCAVATED SOIL AVAILABLE FROM THE EARTH WORK.**	CUM	11,494	0.1181	-	-
12	II	PROVIDING & FILLING OF COMPACTED THICK **GRANULAR MURUM** IN LAYERS (THICKNESS OF EACH LAYER SHOULD NOT EXCEED 150MM) IN SUB-BASE OF **ROAD BELOW SOLING, FOUNDATIONS, RAMPS ETC. WATERING AND COMPACTION WITH 8-10 MT POWER ROLLER COMPLETE.** RATE SHALL INCLUDE TRANSPORTATION, ROYALTY, DEWATERING (BOTH GROUND WATER AS WELL AS RAIN WATER) AND KEEP THE AREA DRY TILL COMPLETION OF ALL THE WORKS, LABOURS, MATERIALS AND REQUIRED T&Ps ETC. COMPLETE ETC. CONTRACTOR HAS TO SUBMIT ROYALTY CERTIFICATE FROM CONCERNED STATE GOVT. MINING DEPARTMENT	CUM	7,125	0.7224	-	-
13	III	WITH **GOOD EARTH BROUGHT FROM OUTSIDE** FROM CONTRACTOR'S OWN SOURCE INCLUDING ROYALTY ETC.	CUM	303	0.4306	-	-
14	IV	PROVIDING & FILLING IN **SOAK PIT WITH BRICK BATS 40-80MM** INCLUDING SAND PACKING ETC. COMPLETE, AS PER STANDARD SPECIFICATION AND INSTRUCTED BY BHEL ENGINEER.	CUM	79	0.7541	-	-
15	C11	PROVIDING AND LAYING **SOLING 230 MM COMPACTED THICK** WITH 150 -200 MM THICK BOULDER SIZE AND FILLING OF VOIDS WITH HAND BROKEN METAL OF SIZE 40-60 MM , SPREADING & PACKING MURRUM , ROLLING AND COMPACTION INCLUDING WATERING, WITH 8 - 10 MT CAPACITY ROAD ROLLER.	CUM	6,377	0.7758	-	-
16	C12	PROVIDING **STONE SOLING** OF REUIRED THICKNESS AS PER DRAWING BELOW FLOORING, RAMP, COLUMN FOUNDATIONS OF STORAGE SHED ETC. BY USING 80 MM SIZE HARD BROKEN BLACK GRANITE/ QUARTIZITE/ GNEISS/ TRAP STONE METAL INCLUDING GRANULAR MURRUM PACKING, WATERING & COMPACTION ETC COMPLETE.AS PER STANDARD SPECIFICATION AND INSTRUCTED BY BHEL ENGINEER	CUM	2,313	0.7758	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
17	C13	PROVIDING 150 MM COMPACTED THICK **WATER BOUND MACADAM (WBM)** IN TWO LAYERS OF EACH 75 MM, WITH 40MM TO 60MM METAL (STONE AGGREGATE) INCLUDING SUPPLYING AND SPREADING GRAVEL/MURRUM OVER THE SOLING/CONSOLIDATED BASE, COMPACTING THE SAME WITH POWER ROLLER INCLUDING NECESSARY LABOUR, WATERING, MATERINGS ETC. COMPLETE, ALL AS PER RELEVANT SPECIFICATIONS AND DIRECTIONS OF BHEL ENGINEER (RATE SHALL BE INCLUSIVE OF ALL LABOUR, MATERIALS ETC., COMPLETE).	CUM	4,194	1.6968	-	-
18	C14	PROVIDING AND LAYING OF **PLAIN CEMENT CONCRETE OF MIX 1:4:8** USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, COARSE SAND, 20 MM DOWN SIZE HARD BROKEN GRANITE STONE AGGREGATE FOR **FOUNDATION, FLOORING, COLUMNS, DRAINS, CULVERTS ETC**. INCLUDING SHUTTERING, FINISHING, CURING, CONSOLIDATION ETC. COMPLETE AS PER STANDARD SPECIFICATIONS AND AS DIRECTED BY BHEL ENGINEER.	CUM	1,300	4.2071	-	-
19	C15	PROVIDING AND LAYING OF **PLAIN CEMENT CONCRETE (PCC) OF MIX 1:3:6** USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, COARSE SAND, 20 MM DOWN SIZE HARD BROKEN GRANITE STONE AGGREGATE FOR **PLINTH PROTECTION, FLOORING ETC**. WITH TROWEL FINISH INCLUDING SHUTTERING, FINISHING, CURING, CONSOLIDATION ETC. COMPLETE AS PER STANDARD SPECIFICATIONS AND AS DIRECTED BY BHEL ENGINEER.	CUM	133	4.6288	-	-
20	C16	PROVIDING AND LAYING OF **CONCRETE OF MIX 1:2:4** USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, COARSE SAND, 20 MM DOWN SIZE HARD BROKEN GRANITE STONE AGGREGATE FOR **OFFICE, CLOSED STORAGE SHEDS, SECURITY ROOMS, PANTRY, COLUMNS, SLABS OF CULVERTS, COPING OVER BRICK WALL OF DRAINS, SLEEPERS ETC**. INCLUDING MECHANICAL MIXING, VIBRATION, CURING, FORM WORK & CENTERING AS PER DRAWING AND SPECIFICATION AND DIRECTED BY BHEL ENGINEER BUT EXCLUDING COST OF REINFORCEMENTS.	CUM	737	5.5146	-	-
21	C17	PROVIDING AND LAYING **DPC (DAMP PROOF COURSE)** 50MM THICK IN 1:2:4 CEMENT CONCRET LAYER USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53 AND 6 MM DOWN AGGREGATE, INCLUDING FORMWORK, BITUMEN FELT USING CEMENT WITH WATER PROOFING COMPOUND ETC. COMPLETE	SQM	558	0.3335	-	-
22	C18	PROVIDING , CUTTING, BENDING AND FIXING IN POSITION **REINFORCEMENT OF VARIOUS DIA. USING HIGH TENSILE TOR STEEL (Fe - 415/500)**. AS PER DRAWING AND SPECIFICATION AND AS DIRECTED BY BHEL ENGINEER INCLUDING COST OF ALL MATERIALS, LEADS, LIFT, LABOURS, MS BINDING WIRE 18/20 GAUGE, TACK WELDING AND SUPPORTING IF REQUIRED COMPLETE.	MT	65	63.4144	-	-
23	C19	PROVIDING **BRICK WORK IN CM 1:6** (1 CEMENT : 6 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, AND **LOCALLY AVAILABLE BURNT CLAY BRICKS OF CLASS DESIGNATION 7.5,** AS PER DRAWING AND SPECIFICATION FOR FOUNDATION, SUPER STRUCTURE, SEPTIC TANK ETC. INCLUDING COST OF ALL MATERIALS, LABOUR, SCAFFOLDING, CURING , AT ALL ELEVATIONS AND LEVELS , RAKING OUT JOINTS ETC. COMPLETE AND AS DIRECTED BY ENGINEER . EXCLUDING PLASTERING & PAINTING.	CUM	596	5.2449	-	-
24	C20	PROVIDING **BRICK WORK IN CM 1:6** (1 CEMENT & 6 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53 AND **FLY ASH LIME BRICKS OF CLASS DESIGNATION 7.5,** AS PER DRAWING AND SPECIFICATION FOR FOUNDATION, WALL, SEPTIC TANK ETC. INCLUDING COST OF ALL MATERIALS, LABOUR, SCAFFOLDING, CURING , AT ALL ELEVATIONS AND LEVELS , RAKING OUT JOINTS ETC. COMPLETE AND AS DIRECTED BY BHEL ENGINEER . EXCLUDING PLASTERING & PAINTING.	CUM	1,421	4.9501	-	-
25	C21	PROVIDING **HALF BRICK WORK, PARTITION WALL IN CM 1:4** (1 CEMENT : 4 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, AND LOCALLY AVAILABLE BURNT CLAY BRICKS OF CLASS DESIGNATION 7.5 AS PER DRAWING AND SPECIFICATION FOR FOUNDATION, WALL ETC INCLUDING COST OF ALL MATERIALS, LABOUR, SCAFFOLDING, RAKING OUT JOINTS,CURING AS PER DRAWING AND DIRECTED BY BHEL ENGINEER.	SQM	3	0.6428	-	-
26	C22	PROVIDING **HALF BRICK WORK FOR PARTITION WALL IN CM 1:4** (1 CEMENT & 4 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53 AND FLY ASH LIME BRICKS OF CLASS DESIGNATION 7.5 AS PER DRAWING AND SPECIFICATION FOR FOUNDATION, WALL ETC INCLUDING COST OF ALL MATERIALS, LABOUR, SCAFFOLDING, RAKING OUT JOINTS,CURING AS PER DRAWING AND DIRECTED BY BHEL ENGINEER.	SQM	2	0.6428	-	-
27	C23	**MAIN STRUCTURE WALL:** MAIN STRUCTURAL WALLS SHALL BE MADE OUT OF **INSULATED SANDWITCH PANELS 60 MM THICK, OF 3 M HEIGHT, SUITABLE WIDTH PANELS WITH COLOUR COATED GI SHEET OF OF 0.5 MM THICKNESS** ON INNER AND OUTER SIDE USING PRECOATED GALVANISED IRON PROFILE SHEETS (SIZE, SHAPE AND PITCH OF CORRUGATION AS APPROVED BY ENGINEER-IN-CHARGE) 0.50 MM (+ 0.05 %) TOTAL COATED THICKNESS WITH ZINC COATING 120 GRAMS PER SQM AS PER IS: 277, IN 240 MPA STEEL GRADE, 5-7 MICRONS EPOXY PRIMER ON BOTH SIDE OF THE SHEET AND POLYESTER TOP COAT 15-18 MICRONS. SHEET SHOULD HAVE PROTECTIVE GUARD FILM OF 25 MICRONS MINIMUM TO AVOID SCRATCHES DURING TRANSPORTATION. INSULATION SHALL BE DONE USING 60 MM THICK PUF OF 38 KG /M3 OR GLASS WOOL OF 35 KG/M3 SANDWICHED BETWEEN THE SHEETS. INSULATED SANDWITCH PANELS SHALL BE PRE-FABRICATED AND SUPPLIED AT SITE FOR INSTALLATION. THE FIXTURE SHOULD BE JOINED TOGETHER BY TONGUE AND GROOVE METHOD, JOINTS SHALL BE SEALED WITH SILICON SEALANT OR OTHER SUITABLE SEALANT TO ENSURE 100% LEAK PROOF. THE OUTER FRAMING STRUCTURE SHALL BE FABRICATED WITH ISMC 75X40X3MM OR AS PER APPROVED DESIGN, MS "T" WELDED FOR SECURING PANELS. THE ABOVE COLUMNS WILL BE GROUTED TO THE PLINTH BEAM / FLOOR BY MEANS OF EXPANSION FASTENERS. THE ENTRANCE WILL BE PROVIDED WITH 1NO-PORTICO MADE UP OF PUF PANELS SHOULD HAVE AN AESTHETIC LOOK OF SIZE MIN. 4M X 3M. **(STRUCTURAL STEEL WORK FOR OUTER FRAME SHALL BE PAID EXTRA UNDER THE RELEVANT ITEM)**	M2	1,313	1.1743	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
28	C24	DESIGN, SUPPLY, FABRICATION AND ERECTION OF **STRUCTURAL STEEL BEAMS (ISMB), PLATES, CHANNELS, JOISTS, GUSSET PLATES, BOLTS, NUTS ETC.** COMPLETE AS PER DRAWINGS AND AS DIRECTED BHEL ENGINEER FOR ISMB-250 / ISMB - 200 **COLUMNS FOR OFFICE, CLOSED STORAGE SHEDS, FRAME STRUCTURE OF OFFICE ETC.** INCLUDING PROVIDING AND FIXING FOUNDATION BOLTS TO FIX THE COLUMNS TO FOUNDATIONS, ALL MATERIALS, LABOUR, T&Ps ETC. , ONE COAT OF PRIMER , FOLLOWED BY **TWO COATS OF SYNTHETIC ENAMEL PAINT** OF APPROVED MAKE, COLOUR AND TEXTURE FOR FINISHED PRODUCTS AT SITE, PREPARATION OF DESIGN & DETAILED FABRICATION DRAWINGS AND GETTING APPROVED FROM BHEL COMPLETE AS PER IS CODES, SPECIFICATIONS AND DIRECTION OF BHEL ENGINEER.	MT	48	64.0547	-	-
29	C25	DESIGN, SUPPLY, FABRICATING AND ERECTION OF **TUBULAR TRUSSES (BY USING CLASS B, MEDIUM QUALITY PIPE / EQUIVALENT APPROVED SECTION)**, PURLINS, BOTTOM RAFTERS ETC. AS PER APPROVED DRAWING WITH WIND TIES (USING FLAT OF SIZE 40X5MM) TO BE PROVIDED ABOVE SHEETS AND PROVIDING & FIXING BASE PLATES WITH HOLDING DOWN BOLTS ON ISMB COLUMNS, GUSSETS, RIBS, PINS, SPLICES ETC. AS REQUIRED INCLUDING TRANSPORT, LOADING, UNLOADING CHARGES FROM FABRICATION SHOP TO SITE ETC. COMPLETE. RATE IS INCLUSIVE OF ALL MATERIALS, LOADING & UNLOADING, FABRICATION, FIXING IN POSITION, LABOUR CHARGES , T&Ps AND COST OF RED OXIDE PRIMER AT FACTORY/ YARD AND TWO COATS OF SYNTHETIC ENAMEL PAINTS (OVER PRIMER COAT OF RED OXIDE) OF APPROVED COLOUR AND QUALITY AT SITE, PREPARATION OF DETAILED DESIGN & FABRICATION DRAWINGS AND GETTING APPROVED FROM BHEL ETC. COMPLETE AS PER DIRECTIONS OF BHEL ENGINEER.	MT	140	73.7313	-	-
30	C26	DESIGN, SUPPLY, FABRICATING AND ERECTION OF **STRUCTURAL STEEL STAGING (APPROX. Ht. 4.0M)** FOR INSTALLATION OF PVC OVER HEAD WATER TANK (OHT) OF CAPACITY- 5000 LITRES AS PER BHEL DRAWING. RATE IS INCLUSIVE OF ALL MATERIALS, LOADING & UNLOADING, FABRICATION, FIXING IN POSITION, LABOUR CHARGES , T&Ps AND COST OF RED OXIDE PRIMER AND TWO COATS OF SYNTHETIC ENAMEL PAINTS (OVER PRIMER COAT OF RED OXIDE) OF APPROVED MAKE COLOUR AND QUALITY AT SITE.	MT	2	64.0547	-	-
31	C27	SUPPLY FABRICATION, AND FIXING IN POSITION OF **MS GATES WITH** STRUCTURAL TUBULAR STEEL FRAMES AS PER BHEL DRAWING INCLUDING COST OF FOUNDATION & POSTS, PAINTING **TWO COATS BY SYNTHETIC ENAMEL PAINT** OF APPROVED COLOUR AND QUALITY OVER ONE COAT OF RED OXIDE PRIMER, COST OF ALL MATERIALS, LABOUR, TRANSPORT ETC. COMPLETE.	MT	3	64.0547	-	-
32	C28	PROVIDING AND FIXING **CORRUGATED PPGI SHEETS OVER THE ROOF OF SHED AND FOR SIDE CLADDING WITH PRECOATED GALVANISED IRON PROFILE SHEETS (SIZE, SHAPE AND PITCH OF CORRUGATION AS APPROVED BY ENGINEER-IN-CHARGE) 0.50 MM** (+ 0.05 %) TOTAL COATED THICKNESS WITH ZINC COATING 120 GRAMS PER SQM AS PER IS: 277, IN 240 MPA STEEL GRADE, 5-7 MICRONS EPOXY PRIMER ON BOTH SIDE OF THE SHEET AND POLYESTER TOP COAT 15-18 MICRONS. SHEET SHOULD HAVE PROTECTIVE GUARD FILM OF 25 MICRONS MINIMUM TO AVOID SCRATCHES DURING TRANSPORTATION AND SHOULD BE SUPPLIED IN SINGLE LENGTH UPTO 12 METRE OR AS DESIRED BY ENGINEER-IN-CHARGE. THE SHEET SHALL BE FIXED USING SELF DRILLING /SELF TAPPING SCREWS OF SIZE (5.5X 55 MM) WITH EPDM SEAL, COMPLETE UPTO ANY PITCH IN HORIZONTAL/ VERTICAL OR CURVED SURFACES, EXCLUDING THE COST OF PURLINS, RAFTERS AND TRUSSES AND INCLUDING CUTTING TO SIZE AND SHAPE WHEREVER REQUIRED	SQM	12,893	0.5171	-	-
33	C29	PROVIDING AND FIXING **PRECOATED GALVANISED STEEL SHEET ROOFING ACCESSORIES** 0.50 MM (+ 0.05 %) TOTAL COATED THICKNESS, ZINC COATING 120 GRAMS PER SQM AS PER IS: 277, IN 240 MPA STEEL GRADE, 5-7 MICRONS EPOXY PRIMER ON BOTH SIDE OF THE SHEET AND POLYESTER TOP COAT 15-18 MICRONS USING SELF DRILLING/ SELF TAPPING SCREWS COMPLETE	-	-	-	-	-
34	I	RIDGES PLAIN (500 - 600MM)	RM	545	0.3386	-	-
35	II	FLASHINGS/ APRONS.(UPTO 600 MM)	RM	545	0.3127	-	-
36	III	NORTH LIGHT CURVES	RM	50	0.3696	-	-
37	IV	BARGE BOARD (UPTO 300 MM)	RM	340	0.3016	-	-
38	VI	GUTTER (600 MM OVER ALL GIRTH)	RM	1,080	0.7826	-	-
39	C30	PROVIDING AND FIXING OF CORRUGATED **TRANSLUCENT RMP/FRP (FIBRE GLASS REINFORCED PLASTIC) SHEETS - 2.00** MM THICK OF APPROVED MAKE INCLUDING COST OF GI **J** OR **L** HOOKS, BOLTS, NUTS, WASHERS, BITUMEN WASHERS / SELF TAPPING SCREWS, , SCAFOLDING ETC. COMPLETE SO AS TO MATCH WITH PPGI SHEETS FOR NATURAL LIGHTING.	SQM	536	0.9296	-	-
40	C31	PROVIDING AND FIXING OF **FALSE CEILING OF 12.5 MM THICK TAPERED EDGE GYPSUM PLAIN BOARD CONFIRMING TO IS:2095 PART-I WITH PANELS OF APPROVED QUALITY AND DESIGN OF SIZE 600x600 MM** WITH SQUARE EDGES SUPPORTED BY ANODISED ALUMINIUM FRAMES OF TEES 35x23.5x1.5 MM THICK AS MAIN MEMBER AND 19x23.5x1.5 MM TEES AS CROSS SUPPORTING MEMBERS AND WALL ANGLES OF 23.5x23.5x1.5MM. THE MAIN RUNNERS SHALL BE SUSPENDED FROM ROOF AT 1200 MM CENTRE TO CENTRE BY MEANS OF MS RODS WITH GI 'J' THREADED HOOK FOR ADJUSTMENTS. THE CROSS RUNNERS SHALL BE FIXED TO MAIN RUNNER TO FORM 'A' GRID PATTERN OF 600x600MM AND PROVIDING 25 MM WIDE ALUMINIUM STRIP TEES OR MOULDED SECTIONS AT ALL JOINTS. THE RATE SHALL BE INCLUSIVE OF TWO COATS OF APPROVED OBD ON GYPSUM BOARD, SUPPLY & FIXING OF ALUMINIUM FRAME AND SCAFOLDING ETC. COMPLETE	SQM	915	0.8662	-	-
41	C32	PROVIDING AND FIXING **THERMAL INSULATION WITH RESIN BONDED FIBRE GLASS WOOL CONFORMING TO IS: 8183. DENSITY 16 KG/M^3**, 50 MM THICK, WRAPPED IN 200G VIRGIN POLYTHENE BAGS PLACED OVER EXISTING FALSE CEILING AND HELD IN POSITION BY CRISS-CROSSING GI WIRE.	SQM	725	0.1825	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
42	C33	PROVIDING AND FIXING **POWDER COATED ALUMINIUM WORK (MINIMUM THICKNESS OF POWDER COATING 50 MM) FOR DOORS, WINDOWS, VENTILATOR, OFFICE PARTITION FRAMES AND WORK STATIONS (CUBICLES)** INCLUDING NECCESSARY FITTINGS AND FIXTURE E.G.HANDLES, DOOR LOCKS, STOPPERS ETC. WITH EXTRUDED BUILT UP STANDARD TUBULAR SECTIONS/ APPROPRIATE Z SECTIONS AND OTHER SECTIONS OF APPROVED MAKE CONFORMING TO IS: 733 AND IS: 1285, FIXING WITH DASH FASTENERS OF REQUIRED DIA AND SIZE, INCLUDING NECESSARY FILLING UP THE GAPS AT JUNCTIONS, I.E. AT TOP, BOTTOM AND SIDES WITH REQUIRED EPDM RUBBER/ NEOPRENE GASKET ETC. ALUMINIUM SECTIONS SHALL BE SMOOTH, RUST FREE, STRAIGHT, MITRED AND JOINTED MECHANICALLY WHEREVER REQUIRED INCLUDING CLEAT ANGLE, ALUMINIUM SNAP BEADING FOR GLAZING / PANELING, C.P. BRASS / STAINLESS STEEL SCREWS, ALL COMPLETE AS PER ARCHITECTURAL DRAWINGS AND THE DIRECTIONS OF ENGINEER-IN-CHARGE. (GLAZING, PANELING TO BE PAID SEPARATELY) :	KG	2,242	0.3612	-	-
43	C34	PROVIDING AND FIXING **GLAZING 5.5 MM THICK FLOAT GLASS IN ALUMINIUM DOOR, WINDOW, VENTILATOR SHUTTERS AND OFFICE PARTITIONS FRAMES ETC.** WITH EPDM RUBBER / NEOPRENE GASKET ETC. COMPLETE AS PER THE ARCHITECTURAL DRAWINGS AND THE DIRECTIONS OF ENGINEER-IN-CHARGE. (COST OF ALUMINIUM SNAP BEADING SHALL BE PAID IN BASIC ITEM):	SQM	68	0.9432	-	-
44	C35	PROVIDING AND FIXING **FLAT 12 MM THICK PRE-LAMINATED PARTICLE BOARD FLAT PRESSED THREE LAYER OR GRADED WOOD PARTICLE BOARD** CONFIRMING TO IS: 12823 GRADE I TYPE II, IN PANELLING FIXED IN ALUMINUM DOORS, SHUTTER, OFFICE PARTITION FRAMES, WORK STATIONS (CUBICLES) WITH C.P. BRASS / STAINLESS STELL SCREWS ETC. COMPLETE AS PER DRAWINGS AND DIRECTIONS OF BHEL ENGINEER IN- CHARGE.	-	-	-	-	-
45	I	**PRE-LAMINATED PARTICLE BOARD WITH DECORATIVE LAMINATION** ON ONE SIDE AND BALANCING LAMINATION ON OTHER SIDE	SQM	285	0.7763	-	-
46	II	**PRE-LAMINATED PARTICLE BOARD WITH DECORATIVE LAMINATION** ON BOTH SIDES	SQM	5	0.8141	-	-
47	C36	ROVIDING AND FIXING **FLAT 12 MM THICK PIN UP BOARD/ COIR BOARD WITH FBRIC UPHOLSTRY**, IN PANELLING FIXED IN ALUMINUM FRAMES FOR OFFICE PARTITION FRAMES, WORK STATIONS (CUBICLES) WITH C.P. BRASS / STAINLESS STELL SCREWS ETC. COMPLETE AS PER DRAWINGS AND DIRECTIONS OF BHEL ENGINEER IN- CHARGE.	SQM	171	1.4026	-	-
48	C37	PROVIDING AND FIXING **100MM BRASS LOCKS (BEST MAKE OF APPROVED QUALITY)** FOR ALUMINIUM DOORS INCLUDING NECESSARY CUTTING AND MAKING GOOD ETC. COMPLETE.	EACH	2	0.3373	-	-
49	C38	PROVIDING AND FIXING **POWDER COATED ALUMINIUM TUBULAR HANDLE BAR 32 MM OUTER DIA, 3.0 MM THICK & 2100 MM LONG** WITH SS SCREWS ETC .COMPLETE AS PER DIRECTION OF ENGINEER-IN-CHARGE	EACH	10	0.4785	-	-
50	C39	PROVIDING AND FIXING OF **BEST QUALITY COUNTRY WOOD DOORS COMPRISING OF FRAME 95 X 70MM AND 38/40MM THICK FLUSH SHUTTERS** OF SOLID CORE TYPE USING COMMERCIAL PLY INCLUDING HOLD FASTS, WIND APPLIANCES, HANDLES, TOWER BOLTS AND ALDROPS, MORTISE OR SUITABLE LOCKS ETC. AS PER THE STANDARD PRACTICE AND APPLYING TWO COATS OF SYNTHETIC ENAMEL PAINT OF APPROVED SHADE &COLOR OVER A COAT OF PRIMER AS DIRECTED BY BHEL ENGINEER.	SQM	32	3.1166	-	-
51	C40	PROVIDING AND FIXING OF **BEST QUALITY PVC PANELLED DOORS OF THICKNSS 29MM,** SINTEX/BAJAJ MAKE OR APPROVED EQUIVALENT FOR TOILETS INCLUDING ALL FITTINGS AND FIXTURES, MS ANGLE FRAME OF SIZE 40x40x6MM ETC. ALL COMPLETE AS PER DRAWINGS AND SPECIFICATIONS.	M2	17	2.2676	-	-
52	C41	PROVIDING AND FIXING OF **18 GUAGE M.S. SHEET DOOR WITH FRAME WORK 40 X 40 X 6 MM M.S. ANGLE** INCLUDING LOCKING ARRANGEMENTS, HOLD FAST , APPLYING ANTICORROSSIVE PRIMER COAT OF RED LEAD PAINT AND 2 COATS OF SYNTHETIC ENAMLE PAINT OF APPROVED COLOUR COMPLETE AS DIRECTED BY BHEL ENGINEER.	SQM	6	2.6965	-	-
53	C42	SUPPLYING, MANUFACTURING AND FIXING IN POSITION OF **STEEL WINDOWS AND VENTILATORS INCLUDING FRAMES & IRON BARRED (GUARD BAR OF SQUARE SECTION @ 100 MM C/C)** AND **GLAZED WITH 4MM PLAIN GLASS** AS PER STANDARD SPECIFICATIONS & RELEVANT IS CODE AND INSTRUCTIONS OF BHEL ENGINEER. THE COST SHALL BE INCLUSIVE OF ALL ACCESSORIES FITTINGS, HOLD FASTS, PAINTING TWO COATS OF SYNTHETIC ENAMEL PAINT OF APPROVED COLOUR AND QUALITY OVER ONE COAT OF RED OXIDE PRIMER ETC. COMPLETE.	-	-	-	-	-
54	I	**STEEL WINDOWS**	SQM	21	0.8538	-	-
55	II	**STEEL LOUVERED VENTILATORS (TO BE FIXED IN SIDE CLADDING SHEETS)**	SQM	73	0.6328	-	-
56	C43	52 MM THICK **CEMENT CONCRETE FLOORING WITH CONCRETE HARDENDER TOPPING, UNDER LAYER 40 MM THICK CEMENT CONCRETE 1:2:4 (USING GRADED STONE AGGREGATE OF 20 MM NOMINAL SIZE)** AND TOP LAYER OF 12 MM THICK CEMENT HARDENER CONSISITNG OF MIX 1:2 (1CMENT HARDENER MIX : 2 GRADED STONE AGGREGARE OF 6 MM NOMINAL SIZE) BY VOLUME, HARDENER COMPOUND MIXED @ 2 LITRE PER 50 KG OF CEMENT OR AS PER MANUFACTURER'S RECOMMENDATION AS PER STANDARD PRACTICE IN PANELS OF SIZE NOT EXCEEDING 2.0 x 2.0 SQ.M BY PROVIDING, FIXING GLASS STRIPS. INCLUDING CURING, FINISHING & CLEANING ETC. COMPLETE	SQM	7,416	0.5216	-	-
57	C44	PROVIDING **2MM THICK NEAT CEMENT FINISH** USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53 OVER CONCRETE BASE FOR FLOORING, PAVING, PLASTERED SURFACE, INTERNAL SURFACE OF BRICK DRAINS ETC. INCLUDING CURING & CLEANING AND SCAFOLDING COMPLETE.	SQM	11,551	0.0400	-	-
58	C45	PROVIDING AND LAYING OF **5.5 MM THICK RECTIFIED GLAZED CERAMIC FLOOR TILES OF APPROVED MAKE**, **1ST QUALITY CONFIRMING TO IS: 15622**, OF REQUIRED SIZE IN COLOURS SUCH AS WHITE, IVORY, GREY, FUME RED BROWN, LAID OVER THE 20 MM THICK BED OF CM - 1:4 (1 CEMENT & 4 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, JOINTING WITH GREY CEMENT SLURRY @3.3 KG/SQM.TILES FROM REPUTED MANUFACTURER LIKE KAJARIA / NITCO / SOMANY / CERA / HINDWARE / JONSON OR EQUIVALENT INCLUDING ALL MATERIALS COMPLETE AS PER STANDARD PRACTICE AND SPECIFICATION.	-	-	-	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
59	I	**FLOORING -300MM X 300MM**	SQM	815	0.6467	-	-
60	II	**SKIRTING - 300MM X 150MM**	SQM	37	0.6467	-	-
61	C46	SUPPLYING AND FIXING OF **WHITE RECTIFIED GLAZED CERAMIC TILES OF REQUIRED SIZES LAID OVER THE 20 MM THICK BED OF CM - 1:4** (1 CEMENT & 4 COARSE SAND) USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53, JOINTING WITH GREY CEMENT SLURRY @ 3.3 KG/SQM. DADO IN TOILET & PANTRY ROOM UP TO 1.5 M ELEVATIONS INCLUDING PEREPARATION OF BASE LAYING UNDERBED, FINISHING AND ROUNDING CORNERS AND JUNCTIONS, CURING ETC. COMPLETE AS PER DRAWINGS AND SPECIFICATIONS.		-	-	-	-
62	I	**FLOORING (5.0MM TO 6.0MM THICK OF SIZE 300MM X 300MM)**	SQM	116	0.7727	-	-
63	II	**DADO (5MM TO 6MM THICK OF SIZE 150MM X 150MM) - 1.5M HEIGHT FROM FINISHED FLOOR LEVEL**	SQM	62	0.7727	-	-
64	C47	PROVIDING **PLASTERING WITH FOLOWING CEMENT MORTAR AND GIVEN THICKNESS** USING OPC GRADE 43/53 OVER BOTH INTERNAL AND EXTERNAL FACES OF BRICKWORK AND CONCRETE SURFACES, PARTITION WALLS ETC. AT ALL LEVELS INCLUDING PREPARING THE SURFACE, RAKING JOINTS, SCAFFOLDING, CURING, COST OF ALL MATERIALS, LABOUR ETC. COMPLETE.		-	-	-	-
65	I	**EXTERNAL PLASTERING - 18MM THICK- 1:6 (1 CEMENT : 6 COARSE SAND)**	SQM	3,572	0.2188	-	-
66	II	**INTERNAL PLASTERING -12MM THICK- 1:6 (1 CEMENT : 6 COARSE SAND)**	SQM	8,065	0.1506	-	-
67	III	**CEILING PLASTERING - 6 MM THICK- 1:3 (1 CEMENT & 3 FINE SAND)**	SQM	60	0.1351	-	-
68	C48	PROVIDING & APPLYING **COLOUR WASH -THREE COATS ON NEWLY PLASTERED EXTERNAL SURFACE OF OFFICE, SHED ETC.** BY USING BEST SHALE LIME TO GIVE AN EVEN SHADE INCLUDING PREPARING THE SURFACE LIKE CLEANING AND BRUSHING & BROOMING OF WALLS AND IN ACCORDANCE WITH STANDARD SPECIFICATION. RATE INCLUDE COST OF ALL MATERIALS , COLOURING AGENT, BASE COAT OF WHITE WASH, APPROVED ADDESSIVE, SCAFFOLDING AT ALL LEVEL, BRUSH ETC. COMPLETE.	M2	3,527	0.0222	-	-
69	C49	PROVIDING & APPLYING **WHITE WASH - THREE COATS ON NEWLY PLASTERED INTERNAL SURFACE OF OFFICE, SHED ETC.** (EXCLUDING INNER WALLS OF OFFICE/C&I ROOM) BY USING BEST SHALE LIME TO GIVE AN EVEN SHADE INCLUDING PREPARING THE SURFACE LIKE CLEANING AND BRUSHING & BROOMING OF WALLS AND IN ACCORDANCE WITH STANDARD SPECIFICATION. RATE INCLUDE COST OF ALL MATERIALS , APPROVED ADDESSIVE, SCAFFOLDING AT ALL LEVEL, BRUSH ETC. COMPLETE.	M2	3,244	0.0162	-	-
70	C50	PROVIDING & APPLYING TO INTERIOR SURFACES OF STORE OFFICE AND C&I ROOM BY TWO COATS OF **OIL BOUND DISTEMPER (OBD) OF APPROVED SHADE ,COLOR AND MAKE CONFIRMING TO IS : 428** TO OBTAIN A EVEN FINISH AND UNIFORM COLOR OVER A COAT OF PRIMER AS PER MANUFACTURE RECOMMENDATION INCLUDING COST OF PAINT, SURFACE PREPARATION LIKE CLEANING AND BRUSHING & BROOMING OF WALLS , SCAFFOLDING AT ALL LEVEL ETC, COMPLETE. SURFACE PREPARATION SHALL BE DONE BY APPLYING PUTTY/PLASTER OF PARIS (POP) INCLUDING COST OF MATERIAL, LABOUR ETC. COMPLETE.	M2	622	0.0880	-	-
71	C51	PROVIDING AND FIXING **ALUMINIUM EXTRUDED SECTION BODY TUBULAR TYPE UNIVERSAL OVER HEAD HYDRAULIC DOOR CLOSER** (HEAVY DUTY, HAVING BRAND LOGO WITH ISI, IS : 3564, EMBOSSED ON THE BODY) OF APPROVED BRAND AND SIZE, WITH DOUBLE SPEED ADJUSTMENT ON NECESSARY DOORS WITH NECESSARY ACCEROIES AND SCREWS ETC. COMPLETE AS DIRECTED BY BHEL ENGINEER.	NO.	34	0.3649	-	-
72	C52	PROVIDING AND FIXING **DOUBLE ACTION HYDRAULIC FLOOR SPRING OF APPROVED BRAND AND MANUFACTURER CONFIRMING OT IS 6315**, HAVING BRAND LOGO EMBOSSED ON THE BODY / PLATE WITH DOUBLE SPRING MECHANISM, FOR DOORS INCLUDING COST OF CUTTING FLOORS, EMBEDDING IN FLOORS AS REQUIRED AND MAKING GOOD THE SAME MATCHING TO THE EXISTING FLOOR FINISHING AND STAINLESS STEEL 1.25 MM (MINIMUM) COVER PLATES WITH BRASS PIVOT AND SINGLE SHEET M.S. OUTER BOX WITH SLIDE PLATE ETC. COMPLETE AS PER DIRECTION OF BHEL ENGINEER IN-CHARGE	NO.	4	1.9297	-	-
73	C53	PROVIDING , SUPPLYING AND FIXING OF **20 GAUGE MS ROLLING SHUTTERS OF SIZE 5MX5 M OR 5MX6M (APPROX.)** AS PER I.S. SPECIFICATIONS, COMPLETE, MECHANICALLY OPERATED FROM IN AND OUTSIDE BOTH AS INSTRUCTED BY BHEL ENGINEER INCLUDING TWO COATS OF SYNTHETIC ENAMEL PAINT OF APPROVED COLOUR AND QUALITY OVER ONE COAT OF RED OXIDE PRIMER LOCKING ARRANGEMENT. RATE SHALL BE INCLUSIVE OF ALL THE ABOVE COMPLETE.	SQM	240	2.8560	-	-
74	C54	PROVIDING & FIXING OF **WEEP HOLES WITH 75MM DIA. AC PIPES AT 3M C/C** ON BOTH SIDES OF DRAIN WALL WITH FILTER MEDIA USING 40MM SIZE STONE GRIT OF SIZE (300X300X300MM).	RM	477	0.1258	-	-
75	C55	SUPPLYING & FIXING IN POSITION OF **RCC HUME PIPE OF NP2** WHEREVER DRAIN CROSSES THE ROADS INCLUDING ALIGNING, LEVELLING ETC. COMPLETE AS PER THE DIRECTION OF ENGINEER. INCLUDING P.C. & INCLUDING COLLAR JOINTS, ENCASEMENT WITH CONCRETE 1:3:6 OF 300 MM DIA , ENCASING SHALL BE PAID EXTRA UNDER RESPECTIVE ITEMS OF CONCRETE..		-	-	-	-
76	I	**400mm dia**	RM	63	0.6773	-	-
77	II	**600mm dia**	RM	63	1.3125	-	-
78	C56	**PROVIDING AND FIXING BARBED WIRE FENCING** AROUND OPEN STORAGE YARD AS PER BHEL DRAWING. POSTS SHALL BE SPACED AT 3M CENTRES AND STRUTS AT 30M CENTRES AND AT ALL TURNINGS WITH FOUNDATIONS, SUPPLYING AND FIXING GI BARBED **WIRES, 10 HORIZONTAL LINES, TWO DIAGONALS BETWEEN POSTS BY MEANS OF GI STAPLES, TURN BUCKLES ETC. AS PER STANDARD PRACTICE. THE BARBED WIRE SHALL CONFORM TO IS 278 AND BE MADE OF TWO STRANDS OF GALVANISED TWISTED STEEL WIRE OF 2.5 MM DIA (WEIGHING NOT LESS THAN 9.38 KG PER 100 MTR)** WITH FOUR POINT BARS. COST OF EARTH WORK, CONCRETE (1:3:6), FORM WORK AND ALL MATERIALS, POSTS, STRUTS SHALL BE PAID SEPERATELY UNDER THE RELEVANT ITEM. **PAYMENT TO BE MADE PER METRE COST OF TOTAL LENGTH OF BARBED WIRE USED.**	RM	16,380	0.0119	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

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SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
79	C57	SUPPLY, ERECTION AND ALIGNMENT OF **ANGLE IRON POST & STRUT OF REQUIRED SIZE INCLUDING BOTTOM TO BE SPLIT AND BENT AT RIGHT ANGLE** IN OPPOSITE DIRECTION FOR 10 CM LENGTH AND DRILLING HOLES UPTO 10 MM DIA,PAINTING TWO COATS BY SYNTHETIC ENAMEL PAINT OF APPROVED MAKE, COLOUR AND QAULITY OVER ONE COAT OF RED OXIDE PRIMER ETC. ALL COMPLETE AS PER APPROVED DRAWING AND AS DIRECTED BY BHEL ENGINEER IN-CHARGE	KG	5,157	0.0641	-	-
80	C58	**CLEARING JUNGLE INCLUDING UPROOTING OF RANK VEGETATION, GRASS, BUSH, BRUSH WOOD, TREES AND SAPLINGS OF GIRTH UP TO 30 CM** MEASURED AT A HEIGHT OF 1 M ABOVE GROUND LEVEL AND REMOVAL OF RUBBISH UP TO A DISTANCE OF 50 M OUTSIDE THE PERIPHERY OF AREA CLEARED.	SQM	883	0.0068	-	-
81	C59	SUPPLY FABRICATION, AND FIXING IN POSITION OF **MS GATES WITH STRUCTURAL/TUBULAR STEEL FRAMES** AS PER APPROVED DRAWING INCLUDING COST OF FOUNDATION & POSTS, PAINTING TWO COATS BY SYNTHETIC ENAMEL PAINT OF APPROVED COLOUR AND QUALITY OVER ONE COAT OF RED OXIDE PRIMER, COST OF ALL MATERIALS, LABOUR, TRANSPORT ETC. COMPLETE.	MT	6	64.0547	-	-
82	**S**	**SANITARY WORKS**		-	-	-	-
83	S1	PROVIDING AND FIXING **WHITE GLAZED VITREOUS CHINA WASH HAND BASIN OF 55 CM X 40 CM** SIZE INCLUDING **COLD WATER PILLER TAP, BRACKETS, STOP TAP**, CHROMIUM PLATED BOTTLE TRAP AND NECESSARY PIPE CONNECTIONS INCLUDING UPVC WASTE PIPE AND TRAP UPTO THE OUT SIDE FACE OF THE WALL, MAKING GOOD THE DAMAGED SURFACE, TESTING ETC. COMPLETE. PRIOR APPROVAL OF SAMPLE AND BRAND BY BHEL ENGINEER IS NECESSARY BEFORE USE.	NO	12	1.7073	-	-
84	S2	PROVIDING AND FIXING **EUROPEAN TYPE WHITE GLAZED VITREOUS CHINA W.C.PAN WITH UPVC SEAT AND LID** WITH CHROMIUM PLATED BRASS HINGES AND RUBBER BUFFERS INCLUDING UPVC VENT PIPE (APPROX. 2M. HT. WITH COWL)) ON THE OUTSIDE FACE OF WALL, 10 LITRE PVC LOW LEVEL FLUSHING CISTERN WITH ALL FITTINGS, PIPE AND STOP COCK, BRACKETS FOR FIXING CISTERN, 32 MM DIA. UPVC FLUSH PIPE WITH FITTINGS AND CLAMPS, 20 MM DIA. UPVC OVERFLOW PIPE, FLOAT VALVES, CUTTING AND MAKING GOOD TO THE WALLS AND FLOORS, TESTING ETC. COMPLETE. PRIOR APPROVAL OF SAMPLE AND BRAND BY BHEL ENGINEER IS NECESSARY BEFORE USE.	NO	11	3.2118	-	-
85	S3	PROVIDING AND FIXING IN POSITION OF **WHITE GLAZED EARTHENWARE FLAT BACK/CORNER TYPE LIPPED FRONT URINALS OF 430MM X 260MM X 350MM / 340X460X265** MM OF APPROVED MAKE AND QUALITY WITHOUT FLUSHING CISTERN, GI FLUSH PIPE AND SPREADERS WITH BRASS UNIONS, GI CLAMPS, CUTTING OF WALLS AND MAKING GOOD OF ALL DAMAGES AND FINISHING TO MATCH THE EXISTING WORK ETC. COMPLETE. RATE QUOTED SHALL INCLUDE COST OF ALL MATERIALS AND LABOUR FOR CARRYING, LAYING & FIXING AND ALL OTHER INCIDENTAL CHARGES ETC. COMPLETE.	NO	10	3.2827	-	-
86	S4	PROVIDING AND FIXING IN POSITION OF **HIGH CLASS BELGIUM OR SUPERIOR MAKE BEVELLED EDGE MIRROR OF SIZE 450MM X 550MM X 6MM** WITH 16 MM DIA & 550MM LENGTH NICKEL PLATED TOWEL ROD MOUNTED ON 6 MM THICK PLYWOOD OR PLASTIC FOLDER SHEET. RATE TO INCLUDE COST OF ALL MATERIALS, LABOUR FOR FIXING THE WOODEN PLUGS WITH CP BRASS SCREWS AND WASHERS ETC. COMPLETE.	NO	12	0.7684	-	-
87	S5	PROVIDING AND FIXING IN POSITION OF **15 MM DIA NOMINAL SIZE SCREW DOWN TYPE CHROMIUM PLATES BRASS BIB COCKS** OF STANDARD TYPE OF APPROVED MAKE AND QUALITY AS PER STANDARD SPECIFICATION. RATE INCLUDES JOINTING MATERIALS, SOCKETS, UNION NUT, TESTING, LABOURS FOR CARRYING AND FIXING ETC. COMPLETE	NO	25	0.3492	-	-
88	S6	PROVIDING AND FIXING IN POSITION OF **15 MM DIA CONCUSSION PUSH BUTTON TYPE BRASS/ GUN METAL SELF CLOSING TAP** INCLUDING NECESSARY SOCKET, TESTING ETC. COMPLETE FOR URINALS AS PER DIRECTION OF BHEL ENGINEER.	NOS.	12	0.4028	-	-
89	S7	PROVIDING AND FIXING IN POSITION OF **25 MM DIA GUN METAL GATE VALVE**. INCLUDING ALL NACESSARY FITTING & FIXTURE ETC. COMPLETE AS PER STANDARD SPECIFICATION.	NOS.	13	0.4028	-	-
90	S8	PROVIDING AND FIXING IN POSITION OF **40 MM DIA GATE VALVE.** INCLUDING ALL NACESSARY FITTING & FIXTURE ETC. COMPLETE AS PER STANDARD SPECIFICATION.	NOS.	13	0.5493	-	-
91	S9	PROVIDING AND FIXING IN POSITION OF **15 MM DIA NOMINAL SIZE SCREW DOWN TYPE CHROMIUM PLATES BRASS STOP COCKS** OF APPROVED MAKE AND QUALITY CONFIRMING TO IS:8931 AS PER STANDARD SPECIFICATION.RATE INCLUDES COST OF JOINTING MATERIALS, SOCKETS,UNION NUT,TESTING, LABOURS FOR CARRYING AND FIXING ETC. COMPLETE	NOS.	21	0.5129	-	-
92	S10	PROVIDING AND FIXING IN POSITION OF **100MM X 50MM HCI "NAHANI" TRAP WITH HCI GRATINGS, BENDS, CONNECTING PIECES** OF CI PIPE UPTO OUTSIDE FACE OF THE WALL. MAKING GOOD THE DAMAGED SURFACE,TESTING ETC COMPLETE AS PER STANDARD SPECIFICATIONS. RATE TO BE ALL INCLUSIVES.	NOS.	26	0.2323	-	-
93	S11	PROVIDING AND FIXING SQUARE-MOUTH **S.W. GULLY TRAP (100MM X 100MM SIZE P TYPE)** CLASS SP-1 COMPLETE WITH C.I. GRATING BRICK MASONRY CHAMBER USING COMMON BURNT CLAY NON-MODULAR BRICKS OF CLASS DESIGNATION 7.5, WITH WATER TIGHT C.I. COVER WITH FRAME OF 300 X300 MM SIZE (INSIDE) THE WEIGHT OF COVER TO BE NOT LESS THAN 4.50 KG AND FRAME TO BE NOT LESS THAN 2.70 KG AS PER STANDARD DESIGN	NOS.	12	1.5054	-	-
94	S12	PROVIDING AND LAYING WITH REQUIRED GRADING & LEVELING IN TRENCHES MEDIUM GRADE (TYPE) G**ALVANISED IRON (G I) PIPE HAVING EMBOSSED ISI MARK ON IT**, OF REQUIRED DIAMETER WITH SCREWED, SOCKETS, JOINTS, NECESSARY GALVANISED IRON FITTINGS SUCH AS SOCKETS, BACK NUTS, ELBOWS, BENDS, TEES, REDUCERS, ENLARGERS, PLUGS, CLAMPS ETC. INCLUDING ALL NECESSARY EXCAVATION, BACK FILLING, FIXING WITH CLAMPS, TESTING ETC. COMPLETE. (PRIOR APPROVAL OF SAMPLE AND BRAND BY BHEL ENGINEER IS NECESSARY BEFORE USE.)		-	-	-	-
95	I	40MM DIA	RM	700	0.2828	-	-
96	II	25MM DIA	RM	300	0.2328	-	-
97	III	20MM DIA	RM	125	0.2106	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
98	IV	15MM DIA	RM	120	0.1751	-	-
99	S13	PROVIDING AT WORKING SITE, **CARRYING AND LOWERING INTO TRENCHES, LAYING TO PROPER ALIGNMENT**, **LEVEL AND GRADE, JOINTING WITH CM (1:1)** AND TESTING OF JOINTS ETC. OF THE FOLLOWING SIZE OF SALT GLAZED STONEWARE PIPE INCLUSIVE OF ALL NECESSARY SPECIALS TARRED HEMP YARN AND ALL JOINTING MATERIALS COMPLETE AS PER STANDARD SPECIFICATIONS INCLUDING ALL NECESSARY EXCAVATION ,BACKFILLING,DISPOSAL OF SURPLUS EARTH ,LEAD AND LIFT AS PER SITE CONDITIONS. RATE SHALL INCLUDE COST OF ALL MATERIALS, LABOUR CHARGES AND INCIDENTAL CHARGES ETC. COMPLETE.	-	-	-	-
100	I	**100MM DIA STONEWARE PIPELINE** INCLUDING ALL SPECIALS COMPLETE.	RM	250	0.2032	-	-
101	S14	PROVIDING AND FIXING IN POSITION OF **PVC OVERHEAD WATER TANK** OF SINTEX OR ANY APPROVED MAKE OF FOLLOWING CAPACITY WITH PROVISION FOR OVERFLOW ARRANGEMENT VALVES, INLET AND OUTLET ETC. COMPLETE. SUPPORTING STEEL STRUCTURE FOR FIXING THE TANK SHELL BE PAID IN THE RELAVENT ITEM.	-	-	-	-
102	I	1000 LITRE	Nos.	4	6.8112	-	-
103	S15	CONSTRUCTION OF **230MM THICK BURNT CLAY / FLY ASH LIME BRICK CHAMBER** (USING PPC CONFIRMING TO IS 1489 (Part-I) / OPC GRADE 43/53) OF THE FOLLOWING DIMENSIONS (INNER DIMENSION) WITH **20MM THICK INTERNAL & EXTERNAL CEMENT PLASTER OF MIX CM 1:5** (1 CEMENT & 5 COARSE SAND) , **NEAT CEMENT FINISH , TOP CI – COVER** AND CONNECTORS FOR SEWER LINES. RATE SHALL BE INCLUSIVE OF ALL NECESSARY EXCAVATION & FILLING, PCC-100 MM THICK OF 1:3:6 FOR BEDDING ON 100MM THICK OVERSIZER SOLING WITH 80 MM METALETC. COMPLETE.	-	-	-	-
104	I	600X450X450 WITH C.I COVER	Nos.	13	3.1890	-	-
105	II	900X600X450 WITH C.I. COVER	Nos.	9	6.8369	-	-
106	S16	PROVIDING AND FIXING OF PRECAST **80 MM THICK RCC COVER OF MIX 1:1.5:3** FOR MAN HOLES OF VARIOUS SIZES WITH REINFORCEMENT OF 10 MM DIA BOTH WAY TIED WITH TACK WELDING @ 150 MM C/C WITH 2 HOOKS OF 12 MM DIA BARS ETC.COMPLETE.	-	-	-	-
107	I	750MM x 600MM	Nos.	13	1.1837	-	-
108	II	1050MM x 750MM	Nos.	9	2.0715	-	-
109	S17	PROVIDING AND FIXING **PTMT TOWEL RAIL** COMPLETE WITH BRACKETS, FIXED TO WOODEN CLEATS, WITH C.P. BRASS SCREWS, WITH CONCEALED FITTINGS ARRANGEMENT OF APPROVED QUALITY AND COVER.	-	-	-	-
110	I	**600 MM LONG TOWEL RAIL** WITH TOTAL **LENGTH OF 645 MM, WIDTH 78 MM** AND EFFECTIVE HEIGHT OF 88 MM, WEIGHING NOT LESS THAN 190 GMS.	Nos.	12	0.3971	-	-
111	S18	PROVIDING & FIXING OF LIQUID SOAP DISPENSER AT ALL WASH BASIN LOCATION.	Nos.	12	0.1295	-	-
112	S19	PROVIDING AND FIXING OF **AQUA-GUARD OR EQUIVALENT WATER PURIFIER (15 Litre),** ALONG WITH ALL FITTINGS. RATE TO INCLUDE ALL NECESSARY FITTINGS & FIXTURES, LABOUR ETC.AS APPROVED & DIRECTED BY BHEL ENGINEER.	Nos.	4	14.9071	-	-
113	S20	PROVIDING AND FIXING OF **STAINLESS STEEL A ISI 304 (18/8) KITCHEN SINK AS PER IS: 13983** WITH C.I. BRACKETS AND STAINLESS STEEL PLUG 40 MM, ALL FITTINGS LIKE DRAIN PIPE, STOP VALVE ETC., CUTTING AND MAKING GOOD THE WALLS. RATE TO INCLUDE ALL NECESSARY FITTING & FIXTURE, LABOUR ETC. AS APPROVED & DIRECTED BY BHEL ENGINEER.	-	-	-	-
114	I	**KITCHEN SINK WITH DRAIN BOARD, SIZE: 510X1040 MM, BOWL DEPTH 250 MM**	Nos.	4	3.8714	-	-
115	S21	PPROVIDING AND FIXING **18 MM THICK GANG SAW CUT, MIRROR POLISHED, PREMOULDED AND PREPOLISHED**, **MACHINE CUT GRANITE KITCHEN PLATFORMS**, VANITY COUNTERS, WINDOW SILLS, FACIAS AND SIMILAR LOCATIONS OF REQUIRED SIZE, APPROVED SHADE, COLOUR AND TEXTURE LAID OVER 20 MM THICK BASE CEMENT MORTAR 1:4 (1 CEMENT : 4 COARSE SAND), JOINTS TREATED WITH WHITE CEMENT, MIXED WITH MATCHING PIGMENT, EPOXY TOUCH UPS, INCLUDING RUBBING, CURING, MOULDING AND POLISHING TO EDGES TO GIVE HIGH GLOSS FINISH ETC. COMPLETE AT ALL LEVELS.	SQM	24	2.9249	-	-
116	S22	PROVIDING & FIXING IN POSITION OF **CI VENT PIPE OF DIA. 100MM** (APPROX. HT. 3M) IN SEPTIC TANK. RATE TO INCLUDE ALL NECESSARY FITTING & FIXTURE, LABOUR ETC.	RM	34	1.0128	-	-
117	S23	BORING WITH 100 MM DIAMETER CASING PIPE FOR **BORE WELL, IN ALL SOILS** EXCEPT ORDINARY HARD ROCKS REQUIRING BLASTING, INCLUDING REMOVING THE CASING PIPE AFTER THE PUMP /TUBE WELL IS LOWERED AND TESTED :	-	-	-	-
118	I	UP TO 6 METRES DEPTH	RM	12	0.3294	-	-
119	II	BEYOND 6 M AND UP TO 12 M DEPTH	RM	12	0.3909	-	-
120	III	BEYOND 12 M AND UP TO 18 M DEPTH	RM	12	0.4548	-	-
121	IV	BEYOND 18 M AND UP TO 40 M DEPTH	RM	44	0.5457	-	-
122	V	BEYOND 40 M AND UP TO 60 M DEPTH	RM	40	0.6549	-	-
123	S24	PROVIDING AND PLACING IN POSITION **FILTERS OF 40 MM DIAMETER G.I. PIPE WITH BRASS STRAINER** OF APPROVED QUALITY.	RM	12	0.5682	-	-
124	S25	PROVIDING AND FIXING TO FILTER AND LOWERING TO PROPER LEVELS **40 MM G.I. PIPE FOR BORE WELL** INCLUDING CLEANING AND PRIMING THE PIPE.	RM	105	0.2566	-	-
125	**H**	**HORTICULTRE WORKS**		-	-	-	-
126	H1	GRASSING WITH **SELECTION NO. 1 GRASS INCLUDING WATERING AND MAINTENANCE** OF THE LAWN FOR 60 DAYS OR MORE TILL THE GRASS FORMS A THICK LAWN, FREE FROM WEEDS AND FIT FOR MOWING INCLUDING SUPPLYING GOOD EARTH, IF NEEDED ETC. ALL COMPLETE AS DIRECTED BY BHEL E (I/c)	-	-	-	-
127	I	IN ROWS 5 CM APART IN BOTH DIRECTIONS	SQM	120	0.0520	-	-
128	II	WITH GRASS TURF	SQM	120	0.0497	-	-
129	H2	PROVIDING AND **LAYING BRICK ON EDGE FLOORING WITH BRICKS OF CLASS DESIGNATION 7.5** ON A BED OF 12MM CEMENT MORTAR, INCLUDING FILLING THE JOINTS WITH SAME MORTAR WITH COMMON BURNT CLAY NON MODULAR BRICKS:	-	-	-	-
130	I	1:4 (1 CEMENT:4 COARSE SAND)	SQM	200	0.6350	-	-
131	**E**	**ELECTRIFICAL WORK**		-	-	-	-

BOQ CUM RATE SCHEDULE

PROJECT: 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

NAME OF WORK: CONSTRUCTION & DEVELOPMENT OF 01 NO. PRE-ENGINEERED OFFICE (APPROX. SIZE: 660 SQM), 01 NO. MESS BUILDING (APPROX. SIZE: 72 SQM), 08 NOS. CLOSED STORAGE SHEDS (APPROX. SIZE: 900 SQM) AND OPEN STORAGE YARD (APPROX. 80,000 SQM) INCLUDING CIVIL, SANITARY, INTERNAL & EXTERNAL ELECTRIFICATION WORK, FENCING ETC. AT 1X660 MW PANKI THERMAL POWER STATION, PANKI, KANPUR, U.P.

SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
132	E1	SUPPLY & INSTALLING **3 PHASE METERING AND POWER DISTRIBUTION BOARD COMPLETE WITH** : **(1) INCOMING SFU TPN 400 AMPS- 1NO,** **(2) OUTGOING SFU TPN 200 AMPS -2NOS.** **(3) OUTGOING SFU TPN 100 AMPS -2NOS.** **(4) OUTGOING SFU TPN 32 AMPS -2NOS**. 3 PHASE ELECTRONIC ENERGY METER - BHEL / L&T / GEC MAKE. AMMETER, VOLTMETER AND SELECTOR SWITCHES FOR BOTH - AE AND KAYCEE MAKE. PHASE INDICATION LAMPS, HRC FUSES FOR IC AND OG FEEDERS, CABLE GLANDS, POWER TERMINALS FOR CABLES TERMINATION, CABLE LUGS AND PROVISION FOR DOUBLY EARTHING THE PANEL ENCLOSURE. PANEL ENCLOSURE SHALL BE MADE OF SHEET METAL THICHNNESS NOT LESS THAN 1.6 MM AND SUITABLE FOR OUT DOOR INSTALLATION, MODULAR CONSTRUCTION, HINGED DOOR WITH LOCKING ARRANGEMENT, BASE FRAME, SHOULD HAVE SLOPPED CANOPY, DULY PAINTED WITH FIRST COAT OF PRIMER AND TWO COATS OF SYNTHETIC ENAMEL PAINT (INTERIOR WITH WHITE PAINT AND EXTERIOR WITH LIGHT GREY AS PER SHADE 5, IS 630) INTERNAL POWER DISTRIBUTION TO DEVICES SHALL BE WITH AL BUSBARS OR COPPER FLEXIBLE SINGLE CORE PVC CABLES OF 1.1 KV GRADE, CONTROL WIRING WITH 1.5 SQMM, SUITABLE STOOL MADE OUT OF MS STRUCTURE OF 1.2 METRE HIGH FOR MOUNTING OF PANEL WITH ANCHORING ARRAGEMENT AT FOUNDATION, SUITABLE FOR BOTTOM ENTRY OF CABLES INCLUDING PROVIDING SUITABLE FOUNDATION FOR MOUNTING AC DISTRIBUTION BOARD AS SPECIFIED INSTALLATION & COMMISSIONING OF PANEL. (EARTHWORK, CONCRETING, REINFORCEMENT WORKS ETC. FOR FOUNDATION SHALL BE PAID EXTRA IN THE RELEVANT CIVIL ITEMS)	Nos.	1	92.5556	-	-
134	E2	SUPPLY OF **415 VOLT AC , 3 PHASE /FOUR WIRE POWER FEEDER PILLAR BOARD** , BOARD SHALL BE COMPRISES OF THREE NUMBER AND ONE NUMBER ALUMINIUM BUS BAR FOR PHASE & NEUTRAL RESPECTIVELY. BUS BAR RATING SHALL BE 200 AMPS AND SHALL BE MOUNTED ON EPOXY INSULATOR OF 1.1 KV GRADE, EACH BUS BAR SHALL HAVE DRILLED HOLE FOR CONNECTING INCOMING / OUT GOING CABLES, PROVISION FOR EARTHING THE PANEL ENCLOSURE. PANEL ENCLOSURE SHALL BE MADE OF SHEET METAL THICHNNESS NOT LESS THAN 1.6 MM AND SUITABLE FOR OUT DOOR INSTALLATION, HINGED DOOR WITH LOCKING ARRAGEMENT , BASE FRAME , SHOULD HAVE SLOPPED CANOPY, DULY PAINTED WITH FIRST COAT WITH PRIMER AND TWO COATS OF SYNTHETIC ENAMEL PAINT (INTERIOR WITH WHITE PAINT AND EXTERIOR WITH SMOKE GREY AS PER IS), SUITABLE STOOL MADE OUT OF MS STRUCTURE OF 1.2 METER HIGH FOR MOUNTING OF PANEL WITH ANCHORING ARRAGEMENT AT FOUNDATION INCLUDING PROVIDING SUITABLE FOUNDATION FOR MOUNTING 415 VOLT AC POWER FEEDER PILLAR BOARD, INSTALLATION & COMMISSIONING OF PANEL. (EARTHWORK, CONCRETING, REINFORCEMENT WORKS ETC. FOR FOUNDATION SHALL BE PAID EXTRA IN THE RELEVANT CIVIL ITEMS)	Nos.	3	16.6292	-	-
136	E3	SUPPLYING & INSTALLING **POWER DISTRIBUTION BOARD** COMPLETE WITH: **1) INCOMING MCB TPH 100 AMPS. - 1 NO.** **2) OUTGOING MCB TPH 32 AMPS. -3NOS.** **3) RCCB DP 25/20 AMPS. - 2NOS.** **4) OUTGOING MCB SP 6 AMPS - 6NOS.** All RCCBs, MCBs SHALL BE MDS/INDO KOPP MAKE. DISTRIBUTION BOARDS SHALL BE SIEMENS / MDS / INDO KOPP MAKE WITH INTERNAL BUSBARS, INTERNAL WIRING, 2 NOS. EARTHING TERMINALS, EARTH CONNECTIONS, INCLUDING GLANDS, LUGS, PROVIDING SUITABLE FOUNDATION FOR MOUNTING 415 VOLT AC POWER DISTRIBUTION BOARD AS SPECIFIED ABOVE, INSTALLATION & COMMISSIONING OF PANEL. (EARTHWORK, CONCRETING, REINFORCEMENT WORKS ETC. FOR FOUNDATION SHALL BE PAID EXTRA IN THE RELEVANT CIVIL ITEMS)	SET	4	33.2102	-	-
138	E5	SUPPLYING & FIXING **WALL MOUNTING TYPE LIGHTING PANELS**, EACH WITH : . **(1) INCOMING MCB TPN -32 AMPS - 1NO.** **(2) RCCB DP 32 AMPS - 2NOS** **(3) MCB SP 6 AMPS - 30 NOS.** All RCCBs, MCBs SHALL BE MDS/INDO KOPP MAKE. LIGHTING PANEL SHALL BE SIEMENS/MDS/INDO KOPP MAKE WITH INTERNAL BUSBARS, 2 NOS. EARTHING TERMINALS, EARTH CONNECTIONS, INCLUDING GLANDS, LUGS & WIRING FROM MAIN DB	SET	10	18.7179	-	-
139	E6	WIRING FOR **CIRCUIT/ SUBMAIN WIRING ALONGWITH EARTH WIRE** WITH THE FOLLOWING SIZES OF FRLS PVC INSULATED COPPER CONDUCTOR, SINGLE CORE CABLE IN SURFACE/ RECESSED MEDIUM CLASS PVC CONDUIT AS REQUIRED.		-	-	-	-
140	I	**2 X 2.5 SQ. MM + 1 X 2.5 SQ. MM EARTH WIRE THROUGH PVC CONDUIT** OF REQUIRED SIZE WITH ACCESSORIES AND FIXTURES .WIRING SHALL BE CONCEALED TYPE FOR COMPUTER ROOM, OFFICE SHED & FOR REST OF SHEDS OPEN AND WHRERVER REQUIRED IN PVC CONDUIT OF REQUIRED SIZE.	RM	176	0.1287	-	-
141	II	**2 X 4 SQ. MM + 1 X 4 SQ. MM EARTH WIRE THROUGH PVC CONDUIT** OF REQUIRED SIZE WITH ACCESSORIES AND FIXTURES. WIRING SHALL BE CONCEALED TYPE FOR COMPUTER ROOM, OFFICE SHED & FOR REST OF SHEDS OPEN AND WHRERVER REQUIRED IN PVC CONDUIT OF REQUIRED SIZE.	RM	1,033	0.1578	-	-
142	III	**2 X 6 SQ. MM + 1 X 6 SQ. MM EARTH WIRE** USING CONCEALED TYPE WIRING/PVC CONDUIT OF REQUIRED SIZE.	RM	517	0.2133	-	-
143	IV	**2 X 16 SQ. MM + 1 X 16 SQ. MM EARTH WIRE** USING CONCEALED TYPE WIRING/PVC CONDUIT OF REQUIRED SIZE.	RM	490	0.3833	-	-
144	E7	WIRING FOR **LIGHT POINT/ FAN POINT/ EXHAUST FAN POINT/ CALL BELL POINT WITH 1.5 SQ.MM FRLS PVC INSULATED COPPER CONDUCTOR** SINGLE CORE CABLE IN SURFACE / RECESSED MEDIUM CLASS PVC CONDUIT, WITH MODULAR SWITCH, MODULAR PLATE, SUITABLE GI BOX AND EARTHING THE POINT WITH 1.5 SQ.MM FRLS PVC INSULATED COPPER CONDUCTOR SINGLE CORE CABLE ETC. AS REQUIRED.	PER POINT	581	0.5148	-	-

BOQ CUM RATE SCHEDULE

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SL.NO	ITEM CODE NO.	DESCRIPTION OF WORK	UNIT	TOTAL QTY.	Factor (F)	RATE (Rs.) = FACTOR (F) * A / 100000 (Rounded off to two place after decimal)	AMOUNT (Rs.) = RATE *QUANTITY
145	E8	SUPPLYING AND FIXING SUITABLE SIZE **GI BOX WITH MODULAR PLATE AND COVER** IN FRONT ON SURFACE OR IN RECESS, INCLUDING PROVIDING AND FIXING **3 PIN 5/6 A MODULAR SOCKET OUTLET AND 5/6 A MODULAR SWITCH**, OF REPUTED MAKE LIKE PHILIPS/BAJAJ SYSKA / WIPRO / CROMPTON GREAVES OR EQUIVALENT OR EQUIVALENT AS APPROVED BY BHEL, INCLUDING CONNECTIONS ETC. AS REQUIRED.	Nos.	214	0.2941	-	-
146	E9	SUPPLYING AND FIXING SUITABLE SIZE **GI BOX WITH MODULAR PLATE AND COVER** IN FRONT ON SURFACE OR IN RECESS, INCLUDING PROVIDING AND FIXING **6 PIN 5/6 A & 15/16 A MODULAR SOCKET OUTLET AND 15/16 A MODULAR SWITCH** OF REPUTED MAKE LIKE PHILIPS/BAJAJ SYSKA / WIPRO / CROMPTON GREAVES OR EQUIVALENT OR EQUIVALENT AS APPROVED BY BHEL, INCLUDING CONNECTIONS ETC. AS REQUIRED.	Nos.	78	0.3814	-	-
147	E10	PROVIDING AND FIXING **LED TUBELIGHT (22W) WITH FRAME** OF REPUTED MAKE LIKE PHILIPS / BAJAJ / SYSKA / WIPRO / CROMPTON GREAVES OR EQUIVALENT AS APPROVED BY BHEL. THIS INCLUDES TUBE LIGHT FITTINGS ETC. COMPLETE.	Nos.	240	0.4096	-	-
148	E11	PROVIDING AND FIXING **MODULAR REFLECTIVE LED LIGHT FIXTURE OF ALUMMINUM FRAME** ALONG WITH **03 NOS. LED LIGHT (22W)** OF REPUTED MAKE LIKE PHILIPS/BAJAJ SYSKA / WIPRO / CROMPTON GREAVES OR EQUIVALENT OR EQUIVALENT AS APPROVED BY BHEL. THIS INCLUDES LIGHT FITTINGS ETC. COMPLETE.	Nos.	60	1.6384	-	-
149	E12	PROVIDING AND FIXING **WALL MOUNTED FAN 12" DIAMETER** OF REPUTED MAKE SUCH AS CROMTAN GREAVES / HAVELS / CROMPTON OR EQUIVALENT AS DIRECTED BY BHEL. THIS INCLUDES TUBE LIGHT FITTINGS ETC. COMPLETE.	Nos.	60	2.2157	-	-
150	E13	PROVIDING AND FIXING **EXHAUST FANS 12" DIAMETER** WITH FRAME OF STANDARD MANUFACTURER LIKE CROMPTON GREAVES OR EQUIVALENT AS APPROVED BY BHEL.	Nos.	17	1.7765	-	-
151	E14	PROVIDING AND FIXING **CALLING BELLS (WITH INDICATOR LIGHT)**	Nos.	15	0.0573	-	-
152	E15	PROVIDING & FIXING **ALUMINIUM DISPERSIVE LUMINAIRE ENAMELED GREEN AND WHITE** WITH CAST ALUMINIUM FLANGE AND NIPPLE SUITABLE FOR USE WITH GLS LAMP, DOME 12" DIAMETER, WITH HANGING BRACKET AND 200W GLS LAMP OF CROMPTON/ BAJAJ/ PHILIPS OR EQUIVALENT APPROVED MAKE, COMPLETE.	Nos.	280	1.1752	-	-
153	E16	WIRING WITH **2.5 SQ MM ISI MARK COPPER WIRE** FOR ABOVE IN PVC CONDUIT ALONG WITH GI EARTH WIRE INCLUSIVE OF ALL MATERIAL, LABOUR ETC. COMPLETE	PER POINT	296	0.8208	-	-
154	E17	SUPPLYING, INSTALLATION & COMMISSIONING OF **SODIUM VAPOUR LAMP STREET LIGHT FITTING 150 WATT SSG-2315 IH** OF CROMPTON / PHILLIPS OR EQUIVALENT APPROVED MAKE, COMPLETE WITH ONE PIECE CANOPY, INTEGRAL CONTROL GEAR COMPRISING OF **COPPER WOUND CHOKE , IGNITOR , HPF CAPACITOR, HPSV LAMP** AND SUITABLE FOR DIRECTLY SLIPPING OVER LIGHT MOUNTING BRACKET MADE OUT OF 40 MM OD PIPE AND SUITABLE FOR LAMPS, CONTROL GEAR BOX CABLING & TERMINATION OF ITEMS SUPPLIED (TO BE MOUNTED ON 9 MTR POLE - ITEM NO. E 21).	Nos.	101	4.5040	-	-
155	E18	SUPPLY, INSTALLATION AND COMMISSIONING OF **WEATHER PROOF FLOOD LIGHT LUMINIARIES OF CROMPTON MAKE** (FBD 1425/40-WITH HIGH PRESSURE SODIUM VAPOUR LAMP 1X 400 WATT ALONG WITH NON- INTEGRAL TYPE CONTROL GEAR BOX HAVING ADEQUATE NUMBER OF TERMINAL CONNECTORS FOR TERMINATING TWO CABLE OF 3X 10 SQMM AL AND SUITABLE FOR OUT DOOR APPLICATION) OR EQUIVALENT IN BAJAJ, PHILLIPS ONLY , INCLUDING SUPPLY & FIXING CABLES BETWEEN THE CONTROL GEAR BOX AND LIGHT LUMINIARIES AND MOUNTING FIXTURE WITH HARDWARE FOR MOUNTING OF LIGHT LUMINIARIES AND CONTROL GEAR BOX ON POLE TYPE 410 SP-28.	Nos.	21	4.9468	-	-
156	E19	SUPPLY AND ERECTING **STEEL TUBULAR SWAGED POLES, 9 MTR LONG** MADE OF SHEET STEEL HAVING ULTIMATE TENSILE STRENGTH 42 KG F/SQ.MM CONFIRMING TO BIS:2713 (RPART-II) COMPLETE WITH 300X300X6 MM THICK M. S. BASE PLATE FOR WELDING AT SITE AND SIZE AS PER CONFIGURATION GIVEN IN BIS FOR 410 SP-28 (113 KG- POLE WEIGHT) WITH **1.5 MTR. DEEP EXACAVATION, CONCRETING IN 1:4:8 RATIO SIZE 45 CMS X 45 CMS X 150 CMS** AND POLE PLINTH IN 1:3:6 CEMENT CONCRETING HAVING 300 MM HEIGHT AND 300 MM DIA .INCLUDING DOUBLE EARTHING OF POLE WITH SUITABLE ARRANGEMENT, DULY PAINTED WITH TWO COATS OF RED OXIDE PAINT AND ONE COAT OF ALUMINIUM PAINT TO BE APPLIED AFTER ERECTION; THE LENGTH OF POLE BELOW GROUND TO BE PAINTED WITH TWO COATS OF BLACK BITUMINUS PAINT. THE POLE SHALL BE COMPLETE WITH JB, FUSE AND MINOR FABRICATION AS BELOW : I) DRILING 20 MM DIA HOLE AT ABOUT 2.5 MTR FROM GROUND LEVEL FOR WIRE LEADS FROM JUNCTION BOX TO LIGHT FIXTURE . II) DRILING 15MM DIA HOLES AT ABOUT 0.7 AND AT 2.5 MTR FROOM GROUND LEVEL AND WELDING 12 MM NUTS FOR USING A 12 MM G.I BOLT FOR FASTENING EARTH CONDUCTERS. III) WELDING REQUIRED HOLES FOR FIXING POLE CAP OF STREET LIGHT BRACKET. IV) WELDING DIAMETRALLY 10 MM M.S. ROUND 30 MM BELOW POLE TOP EDGE FOR CLIPPING WIRE LEADS .	Nos.	106	9.3847	-	-
157	E20	PROVIDING **EARTHING PITS WITH 40 MM DIA , 4.5 M LONG GI EARTH PIPES** WITH FLANGE & GI WIRES WITH CHARCOAL, SALT AND AS PER THE STANDARD PRACTICE FOR ELECTRICAL CONNECTION. RATE SHALL BE INCLUSIVE OF ALL MATERIALS, LABOURS, ETC COMPLETE.	Nos.	13	3.4497	-	-
158	E21	SUPPLY OF **CABLES 3 -1/2 CORE X 185 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** (THREE AND HALF CORE) CONFIRMING TO IS 1554 (PART -I)	RM	800	0.5795	-	-
159	E22	INSTALLATION OF **CABLES 3 -1/2 COREX 185 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** CONFIRMING TO IS 1554 (PART -I) INCLUDING LAYING OF CABLE BELOW GROUND , EXCAVATION OF TRENCH OF 600 MM DEPTH IN ALL KIND OF SOIL, TERMINATION OF CABLES CORES WITH CRIMP TYPE LUGS, PROVIDING SAND LAYER BELOW& ABOVE THE CABLE, BRICK LAYING BOTH SIDE & ABOVE THE CABLE AND BACK FILLING ETC. CABLES ARE TO BE LAID FROM TRANSFORMER SUB STATION TO 415 VOLT AC DISTRIBUTION BOARD.	RM	800	0.2186	-	-

BOQ CUM RATE SCHEDULE

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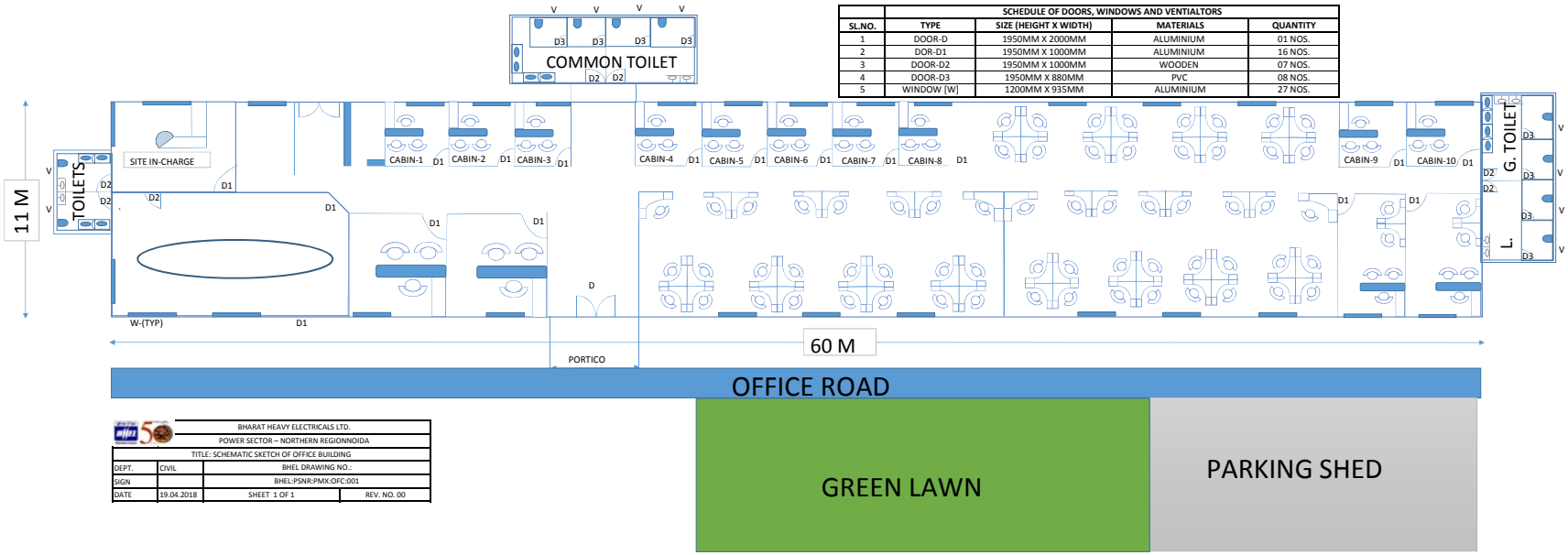
160	E23	SUPPLY OF **CABLES 3 -1/2 CORE X 95 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** (THREE AND HALF CORE) CONFIRMING TO IS 1554 (PART -I) THE MAKE OF THE CABLE SHALL BE ONLY FROM KEI / POLY CAP/ HAVELLS/ FINOLEX/L&T/STANDARD.	RM	2,340	0.4090	-	-
161	E24	INSTALLATION OF **CABLES 3 -1/2 CORE X 95 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** CONFIRMING TO IS 1554 (PART -I) INCLUDING LAYING OF CABLE BELOW GROUND, EXCAVATION OF TRENCH OF 600 MM DEPTH IN ALL KIND OF SOIL, TERMINATION OF CABLES CORES WITH CRIMP TYPE LUGGS, PROVIDING SAND LAYER BELOW/ ABOVE THE CABLE, BRICK LAYING BOTH SIDE /ABOVE THE ABOVE THE CABLE AND BACK FILLING ETC COMPLETE. CABLES ARE TO BE LAID FROM 415 VOLT AC DISTRIBUTION BOARD TO FEEDER PILLAR BOARD.	RM	2,340	0.2010	-	-
162	E25	SUPPLY OF **CABLES 3 -1/2 COREX 35 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** (THREE AND HALF CORE) CONFIRMING TO IS 1554 (PART -I) THE MAKE OF THE CABLE SHALL BE ONLY FROM KEI / POLY CAP/ HAVELLS/ FINOLEX/L&T/STANDARD.	RM	1,640	0.1523	-	-
163	E26	INSTALLATION OF **CABLES 3 -1/2 COREX 35 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** CONFIRMING TO IS 1554 (PART -I) INCLUDING LAYING OF CABLE BELOW GROUND , EXCAVATION OF TRENCH OF 600 MM DEPTH IN ALL KIND OF SOIL, TERMINATION OF CABLES CORES WITH CRIMP TYPE LUGGS, PROVIDING SAND LAYER BELOW/ ABOVE THE CABLE, BRICK LAYING BOTH SIDE /ABOVE THE ABOVE THE CABLE AND BACK FILLING ETC. CABLES ARE TO BE LAID FROM FEEDER PILLAR BOARD TO LIGHTING PANEL.	RM	1,640	0.1935	-	-
164	E27	SUPPLY OF **CABLES 2 CORE X 10 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** CONFIRMING TO IS 1554 (PART -I)	RM	8,400	0.0771	-	-
165	E28	INSTALLATION OF **CABLES 2 CORE X 10 SQMM ALUMINIUM ARMOURED PVC INSULATED CABLE** CONFIRMING TO IS 1554 (PART -I) INCLUDING LAYING OF CABLE BELOW GROUND, EXCAVATION OF TRENCH OF 600 MM DEPTH (MINIMUM) IN ALL KIND OF SOIL, TERMINATION OF CABLES CORES WITH CRIMP TYPE LUGGS, PROVIDING SAND LAYER BELOW & ABOVE THE CABLE, BRICK LAYING BOTH SIDE & ABOVE THE CABLE AND BACK FILLING ETC COMPLETE.	RM	8,400	0.1935	-	-
166	E29	SUPPLY AND INSTALLATION **SUITABLE ELECTRICAL PUMP FOR MINIMUM HEAD OF 10M (BUT NOT LESS THAN 2 H.P.)** OF REPUTED MANUFACTURER LIKE SUGUNA/ CRI/ KILOSKAR/ SHAKTI/SHARP/ CROMPTON GREAVES INCLUDING ALL ACCESSORIES, STARTER, D.B., ETC. AND TO BE CONNECTED TO OVER HEAD TANK FROM WATER STORAGE TANK BELOW G.L. / BORE WELL. GURRANTY/WARRANTY CARD TO BE SUBMMITTED TO BHEL. SUCTION, DISCHARGE GI PIPES SHALL BE PAID SEPERATLY UNDER RELEVANT ITEMS.	Nos.	4	13.9716	-	-
167	**N**	**NETWORKING AND LAN CABLING WORK: SUPPLY OF NETWORKING WORKS REQUIRED FOR MODULAR OFFICE ALL COMPLETE AS PER SPECIFICATION & APPROVED DRAWING**		-	-	-	-
168	N1	SUPPLYING AND DRAWING FOLLOWING **PAIR 0.5 MM DIA 2 PAIR FRLS PVC INSULATED ANNEALED COPPER CONDUCTOR**, UNARMORED TELEPHONE CABLE IN THE EXISTING SURFACE/ RECESSED STEEL/ PVC CONDUIT AS REQUIRED.	RM	720	0.0178	-	-
169	N2	SUPPLYING AND FIXING **MODULAR TELEPHONE SOCKET OUTLET ON THE EXISTING MODULAR PLATE & SWITCH BOX** INCLUDING CONNECTIONS BUT EXCLUDING MODULAR PLATE ETC. AS REQUIRED.	NOS.	80	0.0902	-	-
170	N3	SUPPLYING AND DRAWING OF **UTP 4 PAIR CAT 6 LAN CABLE (SINGLE RUN)** OF APPROVED MAKE IN THE EXISTING SURFACE/ RECESSED STEEL/ PVC CONDUIT AS REQUIRED.	RM	720	0.0321	-	-
171	N4	SUPPLYING AND FIXING OF **20 MM DIA MEDIUM CLASS PVC CONDUIT ALONG WITH ACCESSORIES** IN SURFACE/RECESS INCLUDING CUTTING THE WALL AND MAKING GOOD THE SAME IN CASE OF RECESSED CONDUIT AS REQUIRED.	RM	720	0.0536	-	-
172	**G**	**PROVIDING AND INSTALLAING AIR CONDITIONERS OF LG/ SAMSUNG/ GODREJ/ VOLTAS/ WHIRLPOOL OR EQUIVALENT APPROVED MAKE WITH VOLTAGE STABLIZER OF FOLLOWING TYPES**		-	-	-	-
173	I	SPLIT TYPE- 2 T	Nos.	3	29.3795	-	-
174	II	SPLIT TYPE- 1,5 T	Nos.	32	21.1940	-	-
		TOTAL AMOUNT (Rs.) 'A'					**-**

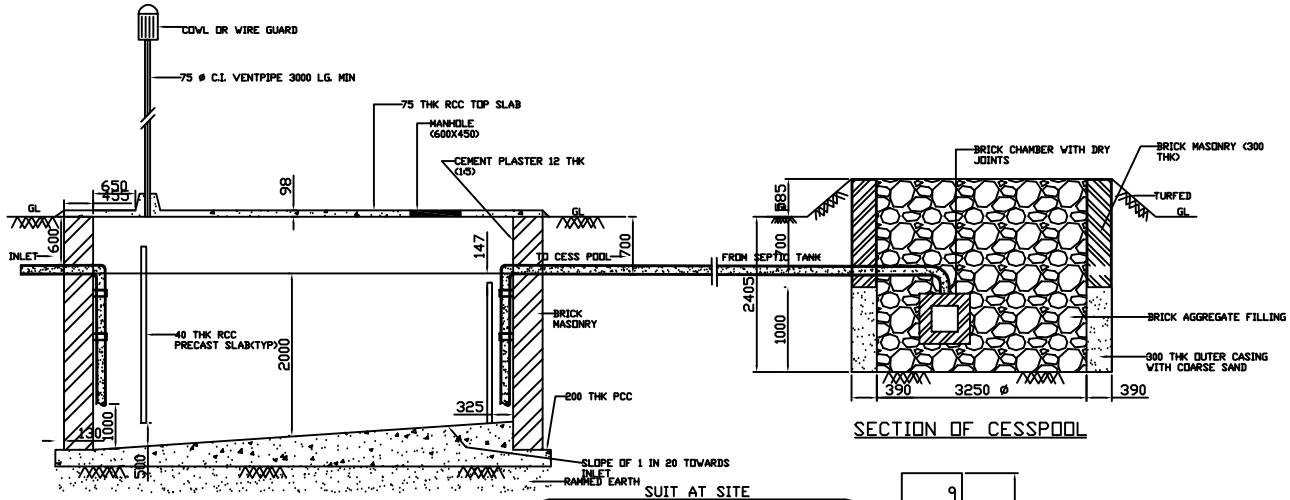
NOTES:

1	Bidder's quoted price above shall be complete in all respect for the full scope defined in specification and in accordance with all terms & conditions of tender.
2	Contractor shall fully understand description and Specifications of items mentioned in BOQ.
3	Conditional price bids with any deviation / clarification etc. are liable to be rejected. No cutting / erasing / over writing shall be done.
4	Quantities mentioned in rate schedules are approximate only and liable for variation on either side depending upon site / design requirement. The tentative contract value (CV) of entire scope of work shall be calculated as per finally quoted / accepted rates & the Quantities indicated in BOQ cum Rate Schedule .
5	Contractor's total quoted price as per rate schedule will be taken as tentative only. The contractor undertakes to execute actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually executed at site and payments will also be regulated for the same.
6	In case of any mis-match in rate and amount on price discrepency, the same will be dealt as per clause no. 1.4 of GCC.
7	Taxes (GST) shall be payable extra as per relevant clauses in Technical Conditions of Contract.



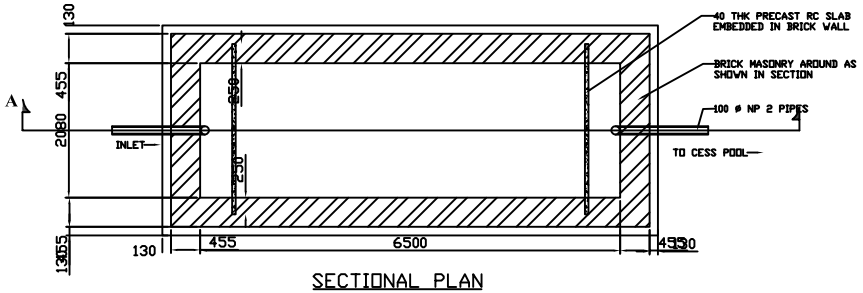
	SCHEDULE OF DOORS, WINDOWS AND VENTIALTORS			
SL.NO.	TYPE	SIZE (HEIGHT X WIDTH)	MATERIALS	QUANTITY
1	DOOR-D	1950MM X 2000MM	ALUMINIUM	01 NOS.
2	DOR-D1	1950MM X 1000MM	ALUMINIUM	16 NOS.
3	DOOR-D2	1950MM X 1000MM	WOODEN	07 NOS.
4	DOOR-D3	1950MM X 880MM	PVC	08 NOS.
5	WINDOW [W]	1200MM X 935MM	ALUMINIUM	27 NOS.

BHARAT HEAVY ELECTRICALS LTD.			
POWER SECTOR – NORTHERN REGIONNOIDA			
TITLE: SCHEMATIC SKETCH OF OFFICE BUILDING			
DEPT.	CIVIL	BHEL DRAWING NO.:	
SIGN		BHEL:PSNR:PMX:OFC:001	
DATE	19.04.2018	SHEET 1 OF 1	REV. NO. 00

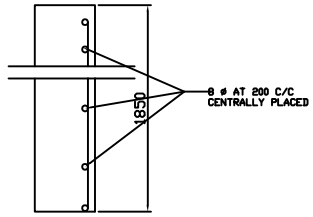


SECTION ON 'AA'

SECTION OF CESSPOOL

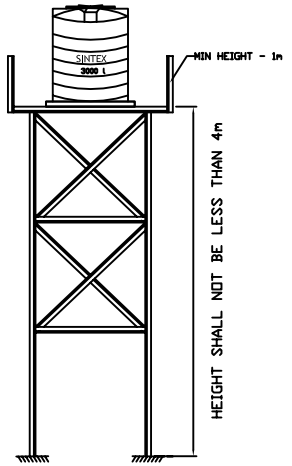


SECTIONAL PLAN



DETAILS OF PRECAST RCC SLAB

SCALE - NTC



WATER TANK - ELEVATION

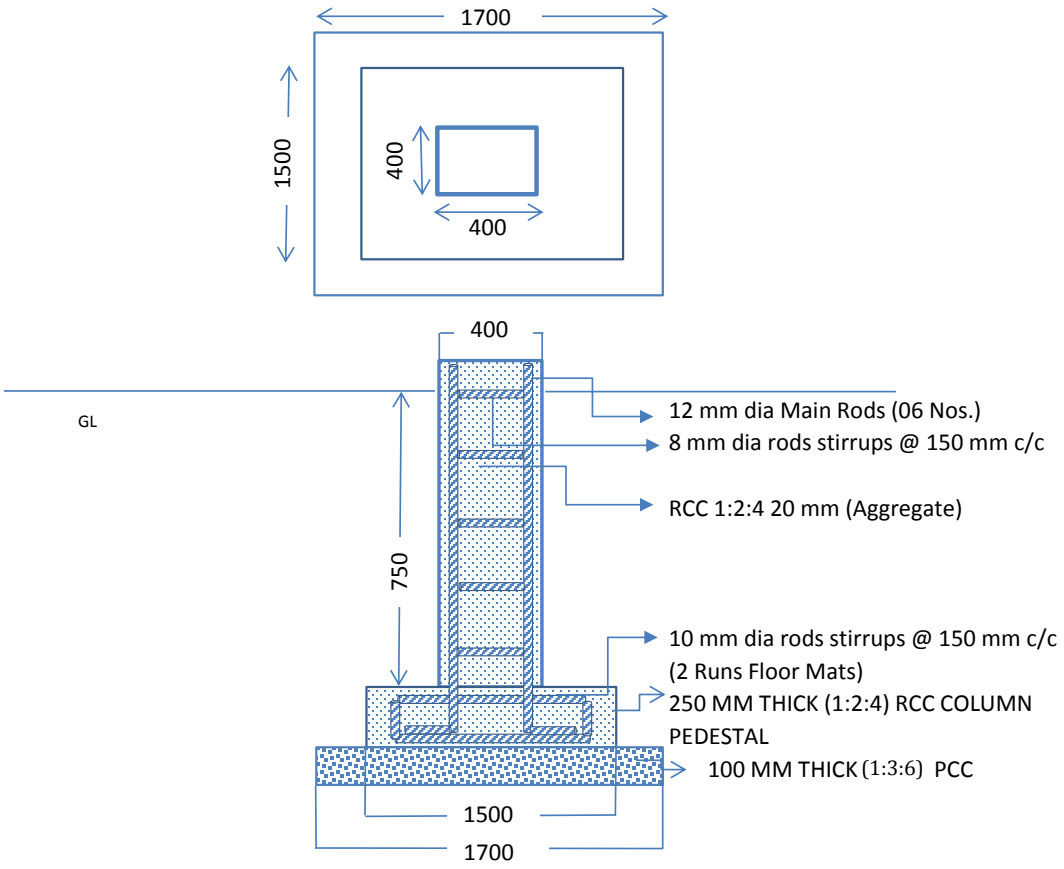
NOTE:

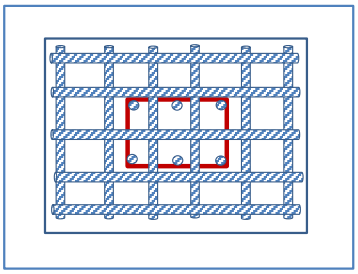
1. All Dimension are in MM.
2. Grade of Concrete is M15
3. All reinforcements are CTD bars
   conforming to IS-1786
5. Use 1:5 Mortar for masonry works.
6. The inside of Septic tank shall have cement plaster 1:3 with approved water proof agent.

BHARAT HEAVY ELECTRICALS LTD
POWER SECTOR NORTHERN REGION
PSNR

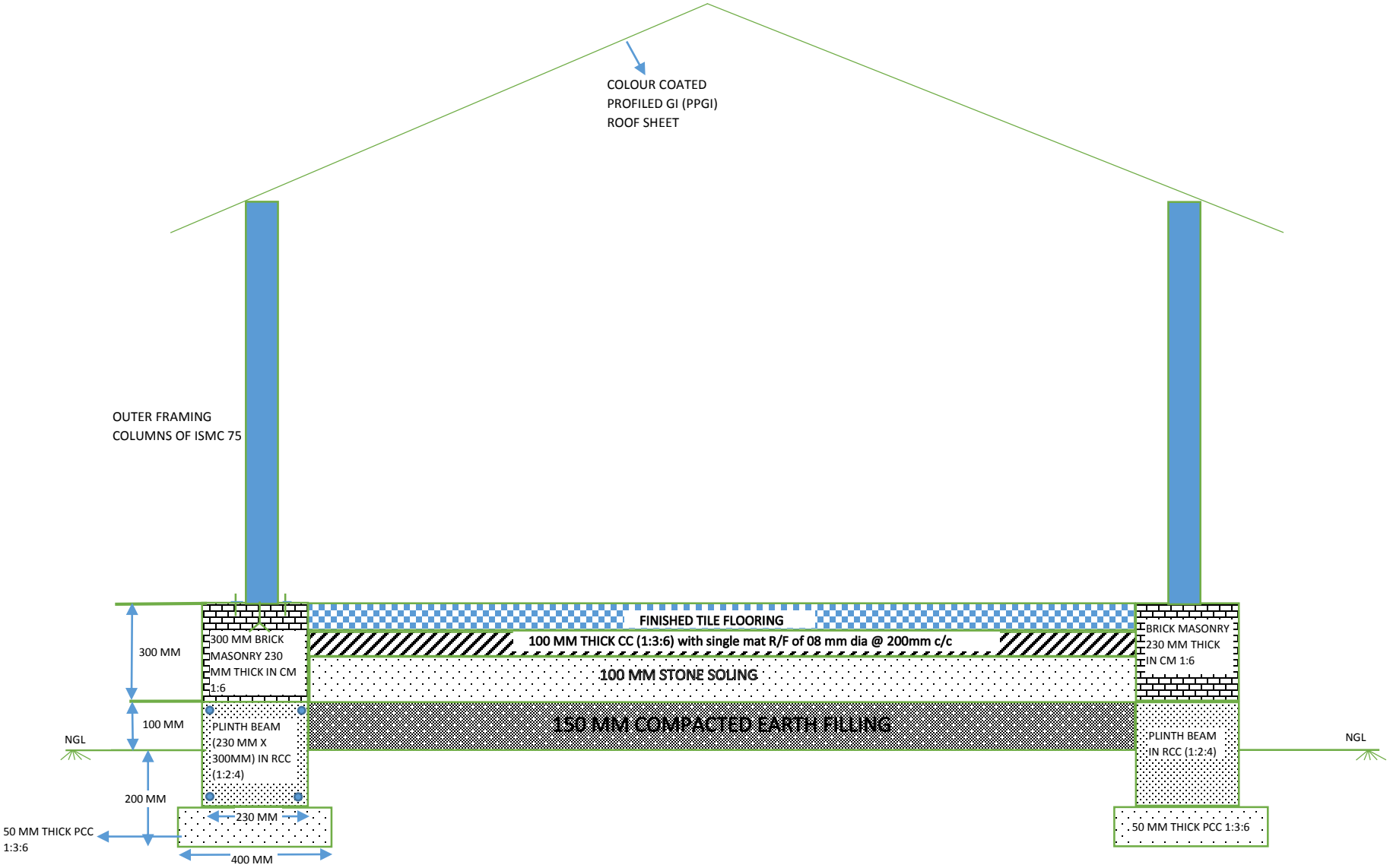
TITLE :
SEPTIC TANK AND WATER TANK STRUCTURE
(DETAILS FOR 50 USERS)

DEPT.	CIVIL	STRUCTURAL	BHEL DRAWING NO.
SIGN			BHEL:PSNR:PMX:OFC:003
DATE	15.02.2018		SHEET 1 OF 1 REV. 00

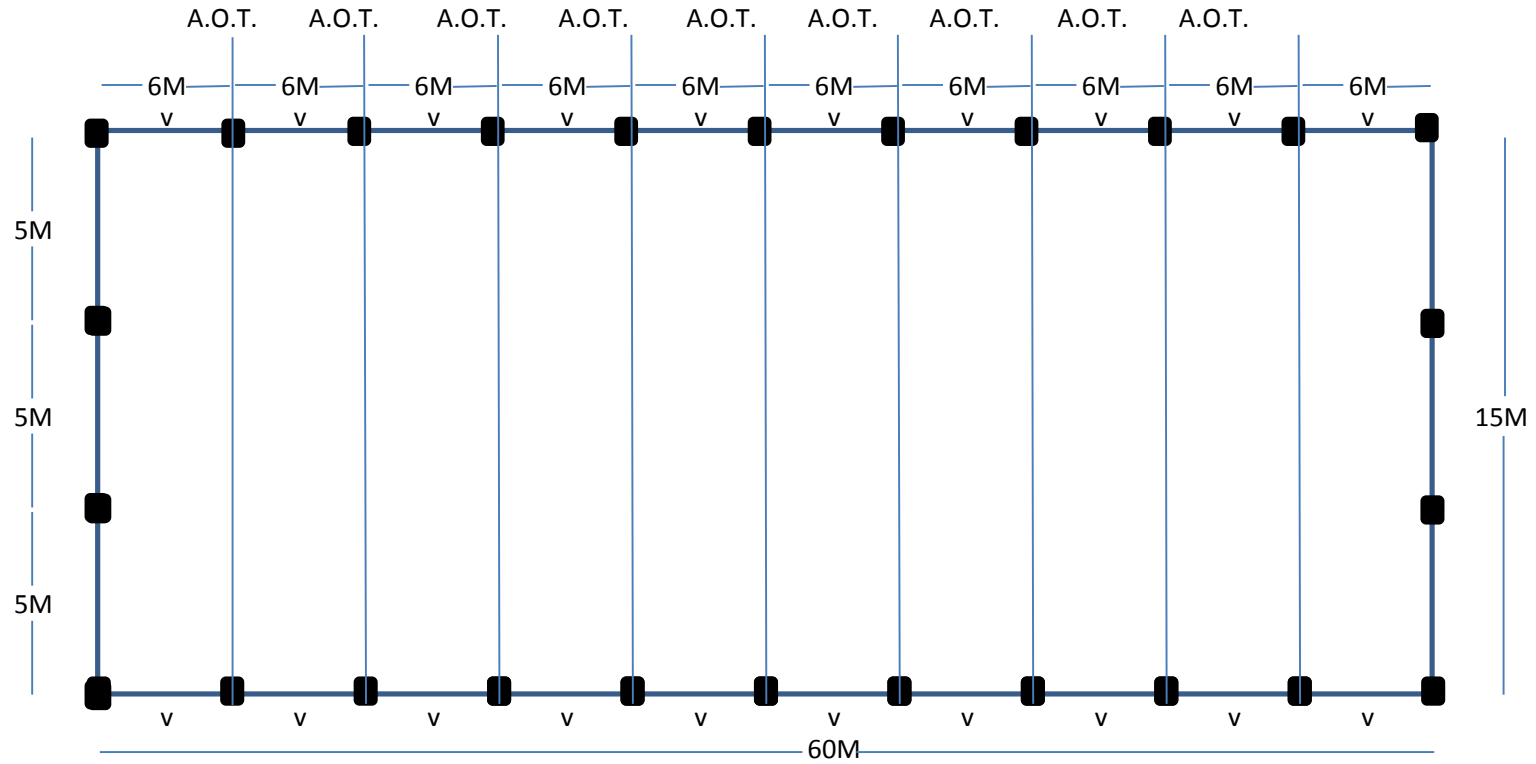




BHARAT HEAVY ELECTRICALS LTD. POWER SECTOR – NORTHERN REGION NOIDA			
TITLE: FOOTING CROOS SECTIONAL VIEW			
DEPT.	CIVIL	BHEL DRAWING NO.:	
SIGN		BHEL:PSNR:PMX:OFC:004	
DATE	15.02.2018	SHEET 1 OF 1	REV. NO. 00



BHARAT HEAVY ELECTRICALS LTD. POWER SECTOR – NORTHERN REGIONNOIDA			
TITLE:	FLOORING DETAILS FOR OFFICE		
DEPT.	CIVIL	BHEL DRAWING NO.: BHEL:PSNR:PMX:OFC:005	
SIGN			
DATE	15.02.2018	SHEET 1 OF 1	REV. NO. 00



■	COLUMN ISMB- 250 /200
v	STEEL LOUVERED VENTILATIORS OF SIZE 600 MM X 450 MM
A.O.T.	AXIS OF TRUSS
*	TOTAL NO. OF COMPLETE TRUSS- 11 NOS.

DRG. NO. BHE/PW/CS/01

PLAN AT PLINTH LEVEL FOR CLOSED STAORAGE SHED (15M X 60M)

Note:

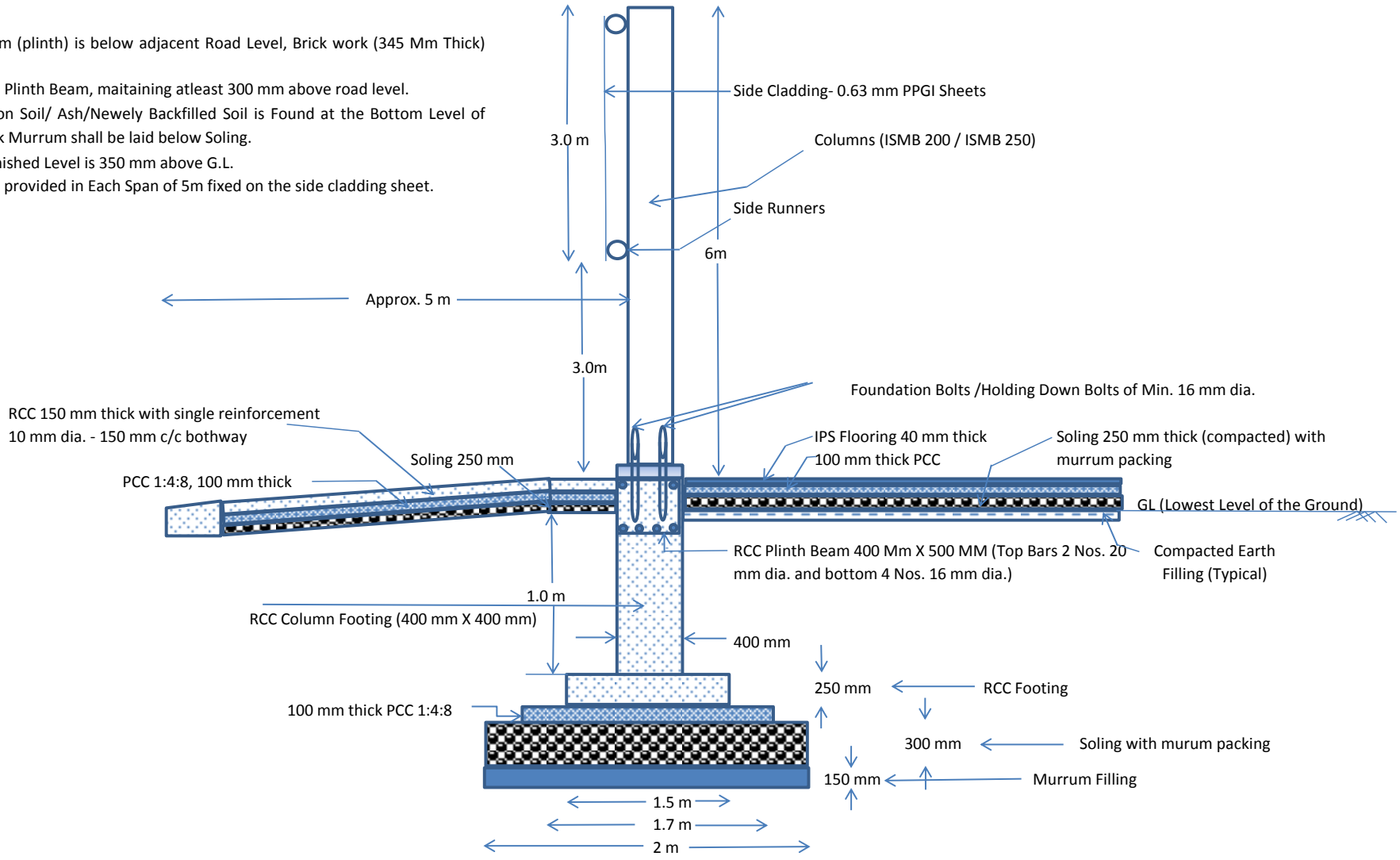
1. In case Top of Beam (plinth) is below adjacent Road Level, Brick work (345 Mm Thick)

should be raise above Plinth Beam, maitaining atleast 300 mm above road level.

2) In case Black Cotton Soil/ Ash/Newely Backfilled Soil is Found at the Bottom Level of Soling, a 150 mm thick Murrum shall be laid below Soling.

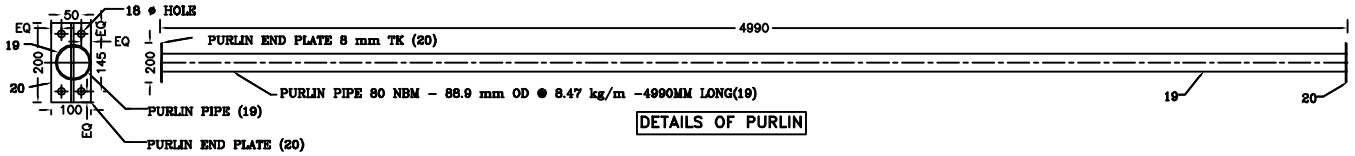
3) In General Floor Finished Level is 350 mm above G.L.

4) Ventilators shall be provided in Each Span of 5m fixed on the side cladding sheet.

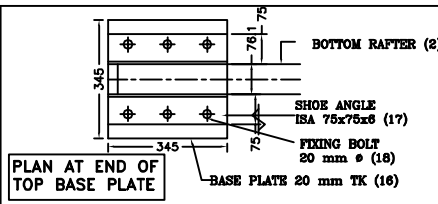


DRG. NO.: BHE/PW/CS-02

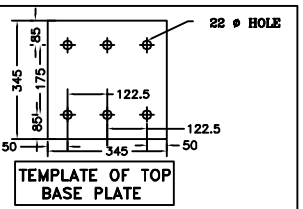
SECTIONAL DETAILS OF RCC FOOTING & ISMB COLUMNS FOR CLOSED STORAGE SHED



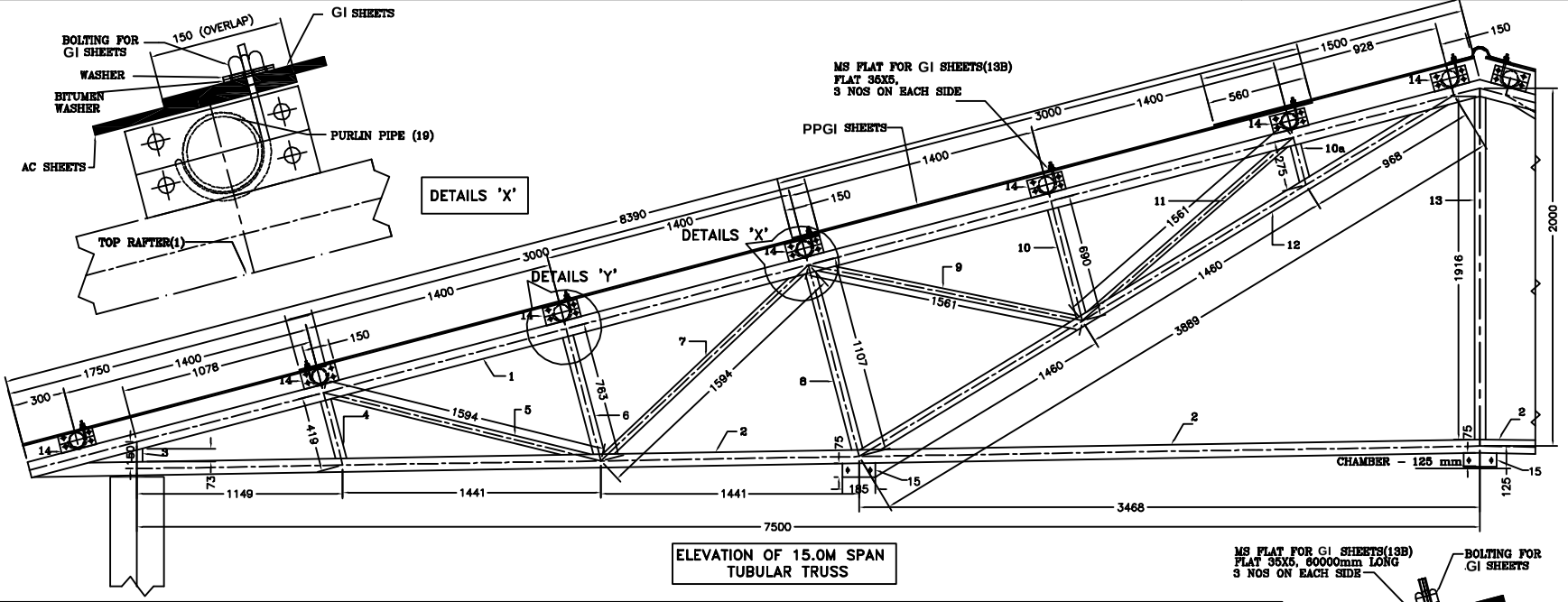
DETAILS OF PURLIN



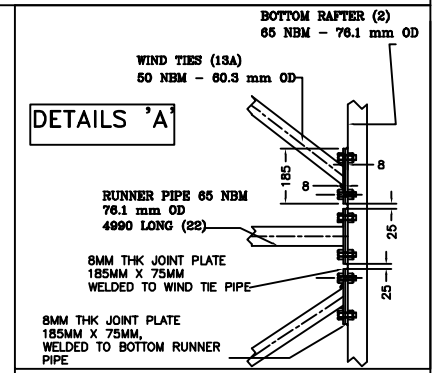
PLAN AT END OF TOP BASE PLATE

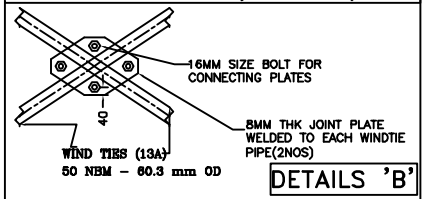


TEMPLATE OF TOP BASE PLATE



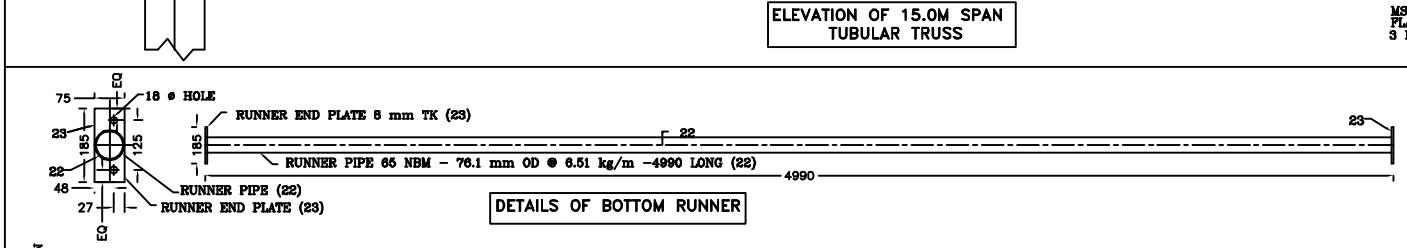
ELEVATION OF 15.0M SPAN TUBULAR TRUSS



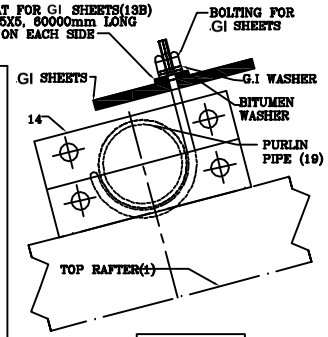


DETAILS 'B'

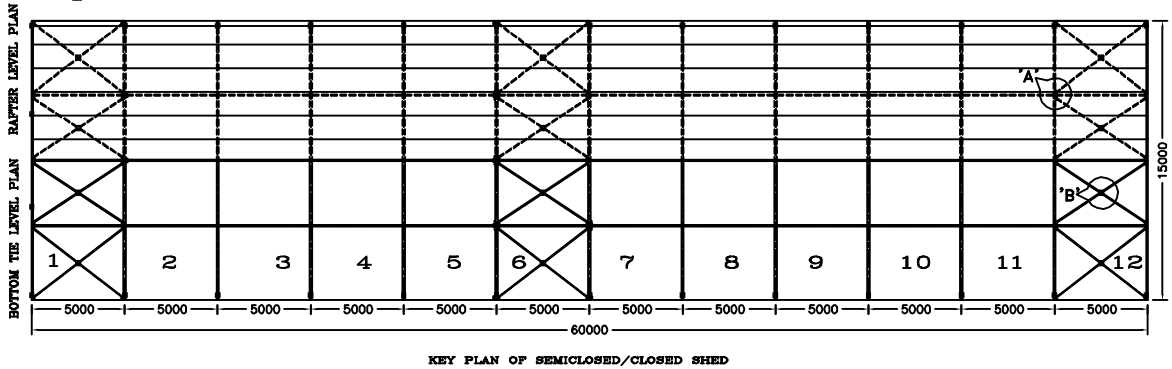
Sr. No.	DESCRIPTION	SPECIFICATIONS	LENGTH/SIZE	QUANTITY
1	TOP RAFTER	80 NBM – 88.9 mm OD @ 8.47 kg/m	8390	13 x 2
2	BOTTOM RAFTER	65 NBM – 76.1 mm OD @ 6.51 kg/m	8080	13 x 2
3	VERTICLE MEMBER	65 NBM – 76.1 mm OD @ 6.51 kg/m	150	13 x 2
4	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	419	13 x 2
5	CROSS STUD	32 NBM – 42.4 mm OD @ 3.14 kg/m	1594	13 x 2
6	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	763	13 x 2
7	CROSS STUD	32 NBM – 42.4 mm OD @ 3.14 kg/m	1594	13 x 2
8	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	1107	13 x 2
9	CROSS STUD	32 NBM – 42.4 mm OD @ 3.14 kg/m	1561	13 x 2
10	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	690	13 x 2
10a	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	575	13 x 2
11	CROSS STUD	32 NBM – 42.4 mm OD @ 3.14 kg/m	1561	13 x 2
12	CROSS STUD	50 NBM – 60.3 mm OD @ 5.10 kg/m	3890	13 x 2
13	VERTICLE MEMBER	65 NBM – 76.1 mm OD @ 6.51 kg/m	8000	13 x 1
13A	WIND TIES PIPE	50 NBM – 60.3 mm OD @ 5.10 kg/m	3000	8 x 3
13B	MS FLAT FOR AC SHEETS	FLAT 35X5	60000	3 X 2
13c	WINDTIE CONN BWN PL.	185X75MM		8 X 4 X 3
13d	CONNG. PLATES BWN	210X90X10MM		2 X 4 X 3
18	FIXING BOLT	20 mm ø	120	(13+2) x 2 x 6
14	PURLIN CLEAT	10 mm PLATE @ 78.5 kg/sqm	200X100	13 x 14
15	RUNNER CLEAT	8 mm PLATE @ 62.8 kg/sqm	185x75	13 x 3
16	BASE PLATE TOP	20 mm PLATE @ 157 kg/sqm	345x345	(13+2) x 2
17	SHOE ANGLE	ISA 75X75X6 @ 6.8 kg/m	345	(13+2) x 2 x 2
18	FIXING BOLT	20 mm ø	120	(13+2) x 2 x 6
19	PURLIN PIPE	80 NBM – 88.9 mm OD @ 8.47 kg/m	4990	12 x 14
20	PURLIN END PLATE	8 mm PLATE @ 62.8 kg/m	200x100	12 x 14 x 2
21	PURLIN BOLT	16 mm ø		12 x 14 X 4
22	BOTTOM RUNNER	65 NBM – 76.1 mm OD @ 6.51 kg/m	4990	12 x 9
23	RUNNER END PLATE	8 mm PLATE @ 62.8 kg/m	185x75	12 x 3 x 2
24	RUNNER BOLT	16 mm ø		12 x 3 x 2
FOR CLADDING				
25	PIPE	65 NBM – 76.1 MM OD @ 6.51 KG/M	4990	12X2X3 =72 PIECES
26	PIPE END	65 NBM – 76.1 MM OD @ 6.51 KG/M	4990	11X2+3)X2=15PIECES
27	MS PL.	8 mm PLATE @ 62.8 kg/sqm	200X75	3X2X(13+2)= 90
28	MS BOLT	12 mm ø		8=(90)=180
FOR COLUMN				
29	COLUMN PROPER	ROK OUT OF2SISMC-250X90 -60% 6KG/M	5000	(12X2+2X2) X2=60
30	STIFFENER PLATE	20 mm PLATE @ 157 kg/sqm	170X150MM	30X1X2=60 NOS
31	STIFFENER PLATE	10 mm PLATE @ 78.5 kg/sqm	170X150MM	30X3X2=180 NOS
32	MS BOLT FOUNDATION	16mm0, 6OOLONG(4NS FOR EACH COL)	1000	4=(30)=120 NOS
33	MS BOLT FOUNDATION	20mm0, 6OOMLONG(2NS FOR EACH COL)	1000	2=(30)=60 NOS
34	BASE PLATE BOT.	20 mm PLATE @ 157 kg/sqm	330x330	(13+2) x 2
35	BEARING PLATE	16 mm PLATE @ 125.6 kg/sqm	345x345	(13+2) x 2



DETAILS OF BOTTOM RUNNER



DETAILS 'Y'



KEY PLAN OF SEMICLOSED/CLOSED SHED

NOTE :

- RIB PLATES AND ALL GUSSET PLATES ARE 6 mm THICK
- FIXING BOLTS – 20 mm DIA.
- PURLIN CLEAT CONNECTING BOLTS 16 mm DIA.

GENERAL NOTE :

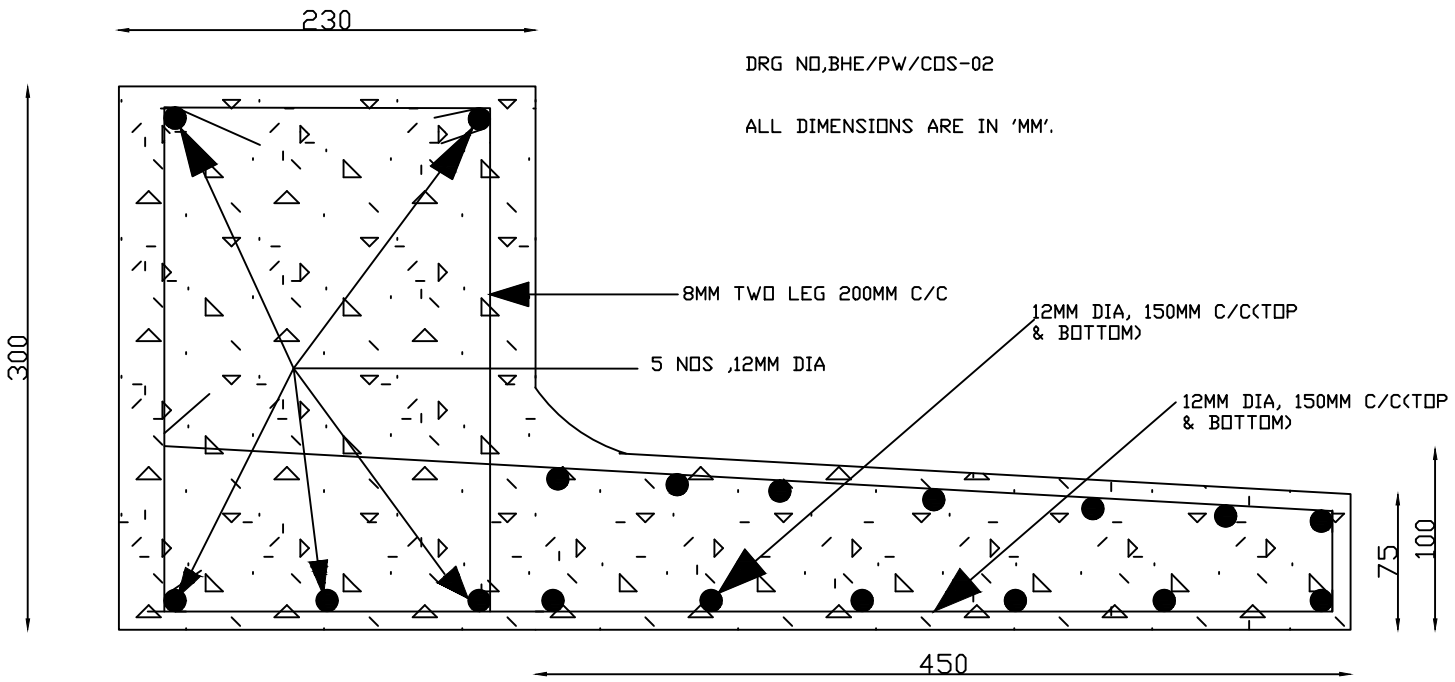
- ALL DIMENSIONS ARE IN MM
- DO NOT SCALE THE DRAWING.
- ALL MATERIAL SHALL CONFIRM TO IS 1161–1979, IS 226–1975, IS 4923
- ALL WELDING WORK SHALL CONFIRM TO IS 816–1969
- ELECTRODES SHALL CONFIRM TO IS 814–1974
- M.S. BLOCK BOLTS AND NUTS SHALL CONFIRM TO IS 1363–1984
- WASHERS SHALL CONFIRM TO IS 5369–1975, IS 6370–1968, IS 5372–1976 OR IS 5374–1975
- ONE COAT OF RED OXIDE SHALL BE APPLIED PRIOR TO APPLYING THE PAINT APPROVED SPECIFICATION.
- ALL WELDS ARE 6 MM FILLET WELD UNLESS OTHERWISE MENTIONED.
- CHECK THE EXACT DIMENSIONS AT SITE BEFORE FABRICATION
- ANY DISCREPANCY IN THE DRAWING SHOULD BE BROUGHT TO NOTICE BEFORE EXECUTION.

PROJECT :
1X500 MW FGUTPP (Stage-IV)
UNCHAHAR

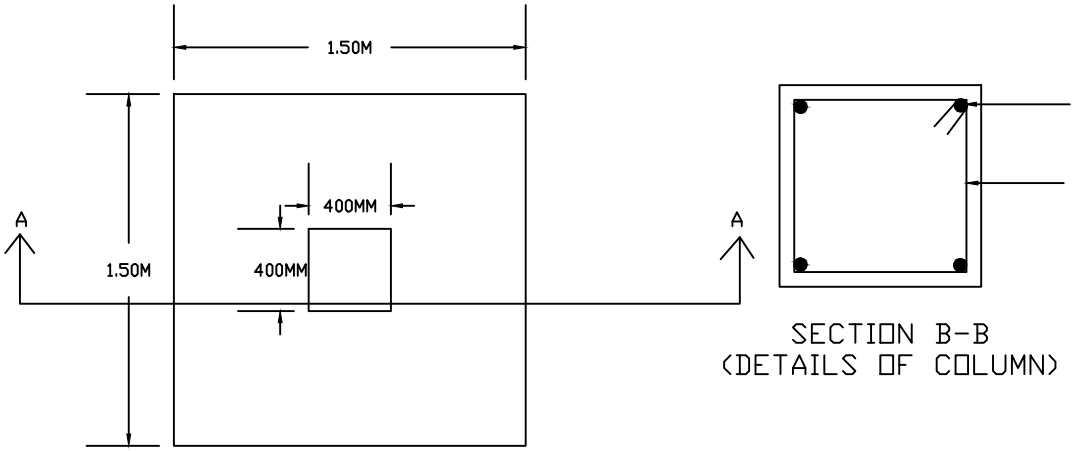
BHARAT HEAVY ELECTRICALS LIMITED

TITLE : DETAILS OF 15.00 m SPAN TUBULAR TRUSS FOR CLOSED/SEMI CLOSED SHED

DRG NO– BHE/PW/CS/SS–08



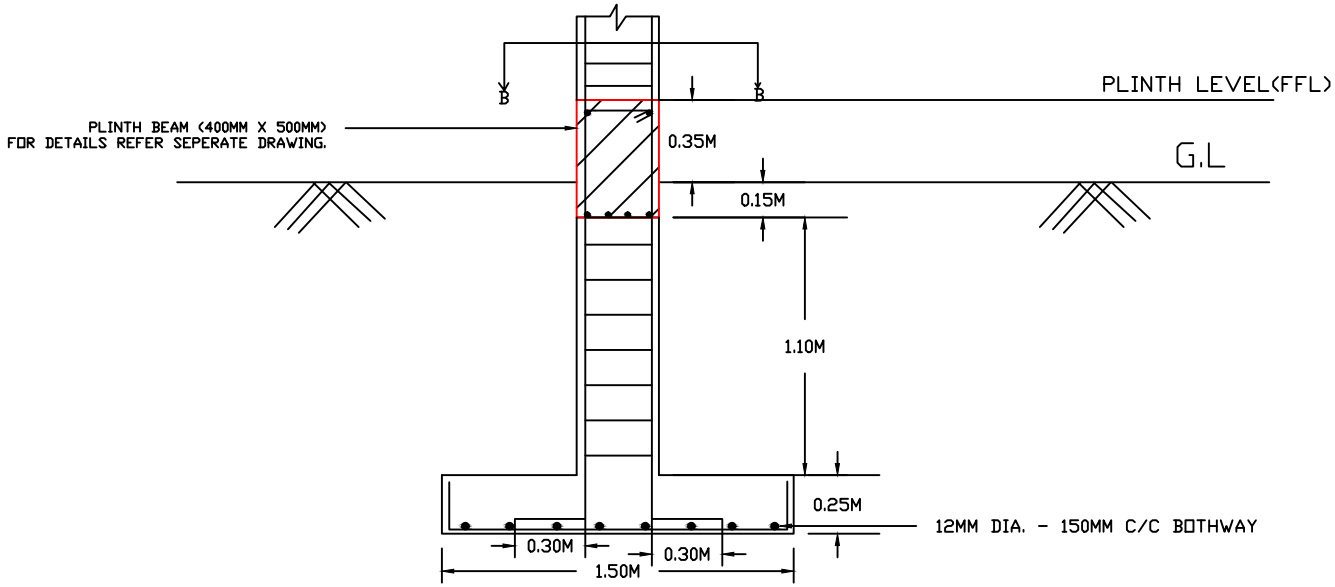
SECTION OF LINTEL & SUN SHED PROJECTION FOR CLOSED SHED



4 - 16 MM DIA.

STIRRUPS 8MM DIA. - 200MM C/C

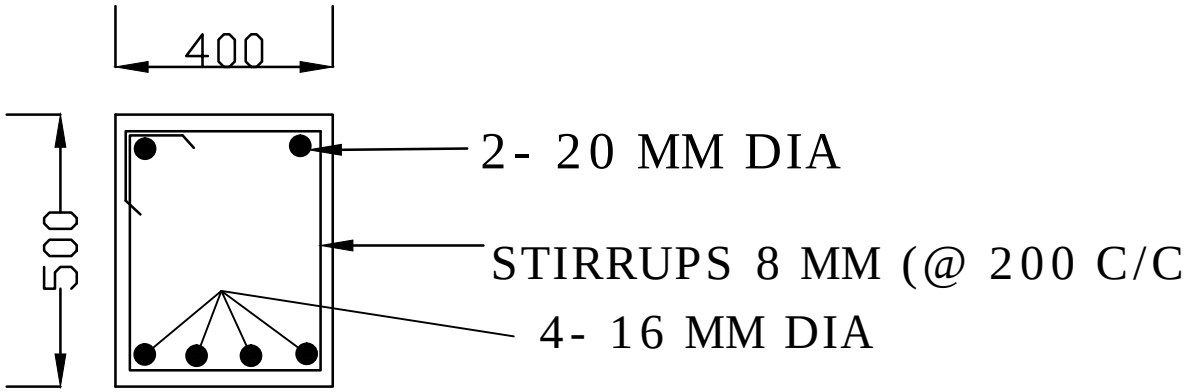
SECTION B-B
(DETAILS OF COLUMN)



SECTION A -A

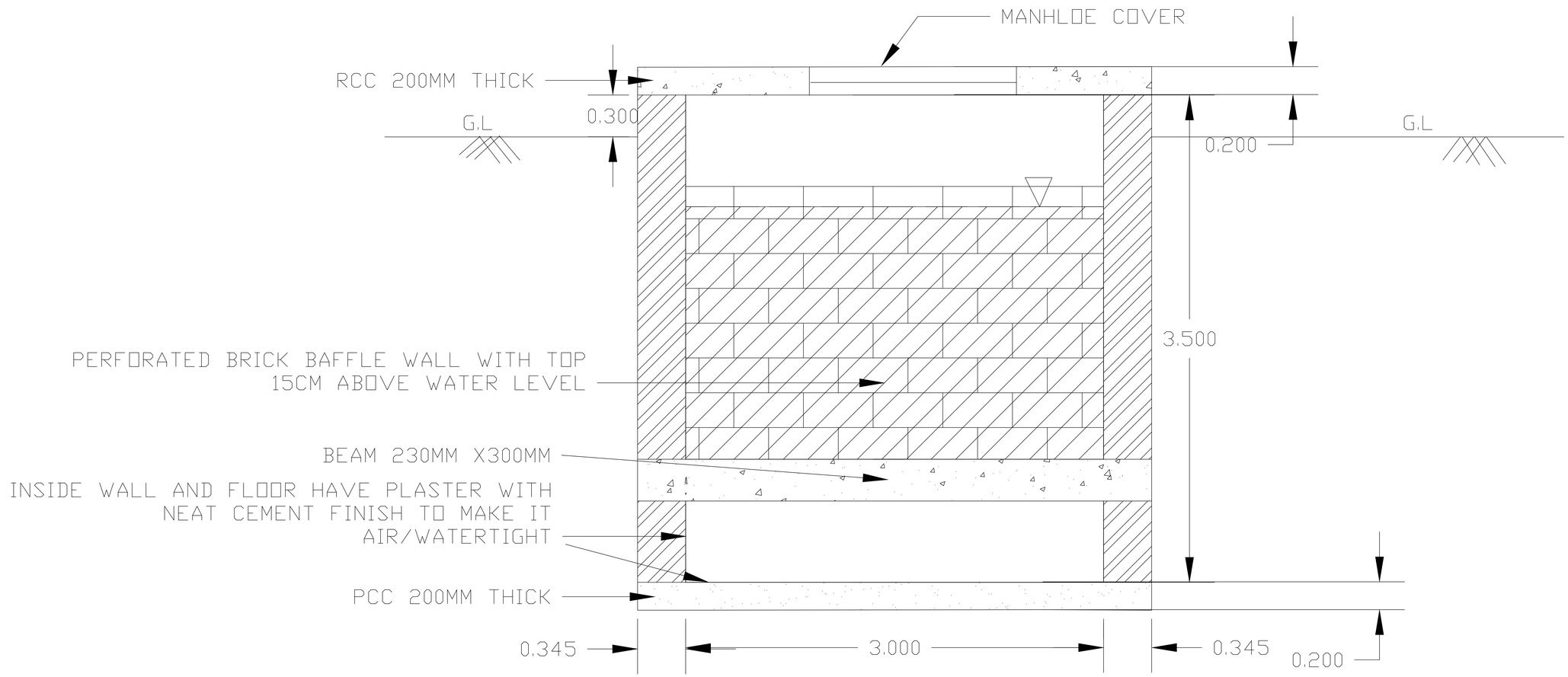
DRG NO.BHE/PW/CS-03

PLAN & RCC DETALIS OF FOOTINGS FOR CLOSED SHED



SECTION OF PLINTH BEAM
(400MMX500MM)

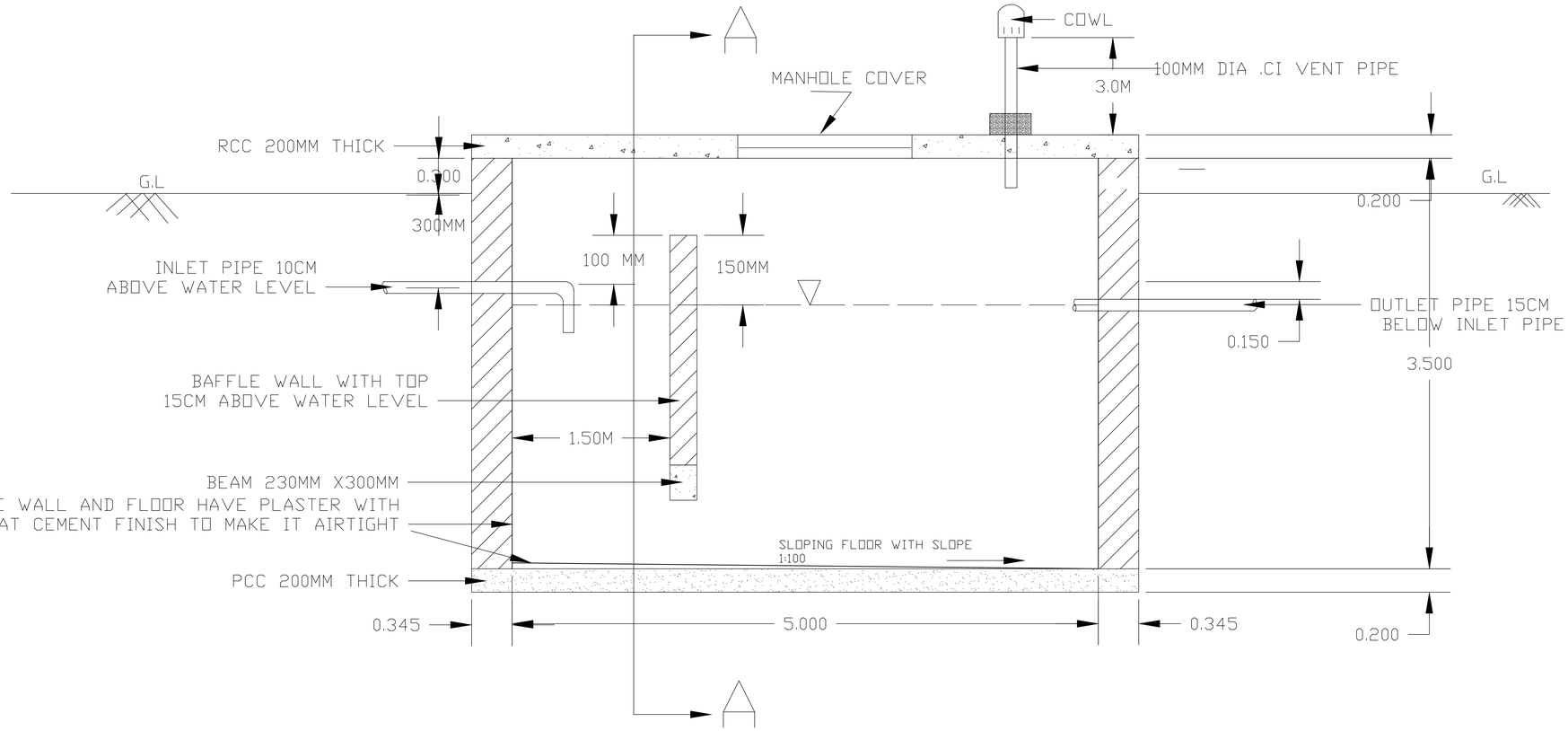
DRG. NO. BHE/PW/CS-04



SECTION A-A

DRG. NO. BHE/PW/ST-SP-01

SHEET 02 OF 02



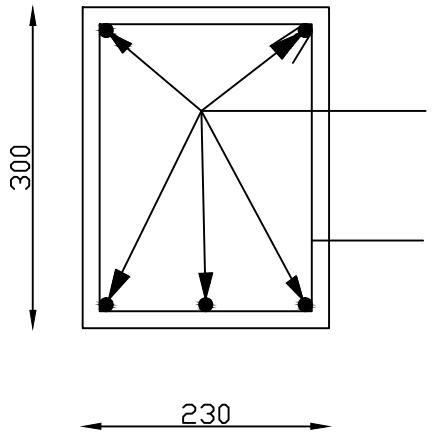
DRG NO. BHE/PW/ST-SP-01

SEPTIC TANK(5.0M X 3.0M X3.5M)

SHEET 01 OF 02

NOTE : F.B 30-50CM ABOVE LIQUID LEVEL

DETAILS OF SEPTIC TANK & SECTION

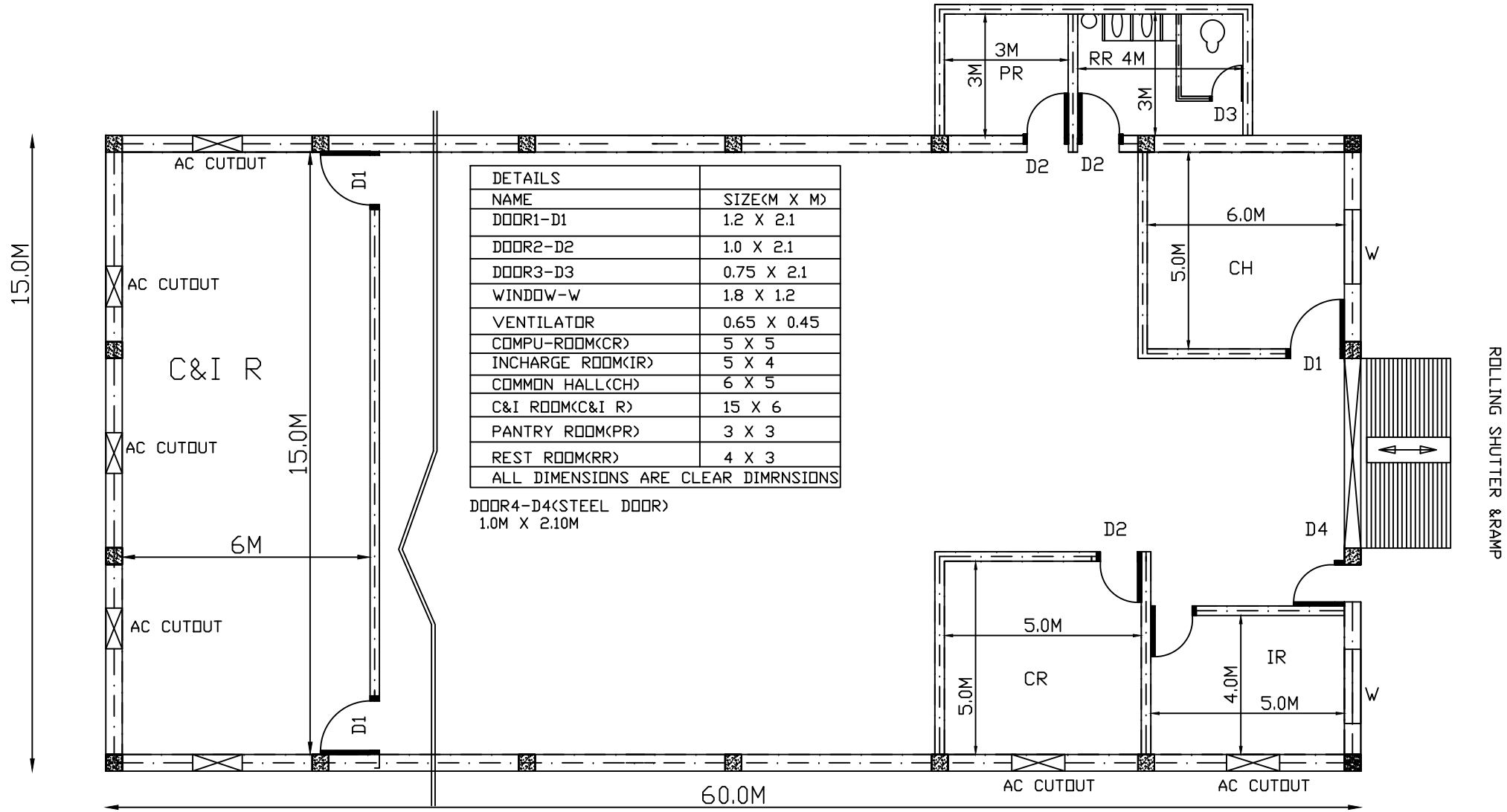


5No. 12mm dia Main bar (3No.bottom & 2No. top)

8mm dia Stirrups bar 200mm c/c

SECTION OF BEAM (230mm x 300mm)

DRG NO. BHE/PW/CS-05

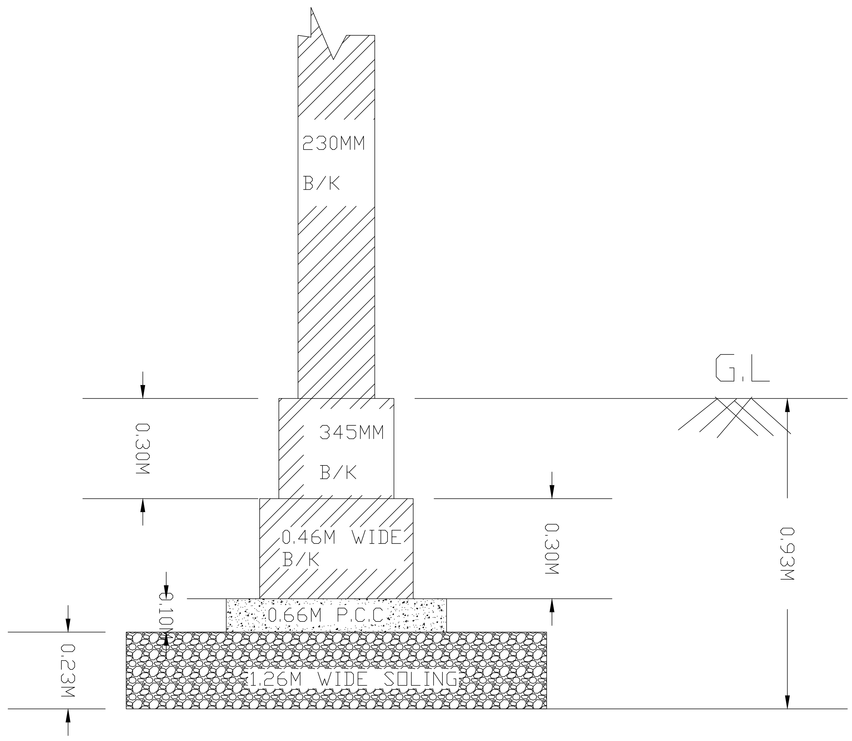


DETAILS	
NAME	SIZE(M X M)
DOOR1-D1	1.2 X 2.1
DOOR2-D2	1.0 X 2.1
DOOR3-D3	0.75 X 2.1
WINDOW-W	1.8 X 1.2
VENTILATOR	0.65 X 0.45
COMPU-ROOM(CR)	5 X 5
INCHARGE ROOM(IR)	5 X 4
COMMON HALL(CH)	6 X 5
C&I ROOM(C&I R)	15 X 6
PANTRY ROOM(PR)	3 X 3
REST ROOM(RR)	4 X 3
ALL DIMENSIONS ARE CLEAR DIMRNSIONS	

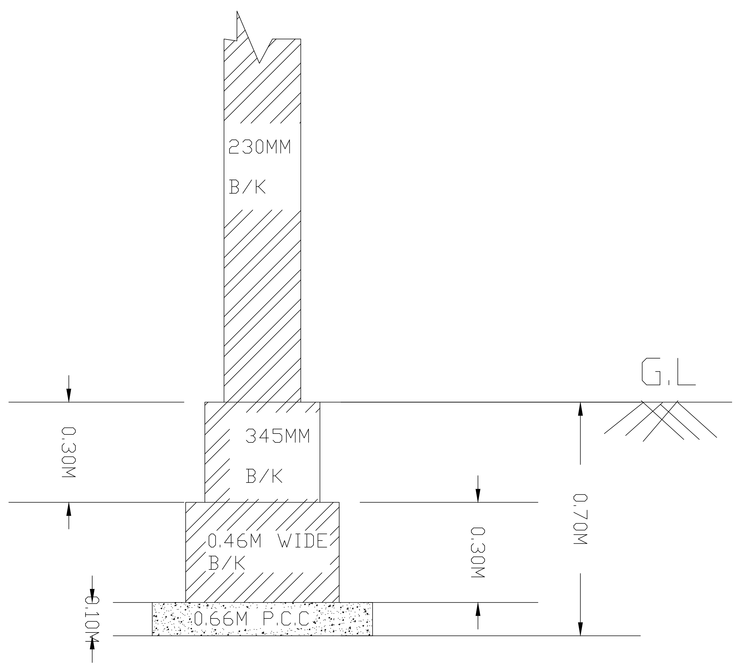
DOOR4-D4(STEEL DOOR)
1.0M X 2.10M

PLAN FOR CLOSED SHED WITH OFFICE (60M X 15M)

DRG NO -BHE/PW/COS-01

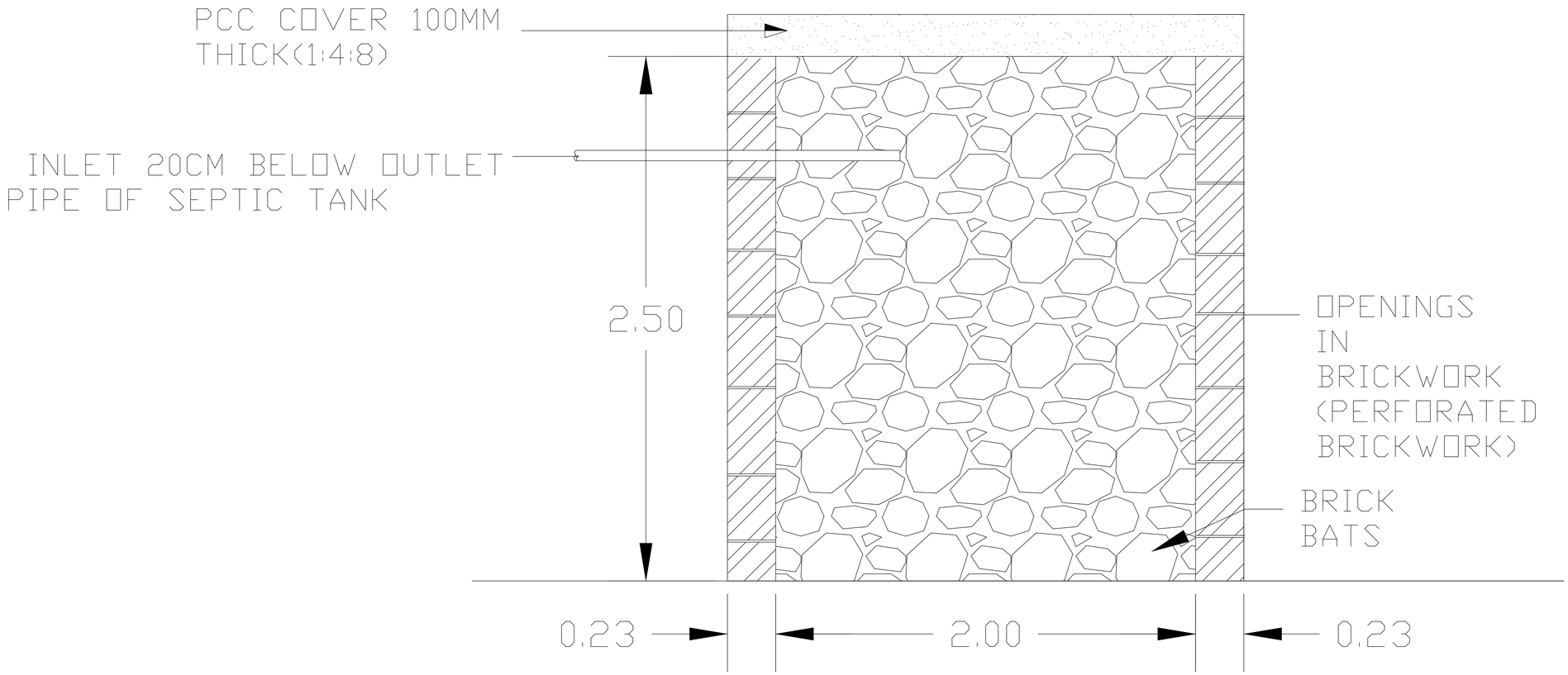


Internal wall Foundation details



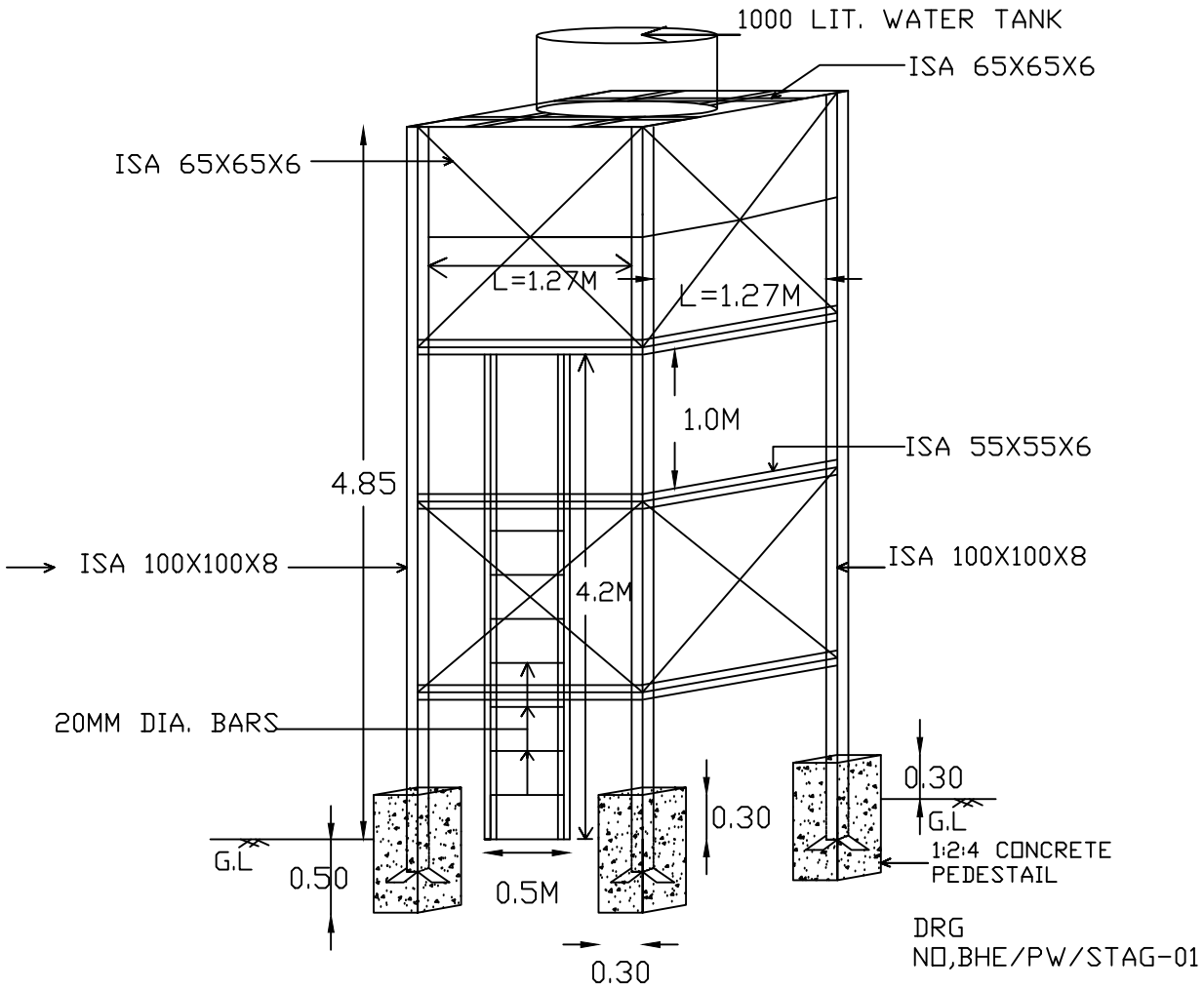
Partition wall Foundation details

Drg.No. BHE/PW/COS-03



DETAILS OF SOAK PIT

DRG. NO. BHE/PW/ST-SP-03

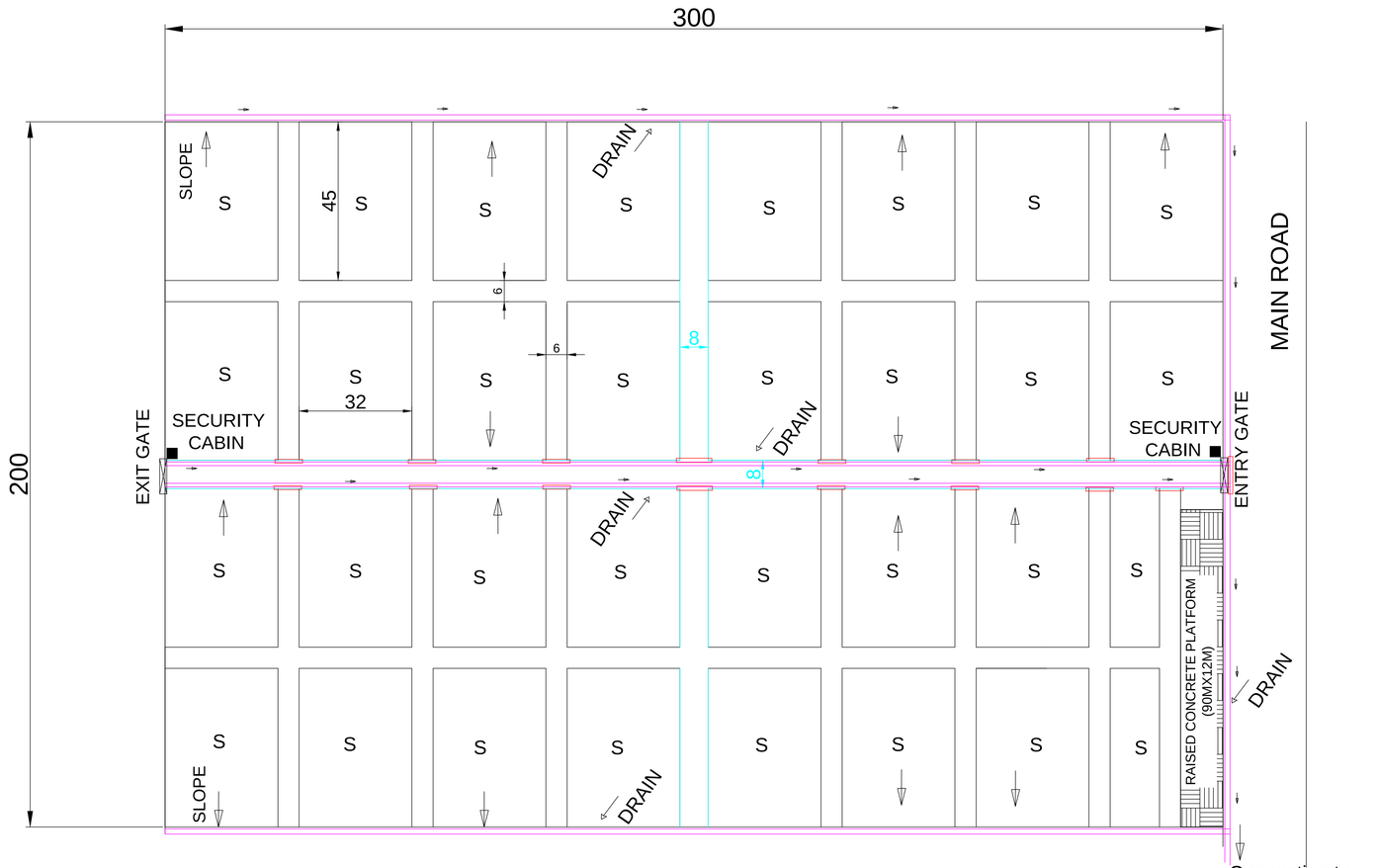


STAGING OF OVER HEAD WATER TANK

NOTE:
*CONCRETE 1:2:4 SHALL BE PAID UNDER RELAVENT ITEM IN BOQ

NOTE :---

1) WIDTH OF THE STORAGE YARD IS 32M
2) TWO 8M MAIN ROADS & SIX 6M BRANCH ROADS
3) DRAINS SHALL BE PROVIDED ALONG THE SIDE OF ONE 8M ROAD AND ALSO ALONG THE OUTER SIDES OF THE AREA AS SHOWN.
4) ROAD CROSSING CULVERT (RCC HUME PIPE OVER THE DRAIN)
5) SECURITY CABINS (3MX3M) - 2 NOS. TO BE LOCATED NEAR THE ENTRY AND EXIT GATES AS SHOWN.
6) RAISED CONCRETE PLATFORM (12M WIDE AND 90M LONG - APPROX. 1000 SQM.) TO BE CONSTRUCTED AT SUITABLE LOCATION.
7) FOR SECTIONAL DETAILS, REFER RESPECTIVE DRAWINGS.
8) 1000 CONCRETE SLEEPERS OF SIZE 1200MMX300MMX150MM.



TYPICAL PLAN OF OPEN STORAGE YARD (60,000 SQM AREA)

LAYOUT OF OPEN STORAGE YARD (60,000 SQM.)

LEGEND :

- DRAIN
- 8M WIDE ROAD
- CULVERT
- S STORAGE BLOCK
- SECURITY CABIN

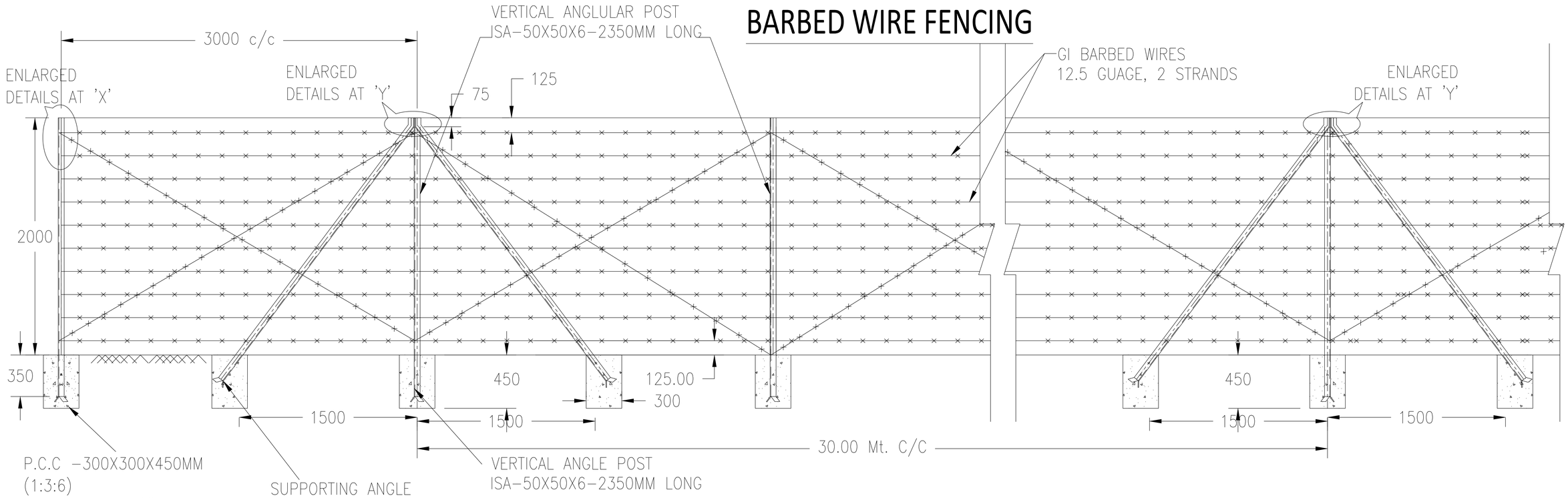
PROJECT:- 1X500 MW BTG PROJECT

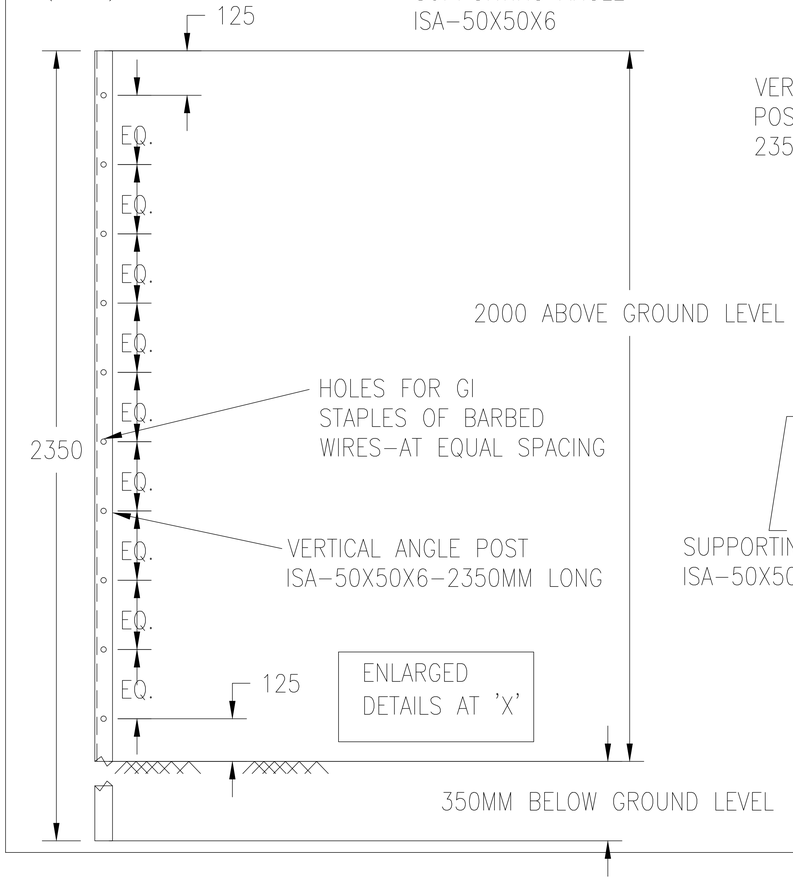
TITLE :- TYPICAL LAYOUT FOR OPEN STORAGE YARD - 60,000 SQM

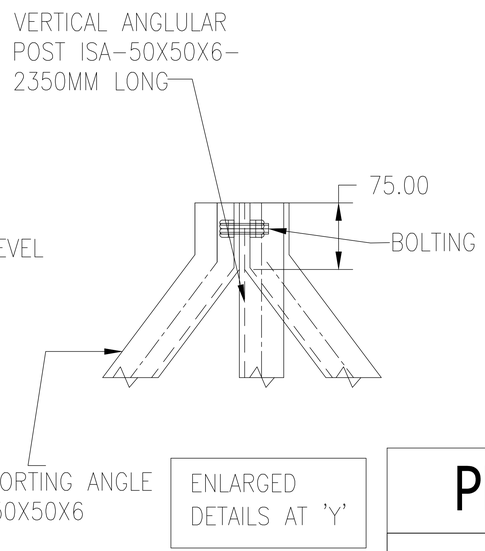
DRG NO. :- BHE/PW/OY-01

OWNER :- BHEL PSNR

BARBED WIRE FENCING



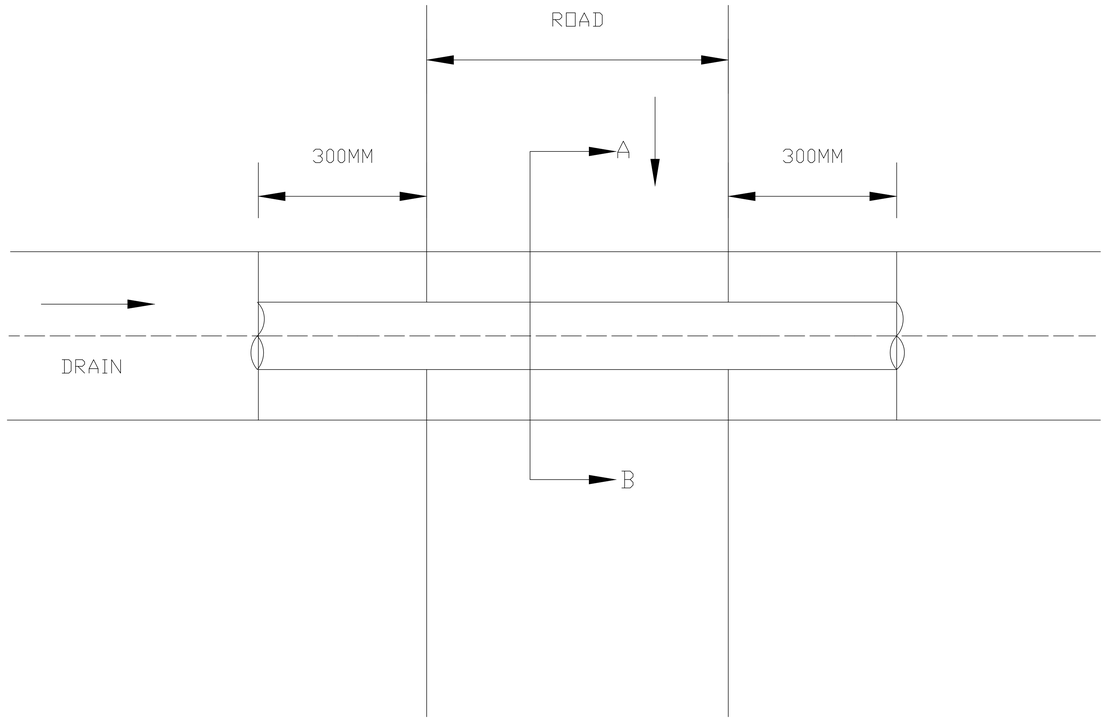


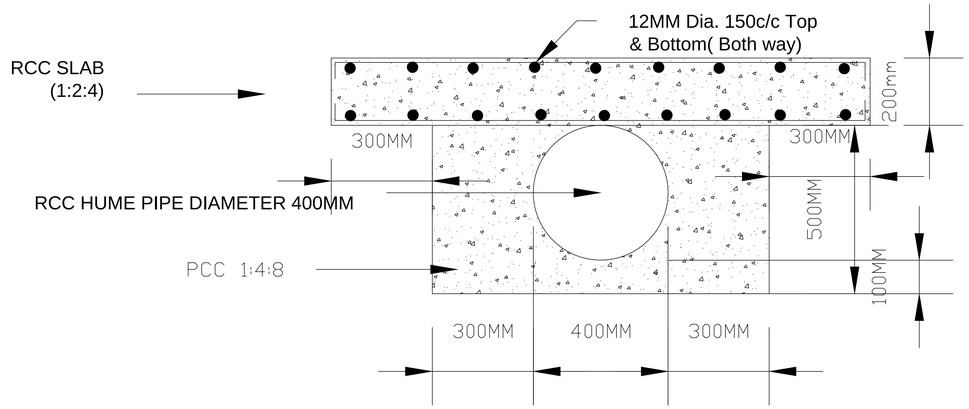


PROJECT: TYPICAL DRAWING

TITLE: DETAILS OF BARBED WIRE FENCING

DRG. NO. BHE/PW/OY - 11





CULVERT DETAILS ON
SECTION A - B

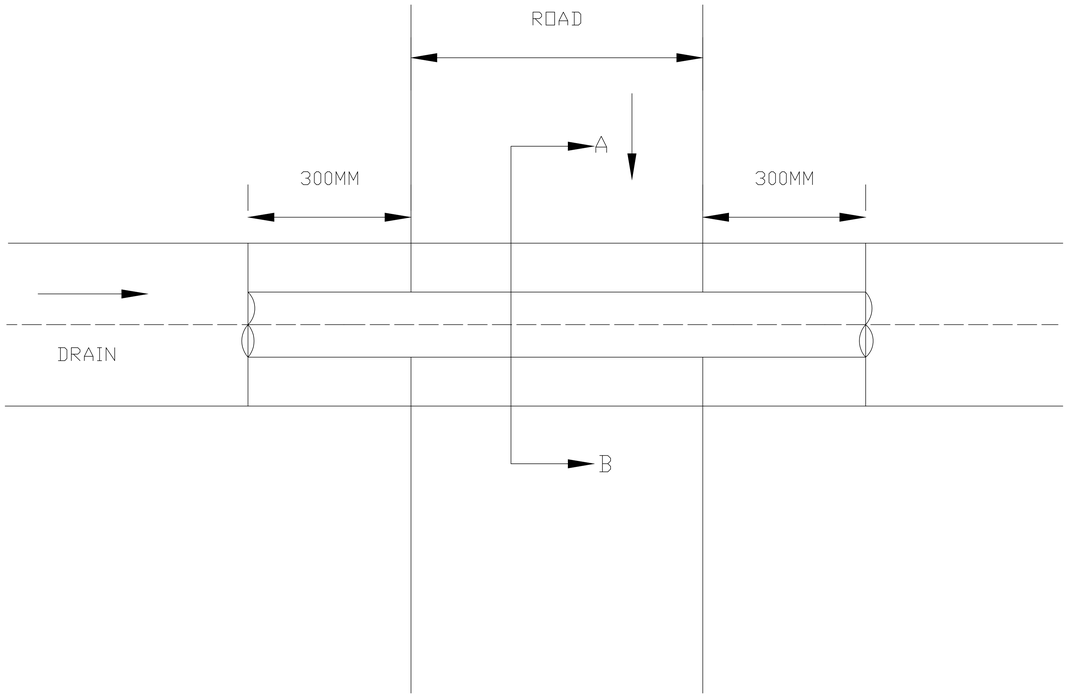
C□L□ERT DET□IL□ □OR □□□MM DI□□RCC □□ME PIPE

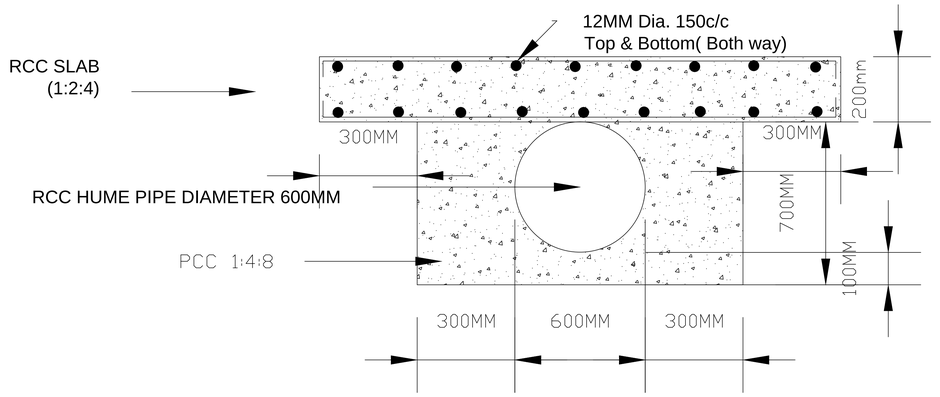
PROJECT:- TYPICAL DRAWING

TITLE :- CULVERT DETAILS FOR 400 MM DIA, RCC HUME PIPE

DRG NO. :- BHE/PW/OY-09

OWNER :- BHEL PSNR





CULVERT DETAILS ON
SECTION 'A - B'

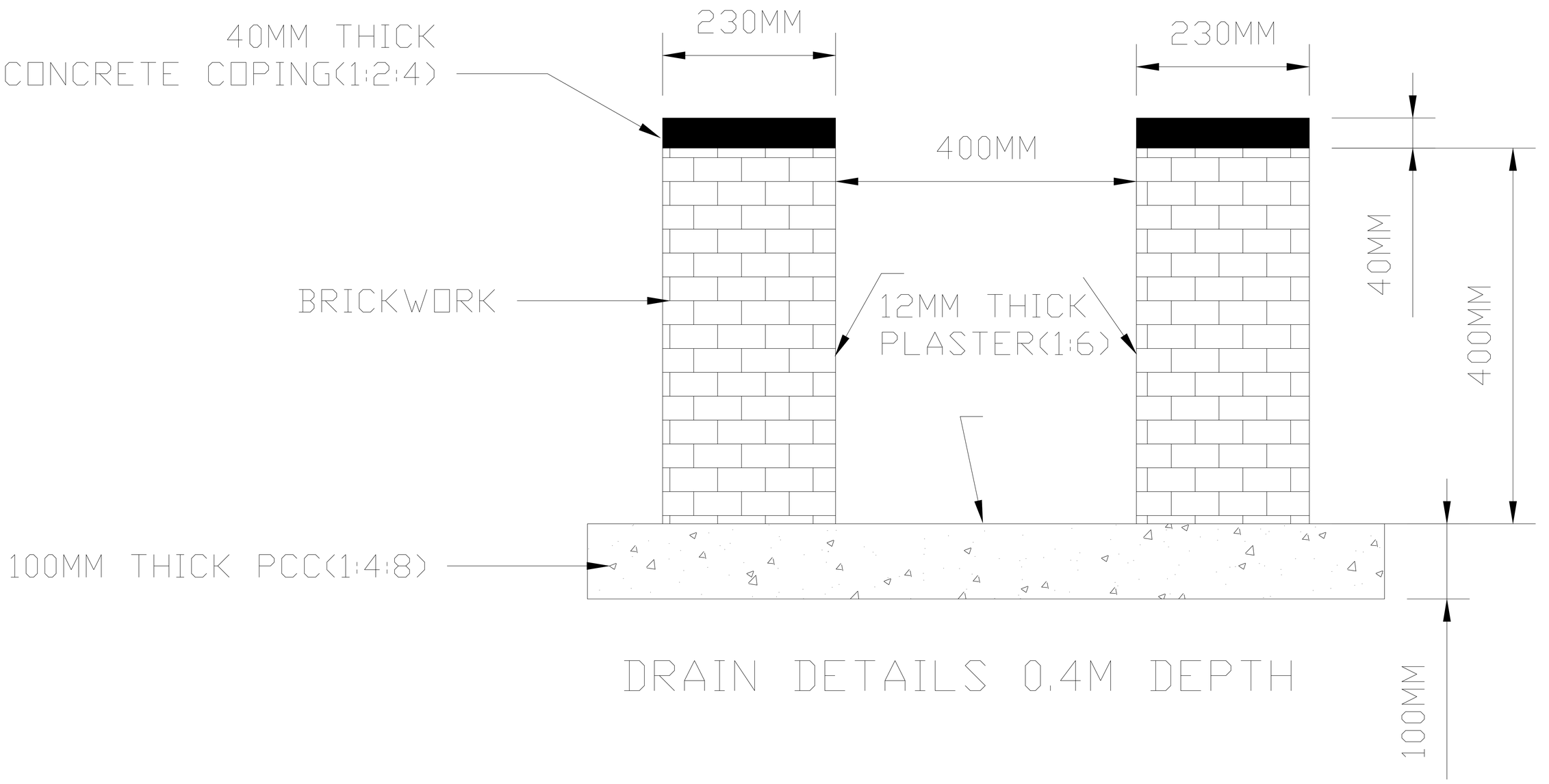
C□L□ERT DET□IL□ □OR □□□MM DI□□RCC □□ME PIPE

PROJECT:- TYPICAL DRAWING

TITLE :- CULVERT DETAILS FOR 600 MM DIA, RCC HUME PIPE

DRG NO. :- BHE/PW/OY-10

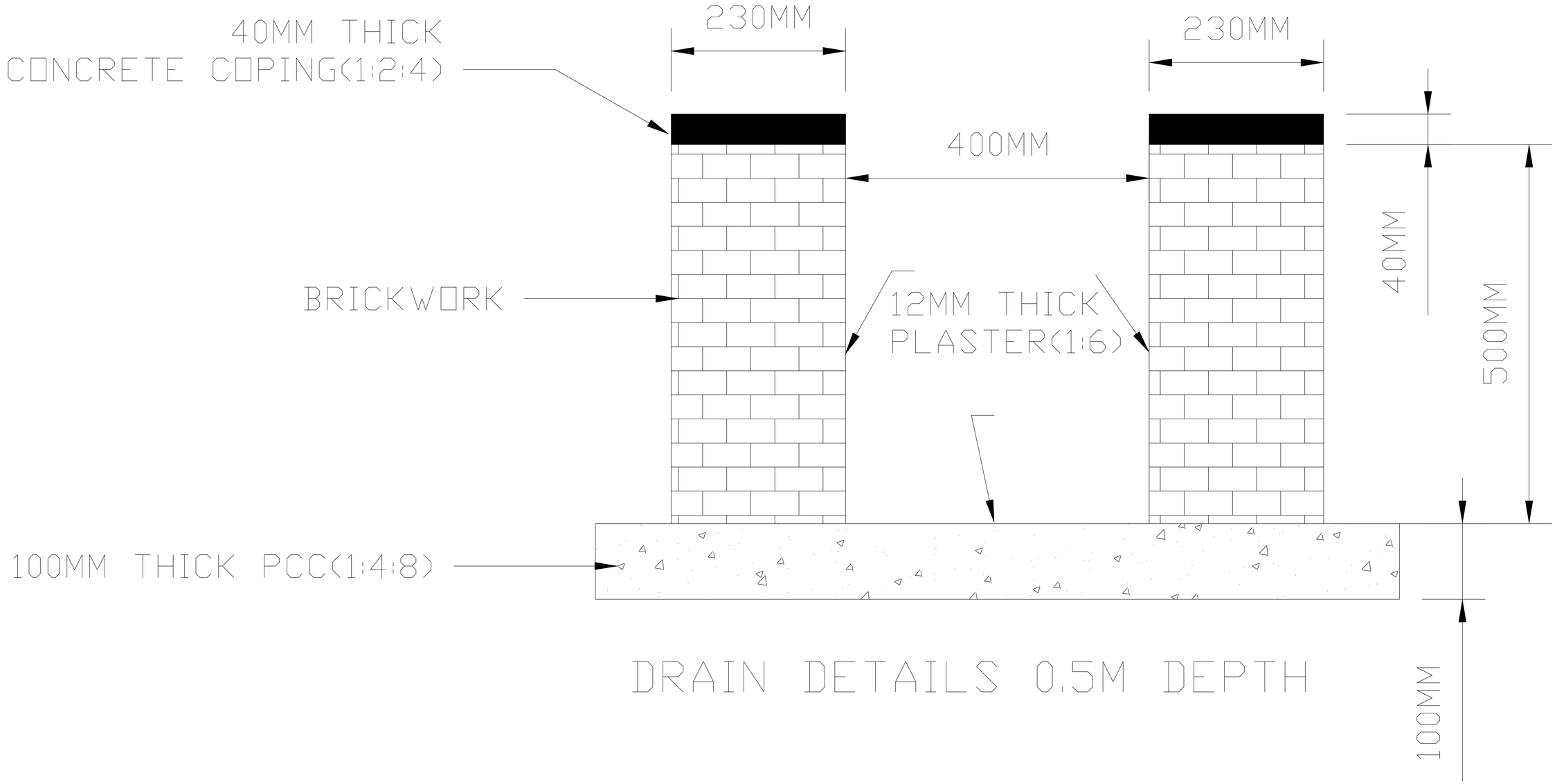
OWNER :- BHEL PSNR



DRAIN DETAILS 0.4M DEPTH

DETAILS OF 0.4M DEPTH DRAIN

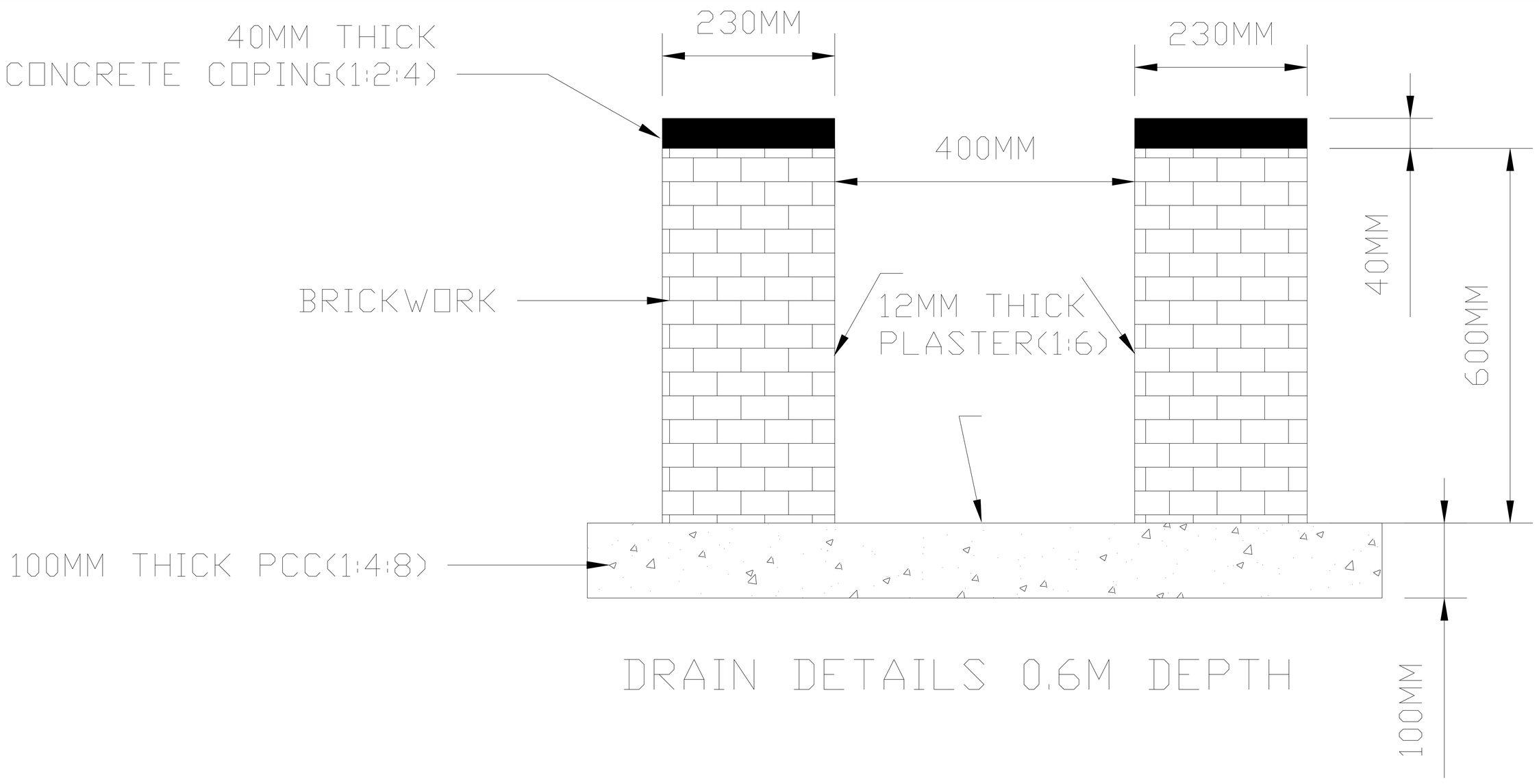
PROJECT: TYPICAL DRAWING
TITLE: DETAILS OF 0.4M DEPTH DRAIN
DRG. NO. BHE/PW/OY- 03



DRAIN DETAILS 0.5M DEPTH

DETAILS OF 0.5M DEPTH DRAIN

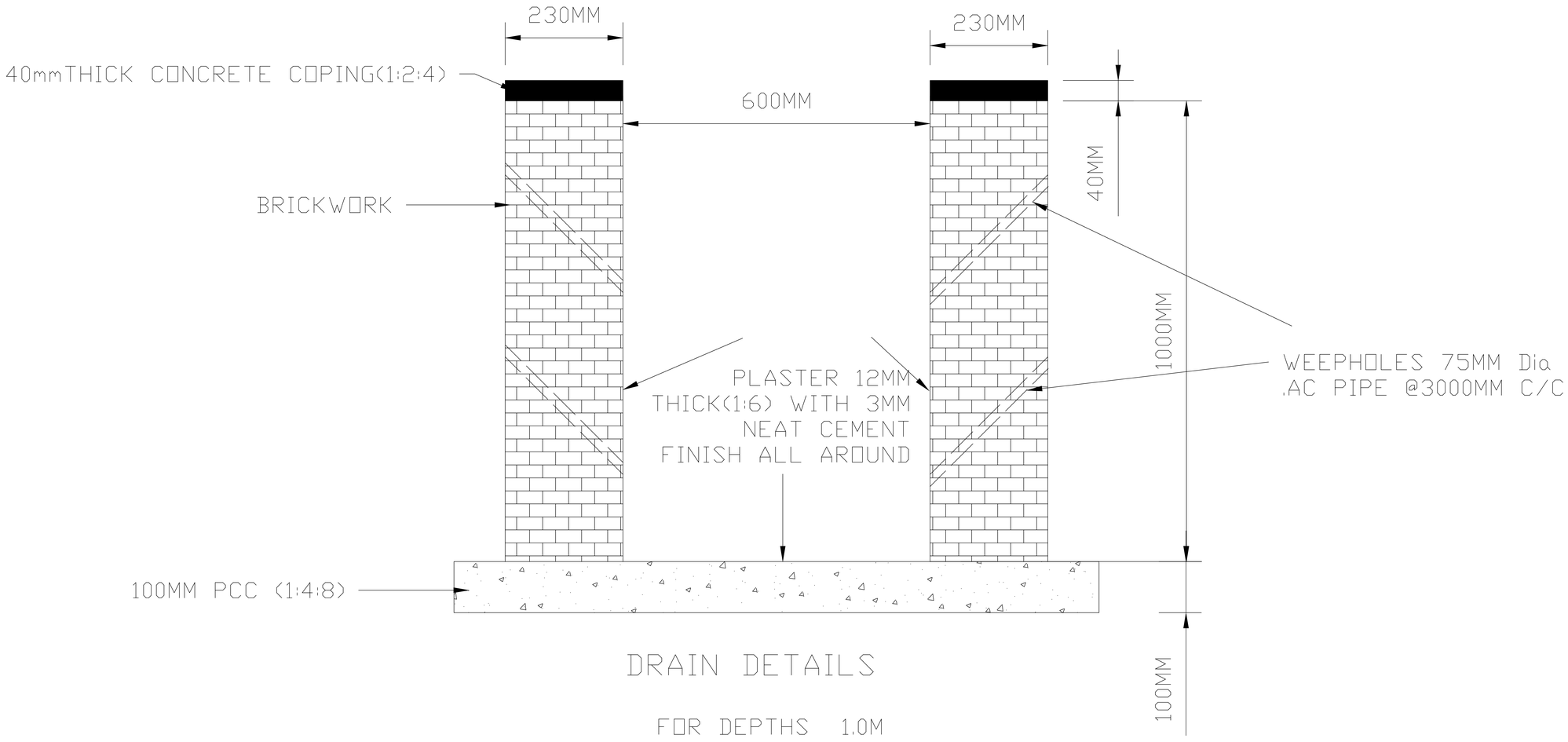
PROJECT: TYPICAL DRAWING
TITLE: DETAILS OF 0.5M DEPTH DRAIN
DRG. NO. BHE/PW/OY- 04



DRAIN DETAILS 0.6M DEPTH

DETAILS OF 0.6M DEPTH DRAIN

PROJECT: TYPICAL DRAWING
TITLE: DETAILS OF 0.6M DEPTH DRAIN
DRG. NO. BHE/PW/OY- 05

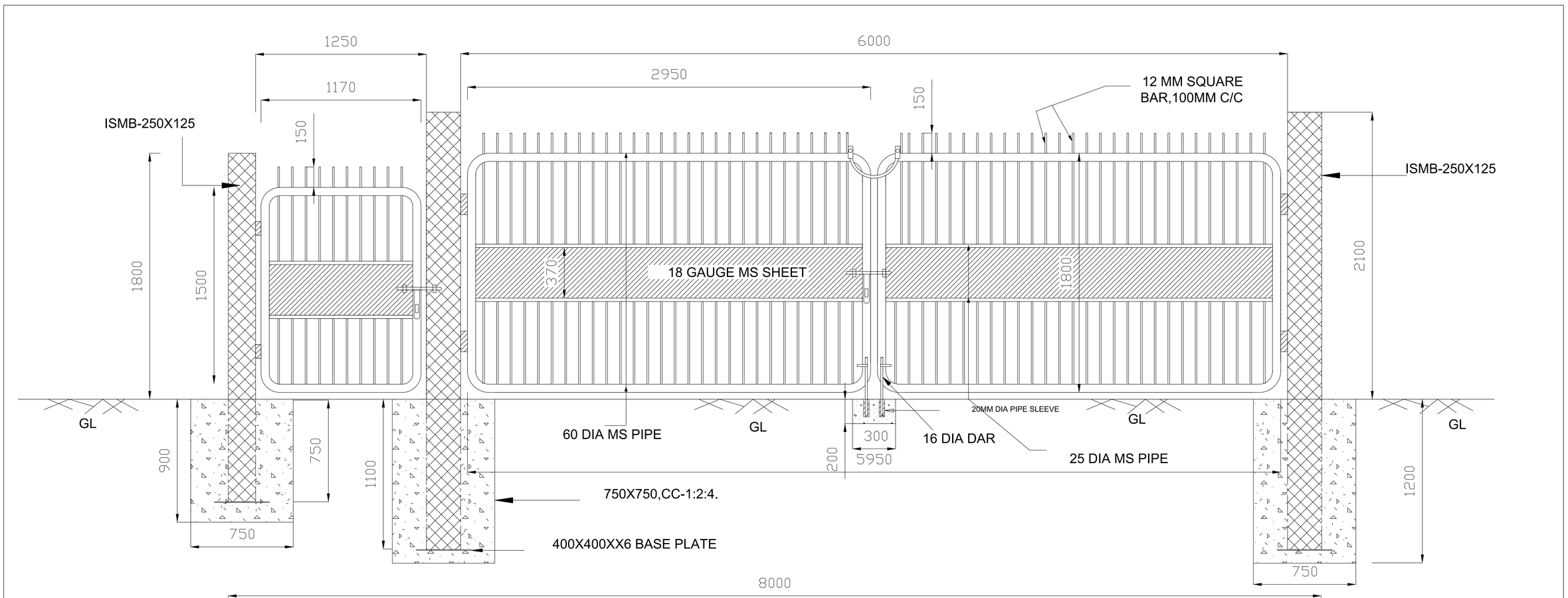


DRAIN DETAILS

FOR DEPTHS 1.0M

DETAILS OF 1.0M DEPTH WITH 600MM WIDE DRAIN

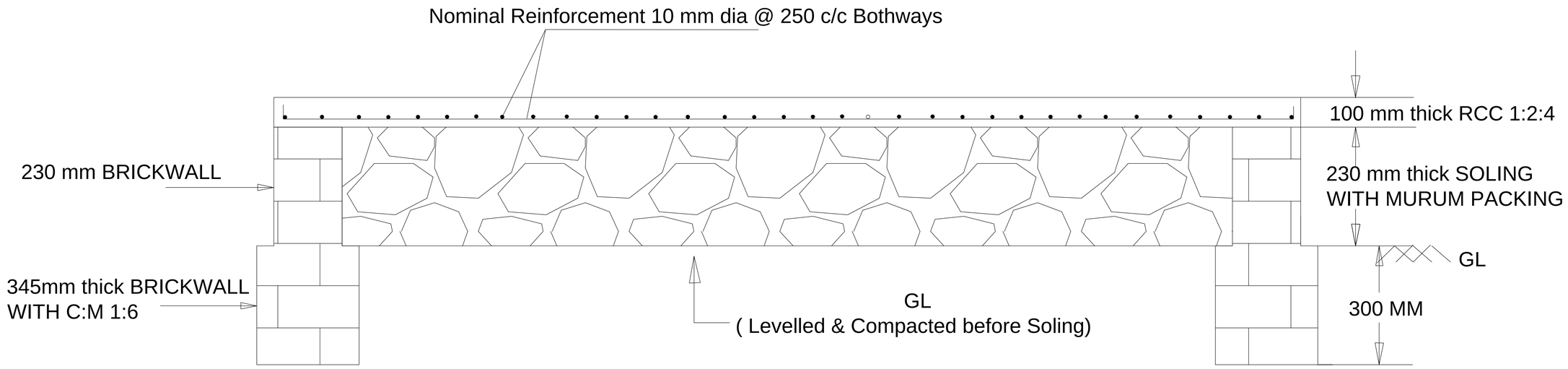
PROJECT: TYPICAL DRAWING
TITLE: 1.0 M DEPTH DRAIN
DRG. NO. : BHE/PW/OY-08



NOTE:
1)ALL DIMENSIONS ARE IN 'MM'.
2)CONCRETE FOR POST FOUNDATION-CC-1:2:4.
3)PANEL:2950 X 1800.
4)GAP BETWEEN EARTH TO PANAL - 100MM.
5)TOTAL WEIGHT OF GATE - 750 KG (APPROX)

PROPOSED MS PIPE GATE

PROJECT:- TYPICAL DRAWING	
TITLE :- MS PIPE GATE	
DRG NO. :- BHE/PW/GATE	
OWNER :-	BHEL PSNR

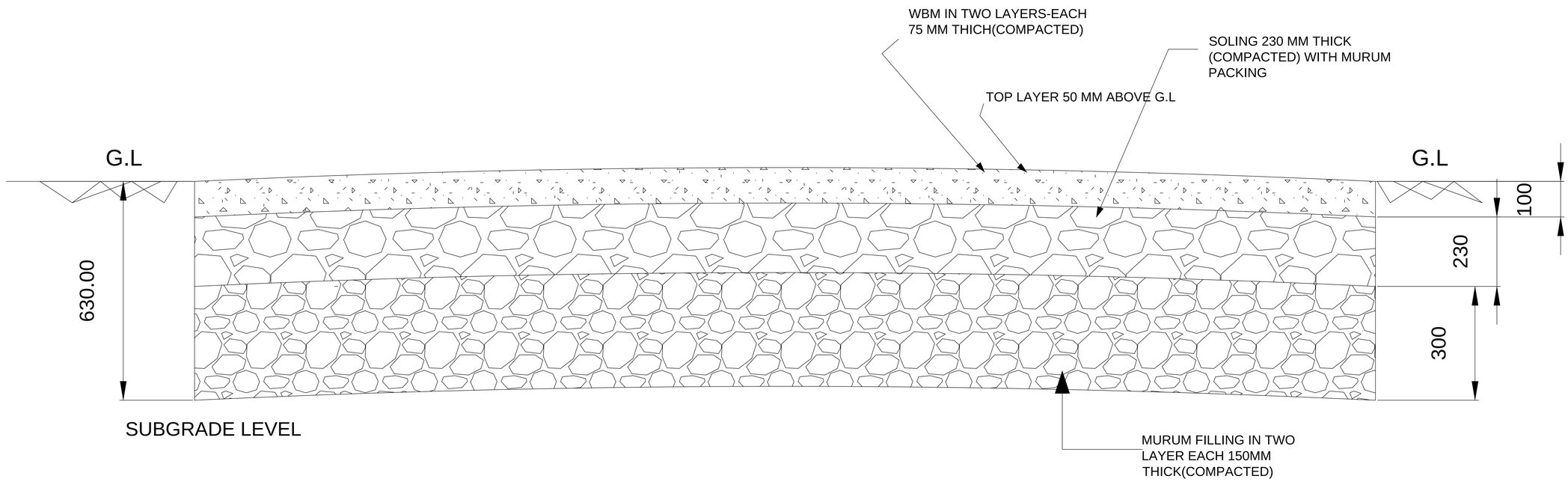


RAISED CONCRETE PLATFORM 12 M WIDE

PROJECT: TYPICAL SECTION

TITLE: RAISED CONCRETE PLATFORM 12M WIDE

DRG. NO. : BHE/PW/OY- 02 A



SECTIONAL DETAILS OF 6 M WIDTH WBM ROAD

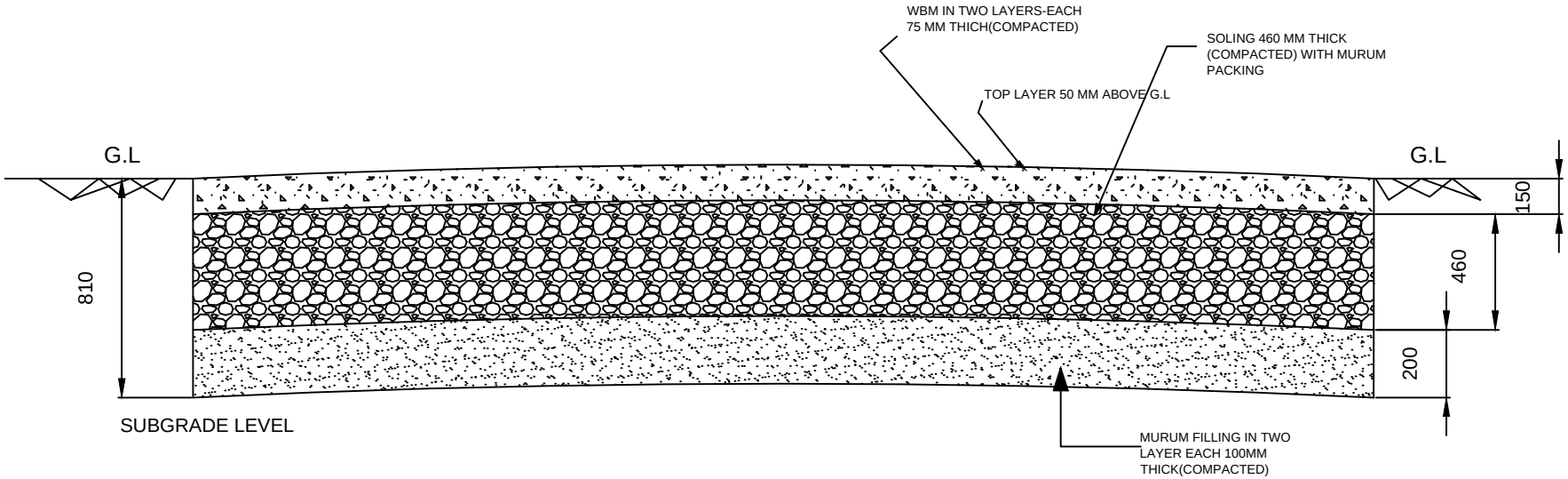
ALL DIMENSIONS ARE IN MM

NOTE:
1)CAMBER SHALL BE MAINTAINED FROM THE SUBGRADE LEVEL
2)IN CASE SOFT/HARD ROCK MAT WITH SUBGRADE IS FOUND THEN 150MM THICK MURUM SHALL BE LAID IN PLACE OF 300 MM THICK MURUM FILLING.

PROJECT: TYPICAL SECTION

TITLE: SECTION OF 6 M WIDTH WBM ROAD

DRG. NO. : BHE/PW/OY- 02B

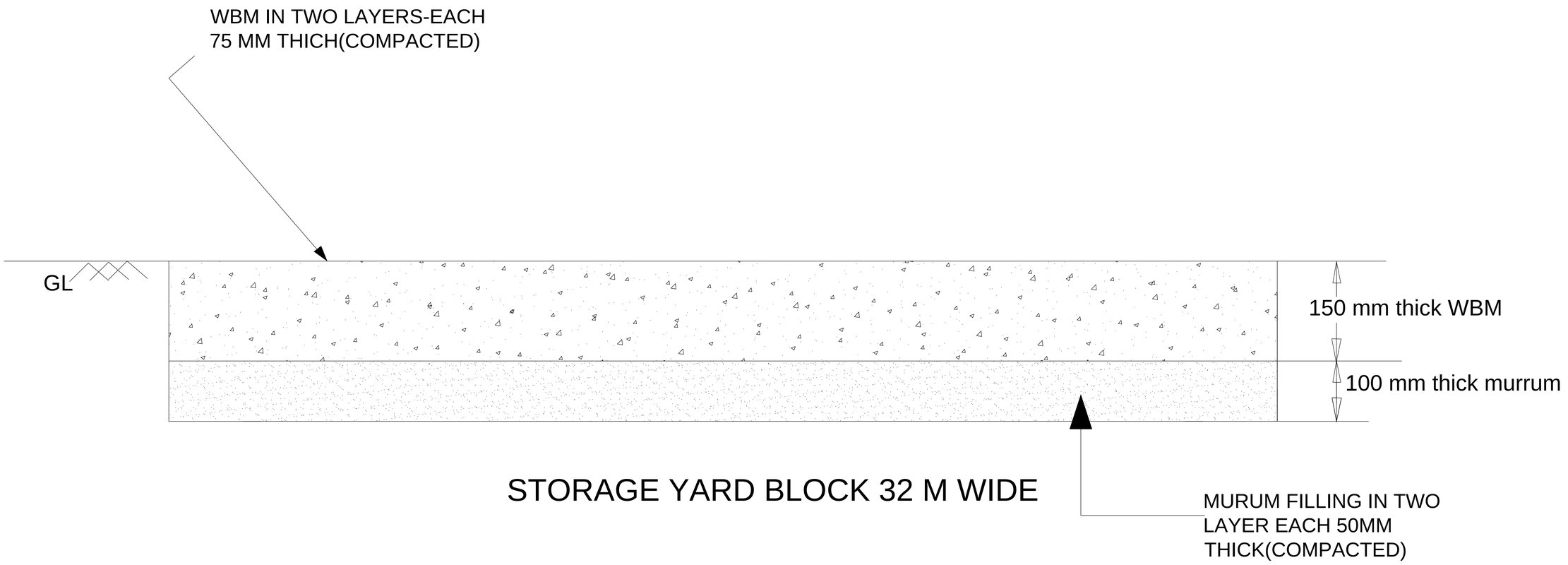


SECTIONAL DETAILS OF 8 M WIDTH WBM ROAD

ALL DIMENSIONS ARE IN MM

NOTE:
1)CAMBER SHALL BE MAINTAINED FROM THE SUBGRADE LEVEL
2)IN CASE SOFT/HARD ROCK MAT WITH SUBGRADE IS FOUND THEN 100MM THICK MURUM SHALL BE LAID IN PLACE OF 200 MM THICK MURUM FILLING.

PROJECT: TYPICAL SECTION
TITLE: SECTION OF 8 M WIDTH WBM ROAD
DRG. NO. : BHE/PW/OY- 02 C



PROJECT: TYPICAL SECTION

TITLE: SECTION OF STORAGE YARD BLOCK

DRG. NO. : BHE/PW/OY- 02D