



Rajasthan State Gas Limited

(A JV of RSPCL and GAIL Gas Limited)

2nd Floor, Khaniz Bhawan

Tilak Marg C-Scheme

Jaipur-300205

TENDER DOCUMENT

TENDER DOCUMENT FOR MDPE LAYING INCLUDING LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT KOTA GA.

(OPEN DOMESTIC COMPETITIVE BIDDING)

VOL.-I

TENDER NO.: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

TENDER DATE: 18-07-2025

**DUE DATE & TIME FOR
BID SUBMISSION**

: 11-08-2025 14:00 HRS (IST)

**DUE DATE & TIME FOR UN-PRICED
BID OPENING**

: 11-08-2025 15:00 HRS. IST



Invitation for Bid



INVITATION FOR BID (IFB)

Ref No: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

DATED: 18-07-2025

To,

[PROSPECTIVE BIDDERS]

SUB: TENDER DOCUMENT FOR MDPE LAYING INCLUDING LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT KOTA GA.

Dear Sir/Madam,

1.0 Rajasthan state Gas Limited a State Govt. Incorporated, JV of RSPCL and GAIL Gas Limited having registered and corporate office at room No. 303, Khaniz Bhawan, Tilak Marg, C-Scheme, Jaipur-302005, India, invites bids from bidders for the subject works/services, in complete accordance with the following details and enclosed Tender Documents.

2.0 The brief details of the tender are asunder:

(A)	BRIEF SCOPE OF WORK/SERVICES	Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.
(B)	TENDER NO. & DATE	Tender No.: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07 DATED: 18-07-2025
C	TYPE OF BIDDING SYSTEM	TWO BID SYSTEM
D	TYPE OF TENDER	MANUAL
E	COMPLETION/CONTRACT PERIOD	As defined in Scope of Work / SCC
F	BID SECURITY/EARNEST MONEY DEPOSIT	Rs. 14,30,000/- (Rs Fourteen Lac ,Thirty Thousand only)
(G)	AVAILABILITY OF TENDER DOCUMENT ON WEBSITE(S)	From 18-07-2025 on following websites: 1. Rajasthan State Gas Limited Tender Website: https://rsgl.rajasthan.gov.in/Tenders.aspx 2. Govt. of Rajasthan state public procurement Tender
(H)	DATE, TIME & VENUE OF PRE-BID MEETING	Date: 28-07-2025 Time: 15:00 Hrs. Venue: Rajasthan State Gas Limited Khaniz Bhawan, Tilak Marg C- Scheme

(I)	DUE DATE AND TIME FOR BID SUBMISSION	Date: 11-08-2025 Time: on or before 14:00 hrs
(J)	DATE AND TIME OF UN-PRICED BID OPENING	Date: 11-08-2025 Time: at 15:00 hrs.
	CONTACT DETAILS	Name: Vivek Srivastava Designation: DGM (C&P) Phone No. & Extn: 0141-2994081 e-mail: viveks.rsgl@rajasthan.gov.in

In case of the days specified above happens to be a holiday in Rajasthan state Gas Limited, the next working day shall be implied.

3.0 Bids must be submitted strictly in accordance with Clause No. 11 of ITB of Tender document.

4.0 The following documents shall also be submitted in Original (in physical form) within the Due Date & Time of Bid Submission:

- i) EMD/Bid Security (if applicable)
[Note: Submission of original is not applicable for online banking transaction]
- ii) Power of Attorney

5.0 Clarification(s)/Corrigendum(s) if any shall also be available on above referred websites. Any revision, clarification, addendum, corrigendum, time extension, etc. to this Tender Document will be hosted on the above-mentioned website(s) only. Bidders are requested to visit the website regularly to keep themselves updated.

Bidders are advised to submit their bid strictly as per terms and conditions of tender documents and not to stipulate any deviation/exceptions.

6.0 Any bidder, who meets the Bid Evaluation Criteria (BEC) and wishes to quote against this Tender Document, may download the complete Tender Document along with its amendment(s) if any from websites as mentioned at 2.0 (G) of IFB and submit their Bid complete in all respect as per terms & conditions of Tender Document on or before the Due Date & Time of Bid Submission.

7.0 Bid(s) received from bidders to whom tender/information regarding this Tender Document has been issued as well as offers received from the bidder(s) by downloading Tender Document from above mentioned website(s) shall be taken into consideration for evaluation & award provided that the Bidder is found responsive subject to provisions contained in Clause No. 2 of ITB. The Tender Document calls for offers on single point "Sole Bidder" responsibility basis (except where JV/Consortium bid is allowed pursuant to clause no. 3.0 of ITB) and in total compliance of Scope of Works as specified in Tender Document.

8.0 Rajasthan state Gas Limited reserves the right to reject any or all the bids received at its discretion without assigning any reason whatsoever.



RAJASTHAN STATE GAS LIMITED

Rajasthan state Gas Limited

(Authorized Signatory)

Vivek Srivastava

DGM (C&P)

e-mail: viveks.rsgl@rajasthan.gov.in

SBD for Procurement of Services/Works

Summary

PART-I BIDDING PROCEDURES

SECTION 1: INSTRUCTIONS TO BIDDERS (ITB)

This Section provides information necessary for Bidders to prepare responsive bids in accordance with the requirements of the Owner. It regulates the bidding process and gives information on bid submission, opening and evaluation methodology.

SECTION 1.1: BID EVALUATION CRITERIA (BEC)

This section contains the criteria and requirements that the interested party must comply without which the Owner shall not consider their Bid for the purpose of evaluation and/ or further processing.

SECTION 1.2: BID EVALUATION METHODOLOGY

This section specifies the methodology that the Owner shall use to evaluate the Bids and to determine the successful Bidder.

ANNEXURE-I BID DATA SHEET (BDS)

This Annexure contains information and provisions that are specific to each procurement and that supplement the information/ requirements included in Section 1, Instructions to Bidders.

ANNEXURE-II PROCEDURE FOR ACTION IN CASE OF CORRUPT/ FRAUDULENT/ COLLUSIVE/ COERCIVE PRACTICES

This Annexure contains procedure for putting a Vendor/ Supplier/ Contractor/ Consultant on Suspension and/or banning list if any agency indulges in corrupt/ fraudulent/ collusive/ coercive practice.

ANNEXURE-III PROCEDURE FOR EVALUATION OF PERFORMANCE OF VENDORS/ SUPPLIERS/ CONTRACTORS/ CONSULTANTS

This Annexure contains procedure to recognize, and develop reliable Vendors/ Suppliers/ Contractors/ Consultants so that they consistently meet or exceed expectations and requirements.

ANNEXURE-IV FORMS AND FORMAT

This Section contains the forms and formats which are to be completed by Bidders and submitted as part of the bid. The forms of Contract Performance Guarantee, Mobilization Advance, and Contract Agreement, when required, shall only be completed by the successful Bidder after award of contract.

**PART-II****CONDITIONS OF CONTRACT****SECTION 2: GENERAL CONDITIONS OF CONTRACT (GCC)**

This Section contains standard provisions.

SECTION 3: SPECIAL CONDITIONS OF CONTRACT (SCC)

The content of this Section supplements the General Conditions of Contract.

PART-III SERVICES REQUIREMENTS**SECTION 4: SPECIFICATIONS, DRAWINGS AND SCOPE OF SERVICES**

This Section contains the Specifications, the Drawings, and supplementary information including Scope of Works/Services that describe the Works/Services to be procured.

SECTION 5: SCHEDULE OF RATES



PART-I – BIDDING PROCEDURES

Section 1: Instructions to Bidders

TO BE READ IN CONJUNCTION WITH BID DATA SHEET (BDS)

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- 3. ANNEXURE-III: VENDOR PERFORMANCE EVALUATIONPROCEDURE
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Section 1.1: Bid Evaluation Criteria



[A] Technical Criteria:

a) Bidder must have successfully executed at-least one single work order of minimum value of Rs. 62 (Sixty-Two) Lacs for laying, commissioning of underground PE/Steel pipelines for carrying Hydro-carbon products through various methods (Open excavation method/Moling/HDD/Boring etc.) including Last mile connectivity at customer end in the preceding 7 (seven) years reckoned from the bid due date.

(*)

(i) In case more than one contract are emanating against one tender, all such individual contracts are to be considered as single contract for evaluation of credential of a bidder for meeting their experience criteria.

(ii) Further in case of rate contract, cumulative value of all release orders emanating from one rate contract shall be considered as single contract for evaluation of credential of a bidder for meeting their experience criteria.

Note 1:

(i) A Job executed by a Bidder for its own plant/project cannot be considered as experience for the purpose of meeting BEC of the tender. However, jobs executed for subsidiary/Fellow subsidiary/Holding company will be considered as experience for the purpose of meeting BEC subject to submission of tax paid invoice(s) duly certified by Statutory Auditor of the Bidder towards payments of statutory tax in support of the job executed for subsidiary/Fellow subsidiary/Holding company. Such Bidders to submit these documents in addition to the documents specified to meet BEC.

(ii) Execution certificate issued by the end user/owner/authorized consultant submitted by a bidder against work contracts can also be considered in place of completion certificate for meeting the stipulated experience criteria provided that the asset for which the said execution certificate has been issued is ready for commercial use.

(iii) In case the bidder has an experience as a consortium member and such member has executed earlier a job with in its scope as a member of the consortium, which is required as experience as per the qualification criteria in clause no. A (Technical Criteria), will be considered. Documentary evidence as stipulated in bidding document is to be submitted to establish such experience.

NOTE: All documents in support of Technical Criteria of Bid Evaluation Criteria (BEC) to be furnished by the bidders shall be duly certified/ attested by Chartered Engineer and notary public with legible stamp.

[B] Financial Criteria:

B.1 Annual Turnover



The minimum annual turnover achieved by the bidder as per their audited financial results in any one of the 3 (three) immediately preceding financial years shall be not less than **Rs.207 Lakhs.(Two crore and Seven Lacs Only)**

B.2 Net worth

Net worth of the bidder should be positive as per the immediate preceding year's audited financial results.

B.3 Working Capital

The minimum working capital of the bidder as per the immediate preceding year's audited financial results shall be not less than **Rs.42 Lacs**

C. Documents required to be submitted by bidder along with the bid for qualification of BEC:

BEC Clause no.	Description	Documents required for qualification
A.	Documents Required for Technical Criteria	
A	Experience criteria	(a) Copy of PO/WO/LOA of the job executed, issued by the end user/owner/client. (b) Copy of successful Completion certificate having cross reference to the PO/WO/LOA submitted mentioning executed amount against the PO. (c) In case of running contract - Execution Certificate against Order/LOA/Contract for the running contract as mentioned at point "a" above must be submitted clearly mentioning the executed VALUE till one day prior to un-priced bid opening, which must be equal to or more than the minimum prescribed value mentioned in BEC The execution certificate must contain the detailed information like Order/ LOA/ Contract/ Agreement No. with date, Brief Scope of work / Name of work, Order value, Total executed value, etc. The <u>Execution</u> should have been issued by the end-user/owner/authorized consultant.
Clause no.	Description	Documents required for qualification
All the submitted documents should be duly certified / attested by Chartered Engineer and notary public with legible stamp. In absence of requisite documents, Rajasthan state Gas Limited reserves the right to reject the bid without making any reference to the bidder.		
B.	Documents Required for Financial Criteria	
B.1	Annual Turn Over	Bidder shall furnish details of financial capability in the prescribed format (Form F-16 of the tender) in the tender duly signed & stamped by chartered accountant. Further



B.2	Net Worth	copy of audited financial statements, including Balance Sheets, Profit & Loss Account for last three preceding financial years shall be submitted duly certified / attested by Chartered accountant and Notary Public / with legible stamp. In the absence of such requisite documents, Rajasthan state Gas Limited reserves the right to reject the bid without any reference to the bidder.
B.3	Working Capital	

Note 1: If the bidder's working capital is **negative or inadequate**, the bidder shall submit a letter (as per format F-15) from the bank having net worth not less than **Rs. 100 crores (or equivalent in USD)** as mentioned in ITB of tender document, confirming the availability of line of credit for at least working capital requirement as stated above.

Note 2: (i) Annual Turnover:

In case the tenders having the bid closing date up to **30th September** of the relevant financial year and audited financial results of the immediate 3 preceding financial years are not available, the bidder has an option to submit the audited financial results of the 3 years immediately prior to that. Wherever the closing date of the bid is after **30th September** of the relevant financial year, bidder has to compulsorily submit the audited financial results for the immediate 3 preceding financial years.

(ii) Net Worth/Working Capital:

In case the tenders having the bid closing date up to **30th September** of the relevant financial year and audited financial results of the immediate preceding financial year is not available, in such case the audited financial results of the year immediately prior to that year will be considered as last financial year for Net worth/ Working Capital calculation. Wherever the closing date of the bid is after **30th September** of the relevant financial year, Bidder has to compulsorily submit the audited financial results for the immediate preceding financial year.

D. The Bidder should not be blacklisted/ banned/put on Holiday list by M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited as on Bid due Date.



Section 1.2

Bid Evaluation Methodology

BID EVALUATION METHODOLOGY FOR AWARD

BID EVALUATION METHODOLOGY FOR AWARD

- 1.2.1 Qualified Bid as per BEC shall be evaluated on overall L1 basis.
- 1.2.2 Rajasthan State Gas Limited (RSGL) intends to distribute the tendered scope of work among Six (06) techno-commercially acceptable bidders.
- 1.2.3 The “Schedule of Rates” including GST quoted for complete scope of work shall be taken up for evaluation purpose on overall lowest cost basis.
- 1.2.4 In case, any unregistered bidder [i.e. not registered with statutory authority for GST] is submitting their bid, their prices will be loaded with applicable GST (CGST&SGST/UTGST or IGST) during evaluation of bid. In case any cess on GST is applicable, the same shall also be considered in evaluation.
- 1.2.5 The ranking of bidders (L-1, L-2, L-3 ...) shall be determined by the bidder's evaluated price in ascending order. (The bids will be evaluated based on total price including applicable GST (CGST &SGST/UTGST or IGST))
- 1.2.6 In case of tie i.e. more than one bidder quotes the same price arrived at based on evaluation, the rank will be decided based on the turnover of the preceding audited financial year. As an example, in case two bidders become L-2, bidder having higher turnover in the preceding audited financial year will be considered as L2 and other bidder will be L3.

1.2.7 WORK DISTRIBUTION FOR AWARD

- 1.2.7.1 Complete work shall be awarded to Six (06) Techno-commercially accepted bidders as per Table 1 below:

Table 1 Rank	%age of Total Scope
L1	25
L2(*)	15
L3(*)	15
L4(*)	15
L5(*)	15
L6(*)	15

(*): Upon matching with Price as quoted by L1 bidder

- 1.2.7.2 All the Techno-commercially acceptable bidders other than L-1 (irrespective of their ranks) shall be asked to confirm matching their price with L1 bidder in a single step to save on time and order shall be placed (in addition to L1 bidder) on the two (02)



bidders who have agreed to match the L1 price and are lowest in order of their rankings before matching with L1 Bidders price.

In case the total work cannot be distributed due to “non-availability of requisite numbers of techno-commercially acceptable bidders agreeing to match the L1 price” **or** “availability of less than requisite numbers of techno-commercially acceptable bidders agreeing to match L1 price”, **attempt shall be made to re-distribute the balance quantity proportionately among the techno-commercially acceptable bidders as per below table.**

No of bidders -- >		L1	L2*	L3*	L4*	L5*	L6*
Award %	Case - 1	25	15	15	15	15	15
	Case - 2	25	18.75	18.75	18.75	18.75	
	Case - 3	25	25	25	25		
	Case - 4	25	25	25			
	Case - 5	25	25				
	Case - 6	25					

*In no case more than 25% of entire Scope of Work, shall be awarded to any bidder irrespective of no. of bids received.

1.2.7.3 The balance left over quantity shall be re-tendered, if required.

1.2.8 Purchase Preferences not available being works contract.

1.2.9 **Price Preference-** Not Applicable for this tender.

1.2.1 **AWARD CRITERIA:**

The Purchaser will award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid as per Bid evaluation methodology , provided further that the Bidder is determined to be qualified to perform the contract satisfactorily.



INSTRUCTIONS TO BIDDERS [ITB]

(TO BE READ IN CONJUNCTION WITH BID DATA SHEET (BDS))

[A] – GENERAL

1.0 SCOPE OF BID

- 1.1 The Employer/ Owner/ Rajasthan state Gas Limited as defined in the "General Conditions of Contract [GCC]", wishes to receive Bids as described in the Bidding Document/ Tender Document.
- 1.2 SCOPE OF BID: The Scope of Services shall be as defined in Section 4 of the Bidding documents.
- 1.3 The successful bidder is expected to complete the scope of Bid within the period stated in Special Conditions of Contract.
- 1.4 Throughout the Bidding Documents,
 - a The terms 'Bid', 'Tender' & 'Offer' and their derivatives [Bidder/ Tenderer, Bid/ Tender/ Offer etc.] are synonymous.
 - b 'Day' means 'Calendar Day'
 - c The singular shall include the plural and vice versa wherever the context so requires.

2.0 ELIGIBLE BIDDERS

- 2.1 The Bidder or their allied agency (ies) shall not be under a declaration of ineligibility by Employer for Corrupt/ Fraudulent/ Collusive/ Coercive practices, as defined in "Instructions to Bidders [ITB], Clause No. 38" (Action in case Corrupt/ Fraudulent/ Collusive/ Coercive Practices).
- 2.2 The Bidder is not put on 'blacklisted/ banned/put on Holiday list by M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited due to "poor performance" or "corrupt and fraudulent practices") or banned/ blacklisted by Government department/ Public Sector on due date of Bid Submission.

If the bidding documents were issued inadvertently/ downloaded from website, offers submitted by such bidders shall not be considered for opening/ evaluation/Award.

In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to Rajasthan state Gas Limited by the bidder.

It shall be the sole responsibility of the bidder to inform Rajasthan state Gas Limited in case the bidder is put on blacklisted/ banned/put on Holiday list by M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited due to "poor performance" or "corrupt and fraudulent

practices”) or banned/blacklisted by Government department/ Public Sector on due date of submission of bid and during the course of finalization of the tender. Concealment of the facts shall tantamount to misrepresentation of facts and shall lead to action against such Bidders as per clause 38 of ITB.

- 2.3** The Bidder should not be under any liquidation, court receivership or similar proceedings on Due Date of Bid Submission.

In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to Rajasthan state Gas Limited by the bidder.

It shall be the sole responsibility of the bidder to inform Rajasthan state Gas Limited in case the bidder is under any liquidation, court receivership or similar proceedings on Due Date of Bid Submission and during the course of finalization of the tender. Concealment of the facts shall tantamount to misrepresentation of facts and shall lead to action against such Bidders as per clause no. 38 of ITB.

- 2.4** Bidder shall not be affiliated with a firm or entity:
- (i) that has provided consulting services related to the work to the Employer during the preparatory stages of the work or of the project of which the works/ services forms a part of or
 - (ii) that has been hired (proposed to be hired) by the Employer as an Engineer/ Consultant for the contract.

- 2.5** Neither the firm/ entity appointed as the Project Management Consultant (PMC) for a contract nor its affiliates/ JV’s/ subsidiaries shall be allowed to participate in the tendering process unless it is the sole Licensor/ Licensor nominated agent/ vendor.

- 2.6** Pursuant to qualification criteria set forth in the bidding document, the Bidder shall furnish all necessary supporting documentary evidence to establish Bidder’s claim of meeting qualification criteria.

2.7 Power of Attorney:

In case of a Single Bidder, Power of Attorney issued by the Board of Directors/ CEO/Chairman/ MD / Company Secretary of the Bidder/ all partners in case of Partnership firm/any person authorized in terms of Deed of LLP/Proprietor in favour of the authorised employee(s) of the Bidder, in respect of the particular tender for signing the Bid and all subsequent communications, agreements, documents etc. pertaining to the tender and to act and take any and all decision on behalf of the Bidder, is to be submitted.

In case of a Consortium/JV, Power of Attorney issued by Board of Directors/ CEO /Chairman MD / Company Secretary of the Consortium Leader as well as Consortium Member(s) of the Consortium/ partners of JV, in favour of the authorised employee(s) of the Consortium Leader/Lead member of JV, for signing the documents on behalf of the Bidder, in respect of this particular tender, to sign the Bid and all subsequent communications, agreements, documents etc. pertaining to the tender and act and take any and all decision on behalf of the Consortium/JV, are to be submitted.

The authorized employee(s) of the Bidder shall be signing the Bid and any consequence resulting due to such signing shall be binding on the Bidder.

The authorized employee(s) of the Bidder shall be signing the Bid and any consequence resulting due to such signing shall be binding on the Bidder.

The person holding Power of Attorney shall be also be authorized to nominate “Contractor’s Representative” for execution of Contract in case of award.

- 2.8 Bids shall be evaluated as per Bid Evaluation Criteria (BEC) as provided in Section 1.1

3.0 **BIDS FROM "JOINT VENTURE"/"CONSORTIUM" (FOR APPLICABILITY OF THIS CLAUSE REFER BIDDING DATA SHEET(BDS))**

- 3.1 Bids from consortium/ JV of two or more members (maximum three including leader) are acceptable provided that they fulfill the qualification criteria and requirements stated in the Bidding Documents. Participating Consortium/ JV shall submit the Agreement as per the format F-17 clearly defining the scope and responsibility of each member. Members of consortium/ JV shall assume responsibility jointly & severally. The EMD shall be submitted by the Bidder (Consortium/ JV).
- 3.2 The Consortium/ JV Agreement must clearly define the leader/ lead partner, who shall be responsible for timely completion of work/ services and shall receive/ send instructions for and on behalf of the consortium during the period the bid is under evaluation as well as during the execution of contract.
- 3.3 All the members shall authorize the representative from the lead partner by submitting a Power of attorney (on a non-judicial stamp paper of appropriate value) signed by legally authorized signatories of all the member(s). Such authorization must be accompanied with the bid. The authorized signatory shall sign all the documents relating to the tender/ contract. However, in case of award, payment shall be made to the consortium.
- 3.4 A consortium/ JV once established at the time of submitting the Bid shall not be allowed to be altered with respect to constituting members of the JV/ Consortium or their respective roles/ scope of work, except if and when required in writing by owner. If during the evaluation of bids, a consortium/JV proposes any alteration/ changes in the orientation of consortium/JV or replacements or inclusions or exclusions of any partner(s)/ member(s) which had originally submitted the bid, bid from such a consortium/JV shall be liable for rejection.
- 3.5 Any member of the consortium/ JV shall not be eligible either in an individual capacity or be a part of any other consortium/JV to participate in this tender. Further, no member of the consortium/ JV shall be on ‘Holiday’ by blacklisted/ banned/put on Holiday list by M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited due to “poor performance” or “corrupt and fraudulent practices”) or banned/blacklisted by Government department/ Public Sector on due date of submission of bid. Offer submitted by such consortium/ JV shall not be considered for opening/ evaluation/Award.

4.0 **ONE BID PER BIDDER**



4.1 A Firm/ Bidder shall submit only 'one [01] Bid' in the same Bidding Process. A Bidder who submits more than 'one [01] Bid' will cause all the proposals in which the Bidder has participated to be disqualified.

4.2 Alternative Bids shall not be considered.

5.0 **COST OF BIDDING**

5.1 **COST OF BIDDING:** The Bidder shall bear all costs associated with the preparation and submission of the Bid including but not limited to Bank charges, all courier charges including taxes & duties etc. incurred thereof. Further, Rajasthan state Gas Limited will in no case, be responsible or liable for these costs, regardless of the outcome of the bidding process.

6.0 **SITE VISIT**

6.1 The Bidder is advised to visit and examine the site of Works/Services and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a Contract for the required job. The costs of visiting the site shall be borne by the Bidder.

6.2 The Bidder or any of its personnel or agents shall be granted permission by the Employer to enter upon its premises and land for the purpose of such visits, but only upon the express conditions that the Bidder, its personnel and agents will release and indemnify the Employer and its personnel, agents from and against all liabilities in respect thereof, and will be responsible for death or injury, loss or damage to property, and any other loss, damage, costs, and expenses incurred as a result of inspection.

6.3 The intending bidders shall be deemed to have visited the SITE and familiarised submitting the tender. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the Works/Services in strict conformity with the DRAWINGS and SPECIFICATIONS or for any delay in performance

6.4 The Bidder shall not be entitled to hold any claim against Rajasthan state Gas Limited for non-compliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

[B]

- BIDDING DOCUMENTS

7.0 **CONTENTS OF BIDDING DOCUMENTS**

7.1 The contents of Bidding Documents / Tender Documents are those stated below, and should be read in conjunction with any 'Clarifications' or 'Addendum / Corrigendum' issued in accordance with "ITB 8.0"

- Information for Bidder [IFB]
- Instructions to Bidders [ITB]

➤ Bid Evaluation Criteria [BEC]	Section 1.1
➤ Bid Evaluation Methodology	Section 1.2
➤ General Condition of Contract [GCC]	Section 2
➤ Special Conditions of Contract [SCC]	Section 3
➤ Specifications , Drawing (wherever applicable) and Scope of Services (wherever applicable)	Section 4
➤ Price Schedule/ Schedule of Rates	Section 5

7.2 The Bidder is expected to examine all instructions, forms, terms & conditions in the Bidding Documents. The Instructions to Bidders together with all its attachments thereto, shall be considered to be read, understood and accepted by the Bidders. Failure to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will be at Bidder's risk and may result in the rejection of his Bid.

7.3 The Invitation for Bids (IFB), as provided in this document issued by the Owner, is also part of the Bidding Documents

8.0 **CLARIFICATION OF BIDDING DOCUMENTS**

8.1 A prospective Bidder requiring any clarification(s) of the Bidding Documents may notify Rajasthan state Gas Limited in writing or by fax or email at Rajasthan state Gas Limited' mailing address indicated in the **BDS** no later than 02 (two) days prior to pre-bid meeting (in cases where pre-bid meeting is scheduled) or 05 (five) days prior to the bid closing date in cases where pre-bid meeting is not held. Rajasthan state Gas Limited reserves the right to ignore the bidders request for clarification if received after the aforesaid period. Rajasthan state Gas Limited may respond in writing to the request for clarification. Rajasthan state Gas Limited' response including an explanation of the query, but without identifying the source of the query will be uploaded on Rajasthan state Gas Limited' and Government tendering websites, as mentioned in **BDS** / communicated to prospective bidders by e- mail/ fax.

8.2 Any clarification or information required by the Bidder but same not received by the Employer by way of above is liable to be considered as "no clarification / information required".

8.3 The Bidder shall submit their queries / clarifications to Rajasthan state Gas Limited in the format "F-18".

9.0 **AMENDMENT OF BIDDING DOCUMENTS**

9.1 At any time prior to the Due Date and Time of Bid Submission, Owner may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by addenda/ corrigendum.



- 9.2** Any addendum/ corrigendum thus issued shall be part of the Bidding Documents and shall be hosted on Rajasthan state Gas Limited' and Government tendering websites, as provided in **BDS**. Bidders have to take into account all such addendum/ corrigendum before submitting their bid.
- 9.3** The Employer, if it considers necessary, may extend the date of submissions of Bid in order to allow the Bidders a reasonable time to furnish their most competitive bid taking into account the amendment issued thereof.

[C]

– PREPARATION OF BIDS

10.0 LANGUAGE OF BID:

The bid prepared by the Bidder and all correspondence, drawing(s), document(s), certificate(s) etc. relating to the Bid exchanged by Bidder and Rajasthan state Gas Limited shall be written in English language only. In case a document, certificate, printed literature etc. furnished by the Bidder in in a language other than English, the same should be accompanied by an English translation duly authenticated by the Chamber of Commerce of Bidders Country, in which case, for the purpose of interpretation of the Bid, the English translation shall govern.



11.0 DOCUMENTS COMPRISING THE BID

11.1 In case the Bids are invited under the two Bid system, the Bid prepared by the Bidder shall comprise the following components.

11.1.1 PART-I: TECHNO-COMMERCIAL / UN-PRICED BID

11.1.1.1 PART-I: "TECHNO-COMMERCIAL / UN-PRICED BID"

Shall contain the following:

- a) 'Covering Letter' on Bidder's 'Letterhead' clearly specifying the enclosed contents.
- b) 'Bidder's General Information', as per 'Form F-1'.
- c) 'Bid Form', as per 'Form F-2'
- d) Copies of documents, as required in 'Form F-3'
- e) As a confirmation that the prices are quoted in requisite format complying with the requirements copy of Schedule of Rate (SOR) with prices blanked out mentioning quoted / not quoted (as applicable) written against each item.
- f) 'Letter of Authority' on the Letter Head, as per 'Form F-5'
- g) 'No Deviation Confirmation', as per 'Form F-6'
- h) 'Bidder's Declaration regarding Holiday/ Banning, Anti-Corruption, Conflict of Interest, Liquidation, Court Receivership and Bankruptcy', in 'Form F-7'
- i) 'Certificate for Non-Involvement of Government of India ' from Bidder, as per 'Form F-8'
- j) 'Agreed Terms and Conditions', as per 'Form F-10'
- k) ACKNOWLEDGEMENT CUM CONSENT LETTER', as per 'Form F-11'
- l) Duly attested [wherever attestation required] documents in accordance with the "BID EVALUATION CRITERIA [BEC]" establishing the qualification.
- m) Undertaking on the Letter head, as per the Form F-12.
- n) Power of Attorney /copy of Board Resolution, in favour of the authorized signatory of the Bid, as per clause no.2.7 of ITB
- o) Any other information/details required as per Bidding Document.
- p) EMD/ Bid Security in original as per Clause 16 of ITB [Note: Submission of Original is not applicable for online banking Transaction]
- q) All forms and Formats including Annexures.
- r) 'Indemnity Bond' as per 'Form F-19'
- s) All documents of Tender Document signed by the Authorized Signatory.
- t) Additional document specified in Bid Data Sheet (BDS), Special Conditions of Contract (SCC), Scope of Services, if any



11.1.1.2 PART-I of the bid must be submitted manually to Rajasthan state Gas Limited' as follows:

All the documents mentioned above at 11.1.1 should be submitted .The “authorized signatory” of the Bidder holding Power of Attorney must sign on all pages

bidders must submit the original "Bid Security / EMD (if applicable; submission of original is not applicable for online banking transaction), Power of Attorney, and any other documents specified in the bidding documents to address mentioned in Bid Data Sheet [BDS], Annexure-II of ITB in a sealed envelope, super scribing the Tender details & number within 7 days from the date of un-priced bid opening.

11.1.2 PART-II: PRICE BID

11.1.21 **PART-II: PRICE BID** of the Bid shall be submitted in **separate sealed envelope along with tender document** and shall contain Price Bid only. The Prices are to be submitted strictly in the Price Schedule/ Schedule of Rate (SOR) format of the Tender Document.

- 11.1.22
- i) Prices are to be submitted strictly as per the Schedule of Rate of the bidding documents The Price bid to be submitted in accordance with the SOR.
 - ii) Submission of prices in Unpriced bid shall lead to rejection of the bid. Rajasthan state Gas Limited shall not be responsible for any failure on the part of the bidder to follow the instructions.
 - iii) Bidders are advised NOT to mention Rebate/ Discount separately, either in the SOR format or anywhere else in the offer. In case Bidder(s) intend to offer any Rebate/ Discount, they should include the same in the item rate(s) itself under the “Schedule of Rates (SOR)” and indicate the discounted unit rate(s) only.
 - iv) If any unconditional rebate has been offered in the quoted rate, the same shall be considered in arriving at evaluated price. However, no cognizance shall be taken for any conditional discount for the purpose of evaluation of the bids.
 - v) In case, it is observed that any of the bidder(s) has/ have offered Suo-moto Discount/ Rebate after opening of un priced bid but before opening of price bids such discount /rebate(s) shall not be considered for evaluation. However, in the event of the bidder emerging as the lowest evaluated bidder without considering the discount/ rebate(s), then such discount/ rebate(s) offered by the bidder shall be considered for Award of Services and the same will be conclusive and binding on the bidder.
 - vi) In the event as a result of techno-commercial discussions or pursuant to seeking clarifications / confirmations from bidders, while evaluating the un-priced part of the bid, any of the bidders submits a sealed envelope stating that it contains revised prices;

such bidder(s) will be requested to withdraw the revised prices failing which the bid will not be considered for further evaluation.

- vii) In case any bidder does not quote for any item(s) of "Schedule of Rates" and the estimated price impact is more than 10% of the quoted price, then the bid will be rejected. If such price impact of unquoted items is 10% or less of his quoted price, then the unquoted item(s) shall be loaded highest of the price quoted by the other bidders. If such bidder happens to be lowest evaluated bidder, price of unquoted items shall be considered as included in the quoted bid price.

11.123 Bidders are requested to refer instructions for participating in Tendering.

11.124 In case of bids invited under single bid system, a single envelope containing all documents specified at Clause 11.1.1 & 11.1.2 of ITB above form the bid. All corresponding conditions specified at Clause 11.1.1 & 11.1.2 of ITB shall become applicable in such a case.

12.0 SCHEDULE OF RATES / BID PRICES

12.1 Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole works as described in Bidding Documents, based on the rates and prices submitted by the Bidder and accepted by the Employer. The prices quoted by the Bidders will be inclusive of all taxes except GST (CGST & SGST/UTGST or IGST).

12.2 Prices must be filled in format for "Schedule of Rates [SOR]" enclosed as part of Tender document. If quoted in separate typed sheets and any variation in item description, unit or quantity is noticed; the Bid is liable to be rejected.

12.3 Bidder shall quote for all the items of "SOR" after careful analysis of cost involved for the performance of the completed item considering all parts of the Bidding Document. In case any activity though specifically not covered in description of item under "SOR" but is required to complete the works as per Specifications, Scope of Work / Service, Standards, General Conditions of Contract ("GCC"), Special Conditions of Contract ("SCC") or any other part of Bidding Document, the prices quoted shall be deemed to be inclusive of cost incurred for such activity.

12.4 All duties, taxes and other levies [if any] payable by the Contractor under the Contract, or for any other cause except final GST (CGST & SGST/UTGST or IGST) shall be included in the rates / prices and the total bid-price submitted by the Bidder. Applicable rate of GST (CGST & SGST/UTGST or IGST) on the contract value shall be indicated in Agreed Terms & Conditions (Format given in the bidding document) and SOR. Rajasthan state Gas Limited GST numbers shall be provided on award.

12.5 Prices quoted by the Bidder, shall remain firm and fixed and valid until completion of the Contract and will not be subject to variation on any

account. Any new taxes & Duties, if imposed by the State/ Govt. of India after due date of bid submission but before the Contractual Delivery Date, shall be reimbursed to the contractor on submission of documentary evidence for proof of payment to State/ Govt. Authorities and after ascertaining it's applicability with respect to the contract.

- 12.6 The Bidder shall quote the prices in 'figures' & words. There should not be any discrepancy between the prices indicated in figures and the price indicated in words. In case of any discrepancy, the same shall be dealt as stipulated in ITB of bidding document.
- 12.7 Further, Bidder shall also mention the Service Accounting Codes (SAC) at the designated place in SOR.
- 12.8 The quantities shown against the various items are only approximate. Any increase or decrease in the quantities shall not form the basis of alteration of the rates quoted and accepted.
- 12.9 The EMPLOYER reserves the right to interpolate the rates for such items of work/service falling between similar items of lower and higher magnitude.

13.0 GST (CGST & SGST/ UTGST or IGST)

- 13.1 Bidders are required to submit copy of the GST Registration Certificate while submitting the bids wherever GST (CGST & SGST/UTGST or IGST) is applicable.
- 13.2 Quoted prices should be inclusive of all taxes and duties, except GST (CGST & SGST or IGST or UTGST). Please note that the responsibility of payment of GST (CGST & SGST or IGST or UTGST) lies with the Supplier of Goods / Services only. Supplier of Goods / Services (Service Provider) providing taxable service shall issue an Invoice/Bill, as the case may be as per rules/ regulation of GST. Further, returns and details required to be filled under GST laws & rules should be timely filed by Supplier of Goods / Services (Service Provider) with requisite details.

Payments to Service Provider for claiming GST (CGST & SGST/UTGST or IGST) amount will be made provided the above formalities are fulfilled. Further, Rajasthan state Gas Limited may seek copies of challan and certificate from Chartered Accountant for deposit of GST (CGST & SGST/UTGST or IGST) collected from Owner.

- 13.3 In case CBEC (Central Board of Excise and Customs)/ any equivalent government agency brings to the notice of Rajasthan state Gas Limited that the Supplier of Goods / Services (Service Provider) has not remitted the amount towards GST (CGST & SGST/UTGST or IGST) collected from Rajasthan state Gas Limited to the government exchequer, then, that Supplier of Goods / Services (Service Provider) shall be put under Holiday

list of Rajasthan state Gas Limited for period of six months as mentioned in Procedure for Evaluation of Performance of Vendors/Suppliers/Contractors/ Consultants.

- 13.4** In case of statutory variation in GST (CGST & SGST/UTGST or IGST), other than due to change in turnover, payable on the contract value during contract period, the Supplier of Goods / Services (Service Provider) shall submit a copy of the 'Government Notification' to evidence the rate as applicable on the Bid due date and on the date of revision.

Beyond the contract period, any increase in the rate of GST (CGST & SGST/UTGST or IGST) beyond the contractual delivery period shall be to Service Provider's account whereas any decrease in the rate GST (CGST & SGST/UTGST or IGST) shall be passed on to the Owner.

Claim for payment of GST (CGST & SGST/UTGST or IGST)/ Statutory variation, should be raised within two [02] months from the date of issue of 'Government Notification' for payment of differential (in %) GST (CGST & SGST/UTGST or IGST), otherwise claim in respect of above shall not be entertained for payment of arrears.

The base date for the purpose of applying statutory variation shall be the Bid Due Date.

- 13.5** Owner/Rajasthan state Gas Limited will reimburse GST (CGST & SGST/UTGST or IGST) to the Supplier of Goods / Services (Service Provider) at actuals against submission of Invoices as per format specified in rules/ regulation of GST subject to the ceiling amount of GST (CGST & SGST/UTGST or IGST) as quoted by the bidder, subject to any statutory variations, except variations arising due to change in turnover. In case of any variation in the executed quantities (If directed and/or certified by the Engineer-In-Charge) the ceiling amount on which GST (CGST & SGST/UTGST or IGST) is applicable will be modified on pro-rata basis.

The bids will be evaluated based on total price including applicable GST (CGST & SGST/UTGST or IGST).

- 13.6** Rajasthan state Gas Limited will prefer to deal with registered supplier of goods/ services under GST. Therefore, bidders are requested to get themselves registered under GST, if not registered yet.

However, in case any unregistered bidder is submitting their bid, their prices will be loaded with applicable GST (CGST & SGST/UTGST or IGST) while evaluation of bid. .

- 13.7** In case Rajasthan state Gas Limited is required to pay entire/certain portion of applicable GST (CGST & SGST/UTGST or IGST) and remaining portion, if any, is to be deposited by Bidder directly as per GST (CGST & SGST/UTGST or IGST) laws, entire applicable rate/amount of GST (CGST & SGST/UTGST or IGST) to be indicated by bidder in the SOR.

Where Rajasthan state Gas Limited has the obligation to discharge GST (CGST & SGST/UTGST or IGST) liability under reverse charge mechanism and Rajasthan state Gas Limited has paid or is /liable to pay GST (CGST & SGST/UTGST or IGST) to the Government on which interest or penalties becomes payable as per GST laws for any reason which is not attributable to Rajasthan state Gas Limited or ITC with

respect to such payments is not available to Rajasthan state Gas Limited for any reason which is not attributable to Rajasthan state Gas Limited, then Rajasthan state Gas Limited shall be entitled to deduct/ setoff /recover such amounts against any amounts paid or payable by Rajasthan state Gas Limited to Contractor / Supplier.

13.8 Contractor shall ensure timely submission of invoice(s) as per rules/ regulations of GST with all required supporting document(s) within a period specified in Contracts/ LOA to enable Rajasthan state Gas Limited to avail input tax credit. Further, returns and details required to be filled under GST laws & rules should be timely filed by supplier with requisite details.

13.9 In case the GST rating of vendor on the GST portal / Govt. official website is negative / black listed, then the bids may be rejected by Rajasthan state Gas Limited. Further, in case rating of bidder is negative / black listed after award of work for supply of goods / services, then Rajasthan state Gas Limited shall not be obligated or liable to pay or reimburse GST to such vendor and shall also be entitled to deduct / recover such GST along with all penalties / interest, if any, incurred by Rajasthan state Gas Limited.

13.10 Anti-profiteering clause

As per Clause 171 of GST Act it is mandatory to pass on the benefit due to reduction in rate of tax or from input tax credit to the consumer by way of commensurate reduction in prices. The Supplier of Goods may note the above and quote their prices accordingly.

13.11 In case the GST rating of vendor on the GST portal / Govt. official website is negative / black listed, then the bids may be rejected by Rajasthan state Gas Limited. Further, in case rating of bidder is negative / black listed after award of work for supply of goods / services, then RAJASTHAN STATE shall not be obligated or liable to pay or reimburse GST to such vendor and shall also be entitled to deduct / recover such GST along with all penalties / interest, if any, incurred by Rajasthan state Gas Limited.

13.12 GST (CGST & SGST/UTGST or IGST) is implemented w.e.f. 01.07.2017 which subsumed various indirect taxes and duties applicable before 01.07.2017. Accordingly, the provisions of General Condition of Contract relating to taxes and duties which are subsumed in GST are modified to aforesaid provisions mentioned in clause no. 12 and 13 of ITB.



14.0 **BID CURRENCIES:**

Bidders must submit bid in Indian Rupees only.

15.0 **BID VALIDITY**

15.1 Bids shall be kept valid for a period of 90 days from the Due Date of Bid Submission. A Bid valid for a shorter period may be rejected by Rajasthan state Gas Limited as 'non-responsive'.

15.2 In exceptional circumstances, prior to expiry of the original 'Bid Validity Period', the Employer may request the Bidders to extend the 'Period of Bid Validity' for a specified additional period. The request and the responses thereto shall be made in writing or by fax/ email. A Bidder may refuse the request without forfeiture of his 'Bid Security'. A Bidder agreeing to the request will not be required or permitted to modify his Bid, but will be required to extend the validity of its 'Bid Security' for the period of the extension and in accordance with "ITB: Clause-16" in all respects.

16.0 **EARNEST MONEY DEPOSIT/ BID SECURITY** (FOR APPLICABILITY OF THIS CLAUSE REFER BID DATA SHEET(BDS))

16.1 Bids must be accompanied with 'Earnest Money Deposit/ Bid Security' in the form of 'Online Banking transaction', 'Demand Draft' or 'Banker's Cheque' [in favour of Rajasthan state Gas Limited, payable at the place as defined in BDS] or 'Bank Guarantee' or 'Letter of Credit' as per the format given in Form -4/4A of the bidding documents or) [in favour of Rajasthan state Gas Limited]. Please refer BDS for further details. Bidders shall ensure that 'Bid Security', having a validity of at least two [02] months' beyond the validity of the bid, must accompany the Bid in the format(s) made available in the Bidding Document. Bid not accompanied with 'Bid Security', or 'Bid Security' not in requisite form shall be liable for rejection. The Bid Security shall be submitted in Indian Rupees only.

To enable the bidders to utilize online transaction option, Bank details of Rajasthan state Gas Limited is as specified in Bid Data Sheet [BDS].

Bidder is required to upload the successful Transaction Details along with their e-bid. In case of online transaction, submission of EMD in original is not applicable.

16.2 The 'Bid Security' is required to protect Rajasthan state Gas Limited against the risk of Bidder's conduct, which would warrant the 'Bid Security's' forfeiture, pursuant to "ITB: Clause-16.7".

16.3 Rajasthan state Gas Limited shall not be liable to pay any Bank charges, commission or interest etc. on the amount of 'Bid Security'. In case 'Bid Security' is in the form of a 'Bank Guarantee', the same shall be from any

Indian scheduled Bank or a branch of an International Bank situated in India and registered with 'Reserve Bank of India' as Scheduled Foreign Bank. However, in case of 'Bank Guarantee' from Banks other than the Nationalized Indian Banks, the Bank must be commercial Bank having net worth in excess of Rs.100Crores [Rupees One Hundred Crores] or its equivalent in foreign currency and a declaration to this effect should be made by such commercial Bank either in the 'Bank Guarantee' itself or separately on its letterhead. 'Earnest Money / Bid Security' shall be valid for 'two [02] months' beyond the 'Bid Validity Period'

- 16.4 Any Bid not secured in accordance with "ITB: Clause-16.1 & Clause-16.3" may be rejected by Rajasthan state Gas Limited as non-responsive.
- 16.5 Unsuccessful Bidder's 'Earnest Money Deposit/ Bid Security' will be discharged/ returned as promptly as possible, but not later than 'thirty [30] days' after finalization of tender.
- 16.6 The successful Bidder's 'Bid Security' will be discharged upon the Bidder's acknowledging the 'Award' and signing the 'Agreement' and furnishing the 'Contract Performance Guarantee / Security Deposit' pursuant to clause 36 & 37 of ITB.
- 16.7 Notwithstanding anything contained herein, the 'Bid Security' may also be forfeited in any of the following cases:
 - a) If a Bidder withdraws his Bid during the 'Period of Bid Validity'
 - b) If a Bidder has indulged in corrupt/fraudulent /collusive/coercive practice
 - c) If the Bidder modifies bids during the period of bid validity (after Due Date and Time for Bid Submission).
 - d) Violates any other condition, mentioned elsewhere in the tender document, which may lead to forfeiture of EMD.
 - e) In the case of a successful Bidder, if the Bidder fails to:
 - i) to furnish "Contract Performance Guarantee / Security Deposit", in accordance with "ITB: Clause-37"
 - ii) to accept 'arithmetical corrections' as per provision of the clause 30 of ITB.
- 16.8 Bid Security should be in favour of Rajasthan state Gas Limited and addressed to Rajasthan state Gas Limited. In case Bid Security is in the form of 'Bank Guarantee' or 'Letter of Credit', the same must indicate the Bid Document No. and the Services for which the Bidder is quoting. This is essential to have proper correlation at a later date. The 'Bid Security' should be in the form provided at 'Form F-4'/'Form F-4A'.
- 16.9 MSEs (Micro & Small Enterprises) are exempted from submission of EMD/ Bid Security as stipulated in Clause 39 of ITB. However, Traders/Dealers/ Distributors /Stockiest /Wholesaler are not entitled for exemption of EMD. The Government Departments/ PSUs are also exempted from the payment of Bid Security.



17.0 PRE-BID MEETING

- 17.1** The Bidder(s) or his designated representative are invited to attend a "Pre- Bid Meeting" which will be held at the time and address as specified in BDS. It is expected that a bidder shall not depute more than 02 representatives for the meeting.
- 17.2** Purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage and give hands-on tendering process. The Bidder must submit their queries / clarifications to Rajasthan state Gas Limited in the format "F-18", as mentioned at clause no. 8.0 of ITB.
- 17.3** Text of the questions raised and the responses given, together with any responses prepared after the meeting, will be uploaded on Rajasthan state Gas Limited tendering website against the Tender. Any modification of the Contents of Bidding Documents listed in "ITB: Clause-7.1", that may become necessary as a result of the Pre-Bid Meeting shall be made by the Employer exclusively through the issue of an Addendum / Corrigendum pursuant to "ITB: Clause- 9", and not through the minutes of the Pre-Bid Meeting.
- 17.4** Non-attendance of the Pre-Bid Meeting will not be a cause for disqualification of Bidder.

18.0 FORMAT AND SIGNING OF BID

- 18.1** The Bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder (as per POA). The name and position held by each person signing, must be typed or printed below the signature. All pages of the Bid except for un-amended printed literature where entry(s) or amendment(s) have been made shall be initialed by the person or persons signing the Bid.
- 18.2** The Bid shall contain no alterations, omissions, or additions, unless such corrections are initialed by the person or persons signing the Bid.

19.0 ZERO DEVIATION AND REJECTION CRITERIA

- 19.1 ZERO DEVIATION:** Deviation to terms and conditions of "Bidding Documents" may lead to rejection of bid. Rajasthan state Gas Limited will accept bids based on terms & conditions of "Bidding Documents" only. Rajasthan state Gas Limited will determine the substantial responsiveness of each bid to the Bidding Documents pursuant to provision contained in clause 29 of ITB. For purpose of this, a substantially responsive bid is one which conforms to all terms and conditions of the Bidding Documents without deviations or reservations. Rajasthan state Gas Limited' determination of a bid's responsiveness is based on the content of the bid

itself without recourse to extrinsic evidence. Rajasthan state Gas Limited reserves the right to raise technical and/or commercial query(s), if required, on the bidder(s). The response(s) to the same shall be submitted in writing within the permitted time frame and no change in the price(s) or substance of the bids shall be sought, offered or permitted. The substance of the bid includes but not limited to prices, completion, scope, technical specifications, etc. Bidders are requested not to take any deviation/exception to the terms and conditions laid down in this "Tender Documents", and submit all requisite documents as mentioned in this "Tender Documents", failing which their offer will be liable for rejection. If a bidder does not reply to the queries in the permitted time frame then its bid shall be evaluated based on the documents available in the bid.

19.2 REJECTION CRITERIA: Notwithstanding the above, deviation to the following clauses of Tender document shall lead to summarily rejection of Bid:

- a) Firm Price
- b) Earnest Money Deposit / Bid Security
- c) Specifications & Scope of Services
- d) Schedule of Rates / Price Schedule / Price Basis
- e) Duration / Period of Contract/ Completion schedule
- f) Period of Validity of Bid
- g) Price Reduction Schedule
- h) Contract Performance Bank Guarantee / Security Deposit
- i) Guarantee / Defect Liability Period
- j) Arbitration / Resolution of Dispute/Jurisdiction of Court
- k) Force Majeure & Applicable Laws
- l) Payment terms
- m) Any other condition specifically mentioned in the tender document elsewhere that non-compliance of the clause lead to rejection of bid
- n) Submission of prices in un priced /technical Bid

Note: Further, it is once again reminded not to mention any condition in the Bid which is contradictory to the terms and conditions of Tender document.

20.0 E-PAYMENT

20.1 Rajasthan state Gas Limited has introduced payments to Suppliers and Contractors electronically, through 'e-banking'. The successful bidder should give the details of his bank account as per the bank mandate form.

20.2 Further, to promote cashless transactions, the onward payments by Contractors to their employees, service providers, sub-contractors and suppliers may be made through Cards and Digital means to the extent possible.

[D]

– SUBMISSION OF BIDS

21.0 BID SUBMISSION



21.1 Bids shall be submitted through manual mode/hard copy in the manner specified elsewhere in tender document.

21.2 Bidders are required to submit original Bid Security/ EMD, tender fee (as applicable), Power of Attorney and any other documents (as specified in the tender) at the address specified in BDS

21.3 Bids submitted under the name of AGENT/ CONSULTANT/REPRESENTATIVE/ RETAINER/ ASSOCIATE etc. on behalf of abidder/ affiliate shall not be accepted.

22.0 **DUE DATE AND TIME OF BID SUBMISSION**

22.1 The bids must be submitted through Manual mode/hard copy not later than the date and time specified in the tender documents/ BDS.

22.2 Rajasthan state Gas Limited may, in exceptional circumstances and at its discretion, extend the deadline for submission of Bids (clause 9 of ITB refers). In which case all rights and obligations of Rajasthan state Gas Limited and the Bidders, previously subject to the original deadline will thereafter be subject to the deadline as extended. Notice for extension of bid submission date will be uploaded on Rajasthan state Gas Limited' website/ Rajasthan state Gas Limited tender portal /communicated to the bidders.

23.0 **LATE BIDS**

23.1 Bidders must ensure submission of bids within the Due Date and Time of Bid Submission., Tendering system of Rajasthan state Gas Limited shall close immediately after the deadline for submission of bid and no bids can be submitted thereafter. Where the bid bond/ physical documents has been received but the bid is not submitted by the bidder in the e- tendering portal, such bid bond/ physical documents shall be returned/Rejected immediately.

24.0 **MODIFICATION AND WITHDRAWAL OF BIDS**

24.1 The bidder may withdraw or modify its bid after bid submission but before the Due Date and Time of Bid Submission as per tender document.

24.2 The modification shall also be prepared and uploaded in accordance with the provision of the clause 22 of ITB. No bid shall be modified/ withdrawn after the Due Date and Time of Bid Submission.

24.3 Withdrawal/ Modification/Substitution of a bid during the interval between the Due Date and Time for Bid Submission and the expiration of the Bid Validity Period shall result in

the bidder's forfeiture of his bid security pursuant to clause 16 of ITB and rejection of bid.

- 24.4 The latest bid submitted shall be considered for evaluation and all other bids shall be considered to be unconditionally withdrawn.
- 24.5 In case after price bid opening the lowest evaluated bidder (L1) is not awarded the job for any mistake committed by him in bidding or withdrawal of bid or modification of bid or varying any term in regard thereof leading to re-tendering, Rajasthan state Gas Limited shall forfeit EMD paid by the bidder and such bidders shall be debarred from participation in re-tendering of the same job(s)/item(s). Further, such bidder will be put on holiday for a period of six months after following the due procedure as per Annexure-IV of ITB.

25.0 EMPLOYER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

Rajasthan state Gas Limited reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids, at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligations to inform the affected Bidder or Bidders of the ground for Rajasthan state Gas Limited' action. However, Bidder if so, desire may seek the reason (in writing) for rejection of their Bid to which Rajasthan state Gas Limited shall reserve the right to respond or reject.

[E] – BID OPENING AND EVALUATION

26.0 BID OPENING

- 26.1 ***Unpriced Bid Opening:*** Rajasthan state Gas Limited will open bids, in the presence of bidders' designated representatives who choose to attend, at date, time and location stipulated in the BDS. The bidders' representatives, who are present shall sign a bid opening statement/ register evidencing their attendance.

26.2 *Price Bid Opening:*

- 2621 Rajasthan state Gas Limited will open the price bids of those bidders who meet the qualification requirement and whose bids are determined to be technically and commercially responsive. Bidders selected for opening of their price bids shall be informed about the date of price bid opening. Bidders may depute their authorized representative to attend the bid opening. The bidders' representatives, who are present shall sign a register evidencing their attendance and may be required to be present on a short notice.
- 2622 The price bids of those bidders who were not found to be techno-commercially responsive shall be unopened.
- 26.3 In case of bids invited under the single bid system, bid shall be opened on the specified due date & time.



27.0 CONFIDENTIALITY:

- 27.1 During Bid Process:** Information relating to the examination, clarification, evaluation, and comparison of Bids, and recommendations for the award of a Contract, shall not be disclosed to any person(s) not officially concerned with such process.
- 27.2 Post Award of Contract:** The CONTRACTOR shall not communicate or use in advertising, publicity, sales releases or in any other medium, photographs, or other reproduction of the work/services under this CONTRACT or description of the site dimensions, quantity, quality or other information, concerning the work/services unless prior written permission has been obtained from the EMPLOYER.

28.0 CONTACTING THE EMPLOYER

- 28.1** From the time of Bid opening to the time of award of Contract, if any Bidder wishes to contact the Employer on any matter related to the Bid, it should do so in writing.
- 28.2** Any effort by the Bidder to influence the Employer in the Employer's 'Bid Evaluation', 'Bid Comparison', or 'Contract Award' decisions may result in the rejection of the Bidder's Bid and action shall be initiated as per procedure in this regard.

29.0 EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS

- 29.1** The Owner's determination of a bid's responsiveness is based on the content of the bid only. Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid
- a) Meets the "Bid Evaluation Criteria" of the Bidding Documents;
 - b) Has been properly signed;
 - c) Is accompanied by the required 'Earnest Money / Bid Security';
 - d) Is substantially responsive to the requirements of the Bidding Documents; and
 - e) Provides any clarification and/or substantiation that the Employer may require to determine responsiveness pursuant to "ITB: Clause-29.2"



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- 29.2** A substantially responsive Bid is one which conforms to all the terms, conditions and specifications of the Bidding Documents without material deviations or reservations or omissions. For this purpose, Employer defines the foregoing terms below:
- a) “Deviation” is departure from the requirement specified in the tender documents.
 - b) “Reservation” is the setting of limiting conditions or withholding from complete acceptance of the requirement in the tender documents.
 - c) “Omission” is the failure to submit part or all of the information or documentation required in the tender document.
- 29.3** A material deviation, reservation or omission is one that,
- a) If accepted would,
 - i) Affect in any substantial way the scope, quality, or performance of the job as specified in tender documents.
 - ii) Limit, in any substantial way, inconsistent with the Tender Document, the Employer’s rights or the tenderer’s obligations under the proposed Contract.
 - b) If rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.
- 29.4** The Employer shall examine all aspects of the bid to confirm that all requirements have been met without any material deviation, reservation or omission.
- 29.5** If a Bid is not substantially responsive, it may be rejected by the Employer and may not subsequently be made responsive by correction or withdrawal of the material deviation, reservation or omission.

30.0 CORRECTION OF ERRORS

- 30.1** Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- i) When there is a difference between the rates in figures and words, the rate which corresponds to the amount worked out by the contractor (by multiplying the quantity and rate) shall be taken as correct.
 - ii) When the rate quoted by the contractor in figures and words tallies but the amount is incorrect, the rate quoted by the contractor shall be taken as correct and not the amount and the amount will be corrected accordingly.
 - iii) When it is not possible to ascertain the correct rate, in the manner prescribed above, the rate as quoted in words shall be taken as correct and the amount will be corrected accordingly.
 - iv) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
- 30.2** The amount stated in the bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security shall be forfeited.



31.0 EVALUATION AND COMPARISON OF BIDS

Bid shall be evaluated as per evaluation criteria mentioned in Section 1.1 of bidding documents.

32.0 COMPENSATION FOR EXTENDED STAY (FOR APPLICABILITY OF THIS CLAUSE REFER BDS):-

- 32.1** In the event of the time of completions of work getting delayed beyond the time schedule indicated in the bidding document plus a grace period equivalent to 1/5th of the time schedule or 2 months whichever is more, due to reasons solely attributable to Employer, the Contractor shall be paid compensation for extended stay (ESC) to maintain necessary organizational set up and construction tools, tackles, equipment etc. at site of work.

The bidder is required to specify the rate for ESC on per month basis in the "PRICE PART" of his bid, which shall be considered for loading on total quoted price during price bid evaluation. The loading shall be done of a period of 1/5th of the time schedule or 1 month whichever is less. In case bidder does not indicate the rate for ESC in price part of

his bid, it will be presumed that no ESC is required by the bidder and evaluation shall be carried out accordingly.

[F]

- AWARD OF CONTRACT

33.0 AWARD

Subject to "ITB: Clause-29", Rajasthan state Gas Limited will award the Contract to the successful Bidder whose Bid has been determined to be substantially responsive and has been determined as the lowest evaluated Bid.

34.0 NOTIFICATION OF AWARD / FAX OF ACCEPTANCE

- 34.1** Prior to the expiry of 'Period of Bid Validity', Notification of Award for acceptance of the Bid will be intimated to the successful Bidder by Rajasthan state Gas Limited either by Fax / E - mail / Letter or like means defined as the "Fax of Acceptance (FOA)". The Contract shall enter into force on the date of FOA and the same shall be binding on Rajasthan state Gas Limited and successful Bidder (i.e. Supplier/ Seller). The Notification of Award/ FOA will constitute the formation of a Contract. The detailed Letter of Acceptance (LOA) / Purchase Order / Contract shall be issued thereafter incorporating terms & conditions of Tender Document, Corrigendum, Clarification(s), Bid and agreed variation(s)/acceptable deviation(s), if any. Rajasthan state Gas Limited may choose to issue Notification of Award in form of detailed LOA / Purchase Order without issuing FOA and in such case the Contract shall enter into force on the date of detailed Purchase Order only.

- 34.2** Contract period shall commence from the date of "Notification of Award" / "Fax of Acceptance" or as mentioned in the Notification of Award / Fax of Acceptance. The "Notification of Award" will constitute the formation of a Contract, until the Contract

has been effected pursuant to signing of Contract as per "ITB: Clause-36".

Upon the successful Bidder's / Contractor's furnishing of 'Contract Performance Guarantee / Security Deposit', pursuant to "ITB: Clause-37", Rajasthan state Gas Limited will promptly discharge his 'Earnest Money / Bid Security', pursuant to "ITB: Clause-16"

33 SIGNING OF AGREEMENT

33.1 Rajasthan state Gas Limited will award the Contract to the successful Bidder, who, within 'fifteen [15] days' of receipt of the same, shall sign and return the acknowledged copy to Rajasthan state Gas Limited.

33.2 The successful Bidder/ Contractor shall be required to execute an 'Agreement' in the proforma given in this Bidding Document on a 'non- judicial stamp paper' of appropriate value [cost of the 'stamp-paper' shall be borne by the successful Bidder/ Contractor] and of 'state' specified in Bid Data Sheet (BDS) only, within 'fifteen [15] days' of receipt of the "Letter of Acceptance [LOA]" of the Tender by the successful Bidder/ Contractor. Failure on the part of the successful Bidder/ Contractor to sign the 'Agreement' within the above stipulated period, shall constitute sufficient grounds for forfeiture of EMD/ Security Deposit.

34 CONTRACT PERFORMANCE GUARANTEE/ SECURITY DEPOSIT

34.1 Within 30 days of the receipt of the notification of award/ FOA from Rajasthan state Gas Limited, the successful Bidder shall furnish the Contract Performance Guarantee/Security Deposit. The Contract Performance Guarantee shall be in the form of either Banker's Cheque or Demand Draft or Bank Guarantee or Letter of Credit and shall be in the currency of the Contract. However, CPG/SD shall not be applicable in cases wherein the individual order value as specified in Notification of Award is upto INR 5 Lakh (excluding GST).

34.2 The Contract Performance Guarantee shall be for an amount as specified in BDS towards faithful performance of the contractual obligations and performance of equipment/material. For the purpose of Contract Performance Guarantee, Contract Value shall be exclusive of taxes and duties / **GST (CGST & SGST/UTGST or IGST)**.

34.3 Bank Guarantee towards Contract Performance Guarantee shall be from any Indian scheduled bank or a branch of an International bank situated in India and registered with Reserve bank of India as scheduled foreign bank in case of Indian bidder as well as foreign bidder. However, in case of bank guarantees from banks other than the Nationalized Indian banks, the bank must be a commercial bank having net worth in excess of Rs 100 crores or its equivalent in foreign currency and a declaration to this effect should be made by such commercial bank either in the Bank Guarantee itself or separately on its letterhead. This bank guarantee shall be valid for a period as three months beyond the Warranty/ Guarantee Period specified in Tender Document.

34.4 Failure of the successful Bidder to comply with the requirements of this article shall

constitute sufficient grounds for the annulment of the award and forfeiture of the EMD.

34.5 The Contract Performance Guarantee has to cover the entire contract value including extra works/services also. As long as the Contract Performance Guarantee submitted at the time of award take cares the extra works/ services executed and total executed value are within the awarded contract price, there is no need for additional Contract Performance Guarantee. As soon as the total executed value is likely to burst the ceiling of awarded contract price, the contractor should furnish additional Contract Performance Guarantee.

34.6 Further, the bidder can submit CPBG on line through issuing bank to Rajasthan state Gas Limited directly as per Ministry of Finance (MOF) Department of financial service direction vide letter ref number F.No.7/112/2011-BOA dated 17th July 2012. In such cases confirmation will not be sought from issuing banker by Rajasthan state Gas Limited.

35.0 PROCEDURE FOR ACTION IN CASE CORRUPT/ FRAUDULENT /COLLUSIVE/ COERCIVE PRACTICES

35.1 Procedure for action in case Corrupt/ Fraudulent/Collusive/Coercive Practices is enclosed at Annexure-III.

35.2 The Fraud Prevention Policy document is available on Gail gas web site shall be applicable which shall be applicable for RSGL on mutatis-mutandis basis.

36.0 NON-APPLICABILITY OF ARBITRATION CLAUSE IN CASE OF BANNING OF VENDORS/ SUPPLIERS / CONTRACTORS /BIDDERS/ CONSULTANTS INDULGED IN FRAUDULENT/ COERCIVE PRACTICES:

Notwithstanding anything contained contrary in GCC and other "CONTRACT DOCUMENTS", in case it is found that the Vendors/ Suppliers / Contractors/Bidders/ Consultants indulged in fraudulent/ coercive practices at the time of bidding, during execution of the contract etc., and/or on other grounds as mentioned in Rajasthan state Gas Limited' "Procedure for action in case Corrupt/Fraudulent/Collusive/Coercive Practices" (Annexure-III), the contractor/bidder shall be banned (in terms of aforesaid procedure) from the date of issuance of such order by Rajasthan state Gas Limited Ltd., to such Vendors/ Suppliers / Contractors/Bidders/ Consultants.

The Vendor/ Supplier / Contractor/ Bidder/Consultant understands and agrees that in such cases where Vendor/ Supplier / Contractor/ Bidder/Consultant has been banned (in terms of aforesaid procedure) from the date of issuance of such order by Rajasthan state Gas Limited, such decision of Rajasthan state Gas Limited shall be final and binding on such Vendor/ Supplier / Contractor/ Bidder/Consultant and the 'Arbitration clause' in the GCC and other "CONTRACT DOCUMENTS" shall not be applicable for any consequential issue /dispute arising in the matter.



37.0 AHR ITEMS

39.1 In item rate contract where the quoted rates for the items exceed 50% of the estimate rates, such items will be considered as Abnormally High Rates (AHR) items and payment of AHR items beyond the SOR stipulated quantities shall be made at the lowest amongst the following rates:

- I. Rates as per SOR, quoted by the Contractor/Bidder.
- II. Rate of the item, which shall be derived as follows:
 - a) Based on rates of Machine and labour as available from the contract (which includes contractor's supervision, profit, overheads and other expenses).
 - b) In case rates are not available in the contract, rates will be calculated based on prevailing market rates of machine, material and labour plus 15% to cover contractor's supervision profit, overhead & other expenses.

38 VENDOR PERFORMANCE EVALUATION

The procedure for evaluation of performance of Supplier containing provisions for putting a Bidder / Supplier on suspension and/or holiday list (as the case may be) is enclosed as Annexure IV.

39 INCOME TAX & CORPORATE TAX

Income tax deduction shall be made from all payments made to the contractor as per the rules and regulations in force and in accordance with the Income Tax Act prevailing from time to time.

39.1 Corporate Tax liability, if any, shall be to the contractor's account.

39.2 TDS, wherever applicable, shall be deducted as per applicable act/law/rule.

39.3 MENTIONING OF PAN NO. IN INVOICE/BILL

As per CBDT Notification No. 95/2015 dated 30.12.2015, mentioning of PAN no. is mandatory for procurement of goods/services/works/consultancy services exceeding Rs. cs per transaction.

Accordingly, service provider should mention their PAN no. in their invoice/ bill for any transaction exceeding Rs. 2 lakhs. As provided in the notification, in case service provider do not have PAN no., they have to submit declaration in Form 60 along with invoice/ bill for each transaction.

Payment of supplier/ contractor / service provider/ consultant shall be processed only after fulfilment of above requirement.

40.0 SETTLEMENT OF COMMERCIAL DISPUTES BETWEEN PUBLIC SECTOR ENTERPRISE(S) INTER-SE AND PUBLIC SECTOR ENTERPRISE(S) AND GOVERNMENT DEPARTMENT (S) THROUGH PERMANENT MACHINERY OF ARBITRATION (PMA) IN THE



DEPARTMENT OF PUBLIC ENTERPRISES

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contracts, such dispute or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitrator under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary / Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

41.0 DISPUTE RESOLUTION (ADDENDUM TO PROVISION REGARDING APPLICABLE LAWS AND SETTLEMENT OF DISPUTES OF GCC) (RULES FRAMED BY GAIL GAS LTD. SHALL BE APPLICABLE FOR RSGI ALSO AS DEFINED BELOW ON MUTATIS-MUTANDIS BASIS)

GAIL Gas Ltd. has framed the Conciliation Rules 2013 in conformity with supplementary to Part – III of the Indian Arbitration and Conciliation Act 1996 for speedier, cost effective and amicable settlement of disputes through conciliation. A copy of the said rules made available on GAIL gas web site for reference. Unless otherwise specified, the matters where decision of the Engineer-in-Charge is deemed to be final and binding as provided in the Agreement and the issues/disputes which cannot be mutually resolved within a reasonable time, all disputes shall be settled in accordance with the Conciliation Rules 2013.

- 42.0 Any dispute(s)/difference(s)/issue(s) of any kind whatsoever between/ amongst the Parties arising under/out of/in connection with this contract shall be settled in accordance with the afore said rules 3.0
- 42.1 In case of any dispute(s)/difference(s)/issue(s), a Party shall notify the other Party (ies) in writing about such a dispute(s)/ difference(s) / issue(s) between / amongst the Parties and that such a Party wishes to refer the dispute(s)/difference(s)/issue(s) to Conciliation. Such invitation for Conciliation shall contain sufficient information as to the dispute(s)/difference(s)/issue(s) to enable the other Party (ies) to be fully informed as to the nature of the dispute(s)/difference(s)/issue(s), the amount of monetary claim, if any, and apparent cause(s) of action.
- 42.2 Conciliation proceedings commence when the other Party(ies) accept(s) the invitation to conciliate and confirmed in writing. If the other Party (ies) reject(s) the invitation, there will be no conciliation proceedings.
- 42.3 If the Party initiating conciliation does not receive a reply within thirty days from the date on which he/she sends the invitation, or within such other period of time as specified in the invitation, he/she may elect to treat this as a rejection of the invitation to conciliate. If he/she so elects, he/she shall inform the other Party(ies) accordingly.



- 42.4 Where Invitation for Conciliation has been furnished, the Parties shall attempt to settle such dispute(s) amicably under Part-III of the Indian Arbitration and Conciliation Act, 1996 and GAIL Gas Conciliation Rules, 2013 (Applicable for RSGL). It would be only after exhausting the option of Conciliation as an Alternate Dispute Resolution Mechanism that the Parties heretoshall go for Arbitration. For the purpose of this clause, the option of „Conciliation“ shall be deemed to have been exhausted, even in case of rejection of „Conciliation“ by any of the Parties.
- 43.0 The cost of Conciliation proceedings including but not limited to fees for Conciliator(s), Airfare, Local Transport, Accommodation, cost towards conference facility etc. shall be borne by the Parties equally.

The Parties shall freeze claim(s) of interest, if any, and shall not claim the same during the pendency of Conciliation proceedings. The Settlement Agreement, as and when reached/agreed upon, shall be signed between the Parties and Conciliation proceedings shall stand terminated on the date of the Settlement Agreement.



44 **INAM-PRO (PLATFORM FOR INFRASTRUCTURE & MATERIALS PROVIDERS)**

INAM-Pro (Platform for infrastructure and materials providers) is a web based platform for infrastructure provides and materials suppliers and was developed by Ministry of Road Transport and Highways (Mirth) witha view to reduce project execution delays on account of supply shortages and inspire greater confidence in contractors to procure cement to start with directly from the manufacturers. Presently, numerous cement companies are registered in the portal and offering cement for sale on the portal with a commitment period of 3 years. These companies have bound themselves by ceiling rates for the entire commitment period, wherein they are allowedto reduce or increase their cement rates any number of times within the ceiling rate, but are not permitted to exceed the said ceiling rate.

MoRT&H is expanding the reach of this web-portal by increasing both the product width as well as the product depth. They are working on incorporating 60 plus product categories. The product range will span from large machineries like Earth Movers and Concrete Mixers, to even the smallest items like road studs. MoRT&H intend to turn it into a portal which services every infrastructure development related need of a modern contractor.

Rajasthan state Gas Limited's contractors may use this innovative platform, wherever applicable. The usage of web – Portal is a completely voluntary exercise. The platform, however, can serve as a benchmark for comparison of offered prices and products.

45.0 **CONTRACTOR TO ENGAGE CONTRACT MANPOWER BELONGING TO SCHEDULED CASTES AND WEAKER SECTIONS OF THE SOCIETY**

While engaging the contractual manpower, Contractors are required to make efforts to provide opportunity of employment to the people belongingto Scheduled Castes and weaker sections of the society also in order to have a fair representation of these sections.

===== X =====



Annexure-I

Bid Data Sheet (BDS)

[ITB to be read in conjunction with BDS]



TB clause	Description				
A. GENERAL					
1.1	The Purchaser is: Rajasthan state Gas Limited				
1.2	The name of the Works/Services to be performed is: Last mile connectivity and associated work at consumer end for CGD project at Kota GA. Refer PJS & Vol. II for details.				
3.0	Bid from a Joint Venture/Consortium <table border="1"> <tr> <td>APPLICABLE</td><td>☒</td></tr> <tr> <td>NOT APPLICABLE</td><td>☐</td></tr> </table>	APPLICABLE	☒	NOT APPLICABLE	☐
APPLICABLE	☒				
NOT APPLICABLE	☐				
B. BIDDING DOCUMENT					
8.1	For <u>clarification purposes</u> only, the communication address is: Vivek Shrivastava DGM (C&P) RAJASTHAN STATE GAS LIMITED Email: viveks.rsgl@rajasthan.gov.in Khaniz Bhawan, Tilak Marg, C-Scheme Jaipur - 302005 Websites: https://rsgl.rajasthan.gov.in				
C. PREPARATION OF BIDS					
11.1.1 .1	The Bidder shall submit with its Techno-commercial/ Unpriced bid the following additional documents as per SCC...Nil				
12.0	Additional Provision for Schedule of Rate/ Bid Price are as under: <u>Nil</u>				



RAJASTHAN STATE GAS LIMITED
Rajasthan State Gas Limited

13 & 14	Whether Rajasthan state Gas Limited will be able to avail input tax credit in the instant tender.....NO
16.1	Applicability of EMD/ Bid Security : APPLICABLE
17.0	Date, Time and Venue of Pre-Bid meeting Date and Time: 28-07-2025 /15:00 hrs. Rajasthan state Gas Limited Khaniz Bhawan, Tilak Marg, C-Scheme Jaipur - 302005
D. SUBMISSION AND OPENING OF BIDS	
21.0	The Tender No. of this bidding process is: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07 DATED: 18-07-2025
21.2	For bid submission purposes only, the Owner's contact details are as below: Dy. General Manager (C&P) Rajasthan state Gas Limited, Khaniz Bhawan, Tilak Marg, C-Scheme Jaipur - 302005
22.1	Due Date and Time of Bid Submission : 11-08-2025/14:00 Hrs.
26.0	The Unpriced bid opening shall take place at: Date: 11-08-2025 Time: <i>1500 hours</i> Rajasthan state Gas Limited, Khaniz Bhawan, Tilak Marg, C-Scheme Jaipur - 302005
E. EVALUATION AND COMPARISON OF BIDS	
ITB clause	Description
31.0	Evaluation Methodology is mentioned in Section 1.2 of ITB.
32.0	Compensation for Extended Stay: NOT APPLICABLE
33.0	Rajasthan Stamp duty act is applicable.
F. AWARD OF CONTRACT	



37.0	Contract Performance Guarantee / Security Deposit :APPLICABLE 1. Pursuant to Clause No. 24 of GCC-Works, Bidder will provide Performance Guarantee of 10% of Contract value within 30 days of award The contract performance bank Guarantee shall be valid 03 (three) months beyond the expiry of defect liability period. 2. <u>Another BG with an Equivalent Amount 8.0 Lacs shall be deposited as security Against obtaining NOC from the authorities after completion of work and Restoration.</u> While issuing bank Guarantee applicant must mention receiver's details as ICICI Bank account No. 678605600349, IFSC ICIC0006786, Branch__Khaniz Bhawan -Tilak Marg, C-scheme Jaipur, in BG text at which SFMS IFN 760 message to be send by issuing bank, to establish the authenticity of given BG.
39.0	Whether tendered item is non-split able or non-divisible: YES
40.0	Provision of AHR Item : APPLICABLE
Clause no. 27.3 of GCC	BONUS FOR EARLY COMPLETION: <u>NOT APPLICABLE</u>



Annexure-II

Procedure for Action in Case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices



Introduction:

In the endeavour to maintain and foster most ethical and corruption free business environment, this Banning Procedure containing provision for putting a Vendor/ Supplier on Suspension and/or banning list if such agency indulges in corrupt/ fraudulent/ collusive/ coercive practice is being followed.

A] Definitions:

A1 “Corrupt Practice” means the offering, giving, receiving or soliciting, directly or indirectly, anything of value to improperly influence the actions in selection process or in contract execution.

“Corrupt Practice” also includes any omission for misrepresentation that may mislead or attempt to mislead so that financial or other benefit may be obtained or an obligation avoided.

A2 “Fraudulent Practice” means and include any act or omission committed by a agency or with his connivance or by his agent by misrepresenting/ submitting false documents and/ or false information or concealment of facts or to deceive in order to influence a selection process or during execution of contract/ order.

A3 “Collusive Practice amongst bidders (prior to or after bid submission)” means a scheme or arrangement designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.

A4 “Coercive practice” means impairing or harming or threatening to impair or harm directly or indirectly, any agency or its property to influence the improperly actions of an agency, obstruction of any investigation or auditing of a procurement process.

A5 “Vendor/Supplier/Contractor/Consultant/Bidder” is herein after referred as “Agency”

A6 “Appellate Authority” shall mean Committee of Directors of Rajasthan state Gas Limited

A7 “Competent Authority” shall mean the authority, who is competent to take final decision for Suspension of business dealing with an Agency/ ies and Banning of business dealings with Agency/ ies,



A8 “Allied Agency” shall mean all the concerns within the sphere of effective influence of banned/ suspended agencies. In determining this, the following factors may be taken into consideration:

- (a) Whether the management is common;
- (b) Majority interest in the management is held by the partners or directors of banned/ suspended firm.
- (c) substantial or majority shares are owned by banned/ suspended agency and by virtue of this it has a controlling voice.

A9 “Investigating Agency” shall mean any department or unit of RAJASTHAN STATE/Rajasthan state Gas Limited investigating into the conduct of Agency/ party and shall include the Vigilance Department of the RAJASTHAN STATE/Rajasthan state Gas Limited, Central Bureau of Investigation, State Police or any other agency set up by the Central or state government having power to investigate.

B| Actions against bidder(s) indulging in corrupt /fraudulent/ collusive/ coercive practice

B1 Irregularities noticed during the evaluation of the bids :

If it is observed during bidding process/ bids evaluation stage that a bidder has indulged in corrupt/fraudulent /collusive/coercive practice, the bid of such Bidder (s) shall be rejected and its Earnest Money Deposit (EMD) shall be forfeited.

Further, such agency shall be banned for future business with Rajasthan state Gas Limited for a period specified in para B.2.2 below from the date of issue of banning order.

B2 Irregularities noticed after award of contract

(i) During execution of contract:

If an agency, is found to have indulged in corrupt/fraudulent/ collusive/coercive practices, during execution of contract, the agency shall be banned for future business with Rajasthan state Gas Limited for a period specified in para B.2.2 below from the date of issue of banning order.

The concerned order (s)/ contract(s) where corrupt/ fraudulent/ collusive practices is observed, shall be suspended with immediate effect by Engineer-in-Charge (EIC)/ Employer whereby the supply/ work/ service and payment etc. will be suspended. The action shall be initiated for putting the agency on banning.

After conclusion of process, the order (s)/ contract (s) where it is concluded that such irregularities have been committed shall be terminated and Contract Performance Guarantee submitted by agency against such order (s)/ contract (s) shall also be forfeited. The amount that may have become due to the contractor on account of work already executed by him shall be payable to the contractor and this amount shall be subject to adjustment against any amounts due from the contractor under the terms of the contract.

No risk and cost provision will be enforced in such cases.

(ii) After execution of contract and during Defect liability period (DLP)/ Warranty/Guarantee Period:

If an agency is found to have indulged in corrupt/ fraudulent/ collusive/ coercive practices, after execution of contract and during DLP/ Warranty/ Guarantee Period, the agency shall be banned for future business with Rajasthan state Gas Limited for a period specified in para B.2.2 below from the date of issue of banning order.

Further, the Contract Performance Guarantee submitted by agency against such order (s)/ contract (s) shall be forfeited.

(iii) After expiry of Defect liability period (DLP)/ Warranty/Guarantee Period

If an agency is found to have indulged in corrupt/fraudulent/ collusive/coercive practices, after expiry of Defect liability period (DLP)/Warranty/Guarantee Period, the agency shall be banned for future business with Rajasthan state Gas Limited for a period specified in para B. 2.2 below from the date of issue of banning order.

B.2.2 Period of Banning

The period of banning of agencies indulged in Corrupt /Fraudulent /Collusive /Coercive Practices shall be as under and to be reckoned from the date of banning order:

Sl. No.	Description	Period of banning from the date of issuance of Banning order

1	Misrepresentation/False information other than pertaining to BEC of tender but having impact on the selection process. For example, if an agency confirms not being in holiday/ banning list of M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited., liquidation, bankruptcy etc. and subsequently it is found otherwise, such acts shall be considered in this category.	02 years
2	Corrupt/Fraudulent (pertaining to BEC of tender) /Collusive/Coercive Practices	03 years
2.1	If an agency again commits Corrupt/Fraudulent (pertaining to BEC of tender) /Collusive/ Coercive Practices in subsequent cases after their banning, such situation of repeated offense to be dealt with more severity and following shall be the period of banning:	
	(i) Repeated once	7 years (in addition to the period already served)
	(ii) Repeated twice or more	15 years (in addition to the period already served)
3	Indulged in unauthorized disposal of materials provided by Rajasthan state Gas Limited	7 years
4	If act of vendor/ contractor is a threat to the National Security	15 years
5	Corrupt/Fraudulent/Collusive/Coercive Practices during execution of contract	02 years

In exceptional cases where the act of vendor/ contractor is a threat to the National Security, the banning shall be for indefinite period.

C] Effect of banning on other ongoing contracts/ tenders

- C1** If an agency is put on Banning, such agency should not be considered in ongoing tenders/future tenders.
- C2** However, if such an agency is already executing other order (s)/ contract (s) where no corrupt/fraudulent/ collusive/coercive practice is found, the agency should be allowed to continue till its completion without any further increase in scope except those incidental to original scope mentioned in the contract.



C3 If an agency is put on the Banning List during tendering and no irregularity is found in the case under process:

C.3.1 after issue of the enquiry /bid/tender but before opening of Technical bid, the bid submitted by the agency shall be ignored.

C.3.2 after opening Technical bid but before opening the Price bid, the Price bid of the agency shall not be opened and BG/EMD submitted by the agency shall be returned to the agency.

C.3.3 after opening of price, BG/EMD made by the agency shall be returned; the offer of the agency shall be ignored & will not be further evaluated. If the agency is put on banning list for fraud/ mis-appropriation of facts committed in the same tender/other tender where errant agency emerges as the lowest (L1), then such tender shall also be cancelled and re- invited.

D] Procedure for Suspension of Bidder

D.1 Initiation of Suspension

Action for suspension business dealing with any agency/ (ies) shall be initiated by C&P Department when

- (i) Corporate Vigilance Department based on the fact of the case gathered during investigation by them recommend for specific immediate action against the agency.
- (ii) Corporate Vigilance Department based on the input from Investigating agency, forward for specific immediate action against the agency.

D.2 Suspension Procedure:

D.2.1 The order of suspension would operate initially for a period not more than six months and will be communicated to the agency and also to Corporate Vigilance Department. Period of suspension may be extended by one month at a time with a ceiling of six months pending a conclusive decision to put the agency on banning list.

D.2.2 During the period of suspension, no new business dealing may be held with the agency.

D.2.3 Period of suspension will be accounted for in the final order passed for banning of business with the agency.



D.2.4 The decision regarding suspension of business dealings should also be communicated to the agency.

D.2.5 If a prima-facie, case is made out that the agency is guilty on the grounds which can result in banning of business dealings, proposal for issuance of suspension order and show cause notice shall be put up to the Competent Authority. The suspension order and show cause notice must include that (i) the agency is put on suspension list and (ii) why action should not be taken for banning the agency for future business from Rajasthan state Gas Limited.

The competent authority to approve the suspension will be same as that for according approval for banning.

D3 Effect of Suspension of business:

Effect of suspension on other on-going/future tenders will be as under:

D.3.1 No enquiry/bid/tender shall be entertained from an agency as long as the name of agency appears in the Suspension List.

D.3.2 If an agency is put on the Suspension List during tendering:

D.3.2.1 after issue of the enquiry /bid/tender but before opening of Technical bid, the bid submitted by the agency shall be ignored.

D.3.2.2 after opening Technical bid but before opening the Price bid, the Price bid of the agency shall not be opened and BG/EMD submitted by the agency shall be returned to the agency.

D.3.2.3 after opening of price, BG/EMD made by the agency shall be returned; the offer of the agency shall be ignored & will not be further evaluated. If the agency is put on Suspension list for fraud/ mis-appropriation of facts conducted in the same tender/other tender where errant agency emerges as the lowest (L1), then such tender shall also be cancelled and re-invited.

D.3.3 The existing contract (s)/ order (s) under execution shall continue.

D.3.4 Tenders invited for procurement of goods, works and services shall have provision that the bidder shall submit a undertaking to the effect that (i) neither the bidder themselves nor their allied agency/(ies) are on banning list of Rajasthan state Gas Limited or the Ministry of Petroleum and Natural GAS and (ii) bidder is not banned by any Government department/ Public Sector.



- E]** **Appeal against the Decision of the Competent Authority:**
- E1** The agency may file an appeal against the order of the Competent Authority for putting the agency on banning list. The appeal shall be filed to Appellate Authority. Such an appeal shall be preferred within one month from the receipt of banning order.
- E2** Appellate Authority would consider the appeal and pass appropriate order which shall be communicated to the party as well as the Competent Authority.
- E3** Appeal process may be completed within 45 days of filing of appeal with the Appellate Authority.
- F]** Wherever there is contradiction with respect to terms of GCC and 'Procedure for action in case of Corrupt/Fraudulent/ Collusive/Coercive Practice', the provisions of 'Procedure for action in case of Corrupt/Fraudulent/ Collusive/ Coercive Practice' shall prevail.



Annexure-III

Procedure for Evaluation of Performance of Vendor/ Suppliers



1.0 **OBJECTIVE**

The objective of Evaluation of Performance aims to recognize, and develop reliable Vendors/ Suppliers/Contractors/ Consultants so that they consistently meet or exceed expectations and requirements.

The purpose of this procedure is to put in place a system to monitor performance of Vendors/ Suppliers/Contractors/ Consultants associated with RAJASTHAN STATE GAS in Projects and in O&M so as to ensure timely completion of various projects, timely receipt of supplies including completion of works & services for operation and maintenance of operating plants and quality standards in all respects.

2.0 **METHODOLOGY**

i) Preparation of Performance Rating Data Sheet

Performance rating data Sheet for each and every Vendor/ Supplier/Contractor/ Consultant for all orders/Contracts with a value of Rs. 7 Lakhs and above is recommended to be drawn up. These data sheets are to be separately prepared for orders/ contracts related to Projects and O&M. Format, Parameters, Process, responsibility for preparation of Performance Rating Data Sheet are separately mentioned.

ii) Measurement of Performance

Based on the parameters defined in Data Sheet, Performance of concerned Vendor/ Supplier/Contractor/ Consultant would be computed and graded accordingly. The measurement of the performance of the Party would be its ability to achieve the minimum scoring of 60% points in the given parameters.

iii) Initiation of Measures:

Depending upon the Grading of Performance, corrective measures would be initiated by taking up the matter with concerned Vendor/ Supplier/Contractor/ Consultant. Response of Vendor/ Supplier/Contractor/ Consultant would be considered before deciding further course of action.

iv) Implementation of Corrective Measures:

Based on the response of Vendor/ Supplier/Contractor/ Consultant, concerned Engineer-in-Charge for the Projects and/or OIC in case of O&M would recommend for continuation or discontinuation of such party

from the business of Rajasthan state Gas Limited.

- v) Orders/contracts placed on Proprietary/OEM basis for O&M will be evaluated and, if required, corrective action will be taken for improvement in future.

3.0 PROCESS OF EVALUATION OF PERFORMANCE OF VENDORS/ SUPPLIERS/ CONTRACTORS/ CONSULTANTS

3.1 FOR PROJECTS

- i) Evaluation of performance of Vendors/ Suppliers/Contractors/ Consultants in case of PROJECTS shall be done immediately with commissioning of any Project.
- ii) On commissioning of any Project, EIC (Engineer-in-charge)/ Project-in- charge shall prepare a Performance Rating Data Sheet (Format at Annexure- 1) for all Orders and Contracts.
- iii) Depending upon the Performance Rating, following action need to be initiated by Engineer-in-charge/Project-in-charge:

Sl. No.	Performance Rating	Action
1	POOR	Seek explanation for Poor performance
2	FAIR	Seek explanation for Fair performance
3	GOOD	Letter to the concerned for improving performance in future
4	VERY GOOD	No further action

- iv) Reply from concerned Vendor/ Supplier/Contractor/ Consultant shall be examined. In case of satisfactory reply, Performance Rating data Sheet to be closed with a letter to the concerned for improving performance in future.
- v) When no reply is received or reasons indicated are unsatisfactory, the following actions need to be taken:

A) Where Performance rating is “POOR”:

Recommend such defaulting Vendor/ Supplier/Contractor/ Consultant for putting on Holiday for a period from one to three years as given below:

- (i) Poor Performance due to reasons other than Quality : **One Year**
- (ii) Poor Performance on account of Quality (if any mark obtained against Quality parameter is less than 30): **Two Years**
- (iii) Poor Performance leading to termination of contract or Offloading of contract due to poor performance solely attributable to Vendor/ Supplier/Contractor/ Consultant or Repeated Offence: **Three Years**

Nonperformance of a Vendor/Supplier/Contractor/Consultant leading to termination of Contract/ Order, such Vendor/ Supplier/ Contractor/Consultant are also to be considered for Suspension.

In all such cases, concerned site will put up recommendation for issuance of SCN and putting the party on suspension list as per process defined for suspension in “Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices”

(B) Where Performance rating is “FAIR”:

Recommend for issuance of warning to such defaulting Vendor/ Supplier/Contractor/ Consultant to improve their performance.

3.2 FOR CONSULTANCY JOBS

Monitoring and Evaluation of consultancy jobs will be carried out in the same way as described in para 3.1 for Projects.

3.3 FOR OPERATION & MAINTENANCE

- i) Evaluation of performance of Vendors/ Suppliers/Contractors/ Consultants in case of Operation and Maintenance shall be done immediately after execution of order/ contract.
 - ii) After execution of orders a Performance Rating Data Sheet (Format at Annexure-2) shall be prepared for Orders by Site C&P and for Contracts/Services by respective Engineer-In-Charge.
 - iii) Depending upon Performance Rating, following action need to be initiated by Site C&P:
-



Sl. No.	Performance Rating	Action
1	POOR	Seek explanation for Poor performance
2.	FAIR	Seek explanation for Fair performance
3	GOOD	Letter to the concerned for improving performance in future.
4	VERY GOOD	No further action

- iv) Reply from concerned Vendor/ Supplier/Contractor/ Consultant shall be examined. In case of satisfactory reply, Performance Rating data Sheet to be closed with a letter to the concerned for improving performance in future.
- v) When no reply is received or reasons indicated are unsatisfactory, the following actions need to be taken:

A) Where performance rating is "POOR"

Recommend such defaulting Vendor/Supplier/Contractor/ Consultant for putting on Holiday for a period from one to three years as given below:

- (i) Poor Performance due to reasons other than Quality : **Six Months**
- (ii) Poor Performance on account of Quality (if any mark obtained against Quality parameter is less than 30): **Six Months**
- (iii) Poor Performance leading to termination of contract or Offloading of contract due to poor performance solely attributable to Vendor/Supplier/Contractor/Consultant or Repeated Offence: **Six Months**

In case of repeated offence on above ground covered under sl. no. (i), (ii) and (iii):

- For once- **1 year.**
- For two and above-**3 years**

Non-performance of a Vendor/Supplier/Contractor/Consultant leading to termination of Contract/ Order such Vendor/ Supplier/ Contractor/Consultant are also to be considered for Suspension.

In all such cases, concerned site will put up recommendation for issuance of SCN and putting the party on suspension list as per process defined for suspension in "Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices"

B) Where Performance rating is “FAIR”

Recommend for issuance of warning to such defaulting Vendors/Contractors/Consultants to improve their performance.

4.0 REVIEW & RESTORATION OF PARITES PUT ON HOLIDAY

- 4.1 An order for Holiday passed for a certain specified period shall deemed to have been automatically revoked on the expiry of that specified period and it will not be necessary to issue a specific formal order of revocation.

Further, in case Vendor/ Supplier/Contractor/ Consultant is put on holiday due to quality, and new order is placed on bidder after restoration of Vendor/ Supplier/Contractor/ Consultant, such order will be properly monitored during execution stage by the concerned site.

5.0 EFFECT OF HOLIDAY

- 5.1 If a Vendor/Supplier/Contractor/Consultant is put on Holiday, such Vendor/ Supplier/Contractor/ Consultant should not be considered in ongoing tenders/future tenders.

- 5.2 However, if such Vendor/ Supplier/Contractor/ Consultant is already executing any other order/ contract and their performance is satisfactory in terms of the relevant contract, should be allowed to continue till its completion without any further increase in scope except those incidental to original scope mentioned in the contract. In such a case CPBG will not be forfeited and payment will be made as per provisions of concerned contract. However, this would be without prejudice to other terms and conditions of the contract.

- 5.3 Effect on other ongoing tendering:

- 5.3.1 after issue of the enquiry /bid/tender but before opening of Technical bid, the bid submitted by the party shall be ignored.
- 5.3.2 after opening Technical bid but before opening the Price bid, the Price bid of the party shall not be opened and BG/EMD submitted by the party shall be returned to the party.
- 5.3.3 after opening of price, BG/EMD made by the party shall be returned; the offer of the party shall be ignored & will not be further evaluated. If errant party emerges as the lowest (L1), then such tender shall also be cancelled and re- invited.

5.4 Procedure for Suspension of Bidder

5.4.1 Initiation of Suspension

Action for suspension of business dealing with any agency/(ies) shall be initiated by C&P



Department when Non-performance of Vendor / Supplier Contractor/ Consultant leading to termination of Contract/ Order.

5.4.2 Suspension Procedure:

- 5.4.2.1 The suspension period shall be limited to maximum six months.
- 5.4.2.2 The suspension order shall also be hosted on Rajasthan state Gas Limited intranet and a copy will be forwarded to all OICs/ HODs by C&P Department. During the period of suspension, no new business dealing may be held with the agency.
- 5.4.2.3 Period of suspension shall be accounted for in the final order passed for putting the party for holiday
- 5.4.2.4 The decision regarding suspension of business dealings should also be communicated to the agency.
- 5.4.2.5 Prior to putting the party on holiday, proposal for issuance of suspension order and show cause notice shall be put up to the Competent Authority. The suspension order and show cause notice must include that (i) the agency is put on suspension list and (ii) why action should not be taken for putting the agency on holiday for future business from Rajasthan state Gas Limited.

The competent authority to approve the suspension will be same as that for according approval for holiday.

- 5.4.2.6 The process for putting the agency on suspension list shall be completed within 30 days from the date of recommendation by site committee.

5.4.3 Effect of Suspension of business:

Effect of suspension on other on-going/future tenders will be as under:

- 5.4.3.1 No enquiry/bid/tender shall be entertained from an agency as long as the name of Agency appears in the Suspension List.
- 5.4.3.2 If an agency is put on the Suspension List during tendering:
 - 54321 after issue of the enquiry /bid/tender but before opening of Technical bid, the bid submitted by the agency shall be ignored.
 - 54322 after opening Technical bid but before opening the Price bid, the Price bid of the agency shall not be opened and EMD submitted by the agency shall be returned to the agency.
 - 54323 after opening of price, the offer of the agency shall be ignored & will not be further evaluated. If the agency emerges as the lowest (L1), then such tender shall also be cancelled and re-invited. EMD submitted by such agency shall be returned.
- 5.4.3.3 The existing contract (s)/ order (s) under execution shall continue.
- 5.4.3.4 Tenders invited for procurement of goods, works and services shall have provision that the bidder shall submit a undertaking to the effect that (i) neither the bidder themselves nor their allied agency/(ies) are on banning list of RAJASTHAN STATE/Rajasthan state Gas Limited or the Ministry of Petroleum and Natural GAS and (ii) bidder is not banned by any Government department/ Public Sector

- 6.0** While putting the Vendor/ Supplier/Contractor/ Consultant on holiday as per the procedure, the holding company, subsidiary, joint venture, sister concerns, group division of the errant Vendor/ Supplier/Contractor/ Consultant shall not be considered for putting on holiday list.



Any bidder, put on holiday, will not be allowed to bid through consortium route also in new tender during the period of holiday.

- 7.0** If an unsuccessful bidder makes any vexatious, frivolous or malicious complaint against the tender process with the intention of delaying or defeating any procurement or causing loss to Rajasthan state Gas Limited or any other bidder, such bidder will be put on holiday for a period of six months, if such complaint is proved to be vexatious, frivolous or malicious, after following the due procedure.

8.0 APPEAL AGAINST THE DECISION OF THE COMPETENT AUTHORITY:

- (a) The party may file an appeal against the order of the Competent Authority for putting the party on Holiday list. The appeal shall be filed to Appellate Authority. Such an appeal shall be preferred within one month from the of receipt of Holiday order.
- (b) Appellate Authority would consider the appeal and pass appropriate order which shall be communicated to the party as well as the Competent Authority.
- (c) Appeal process may be completed within 45 days of filing of appeal with the Appellate Authority.
- (d) “Appellate Authority” shall mean Committee of Directors.

9.0 ERRANT BIDDER

In case after price bid opening the lowest evaluated bidder (L1) is not awarded the job for any mistake committed by him in bidding or withdrawal of bid or modification of bid or varying any term in regard thereof leading to re- tendering, Rajasthan state Gas Limited shall forfeit EMD paid by the bidder and such bidders shall be debarred from participation in re- tendering of the same job(s)/item(s).

Further, such bidder will be put on holiday for a period of six months after following the due procedure.

- 10.0** In case CBEC (Central Board of Excise and Customs)/ any equivalent Central Government agency/ State Government agency brings to the notice of Rajasthan state Gas Limited that the Supplier of Goods / Services (Service Provider) has not remitted the amount towards GST (CGST & SGST/UTGST or IGST) collected from Rajasthan state Gas Limited to the government exchequer, then party will be put on holiday for a period of six months after following the due procedure.



Annexure-1

Rajasthan state Gas Limited**PERFORMANCE RATING DATA SHEET (FOR PROJECTS/ CONSULTANCY JOBS)**

- i) Project/Work Centre :
- ii) Order/ Contract No. & date :
- iii) Brief description of Items :
Works/Assignment
- iv) Order/Contract value (Rs.) :
- v) Name of Vendor/Supplier/ :
Contractor/ Consultant
- vi) Contracted delivery/ :
Completion Schedule
- vii) Actual delivery/ : Completion date

Performance Parameter	Delivery/ Completion Performance	Quality Performance	Reliability Performance#	Total
Maximum Marks	40	40	20	100
Marks Allocated				

Note:

Remarks (if any)

PERFORMANCE RATING (**)

Note :

(#) Vendor/Supplier/Contractor/Consultant who seek repeated financial assistance or deviation beyond contract payment term or seeking direct payment to the sub-vendor/sub-contractor due to financial constraints, then '0' marks should be allotted against Reliability Performance.

(*) Allocation of marks should be as per enclosed instructions (**)

Performance rating shall be classified as under :

Sl.No.	Range (Marks)	Rating
1	60 & below	POOR
2	61-75	FAIR
3	76-90	GOOD
4	More than 90	VERY GOOD

Signature of Authorised Signatory:

Name: Designation:

Instructions for allocation of marks

1. Marks are to be allocated as under :

1.1 DELIVERY/ COMPLETION PERFORMANCE 40 Marks

Delivery Completion Schedule	Period/ Delay in Weeks	Marks
a) Upto 3 months	Before CDD	40
	Delay upto 4 weeks	35
	" 8 weeks	30
	" 10 weeks	25
	" 12 weeks	20
	" 16 weeks	15
	More than 16 weeks	0
b) Above 3 months	Before CDD	40
	Delay upto 4 weeks	35
	" 8 weeks	30
	" 10 weeks	25
	" 16 weeks	20
	" 20 weeks	15
	" 24 weeks	10
	More than 24 weeks	0

1.2 QUALITY PERFORMANCE 40 Marks

For Normal Cases: No Defects/ No Deviation/ No failure: 40 marks

i) Rejection/Defects	Marks to be allocated on 10 marks pro rata basis for acceptable quantity as compared to total quantity for normalcases	
ii) When quality failure endanger system integration and safety of the system	Failure of severe nature - Moderate nature - low severe nature	0 marks 5 marks 10-25 marks
iii) Number of deviations	1. No deviation 2. No. of deviations < 2 3. No. of deviations > 2	5 marks 2 marks 0 marks



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1.3 RELIABILITY PERFORMANCE

20 Marks

A.	FOR WORKS/CONTRACTS	
i)	Submission of order acceptance, agreement, PBG, Drawings and other documents within time	4 marks
ii)	Mobilization of resources as per Contract and in time	4 marks
iii)	Liquidation of Check-list points	4 marks
iv)	Compliance to statutory and HS&E requirements or Reliability of Estimates/Design/Drawing etc. in case of Consultancy jobs	4 marks
v)	Timely submission of estimates and other documents for Extra, Substituted & AHR items	4 marks
B.	FOR SUPPLIES	
i)	Submission of order acceptance, PBG, Drawings and other documents within time	5 marks
ii)	Attending complaints and requests for after sales service/ warranty repairs and/ or query/ advice (upto the evaluation	5 marks
iii)	Response to various correspondence and conformance to standards like ISO	5 marks
iv)	Submission of all required documents including Test Certificates at the time of supply	5 marks



Annexure-2

Rajasthan state Gas Limited PERFORMANCE RATING DATA SHEET
(FOR O&M)

- i) Location :
- ii) Order/ Contract No. & date :
- iii) Brief description of Items :
Works/Assignment
- iv) Order/Contract value(Rs.) :
- v) Name of Vendor/Supplier/ Contractor/ Consultant :
- vi) Contracted delivery/ Completion Schedule :
- vii) Actual delivery/ : Completion date

Performance Parameter	Delivery Performance	Quality Performance	Reliability Performance#	Total
Maximum Marks	40	40	20	100
Marks Allocated (*)				

Remarks (if any)

PERFORMANCE RATING (**)

Note :

(#) Vendor/Supplier/Contractor/Consultant who seek repeated financial assistance or deviation beyond contract payment term or seeking direct payment to the sub-vendor/sub-contractor due to financial constraints, then '0' marks should be allotted against Reliability Performance

(*) Allocation of marks should be as per enclosed instructions (**)

Performance rating shall be classified as under :

Sl. No.	Range (Marks)	Rating
1	60 & below	POOR
2	61-75	FAIR
3	76-90	GOOD
4	More than 90	VERY GOOD

Signature of Authorised Signatory:

Name:

Designation:



Instructions for allocation of marks (For O&M)

1. Marks are to be allocated as under :

1.1 DELIVERY/ COMPLETION PERFORMANCE 40 Marks

Delivery Period/ Completion Schedule	Delay in Weeks	Marks
a) Upto 3 months	Before CDD	40
	Delay upto 4 weeks	35
	" 8 weeks	30
	" 10 weeks	25
	" 12 weeks	20
	" 16 weeks	15
	More than 16 weeks	0
b) Above 3 months	Before CDD	40
	Delay upto 4 weeks	35
	" 8 weeks	30
	" 10 weeks	25
	" 16 weeks	20
	" 20 weeks	15
	" 24 weeks	10
	More than 24 weeks	0

1.2 QUALITY PERFORMANCE 40 Marks

For Normal Cases : No Defects/ No Deviation/No failure: 40 marks

i) Rejection/Defects	Marks to be allocated on 10 marks Pro rata basis for acceptable quantity as compared to total quantity for normalcases	
ii) When quality failure endanger system integration and safety of the system	Failure of severe nature	0 marks
	- Moderate nature	5 marks
	- low severe nature	10-25 marks
iii) Number of deviations	1. No deviation	5 marks
	2. No. of deviations < 2	2 marks
	3. No. of deviations > 2	0 marks



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1.3 RELIABILITY PERFORMANCE

20 Marks

A.	FOR WORKS/CONTRACTS	
i)	Submission of order acceptance, agreement, PBG, Drawings and other documents within time	4 marks
ii)	Mobilization of resources as per Contract and in time	4 marks
iii)	Liquidation of Check-list points	4 marks
iv)	Compliance to statutory and HS&E requirements or Reliability of Estimates/Design/Drawing etc. in case of Consultancy jobs	4 marks
v)	Timely submission of estimates and other documents for Extra, Substituted & AHR items	4 marks
B.	FOR SUPPLIES	
i)	Submission of order acceptance, PBG, Drawings and other documents within time	5 marks
ii)	Attending complaints and requests for after sales service/ warranty repairs and/ or query/ advice (upto the evaluation period).	5 marks
iii)	Response to various correspondence and conformance to standards like ISO	5 marks
iv)	Submission of all required documents including Test Certificates at the time of supply	5 marks



Annexure-IV

Forms & Format

LIST OF FORMS & FORMAT

Form No.	Description
F-1	BIDDER'S GENERAL INFORMATION
F-2	BID FORM
F-3	LIST OF ENCLOSURES
F-4	PROFORMA OF "BANK GUARANTEE" FOR "EARNEST MONEY / BID SECURITY"
F-4A	PROFORMA OF "LETTER OF CREDIT" FOR "EARNEST MONEY / BID SECURITY"
F-5	LETTER OF AUTHORITY
F-6	NO DEVIATION CONFIRMATION
F-7	DECLARATION REGARDING HOLIDAY/BANNING AND LIQUIDATION, COURT RECEIVERSHIP ETC.
F-8	CERTIFICATE FOR NON-INVOLVMENT OF GOVT. OF INDIA
F-9	PROFORMA OF "BANK GUARANTEE" FOR "CONTRACT PERFORMANCE SECURITY / SECURITY DEPOSIT"
F-10	AGREED TERMS & CONDITIONS
F-11	ACKNOWLEDGEMENT CUM CONSENT LETTER
F-12	UNDERTAKING ON LETTERHEAD
F-13	BIDDER'S EXPERIENCE
F-14	CHECK LIST
F-14A	CHECK LIST FOR QUOTED ITEMS
F-15	FORMAT FOR CERTIFICATE FROM BANK IF BIDDER'S WORKING CAPITAL IS INADEQUATE
F-16	FORMAT FOR CHARTERED ACCOUNTANT CERTIFICATE FOR FINANCIAL CAPABILITY OF THE BIDDER
F-17	BIDDER'S QUERIES FOR PRE BID MEETING
F-18	E-BANKING FORMAT
F-19	INDEMNITY BOND
F-20	FREQUENTLY ASKED QUESTIONS
F-21	DETAILS OF QUOTED PARTS

**E-1****BIDDER'S GENERAL INFORMATION**

To,
M/s Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

1	Bidder's Name	
2	Status of Firm	Proprietorship Firm/Partnership firm/ Limited/Others If Others Specify: _____ [Enclose certificate of Registration]
3	Name of Proprietor/Partners/Directors of the firm/company	
4	Number of Years in Operation	
5	Address of Registered Office: *In case of Partnership firm, enclose letter mentioning current address of the firm and the full names and current addresses of all the partners of the firm.	City: District: State: PIN/ZIP:
6	Operation Address (if different from above)	City: District: State: PIN/ZIP:
7	Mobile Number	
8	E-mail address	
9	Website	
10	Fax Number:	(Country Code) (Area Code) (Telephone No.)
11	ISO Certification, if any	{If yes, please furnish details}
12	Bid Currency	INR



13	Banker's Name	
14	Branch	
15	Bank account number	
16	IFSC code	
17	PAN No.	[Enclose copy of PAN Card]
18	GST No.	[Enclose copy of GST Certificate]
19	We (Bidder) are cover under the definition of section 2 (n) of the MSMED Act	Yes / No <i>(If the response to the above is 'Yes", Bidder to provide Purchaser a copy of the Entrepreneurs Memorandum (EM) filled with the authority specified by the respective State Government.)</i>
20	a) Whether Micro/Small/Medium Enterprise	(Bidder to submit documents as specified in Clause 37 of ITB)
	b) If the MSE is owned by SC/ST Entrepreneurs, the bidder shall furnish appropriate documentary evidence in this regard.	
21	Type of Entity	Corporate/ Non-Corporate (As per CGST/SGST/UTGST Act). (In case of Non-Corporate Entity, bidder will submit documentary evidence for same).
22	Offer No.	

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:



E-2
BID FORM

To,

M/s. Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

After examining / reviewing the Bidding Documents for the tender of
“ _____ including
"Specifications & Scope of Work", "General Conditions of Contract [GCC]", "Special
Conditions of Contract [SCC]" and "Schedule of Rates [SOR]", etc. the receipt of which is
hereby duly acknowledged, we, the undersigned, are pleased to offer to execute the whole part
of the job and in conformity with the said Bid Documents, including Addenda / Corrigenda
Nos. _____.

We confirm that this Bid is valid for a period as specified in BDS from the date of opening of
"Techno-Commercial / Un-priced Bid", and it shall remain binding upon us and may be
accepted by any time before the expiry of that period.

If our Bid is accepted, we will provide the "Contract Performance Security / Security Deposit"
equal to " _____ of the Contract Price" or as mentioned in Tender Document
for the due performance within "thirty [30] days" of such Award.

Until a final Agreement/Letter of Award is prepared and executed, the tender document
(including addenda/ corrigenda) together with the "Notification of Award" shall constitute a
binding Agreement between us.

We understand that Bidding Document is not exhaustive and any action and activity not
mentioned in Bidding Documents but may be inferred to be included to meet the intend of the
Bidding Documents shall be deemed to be mentioned in Bidding Documents unless otherwise
specifically excluded and we confirm to perform for fulfillment of Agreement and
completeness of the Work in all respects within the time frame and agreed price.

We understand that you are not bound to accept the lowest priced or any Bid that you may
receive.

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:



F-3

LIST OF ENCLOSURES

To,

M/s Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

We are enclosing the following documents as part of the bid:

1. Power of Attorney of the signatory to the Bidding Document.
2. Document showing annual turnover for the last three years such as annual reports, profit and loss account, net worth etc. along with information as sought in enclosed format F-16
3. Document showing Financial Situation Information as sought in enclosed format F-16
4. Copy of Bidding Documents along with addendum/corrigendum duly signed and sealed on each page, in token of confirmation that Bid Documents are considered in full while preparing the bid and in case of award, work will be executed in accordance with the provisions detailed in Bid Documents.
5. Documentary Evidences showing the Bidder's claim of meeting Technical Criteria as mentioned in Section 1.1 (A) of ITB.
6. Bid Security/EMD * **[Submission of Original is not applicable for online banking transaction]**
7. Power of Attorney*
8. Duly certified document from chartered engineer and or chartered accountant.

Place:

Date:

[Signature of Authorized Signatory of Bidder]

Name:

Designation:

Seal:



F-4

PROFORMA OF "BANK GUARANTEE" FOR "EARNEST MONEY / BID SECURITY"

(To be stamped in accordance with the Rajasthan Stamp Act)

Ref.....

Bank Guarantee No.....

Date.....

To,

M/s Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir(s),

In accordance with Letter Inviting Tender under your reference No _____ M/s.

_____ having their Registered / Head Office at _____ (hereinafter called the Tenderer), wish to participate _____ in _____ the _____ said _____ tender for _____

As an irrevocable Bank Guarantee against Earnest Money for the amount of _____ is required to be submitted by the Tenderer as a condition precedent for participation in the said tender which amount is liable to be forfeited on the happening of any contingencies mentioned in the Tender Document.

We, _____ the _____ Bank _____ at _____ having _____ our _____ Head _____ Office _____ (Local Address) guarantee

and undertake to pay immediately on demand without any recourse to the tenderers by Rajasthan state Gas Limited

Ltd., the amount _____ without any reservation, protest, demur and recourse. Any such demand made by Rajasthan state Gas Limited, shall be conclusive and binding on us irrespective of any dispute or difference raised by the Tenderer.

This guarantee shall be irrevocable and shall remain valid up to _____ [this date should be two (02) months beyond the validity of the bid]. If any further extension of this guarantee is required, the same shall be extended to such required period on receiving instructions from M/s.

_____ whose behalf this guarantee is issued.



INDIAN BANKING CORPORATION
BANK OF INDIA

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this

_____ day of _____ 20__ at _____.

WITNESS:

(SIGNATURE)

(NAME)

(SIGNATURE)

(NAME)

Designation with Bank Stamp

(OFFICIAL ADDRESS)

Attorney as per

Power of Attorney No. _____

Date: _____



INSTRUCTIONS FOR FURNISHING "BID SECURITY / EARNEST MONEY" BY
"BANK GUARANTEE"

- 1.0 The Bank Guarantee by successful Bidder(s) will be given on non-judicial stamp paper as per the Rajasthan Stamp duty Act,. The non-judicial stamp paper should be in name of the issuing bank.
- 2.0 The expiry date should be arrived at in accordance with "ITB: Clause-15.1 and 16.3".
- 3.0 The Bank Guarantee by bidders will be given from Bank as specified in "ITB".
- 4.0 A letter (preferably digitally/Manually signed secured e-mail) from the issuing bank of the requisite Bank Guarantee confirming that said bank guarantee and future communication relating to the Bank Guarantee may be forwarded to Employer
- 5.0 Bidders must indicate the full postal address of the Bank along with the Bank's E-mail / Fax / Phone from where the Earnest Money Bond has been issued.
- 6.0 If a Bank Guarantee is issued by a commercial Bank, then a letter to Employer confirming its net worth is more than Rs. 1,000,000,000.00 [Rupees One Hundred Crores] or equivalent along with documentary evidence.



F-4A

PROFORMA OF "LETTER OF CREDIT" FOR "EARNEST MONEY / BID SECURITY"

To,

M/s Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Irrevocable and confirmed Letter of Credit No.....Amount: Rs.**Validity of this Irrevocable..... (in India)**

Letter of Credit (2 months beyond validity of Offer)

Dear Sir,

1. You are hereby authorized to draw on (Name of Applicant with full address) for a sum not exceeding available by your demand letter (draft) on them at sight drawn for Rs accompanied by a certificate by Rajasthan state Gas Limited, with the Tender No. duly incorporated therein, that one or more of the following conditions has/have occurred, specifying the occurred condition(s):
 - (i) The Bidder withdraws its Bid during the period of Bid validity or any extension thereof duly agreed by the Bidder.
 - (ii) The Bidder varies or modifies its Bid in a manner not acceptable to Rajasthan state Gas Limited during the period of bid validity or any extension thereof duly agreed by the Bidder.
 - (iii) The Bidder, having been notified of the acceptance of its Bids,
 - (a) Fails or refuses to execute the Supply Order/Contract
 - (b) Fails or refuses to furnish the Contract Performance Guarantee within 30 days before expiry of Bid Security.
 - (c) Fails to accept arithmetic corrections as per tender conditions.
2. This Irrevocable Letter of Credit has been established towards Bid Security Tender No for..... (Item)
3. We hereby guarantee to protect the Drawers, Endorsers and bonafide holders from any consequences, which may arise in the event of the non-acceptance or non-payment of Demand Letter (draft) in accordance with the terms of this credit.
4. This Credit is issued subject to the Uniform Customs and Practices for Documentary



Credits (1993 Revised) International Chamber of Commerce brochure No. 500.

5. Please obtain reimbursement as under:
6. All foreign as well as Indian bank charges will be on the account of M/s.
..... (Applicant)

FOR

Authorized Signature
(Original Bank)

Counter Signature



F-5

LETTER OF AUTHORITY

[Pro forma for Letter of Authority for Attending Subsequent 'Negotiations' / 'Pre-Bid Meetings' / 'Un-priced Bid Opening' / 'Price Bid Opening']

Ref:

Date:

To,
M/s Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

I/We, _____ hereby authorize the following representative(s) for attending any 'Negotiations' / 'Meetings [Pre-Bid Meeting]', 'Un-priced Bid Opening', 'Price Bid Opening' and for any subsequent correspondence / communication against the above Bidding Documents:

[1] Name & Designation _____ Signature _____
Phone/Cell: _____
Fax: _____
E-mail: @

[2] Name & Designation _____ Signature _____
Phone/Cell: _____
Fax: _____
E-mail: @

We confirm that we shall be bound by all commitments made by aforementioned authorised representative(s).

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:



Note: This "Letter of Authority" should be on the **"letterhead"** of the Firm / Bidder and should be signed by a person competent and having the 'Power of Attorney' to bind the Bidder. Not more than 'two [02] persons per Bidder' are permitted to attend "Techno-commercial / Un-priced" & "Price Bid" Openings. Bidders authorized representative is required to carry a copy of this authority letter while attending the un-priced and priced bid opening, the same shall be submitted to Rajasthan state Gas Limited.



F-6

"NO DEVIATION" CONFIRMATION

To,

M/s Rajasthan state Gas Limited

Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

We understand that any 'deviation / exception' in any form may result in rejection of Bid. We, therefore, certify that we have not taken any 'exception / deviation' anywhere in the Bid and we agree that if any 'deviation / exception' is mentioned or noticed, our Bid may be rejected.

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:

**E-7****DECLARATION REGARDING HOLIDAY/BANNING AND LIQUIDATION,
COURT RECEIVERSHIP**

To,

M/s. Rajasthan state Gas Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

We hereby confirm that we are not on 'blacklisted/ banned/put on Holiday list by M/s GAIL India Limited/M/s GAIL Gas Limited/M/s Rajasthan State Gas limited due to "poor performance" or "corrupt and fraudulent practices") or banned by Government department/ Public Sector on due date of submission of bid.

Further, we confirm that neither we nor our allied agency/(ies) (as defined in the Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices) are on banning list of Rajasthan state Gas Limited or the Ministry of Petroleum and Natural GAS.

We also confirm that we are not under any liquidation, court receivership or similar proceedings or 'bankruptcy'.

In case it comes to the notice of Rajasthan state Gas Limited that the bidder has given wrong declaration in this regard, the same shall be dealt as 'fraudulent practices' and action shall be initiated as per the Procedure for action in case of Corrupt/Fraudulent/Collusive/Coercive Practices.

Further, we also confirm that in case there is any change in status of the declaration prior to award of contract, the same will be promptly informed to Rajasthan state Gas Limited by us.

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:

Designation:

Seal:

**F-8****CERTIFICATE FOR NON-INVOLVMENT OF GOVT. OF INDIA**

To,

M/s Rajasthan state Gas Limited

Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

If we become a successful Bidder and pursuant to the provisions of the Bidding Documents, award is given to us for the tender for “
_____”, the following Certificate shall be automatically enforceable:

"We agree and acknowledge that the Employer is entering into the Agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood & agreed that the Government of India is not a party to the Agreement and has no liabilities, obligations or rights thereunder. It is expressly understood and agreed that the Employer is authorized to enter into Agreement, solely on its own behalf under the applicable laws of India. We expressly agree, acknowledge and understand that the Employer is not an agent, representative or delegate of the Government of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the Agreement. Accordingly, we hereby expressly waive, release and forego any and all actions or claims, including cross claims, VIP claims or counter claims against the Government of India arising out of the Agreement and covenants not to sue to Government of India as to any manner, claim, cause of action or things whatsoever arising of or under the Agreement."

Place:	[Signature of Authorized Signatory of Bidder]
Date:	Name:
	Designation:
	Seal:



PROFORMA OF "BANK GUARANTEE" FOR "CONTRACT PERFORMANCE

GUARANTEE / SECURITY DEPOSIT"

**(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE AS PER
RAJASTHAN STAMP DUTY ACT)**

To,

M/s Rajasthan state Gas Limited

Performance Guarantee No.

Dear Sir(s),

M/s. _____ having registered office at _____ (herein after called the "contractor/supplier" which expression shall wherever the context so require include its successors and assignees) have been placed/ awarded the job/work of _____ vide PO/LOA /FOA No. _____ dated _____ for RAJASTHAN STATE GAS Limited corporate and registered office at Rajasthan State Gas Ltd., Room no. 303, Khaniz Bhawan, Tilak Marg, C-Scheme, Jaipur - 302005 (herein after called the "Rajasthan state Gas Limited" which expression shall wherever the context so require include its successors and assignees).

The Contract conditions provide that the SUPPLIER/CONTRACTOR shall pay a sum of Rs. _____ (Rupees _____) as full Contract Performance Guarantee in the form therein mentioned. The form of payment of Contract Performance Guarantee includes guarantee executed by Nationalized Bank/Scheduled Commercial Bank, undertaking full responsibility to indemnify Rajasthan state Gas Limited, in case of default.

The said M/s. _____ has approached us and at their request and in consideration of the premises we having our office at _____ have agreed to give such guarantee as hereinafter mentioned.

- 1 We _____ hereby undertake to give the irrevocable & unconditional guarantee to you that if default shall be made by M/s. _____ in performing any of the terms and conditions of the tender/order/contract or in payment of any money payable to Rajasthan state Gas Limited we shall on first demand pay without demur, contest, protest and/ or without any recourse to the supplier / contractor to Rajasthan state Gas Limited in such manner as Rajasthan state Gas Limited may direct the said amount of Rupees _____ only or such portion thereof not exceeding the said sum as you may require from time to time.
- 2 You will have the full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the order/contract with the said
- 3 M/s. _____ and to enforce or to forbear from endorsing any powers or rights or by reason of time being given to the said M/s. _____ and such postponement forbearance would not have the effect of releasing the bank from its obligation under this debt.

4

Your right to recover the said sum of Rs. _____ (Rupees _____) from us in manner aforesaid is absolute & unequivocal and will not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the said M/s. _____ and/or that any dispute or disputes are pending before any officer, tribunal or court or arbitrator or any other authority/forum and any demand made by you in the bank shall be conclusive and binding. The bank shall not be released of its obligations under these presents by any exercise by you of its liberty with reference to matter aforesaid or any of their or by reason or any other act of omission or commission on your part or any other indulgence shown by you or by any other matter or changed what so ever which under law would, but for this provision, have the effect of releasing the bank.

5

The guarantee herein contained shall not be determined or affected by the liquidation or winding up dissolution or changes of constitution or insolvency of the said supplier/contractor but shall in all respects and for all purposes be binding and operative until payment of all money due to you in respect of such liabilities is paid.

6

This guarantee shall be irrevocable and shall remain valid upto _____ (this date should be 90 days after the expiry of defect liability period/ Guarantee period) _____. The bank undertakes not to revoke this guarantee during its currency without your previous consent and further agrees that the guarantee shall continue to be enforceable until it is discharged by Rajasthan state Gas Limited in writing. However, if for any reason, the supplier/contractor is unable to complete the supply/work within the period stipulated in the order/contract and in case of extension of the date of delivery/completion resulting extension of defect liability period/guarantee period of the supplier/contractor fails to perform the supply/work fully, the bank hereby agrees to further extend this guarantee at the instance of the supplier/contractor till such time as may be determined by Rajasthan state Gas Limited. If any further extension of this guarantee is required, the same shall be extended to such required period on receiving
instruction from _____ M/s. _____ (supplier / contractor) on whose behalf this guarantee is issued.

7

Bank also agrees that Rajasthan state Gas Limited at its option shall be entitled to enforce this Guarantee against the bank (as principal debtor) in the first instant, without proceeding against the supplier/contractor and notwithstanding any security or other guarantee that Rajasthan state Gas Limited may have in relation to the supplier's/ contractor's liabilities.

8

The amount under the Bank Guarantee is payable forthwith without any delay by Bank upon the written demand raised by Rajasthan state Gas Limited. Any dispute arising out of or in relation to the said Bank Guarantee shall be subject to the exclusive jurisdiction of courts at Jaipur/Kota

9

Therefore, we hereby affirm that we are guarantors and responsible to you on behalf of the Supplier/Contractor up to a total amount of _____ (amount of guarantees in words and figures) and we undertake to pay you, upon your first written demand declaring the Supplier/Contractor to be in default under the order/contract and without caveat or argument, any sum or sums within the limits of (amounts of guarantee) as aforesaid, without your

needing to prove or show grounds or reasons for your demand or the sum specified therein.

We have power to issue this guarantee in your favor under Memorandum and Articles of Association and the undersigned has full power to do under the Power of Attorney, dated _____ granted to him by the Bank.

Yours faithfully,

Bank by its Constituted Attorney

Signature of a person duly
Authorized to sign on behalf of the
Bank

**INSTRUCTIONS FOR FURNISHING****"CONTRACT PERFORMANCE GUARANTEE / SECURITY DEPOSIT" BY "BANK GUARANTEE"**

- 1 The Bank Guarantee by successful Bidder(s) will be given on non-judicial stamp paper as per 'stamp duty' applicable. The non-judicial stamp paper should be in name of the issuing bank. In case of foreign bank, the said Bank Guarantee to be issued by its correspondent bank in India on requisite non-judicial stamp paper and place of Bid to be considered as Jaipur
- 2 The Bank Guarantee by Bidders will be given from bank as specified in Tender.
- 3 A letter (preferably digitally/manually signed secured e-mail) from the issuing bank of the requisite Bank Guarantee confirming that said bank guarantee and future communication relating to the Bank Guarantee may be forwarded to Employer
- 4 Bidder must indicate the full postal address of the Bank along with the Bank's E-mail / Fax / Phone from where the Bank Guarantee has been issued
- 5 If a Bank Guarantee is issued by a commercial bank, then a letter to Employer and copy to Consultant (if applicable) confirming its net worth is more than Rs. 100,00,00,000.00 [Rupees One Hundred Crores] or its equivalent in foreign currency along with documentary evidence.
- 6 Bidder can submit CPBG on line through issuing bank to Rajasthan state Gas Limited directly as per Ministry of Finance (MOF) Department of financial service direction vide letter ref number F.No.7/112/2011-BOA dated 17th July 2012. In such cases confirmation will not be sought from issuing banker by Rajasthan state Gas Limited.

**E-10****AGREED TERMS & CONDITIONS**

To,

M/s Rajasthan state Gas Limited

Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

This Questionnaire duly filled in, signed & stamped must form part of Bidder's Bid and should be returned along with Un-priced Bid. Clauses confirmed hereunder need not be repeated in the Bid.

Sl.	DESCRIPTION	BIDDER'S CONFIRMATION
1	Bidder's name and address	
2	Confirm quoted prices will remain firm and fixed till complete execution of the order.	
3	Rate of applicable GST (CGST & SGST/ UTGST or IGST)	CGST..... % Plus SGST/UTGST..... % Total.....% Or IGST%
3.1	Whether in the instant tender services/works are covered in reverse charge rule of GST (CGST & SGST/UTGST or IGST)	Yes/ No In case of Yes, please specify GST (CGST & SGST/UTGST or IGST) payable by: Rajasthan state Gas Limited % Bidder %
3.2	Service Accounting Codes (SAC)/ Harmonized System of Nomenclature (HSN)	
3.3	We hereby confirm that the quoted prices is in compliance with the Section 171 of CGST Act/ SGST Act as mentioned as clause no. 13.10 of ITB	
4	i) Confirm acceptance of relevant Terms of Payment specified in the Bid Document. ii) In case of delay, the bills shall be submitted after deducting the price reduction due to delay.	



INDIAN AIRCRAFT CORPORATION
PVT. LTD.

Sl.	DESCRIPTION	BIDDER'S CONFIRMATI
5	Confirm that Contract Performance Security will be furnished as per Bid Document.	
6	Confirm that Contract Performance Security shall be from any Indian scheduled bank or a branch of an International bank situated in India and registered with Reserve bank of India as scheduled foreign bank. However, in case of bank guarantees from banks other than the Nationalised Indian banks, the bank must be a commercial bank having net worth in excess of Rs 100 crores or its equivalent in foreign currency and a declaration to this effect shall be made by such commercial bank either in the Bank Guarantee itself or separately on its letterhead.	
7	Confirm compliance to Completion Schedule as specified in Bid document. Confirm contract period shall be reckoned from the date of Fax of Acceptance.	
8	Confirm acceptance of Price Reduction Schedule for delay in completion schedule specified in Bid document.	
9	a) Confirm acceptance of all terms and conditions of Bid Document (all sections). b) Confirm that printed terms and conditions of bidder are not applicable.	
10	Confirm your offer is valid for period specified in BDS from Final/Extended due date of opening of Techno- commercial Bids.	
11	Please furnish EMD/Bid Security details : a) EMD/ Bid Security No. &date b) Value c) Validity	
12	Confirm acceptance to all provisions of ITB read in conjunction with Bid Data Sheet (BDS).	
13	Confirm that Annual Reports for the last three financial years are furnished along with the Un-priced Bid.	
14	Confirm that, in case of contradiction between the confirmations provided in this format and terms & conditions mentioned elsewhere in the offer, the confirmations given in this format shall prevail.	



Sl.	DESCRIPTION	BIDDER'S CONFIRMATI
15	Confirm the none of Directors of bidder is a relative of any Director of Owner or the bidder is a firm in which any Director of Owner/ Rajasthan state Gas Limited or his relative is a partner.	
16	All correspondence must be in ENGLISH language only.	
17	Owner reserves the right to make any change in the terms & conditions of the TENDER/BIDDING DOCUMENT and to reject any or all bids.	
18	Confirm that all Bank charges associated with Bidder's Bank shall be borne by Bidder.	
19	Confirm that you have not been banned or de-listed by any Government or Quasi-Government agencies or Public Sector Undertakings. If you have been banned or de-listed by any Government or Quasi-Government agency or Public Sector Undertakings, then this fact must be clearly stated. If this declaration is not furnished bid shall be treated as non-responsive and liable for rejection. * It shall be the sole responsibility of the bidder to inform Rajasthan state Gas Limited about the changes that may occur in the stated declaration during the course of finalization of the tender.	
20	Confirm that any correction in documents submitted in the Un-priced part has been initialed and with signatures of the authorized person	CONFIRMED
21	Please confirm whether you are MSE and if so then you have submitted Documentary evidence that you are a Micro or Small Enterprises registered with District Industries Centers or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts and Handloom or any other body specified by Ministry of Micro, Small and Medium Enterprises.	
22	Confirm that all documents submitted with bid against the subject tender are true and genuine and in case of any discrepancy noticed or observed at any stage, bidder shall be personally responsible not only for the damages or loss to Rajasthan state Gas Limited, but also for criminal proceedings under the relevant laws.	CONFIRMED
23	Confirm that scanned copy of the EMD / Bid Bond has been submitted	CONFIRMED



Sl.	DESCRIPTION	BIDDER'S CONFIRMATI
24	Confirm that no Price disclosing files have been attached with unpriced/ technical bid. *In case price disclosing files are attached in techno-commercial unpriced bid area, bid will be summarily rejected as per clause 19.0 of ITB.	CONFIRMED
25	Confirm that bid documents are considered in full while preparing the bid and in case of award, work will be executed in accordance with the provisions detailed in bid document.	CONFIRMED

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:

**F-11****ACKNOWLEDGEMENT CUM CONSENT LETTER**

(On receipt of tender document/information regarding the tender, Bidder shall acknowledge the receipt and confirm his intention to bid or reason for non- participation against the enquiry /tender through e-mail/fax to concerned executive in Rajasthan state Gas Limited issued the tender, by filling up the Format)

To,

M/s Rajasthan state Gas Limited

Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir,

We hereby acknowledge receipt of a complete set of bidding document along with enclosures for subject item/job and/or the information regarding the subject tender.

- We intend to bid as requested for the subject item/job and furnish following details with respect to our quoting office:

Postal Address with Pin Code:

Telephone Number :

Fax Number :

Contact Person :

E-mail Address :

Mobile No. :

Date :

Seal/Stamp :

- We are unable to bid for the reason given below:
Reasons for non-submission of bid:

Agency's Name :

Signature :

Name :

Designation :

Date :

Seal/Stamp :

**E-12****UNDERTAKING ON LETTERHEAD**

To,

M/s. Rajasthan state Gas Limited

Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Dear Sir

We hereby confirm that “The contents of this Tender Document No. _____ have not been modified or altered by M/s.(Name of the bidder with complete address). In case, it is found that the tender document has been modified / altered by the bidder, the bid submitted by M/s(Name of the bidder) shall be liable for rejection”.

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:



F-13
BIDDER'S EXPERIENCE

To,

M/s. Rajasthan state Gas
Limited

Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

Sl. No	Description of the Services	LOA /WO No. and date	Full Address & phone nos. of Client. <i>Name, designation and address of Engineer/ Officer-in-Charge (for cases other than purchase)</i>	Postal	Value of Contract/ Order <i>(Specify Currency Amount)</i>	Date of Commencement of Services	Scheduled Completion Time (Months)	Date of Actual Completion	Reasons for delay in execution, if any
(1)	(2)	(3)	(5)		(6)	(7)	(8)	(9)	(10)

Place:

Date:

[Signature of Authorized Signatory of Bidder]

Name:

Designation:

Seal:



F-14
CHECK LIST

Bidders are requested to duly fill in the checklist. This checklist gives only certain important items to facilitate the bidder to make sure that the necessary data/information as called for in the bid document has been submitted by them along with their offer. This, however, does not relieve the bidder of his responsibilities to make sure that his offer is otherwise complete in all respects.

Please ensure compliance and tick (√) against following points:

S. No.	DESCRIPTION	CHECK BOX	REFERENCE PAGE NO. OF THE BID SUBMITTED
1.0	Manually Signing offer, original bidding document including SCC, ITB, GCC, SOR drawings, addendum (if any)		
2.0	Confirm that the following details have been submitted in the Un-priced part of the bid		
i	Covering Letter, Letter of Submission		
ii	Bid Security		
iii	Signed and stamped original copy of bidding document along with drawings and addendum (if any)		
iv	Power of Attorney in the name of person signing the bid.		
v	Copies of documents defining constitution or legal status, place of registration and principal place of business of the company		
vi	Bidders declaration that regarding, Holiday/ Banning, liquidation court receivership or similar proceedings		
vii	Details and documentary proof required against qualification criteria along with complete documents establishing ownership of equipment as per SCC are enclosed		

viii	Confirm submission of document along with unpriced bid as per bid requirement.		
3.0	Confirm that all forms duly filled in are enclosed with the bid duly signed by authorized person(s)		
i	Confirm that no Price disclosing files have been attached with unpriced/ technical bid		
4.0	Confirm that proper page nos. have been given in sequential way in all the documents submitted along with your offer with Index.		
5.0	Confirmation that no deviations are taken against commercial and technical specifications of the bid document.		
6.0	Confirm that the price part of bid as per Price Schedule format enclosed with Bidding Document has been duly filled in for each item, signed on each page separately		
7.0	Confirm that annual reports for last three financial years & duly filled in Form 14 are enclosed in the offer for financial assessment (where financial criteria of BEC is applicable).		

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:

**F-14A****CHECK LIST FOR QUOTED ITEMS**

ITEM CATEGORY	SOR ITEM DESCRIPTION	QUOTED / NOT QUOTED
1	PE Pipe laying including last mile connectivity at consumer end for city gas distribution project at Kota as per SOR and tender document ref. no. RSGL/KOTA/C&P/PROJ/N IT-10	

**F-15**

**FORMAT FOR CERTIFICATE FROM BANK IF BIDDER'S WORKING CAPITAL IS
INADEQUATE**

(To be provided on Bank's letter head)

Date:

Bidder's Name: _____

Tender No.: _____

To
Rajasthan state Gas Limited

This is to certify that M/s..... (name of the bidder with address)
(hereinafter referred to as Customer) is an existing customer of our Bank.

The Customer has informed that they wish to bid for RAJASTHAN STATE GAS's
RFQ/Tender no.

..... dated for.....(Name
of the supply) and as per the terms of the said RFQ/Tender they have to furnish a certificate from
their Bank confirming the availability of line of credit.

Accordingly M/s (name of the Bank with address) confirms availability
of line of credit to M/s (name of the bidder) for at least an amount of Rs.
_____/ USD _____.

It is also confirmed that the net worth of the Bank is more than Rs. 100 Crores and the undersigned
is authorized to issue this certificate.

Yours Truly,

For _____

(Authorized Signatory)

Name of the Signatory:

Designation:

Registration No.

Stamp of Bank

**F-16**

FORMAT FOR CHARTERED ACCOUNTANT CERTIFICATE/ CERTIFIED PUBLIC ACCOUNTANT (CPA) FOR FINANCIAL CAPABILITY OF THE BIDDER

We have verified the Audited Financial Statements and other relevant records of M/s(Name of the bidder) and certify the following:

A. AUDITED ANNUAL TURNOVER* OF LAST 3 YEARS:

Year	Amount (Currency)
Year 1:	
Year 2:	
Year 3:	

B. NETWORTH* AS PER LAST AUDITED FINANCIAL STATEMENT:

Description	Year _____
	Amount (Currency)
1. Net Worth	

C. WORKING CAPITAL* AS PER LAST AUDITED FINANCIAL STATEMENT :

Description	Year _____
	Amount (Currency)
1. Current Assets	
2. Current Liabilities	
3. Working Capital (Current Assets-Current liabilities)	

****Refer Instructions***

Note: It is further certified that the above mentioned applicable figures are matching with the returns filed with Registrar of Companies (ROC) [Applicable only in case of Indian Companies]

Name of Audit Firm:
Chartered Accountant/CPA
Date:

[Signature of Authorized Signatory]
Name:
Designation:
Seal:
Membership No.:



Instructions:

1. The Separate Pro-forma shall be used for each member in case of JV/ Consortium.
2. The financial year would be the same as one normally followed by the bidder for its Annual Report.
3. The bidder shall provide the audited annual financial statements as required for this Tender document. Failure to do so would result in the Proposal being considered as non-responsive.
4. For the purpose of this Tender document:
 - (i) **Annual Turnover** shall be “Sale Value/ Operating Income”
 - (ii) **Working Capital** shall be “Current Assets less Current liabilities” and
 - (iii) **Net Worth** shall be Paid up share capital plus Free Reserves & Surplus less accumulated losses, deferred expenditure and miscellaneous expenditure not written off, if any.
5. Above figures shall be calculated after considering the qualification, if any, made by the statutory auditor on the audited financial statements of the bidder including quantified financial implication.
6. This certificate is to be submitted on the letter head of Chartered Accountant/CPA.



F-17

BIDDER'S QUERIES FOR PRE BID MEETING

To,
M/s Rajasthan state Gas Limited

Sub: Sub: Sub: Tender document for MDPE laying including Last Mile Connectivity at consumer end for CGD project at Kota GA.

Tender no: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

SL. NO.	REFERENCE OF BIDDING DOCUMENT				BIDDER'S QUERY	Rajasthan state Gas Limited's REPLY
	Sec. No.	Page No.	Clause No.	Subject		

NOTE: The Pre-Bid Queries may be sent by fax / e-mail before due date for receipt of Bidder's queries in terms of Clause No. 8.1 of ITB.

Place:

[Signature of Authorized Signatory of Bidder]

Date:

Name:

Designation:

Seal:



E-18
E-Banking Mandate Form

(To be issued on vendors letter head)

1. Vendor/customer Name :
2. Vendor/customer Code:
3. Vendor /customer Address:
4. Vendor/customer e-mail id:
5. Particulars of bank account
 - a) Name of Bank
 - b) Name of branch
 - c) Branch code:
 - d) Address:
 - e) Telephone number:
 - f) Type of account (current/saving etc.)
 - g) Account Number:
 - h) RTGS IFSC code of the bank branch
 - i) NEFT IFSC code of the bank branch
 - j) 9 digit MICR code

I/We hereby authorize Rajasthan state Gas Limited to release any amount due to me/us in the bank account as mentioned above. I/We hereby declare that the particulars given above are correct and complete. If the transaction is delayed or lost because of incomplete or incorrect information, we would not hold the Rajasthan state Gas Limited responsible.

(Signature of vendor/customer)

BANK CERTIFICATE

We certify that ----- has an Account no -----with us and we confirm that the details given above are correct as per our records.

Bank stamp

Date

(Signature of authorized officer of bank)



F-19

INDEMNITY BOND

WHEREAS Rajasthan state Gas Limited Ltd. (hereinafter referred to as “**Rajasthan state Gas Limited**”) which expression shall, unless repugnant to the context include its successors and assigns, having its corporate and registered office at Room No. 303, Khaniz Bhawan, Tilak Marg, C- scheme Jaipur has entered into a contract with M/s*..... (hereinafter referred to as the “**Contractor**”) which expression shall unless repugnant to the context include its representatives, successors and assigns, having its registered office at *.....

and on the terms and conditions as set out, inter-alia in the [*mention the work order/LOA/Tender No.*] and various documents forming part thereof, hereinafter collectively referred to as the ‘**CONTRACT**’ which expression shall include all amendments, modifications and / or variations thereto.

Rajasthan state Gas Limited has also advised the Contractor to execute an Indemnity Bond in general in favour of Rajasthan state Gas Limited indemnifying Rajasthan state Gas Limited and its employees and Directors from all consequences which may arise out of any prospective litigation or proceedings filed or may be initiated by any third party, including any Banker / financial institution / worker(s)

/vendor(s)/ subcontractor(s) etc. who may have been associated or engaged by the Contractor directly or indirectly with or without consent of Rajasthan state Gas Limited for above works.

NOW, THEREFORE, in consideration of the promises aforesaid, the Contractor hereby irrevocably and unconditionally undertakes to indemnify and keep indemnified Rajasthan state Gas Limited and all its employees, Directors, including Independent Directors, from and against all/any claim(s), damages, loss, which may arise out of any litigations/ liabilities that may be raised by the Contractor or any third party against RAJASTHAN STATE GAS under or in relation to this contract. The Contractor undertakes to compensate and pay to Rajasthan state Gas Limited and/or any of its employees, Directors forth with on demand without any protest the amount claimed by Rajasthan state Gas Limited for itself and for and on behalf of its employees, Directors together with direct/indirect expenses including all legal expenses incurred by them or any of them on account of such litigation or proceedings.

AND THE CONTRACTOR hereby further agrees with Rajasthan state Gas Limited that:

- (i) This Indemnity shall remain valid and irrevocable for all claims of Rajasthan state Gas Limited and/or any of its employees and Directors arising out of said contract with respect to any such litigation / court case for which Rajasthan state Gas Limited and/or its employees and Directors has been made party until now or here-in-after.
- (ii) This Indemnity shall not be discharged/revoked by any change/ modification



/amendment/assignment of the contract or any merger of the Contractor with other entity or any change in the constitution/structure of the Contractor's firm/Company or any conditions thereof including insolvency etc. of the Contractor, but shall be in all respects and for all purposes binding and operative until any/all claims for payment of Rajasthan state Gas Limited are settled by the Contractor and/or Rajasthan state Gas Limited discharges the Contractor in writing from this Indemnity.

The undersigned has full power to execute this Indemnity Bond for and on behalf of the Contractor and the same stands valid.

SIGNED BY :

For [*Contractor*] *Authorised Representative*

Place:

Dated:

Witnesses:

- 1.
- 2.

**E-20****FREQUENTLY ASKED QUESTIONS (FAQs)**

SL. NO.	QUESTION	ANSWER
1.0	Can any vendor quote for subject Tender?	Yes. A Vendor has to meet Bid Evaluation Criteria given under Section 1.1 of Tender document in addition to other requirements.
2.0	Should the Bid Evaluation Criteria documents be attested?	Yes. Please refer clause no C of Section 1.1 of Tender document
3.0	Is attending Pre Bid Meeting mandatory.	No. Refer Clause No. 17 of Instruction to Bidders of Tender Document. However attending Pre Bid Meeting is recommended to sort out any issue before submission of bid by a Bidder.
4.0	Can a vendor submit more than one offer?	No. Please refer Clause No. 4 of Instruction to Bidders of Tender Document.
5.0	Is there any Help document available for e-Tender?	Not applicable
6.0	Are there any MSE (Micro & Small Enterprises) benefits available?	Yes. Refer Clause No. 39 of Instructions to Bidders of Tender Document.



All the terms and conditions of Tender remain unaltered.



F-21

Details of Quoted Parts

Bidder's Name:

Description	Quoted/ Not Quoted	Amount of EMD submitted
last mile connectivity and associated work at consumer end for CGD project at Kota GA.. As per SOR and tender document ref. no. RSGL/KOTA/C&P/PROJ/2 025-26/ NIT-07 DATED: 18-07-2025		



CUT-OUT SLIP

(To be pasted on the MAIN ENVELOPE)

DO NOT OPEN - THIS IS A QUOTATION

**Tender : TENDER DOCUMENT FOR MDPE LAYING INCLUDING
LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT
KOTA GA.**

Tender no. : RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07 dated 18-07-2025

Due Date & Time : Upto 14:00 Hrs. (IST) on 11-08-2025

From :

To :

<i>M/s</i> _____ _____ _____ _____ _____ Mob. No.	DGM (C&P) RAJASTHAN STATE GAS LIMITED 3 rd Floor Khaniz Bhawan, Tilak Marg, C-Scheme Jaipur – 302005 Email: viveks.rsgl@rajasthan.gov.in Ph, No. 9650055638



CUT-OUT SLIP FOR PRICE BID

(To be pasted on the envelope containing PRICE BID)

DO NOT OPEN - THIS IS A QUOTATION

**Tender : TENDER DOCUMENT FOR MDPE LAYING INCLUDING
LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT
KOTA GA.**

Tender no. : RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07 dated 18-07-2025

Due Date & Time : Upto 14:00 Hrs. (IST) on 11-08-2025

From :

To :

M/s _____

DGM (C&P)
RAJASTHAN STATE GAS LIMITED
Khaniz Bhawan,
Tilak Marg, C-Scheme
Jaipur – 302005
Email: viveks.rsgl@rajasthan.gov.in
Ph. No. 9650055638





PART-II – CONDITIONS OF CONTRACT



Section 2:
**General Conditions of Contract-Services (to be read in
conjunction with other sections of the bid documents)**



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INDUSTRIAL SAFETY

INDUSTRIAL SAFETY

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1. Proforma of Agreement
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General Conditions of Contract

Section- I. Definitions

1. Definition of Terms:

- 1.1 In this CONTRACT (as here-in-after defined) the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise required.
 - 1.1.1 The EMPLOYER/COMPANY/RSGL means RSGL, incorporated under the Company's act 1956 and having its office at Khaniz bhawan, Tilak marg, C-scheme Jaipur-302005 and includes its successors and assigns.
 - 1.1.2 The "CONTRACTOR" means the person or the persons, firm or Company or corporation whose tender has been accepted by the EMPLOYER and includes the CONTRACTOR's legal Representatives his successors and permitted assigns.
 - 1.1.3 The ENGINEER/ENGINEER-IN-CHARGE" shall mean the person designated from time to time by the RSGL and shall include those who are expressly authorized by him to act for and on his behalf for operation of this CONTRACT.
 - 1.1.4 The "WORK" shall mean and include all items and things to be supplied/ done and services and activities to be performed by the CONTRACTOR in pursuant to and in accordance with CONTRACT or part thereof as the case may be and shall include all extra, additional, altered or substituted works as required for purpose of the CONTRACT.
 - 1.1.5 The "PERMANENT WORK" means and includes works which will be incorporated in and form a part of the work to be handed over to the EMPLOYER by the CONTRACTOR on completion of the CONTRACT.
 - 1.1.6 "CONSTRUCTION EQUIPMENT" means all appliances/equipment and things whatsoever nature for the use in or for the execution, completion, operation, or maintenance of the work or temporary works (as hereinafter defined) but does not include materials or other things intended to form or to be incorporated into the WORK, or camping facilities.
 - 1.1.7 "CONTRACT DOCUMENTS" means collectively the Tender Documents, Designs, Drawings, Specification, Schedule of Quantities and Rates, Letter of Acceptance and agreed variations if any, and such other documents constituting the tender and acceptance thereof.
 - 1.1.8 CONSULTANT: means The Consultant firm appointed by the RSGL
 - 1.1.9 The "SUB-CONTRACTOR" means any person or firm or Company (other than the CONTRACTOR) to whom any part of the work has been entrusted by the CONTRACTOR, with the written consent of the ENGINEER-IN-CHARGE, and the legal representatives, successors and permitted assigns of such person, firm or company.
 - 1.1.10 The "CONTRACT" shall mean the Agreement between the EMPLOYER and the CONTRACTOR for the execution of the works



including therein all contract documents.

- 1.1.11 The "SPECIFICATION" shall mean all directions the various technical specifications, provisions attached and referred to the Tender Documents which pertain to the method and manner of performing the work or works to the quantities and qualities of the work or works and the materials to be furnished under the CONTRACT for the work or works, as may be amplified or modified by the RSGL or ENGINEER-IN-CHARGE during the performance of CONTRACT in order to provide the unforeseen conditions or in the best interests of the work or works. It shall also include the latest edition of relevant Standard Specifications including all addenda/corrigenda published before entering into CONTRACT.
- 1.1.12 The "DRAWINGS" shall include maps, plans and tracings or prints or sketches thereof with any modifications approved in writing by the ENGINEER-IN-CHARGE and such other drawing as may, from time to time, be furnished or approved in writing by the ENGINEER-IN-CHARGE.
- 1.1.13 The "TENDER" means the proposal along with supporting documents submitted by the CONTRACTOR for consideration by the EMPLOYER.
- 1.1.14 The "CHANGE ORDER" means an order given in writing by the ENGINEER-IN-CHARGE to effect additions to or deletion from and alteration in the works.
- 1.1.15 The "COMPLETION CERTIFICATE" shall mean the certificate to be issued by the ENGINEER-IN-CHARGE when the works have been completed entirely in accordance with CONTRACT DOCUMENT to his satisfaction.
- 1.1.16 The "FINAL CERTIFICATE" in relation to a work means the certificate regarding the satisfactory compliance of various provision of the CONTRACT by the CONTRACTOR issued by the ENGINEER-IN-CHARGE/EMPLOYER after the period of liability is over.
- 1.1.17 "DEFECT LIABILITY PERIOD" in relation to a work means the specified period from the date of COMPLETION CERTIFICATE upto the date of issue of FINAL CERTIFICATE during which the CONTRACTOR stands responsible for rectifying all defects that may appear in the works executed by the CONTRACTOR in pursuance of the CONTRACT and includes warranties against Manufacturing/Fabrication/ Erection/Construction defects covering all materials plants, equipment, components, and the like supplied by the CONTRACTOR, works executed against workmanship defects.
- 1.1.18 The "APPOINTING AUTHORITY" for the purpose of arbitration shall be the CHAIRMAN and MANAGING DIRECTOR or any other person so designated by the EMPLOYER.
- 1.1.19 "TEMPORARY WORKS" shall mean all temporary works of every kind required in or about the execution, completion or maintenance of works.
- 1.1.20 "PLANS" shall mean all maps, sketches and layouts as are incorporated in the CONTRACT in order to define broadly the scope and specifications of the work or works, and all reproductions thereof.
- 1.1.21 "SITE" shall mean the lands and other places on, under, in or through



which the permanent works are to be carried out and any other lands or places provided by the EMPLOYER for the purpose of the CONTRACT.

- 1.1.22 "NOTICE IN WRITING OR WRITTEN NOTICE" shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received by the addressee) by registered post to the latest known private or business address or registered office of the addressee and shall be deemed to have been received in the ordinary course of post it would have been delivered.
- 1.1.23 "APPROVED" shall mean approved in writing including subsequent written confirmation of previous verbal approval and "APPROVAL" means approval in writing including as aforesaid.
- 1.1.24 "LETTER OF INTENT/FAX OF INTENT" shall mean intimation by a Fax/Letter to Tenderer(s) that the tender has been accepted in accordance with the provisions contained in the letter.
- 1.1.25 "DAY" means a day of 24 hours from midnight to midnight irrespective of the number of hours worked in that day.
- 1.1.26 "WORKING DAY" means any day which is not declared to be holiday or rest day by the EMPLOYER.
- 1.1.27 "WEEK" means a period of any consecutive seven days.
- 1.1.28 "METRIC SYSTEM" - All technical documents regarding the construction of works are given in the metric system and all work in the project should be carried out according to the metric system. All documents concerning the work shall also be maintained in the metric system.
- 1.1.29 "VALUE OF CONTRACT" or "TOTAL CONTRACT PRICE" shall mean the sum accepted or the sum calculated in accordance with the prices accepted in tender and/or the CONTRACT rates as payable to the CONTRACTOR for the entire execution and full completion of the work, including change order.
- 1.1.30 "LANGUAGE FOR DRAWINGS AND INSTRUCTION" All the drawings, titles, notes, instruction, dimensions, etc. shall be in English Language.
- 1.1.31 "MOBILIZATION" shall mean establishment of sufficiently adequate infrastructure by the CONTRACTOR at "SITE" comprising of construction Equipments, aids, tools tackles including setting of site offices with facilities such as power, water, communication etc. establishing manpower organisation comprising of Resident Engineers, Supervising personnel and an adequate strength of skilled, semi-skilled and un-skilled workers, who with the so established infrastructure shall be in a position to commence execution of work at site(s), in accordance with the agreed Time Schedule of Completion of Work. "MOBILISATION" shall be considered to have been achieved, if the CONTRACTOR is able to establish infrastructure as per Time Schedule, where so warranted in accordance with agreed schedule of work implementation to the satisfaction of ENGINEER-IN-CHARGE/EMPLOYER.
- 1.1.32 "COMMISSIONING" shall mean pressing into service of the system including the plant(s), equipment(s), vessel(s), pipeline, machinery(ies), or any other section or sub-section of installation(s)



pertaining to the work of the CONTRACTOR after successful testing and trial runs of the same.

- "COMMISSIONING" can be either for a completed system or a part of system of a combination of systems or sub-systems and can be performed in any sequence as desired by EMPLOYER and in a manner established to be made suited according to availability of pre-requisites. Any such readjustments made by EMPLOYER in performance of "COMMISSIONING" activity will not be construed to be violating CONTRACT provisions and CONTRACTOR shall be deemed to have provided for the same.

Section-II General Information

2. General Information

- 2.1 a) Location of Site: The proposed location of Project site is defined in the Special Conditions of Contract.

b) Access by Road: CONTRACTOR, if necessary, shall build other temporary access roads to the actual site of construction for his own work at his own cost. The CONTRACTOR shall be required to permit the use of the roads so constructed by him for vehicles of any other parties who may be engaged on the project site. The CONTRACTOR shall also facilitate the construction of the permanent roads should the construction there of start while he is engaged on this work. He shall make allowance in his tender for any inconvenience he anticipates on such account.

Non-availability of access roads, railway siding and railway wagons for the use of the CONTRACTOR shall in no case condone any delay in the execution of WORK nor be the cause for any claim for compensation against the EMPLOYER.

- 2.2 Scope of Work: The scope of WORK is defined in the Technical Part of the tender document. The CONTRACTOR shall provide all necessary materials, equipment, labour etc. for the execution and maintenance of the WORK till completion unless otherwise mentioned in the Tender Document.

- 2.3 Water Supply: Contractor will have to make his own arrangements for supply of water to his labour camps and for works. All pumping installations, pipe network and distribution system will have to be carried out by the Contractor at his own risk and cost.

Alternatively, the Employer at his discretion may endeavour to provide water to the Contractor at the Employer's source of supply provided the Contractor makes his own arrangement for the water meter which shall be in custody of the Employer and other pipe networks from source of supply and such distribution pipe network shall have prior approval of the Engineer-in-Charge so as not to interfere with the layout and progress of the other construction works. In such case, the rate for water shall be deducted from the running account bills.

However, the Employer does not guarantee the supply of water and this does not relieve the Contractor of his responsibility in making his own arrangement and for the timely completion of the various works as stipulated.

2.4 Power Supply:

- 2.4.1 Subject to availability, EMPLOYER will supply power at 400/440 V at only one point at the nearest sub-station, from where the



CONTRACTOR will make his own arrangement for temporary distribution. The point of supply will not be more than 500 m away from the CONTRACTOR'S premises. All the works will be done as per the applicable regulations and passed by the ENGINEER-IN-CHARGE. The temporary line will be removed forthwith after the completion of work or if there is any hindrance caused to the other works due to the alignment of these lines, the CONTRACTOR will re-route or remove the temporary lines at his own cost. The CONTRACTOR at his cost will also provide suitable electric meters, fuses, switches, etc. for purposes of payment to the EMPLOYER which should be in the custody and control of the EMPLOYER. The cost of power supply shall be payable to the EMPLOYER every month for Construction Works power which would be deducted from the running account bills. The EMPLOYER shall not, however, guarantee the supply of electricity nor have any liability in respect thereof. No claim for compensation for any failure or short supply of electricity will be admissible.

- 2.4.2 It shall be the responsibility of the CONTRACTOR to provide and maintain the complete installation on the load side of the supply with due regard to safety requirement at site. All cabling, equipment, installations etc. shall comply in all respects with the latest statutory requirements and safety provisions i.e., as per the Central/State Electricity Acts and Rules etc. The CONTRACTOR will ensure that his equipment and Electrical Wiring etc., are installed, modified, maintained by a licensed Electrician/Supervisor. A test certificate is to be produced to the ENGINEER-IN-CHARGE for his approval, before power is made available.
- 2.4.3 At all times, IEA regulations shall be followed failing which the EMPLOYER has a right to disconnect the power supply without any reference to the CONTRACTOR. No claim shall be entertained for such disconnection by the ENGINEER-IN-CHARGE. Power supply will be reconnected only after production of fresh certificate from authorized electrical supervisors.
- 2.4.4 The EMPLOYER is not liable for any loss or damage to the CONTRACTOR's equipment as a result of variation in voltage or frequency or interruption in power supply or other loss to the CONTRACTOR arising there from.
- 2.4.5 The CONTRACTOR shall ensure that the Electrical equipment installed by him are such that average power factors does not fall below 0.90 at his premises. In case power factor falls below 0.90 in any month, he will reimburse to the EMPLOYER at the penal rate determined by the EMPLOYER for all units consumed during the month.
- 2.4.6 The power supply required for CONTRACTOR's colony near the plant site will be determined by the EMPLOYER and shall be as per State Electricity Board's Rules and other statutory provisions applicable for such installations from time to time. In case of power supply to CONTRACTOR's colony, the power will be made available at a single point and the CONTRACTOR shall make his own arrangement at his own cost for distribution to the occupants of the colony as per Electricity Rules and Acts. The site and colony shall be sufficiently illuminated to avoid accidents.
- 2.4.7 The CONTRACTOR will have to provide and install his own lights and power meters which will be governed as per Central/State Government Electricity Rules. The metres shall be sealed by the EMPLOYER.



- 2.4.8 In case of damage of any of the EMPLOYER's equipment on account of fault, intentional or unintentional on the part of the CONTRACTOR, the EMPLOYER reserves the right to recover the cost of such damage from the CONTRACTOR's bill. Cost of HRC Fuses replaced at the EMPLOYER's terminals due to any fault in the CONTRACTOR's installation shall be to CONTRACTOR's account at the rates decided by the ENGINEER-IN-CHARGE.
- 2.4.9 Only motors upto 3 HP will be allowed to be started direct on line. For motors above 3 HP and upto 100 HP a suitable Starting device approved by the ENGINEER- IN-CHARGE shall be provided by the CONTRACTOR. For motors above 100 HP slip ring induction motors with suitable starting devices as approved by the ENGINEER- IN-CHARGE shall be provided by the CONTRACTOR.
- 2.4.10 The CONTRACTOR shall ensure at his cost that all electrical lines and equipment and all installations are approved by the State Electricity Inspector before power can be supplied to the EMPLOYER.
- 2.4.11 The total requirement of power shall be indicated by the Tenderer along with his tender.

2.5 Land for Contractor's Field Office, Godown and Workshop: The EMPLOYER will, at his own discretion and convenience and for the duration of the execution of the work make available near the site, land for construction of CONTRACTOR's Temporary Field Office, godowns workshops and assembly yard required for the execution of the CONTRACT. The CONTRACTOR shall at his own cost construct all these temporary buildings and provide suitable water supply and sanitary arrangement and get the same approved by the ENGINEER-IN-CHARGE.

On completion of the works undertaken by the CONTRACTOR, he shall remove all temporary works erected by him and have the SITE cleaned as directed by ENGINEER-IN-CHARGE. If the CONTRACTOR shall fail to comply with these requirements, the ENGINEER-IN-CHARGE may at the expenses of the CONTRACTOR remove such surplus, and rubbish materials and dispose off the same as he deems fit and get the site cleared as aforesaid; and CONTRACTOR shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such surplus materials disposed off as aforesaid. But the EMPLOYER reserves the right to ask the CONTRACTOR any time during the pendency of the CONTRACT to vacate the land by giving 7 days notice on security reasons or on national interest or otherwise. Rent may be charged for the land so occupied from contractor by the Employer.

The CONTRACTOR shall put up temporary structures as required by them for their office, fabrication shop and construction stores only in the area allocated to them on the project site by the EMPLOYER or his authorised representative. No tea stalls/canteens should be put up or allowed to be put up by any CONTRACTOR in the allotted land or complex area without written permission of the EMPLOYER.

No unauthorised buildings, constructions or structures should be put up by the CONTRACTOR anywhere on the project site.

For uninterrupted fabrication work, the CONTRACTOR shall put up temporary covered structures at his cost within Area in the location allocated to them in the project site by the EMPLOYER or his authorised representative.



No person except for authorised watchman shall be allowed to stay in the plant area/CONTRACTOR's area after completion of the day's job without prior written permission from ENGINEER-IN-CHARGE.

2.6 Land for Residential Accommodation:-No Land shall be made available for residential accommodation for staff and labour of CONTRACTOR.

2.72.7

Section-III. General Instructions to Tenderers

3. Submission of Tender:

- 3.1 TENDER must be submitted without making any additions, alterations, and as per details given in other clauses hereunder. The requisite details shall be filled in by the TENDERER at space provided under "Submission of Tender at the beginning of GCC of Tender Document. The rate shall be filled only in the schedule given in this Tender Document.
- 3.2 Addenda/Corrigenda to this Tender Document, if issued, must be signed, submitted along with the Tender Document. the tenderer should write clearly the revised quantities in Schedule of Rates of Tender Document and should price the WORK based on revised quantities when amendments of quantities are issued in addenda.
- 3.3 Covering letter along with its enclosures accompanying the Tender Document and all further correspondence shall be submitted in duplicate.
- 3.4 Tenderers are advised to submit quotations based strictly on the terms and conditions and specifications contained in the Tender Documents and not to stipulate any deviations.
- 3.5 Tenders should always be placed in double sealed covers, super scribing ["QUOTATION DO NOT OPEN" Tender for _____ Project of RSGL due for opening on _____]. The *Full Name, Address and Telegraphic Address, Fax No. of the Tenderers* shall be written on the bottom left hand corner of the sealed cover.

4. Documents:

4.1 General:

The tenders as submitted, will consist of the following:

- i) Complete set of Tender Documents (Original) as sold duly filled in and signed by the tenderer as prescribed in different clauses of the Tender Documents.
- ii) Earnest money in the manner specified in Clause 6 hereof.
- iii) Power of Attorney or a true copy thereof duly attested by a Gazetted Officer in case an authorised representative has signed the tender, as required by Clause 14 hereof.
- iv) Information regarding tenderers in the proforma enclosed.
- v) Details of work of similar type and magnitude carried out by the Tenderer in the proforma provided in the tender document.
- vi) Organisation chart giving details of field management at site, the tenderer proposes to have for this job.
- vii) Details of construction plant and Equipments available with the tenderer for using in this work.



- viii) Solvency Certificate from Scheduled Bank to prove the financial ability to carry out the work tendered for.
- ix) Latest Balance Sheet and Profit & Loss Account duly audited.
- x) Details of present commitment as per proforma enclosed to tender.
- xi) Data required regarding SUB-CONTRACTOR(s)/ Supplier/ Manufacturers and other technical informations the tenderer wish to furnish.
- xii) Provident fund registration certificate
- xiii) List showing all enclosures to tender.

4.2 All pages are to be Initiated: All signatures in Tender Documents shall be dated, as well as, all the pages of all sections of Tender Documents shall be initialled at the lower right hand corner and signed wherever required in the tender papers by the TENDERER or by a person holding power of attorney authorising him to sign on behalf of the tenderer before submission of tender.

4.3 Rates to be in Figures and Words: The tender should quote in English both in figures as well as in words the rates and amounts tendered by him in the Schedule of Rates of Tender submitted by the CONTRACTOR for each item and in such a way that interpolation is not possible. The amount for each item should be worked out and entered and requisite total given of all items, both in figures and in words. The tendered amount for the work shall be entered in the tender and duly signed by the Tenderer.

If some discrepancies are found between the RATES in FIGURES and WORDS or the AMOUNT shown in the tender, the following procedure shall be followed:

- a) When there is difference between the rates in figures and words, the rate which corresponds to the amount worked out by the tenderer shall be taken as correct.
- b) When the rate quoted by the tenderer in figures and words tally but the amount is incorrect the rate quoted by the tenderer shall be taken as correct.
- c) When it is not possible to ascertain the correct rate by either of above methods, the rate quoted in words shall be taken as correct.

4.4 Corrections and Erasures: All correction(s) and alteration(s) in the entries of tender paper shall be signed in full by the TENDERER with date. No erasure or over writing is permissible.

4.5 Signature of Tenderer:

4.5.1 The TENDERER shall contain the name, residence and place of business of person or persons making the tender and shall be signed by the TENDERER with his usual signature. Partnership firms shall furnish the full names of all partners in the tender. It should be signed in the partnership's name by all the partners or by duly authorised representatives followed by the name and designation of the person signing. Tender by a corporation shall be signed by an authorised representative, and a Power of Attorney in that behalf shall accompany the tender. A copy of the constitution of the firm with



names of all partners shall be furnished.

4.5.2 When a tenderer signs a tender in a language other than English, the total amount tendered should, in addition, be written in the same language. The signature should be attested by at least one witness.

4.6 Witness: Witness and sureties shall be persons of status and property and their names, occupation and address shall be stated below their signature.

4.7 Details of Experience: The tenderer should furnish, along with his tender, details of previous experience in having successfully completed in the recent past works of this nature, together with the names of Employers, location of sites and value of contract, date of commencement and completion of work, delays if any, reasons of delay and other details along with documentary evidence(s).

4.8 Liability of Government of India: It is expressly understood and agreed by and between Bidder or/Contractor and M/s RSGL, and that M/s RSGL, is entering into this agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India is not a party to this agreement and has no liabilities, obligations or rights hereunder. It is expressly understood and agreed that M/s RSGL is an independent legal entity with power and authority to enter into contracts solely on its own behalf under the applicable Laws of India and general principles of Contract Law. The Bidder/Contractor expressly agrees, acknowledges and understands that M/s RSGL is not an agent, representative or delegate of the Government of India. It is further understood and agreed that the Government of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the contract. Accordingly, Bidder/Contractor hereby expressly waives, releases and foregoes any and all actions or claims, including cross claims, impleader claims or counter claims against the Government of India arising out of this contract and covenants not to sue to Government of India as to any manner, claim, cause of action or thing whatsoever arising of or under this agreement.

5. Transfer of Tender Documents:

5.1 Transfer of Tender Documents purchased by one intending tenderer to another is not permissible.

6. Earnest Money:

6.1 The bidder must pay Earnest Money as given in the letter /notice inviting tenders and attach the official receipt with the tender failing which the tender is liable to be rejected and representatives of such tenderers will not be allowed to attend the tender opening. Earnest Money can be paid in Demand Drafts or Bank Guarantee or Banker's Cheque or Letter of Credit from any Indian scheduled bank or a branch of an International bank situated in India and registered with Reserve Bank of India as scheduled foreign bank. However, other than the Nationalised Indian Banks, the banks whose BGs are furnished, must be commercial banks having net worth in excess of Rs. 100 crores and a declaration to this effect should be made by such commercial bank either in the bank guarantee itself or separately on a letter head.

The bid guarantee shall be submitted in the prescribed format .

Note: The Bank Guarantee so furnished by the tenderer shall be in the proforma prescribed by the EMPLOYER. No interest shall be paid by the EMPLOYER on the Earnest Money deposited by the tenderer. The Bank Guarantee furnished in lieu of Earnest Money shall be kept valid for a period of "SIX MONTHS" from the date of opening of



tender.(TWO MONTHS beyond the bid due date).

The Earnest Money deposited by successful tenderer shall be forfeited if the Contractor fails to furnish the requisite Contract Performance Security as per clause 24 hereof and /or fails to start work within a period of 15 days or fails to execute the AGREEMENT within 15 days of the receipt by him of the Notification of Acceptance of Tender.

Note: The Earnest Money of the unsuccessful bidder will be returned by EMPLOYER/CONSULTANT, directly to the tenderer (s), within a reasonable period of time but not later than 30 days after the expiration of the period of bid validity prescribed by EMPLOYER.

7 Validity:

7.1 Tender submitted by tenderers shall remain valid for acceptance for a period of "4 MONTHS" from the date of opening of the tender. The tenderers shall not be entitled during the said period of 4 months, without the consent in writing of the EMPLOYER, to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tender revoking or canceling his tender or varying any term in regard thereof without the consent of EMPLOYER in writing, the EMPLOYER shall forfeit Earnest Money paid by him along with tender.

8 Addenda/Corrigenda

8.1 Addenda/ Corrigenda to the Tender Documents will be issued in duplicate prior to the date of opening of the tenders to clarify documents or to reflect modification in design or CONTRACT terms.

8.2 Each addenda/ corrigendum issued will be issued in duplicate to each person or organisation to whom set of Tender Documents has been issued. Recipient will retain tenderer's copy of each Addendum/Corrigendum and attach original copy duly signed along with his offer. All Addenda/Corrigenda issued shall become part of Tender Documents.

9 Right of Employer to Accept or Reject Tender:

9.1 The right to accept the tender will rest with the EMPLOYER. The EMPLOYER, however, does not bind himself to accept the lowest tender, and reserves to itself the authority to reject any or all the tenders received without assigning any reason whatsoever. At the option of the Employer, the work for which the tender had been invited, may be awarded to one Contractor or split between more than one bidders, in which case the award will be made for only that part of the work, in respect of which the bid has been accepted. The quoted rates should hold good for such eventualities.

Tenders in which any of the particulars and prescribed information are missing or are incomplete in any respect and/or the prescribed conditions are not fulfilled are liable to be rejected. The Tender containing uncalled for remarks or any additional conditions are liable to be rejected.

Canvassing in connection with tenders is strictly prohibited and tenders submitted by the Tenderers who resort to canvassing will be liable to rejection.

10 Time Schedule

10.1 The WORK shall be executed strictly as per the TIME SCHEDULE specified in TENDER/CONTRACT Document. The period of construction given in Time Schedule includes the time required for mobilisation as well as testing, rectifications if any, retesting and completion in all respects to the entire satisfaction of the ENGINEER-IN- CHARGE.



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- 10.2 A joint programme of execution of the WORK will be prepared by the ENGINEER-IN-CHARGE and CONTRACTOR based on priority requirement of this project. This programme will take into account the time of completion mentioned in 10.1 above and the time allowed for the priority works by the ENGINEER-IN-CHARGE.
- 10.3 Monthly/Weekly construction programme will; be drawn up by the ENGINEER-IN-CHARGE jointly with the CONTRACTOR, based on availability of work fronts and the joint construction programme as per 10.2 above. The CONTRACTOR shall scrupulously adhere to these targets /programmes by deploying adequate personnel, construction tools and tackles and he shall also supply himself all materials of his scope of supply in good time to achieve the targets/programmes. In all matters concerning the extent of targets set out in the weekly and monthly programmes and the degree of achievements the decision of the ENGINEER-IN-CHARGE will be final and binding on the CONTRACTOR.
- 11 Tenderer's Responsibility** 11.1 The intending tenderers shall be deemed to have visited the SITE and familiarised submitting the tender. Non-familiarity with the site conditions will not be considered a reason either for extra claims or for not carrying out the works in strict conformity with the DRAWINGS and SPECIFICATIONS or for any delay in performance.
- 12 Retired Government or Company Officers** 12.1 No Engineer of Gazetted rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the States/ Central Government or of the EMPLOYER is allowed to work as a CONTRACTOR for a period of two years after his retirement from Government Service, or from the employment of the EMPLOYER without the previous permission of the EMPLOYER. The CONTRACT, if awarded, is liable to be cancelled if either the CONTRACTOR or any of his employees is found at any time to be such a person, who has not obtained the permission of the State/Central Government or of the EMPLOYER as aforesaid before submission of tender, or engagement in the CONTRACTOR'S service as the case maybe.
- 13 Signing of the Contract:** 13.1 The successful tenderer shall be required to execute an AGREEMENT in the proforma attached with TENDER DOCUMENT within 15 days of the receipt by him of the Notification of Acceptance of Tender. In the event of failure on the part of the successful tenderer to sign the AGREEMENT within the above stipulated period, the Earnest Money or his initial deposit will be forfeited and the acceptance of the tender shall be considered as cancelled.
- 14 Field Management & Controlling/Coordinating Authority:** 14.1 The field management will be the responsibility of the ENGINEER-IN-CHARGE, who will be nominated by the EMPLOYER. The ENGINEER-IN-CHARGE may also authorise his representatives to assist in performing his duties and functions.
- 14.2 The ENGINEER-IN-CHARGE shall coordinate the works of various agencies engaged at site to ensure minimum disruption of work carried out by different agencies. It shall be the responsibility of the CONTRACTOR to plan and execute the work strictly in accordance with site instructions to avoid hindrance to the work being executed by other agencies.
- 15 Note to Schedule of Rates:** 15.1 The Schedule of Rates should be read in conjunction with all the other sections of the tender.
- 15.2 The tenderer shall be deemed to have studied the DRAWINGS,



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SPECIFICATIONS and details of work to be done within TIME SCHEDULE and to have acquainted himself of the condition prevailing at site.

16 Policy for Tenders Under Consideration:

- 15.3 Rates must be filled in the Schedule of Rates of original Tender Documents. If quoted in separate typed sheets no variation in item description or specification shall be accepted. Any exceptions taken by the tenderer to the Schedule of Rates shall be brought out in the terms and conditions of the offer.
- 15.4 The quantities shown against the various items are only approximate. Any increase or decrease in the quantities shall not form the basis of alteration of the rates quoted and accepted.
- 15.5 The EMPLOYER reserves the right to interpolate the rates for such items of work falling between similar items of lower and higher magnitude.
- 16.1 Only Those Tenders which are complete in all respects and are strictly in accordance with the Terms and Conditions and Technical Specifications of Tender Document, shall be considered for evaluation. Such Tenders shall be deemed to be under consideration immediately after opening of Tender and until such time an official intimation of acceptance /rejection of Tender is made by RSGL to the Bidder.
- 16.2 Zero Deviation: Bidders to note that this is a ZERO DEVIATION TENDER. RSGL will appreciate submission of offer based on the terms and conditions in the enclosed General Conditions of Contract (GCC), Special Conditions of Contract (SCC), Instructions to Bidders (ITB), Scope of Work, technical specifications etc. to avoid wastage of time and money in seeking clarifications on technical/ commercial aspects of the offer. Bidder may note that no technical and commercial clarifications will be sought for after the receipt of the bids. In case of any deviation/nonconformity observed in the bid, it will be liable for rejection.

17 Award of Contract:

- 17.1 The Acceptance of Tender will be intimated to the successful Tenderer by RSGL either by Telex/ Telegram/ Fax or by Letter or like means-defined as LETTER OF ACCEPTANCE OF TENDER.
- 17.2 RSGL will be the sole judge in the matter of award of CONTRACT and the decision of RSGL shall be final and binding.

18 Clarification of Tender Document:

- 18.1 The Tender is required to carefully examine the Technical Specifications, Conditions of Contract, Drawings and other details relating to WORK and given in Tender Document and fully inform himself as to all conditions and matters which may in any way affect the WORK or the cost thereof. In case the Tenderer is in doubt about the completeness or correctness of any of the contents of the Tender Documents he should request in writing for an interpretation/clarification to RSGL in triplicate. RSGL will then issue interpretation/clarification to Tenderer in writing. Such clarifications and or interpretations shall form part of the Specifications and Documents and shall accompany the tender which shall be submitted by tenderer within time and date as specified in invitations to tender.
- 18.2 Verbal clarification and information given by RSGL or its employee(s) or its representatives shall not in any way be binding on RSGL.

**19 Local Conditions:**

- 19.1 It will be imperative on each tenderer to inform himself of all local conditions and factors which may have any effect on the execution of WORK covered under the Tender Document. In their own interest, the tenderer are requested to familiarise themselves with the Indian Income Tax Act 1961, Indian Companies Act 1956, Indian Customs Act 1962 and other related Acts and Laws and Regulations of India with their latest amendments, as applicable RSGL shall not entertain any requests for clarifications from the tenderer regarding such local conditions.
- 19.2 It must be understood and agreed that such factors have properly been investigated and considered while submitting the tender. No claim for financial or any other adjustments to VALUE OF CONTRACT, on lack of clarity of such factors shall be entertained.

20 Abnormal Rates:

- 20.1 The tenderer is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and Conditions of Contract. This will avoid loss of profit or gain in case of curtailment or change of specification for any item. In case it is noticed that the rates quoted by the tenderer for any item are unusually high or unusually low, it will be sufficient cause for the rejection of the tender unless the EMPLOYER is convinced about the reasonableness after scrutiny of the analysis for such rate(s) to be furnished by the tenderer (on demand).

Section-IV. General Obligations**21 Priority of Contract Documents**

- 21.1 Except if and the extent otherwise provided by the Contract, the provisions of the General Conditions of Contract and Special Conditions shall prevail over those of any other documents forming part of the CONTRACT. Several documents forming the CONTRACT are to be taken as mutually explanatory of one another, but in case of ambiguities or discrepancies the same shall be explained and adjusted by the ENGINEER-IN-CHARGE who shall thereupon issue to the Contractor instructions thereon and in such event, unless otherwise provided in the Contract, the priority of the documents forming the Contract shall be as follows:

- 1) The Contract Agreement ;
- 2) The Letter of Acceptance;
- 3) The (Instructions to Bidders)ITB;
- 4) Special Conditions of Contract (SCC);
- 5) General Conditions of Contract (GCC)
- 6) Any other document forming part of the Contract.

Works shown in the DRAWING but not mentioned in the SPECIFICATIONS OR described in the SPECIFICATIONS without being shown in the DRAWINGS shall nevertheless be deemed to be included in the same manner as if they had been specifically shown upon the DRAWINGS and described in the SPECIFICATIONS.

- 21.2 Headings and Marginal Notes: All headings and marginal notes to the clauses of these General Conditions of Contract or to the SPECIFICATIONS or to any other Tender Document are solely for the purpose of giving a concise indication and not a summary of the contents thereof, and they shall never be deemed to be part thereof or be used in the interpretation or construction thereof the CONTRACT.
- 21.3 Singular and Plural: In CONTRACT DOCUMENTS unless otherwise stated specifically, the singular shall include the plural



and vice versa wherever the context so requires.

- 22 Special Conditions of Contract:**
- 21.4 Interpretation: Words implying 'Persons' shall include relevant 'Corporate Companies / Registered Associations/ Body of Individuals/ Firm of Partnership' as the case may be.
- 22.1 Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, specification of Work, Drawings and any other documents forming part of this CONTRACT wherever the context so requires.
- 22.2 Notwithstanding the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the CONTRACT so far as it may be practicable to do so.
- 22.3 Where any portion of the General Condition of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy, or variations, prevail.
- 22.4 Wherever it is mentioned in the specifications that the CONTRACTOR shall perform certain WORK or provide certain facilities, it is understood that the CONTRACTOR shall do so at his cost and the VALUE OF CONTRACT shall be deemed to have included cost of such performance and provisions, so mentioned.
- 22.5 The materials, design and workmanship shall satisfy the relevant INDIAN STANDARDS, the JOB SPECIFICATIONS contained herein and CODES referred to. Where the job specification stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.
- 23 Contractor to obtain his own Information:**
- 23.1 The CONTRACTOR in fixing his rate shall for all purpose whatsoever reason may be, deemed to have himself independently obtained all necessary information for the purpose of preparing his tender and his tender as accepted shall be deemed to have taken into account all contingencies as may arise due to such information or lack of same. The correctness of the details, given in the Tender Document to help the CONTRACTOR to make up the tender is not guaranteed.
- The CONTRACTOR shall be deemed to have examined the CONTRACT DOCUMENTS, to have generally obtained his own information in all matters whatsoever that might affect the carrying out of the works at the schedules rates and to have satisfied himself to the sufficiency of his tender. Any error in description of quantity or omission therefrom shall not vitiate the CONTRACT or release the CONTRACTOR from executing the work comprised in the CONTRACT according to DRAWINGS and SPECIFICATIONS at the scheduled rates. He is deemed to have known the scope, nature and magnitude of the WORKS and the requirements of materials and labour involved etc., and as to what all works he has to complete in accordance with the CONTRACT documents whatever be the defects, omissions or errors that may be found in the DOCUMENTS. The CONTRACTOR shall be deemed to have visited surroundings, to have satisfied himself to



the nature of all existing structures, if any, and also as to the nature and the conditions of the Railways, Roads, Bridges and Culverts, means of transport and communication, whether by land, water or air, and as to possible interruptions thereto and the access and egress from the site, to have made enquiries, examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus materials, the available accommodation as to whatever required, depots and such other buildings as may be necessary for executing and completing the works, to have made local independent enquiries as to the sub-soil, subsoil water and variations thereof, storms, prevailing winds, climatic conditions and all other similar matters effecting these works. He is deemed to have acquainted himself as to his liability of payment of Government Taxes, Customs duty and other charges, levies etc.

Any neglect or omission or failure on the part of the CONTRACTOR in obtaining necessary and reliable information upon the foregoing or any other matters affecting the CONTRACT shall not relieve him from any risks or liabilities or the entire responsibility from completion of the works at the scheduled rates and times in strict accordance with the CONTRACT.

It is, therefore, expected that should the CONTRACTOR have any doubt as to the meaning of any portion of the CONTRACT DOCUMENT he shall set forth the particulars thereof in writing to EMPLOYER in duplicate, before submission of tender. The EMPLOYER may provide such clarification as may be necessary in writing to CONTRACT, such clarifications as provided by EMPLOYER shall form part of CONTRACT DOCUMENTS.

No verbal agreement or inference from conversation with any effect or employee of the EMPLOYER either before, during or after the execution of the CONTRACT agreement shall in any way affect or modify and of the terms or obligations herein contained.

Any change in layout due to site conditions or technological requirement shall be binding on the CONTRACTOR and no extra claim on this account shall be entertained.

24 Contract Performance Security:

- 24.1 The CONTRACTOR shall furnish to the EMPLOYER, within 15 days from the date of notification of award, a security in the sum of 10% of the accepted value of the tender or the actual value of work to be done whichever is applicable due to any additional work or any other reasons, in the form of a Bank draft/Banker's cheque or Bank Guarantee or irrevocable Letter of credit (as per proforma enclosed) as Contract Performance Security with the EMPLOYER which will be refunded after the expiry of DEFECTS LIABILITY PERIOD.
- 24.2 CONTRACTOR can furnish the Contract Performance Security in the form of Demand Draft or through a Bank Guarantee or through an irrevocable Letter of Credit from any Indian scheduled bank or a branch of an International bank situated in India and registered with Reserve Bank of India as scheduled foreign bank. However, other than the Nationalised Indian Banks, the banks whose BGs are furnished, must be commercial banks having net worth in excess of Rs. 100 crores and a declaration to this effect should be made by such commercial bank either in the bank guarantee itself or separately on a letter head.



The bank guarantee or the Letter of Credit shall be submitted in the prescribed format.

- 24.3 If the CONTRACTOR/SUB-CONTRACTOR or their employees or the CONTRACTOR's agents and representatives shall damage, break, deface or destroy any property belonging to the EMPLOYER or others during the execution of the CONTRACT, the same shall be made good by the CONTRACTOR at his own expenses and in default thereof, the ENGINEER-IN-CHARGE may cause the same to be made good by other agencies and recover expenses from the CONTRACTOR (for which the certificate of the ENGINEER-IN-CHARGE shall be final).
- 24.4 All compensation or other sums of money payable by the CONTRACTOR to the EMPLOYER under terms of this CONTRACT may be deducted from or paid by the encashment or sale of a sufficient part of his Contract Performance Security or from any sums which may be due or may become due to the CONTRACTOR by the EMPLOYER of any account whatsoever and in the event of his Contract Performance Security being reduced by reasons of any such deductions or sale of aforesaid, the CONTRACTOR shall within ten days thereafter make good in cash, bank drafts as aforesaid any sum or sums which may have been deducted from or realized by sale of his Contract Performance Security, or any part thereof. No interest shall be payable by the EMPLOYER for sum deposited as Contract Performance Security.
- 24.5 Failure of the successful bidder to comply with the requirements of this Clause shall constitute sufficient grounds for the annulment of the award and the forfeiture of bid security.

25 Time of Performance:

25.1 Time for Mobilization

The work covered by this CONTRACT shall be commenced within fifteen (15) days, the date of letter/Fax of Intent and be completed in stages on or before the dates as mentioned in the TIME SCHEDULE OF COMPLETION OF WORK. The CONTRACTOR should bear in mind that time is the essence of this agreement. Request for revision of construction time after tenders are opened will not receive consideration. The above period of fifteen (15) days is included within the overall COMPLETION SCHEDULE, not over and above the completion time to any additional work or any other reasons.

25.2 Time Schedule of Construction:

- 25.2.1 The general Time Schedule of construction is given in the TENDER DOCUMENT. CONTRACTOR should prepare a detailed monthly or weekly construction program jointly with the ENGINEER-IN-CHARGE within 15 days of receipt of LETTER/FAX OF INTENT or ACCEPTANCE OF TENDER. The WORK shall be executed strictly as per the Time Schedule given in the CONTRACT DOCUMENT. The period of construction given includes the time required for mobilisation testing, rectifications, if any, retesting and completion in all respects in accordance with CONTRACT DOCUMENT to the entire satisfaction of the ENGINEER-IN-CHARGE.
- 25.2.2 The CONTRACTOR shall submit a detailed PERT network within the time frame agreed above consisting of adequate number of activities covering various key phases of the WORK such as



design, procurement, manufacturing, shipment and field erection activities within fifteen (15) days from the date of LETTER/FAX OF INTENT. This network shall also indicate the interface facilities to be provided by the EMPLOYER and the dates by which such facilities are needed.

- 25.2.3 CONTRACTOR shall discuss the network so submitted with the EMPLOYER and the agreed network which may be in the form as submitted with the EMPLOYER or in revised form in line with the outcome of discussions shall form part of the CONTRACT, to be signed within fifteen (15) days from the date of LETTER OF ACCEPTANCE OF TENDER. During the performance of the CONTRACT, if in the opinion of the EMPLOYER proper progress is not maintained suitable changes shall be made in the CONTRACTOR's operation to ensure proper progress.

The above PERT network shall be reviewed periodically and reports shall be submitted by the CONTRACTOR as directed by EMPLOYER.

26 Force Majeure:

26.1 CONDITIONS FOR FORCE MAJEURES

In the event of either party being rendered unable by Force Majeure to perform any obligations required to be performed by them under the CONTRACT the relative obligation of the party affected by such Force Majeures shall upon notification to the other party be suspended for the period during which Force Majeures event lasts. The cost and loss sustained by the either party shall be borne by the respective parties.

The term "Force Majeures" as employed herein shall mean acts of God, earthquake, war (declared or undeclared), revolts, riots, fires, floods, rebellions, explosions, hurricane, sabotage, civil commotions and acts and regulations of respective Government of the two parties, namely the EMPLOYER and the CONTRACTOR.

Upon the occurrence of such cause(s) and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing immediately but not later than 72 (Seventy-two) hours of the alleged beginning and ending thereof giving full particulars and satisfactory evidence in support of its claim.

Time for performance of the relative obligation suspended by the Force Majeures shall then stand extended by the period for which such cause lasts.

If deliveries of bought out items and/or works to be executed by the CONTRACTOR are suspended by Force Majeure conditions lasting for more than 2 (two) months the EMPLOYER shall have the option to terminate the CONTRACT or re-negotiate the contract provisions.

26.2 OUTBREAK OF WAR

- 26.2.1 If during the currency of the CONTRACT there shall be an out-break of war whether declared or not, in that part of the World which whether financially or otherwise materially affect the execution of the WORK the CONTRACTOR shall unless and until the CONTRACT is terminated under the provisions in this



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clause continue to use his best endeavour to complete the execution of the WORK, provided always that the EMPLOYER shall be entitled, at any time after such out-break of war to terminate or re-negotiate the CONTRACT by giving notice in writing to the CONTRACTOR and upon such notice being given the CONTRACT shall, save as to the rights of the parties under this clause and to the operation of the clauses entitled settlement of Disputes and Arbitration hereof, be terminated but without prejudice to the right of either party in respect of any antecedent breach thereof.

26.2.2 If the CONTRACT shall be terminated under the provisions of the above clause, the CONTRACTOR shall with all reasonable diligence remove from the SITE all the CONTRACTOR's equipment and shall give similar facilities to his SUB-CONTRACTORS to do so.

27 Price reduction schedule:

27.1 Time is the essence of the CONTRACT. In case the CONTRACTOR fails to complete the WORK within the stipulated period, then, unless such failure is due to Force Majeure as defined in Clause 26 here above or due to EMPLOYER's defaults, the Total Contract price shall be reduced by ½ % of the total Contract Price per complete week of delay or part thereof subject to a maximum of 5 % of the Total Contract Price, by way of reduction in price for delay and not as penalty. The said amount will be recovered from amount due to the Contractor/ Contractor's Contract Performance Security payable on demand.

The decision of the ENGINEER-IN-CHARGE in regard to applicability of Price Reduction Schedule shall be final and binding on the CONTRACTOR.

27.2 All sums payable under this clause is the reduction in price due to delay in completion period at the above agreed rate.

27.3 Bonus For Early Completion (*)

27.3 BONUS FOR EARLY COMPLETION

If the Contractor achieves completion of Works in all respect prior to the time schedule stipulated in the SCC, the Employer shall pay to the Contractor the relevant sum, if mentioned specifically in SCC, as bonus for early completion. The bonus for early completion, if provided specifically in SCC, shall be payable to the maximum ceiling of 2 ½ % of the total contract price.

(*) Partial earlier completion may not always produce net benefits to the Employer, for example where utilization of the completed Works requires (a) the fulfilment of all parts of the Contract (e.g. the training of personnel); or (b) the completion of all Sections (e.g. in pipeline laying, where early completion of the laying of pipeline would not be useful if the compressor is still under installation); or (c) certain seasonal effects to take place (e.g. onset of the rainy season, for impounding a reservoir); or (d) other circumstances. Also a more rapid drawdown of budgeted funds may be required. All such factors should be considered prior to the inclusion of a bonus clause in the Contract.

28 Rights of the employer to forfeit contract performance security:

28.1 Whenever any claim against the CONTRACTOR for the payment of a sum of money arises out or under the CONTRACT, the EMPLOYER shall be entitled to recover such sum by appropriating in part or whole the Contract Performance Security of the CONTRACTOR. In the event of the security being



insufficient or if no security has been taken from the CONTRACTOR, then the balance or the total sum recoverable, as the case may be shall be deducted from any sum then due or which at any time thereafter may become due to the CONTRACTOR. The CONTRACTOR shall pay to the EMPLOYER on demand any balance remaining due.

29 Failure by the contractor to comply with the provisions of the contract:

29.1 If the CONTRACTOR refuses or fails to execute the WORK or any separate part thereof with such diligence as will ensure its completion within the time specified in the CONTRACT or extension thereof or fails to perform any of his obligation under the CONTRACT or in any manner commits a breach of any of the provisions of the CONTRACT it shall be open to the EMPLOYER at its option by written notice to the CONTRACTOR:

a) TO DETERMINE THE CONTRACT in which event the CONTRACT shall stand terminated and shall cease to be in force and effect on and from the date appointed by the EMPLOYER on that behalf, whereupon the CONTRACTOR shall stop forthwith any of the CONTRACTOR's work then in progress, except such WORK as the EMPLOYER may, in writing, require to be done to safeguard any property or WORK, or installations from damage, and the EMPLOYER, for its part, may take over the work remaining unfinished by the CONTRACTOR and complete the same through a fresh contractor or by other means, at the risk and cost of the CONTRACTOR, and any of his sureties if any, shall be liable to the EMPLOYER for any excess cost occasioned by such work having to be so taken over and completed by the EMPLOYER over and above the cost at the rates specified in the schedule of quantities and rate/prices.

b) WITHOUT DETERMINING THE CONTRACT to take over the work of the CONTRACTOR or any part thereof and complete the same through a fresh contractor or by other means at the risk and cost of the CONTRACTOR. The CONTRACTOR and any of his sureties are liable to the EMPLOYER for any excess cost over and above the cost at the rates specified in the Schedule of Quantities/ rates, occasioned by such works having been taken over and completed by the EMPLOYER.

29.2 In such events of Clause 29.1(a) or (b)above.

a) The whole or part of the Contract Performance Security furnished by the CONTRACTOR is liable to be forfeited without prejudice to the right of the EMPLOYER to recover from the CONTRACTOR the excess cost referred to in the sub-clause aforesaid, the EMPLOYER shall also have the right of taking possession and utilising in completing the works or any part thereof, such as materials equipment and plants available at work site belonging to the CONTRACTOR as may be necessary and the CONTRACTOR shall not be entitled for any compensation for use or damage to such materials, equipment and plant.

b) The amount that may have become due to the CONTRACTOR on account of work already executed by

him shall not be payable to him until after the expiry of Six (6) calendar months reckoned from the date of termination of CONTRACT or from the taking over of the WORK or part thereof by the EMPLOYER as the case may be, during which period the responsibility for faulty materials or workmanship in respect of such work shall, under the CONTRACT, rest exclusively with the CONTRACTOR. This amount shall be subject to deduction of any amounts due from the CONTRACT to the EMPLOYER under the terms of the CONTRACT authorised or required to be reserved or retained by the EMPLOYER.

29.3 Before determining the CONTRACT as per Clause 29.1(a) or (b) provided in the judgement of the EMPLOYER, the default or defaults committed by the CONTRACTOR is/are curable and can be cured by the CONTRACTOR if an opportunity given to him, then the EMPLOYER may issue Notice in writing calling the CONTRACTOR to cure the default within such time specified in the Notice.

29.4 The EMPLOYER shall also have the right to proceed or take action as per 29.1(a) or (b) above, in the event that the CONTRACTOR becomes bankrupt, insolvent, compounds with his creditors, assigns the CONTRACT in favour of his creditors or any other person or persons, or being a company or a corporation goes into voluntary liquidation, provided that in the said events it shall not be necessary for the EMPLOYER to give any prior notice to the CONTRACTOR.

29.5 Termination of the CONTRACT as provided for in sub- clause 29.1(a) above shall not prejudice or affect their rights of the EMPLOYER which may have accrued upto the date of such termination.

30 Contractor remains liable to pay compensation if action not taken under clause 29:

30.1 In any case in which any of the powers conferred upon the EMPLOYER BY CLAUSE 29.0 thereof shall have become exercisable and the same had not been exercised, the non-exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any further case of default by the CONTRACTOR for which by any clause or clauses hereof he is declared liable to pay compensation amounting to the whole of his Contract Performance Security, and the liability of the CONTRACTOR for past and future compensation shall remain unaffected. In the event of the EMPLOYER putting in force the power under above sub-clause (a), (b) or (c) vested in him under the preceding clause he may, if he so desired, take possession of all or any tools, and plants, materials and stores in or upon the works or the site thereof belonging to the CONTRACTOR or procured by him and intended to be used for the execution of the WORK or any part thereof paying or allowing for the same in account at the CONTRACT rates or in case of these not being applicable at current market rates to be certified by the ENGINEER-IN-CHARGE whose certificate thereof shall be final, otherwise the ENGINEER-IN-CHARGE may give notice in writing to the CONTRACTOR or his clerk of the works, foreman or other authorised agent, requiring him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and in the event of the CONTRACTOR failing to comply with any such requisition, the ENGINEER-IN-CHARGE may remove them at the



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31 Change in constitution:

CONTRACTOR's expense or sell them by auction or private sale on account of the CONTRACTOR and at his risk in all respects without any further notice as to the date, time or place of sale and the certificate of the ENGINEER-IN-CHARGE as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the CONTRACTOR.

31.1 Where the CONTRACTOR is a partnership firm, the prior approval of the EMPLOYER shall be obtained in writing, before any change is made in the constitution of the firm. Where the CONTRACTOR is an individual or a Hindu undivided family business concern, such approval as aforesaid shall, likewise be obtained before such CONTRACTOR enters into any agreement with other parties, where under, the reconstituted firm would have the right to carry out the work hereby undertaken by the CONTRACTOR. In either case if prior approval as aforesaid is not obtained, the CONTRACT shall be deemed to have been allotted in contravention of clause 37 hereof and the same action may be taken and the same consequence shall ensue as

provided in the said clause.

32 Termination of contract

32(A) TERMINATION OF CONTRACT FOR DEATH:

If the CONTRACTOR is an individual or a proprietary concern and the individual or the proprietor dies or if the CONTRACTOR is a partnership concern and one of the partner dies then unless, the EMPLOYER is satisfied that the legal representative of the individual or the proprietary concern or the surviving partners are capable of carrying out and completing CONTRACT, he (the EMPLOYER) is entitled to cancel the CONTRACT for the uncompleted part without being in any way liable for any compensation payment to the estate of the deceased CONTRACTOR and/or to the surviving partners of the CONTRACTOR'S firm on account of the cancellation of CONTRACT. The decision of the EMPLOYER in such assessment shall be final and binding on the parties. In the event of such cancellation, the EMPLOYER shall not hold the estate of the deceased CONTRACTOR and/or the surviving partners of the CONTRACTOR'S firm liable for any damages for non-completion of CONTRACT.

32(B) TERMINATION OF CONTRACT IN CASE OF LIQUIDATION / BANKRUPTCY ETC.

If the Contractor shall dissolve or become bankrupt or insolvent or cause or suffer any receiver to be appointed of his business of any assets thereof compound with his Creditors, or being a corporation commence to be wound up, not being a member's voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a Receiver for the benefits of its Creditors any of them, EMPLOYER shall be at liberty :-

To terminate the contract forthwith upon coming to know of the happening of any such event as aforesaid by notice in writing to the Contractor or to [give](#) the Receiver or liquidator or other person, the option of carrying out the contract subject to his providing a guarantee upto an amount to be agreed upon by EMPLOYER for due and faithful performance of the contract.

32 (C) In case of termination of CONTRACT herein set forth (under clause 29.0) except under conditions of Force Majeure and termination after expiry of contract, the CONTRACTOR shall be



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put under holiday [i.e. neither any enquiry will be issued to the party by RSGL against any type of tender nor their offer will be considered by RSGL against any ongoing tender (s) where contract between RSGL and that particular CONTRACTOR (as a bidder) has not been finalized] for three years from the date of termination by RSGL Limited to such CONTRACTOR.

33 Members of the employer not individually liable :

33.1 No Director, or official or employee of the EMPLOYER/ CONSULTANT shall in any way be personally bound or liable for the acts or obligations of the EMPLOYER under the CONTRACT or answerable for any default or omission in the observance or performance of any of the acts, matters or things which are herein contained.

34 Employer not bound by personal representations:

34.1 The CONTRACTOR shall not be entitled to any increase on the scheduled rates or any other right or claim whatsoever by reason of any representation, explanation statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

35 Contractor's office at site:

35.1 The CONTRACTOR shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be open at all reasonable hours to receive instructions, notice or other communications. The CONTRACTOR at all time shall maintain a site instruction book and compliance of these shall be communicated to the ENGINEER-IN CHARGE from time to time and the whole document to be preserved and handed over after completion of works.

36 Contractor's subordinate staff and their conduct

36.1 The CONTRACTOR, on or after award of the WORK shall name and depute a qualified engineer having sufficient experience in carrying out work of similar nature, to whom the Equipments, materials, if any, shall be issued and instructions for works given. The CONTRACTOR shall also provide to the satisfaction of the ENGINEER-IN- CHARGE sufficient and qualified staff to superintend the execution of the WORK, competent sub-agents, foremen and leading hands including those specially qualified by previous experience to supervise the types of works comprised in the CONTRACT in such manner as will ensure work of the best quality, expeditious working. Whenever in the opinion of the ENGINEER-IN- CHARGE additional properly qualified supervisory staff is considered necessary, they shall be employed by the CONTRACTOR without additional charge on accounts thereof. The CONTRACTOR shall ensure to the satisfaction of the ENGINEER-IN-CHARGE that SUB- CONTRACTORS, if any, shall provide competent and efficient supervision, over the work entrusted to them.

36.2 If and whenever any of the CONTRACTOR's or SUB-CONTRACTOR'S agents, sub-agents, assistants, foremen, or other employees shall in the opinion of ENGINEER-IN- CHARGE be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties of that in the opinion of the EMPLOYER or the ENGINEER-IN-CHARGE, it is undesirable for administrative or any other reason for such person or persons to be employed in the works, the CONTRACTOR, is so directed by the ENGINEER-IN-CHARGE, shall at once remove such person or persons from employment thereon. Any person or persons so removed from the works shall not again be employed in connection with the WORKS without the written permission of the ENGINEER-IN- CHARGE. Any person so removed from the WORK shall be immediately re-placed at the expense of the CONTRACTOR by a qualified and competent substitute. Should the CONTRACTOR be



requested to repatriate any person removed from the works he shall do so and shall bear all costs in connection herewith.

- 36.3 The CONTRACTOR shall be responsible for the proper behaviour of all the staff, foremen, workmen, and others, and shall exercise a proper degree of control over them and in particular and without prejudice to the said generality, the CONTRACTOR shall be bound to prohibit and prevent any employees from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighborhood and in the event of such employee so trespassing, the CONTRACTOR shall be responsible therefore and relieve the EMPLOYER of all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the ENGINEER-IN-CHARGE upon any matter arising under this clause shall be final. The CONTRACTOR shall be liable for any liability to EMPLOYER on account of deployment of CONTRACTOR's staff etc. or incidental or arising out of the execution of CONTRACT.

The CONTRACTOR shall be liable for all acts or omissions on the part of his staff, Foremen and Workmen and others in his employment, including misfeasance or negligence of whatever kind in the course of their work or during their employment, which are connected directly or indirectly with the CONTRACT.

- 36.4 If and when required by the EMPLOYER and CONTRACTOR's personnel entering upon the EMPLOYER's premises shall be properly identified by badges of a type acceptable to the EMPLOYER which must be worn at all times on EMPLOYER's premises. CONTRACTOR may be required to obtain daily entry passes for his staff/employees from EMPLOYER to work within operating areas. These being safety requirements, no relaxations on this account shall be given to CONTRACTOR.

- 36.5 The contractor shall obtain necessary certificate with regard to verification of character and antecedents in respect of personnel deployed / proposed to be deployed to carry out the contractual obligations and provide the copy of the said certificate for facilitating Photo Pass to enter into RSGL's premises.

37 Sub-letting of works:

- 37.1 No part of the CONTRACT nor any share or interest therein shall in any manner or degree be transferred, assigned or sublet by the CONTRACTOR directly or indirectly to any person, firm or corporation whatsoever without the consent in writing, of the ENGINEER/EMPLOYER except as provided for in the succeeding sub-clause.

i) SUB-CONTRACTS FOR TEMPORARY WORKS ETC.:

The EMPLOYER may give written consent to Sub- contract for the execution of any part of the WORK at the site, being entered in to by CONTRACTOR provided each individual Sub- contract is submitted to the ENGINEER-IN-CHARGE before being entered into and is approved by him.

ii) LIST OF SUB-CONTRACTORS TO BE SUPPLIED:

At the commencement of every month the

CONTRACTOR shall furnish to the ENGINEER-IN-CHARGE list of all SUB-CONTRACTORS or other persons or firms engaged by the CONTRACTOR and working at the SITE during the previous month with particulars of the general nature of the Subcontract or works done by them.

iii) CONTRACTOR'S LIABILITY NOT LIMITED BY SUB-CONTRACTORS: _

Notwithstanding any sub-letting with such approval as aforesaid and notwithstanding that the ENGINEER-IN-CHARGE shall have received copies of any Subcontracts, the contractor shall be and shall remain solely responsible for the quality, proper and expeditious execution of the Contract in all respects as if such sub-letting or Subcontracting had not taken place, and as if such work had been done directly by the CONTRACTOR. The CONTRACTOR shall bear all responsibility for any act or omission on the part of sub-contractors in regard to work to be performed under the CONTRACT.

iv) EMPLOYER MAY TERMINATE SUB-CONTRACTS: _

If any SUB-CONTRACTOR engaged upon the works at the site executes any works which in the opinion of the ENGINEER-IN-CHARGE is not in accordance with the CONTRACT documents, the EMPLOYER may by written notice to the CONTRACTOR request him to terminate such subcontract and the CONTRACTOR upon the receipt of such notice shall terminate such Subcontract and dismiss the SUB-CONTRACTOR(S) and the later shall forthwith leave the works, failing which the EMPLOYER shall have the right to remove such SUB- CONTRACTOR(S) from the site.

v) NO REMEDY FOR ACTION TAKEN UNDER THIS CLAUSE:

No action taken by the EMPLOYER under the clause shall relieve the CONTRACTOR of any of his liabilities under the CONTRACT or give rise to any right or compensation, extension of time or otherwise failing which the EMPLOYER shall have the right to remove such SUB- CONTRACTOR(S) from the site.

38 Power of entry:

38.1 If the CONTRACTOR shall not commence the WORK in the manner previously described in the CONTRACT documents or if he shall at any time in the opinion of the ENGINEER-IN-CHARGE.

- i) fail to carry out the WORK in conformity with the CONTRACT documents, or
- ii) fail to carry out the WORK in accordance with the TimeSchedule, or
- iii) substantially suspend work or the WORK for a period of fourteen days without authority from the ENGINEER-IN-CHARGE, or

- iv) fail to carry out and execute the WORK to the satisfaction of the ENGINEER-IN-CHARGE, or
- v) fail to supply sufficient or suitable construction plant, temporary works, labour, materials or things, or
- vi) Commit, suffer, or permit any other breach of any of the provisions of the CONTRACT on his part to be performed or observed or persist in any of the above mentioned breaches of the CONTRACT for fourteen days, after notice in writing shall have been given to the CONTRACTOR by the ENGINEER-IN-CHARGE requiring such breach to be remedied, or
- vii) if the CONTRACTOR shall abandon the WORK or
- viii) If the CONTRACTOR during the continuance of the CONTRACT shall become bankrupt, make any arrangement or composition with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction **then** in any such case, the EMPLOYER shall have the power to enter upon the WORK and take possession thereof and of the materials, temporary WORK, construction plant, and stock thereon, and to revoke the CONTRACTOR's license to use the same, and to complete the WORK by his agents, other CONTRACTORS or workmen or to relate the same upon any terms and to such other person, firm or corporation as the EMPLOYER in his absolute discretion may think proper to employ and for the purpose aforesaid to use or authorise the use of any materials, temporary work, CONSTRUCTION PLANT, and stock as aforesaid, without making payment or allowance to the CONTRACTOR for the said materials other than such as may be certified in writing by the ENGINEER-IN-CHARGE to be reasonable, and without making any payment or allowance to the CONTRACTOR for the use of the temporary said works, construction plant and stock or being liable for any loss or damage thereto, and if the EMPLOYER shall by reason of his taking possession of the WORK or of the WORK being completed by other CONTRACTOR (due account being taken of any such extra work or works which may or be omitted) then the amount of such excess as certified by the ENGINEER-IN-CHARGE shall be deducted from any money which may be due for work done by the CONTRACTOR under the CONTRACT and not paid for. Any deficiency shall forthwith be made good and paid to the EMPLOYER by the CONTRACTOR and the EMPLOYER shall have power to sell in such manner and for such price as he may think fit all or any of the construction plant, materials etc. constructed by or belonging to and to recoup and retain the said deficiency or any part thereof out of proceeds of the sale.



39 Contractor's responsibility with the mechanical, electrical, intercommunication system, air-conditioning contractors and other agencies:

39.1 Without repugnance of any other condition, it shall be the responsibility of the CONTRACTOR executing the work of civil construction, to work in close cooperation and coordinate the WORK with the Mechanical, Electrical, Air-conditioning and Intercommunication Contractor's and other agencies or their authorised representatives, in providing the necessary grooves, recesses, cuts and opening etc., in wall, slabs beams and columns etc. and making good the same to the desired finish as per specification, for the placement of electrical, intercommunication cables, conduits, air-conditioning inlets and outlets grills and other Equipments etc. where required. For the above said requirements in the false ceiling and other partitions, the CONTRACTOR before starting-up the work shall in consultation with the Electrical, Mechanical, Intercommunication, Air-conditioning contractor and other agencies prepare and put-up a joint scheme, showing the necessary openings, grooves, recesses, cuts, the methods of fixing required for the WORK of the aforesaid, and the finishes therein, to the ENGINEER-IN-CHARGE and get the approval. The CONTRACTOR before finally submitting the scheme to the ENGINEER-IN-CHARGE, shall have the written agreement of the other agencies. The ENGINEER- IN-CHARGE, before communicating his approval to the scheme, with any required modification, shall get the final agreement of all the agencies, which shall be binding. No claim shall be entertained on account of the above.

The CONTRACTOR shall confirm in all respects with provision of any statutory regulations, ordinances or byelaws of any local or duly constituted authorities or public bodies which may be applicable from time to time to the WORK or any temporary works. The CONTRACTOR shall keep the EMPLOYER indemnified against all penalties and liabilities of every kind, arising out of non- adherence to such stains, ordinances, laws, rules, regulations, etc.

40 Other agencies at site:

40.1 The CONTRACTOR shall have to execute the WORK in such place and conditions where other agencies will also be engaged for other works such as site grading, filling, and levelling, electrical and mechanical engineering works, etc. No claim shall be entertained due to WORK being executed in the above circumstances.

41 Notice:

41.1 TO THE CONTRACTOR:

Any notice hereunder may be served on the CONTRACTOR or his duly authorized representative at the job site or may be served by registered mail direct to the address furnished by the CONTRACTOR. Proof of issue of any such notice could be conclusive of the CONTRACTOR having been duly informed of all contents therein.

41.2 TO THE EMPLOYER:

Any notice to be given to the EMPLOYER under the terms of the CONTRACTOR shall be served by sending the same by Registered mail to or delivering the same at the respective site

offices of M/S. RSGL addressed to the HEAD/SITE-IN-CHARGE.

42 Right of various interests:

42.1 i) The EMPLOYER reserves the right to distribute the work between more than one agency(ies). The



CONTRACTOR shall cooperate and afford other agency(ies) reasonable opportunity for access to the WORK for the carriage and storage of materials and execution of their works.

- ii) Wherever the work being done by any department of the EMPLOYER or by other agency(ies) employed by the EMPLOYER is contingent upon WORK covered by this CONTRACT, the respective rights of the various interests involved shall be determined by the ENGINEER-IN-CHARGE to secure the completion of the various portions of the work in general harmony.

43 Patents and royalties:

- 43.1 The CONTRACTOR, if licensed under any patent covering equipment, machinery, materials or compositions of matter to be used or supplied or methods and process to be practised or employed in the performance of this CONTRACT, agrees to pay all royalties and license fees which may be due with respect thereto. If any equipment, machinery, materials, composition of matters, be used or supplied or methods and processes to be practised or employed in the performance of this CONTRACT, is covered by a patent under which the CONTRACTOR is not licensed then the CONTRACTOR before supplying or using the equipment, machinery materials, composition method or processes shall obtain such licenses and pay such royalties and license fees as may be necessary for performance of this CONTRACT. In the event the CONTRACTOR fails to pay any such royalty or obtain any such license, any suit for infringement of such patents which is brought against the CONTRACTOR or the EMPLOYER as a result such failure will be defended by the CONTRACTOR at his own expense and the CONTRACTOR will pay any damages and costs awarded in such suit. The CONTRACTOR shall promptly notify the EMPLOYER if the CONTRACTOR has acquired the knowledge of any plant under which a suit for infringement could be reasonably brought because of the use by the EMPLOYER of any equipment, machinery, materials, process, methods to be supplied hereunder. The CONTRACTOR agrees to and does hereby grant to EMPLOYER, together with the right to extend the same to any of the subsidiaries of the EMPLOYER as irrevocable, royalty free license to use in any country, any invention made by the CONTRACTOR or his employee in or as result of the performance of the WORK under the CONTRACT.
- 43.2 All charges on account of royalty. toilage, rent, octroi terminal or sales tax and/or other duties or any other levy on materials obtained for the work or temporary work or part thereof (excluding materials provided by the EMPLOYER) shall be borne by the CONTRACTOR.
- 43.3 The CONTRACTOR shall not sell or otherwise dispose of or remove except for the purpose of this CONTRACT, the sand, stone, clay, ballast, earth, rock or other substances, or materials obtained from any excavation made for the purpose of the WORK or any building or produce upon the site at the time of delivery of the possession thereof, but all such substances, materials, buildings and produce shall be the property of the EMPLOYER provided that the CONTRACTOR may with the permission of the ENGINEER-IN-CHARGE, use the same for the purpose of the work by payment of cost of the same at such a rate as may be determined by the ENGINEER-IN-CHARGE.



43.4 The EMPLOYER shall indemnify and save harmless the CONTRACTOR from any loss on account of claims against CONTRACTOR for the contributory infringement of patent rights arising out and based upon the claim that the use of the EMPLOYER of the process included in the design prepared by the EMPLOYER and used in the operation of the plant infringes on any patent right. With respect to any subcontract entered into by CONTRACTOR pursuant to the provisions of the relevant clause hereof, the CONTRACTOR shall obtain from the SUB-CONTRACTOR an undertaking to provide the EMPLOYER with the same patent protection that CONTRACTOR is required to provide under the provisions of this clause.

44 Liens:

44.1 If, at any time there should be evidence or any lien or claim for which the EMPLOYER might have become liable and which is chargeable to the CONTRACTOR, the EMPLOYER shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the EMPLOYER against such lien or claim and if such lien or claim be valid, the EMPLOYER may pay and discharge the same and deduct the amount so paid from any money which may be or may become due and payable to the CONTRACTOR. If any lien or claim remain unsettled after all payments are made, the CONTRACTOR shall refund or pay to the EMPLOYER all money that the latter may be compelled to pay in discharging such lien or claim including all costs and reasonable expenses. EMPLOYER reserves the right to do the same.

44.2 The EMPLOYER shall have lien on all materials, Equipments including those brought by the CONTRACTOR for the purpose of erection, testing and commissioning of the WORK.

44.3 The final payment shall not become due until the CONTRACTOR delivers to the ENGINEER-IN-CHARGE a complete release or waiver of all liens arising or which may arise out of his agreement or receipt in full or certification by the CONTRACTOR in a form approved by ENGINEER-IN-CHARGE that all invoices for labour, materials, services have been paid in lien thereof and if required by the ENGINEER-IN-CHARGE in any case an affidavit that so far as the CONTRACTOR has knowledge or information the releases and receipts include all the labour and material for which a lien could be filled.

44.4 CONTRACTOR will indemnify and hold the EMPLOYER harmless, for a period of two years after the issue of FINAL CERTIFICATE, from all liens and other encumbrances against the EMPLOYER on account of debts or claims alleged to be due from the CONTRACTOR or his SUB-CONTRACTOR to any person including SUB- CONTRACTOR and on behalf of EMPLOYER will defend at his own expense, any claim or litigation brought against the EMPLOYER or the CONTRACTOR in connection therewith. CONTRACTOR shall defend or contest at his own expense any fresh claim or litigation by any person including his SUB-CONTRACTOR, till its satisfactory settlement even after the expiry of two years from the date of issue of FINAL CERTIFICATE.

45 Delays by employer or his authorized agents:

45.1 In case the CONTRACTOR's performance is delayed due to any act or omission on the part of the EMPLOYER or his authorised agents, then the CONTRACTOR shall be given due extension of time for the completion of the WORK, to the extent such omission



on the part of the EMPLOYER has caused delay in the CONTRACTOR's performance of his WORK.

- 45.2 No adjustment in CONTRACT PRICE shall be allowed for reasons of such delays and extensions granted except as provided in TENDER DOCUMENT, where the EMPLOYER reserves the right to seek indulgence of CONTRACTOR to maintain the agreed Time Schedule of Completion.

In such an event the CONTRACTOR shall be obliged for working by CONTRACTOR's personnel for additional time beyond stipulated working hours as also Sundays and Holidays and achieve the completion date/interim targets.

46 Payment if the contract is terminated:

- 46.1 If the CONTRACT shall be terminated as per Tender pursuant to Clause no. 29 of GCC, the CONTRACTOR shall be paid by the EMPLOYER in so far as such amounts or items shall not have already been covered by payments of amounts made to the CONTRACTOR for the WORK executed and accepted by ENGINEER-IN-CHARGE prior to the date of termination at the rates and prices provided for in the CONTRACT and in addition to the following:
- a) The amount payable in respect of any preliminary items, so far as the Work or service comprised therein has been carried out or performed and an appropriate portion as certified by ENGINEER-IN-CHARGE of any such items or service comprised in which has been partially carried out or performed.
 - b) Any other expenses which the CONTRACTOR has expended for performing the WORK under the CONTRACT subject to being duly recommended by ENGINEER-IN-CHARGE and approved by EMPLOYER for payment, based on documentary evidence of his having incurred such expenses.

- 46.2 The CONTRACTOR will be further required to transfer the title and provide the following in the manner and as directed by the EMPLOYER.

- a) Any and all completed works.
- B) Such partially completed WORK including drawings, information's and CONTRACT rights as the CONTRACTOR has specially performed, produced or acquired for the performance of the CONTRACTOR.

47 No waiver of rights:

- 47.1 Neither the inspection by the EMPLOYER or any of their officials, employees, or agents nor any order by the EMPLOYER for payment of money or any payment for or acceptance of the whole or any part of the Work by the EMPLOYER nor any extension of time, nor any possession taken by EMPLOYER shall operate as a waiver of any provision of the CONTRACT, or of any power herein reserved to the EMPLOYER, or any right to damages herein provided, nor shall any waiver of any breach in the CONTRACT be held to be a waiver of any other subsequent breach.



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48 Certificate not to affect right of employer and liability of contractor:	48.1 No interim payment certificate(s) issued by the Engineer-in- Charge of the EMPLOYER, nor any sum paid on account by the EMPLOYER, nor any extension of time for execution of the work granted by EMPLOYER shall affect or prejudice the rights of the Employer against the CONTRACTOR or relieve the CONTRACTOR of his obligations for the due performance of the CONTRACT, or be interpreted as approval of the WORK done or of the equipment supplied and no certificate shall create liability for the EMPLOYER to pay for alterations, amendments, variations or additional works not ordered, in writing, by EMPLOYER or discharge the liability of the CONTRACTOR for the payment of damages whether due, ascertained, or certified or not or any sum against the payment of which he is bound to indemnify the EMPLOYER.
49 Language and measures:	49.1 All documents pertaining to the CONTRACT including Specifications, Schedules, Notices, Correspondence, operating and maintenance Instructions, DRAWINGS, or any other writing shall be written in English language. The Metric System of measurement shall be used in the CONTRACT unless otherwise specified.
50 Transfer of title:	50.1 The title of Ownership of supplies furnished by the CONTRACTOR shall not pass on to the EMPLOYER for all Supplies till the same are finally accepted by the EMPLOYER after the successful completion of PERFORMANCE TEST and GUARANTEE TEST and issue of FINAL CERTIFICATE. 50.2 However, the EMPLOYER shall have the lien on all such works performed as soon as any advance or progressive payment is made by the EMPLOYER to the CONTRACTOR and the CONTRACTOR shall not subject these works for use other than those intended under this CONTRACT.
51 Release of information:	51.1 The CONTRACTOR shall not communicate or use in advertising, publicity, sales releases or in any other medium, photographs, or other reproduction of the Work under this CONTRACT or description of the site dimensions, quantity , quality or other information, concerning the Work unless prior written permission has been obtained from the EMPLOYER.
52 Brand names:	52.1 The specific reference in the SPECIFICATIONS and documents to any material by trade name, make or catalogue number shall be construed as establishing standard or quality and performance and not as limited competition. However, TENDERER may offer other similar Equipments provided it meets the specified standard design and performance requirements.
53 Completion of contract:	53.1 Unless otherwise terminated under the provisions of any other relevant clause, this CONTRACT shall be deemed to have been completed at the expiration of the PERIOD OF LIABILITY as provided for under the CONTRACT.
54 Spares:	54.1 The CONTRACTOR shall furnish to the EMPLOYER all spares required for COMMISSIONING of the plants, recommendatory and/or mandatory spares, which are required essential by the manufacturer/supplier. The same shall be delivered at SITE, 3(Three) months before COMMISSIONING.



Also the CONTRACTOR should furnish the manufacturing drawings for fast wearing spares.

- 54.2 The CONTRACTOR guarantees the EMPLOYER that before the manufacturers of the Equipments, plants and machineries go out of production of spare parts for the equipment furnished and erected by him, he shall give at least twelve (12) months' advance notice to the EMPLOYER, so that the latter may order his requirement of spares in one lot, if he so desires.

SECTION-V Performance of Work

55 Execution of work:

- 55.1 All the Works shall be executed in strict conformity with the provisions of the CONTRACT Documents and with such explanatory detailed drawings, specification and instructions as may be furnished from time to time to the CONTRACTOR by the ENGINEER-IN-CHARGE whether mentioned in the CONTRACT or not. The CONTRACTOR shall be responsible for ensuring that works throughout are executed in the most substantial, proper and workmanlike manner with the quality of material and workmanship in strict accordance with the SPECIFICATIONS and to the entire satisfaction of the ENGINEER-IN-CHARGE. The CONTRACTOR shall provide all necessary materials equipment labour etc. for execution and maintenance of WORK till completion unless otherwise mentioned in the CONTRACT.

56 Co-ordination and inspection of work:

- 56.1 The coordination and inspection of the day-to-day work under the CONTRACT shall be the responsibility of the ENGINEER-IN-CHARGE. The written instruction regarding any particular job will normally be passed by the ENGINEER-IN-CHARGE or his authorized representative. A work order book will be maintained by the CONTRACTOR for each sector in which the aforesaid written instructions will be entered. These will be signed by the CONTRACTOR or his authorized representative by way of acknowledgement within 12 hours.

57 Work in monsoon and dewatering:

- 57.1 Unless otherwise specified elsewhere in the tender, the execution of the WORK may entail working in the monsoon also. The CONTRACTOR must maintain a minimum labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No extra rate will be considered for such work in monsoon.
- 57.2 During monsoon and other period, it shall be the responsibility of the CONTRACTOR to keep the construction work site free from water at his own cost.

58 Work on Sundays and holidays:

- 58.1 For carrying out Work on Sundays, and Holidays, the CONTRACTOR will approach the ENGINEER-IN-CHARGE or his representative at least two days in advance and obtain permission in writing. The CONTRACTOR shall observe all labour laws and other statutory rules and regulations in force. In case of any violations of such laws, rules and regulations, consequence if any, including the cost thereto shall be exclusively borne by the CONTRACTOR and the EMPLOYER shall have no liability whatsoever on this account.

59 General conditions for construction and erection work:

- 59.1 The working time at the site of work is 48 hours per week. Overtime work is permitted in cases of need and the EMPLOYER will not compensate the same. Shift working at 2 or 3 shifts per day will become necessary and the CONTRACTOR should take this aspect into consideration for formulating his rates for



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quotation. No extra claims will be entertained by the EMPLOYER on this account. For carrying out work beyond working hours the CONTRACTOR will approach the ENGINEER-IN-CHARGE or his authorised representative and obtain his prior written permission.

60 Alterations in specifications, design and extra works:

59.2 The CONTRACTOR must arrange for the placement of workers in such a way that the delayed completion of the WORK or any part thereof for any reason whatsoever will not affect their proper employment. The EMPLOYER will not entertain any claim for idle time payment whatsoever.

59.3 The CONTRACTOR shall submit to the EMPLOYER/ENGINEER-IN-CHARGE reports at regular intervals regarding the state and progress of WORK. The details and proforma of the report will mutually be agreed after the award of CONTRACT. The CONTRACTOR shall provide display boards showing progress and labour strengths at worksite, as directed by the ENGINEER-IN-CHARGE.

60.1 The WORK covered under this CONTRACT having to be executed by the CONTRACTOR on a lumpsum firm price/item rate quoted by him, the EMPLOYER will not accept any proposals for changes in VALUE OF CONTRACT or extension in time on account of any such changes which may arise to the CONTRACTOR's scope of WORK as a result of detailed Engineering and thereafter during the execution of WORK. The only exception to this will be a case where the EMPLOYER requests in writing to the CONTRACTOR to upgrade the SPECIFICATIONS or the size of any major pieces of Equipments, plant or machinery beyond what is normally required to meet the scope of WORK as defined in the CONTRACTDOCUMENT.

In such cases, a change order will be initialled by the CONTRACTOR at the appropriate time for the EMPLOYER's prior approval giving the full back-up data for their review and for final settlement of any impact on price within 30 (thirty) days thereafter.

60.2 The ENGINEER-IN-CHARGE shall have to make any alterations in, omission from, additions to or substitutions for, the Schedule of Rates, the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the WORK and the CONTRACTOR shall be bound to carry out the such altered/ extra/ new items of WORK in accordance with any instructions which may be given to him in writing signed by the ENGINEER-IN-CHARGE, and such alterations, omissions, additions or substitutions shall not invalidate the CONTRACT and any altered, additional or substituted work which the CONTRACTOR may be directed to do in the manner above specified as part of the WORK shall be carried out by the CONTRACTOR on the same conditions in all respects on which he agreed to do the main WORK. The time of completion of WORK may be extended for the part of the particular job at the discretion of the ENGINEER-IN-CHARGE, for only such alterations, additions or substitutions of the WORK, as he may consider as just and reasonable. The rates for such additional, altered or substituted WORK under this clause shall be worked out in accordance with the following provisions:-

I. For Item Rate Contract

a) If the rates for the additional, altered or



substituted WORK are specified in the CONTRACT for the WORK, the CONTRACTOR is bound to carry on the additional, altered or substituted WORK at the same rates as are specified in the CONTRACT.

- b) If the rates for the additional, altered or substituted WORK are not specifically provided in the CONTRACT for the WORK, the rates will be derived from the rates for similar class of WORK as are specified in the CONTRACT for the WORK. The opinion of the ENGINEER-IN- CHARGE, as to whether or not the rates can be reasonably so derived from the items in this CONTRACT will be final and binding on the CONTRACTOR.
- c) If the rates for the altered, additional or substituted WORK cannot be determined in the manner specified in sub-clause(s) and (b) above, then the CONTRACTOR shall, within 7 days of the date of receipt of order to carry out the WORK, inform the ENGINEER-IN-CHARGE of the rates which it is his intention to charge for such class of WORK, supported by analysis of the rate or rates claimed, and the ENGINEER-IN-CHARGE shall determine the rate or rates on the basis of the prevailing market rates, labour cost at schedule of labour rates plus 10% to cover contractor's supervision, overheads and profit and pay the CONTRACTOR accordingly. The opinion of the ENGINEER- IN-CHARGE as to current market rates of materials and the quantum of labour involved per unit of measurement will be final and binding on the CONTRACTOR.
- d) Where the item of work will be executed through nominated specialist agency as approved by the ENGINEER-IN-CHARGE, then the actual amount paid to such nominated agency supported by documentary evidence and as certified by ENGINEER-IN-CHARGE shall be considered plus 10% (ten percent) to cover all contingencies, overhead, profits to arrive at the rates.
- e) Provisions contained in the Sub-clause (a) & (d) above shall, however, not apply for the following:-

Where the value of additions of new items together with the value of alterations, additions/deletions or substitutions does not exceed by or is not less than plus/minus (+)25% of the VALUE OF CONTRACT. The item rates in the Schedule of Rates shall hold good for all such variations between the above mentioned limits, irrespective of any increase/decrease of quantities in the individual items of Schedule of Rates.



II. For Lumpsum Contracts

CONTRACTOR shall, within 7 days of the date of receipt of order to carry out the WORK, inform the ENGINEER-IN-CHARGE of the rates which it is his intention to charge for such class of WORK, supported by analysis of the rate or rates claimed, and the ENGINEER-IN-CHARGE shall determine the rate or rates on the basis of the prevailing market rates, labour cost at schedule of labour rates plus 10% to cover contractor's supervision, overheads and profit and pay the CONTRACTOR accordingly. The opinion of the ENGINEER-IN-CHARGE as to current market rates of materials and the quantum of labour involved per unit of measurement will be final and binding on the CONTRACTOR.

61 Drawings to be supplied by the employer

- 61.1 The drawings attached with tender are only for the general guidance to the CONTRACTOR to enable him to visualize the type of work contemplated and scope of work involved. The CONTRACTOR will be deemed to have studied the DRAWINGS and formed an idea about the WORK involved.
- 61.2 Detailed working drawings on the basis of which actual execution of the WORK is to proceed, will be furnished from time to time during the progress of the work. The CONTRACTOR shall be deemed to have gone through the DRAWINGS supplied to him thoroughly and carefully and in conjunction with all other connected drawings and bring to the notice of the ENGINEER-IN-CHARGE discrepancies, if any, therein before actually carrying out the Work.
- 61.3 Copies of all detailed working drawings relating to the WORK shall be kept at the CONTRACTOR's office on the site and shall be made available to the ENGINEER-IN-CHARGE at any time during the CONTRACT. The drawings and other documents issued by the EMPLOYER shall be returned to the EMPLOYER on completion of the WORK.

62 Drawings to be supplied by the contractor:

- 62.1 The drawings/date which are to be furnished by the CONTRACTOR are enumerated in the special conditions of contract, and shall be furnished within the specified time.
- 62.2 Where approval/review of drawings before manufacture/construction/fabrication has been specified, it shall be CONTRACTOR's responsibility to have these drawings prepared as per the directions of ENGINEER-IN-CHARGE and got approved before proceeding with manufacture/construction/fabrication as the case may be. Any change that may have become necessary in these drawings during the execution of the work shall have to be carried out by the CONTRACTOR to the satisfaction of ENGINEER-IN-CHARGE at no extra cost. All final drawings shall bear the certification stamp as indicated below duly signed by both the CONTRACTOR and ENGINEER-IN-CHARGE.

"Certified true for _____
(Name of Work)

Agreement
No. _____



Signed: _____
(CONTRACTOR) (ENGINEER-IN-CHARGE)

- 62.3 The DRAWINGS submitted by the CONTRACTOR shall be reviewed by the ENGINEER-IN-CHARGE as far as practicable within 3 (Three) weeks and shall be modified by the CONTRACTOR, if any modifications and/or corrections are required by the ENGINEER-IN-CHARGE. The CONTRACTOR shall incorporate such modifications and/or corrections and submit the final drawings for approval. Any delays arising out of failure by the CONTRACTOR to rectify the drawing in good time shall not alter the Contract Completion Time.
- 62.4 As built drawings showing all corrections, adjustments etc. shall be furnished by the CONTRACTOR in six copies and one transparent for record purposed to the EMPLOYER.
- 63 Setting out works:**
- 63.1 The ENGINEER-IN-CHARGE shall furnish the CONTRACTOR with only the four corners of the Works site and a level bench mark and the CONTRACTOR shall set out the Works and shall provide an efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.
- 63.2 The CONTRACTOR shall provide, fix and be responsible for the maintenance of all stakes, templates, level marks, profiles and other similar things and shall take all necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence of such removal or disturbance should the same take place and for their efficient and timely reinstatement. The CONTRACTOR shall also be responsible for the maintenance of all existing survey marks, boundary marks, distance marks and center line marks, either existing or supplied and fixed by the CONTRACTOR. The work shall be set out to the satisfaction of the ENGINEER-IN-CHARGE. The approval there of joining with the CONTRACTOR by the ENGINEER- IN-CHARGE in setting out the work, shall not relieve the CONTRACTOR of any of his responsibility.
- 63.3 Before beginning the Works, the CONTRACTOR shall at his own cost, provide all necessary reference and level posts, pegs, bamboos, flags, ranging rods, strings and other materials for proper layout of the works in accordance with the schemes for bearing marks acceptable to the ENGINEER-IN-CHARGE. The center, longitudinal or face lines and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct mark at the centre to enable theodolite to be set over it. No work shall be started until all these points are checked and approved by the ENGINEER-IN-CHARGE in writing but such approval shall not relieve the CONTRACTOR of any of his responsibilities. The CONTRACTOR shall also provide all labour, material and other facilities, as necessary, for the proper checking of layout and inspection of the points during construction.
- 63.4 Pillars bearing geodetic marks located at the sites of units of WORKS under construction should be protected and fenced by the CONTRACTOR.
- 63.5 On completion of WORK, the CONTRACTOR must submit the geodetic documents according to which the WORK was carried out.
- 64 Responsibility for level and alignment:**
- 64.1 The CONTRACTOR shall be entirely and exclusively responsible for the horizontal and vertical alignment, the levels and correctness of every part of the WORK and shall rectify effectively any errors or imperfections therein, such rectifications shall be carried out by the CONTRACTOR, at his own cost, when instructions are issued to that effect by the ENGINEER-IN-CHARGE.



65 Materials to be supplied by Contractor : 65.1

The CONTRACTOR shall procure and provide within the VALUE OF CONTRACT the whole of the materials required for the construction including steels, cement and other building materials, tools, tackles, construction plant and equipment for the completion and maintenance of the WORK except the materials which will be issued by the EMPLOYER and shall make his own arrangement for procuring such materials and for the transport thereof. The EMPLOYER may give necessary recommendation to the respective authority if so desired by the CONTRACTOR but assumes no further responsibility of any nature. The EMPLOYER will insist on the procurement of materials which bear ISI stamp and/or which are supplied by reputed suppliers.

65.1 The CONTRACTOR shall properly store all materials either issued to him or brought by him to the SITE to prevent damages due to rain, wind, direct exposure to sun, etc. as also from theft, pilferage, etc. for proper and speedy execution of his works. The CONTRACTOR shall maintain sufficient stocks of all materials required by him.

65.2 No material shall be dispatched from the CONTRACTOR's stores before obtaining the approval in writing of the ENGINEER-IN-CHARGE.

66 Stores supplied by the employer:

66.1 If the SPECIFICATION of the WORK provides for the use of any material of special description to be supplied from the EMPLOYER's stores or it is required that the CONTRACTOR shall use certain stores to be provided by the ENGINEER-IN-CHARGE, such materials and stores, and price to be charged there for as hereinafter mentioned being so far as practicable for the convenience of the CONTRACTOR, but not so as in any way to control the meaning or effect of the CONTRACT, the CONTRACTOR shall be bound to purchase and shall be supplied such materials and stores as are from time to time required to be used by him for the purpose of the CONTRACT only. The sums due from the CONTRACTOR for the value of materials supplied by the EMPLOYER will be recovered from the running account bill on the basis of the actual consumption of materials in the works covered and for which the running account bill has been prepared. After the completion of the WORK, however, the CONTRACTOR has to account for the full quantity of materials supplied to him as per relevant clauses in this document.

66.2 The value of the stores/materials as may be supplied to the CONTRACTOR by the EMPLOYER will be debited to the CONTRACTOR's account at the rates shown in the schedule of materials and if they are not entered in the schedule, they will be debited at cost price, which for the purpose of the CONTRACT shall include the cost of carriage and all other expenses whatsoever such as normal storage supervision charges which shall have been incurred in obtaining the same at the EMPLOYER's stores. All materials so supplied to the CONTRACTOR shall remain the absolute property of the EMPLOYER and shall not be removed on any account from the SITE of the WORK, and shall be at all times open for inspection to the ENGINEER-IN-CHARGE. Any such materials remaining unused at the time of the completion or termination of the CONTRACT shall be returned to the EMPLOYER's stores or at a place as directed by the ENGINEER-IN-CHARGE in perfectly good condition at CONTRACTOR's cost.



67 Conditions for issue of materials:

- i) Materials specified as to be issued by the EMPLOYER will be supplied to the CONTRACTOR by the EMPLOYER from his stores. It shall be responsibility of the CONTRACTOR to take delivery of the materials and arrange for its loading, transport and unloading at the SITE of WORK at his own cost. The materials shall be issued between the working hours and as per the rules of the EMPLOYER as framed from time to time.
- ii) The CONTRACTOR shall bear all incidental charges for the storage and safe custody of materials at site after these have been issued to him.
- iii) Materials specified as to be issued by the EMPLOYER shall be issued in standard sizes as obtained from the manufacturers.
- iv) The CONTRACTOR shall construct suitable Godowns at the SITE of WORK for storing the materials safe against damage by rain, dampness employ necessary watch and ward establishment for the purpose.
- v) It shall be duty of the CONTRACTOR to inspect the materials supplied to him at the time of taking delivery and satisfy himself that they are in good condition. After the materials have been delivered by the EMPLOYER, it shall be the responsibility of the CONTRACTOR to keep them in good condition and if the materials are damaged or lost, at any time, they shall be repaired and/or replaced by him at his own cost according to the instructions of the ENGINEER-IN-CHARGE.
- vi) The EMPLOYER shall not be liable for delay in supply or non-supply of any materials which the EMPLOYER has undertaken to supply where such failure or delay is due to natural calamities, act of enemies, transport and procurement difficulties and any circumstances beyond the control of the EMPLOYER. In no case, the CONTRACTOR shall be entitled to claim any compensation or loss suffered by him on this account.
- vii) It shall be responsibility of the CONTRACTOR to arrange in time all materials required for the WORK other than those to be supplied by the EMPLOYER. If, however, in the opinion of the ENGINEER-IN-CHARGE the execution of the WORK is likely to be delayed due to the CONTRACTOR's inability to make arrangements for supply of materials which normally he has to arrange for, the ENGINEER-IN-CHARGE shall have the right at his own discretion to issue such materials, if available with the EMPLOYER or procure the materials from the market or as elsewhere and the CONTRACTOR will be bound to take such materials at the rates decided by the ENGINEER-IN-CHARGE. This, however, does not in any way absolve the CONTRACTOR from responsibility of making arrangements for the supply of such materials in part or in full, should such a situation occur nor shall this constitute a reason for the delay in the execution of the WORK.
- viii) None of the materials supplied to the CONTRACTOR will be utilised by the CONTRACTOR for manufacturing item which can be obtained as supplied from standard manufacturer in finished form.
- ix) The CONTRACTOR shall, if desired by the ENGINEER- IN-CHARGE, be required to execute an Indemnity Bond in the prescribed form for safe custody and accounting of all materials issued by the EMPLOYER.



- x) The CONTRACTOR shall furnish to the ENGINEER-IN- CHARGE sufficiently in advance a statement showing his requirement of the quantities of the materials to be supplied by the EMPLOYER and the time when the same will be required by him for the works, so as to enable the ENGINEER-IN-CHARGE to make necessary arrangements for procurement and supply of the material
- xi) Account of the materials issued by the EMPLOYER shall be maintained by CONTRACTOR indicating the daily receipt, consumption and balance in hand. This account shall be maintained in a manner prescribed by the ENGINEER-IN-CHARGE along with all connected papers viz. requisitions, issues, etc., and shall be always available for inspection in the CONTRACTOR's office at SITE.
- xii) The CONTRACTOR should see that only the required quantities of materials are got issued. The CONTRACTOR shall not be entitled to cartage and incidental charges for returning the surplus materials, if any, to the stores wherefrom they were issued or to the place as directed by the ENGINEER-IN-CHARGE.
- xiii) Materials/Equipment(s) supplied by EMPLOYER shall not be utilized for any purpose(s) than issued for.

68 Material procured with assistance of employer/return of surplus:

68.1 Notwithstanding anything contained to the contrary in any or all the clauses of this CONTRACT where any materials for the execution of the CONTRACT are procured with the assistance of the EMPLOYER either by issue from EMPLOYER's stock or purchases made under order or permits or licenses issued by Government, the CONTRACTOR shall hold the said materials as trustee for the EMPLOYER and use such materials economically and solely for the purpose of the CONTRACT and not dispose them off without the permission of the EMPLOYER and return, if required by the ENGINEER-IN-CHARGE, shall determine having due regard to the condition of the materials. The price allowed to the CONTRACTOR, however, shall not exceed the amount charged to him excluding the storage charges, if any. The decision of the ENGINEER-IN-CHARGE shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the CONTRACTOR shall, in terms of the licenses or permits and/or criminal breach of trust, be liable to compensate the EMPLOYER at double rate or any higher rate, in the event of those materials at that time having higher rate or not being available in the market, then any other rate to be determined by the ENGINEER-IN-CHARGE and his decision shall be final and conclusive.

69 Materials obtained from dismantling:

69.1 If the CONTRACTOR in the course of execution of the WORK is called upon to dismantle any part for reasons other than those stipulated in Clauses 74 and 77 hereunder, the materials obtained in the WORK of dismantling etc., will be considered as the EMPLOYER's property and will be disposed off to the best advantage of the EMPLOYER.

70 Articles of value found:

70.1 All gold, silver and other minerals of any description and all precious stones, coins, treasure relics, antiquities and other similar things which shall be found in, under or upon the SITE, shall be the property of the EMPLOYER and the CONTRACTOR shall duly preserve the same to the satisfaction of the ENGINEER-IN-CHARGE and shall from time to time deliver the same to such person or persons indicated by the EMPLOYER.



71 Discrepancies between instructions:

71.1 Should any discrepancy occur between the various instructions furnished to the CONTRACTOR, his agent or staff or any doubt arises as to the meaning of any such instructions or should there be any misunderstanding between the CONTRACTOR's staff and the ENGINEER-IN- CHARGE's staff, the CONTRACTOR shall refer the matter immediately in writing to the ENGINEER-IN-CHARGE whose decision thereon shall be final and conclusive and no claim for losses alleged to have been caused by such discrepancies between instructions, doubts, or misunderstanding shall in any event be admissible.



72 Action where no specification is issued:

- 72.1 In case of any class of WORK for which there is no SPECIFICATION supplied by the EMPLOYER as mentioned in the Tender Documents such WORK shall be carried out in accordance with Indian Standard Specifications and if the Indian Standard Specifications do not cover the same, the WORK should be carried out as per standard Engineering Practice subject to the approval of the ENGINEER-IN-CHARGE.

73 Inspection of works:

- 73.1 The ENGINEER-IN-CHARGE will have full power and authority to inspect the WORK at any time wherever in progress either on the SITE or at the CONTRACTOR's premises/workshops wherever situated, premises/workshops of any person, firm or corporation where WORK in connection with the CONTRACT may be in hand or where materials are being or are to be supplied, and the CONTRACTOR shall afford or procure for the ENGINEER-IN-CHARGE every facility and assistance to carry out such inspection. The CONTRACTOR shall, at all time during the usual working hours and at all other time at which reasonable notice of the intention of the ENGINEER-IN-CHARGE or his representative to visit the WORK shall have been given to the CONTRACTOR, either himself be present or receive orders and instructions, or have a responsible agent duly accredited in writing, present for the purpose. Orders given to the CONTRACTOR's agent shall be considered to have the same force as if they had been given to the CONTRACTOR himself. The CONTRACTOR shall give not less than seven days notice in writing to the ENGINEER-IN-CHARGE before covering up or otherwise placing beyond reach of inspection and measurement of any work in order that the same may be inspected and measured. In the event of breach of above the same shall be uncovered at CONTRACTOR's expense for carrying out such measurement or inspection.

- 73.2 No material shall be dispatched from the CONTRACTOR's stores before obtaining the approval in writing of the Engineer-in-Charge.

The CONTRACTOR is to provide at all time during the progress of the WORK and the maintenance period, proper means of access with ladders, gangways etc. and the necessary attendance to move and adopt as directed for inspection or measurements of the WORK by the ENGINEER-IN-CHARGE.

- 73.3 The CONTRACTOR shall make available to the ENGINEER-IN-CHARGE free of cost all necessary instruments and assistance in checking or setting out of WORK and in the checking of any WORK made by the CONTRACTOR for the purpose of setting out and taking measurements of WORK.

74 Tests for quality of work:

- 74.1 All workmanship shall be of the respective kinds described in the CONTRACT DOCUMENTS and in accordance with the instructions of the ENGINEER-IN-CHARGE and shall be subjected from time to time to such test at CONTRACTOR's cost as the ENGINEER-IN-CHARGE may direct at the place of manufacture or fabrication or on the site or at all or any such places. The CONTRACTOR shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing any workmanship as may be selected and required by the ENGINEER-IN-CHARGE.
- 74.2 All the tests that will be necessary in connection with the execution of the WORK as decided by the ENGINEER-IN-CHARGE shall be carried out at the field testing laboratory of the EMPLOYER by



paying the charges as decided by the EMPLOYER from time to time. In case of non-availability of testing facility with the EMPLOYER, the required test shall be carried out at the cost of CONTRACTOR at Government or any other testing laboratory as directed by ENGINEER-IN-CHARGE.

74.3 If any tests are required to be carried out in conjunction with the WORK or materials or workmanship not supplied by the CONTRACTOR, such tests shall be carried out by the CONTRACTOR as per instructions of ENGINEER-IN-CHARGE and cost of such tests shall be reimbursed by the EMPLOYER.

75 Samples for approval:

75.1 The CONTRACTOR shall furnish to the ENGINEER-IN-CHARGE for approval, when requested or if required by the specifications, adequate samples of all materials and finished to be used in the WORK. Such samples shall be submitted before the WORK is commenced and in ample time to permit tests and examinations thereof. All materials furnished and finishes applied in actual WORK shall be fully equal to the approved samples.

76 Action and compensation in case of bad work:

76.1 If it shall appear to the ENGINEER-IN-CHARGE that any work has been executed with unsound, imperfect or unskilled workmanship, or with materials of any inferior description, or that any materials or articles provided by the CONTRACTOR for the execution of the WORK are unsound, or of a quality inferior to that contracted for, or otherwise not in accordance with the CONTRACT, the CONTRACTOR shall on demand in writing from the ENGINEER-IN-CHARGE or his authorised representative specifying the WORK, materials or articles complained of notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the WORK so specified and provide other proper and suitable materials or articles at his own cost and in the event of failure to do so within the period specified by the ENGINEER-IN-CHARGE in his demand aforesaid, the CONTRACTOR shall be liable to pay compensation at the rate of 1 % (One percent) of the estimated cost of the whole WORK, for every week limited to a maximum of 10% (ten percent) of the value of the whole WORK, while his failure to do so shall continue and in the case of any such failure the ENGINEER-IN-CHARGE may on expiry of notice period rectify or remove and re-execute the WORK or remove and replaced with others, the materials or articles complained of to as the case may be at the risk and expense in all respects of the CONTRACTOR. The decision of the Engineering-in-charge as to any question arising under this clause shall be final and conclusive.



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77 Suspension of works:	77.1	i) Subject to the provisions of sub-para (ii) of this clause, the CONTRACTOR shall, if ordered in writing by the ENGINEER-IN-CHARGE, or his representative, temporarily suspend the WORKS or any part thereof for such written order, proceed with the WORK therein ordered to be suspended until, he shall have received a written order to proceed therewith. The CONTRACTOR shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of the WORKS aforesaid. An extension of time for completion, corresponding with the delay caused by any such suspension of the WORKS as aforesaid will be granted to the CONTRACTOR should he apply for the same provided that the suspension was not consequent to any default or failure on the part of the CONTRACTOR. ii) In case of suspensions of entire WORK, ordered in writing by ENGINEER-IN-CHARGE, for a period of more than two months, the CONTRACTOR shall have the option to terminate the CONTRACT.
78 Employer may do part of work:	78.1	Upon failure of the CONTRACTOR to comply with any instructions given in accordance with the provisions of this CONTRACT the EMPLOYER has the alternative right, instead of assuming charge of entire WORK, to place additional labour force, tools, Equipments and materials on such parts of the WORK, as the EMPLOYER may designate or also engage another CONTRACTOR to carry out the WORK. In such cases, the EMPLOYER shall deduct from the amount which otherwise might become due to the CONTRACTOR, the cost of such work and material with ten percent (10%) added to cover all departmental charges and should the total amount thereof exceed the amount due to the CONTRACTOR, the CONTRACTOR shall pay the difference to the EMPLOYER.
79 Possession prior to completion:	79.1	The ENGINEER-IN-CHARGE shall have the right to take possession of or use any completed or partially completed WORK or part of the WORK. Such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the CONTRACT agreement. If such prior possession or use by the ENGINEER-IN-CHARGE delays the progress of WORK, equitable adjustment in the time of completion will be made and the CONTRACT agreement shall be deemed to be modified accordingly.
80 (Defects liability period) twelve months period of liability from the date of issue of completion certificate:	80.1	The CONTRACTOR shall guarantee the installation/WORK for a period of 12 months from the date of completion of WORK as certified by the ENGINEER-IN-CHARGE which is indicated in the Completion Certificate. Any damage or defect that may arise or lie undiscovered at the time of issue of Completion Certificate, connected in any way with the equipment or materials supplied by him or in the workmanship, shall be rectified or replaced by the CONTRACTOR at his own expense as deemed necessary by the ENGINEER-IN-CHARGE or in default, the ENGINEER-IN-CHARGE may carry out such works by other work and deduct actual cost incurred towards labour, supervision and materials consumables or otherwise plus 100% towards overheads (of which the certificate of ENGINEER-IN-CHARGE shall be final) from any sums that may then be or at any time thereafter, become due to the CONTRACTOR or from his Contract Performance Security, or the proceeds of sale thereof or a sufficient part on thereof.
	80.2	If the CONTRACTOR feels that any variation in WORK or in quality of materials or proportions would be beneficial or necessary to fulfil the guarantees called for, he shall bring this to the notice of the ENGINEER-IN-CHARGE in writing.



If during the period of liability any portion of the WORK/equipment, is found defective and is rectified/ replaced, the period of liability for such equipment/ portion of WORK shall be operative from the date such rectification/ replacement are carried out and Contract Performance Guarantee shall be furnished separately for the extended period of liability for that portion of WORK/ equipment only. Notwithstanding the above provisions the supplier's, guarantees/warranties for the replaced equipment shall also be passed on to the EMPLOYER.

80.3 LIMITATION OF LIABILITY

Notwithstanding anything contrary contained herein, the aggregate total liability of CONTRACTOR under the Agreement or otherwise shall be limited to 100% of Agreement / Contract Value. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profits or loss of production.

81 Care of works:

81.0 From the commencement to completion of the WORK, the CONTRACTOR shall take full responsibility for the care for all works including all temporary works and in case any damages, loss or injury shall happen to the WORK or to any part thereof or to any temporary works from any cause whatsoever, shall at his own cost repair and make good the same so that at completion the WORK shall be in good order and in conformity in every respects with the requirement of the CONTRACT and the ENGINEER-IN- CHARGE's instructions.

81.1 DEFECTS PRIOR TO TAKING OVER:

If at any time, before the WORK is taken over, the ENGINEER-IN-CHARGE shall:

- a) Decide that any works done or materials used by the CONTRACTOR or by any SUB-CONTRACTOR is defective or not in accordance with the CONTRACT, or that the works or any portion thereof are defective, or do not fulfill the requirements of CONTRACT (all such matters being hereinafter, called 'Defects' in this clause), and
- b) As soon as reasonably practicable, gives to the CONTRACTOR notice in writing of the said decision, specifying particulars of the defects alleged to exist or to have occurred, then the CONTRACTOR shall at his own expenses and with all speed make good the defects so specified.

In case CONTRACTOR shall fail to do so, the EMPLOYER may take, at the cost of the CONTRACTOR, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by the EMPLOYER will be recovered from the amount due to the CONTRACTOR. The decision of the ENGINEER-IN-CHARGE with regard to the amount to be recovered from the CONTRACTOR will be final and binding on the CONTRACTOR. As soon as the WORK has been completed in accordance with the CONTRACT (except in minor respects that do not affect their use for the purpose for which they are intended and except for maintenance there of provided in clause 80.1 of General Conditions of Contract) and have passed the tests on completion, the ENGINEER-IN-CHARGE shall issue a certificate (hereinafter called Completion Certificate) in which he shall certify the date on which the WORK have been so completed and have passed the said tests and the EMPLOYER shall be deemed to have taken over the WORK on the date so certified. If the WORK has been divided into various groups in the CONTRACT, the EMPLOYER shall be entitled to take over any group or groups before the other or others and there upon the ENGINEER-IN-CHARGE shall issue a Completion Certificate which will, however, be for such group or



groups so taken over only. In such an event if the group /section/ part so taken over is related, to the integrated system of the work, notwithstanding date of grant of Completion Certificate for group/ section/ part. The period of liability in respect of such group/ section/ part shall extend 12 (twelve) months from the date of completion of WORK.

81.2 DEFECTS AFTER TAKING OVER:

In order that the CONTRACTOR could obtain a COMPLETION CERTIFICATE he shall make good, with all possible speed, any defect arising from the defective materials supplied by the CONTRACTOR or workmanship or any act or omission of the CONTRACT or that may have been noticed or developed, after the works or groups of the works has been taken over, the period allowed for carrying out such WORK will be normally one month. If any defect be not remedied within a reasonable time, the EMPLOYER may proceed to do the WORK at CONTRACTOR's risk and expense and deduct from the final bill such amount as may be decided by the EMPLOYER.

If by reason of any default on the part of the CONTRACTOR a COMPLETION CERTIFICATE has not been issued in respect of any portion of the WORK within one month after the date fixed by the CONTRACT for the completion of the WORK, the EMPLOYER shall be at liberty to use the WORK or any portion thereof in respect of which a completion certificate has not been issued, provided that the WORK or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completing these works for the issue of Completion Certificate.

82 Guarantee/transfer of guarantee:

82.1 For works like water-proofing, acid and alkali resisting materials, pre-construction soil treatment against termite or any other specialized works etc. the CONTRACTOR shall invariably engage SUB-CONTRACTORS who are specialists in the field and firms of repute and such a SUB-CONTRACTOR shall furnish guarantees for their workmanship to the EMPLOYER, through the CONTRACTOR. In case such a SUB-CONTRACTOR/ firm is not prepared to furnish a guarantee to the EMPLOYER, the CONTRACTOR shall give that guarantee to the EMPLOYER directly.

83 Training of employer's personnel:

83.1 The CONTRACTOR undertakes to provide training to Engineering personnel selected and sent by the EMPLOYER at the works of the CONTRACTOR without any cost to the EMPLOYER. The period and the nature of training for the individual personnel shall be agreed upon mutually between the CONTRACTOR and the EMPLOYER. These engineering personnel shall be given special training at the shops, where the equipment will be manufactured and/ or in their collaborator's works and where possible, in any other plant where equipment manufactured by the CONTRACTOR or his collaborators is under installation or test to enable those personnel to become familiar with the equipment being furnished by the CONTRACTOR. EMPLOYER shall bear only the to and fro fare of the said engineering personnel.

84 Replacement of defective parts and materials:

84.1 If during the progress of the WORK, EMPLOYER shall decide and inform in writing to the CONTRACTOR, that the CONTRACTOR has manufactured any plant or part of the plant unsound or imperfect or has furnished plant inferior to the quality specified, the



CONTRACTOR on receiving details of such defects or deficiencies shall at his own expenses within 7 (seven) days of his receiving the notice, or otherwise within such time as may be reasonably necessary for making it good, proceed to alter, re-construct or remove such work and furnish fresh Equipments up to the standards of the specifications. In case the CONTRACTOR fails to do so, EMPLOYER may on giving the CONTRACTOR 7 (seven) days' notice in writing of his intentions to do so, proceed to remove the portion of the WORK so complained of and at the cost of CONTRACTOR's, perform all such works or furnish all such Equipments provided that nothing in the clause shall be deemed to deprive the EMPLOYER of or affect any rights under the CONTRACT, the EMPLOYER may otherwise have in respect of such defects and deficiencies.

- 84.2 The CONTRACTOR's full and extreme liability under this clause shall be satisfied by the payments to the EMPLOYER of the extra cost, of such replacements procured including erection/installation as provided for in the CONTRACT; such extra cost being the ascertained difference between the price paid by the EMPLOYER for such replacements and the CONTRACT price portion for such defective plants and repayments of any sum paid by the EMPLOYER to the CONTRACTOR in respect of such defective plant. Should the EMPLOYER not so replace the defective plant the CONTRACTOR's extreme liability under this clause shall be limited to the repayment of all such sums paid by the EMPLOYER under the CONTRACT for such defective plant.

85 Indemnity

- 85.1 If any action is brought before a Court, Tribunal or any other Authority against the Employer or an officer or agent of the EMPLOYER, for the failure, omission or neglect on the part of the CONTRACTOR to perform any acts, matters, covenants or things under the CONTRACT, or damage or injury caused by the alleged omission or negligence on the part of the CONTRACTOR, his agents, representatives or his SUB-CONTRACTOR's, or in connection with any claim based on lawful demands of SUB-CONTRACTOR's workmen suppliers or employees, the CONTRACTOR, shall in such cases indemnify and keep the EMPLOYER and/or their representatives harmless from all losses, damages, expenses or decrees arising out of such action.

86 Construction aids, Equipments, tools & tackles:

- 86.1 CONTRACTOR shall be solely responsible for making available for executing the WORK, all requisite CONSTRUCTION EQUIPMENTS, Special Aids, Barges, Cranes and the like, all Tools, Tackles and Testing Equipment and Appliances, including imports of such equipment etc. as required. In case of import of the same the rates applicable for levying of Custom Duty on such Equipment, Tools, & Tackles and the duty drawback applicable thereon shall be ascertained by the CONTRACTOR from the concerned authorities of Government of India. It shall be clearly understood that EMPLOYER shall not in any way be responsible for arranging to obtain Custom Clearance and/or payment of any duties and/or duty draw backs etc. for such Equipments so imported by the CONTRACTOR and the CONTRACTOR shall be fully responsible for all taxes, duties and documentation with regard to the same. Tenderer in his own interest may contact, for any clarifications in the matter, concerned agencies/Dept./Ministries of Govt. of India. All clarifications so obtained and interpretations thereof shall be solely the responsibility of the CONTRACTOR.

SECTION-VI Certificates and Payments



87 Schedule of rates and payments:

87.1 i)

CONTRACTOR'S REMUNERATION:

The price to be paid by the EMPLOYER to CONTRACTOR for the whole of the WORK to be done and for the performance of all the obligations undertaken by the CONTRACTOR under the CONTRACT DOCUMENTS

shall be ascertained by the application of the respective Schedule of Rates (the inclusive nature of which is more particularly defined by way of application but not of limitation, with the succeeding sub-clause of this clause) and payment to be made accordingly for the WORK actually executed and approved by the ENGINEER- IN-CHARGE. The sum so ascertained shall (excepting only as and to the extent expressly provided herein) constitute the sole and inclusive remuneration of the CONTRACTOR under the CONTRACT and no further or other payment whatsoever shall be or become due or payable to the CONTRACTOR under the CONTRACT.

ii)

SCHEDULE OF RATES TO BE INCLUSIVE:

The prices/rates quoted by the CONTRACTOR shall remain firm till the issue of FINAL CERTIFICATE and shall not be subject to escalation. Schedule of Rates shall be deemed to include and cover all costs, expenses and liabilities of every description and all risks of every kind to be taken in executing, completing and handing over the WORK to the EMPLOYER by the CONTRACTOR. The CONTRACTOR shall be deemed to have known the nature, scope, magnitude and the extent of the WORK and materials required though the CONTRACT DOCUMENT may not fully and precisely furnish them. Tenderer's shall make such provision in the Schedule of Rates as he may consider necessary to cover the cost of such items of WORK and materials as may be reasonable and necessary to complete the WORK. The opinion of the ENGINEER-IN-CHARGE as to the items of WORK which are necessary and reasonable for COMPLETION OF WORK shall be final and binding on the CONTRACTOR, although the same may not be shown on or described specifically in CONTRACT DOCUMENTS.

Generality of this present provision shall not be deemed to cut down or limit in any way because in certain cases it may and in other cases it may not be expressly stated that the CONTRACTOR shall do or perform a work or supply articles or perform services at his own cost or without addition of payment or without extra charge or words to the same effect or that it may be stated or not stated that the same are included in and covered by the Schedule of Rates.

iii) SCHEDULE OF RATES TO COVER CONSTRUCTION EQUIPMENTS, MATERIALS, LABOUR ETC.:

Without in any way limiting the provisions of the preceding sub-clause the Schedule of Rates shall be deemed to include and cover the cost of all construction equipment, temporary WORK (except as provided for herein), pumps,



materials, labour, insurance, fuel, consumables, stores and appliances to be supplied by the CONTRACTOR and all other matters in connection with each item in the Schedule of Rates and the execution of the WORK or any portion thereof finished, complete in every respect and maintained as shown or described in the CONTRACT DOCUMENTS or as may be ordered in writing during the continuance of the CONTRACT.

\iv)

**SCHEDULE OF RATES TO COVER ROYALTIES,
RENTS AND CLAIMS:**

The Schedule of Rates (i.e., VALUE OF CONTRACT) shall be deemed to include and cover the cost of all royalties and fees for the articles and processes, protected by letters, patent or otherwise incorporated in or used in connection with the WORK, also all royalties, rents and other payments in connection with obtaining materials of whatsoever kind for the WORK and shall include an indemnity to the EMPLOYER which the CONTRACTOR hereby gives against all actions, proceedings, claims, damages, costs and expenses arising from the incorporation in or use on the WORK of any such articles, processes or materials, octroi or other municipal or local Board Charges, if levied on materials, equipment or machineries to be brought to site for use on WORK shall be borne by the CONTRACTOR.

v)

**SCHEDULE OF RATES TO COVER TAXES AND
DUTIES:**

No exemption or reduction of Customs Duties, Excise Duties, Sales Tax, Sales Tax on works Contract quay or any port dues, transport charges, stamp duties or Central or State Government or local Body or Municipal Taxes or duties, taxes or charges (from or of any other body), whatsoever, will be granted or obtained, all of which expenses shall be deemed to be included in and covered by the Schedule or Rates. The CONTRACTOR shall also obtain and pay for all permits or other privileges necessary to complete the WORK.

vi)

SCHEDULE OF RATES TO COVER RISKS OF DELAY:

The Schedule of Rates shall be deemed to include and cover the risk of all possibilities of delay and interference with the CONTRACTOR's conduct of WORK which occur from any causes including orders of the EMPLOYER in the exercise of his power and on account of extension of time granted due to various reasons and for all other possible or probable causes of delay.

vii)

SCHEDULE OF RATES CANNOT BE ALTERED:

For WORK under unit rate basis, no alteration will be allowed in the Schedule of Rates by reason of works or any part of them being modified, altered, extended, diminished or committed. The Schedule of Rates are fully inclusive of rates which have been fixed by the CONTRACTOR and agreed to by the EMPLOYER and cannot be altered.



For lumpsum CONTRACTS, the payment will be made according to the WORK actually carried out, for which purpose an item wise, or work wise Schedule of Rates shall be furnished, suitable for evaluating the value of WORK done and preparing running account bill.

Payment for any additional work which is not covered in the Schedule of Rates, shall only be released on issuance of change order.

88 Procedure for measurement and billing of work in progress:

88.1 BILLING PROCEDURE:

Following procedures shall be adopted for billing of works executed by the CONTRACTOR.

88.1.1 All measurements shall be recorded in sextuplicate on standard measurement sheets supplied by EMPLOYER and submitted to EMPLOYER/CONSULTANT for scrutiny and passing.

88.1.2 EMPLOYER/CONSULTANT shall scrutinize and check the measurements recorded on the sheets and shall certify correctness of the same on the measurement sheets.

88.1.3 ENGINEER-IN-CHARGE shall pass the bills after carrying out the comprehensive checks in accordance with the terms and conditions of the CONTRACTS, within 7 days of submission of the bills, complete in all respects and send the same to the Employer to effect payment to the CONTRACTOR.

88.1.4 RSGL shall make all endeavour to make payments of undisputed amount of the bills submitted based on the joint measurements within 15 (Fifteen) days from the date of certification by the Engineer-in-Charge.

88.1.5 Measurements shall be recorded as per the methods of measurement spelt out in EMPLOYER/CONSULTANT SPECIFICATIONS / CONTRACT DOCUMENT. EMPLOYER/CONSULTANT shall be fully responsible for checking the measurements quantitatively and qualitatively as recorded in the Measurement Books/ Bills.

88.1.6 While preparing the final bills overall measurements will not be taken again. Only volume of work executed since the last measured bill along with summary of final measurements will be considered for the final bill. However, a detailed check shall be made as to missing measurements and in case there are any missing items or measurements the same shall be recorded.

88.1.7 COMPUTERISED BILLING SYSTEM : RSGL has introduced Computerized Billing System whereby when the Bills are submitted in RSGL by a Contractor, a receipt number is generated. The Contractor can know the status of the Bill through RSGL's website.

88.2 SECURED ADVANCE ON MATERIAL:

Unless otherwise provided elsewhere in the tender, no 'Secured Advance' on security of materials brought to site for execution of contracted items(s) shall be paid to the Contractor whatsoever.

88.3 DISPUTE IN MODE OF MEASUREMENT:



In case of any dispute as to the mode of measurement not covered by the CONTRACT to be adopted for any item of WORK, mode of measurement as per latest Indian Standard Specifications shall be followed.

88.4 ROUNDING OF AMOUNTS:

In calculating the amount of each item due to the CONTRACTOR in every certificate prepared for payment, sum of less than 50 paise shall be omitted and the total amount on each certificate shall be rounded off to the nearest rupees, i.e., sum of less than 50 paise shall be omitted and sums of 50 paise and more upto one rupee shall be reckoned as one rupee.

89 Lumpsum in tender:

89.1 The payment against any Lumpsum item shall be made only on completion of that item as per the provision of the CONTRACT after certification by ENGINEER-IN-CHARGE.

90 Running account payments to be regarded as advance:

90.1 All running account payments shall be regarded as payment by way of advance against the final payment only and not as payments for WORK actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the CONTRACT, or any part thereof, in this respect, or of the accruing of any claim by the CONTRACTOR, nor shall it conclude, determine or affect in any way the powers of the EMPLOYER under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary or affect the CONTRACT. The final bill shall be submitted by the CONTRACTOR within one month of the date of physical completion of the WORK, otherwise, the ENGINEER-IN-CHARGE's certificate of the measurement and of total amount payable for the WORK accordingly shall be final and binding on all parties

91 Notice of claims for additional payments:

91.1 Should the CONTRACTOR consider that he is entitled to any extra payment for any extra/additional WORKS or MATERIAL change in original SPECIFICATIONS carried out by him in respect of WORK he shall forthwith give notice in writing to the ENGINEER-IN-CHARGE that he claims extra payment. Such notice shall be given to the ENGINEER-IN-CHARGE upon which CONTRACTOR bases such claims and such notice shall contain full particulars of the nature of such claim with full details of amount claimed. Irrespective of any provision in the CONTRACT to the contrary, the CONTRACTOR must intimate his intention to lodge claim on the EMPLOYER within 10 (ten) days of the commencement of happening of the event and quantify the claim within 30 (thirty) days, failing which the CONTRACTOR will lose his right to claim any compensation/reimbursement/damages etc. or refer the matter to arbitration. Failure on the part of CONTRACTOR to put forward any claim without the necessary particulars as above within the time above specified shall be an absolute waiver thereof. No omission by EMPLOYER to reject any such claim and no delay in dealing therewith shall be waiver by EMPLOYER of any of this rights in respect thereof.

91.2 ENGINEER-IN-CHARGE shall review such claims within a reasonably period of time and cause to discharge these in a manner considered appropriate after due deliberations thereon. However,



CONTRACTOR shall be obliged to carry on with the WORK during the period in which his claims are under consideration by the EMPLOYER, irrespective of the outcome of such claims, where additional payments for WORKS considered extra are justifiable in accordance with the CONTRACT provisions, EMPLOYER shall arrange to release the same in the same manner as for normal WORK payments. Such of the extra works so admitted by EMPLOYER shall be governed by all the terms, conditions, stipulations and specifications as are applicable for the CONTRACT. The rates for extra works shall generally be the unit rates provided for in the CONTRACT. In the event unit rates for extra works so executed are not available as per CONTRACT, payments may either be released on day work basis for which daily/hourly rates for workmen and hourly rates for equipment rental shall apply, or on the unit rate for WORK executed shall be derived by interpolation/ extrapolation of unit rates already existing in the CONTRACT. In all the matters pertaining to applicability of rate and admittance of otherwise of an extra work claim of CONTRACTOR the decision of ENGINEER-IN-CHARGE shall be final and binding.

92 Payment of contractor's bill:

- 92.1 No payment shall be made for works estimated to cost less than Rs.10,000/- till the whole of the work shall have been completed and a certificate of completion given. But in case of works estimated to cost more than Rs.10,000/-, that CONTRACTOR on submitting the bill thereof be entitled to receive a monthly payment proportionate to the part thereof approved and passed by the ENGINEER-IN-CHARGE, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the CONTRACTOR. This payment will be made after making necessary corrections/deductions as stipulated elsewhere in the CONTRACT DOCUMENT for materials, Contract Performance Security, taxes etc.
- 92.2 Payment due to the CONTRACTOR shall be made by the EMPLOYER by Account Payee cheque forwarding the same to registered office or the notified office of the CONTRACTOR. In no case will EMPLOYER be responsible if the cheque is mislaid or misappropriated by unauthorised person/persons. In all cases, the CONTRACTOR shall present his bill duly pre-receipted on proper revenue stamp payment shall be made in Indian Currency.
- 92.3 In general payment of final bill shall be made to CONTRACTOR within 60 days of the submission of bill on joint measurements, after completion of all the obligations under the CONTRACT.

93 Receipt for payment:

- 93.1 Receipt for payment made on account of work when executed by a firm, must be signed by a person holding due power of attorney in this respect on behalf of the CONTRACTOR, except when the CONTRACTORS are described in their tender as a limited company in which case the receipts must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the company.

94 Completion certificate:

- 94.1 APPLICATION FOR COMPLETION CERTIFICATE:

When the CONTRACTOR fulfils his obligation under Clause 81.1 he shall be eligible to apply for COMPLETIONCERTIFICATE.



The ENGINEER-IN-CHARGE shall normally issue to the CONTRACTOR the COMPLETION CERTIFICATE within one month after receiving any application therefore from the CONTRACTOR after verifying from the completion documents and satisfying himself that the WORK has been completed in accordance with and as set out in the construction and erection drawings, and the CONTRACT DOCUMENTS.

The CONTRACTOR, after obtaining the COMPLETION CERTIFICATE, is eligible to present the final bill for the WORK executed by him under the terms of CONTRACT.

94.2 COMPLETION CERTIFICATE:

Within one month of the completion of the WORK in all respects, the CONTRACTOR shall be furnished with a certificate by the ENGINEER-IN-CHARGE of such completion, but no certificate shall be given nor shall the WORK be deemed to have been executed until all scaffolding, surplus materials and rubbish is cleared off the SITE completely nor until the WORK shall have been measured by the ENGINEER-IN-CHARGE whose measurement shall be binding and conclusive. The WORKS will not be considered as complete and taken over by the EMPLOYER, until all the temporary works, labour and staff colonies are cleared to the satisfaction of the ENGINEER-IN-CHARGE.

If the CONTRACTOR fails to comply with the requirements of this clause on or before the date fixed for the completion of the WORK, the ENGINEER-IN-CHARGE may at the expense of the CONTRACTOR remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit and clean off such dirt as aforesaid, and the CONTRACTOR shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realised by the sale thereof.

94.3 COMPLETION CERTIFICATE DOCUMENTS:

For the purpose of Clause 94.0 the following documents will be deemed to form the completion documents:

- i) The technical documents according to which the WORK was carried out.
- ii) Six (6) sets of construction drawings showing therein the modification and correction made during the course of execution and signed by the ENGINEER-IN-CHARGE.
- iii) COMPLETION CERTIFICATE for 'embedded' and 'covered' up work.
- iv) Certificates of final levels as set out for various works.
- v) Certificates of tests performed for various WORKS.
- vi) Material appropriation, Statement for the materials issued by the EMPLOYER for the WORK and list of surplus materials returned to the EMPLOYER's store duly supported by necessary documents.



95 Final decision and final certificate:

95.1 Upon expiry of the period of liability and subject to the ENGINEER-IN-CHARGE being satisfied that the WORKS have been duly maintained by the CONTRACTOR during monsoon or such period as hereinbefore provided in Clause 80 & 81 and that the CONTRACTOR has in all respect duly made-up any subsidence and performed all his obligations under the CONTRACT, the ENGINEER-IN-CHARGE shall (without prejudice to the rights of the EMPLOYER to retain the provisions of relevant Clause hereof) otherwise give a certificate herein referred to as the FINAL CERTIFICATE to that effect and the CONTRACTOR shall not be considered to have fulfilled the whole of his obligations under CONTRACT until FINAL CERTIFICATE shall have been given by the ENGINEER-IN-CHARGE notwithstanding any previous entry upon the WORK and taking possession, working or using of the same or any part thereof by the EMPLOYER.

96 Certificate and payments on evidence of completion:

96.1 Except the FINAL CERTIFICATE, no other certificates or payments against a certificate or on general account shall be taken to be an admission by the EMPLOYER of the due performance of the CONTRACT or any part thereof or of occupancy or validity of any claim by the CONTRACTOR.

97 Deductions from the contract price:

97.1 All costs, damages or expenses which EMPLOYER may have paid or incurred, which under the provisions of the CONTRACT, the CONTRACTOR is liable/will be liable, will be claimed by the EMPLOYER. All such claims shall be billed by the EMPLOYER to the CONTRACTOR regularly as and when they fall due. Such claims shall be paid by the CONTRACTOR within 15 (fifteen) days of the receipt of the corresponding bills and if not paid by the CONTRACTOR within the said period, the EMPLOYER may, then, deduct the amount from any moneys due i.e., Contract Performance Security or becoming due to the CONTRACTOR under the CONTRACT or may be recovered by actions of law or otherwise, if the CONTRACTOR fails to satisfy the EMPLOYER of such claims.

SECTION-VII Taxes and Insurance

98 Taxes, Duties, Octroi etc:

98.1 The CONTRACTOR agrees to and does hereby accept full and exclusive liability for the payment of any and all Taxes, Duties, including Excise duty, octroi etc. now or hereafter imposed, increased, modified, all the sales taxes, duties, octrois etc. now in force and hereafter increased, imposed or modified, from time to time in respect of WORKS and materials and all contributions and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by any Central or State Government authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to the persons employed by the CONTRACTOR and the CONTRACTOR shall be responsible for the compliance of all SUB-CONTRACTORS, with all applicable Central, State, Municipal and local law and regulation and requirement of any Central, State or local Government agency or authority. CONTRACTOR further agrees to defend, indemnify and hold EMPLOYER harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason or any violation by CONTRACTOR or SUB-CONTRACTOR of such laws, suits or proceedings that may be brought against the EMPLOYER arising under, growing out of, or by reason of the work provided for by this CONTRACT, by third parties, or by Central or State Government authority or any administrative sub-division thereof.



Tax deductions will be made as per the rules and regulations in force in accordance with acts prevailing from time to time.

99 Sales tax/turnover tax:	99.1	Tenderer should quote all inclusive prices including the liability of Sales Tax/Turnover Tax whether on the works contract as a whole or in respect of bought out components used by the CONTRACTOR in execution of the CONTRACT. EMPLOYER shall not be responsible for any such liability of the CONTRACTOR in respect of this CONTRACT.
100 Statutory variations	100.1	Tenderer should quote prices inclusive of excise-duty and sales tax applicable on finished product. Any statutory variations in Excise Duty and sales tax on finished product during the contractual completion period, shall be to the Employer's account for which the Contractor will furnish documentary evidence(s) in support of their claims to RSGL. However, any increase in the rate of these taxes and duties (E.D. and S.T.) beyond the contractual completion period shall be to Contractor's account and any decrease shall be passed on to RSGL.
101 Insurance:	101.1	<u>GENERAL</u> CONTRACTOR shall at his own expense arrange secure and maintain insurance with reputable insurance companies to the satisfaction of the EMPLOYER as follows: CONTRACTOR at his cost shall arrange, secure and maintain insurance as may be necessary and to its full value for all such amounts to protect the WORKS in progress from time to time and the interest of EMPLOYER against all risks as detailed herein. The form and the limit of such insurance, as defined here in together with the under works thereof in each case should be as acceptable to the EMPLOYER. However, irrespective of work acceptance the responsibility to maintain adequate insurance coverage at all times during the period of CONTRACT shall be that of CONTRACTOR alone. CONTRACTOR's failure in this regard shall not relieve him of any of his responsibilities and obligations under CONTRACT. Any loss or damage to the equipment, during ocean transportation, port/custom clearance, inland and port handling, inland transportation, storage, erection and commissioning till such time the WORK is taken over by EMPLOYER, shall be to the account of CONTRACTOR. CONTRACTOR shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/or replacement of the parts of the Work damaged or lost. CONTRACTOR shall provide the EMPLOYER with a copy of all insurance policies and documents taken out by him in pursuance of the CONTRACT. Such copies of document shall be submitted to the EMPLOYER immediately upon the CONTRACTOR having taken such insurance coverage. CONTRACTOR shall also inform the EMPLOYER at least 60(Sixty) days in advance regarding the expiry cancellation and/or changes in any of such documents and ensure revalidation/renewal etc., as may be necessary well in time. Statutory clearances, if any, in respect of foreign supply required for the purpose of replacement of equipment lost in transit and/or



during erection, shall be made available by the EMPLOYER. CONTRACTOR shall, however, be responsible for obtaining requisite licenses, port clearances and other formalities relating to such import. The risks that are to be covered under the insurance shall include, but not be limited to the loss or damage in handling, transit, theft, pilferage, riot, civil commotion, weather conditions, accidents of all kinds, fire, war risk (during ocean transportation only) etc. The scope of such insurance shall cover the entire value of supplies of Equipments, plants and materials to be imported from time to time.

All costs on account of insurance liabilities covered under CONTRACT will be to CONTRACTOR's account and will be included in VALUE OF CONTRACT. However, the EMPLOYER may from time to time, during the currency of the CONTRACT, ask the CONTRACTOR in writing to limit the insurance coverage risk and in such a case, the parties to the CONTRACT will agree for a mutual settlement, for reduction in VALUE OF CONTRACT to the extent of reduced premium amounts.

CONTRACTOR as far as possible shall cover insurance with Indian Insurance Companies, including marine Insurance during ocean transportation.

i) EMPLOYEES STATE INSURANCE ACT:

The CONTRACTOR agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by the Employee State Insurance Act 1948 and the CONTRACTOR further agrees to defend, indemnify and hold EMPLOYER harmless for any liability or penalty which may be imposed by the Central, State or Local authority by reason of any asserted violation by CONTRACTOR or SUB-CONTRACTOR of the

Employees' State Insurance Act, 1948, and also from all claims, suits or proceeding that may be brought against the EMPLOYER arising under, growing out of or by reasons of the work provided for by this CONTRACTOR, by third parties or by Central or State Government authority or any political sub- division thereof.

The CONTRACTOR agrees to fill in with the Employee's State Insurance Corporation, the Declaration Forms, and all forms which may be required in respect of the CONTRACTOR's or SUB- CONTRACTOR's employees, who are employed in the WORK provided for or those covered by ESI from time to time under the Agreement. The CONTRACTOR shall deduct and secure the agreement of the SUB- CONTRACTOR to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act from wages and affix the Employees Contribution Card at wages payment intervals. The CONTRACTOR shall remit and secure the agreement of SUB-CONTRACTOR to remit to the State Bank of India, Employee's State Insurance Corporation Account, the Employee's contribution as required by the Act. The CONTRACTOR agrees to maintain all cards and Records as required under the Act in respect of employees and payments and the CONTRACTOR shall secure the agreement of the SUB- CONTRACTOR to maintain such records. Any expenses incurred for the contributions,



making contributions or maintaining records shall be to the CONTRACTOR's or SUB-CONTRACTOR's account.

The EMPLOYER shall retain such sum as may be necessary from the total VALUE OF CONTRACT until the CONTRACTOR shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid. This will be pending on the CONTRACTOR when the ESI Act is extended to the place of work.

ii) WORKMEN COMPENSATION
AND EMPLOYER'S LIABILITY
INSURANCE:

Insurance shall be effected for all the CONTRACTOR's employees engaged in the performance of this CONTRACT. If any of the work is sublet, the CONTRACTOR shall require the SUB-CONTRACTOR to provide workman's Compensation and employer's liability insurance for the later's employees if such employees are not covered under the CONTRACTOR's Insurance.

iii) ACCIDENT OR INJURY TO WORKMEN:

The EMPLOYER shall not be liable for or in respect of any damages or compensation payable at law in respect or in consequence of any accident or injury to any workman or other person in the Employment of the CONTRACTOR or any SUB-CONTRACTOR save and except an accident or injury resulting from any act or default of the EMPLOYER, his agents or servants and the CONTRACTOR shall indemnify and keep indemnified the EMPLOYER against all such damages and compensation (save and except and aforesaid) and against all claims, demands, proceeding, costs, charges and expenses, whatsoever in respect or in relation thereto.

iv) TRANSIT INSURANCE

In respect of all items to be transported by the CONTRACTOR to the SITE of WORK, the cost of transit insurance should be borne by the CONTRACTOR and the quoted price shall be inclusive of this cost.

V) COMPREHENSIVE AUTOMOBILE INSURANCE

This insurance shall be in such a form as to protect the Contractor against all claims for injuries, disability, disease and death to members of public including EMPLOYER's men and damage to the property of others arising from the use of motor vehicles during on or off the 'site' operations, irrespective of the Employership of such vehicles.

VI) COMPREHENSIVE GENERAL LIABILITY INSURANCE

- a) This insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of member of public or damage to property of others due to any act or omission on the part of the Contractor, his agents, his employees, his representatives and



Sub-Contractor's or from riots, strikes and civil commotion.

- b) Contractor shall take suitable Group Personal Accident Insurance Cover for taking care of injury, damage or any other risks in respect of his Engineers and other Supervisory staff who are not covered under Employees State Insurance Act.
- c) The policy shall cover third party liability. The third party (liability shall cover the loss/ disablement of human life (person not belonging to the Contractor) and also cover the risk of damage to others materials/ equipment/ properties during construction, erection and commissioning at site. The value of third party liability for compensation for loss of human life or partial/full disablement shall be of required statutory value but not less than Rs. 2 lakhs per death, Rs. 1.5 lakhs per full disablement and Rs. 1 lakh per partial disablement and shall nevertheless cover such compensation as may be awarded by Court by Law in India and cover for damage to others equipment/ property as approved by the Purchaser. However, third party risk shall be maximum to Rs. 10(ten) lakhs to death.
- d) The Contractor shall also arrange suitable insurance to cover damage, loss, accidents, risks etc., in respect of all his plant, Equipments and machinery, erection tools & tackles and all other temporary attachments brought by him at site to execute the work.
- e) The Contractor shall take out insurance policy in the joint name of EMPLOYER and Contractor from one or more nationalised insurance company from any branch office at Project site.
- f) Any such insurance requirements as are hereby established as the minimum policies and coverage which Contractor must secure and keep in force must be complied with, Contractor shall at all times be free to obtain additional or increased coverage at Contractor's sole expenses.

vii) ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATIONS OR BY EMPLOYER:

CONTRACTOR shall also carry and maintain any and all other insurance(s) which he may be required under any law or regulation from time to time without any extra cost to EMPLOYER. He shall also carry and maintain any other insurance which may be required by the EMPLOYER.

102 Damage to Property or to any Person or any Third Party

- 102.1 i) CONTRACTOR shall be responsible for making good to the satisfaction of the EMPLOYER any loss or any damage to structures and properties belonging to the EMPLOYER or being executed or procured or being procured by the EMPLOYER or of other agencies within in the premises of all the work of the EMPLOYER, if such

loss or damage is due to fault and/or the negligence or willful act or omission of the CONTRACTOR, his employees, agents, representatives or SUB-CONTRACTORS.

- ii) The CONTRACTOR shall take sufficient care in moving his plants, Equipments and materials from one place to another so that they do not cause any damage to any person or to the property of the EMPLOYER or any third party including overhead and underground cables and in the event of any damage resulting to the property of the EMPLOYER or of a third party during the movement of the aforesaid plant, equipment or materials the cost of such damages including eventual loss of production, operation or services in any plant or establishment as estimated by the EMPLOYER or ascertained or demanded by the third party shall be borne by the CONTRACTOR. Third party liability risk shall be Rupees One lakh for single accident and limited to Rupees Ten lakhs.
- iii) The CONTRACTOR shall indemnify and keep the EMPLOYER harmless of all claims for damages to property other than EMPLOYER's property arising under or by reason of this agreement, if such claims result from the fault and/or negligence or willful acts or omission of the CONTRACTOR, his employees, agents, representative of SUB-CONTRACTOR.

SECTION-VIII Labour Laws

103 Labour laws:

- 103.1 i) No labour below the age of 18 (eighteen) years shall be employed on the WORK.
- ii) The CONTRACTOR shall not pay less than what is provided under law to labourers engaged by him on the WORK.
- iii) The CONTRACTOR shall at his expense comply with all labour laws and keep the EMPLOYER indemnified in respect thereof.
- iv) The CONTRACTOR shall pay equal wages for men and women in accordance with applicable labour laws.
- v) If the CONTRACTOR is covered under the Contract labour (Regulation and Abolition) Act, he shall obtain a license from licensing authority (i.e. office of the labour commissioner) by payment of necessary prescribed fee and the deposit, if any, before starting the WORK under the CONTRACT. Such fee/deposit shall be borne by the CONTRACTOR.
- vi) The CONTRACTOR shall employ labour in sufficient numbers either directly or through SUB- CONTRACTOR's to maintain the required rate of progress and of quality to ensure workmanship of the degree specified in the CONTRACT and to the satisfaction of the ENGINEER-IN-CHARGE.
- vii) The CONTRACTOR shall furnish to the ENGINEER-IN-CHARGE the distribution return of the number and description, by trades of the work people employed on the works. The CONTRACTOR shall also submit on the 4th and 19th of every month to the ENGINEER-IN-CHARGE a true statement showing in respect of the second half of the preceding month and the first half of the current month (1) the accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them and (2) the number of female workers who have been allowed Maternity Benefit as provided in the Maternity Benefit Act 1961



on Rules made thereunder and the amount paid to them.

- viii) The CONTRACTOR shall comply with the provisions of the payment of Wage Act 1936, Employee Provident Fund Act 1952, Minimum Wages Act 1948. Employers Liability Act 1938. Workmen's Compensation Act 1923, Industrial Disputes Act 1947, the Maternity Benefit Act 1961 and Contract Labour Regulation and Abolition Act 1970, Employment of Children Act 1938 or any modifications thereof or any other law relating thereto and rules made thereunder from time to time.
- ix) The ENGINEER-IN-CHARGE shall on a report having been made by an Inspecting Officer as defined in Contract Labour (Regulation and Abolition) Act 1970 have the power to deduct from the money due to the CONTRACTOR any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non- fulfilment of the Conditions of the Contract for the benefit of workers, non-payment of wages or of deductions made from his or their wages which are not justified by the terms of the Contract or non-observance of the said regulations.
- x) The CONTRACTOR shall indemnify the EMPLOYER against any payments to be made under and for the observance of the provisions of the aforesaid Acts without prejudice to his right to obtain indemnity from his SUB-CONTRACTOR's. In the event of the CONTRACTOR committing a default or breach of any of the provisions of the aforesaid Acts as amended from time to time, of furnishing any information or submitting or filling and Form/ Register/ Slip under the provisions of these Acts which is materially incorrect then on the report of the inspecting Officers, the CONTRACTOR shall without prejudice to any other liability pay to the EMPLOYER a sum not exceeding Rs.50.00 as Liquidated Damages for every default, breach or furnishing, making, submitting, filling materially incorrect statement as may be fixed by the ENGINEER-IN- CHARGE and in the event of the CONTRACTOR's default continuing in this respect, the Liquidated Damages may be enhanced to Rs.50.00 per day for each day of default subject to a maximum of one percent of the estimated cost of the WORK put to tender. The ENGINEER-IN-CHARGE shall deduct such amount from bills or Contract Performance Security of the CONTRACTOR and credit the same to the Welfare Fund constitute under these acts. The decision of the ENGINEER-IN-CHARGE in this respect shall be final and binding.

104 Implementation of apprentices act, 1961:

- 104.1 The CONTRACTOR shall comply with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the CONTRACT and the ENGINEER-IN-CHARGE may, at his discretion, cancel the CONTRACT. The CONTRACTOR shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions, of the Act.



105 Contractor to indemnify the employer:

105.1 i) The CONTRACTOR shall indemnify the EMPLOYER and every member, office and employee of the EMPLOYER, also the ENGINEER-IN-CHARGE and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever arising out of or in connection with the matters referred to in Clause 102.0 and elsewhere and all actions, proceedings, claims, demands, costs and expenses which may be made against the EMPLOYER for or in respect of or arising out of any failure by the CONTRACTOR in the performance of his obligations under the CONTRACT DOCUMENT. The EMPLOYER shall not be liable for or in respect of or arising out of any failure by the CONTRACTOR in the performance of his obligations under the CONTRACT DOCUMENT. The EMPLOYER shall not be liable for or in respect of any

demand or compensation payable by law in respect or in consequence of any accident or injury to any workmen or other person. In the employment of the CONTRACTOR or his SUB-CONTRACTOR the CONTRACTOR shall indemnify and keep indemnified the EMPLOYER against all such damages and compensations and against all claims, damages, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

ii) PAYMENT OF CLAIMS AND DAMAGES:

Should the EMPLOYER have to pay any money in respect of such claims or demands as aforesaid the amount so paid and the costs incurred by the EMPLOYER shall be charged to and paid by the CONTRACTOR and the CONTRACTOR shall not be at liberty to dispute or question the right of the EMPLOYER to make such payments notwithstanding the same, may have been made without the consent or authority or in law or otherwise to the contrary.

iii) In every case in which by virtue of the provisions of Section 12, Sub-section (i) of workmen's compensation Act, 1923 or other applicable provision of Workmen Compensation Act or any other Act, the EMPLOYER is obliged to pay compensation to a workman employed by the CONTRACTOR in execution of the WORK, the EMPLOYER will recover from the CONTRACTOR the amount of the compensation so paid, and without prejudice to the rights of EMPLOYER under Section 12, Sub- section (2) of the said act, EMPLOYER shall be at liberty to recover such amount or any part thereof by deducting it from the Contract Performance Security or from any sum due to the CONTRACTOR whether under this CONTRACT or otherwise. The EMPLOYER shall not be bound to contest any claim made under Section 12, Sub-section (i) of the said act, except on the written request of the CONTRACTOR and upon his giving to the EMPLOYER full security for all costs for which the EMPLOYER might become liable in consequence of contesting such claim.



- 106.1 **Health and sanitary arrangements for workers:** In respect of all labour directly or indirectly employed in the WORKS for the performance of the CONTRACTOR's part of this agreement, the CONTRACTOR shall comply with or cause to be complied with all the rules and regulations of the local sanitary and other authorities or as framed by the EMPLOYER from time to time for the protection of health and sanitary arrangements for all workers.
- 106.2 The CONTRACTOR shall provide in the labour colony all amenities such as electricity, water and other sanitary and health arrangements. The CONTRACTOR shall also provide necessary surface transportation to the place of work and back to the colony for their personnel accommodated in the labour colony.

SECTION-IX Applicable Laws and Settlement of Disputes

107 Arbitration:

107.1 Unless otherwise specified, the matters where decision of the Engineer-in-Charge is deemed to be final and binding as provided in the Agreement and the issues/disputes which cannot be mutually resolved within a reasonable time, all disputes shall be referred to arbitration by Sole Arbitrator.

The Employer [RSGL] shall suggest a panel of three independent and distinguished persons to the bidder/contractor/supplier/buyer (as the case may be) to select any one among them to act as the Sole Arbitrator.

In the event of failure of the other parties to select the Sole Arbitrator within 30 days from the receipt of the communication suggesting the panel of arbitrators, the right of selection of the sole arbitrator by the other party shall stand forfeited and the EMPLOYER (RSGL) shall have discretion to proceed with the appointment of the Sole Arbitrator. The decision of Employer on the appointment of the sole arbitrator shall be final and binding on the parties.

The award of sole arbitrator shall be final and binding on the parties and unless directed/awarded otherwise by the sole arbitrator, the cost of arbitration proceedings shall be shared equally by the parties. The Arbitration proceedings shall be in English language and venue shall be Jaipur

Subject to the above, the provisions of (Indian) Arbitration & Conciliation ACT 1996 and the Rules framed there under shall be applicable. All matter relating to this contract are subject to the exclusive jurisdiction of the court situated at Jaipur

Bidders/suppliers/contractors may please note that the Arbitration & Conciliation Act 1996 was enacted by the Indian Parliament and is based on United Nations Commission on International Trade Law (UNCITRAL model law), which were prepared after extensive consultation with Arbitral Institutions and centers of International Commercial Arbitration. The United Nations General Assembly vide resolution 31/98 adopted the UNCITRAL Arbitration rules on 15 December 1976.

107.2 FOR THE SETTLEMENT OF DISPUTES BETWEEN GOVERNMENT DEPARTMENT AND ANOTHER AND ONE GOVERNMENT DEPARTMENT AND PUBLIC ENTERPRISE AND ONE PUBLIC ENTERPRISE AND ANOTHER THE ARBITRATION SHALL BE AS FOLLOWS:

"In the event of any dispute or difference between the parties hereto, such dispute or difference shall be resolved amicably by mutual consultation or through the good offices of empowered agencies of the Government. If such resolution is not possible, then, the unresolved dispute or difference shall be referred to arbitration of an arbitrator to be nominated by Secretary, Department of Legal Affairs ("Law Secretary") in terms of the Office Memorandum No.55/3/1/75-CF, dated the 19th December 1975 issued by the Cabinet Secretariat (Department of



Cabinet Affairs), as modified from time to time. The Arbitration Act 1940 (10 of 1940) shall not be applicable to the arbitration under this clause. The award of the Arbitrator shall be binding upon parties to the dispute. Provided, however, any party aggrieved by such

award may make a further reference for setting aside or revision of the award to Law Secretary whose decision shall bind the parties finally and conclusively.

108 Jurisdiction:

The CONTRACT shall be governed by and constructed according to the laws in force in INDIA. The CONTRACTOR hereby submits to the jurisdiction of the Courts situated at JAIPUR for the purposes of disputes, actions and proceedings arising out of the CONTRACT, the courts at JAIPUR only will have the jurisdiction to hear and decide such disputed, actions and proceedings.

SECTION-X Safety Codes

109 General:

109.1 CONTRACTOR shall adhere to safe construction practice and guard against hazardous, and unsafe working conditions and shall comply with EMPLOYER's safety rules as set forth herein. Prior to start of construction, CONTRACTOR will be furnished copies of EMPLOYER's "Safety Code" for information and guidance, if it has been prepared.

110 Safety regulations:

110.1 i) In respect of all labour, directly employed in the WORK for the performance of CONTRACTOR's part of this agreement, the CONTRACTOR shall at his own expense arrange for all the safety provisions as per safety codes of C.P.W.D., Indian Standards Institution. The Electricity Act, The Mines Act and such other acts as applicable.

ii) The CONTRACTOR shall observe and abide by all fire and safety regulations of the EMPLOYER. Before starting construction work CONTRACTOR shall consult with EMPLOYER's safety Engineers or ENGINEER- IN-CHARGE and must make good to the satisfaction of the EMPLOYER any loss or damage due to fire to any portion of the work done or to be done under this agreement or to any of the EMPLOYER's existing property.

111 First aid and industrial injuries:

111.0 i) CONTRACTOR shall maintain first aid facilities for its employees and those of its SUB-CONTRACTOR.

ii) CONTRACTOR shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Names of those providing these services shall be furnished to EMPLOYER prior to start of construction and their telephone numbers shall be prominently posted in CONTRACTOR's field office.

iii) All critical industrial injuries shall be reported promptly to EMPLOYER, and a copy of CONTRACTOR's report covering each personal injury requiring the attention of a physician shall be furnished to the EMPLOYER.

112 General rules:

112.0 Smoking within the battery area, tank farm or dock limits is strictly prohibited. Violators of the no smoking rules shall be discharged immediately.

113 Contractor's barricades:

113.0 i) CONTRACTOR shall erect and maintain barricades required in connection with his operation to



guard or protect:-

- a) Excavations
- b) Hoisting Areas.
- c) Areas adjudged hazardous by CONTRACTOR's or EMPLOYER's inspectors.
- d) EMPLOYER's existing property subject to damage by CONTRACTOR's Operations.
- e) Rail Road unloading spots.
- ii) CONTRACTOR's employees and those of his SUB-CONTRACTOR's shall become acquainted with EMPLOYER's barricading practice and shall respect the provisions thereof.
- iii) Barricades and hazardous areas adjacent to, but not located in normal routes of travel shall be marked by red flasher lanterns at nights.

114 Scaffolding:

114.1

- i) Suitable scaffolding should be provided for workmen for all works that cannot safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra Mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying material as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than 1 in 4 (1 horizontal and 4 vertical).
- ii) Scaffolding or staging more than 4 metres above the ground or floor, swing suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise retarded at least one metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
- iii) Working platform, gangway and stairway should be so constructed that they should not sag unduly or unequally and if the height of platform of the gangway or the stairway is more than 4 metres above the ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as in ii) above.
- iv) Every opening in the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum heights shall be 1 metre.
- v) Safe-means of access shall be provided to all



working platforms and other working places, every ladder shall be securely fixed. No portable single ladder shall be over 9 metres in length while the width between side rails in rung ladder shall in no case be less than 30 cms for ladder upto and including 3 metres in length. For longer ladder this width should be increased 5mm for each additional foot of length. Uniform steps spacing shall not exceed 30 cms. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed to cause danger or inconvenience to any person or public. The CONTRACTOR shall also provide all necessary fencing and lights to protect the workers and staff from accidents, and shall be bound to bear the expenses of defense of every suit, action or other proceeding of law that may be brought by any person for injury sustained owing to neglect of the above precautions and pay any damages and costs which may be awarded in any such suit or action or proceeding to any such person or which may with the consent of the CONTRACTOR be paid to compromise any claim by any such person.

115 Excavation and trenching:

- 115.1 All trenches 1.2 metres or more in depth, shall at all times be supplied with at least one ladder for each 50 metres length or fraction thereof.

Ladder shall be extended from bottom of the trenches to at least 1 metre above the surface of the ground. The sides of the trenches which are 1.5M in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5 metres of the edge of the trench or half of the trench width whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

116 Demolition/general safety:

- 116.1
- i) Before any demolition work is commenced and also during the progress of the demolition work
 - a) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
 - b) No electric cable or apparatus which is liable to be a source of danger shall remain electrically charged.
 - c) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
 - ii) All necessary personal safety equipment as considered adequate by the ENGINEER-IN-CHARGE, should be kept available for the use of the persons employed on the SITE and maintained in condition suitable for immediate use, and the CONTRACTOR shall take adequate steps to ensure proper use of equipment by those concerned.



- a) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.
- b) Those engaged in white washing and mixing or stacking or cement bags or any material which are injurious to the eyes be provided with protective goggles.
- c) Those engaged in welding and cutting works shall be provided with protective face & eye shield, hand gloves, etc.
- d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- e) When workers are employed in sewers and manholes, which are in use, the CONTRACTOR shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or board to prevent accident to the public.
- f) The CONTRACTOR shall not employ men below the age of 18 years and women on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be taken.
 - 1) No paint containing lead or lead product shall be used except in the form of paste or readymade paint.
 - 2) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scrapped.
 - 3) Overalls shall be supplied by the CONTRACTOR to the workmen and adequate facilities shall be provided to enable the working painters to wash them during and on cessation of work.
- iii) When the work is done near any place where there is risk of drowning, all necessary safety equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
- iv) Use of hoisting machines and tackles including their attachments, anchorage and supports shall conform to the



following standards or conditions:

- a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defect and shall be kept in good working order.
- b) Every rope used in hoisting or lowering materials or as means of suspension shall be of durable quality and adequate strength and free from patent defects.
- c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding, winch or give signals to the operator.
- d) In case of every hoisting machine and of every chain ring hook, shackle, swivel, and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gears referred to above shall be plainly marked with the safe working load of the conditions under which it is applicable and the same shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond safe working load except for the purpose of testing.
- e) In case of departmental machine, the safe working load shall be notified by the ENGINEER- IN-CHARGE. As regards CONTRACTOR's machines, the CONTRACTOR shall notify the safe working load of the machine to the ENGINEER-IN-CHARGE whenever he brings any machinery to SITE of WORK and get it verified by the Engineer concerned.
- v) Motors, gears, transmission lines, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as to reduce to minimum the accidental descent of the load, adequate precautions should be taken to reduce the minimum risk of any part or parts of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energised, insulating mats, wearing apparel, such as gloves, sleeves, and boots as may be necessary should be provided. The workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
- vi) All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions and no scaffolds, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.
- vii) These safety provisions should be brought to the notice of all concerned by displaying on a notice board at a

prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the CONTRACTOR.

viii) To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the CONTRACTOR shall be open to inspection by the Welfare Officer, ENGINEER-IN-CHARGE or safety Engineer of the Administration or their representatives.

ix) Notwithstanding the above clauses there is nothing in these to exempt the CONTRACTOR for the operations of any other Act or rules in force in the Republic of India. The work throughout including any temporary works shall be carried out in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpath at the site or in the vicinity thereto or any existing works whether the property of the Administration or of a third party.

In addition to the above, the CONTRACTOR shall abide by the safety code provision as per C.P.W.D. Safety code and Indian Standard Safety Code from time to time.

117	Care in handling inflammable gas:	117.1	The CONTRACTOR has to ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinder/inflammable liquids/paints etc. as required under the law and/or as advised by the fire Authorities of the EMPLOYER
118	Temporary combustible structures:	118.1	Temporary combustible structures will not be built near or around work site.
119	Precautions against fire:	119.1	The CONTRACTOR will have to provide Fire Extinguishers, Fire Buckets and drums at worksite as recommended by ENGINEER-IN-CHARGE. They will have to ensure all precautionary measures and exercise utmost care in handling the inflammable gas cylinders/ inflammable liquid/ paints etc. as advised by ENGINEER-IN-CHARGE. Temporary combustible structures will not be built near or around the work-site.
120	Explosives:	120.1	Explosives shall not be stored or used on the WORK or on the SITE by the CONTRACTOR without the permission of the ENGINEER-IN-CHARGE in writing and then only in the manner and to the extent to which such permission is given. When explosives are required for the WORK they will be stored in a special magazine to be provided at the cost of the CONTRACTOR in accordance with the Explosives Rules. The CONTRACTOR shall obtain the necessary license for the storage and the use of explosives and all operations in which or for which explosives are employed shall be at sole risk and responsibility of the CONTRACTOR and the CONTRACTOR shall indemnify the EMPLOYER against any loss or damage resulting directly or indirectly there from.
121	Mines act:	121.1	SAFETY CODE: The CONTRACTOR shall at his own expense arrange for the safety provisions as required by the ENGINEER-IN-CHARGE in respect of all labour directly employed



for performance of the WORKS and shall provide all facilities in connection therewith. In case the CONTRACTOR fails to make arrangements and provides necessary facilities as aforesaid, the ENGINEER-IN- CHARGE shall be entitled to do so and recover the costs thereof from the CONTRACTOR.

121.2 Failure to comply with Safety Code or the provisions relating to report on accidents and to grant of maternity benefits to female workers shall make the CONTRACTOR liable to pay Company Liquidated Damages an amount not exceeding Rs.50/- for each default or materially incorrect statement. The decision of the ENGINEER-IN-CHARGE in such matters based on reports from the Inspecting Officer or from representatives of ENGINEER-IN-CHARGE shall be final and binding and deductions for recovery of such Liquidated Damages may be made from any amount payable to the CONTRACTOR from all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof the time being in force and any Rules and Regulations made thereunder in respect of all the persons employed by him under this CONTRACT and shall indemnify the EMPLOYER from and against any claim under the Mines Act or the rules and regulations framed thereunder by or on behalf of any persons employed by him or otherwise.

122 Preservation of peace:

122.1 The CONTRACTOR shall take requisite precautions and use his best endeavour to prevent any riotous or unlawful behaviour by or amongst his worker and others employed or the works and for the preservation of peace and protection of the inhabitants and security of property in the neighbourhood of the WORK. In the event of the EMPLOYER requiring the maintenance of a Special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the CONTRACTOR and if paid by the EMPLOYER shall be recoverable from the CONTRACTOR.

123 Outbreak of infectious diseases:

123.1 The CONTRACTOR shall remove from his camp such labour and their facilities who refuse protective inoculation and vaccination when called upon to do so by the ENGINEER-IN-CHARGE's representative. Should Cholera, Plague or other infectious diseases break out the CONTRACTOR shall burn the huts, beddings, clothes and other belongings or used by the infected parties and promptly erect new huts on healthy sites as required by the ENGINEER-IN-CHARGE failing which within the time specified in the Engineer's requisition, the work may be done by the EMPLOYER and the cost thereof recovered from the CONTRACTOR.

124 Use of intoxicants:

124.1 The unauthorised sale of spirits or other intoxicants, beverages upon the work in any of the buildings, encampments or tenements owned, occupied by or within the control of the CONTRACTOR or any of his employee is forbidden and the CONTRACTOR shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

In addition to the above, the CONTRACTOR shall abide by the safety code provision as per C.P.W.D. safety code and Indian Standard Code framed from time to time.



ATTACHMENT – I

**INDEMNITY BOND FOR FREE ISSUE ITEMS
SUPPLY**



PROFORMA OF INDEMNITY BOND FOR SUPPLY OF MATERIALS BY EMPLOYER

(To be executed on non-judicial stamped paper of appropriate value)

WHEREAS RSGL (hereinafter referred to as RSGL) which expression shall unless repugnant to the context includes their legal representatives, successors and assigns having their Registered office at Rajasthan State Gas Ltd., Room no. 303, Khaniz Bhawan, Tilak Marg, C- Scheme, Jaipur - 302005 has entered into a CONTRACT with (hereinafter referred to as the CONTRACTOR which expression shall unless repugnant to the context include their legal representatives, successors and assigns) for..... on the terms and conditions as set out, inter-alia, in the CONTRACT No..... Dated and various documents forming part thereof hereinafter collectively referred to as the "CONTRACT" which expression shall include all amendments, modifications and/or variations thereto.

AND WHEREAS

- i) RSGL has agreed to supply to the CONTRACTOR, equipment, plants and materials (finished, semi-finished and raw) for the purpose of EXECUTION of the said CONTRACT by the CONTRACTOR (the equipment, plants and materials to be supplied by RSGL to the CONTRACTOR, hereinafter for the sake of brevity referred to as the "said materials") and pending execution by the CONTRACTOR of the CONTRACT incorporating the said materials, the said materials shall be under the custody and charge of the CONTRACTOR and shall be kept, stored, altered, worked upon and/or fabricated at the sole risk and expense of the CONTRACTOR.
- ii) As a pre-condition to the supply of the said materials by RSGL to the CONTRACTOR, RSGL has required the CONTRACTOR to furnish to RSGL an Indemnity Bond in the manner and upon terms and conditions hereinafter indicated.

NOW, THEREFORE, in consideration of the premises aforesaid the CONTRACTOR hereby irrevocably and unconditionally undertakes to indemnify and keep indemnified RSGL from and against all loss, damage and destruction (inclusive but not limited to any or all loss or damage or destruction to or of the said materials or any item or part thereof by theft, pilferage, fire, flood, storm, tempest, lightning, explosion, storage, chemical or physical action or reaction, binding, warping, exposure, rusting, faulty workmanship, faulty fabrication, or faulty method or technique of fabrication, strike, riot, civil commotion, or other act or omission or commission whatsoever within or beyond the control of the CONTRACTOR, misuse and misappropriation (inclusive but not limited to the misuse or misappropriation by the CONTRACTOR and the Contractor's servants and/or agents) whatsoever to, or of in the said materials or any part of them thereof from the date that the same or relative part of item thereof was supplied to the CONTRACTOR upto and until the date of return to RSGL of the said materials or relative part of item thereof or completed fabricated works(s) incorporating the said material and undertake to pay to RSGL forthwith on demand in writing without protest or demur the value as specified by RSGL of the said material or item or part thereof, lost, damaged, destroyed, misused and/or misappropriated, as the case may be or, together with RSGL's costs and expenses (inclusive of but not limited to handling, transportation, cartage, insurance, freight, packing and inspection costs/or expenses upto) and aggregate limit of

Rs. _____

(Rupees)

_____).

AND THE CONTRACTOR hereby agrees with RSGL that:

- i) This Indemnity/Undertaking shall be a continuing Indemnity/ Undertaking and shall remain valid and irrevocable for all claims of RSGL arising hereunder up to and until the midnight of _____. However, if the CONTRACT for which this Indemnity/Undertaking is given is not completed by this date, the CONTRACTOR hereby agrees to extend the Indemnity/Undertaking till such time as is required to fulfil the CONTRACT.
- ii) This Indemnity/Undertaking shall not be determined by any change in constitution or upon insolvency of the CONTRACTOR but shall be in all respects and for all purposes be binding and operative until payment of all moneys payable to RSGL in terms of hereof.
- iii) The mere statement of allegation made by or on behalf of RSGL in any notice or demand or other writing addressed to the CONTRACTOR as to any of the said material or item or part thereof having been lost , damaged, destroyed, misused or misappropriated while in the custody of the CONTRACTOR and/or prior to completion of the completed fabricated work(s) and delivery to job site thereof incorporating the said materials shall be conclusive of the factum of the said material or item or part thereof having been supplied to the CONTRACTOR and/or the loss, damage, destruction, misuse or misappropriation thereof, as the case may be, while in the custody of the CONTRACTOR and/or prior to the completion of the completed fabricated work(s) and delivery to job site thereof incorporating the said materials without necessity on the part of RSGL to produce any documentary proof or other evidence whatsoever in support of this.
- iv) The amount stated in any notice of demand addressed by RSGL to the CONTRACTOR as to the value of such said materials lost, damaged, destroyed, misused or misappropriated, inclusive relative to the costs and expenses incurred by RSGL in connection therewith shall be conclusive of the value of such said materials and the said cost and expenses as also of the amount liable to be paid to RSGL to produce any voucher, bill or other documentation or evidence whatsoever in support thereof and such amount shall be paid without any demur and on demand and no dispute shall be raised concerning the same.

The undersigned has full power to execute this Indemnity Bond on behalf of the CONTRACTOR under the Power of Attorney dated_____.

(SIGNED BY COMPETENT AUTHORITY)

Place:

Dated:

Official seal of the CONTRACTOR



ATTACHMENT – II

CONTRACT AGREEMENT



PROFORMA FOR CONTRACT AGREEMENT

LOA No. RSGL/

dated -----

Contract Agreement for the work of ----- of RSGL made on ----- between (Name and Address)-----, hereinafter called the "CONTRACTOR" (which term shall unless excluded by or repugnant to the subject or context include its successors and permitted assignees) of the one part and RSGL hereinafter called the "EMPLOYER" (which term shall, unless excluded by or repugnant to the subject or context include its successors and assignees) of the other part.

WHEREAS

- A. The EMPLOYER being desirous of having provided and executed certain work mentioned, enumerated or referred to in the Tender Documents including Letter Inviting Tender, General Tender Notice, General Conditions of Contract, Special Conditions of Contract, Specifications, Drawings, Plans, Time Schedule of completion of jobs, Schedule of Rates, Agreed Variations, other documents has called for Tender.
- B. The CONTRACTOR has inspected the SITE and surroundings of WORK specified in the Tender Documents and has satisfied himself by careful examination before submitting his tender as to the nature of the surface, strata, soil, sub-soil and ground, the form and nature of site and local conditions, the quantities, nature and magnitude of the work, the availability of labour and materials necessary for the execution of work, the means of access to SITE, the supply of power and water thereto and the accommodation he may require and has made local and independent enquiries and obtained complete information as to the matters and thing referred to, or implied in the tender documents or having any connection therewith and has considered the nature and extent of all probable and possible situations, delays, hindrances or interferences to or with the execution and completion of the work to be carried out under the CONTRACT, and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and ancillary thereof affecting the execution and completion of the WORK and which might have influenced him in making his tender.
- C. The Tender Documents including the Notice Letter Inviting Tender, General Conditions of Contract, Special Conditions of Contract, Schedule of Rates, General Obligations, SPECIFICATIONS, DRAWINGS, PLANS, Time Schedule for completion of Jobs, Letter of Acceptance of Tender and any statement of agreed variations with its enclosures copies of which are hereto annexed form part of this CONTRACT though separately set out herein and are included in the expression "CONTRACT" wherever herein used.

AND WHEREAS

The EMPLOYER accepted the Tender of the CONTRACTOR for the provision and the execution of the said WORK at the rates stated in the schedule of quantities of the work and finally approved by EMPLOYER (hereinafter called the "Schedule of Rates") upon the terms and subject to the conditions of CONTRACT.



NOW THIS AGREEMENT WITNESSETH AND IT IS HEREBY AGREED AND DECLARED AS FOLLOWS:-

1. In consideration of the payment to be made to the CONTRACTOR for the WORK to be executed by him, the CONTRACTOR hereby covenants with EMPLOYER that the CONTRACTOR shall and will duly provide, execute and complete the said work and shall do and perform all other acts and things in the CONTRACT mentioned or described or which are to be implied there from or maybe reasonably necessary for the completion of the said WORK and at the said times and in the manner and subject to the terms and conditions or stipulations mentioned in the contract.
2. In consideration of the due provision execution and completion of the said WORK, EMPLOYER does hereby agree with the CONTRACTOR that the EMPLOYER will pay to the CONTRACTOR the respective amounts for the WORK actually done by him and approved by the EMPLOYER at the Schedule of Rates and such other sum payable to the CONTRACTOR under provision of CONTRACT, such payment to be made at such time in such manner as provided for in the CONTRACT.

A N D

3. In consideration of the due provision, execution and completion of the said WORK the CONTRACTOR does hereby agree to pay such sums as may be due to the EMPLOYER for the services rendered by the EMPLOYER to the CONTRACTOR, such as power supply, water supply and others as set for in the said CONTRACT and such other sums as may become payable to the EMPLOYER towards the controlled items of consumable materials or towards loss, damage to the EMPLOYER'S equipment, materials construction plant and machinery, such payments to be made at such time and in such manner as is provided in the CONTRACT.

It is specifically and distinctly understood and agreed between the EMPLOYER and the CONTRACTOR that the CONTRACTOR shall have no right, title or interest in the SITE made available by the EMPLOYER for execution of the works or in the building, structures or work executed on the said SITE by the CONTRACTOR or in the goods, articles, materials etc., brought on the said SITE (unless the same specifically belongs to the CONTRACTOR) and the CONTRACTOR shall not have or deemed to have any lien whatsoever charge for unpaid bills will not be entitled to assume or retain possession or control of the SITE or structures and the EMPLOYER shall have an absolute and unfettered right to take full possession of SITE and to remove the CONTRACTOR, their servants, agents and materials belonging to the CONTRACTOR and lying on the SITE.

The CONTRACTOR shall be allowed to enter upon the SITE for execution of the WORK only as a licensee simpliciter and shall not have any claim, right, title or interest in the SITE or the structures erected thereon and the EMPLOYER shall be entitled to terminate such license at any time without assigning any reason.



The materials including sand, gravel, stone, loose, earth, rock etc., dug up or excavated from the said SITE shall, unless otherwise expressly agreed under this CONTRACT, exclusively belong to the EMPLOYER and the CONTRACTOR shall have no right to claim over the same and such excavation and materials should be disposed off on account of the EMPLOYER according to the instruction in writing issued from time to time by the ENGINEER-IN-CHARGE.

In Witness whereof the parties have executed these presents in the day and the year first above written.

Signed and Delivered for and on
behalf of EMPLOYER.

Signed and Delivered for and
on behalf of the CONTRACTORS.

RSGL

(NAME OF THE CONTRACTOR)

Date : _____

Date : _____

Place: _____

Place: _____

IN PRESENCE OF TWO WITNESSES

1. _____

1. _____

2. _____

2. _____

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SPECIAL CONDITIONS OF CONTRACT

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1, **GENERAL**

- 1.0 Special conditions of contract (SCC) shall be read in conjunction with the General Conditions of Contract (GCC). Schedule of rates, specifications of work, drawings and any other document forming part of this contract wherever the context so requires.
- 1.1 Notwithstanding the sub-division of the document into these separate sections and volumes, every part of each with and into the contract so far as it may be practicable to do so.
- 1.2 Where any portion of the GCC is repugnant to or at variance with any provisions of the special conditions of contract, then unless a different intention appears, the provision(s) of the special conditions of contract shall be deemed to override the provision(s) of GCC only to the extent that such repugnancies of variations in the special conditions of contract are not possible of being reconciled with the provisions of GCC.
- 1.3 Wherever it is stated in this Bidding Document that such and such a supply is to be effected or such and such a work is to be carried out, it shall be understood that the same shall be effected/carried out by the contractor at his own cost, unless a different intention is specifically and expressly stated herein or otherwise explicit from the context. Contract value (also referred to as Contract price) shall be deemed to have included such cost.
- 1.4 The materials, design and workmanship shall satisfy the applicable relevant Indian Standards, the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any Standard/ Specifications/codes of practice for detailed specifications covering any part of the work covered in this Bidding on the contractor.
- 1.6 In partial modification to Clause No. 21.0 of GCC the following shall apply:
- In case of contradiction between Indian or other applicable Standards, General Conditions of Contract, Special Conditions of Contract, Specifications, drawings, Schedule of Rates, the following shall prevail in order of precedence:
- i) Letter of acceptance along with statement of Agreed variations.
 - ii) Fax / Letter of Intent / Fax of Acceptance
 - iii) Schedule of Rates as enclosures to letter of acceptance
 - iv) Job / Particular Specifications
 - v) Drawings
 - vi) Technical / Material Specifications
 - vii) Special Conditions of Contract
 - viii) General Conditions of Contract
 - ix) Indian Standards
 - x) Other Applicable Standards
- 1.7 It will be contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) of making the supply with reference which the conflict exists.

In the absence of any specifications covering any material, design of work(s)

in the same shall be performed / supplies / executed in accordance with Standards Engineering Practice as per the instructions / directions of the Engineer-in-charge, which will be binding on the Contractor.

- 1.8 The requirements of any statutory body and authority like Indian boiler regulation, Tariff Advisory Committee, Chief controller of Explosives, etc, shall govern where these are more stringent than the requirements specified above.

- 1.9 Owner's representative means authorized representative of RSGL.

2.0 THE WORK

2.1 Scope of work

The scope of work covered in this Contract will be as described in **Annexure- 1** to SCC at Particular job specifications, Standard Specifications, Schedule of Rates etc.

2.2.1 Scope of Supply

The scope of supply covered in this Contract will be as described in **Annexure- 2** to SCC Particular Job Specifications, Standard Specifications, Schedule of Rates etc.

2.3 Time schedule

- 2.3.1 The work shall be executed strictly as per time schedule given in **Annexure-3** to SCC. The period of completion given includes the time required for mobilization as well as testing, rectifications, if any, retesting, demobilization and completion in all respects to the satisfaction of the Engineer-in-Charge.

- 2.3.2 A joint program of execution of work will be prepared by the Engineer-in- Charge and Contractor. This program will take into account the time of completion mentioned in 2.3.1 above.

- 2.3.3 Monthly/Weekly execution program will be drawn up by the Engineer-in- Charge jointly with the Contractor based on availability of materials, work fronts and the joint program of execution as referred to above. The contractor shall scrupulously adhere to the Targets/Programs by deploying adequate personnel Construction Equipment, Tools and Tackles and also by timely supply of required materials coming within his scope of supply as per Contract. In all matters concerning the extent of target set out in the weekly/monthly program and the degree of achievement, the decision of the Engineer- in- Charge will be final and binding on the Contractor.

- 2.3.4 Contractor shall give every day category-wise labour and equipment deployment report along with the progress of work done on previous day in the proforma prescribed by the Engineer-in-Charge.

2.4 Measurement of Works

In addition to the provisions of Clause 88.1 of the General Conditions of Contract and associated provisions thereof, the provisions of **Annexure – 4** to SCC shall apply.

2.5 Terms of Payment

Terms of Payment will be as specified in **Annexure – 5** to SCC.

2.6 Temporary Works

All temporary works, ancillary works, enabling works, including dewatering of surface and subsoil water, temporary drains at the work site, preparing approaches to working areas, wherever required, for execution of the work, shall be the responsibility of Contractor.

2.7 Temporary Fencing

The Contractor shall, at his own costs and expenses, erect and maintain in good condition temporary fences and gates along the boundaries of the site assigned to him wherever required as per instruction of Engineer-in-charge. Wherever trenching is being done specially at crossing site near habitation and public movement. The contractor shall provide barricading as per sketch enclosed and provide proper night light as per requirement and to the satisfaction of EIC. The Contractor shall, except when authorized by the Engineer-in-Charge, confine his men, materials and plant etc. within the site of which he is given possession. The Contractor shall not use any part of the site for purpose not connected with the works unless prior written permission or consent of the Owner/Engineer-in-Charge has been obtained. Access to site shall be made only through the approved gateways. The Contractor shall maintain sufficient watchmen at site to the satisfaction of the Owner/Engineer-in-Charge.

2.8 Contractor's Temporary Structure

The Contractor may, at his own costs and expenses and subject to the approval of the Engineer-in-Charge and statutory authorities, construct offices, stores, workshop and remove the same as per the orders of the Engineer-in-Charge on completion of the contract. Whenever required the Contractor shall furnish such details of his temporary works as may be called for by the Owner/Engineer-in-Charge as to their safety and efficiency. The Owner/Engineer-in-Charge may direct those temporary works which he considers unsafe or, inefficient be removed and replaced in a satisfactory manner. The Contractor shall immediately follow Owner/Engineer-in-Charge's direction/instruction, on maintenance of all the Equipments and he shall ensure that they are suitable for the work and is maintained in such a manner as to ensure their efficient working. The Owner/Engineer-in-Charge, may if they deem fit, direct the Contractor to remove from site any equipment which are not efficient and/or prejudicial to the quality of work to be replaced by equipment to their satisfaction. The Contractor shall immediately follow Owner/Engineer-in-Charge's direction/instruction.

2.9 Statutory Approvals

- 2.9.1 All associated activities required for obtaining necessary clearances, approvals, all licenses from all concerned authorities in respect of pipeline crossing & all related works shall be the responsibility of the Contractor and the cost of the same shall be deemed to have been included in the quoted prices.

The approval from any authority required as per statutory rules and regulations of Central/State Government shall be the Contractor's responsibility unless otherwise specified in the Bidding Document. The application on behalf of the Owner for submission to relevant authorities along with copies of required certificate complete in all respects shall be prepared and submitted by the Contractor well ahead of time so that the actual construction of the work is not delayed for want of the approval/ inspection by concerned

authorities. The inspection of the works by the authorities shall be arranged by the Contractor and necessary coordination and liaison work in this respect shall be the responsibility of the Contractor. However statutory fees paid, if any, for all inspections and approvals by such authorities shall be reimbursed at actual by the Owner to the Contractor on production of documentary evidence.

Any change/addition required to be made to meet the requirements of the statutory authorities shall be carried out by the Contractor free of charge. The inspection and acceptance of the work by statutory authorities shall however, not absolve the Contractor from any of his responsibilities under this Contract.

2.10 Quality Assurance

2.10.1 Bidder shall include in his offer the quality assurance programme containing the overall quality management and procedures, which is required to be adhered to during the execution of contract. After the award of contract detailed quality assurance program shall be prepared by the contractor for the execution of Contract for various works, which will be mutually discussed and agreed to.

2.10.2 The Contractor shall establish document and maintain an effective quality assurance system as outlined in recognized codes.

2.10.3 Quality Assurance System plans/procedures of the Contractor shall be furnished in the in the form of QA manual. This document should cover details of the personnel responsible for the quality assurance, plans or procedures to be followed for quality control in respect of Design, Engineering, Procurement, Supply, Installation, Testing and Commissioning.

The quality assurance system should indicate organizational approach for quality control and quality assurance of the construction activities, at all stages of work at site as well as at manufacturer's works and dispatch of materials.

2.10.4 The RSGL's representative / TPIA shall reserve the right to inspect/ witness, review any or all stages of work at shop/site as deemed necessary for quality assurance.

2.10.5 The Contractor has to ensure the deployment of quality Assurance and Quality Control Engineer(s) depending upon the quantum of work. This QA /QC group shall be fully responsible to carryout the work as per standards and all code requirements. In case Engineer- in-charge feels that contractor's QA/QC Engineer (s) are incompetent or insufficient, contractor has to deploy other experienced Engineer(s) as per site requirement and to the full satisfaction of engineer-in- charge.

2.10.6 In case contractor fails to follow the instructions of Engineer –in-charge with respect to above clauses, next payment due to him shall not be released unless until he complies with the instructions to the full satisfaction of Engineer –in –charge.

2.10.7 The contractor shall adhere to the quality assurance system as per Standard specification enclosed in the bidding document as Annexure-6.

2.11 Notice and Licenses

The Contractor shall at his costs and expenses give to the Municipal or Panchayat, Police and other authorities all notices etc., that may be required in law to be given and obtain all necessary permissions and licenses etc., for temporary obstructions, enclosures and pay all fees, taxes charges etc. which may be leviable by such authorities for that purpose. The Contractor shall make good any damage to the adjoining property whether public or private.

2.12 Working Hours

Depending upon the requirements, time schedule/ drawn up programs and the target set to complete the job in time the works may have to continue beyond normal working hours to the extent of round the clock and on holidays also for which no extra claim shall be entertained.

2.13 Responsibility of Contractor

Preparing approaches and working area for the movement and operation of the cranes, leveling the area for assembly and erection shall also be the responsibility of the Contractor. The Contractor shall acquaint himself with access availability, facilities such as railway siding, local labour etc.

The procurement and supply in sequence and at the appropriate time of all materials and consumables covered under Contractor's scope of supply shall be entirely the Contractor's responsibility. Contractor shall not use any of the equipment or materials issued to him by Owner for temporary works, manufacturing erection aids etc. Misuse of materials will be seriously viewed and deduction at penal rates will be made from the Contractors bill for such quantities that are misused.

Contract Price is deemed to be inclusive of all expenses towards above responsibilities.

2.14 Additional Works/Extra Works

Owner reserve their right to execute any additional works/ extra works, during the execution of Work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor. In the event of such decisions taken by Owner, Contractor is required to extend necessary cooperation and act as per the instructions of Engineer-in-Charge

2.15 Compensation for Idle Time

The owner shall make every reasonable effort to have the materials and working front available so as not to delay laying activities. No idle time claim shall be entertained under any circumstances.

2.16 Power and Water Connection

RSGL will not provide any power and water during construction period. Contractor shall apply and obtain necessary power and water during connection from relevant authority and will pay its usage charge or arrange the same from the other sources.

3.0 CONSTRUCTION

RSGL reserves the right to inspect all phases of Contractor's operations to ensure conformity to the SPECIFICATIONS. RSGL will have Engineers, Inspectors or other duly authorized representatives, made known to the Contractor present during progress of the WORK and such representatives shall have free access to the WORK at all times. The presence or absence of

an RSGL's representative does not relieve the Contractor of the responsibility for quality control in all phases of the WORK. In the event that any of the WORK being done by the Contractor or any Sub-Contractor is found by Owner's representatives to be unsatisfactory or not in accordance with the DRAWINGS, procedures and SPECIFICATIONS, the Contractor shall, upon written notice of such irregularity, rectify the work in a manner to conform to the relevant DRAWINGS, procedures and SPECIFICATIONS.

3.1 Rules and Regulations

Contractor shall observe in addition to Codes specified in respective specification, all national and local laws, ordinances, rules and regulations and requirements pertaining to the work and shall be responsible for extra costs arising from violations of the same.

3.2 Procedures

Various procedures and method statements to be adopted by Contractor during the construction as required in the respective specifications shall be submitted to Engineer-in-Charge in due time for approval. No construction activity shall commence unless approved by Engineer-in-Charge in writing.

3.3 Security

The work being in protected area, entry into the work area shall be restricted and governed by issue of photo gate passes by the Security/CISF. The Contractor shall arrange to obtain through the Engineer-in-Charge, well in advance, all necessary entry permits/gate pass for his staff and labour and entry and exit of his men and materials shall be subject to vigorous check by the security staff. The Contractor shall not be eligible for any claim or extension of time whatsoever on this account.

3.4 Drawings and Documents

3.4.1 The drawings accompanying the bid document (if any) are of indicative nature and issued for bidding purpose only. Purpose of these drawing is to enable the bidder to make an offer in line with the requirements of the RSGL. However no extra claim whatsoever, shall be entertained for variation in the "Approved for Construction" and "Bid document drawings" regarding any changes/units. Construction shall be as per drawings/specifications issued/approved by the Engineer-in-Charge during the course of execution of work. Detailed construction drawings (wherever required) on the basis of which actual execution of work is to proceed will be prepared by the contractor.

3.4.2 The drawings and documents to be submitted by the Contractor to RSGL after award of the work as per the requirements enlisted in the bidding document shall be for RSGL's review, information and record. The Contractor shall ensure that drawings and documents submitted to RSGL are accompanied by relevant calculations, data as required and essential for review of the document/ drawings. TPIA shall review the drawings/ documents within two weeks from the date of submission provided the same are accompanied by relevant calculations, data as required and essential for review.

3.4.3 All documents and drawings including those of Contractors sub-vendor's manufacturer's etc. shall be submitted to RSGL after having been fully vetted in detail, approved and co-opted by the Contractor & shall bear Contractor seal/ certifications to this effect. All documents/drawings & submissions made to RSGL without compliance to this requirement will not be acceptable and the delay & liability owing to this shall be to the Contractor's account.



3.4.4 The review of documents and drawings by RSGL shall not absolve Contractor from his responsibility to meet the requirements of specifications, drawings etc. and liabilities for mistakes and deviations. Upon receiving the comments on the drawing/documents reviewed by RSGL, Contractor shall incorporate the comments as required and ensure their compliance.

3.4.5 Copies of all detailed working drawing relating to the works shall be kept at the contractors' office at the site and shall be made available to the Engineer- in-charge at any time during execution of the contract. However no extra claim what so ever shall be entertained for any variation in the "approved/issued for construction drawings" and "tender drawings" regarding any changes/units unless otherwise agreed.

3.4.6 The Contractor shall rectify any inaccuracies, errors and non-compliance to contractual requirements. Any delay occurring on this shall not construe a reason for delay/ extension.

3.5 Excavation by blasting

Excavation by blasting is not permitted wherever required in hard strata other mechanical tools shall be used.

3.6 Construction Equipment & Mechanization of Construction Activities

Contractor shall, without prejudice to his overall responsibility to execute and complete the Work as per specifications and time schedule, adopt as far as practicable, mechanized construction techniques for major site activities. However, Contractor agrees that he will deploy the required numbers and types of the part & machinery applicable for different activities in consultation with the Engineer-In- Charge during execution of works.

The Contractor shall mechanize the construction activities to the maximum extent by deploying all necessary construction equipment/machinery in adequate numbers and capacities.

Wherever Structural/Piping works are included in the scope, the Contractor's responsibilities shall include establishing and maintaining of a proper fabrication workshop with transportation facilities to site to carryout fabrication of steel structures, piping specials etc., preparing approaches working areas for the movement/operation of cranes and leveling the areas for assembly/erection to ensure effective mechanization on the works. The Contractor shall acquaint himself with availability of access, facilities such as railway siding, local labour etc. and the Contractor may have to build temporary access roads to aid his work and the quoted and agreed rates shall be deemed to include the same. It may be noted that all fabrication work shall be carried out in fully mechanized workshops to reduce site fabrication to minimum.

For speedy execution of work, Contractor shall also ensure use of computer software for at least the following:

- (i) Billing
- (ii) Planning & Scheduling
- (iii) Progress Reporting
- (iv) Material Control & Warehousing
- (v) Safety Records
- (vi) Resource Deployment
- (vii) Communication

Contractor further agrees that Contract price is inclusive of all the associated costs) which he may incur for actual mobilization, required in respect of use of mechanized construction techniques and that the Owner/Consultant in this regard shall entertain no claim whatsoever.

3.7 Site Organization

The Contractor shall provide all necessary superintendence during the design and execution of the Works and as long thereafter as the Engineer-in-Charge may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried out including the methods and techniques required the hazards likely to be encountered and methods of preventing accident for the satisfactory and safe execution of the Work. The workmen deployed, by the Contractor should also possess the necessary license etc., if required under any law, rules and regulations.

Subject to the provisions in the Contract Document and without prejudice to Contractor's liabilities and responsibilities to provide adequate qualified and skilled personnel on the Work, Contractor shall augment the same as decided by the Engineer-in-Charge depending on the exigencies of Work.

3.7.1 SUPERVISION

All construction work will be carried out as per direction of EIC, and this will be the primary point of contact between the Contractor and RSGL on site. All work will be issued and sanctioned through the EIC and site control exercised by site engineers. The Contractor shall ensure that technical quality standards are maintained, that construction is carried out cost effectively and that a good customer and public image is maintained for RSGL.

The Contractor will appoint his own supervisors of minimum number instructed by EIC. These personnel will be responsible to the SE for monitoring construction standards and for ensuring that all detailed technical requirements are met on each and every job which is undertaken. The Contractor's supervisor(s) will have day to day liaison with the SE, and will provide the SE with technical reports and audits, and other management information as is required on work progress and construction quality standards.

The Contractor's supervisor shall have mobile telephones or pagers to ensure that they can be contacted at all times. The Contractor will also nominate one person who can be contacted if necessary out of hours, for the duration of the works. The Contractor's supervisor will have access to transport at all times to allow them to visit sites and attend meetings with RSGL/TPIA as is required. The normal day to day issue of work instructions, communication between RSGL/TPIA and the Contractor's supervisor and the SE. No deviation from the approved technical specification / issued construction drawings shall be undertaken without written approval of EIC.

3.8

Health Safety and Environment (HSE) Management

After the award of the contract, detailed Health, Safety and Environment (HSE) program to be followed for execution of contract under various divisions of works will be mutually discussed and agreed between Contractor, Client & PMC.

The Contractor shall establish document and maintain an effective Health, Safety and Environment (HSE) management system.

In case contractor fails to follow the instructions of Engineer-in-charge with respect to above clauses, next payment due to him shall not be released unless until he complies with the instructions to the full satisfaction of Engineer-in- charge.

The Contractor shall adhere to the Health, Safety and Environment (HSE) management system as per RSGL, Specification and General Conditions of Contract.

It will be the Contractor's responsibility to acquaint his site staff and operatives of all current safety legislation, statutory requirements and RSGL safety standards. In addition, and before any work takes place all the Contractor's operatives shall be given training in site safety by the trained person under supervision of RSGL/TPIA. If the Contractor wishes to start any new operatives on site, he must first inform the SE, who will arrange for such training to be arranged.

3.9

General Guidelines During and Before Erection

3.9.1

The Contractor shall be responsible for organizing the lifting of the structural element, equipment in the proper sequence, that orderly progress of the work is ensured and access routes for erecting the other structures/ Equipments are kept open.

3.9.2

During the performance of the work the Contractor at his own cost, shall keep structures, materials and equipment adequately braced by guys, struts or otherwise approved means which shall be Supplied and installed by the Contractor as required till the installation work is satisfactorily completed.

Such guys, shoring, bracing, strutting, planking supports etc. shall not interfere with the work of other agencies and shall not damage or cause distortion to other works executed by him or other agencies.

3.9.3

Manufacturer's recommendations and detailed specifications for the installation of the various equipment and machines shall be fulfilled by the Contractor.

3.9.4

Various tolerances required as marked on the drawings and as per specifications and instructions of the Engineer-in-Charge, shall be maintained.

Verticality shall be maintained. Verticality shall be verified with the Theodolite/advanced instruments,

3.10

Construction Photographs

The Owner desires to have two sets of monthly progress reports with photographs showing the progress of construction. Before utilizing any photograph for publicity, the Contractor shall obtain prior approval of the Owner.

3.11 Schedule of Labour

Schedule of Labour Rates attached as **Annexure-9** to SCC shall be used for analyzing rates for extra items.

Schedule of equipment rates attached as **Annexure-9** to SCC shall be used for analyzing rates for extra items.

3.11.1. Construction Equipment

Minimum construction equipment to be deployed is enclosed as **Annexure-8** to SCC. However, any other equipment required for completion of pipeline laying work but not specifically mentioned here, shall be deployed by contractor without any additional cost. The list of Equipments mentioned in **Annexure-8** is the minimum to be deployed by contractor and contractor shall ensure the availability at site of listed Equipments in good working condition.

3.12 Specific Requirements

Specific requirements spelt out in various technical parts of the Bidding Document shall be followed by Contractor.

3.13 SITECLEANING

3.13.1 The contractor shall take care for cleaning the working site from time to time for easy access to work site and also from safety point of view.

3.13.2 Working site should be always kept cleaned up to the entire satisfactions of the Engineer-in-charge.

Before handing over and work to owner, the contractor in addition to other formalities to be observed as detailed in the document shall clear the site to the entire satisfaction of Engineer-in-charge.

3.14 SURVEY OF WORK

Before the WORK or any part thereof are begun, the Contractor's agent and the Engineer-in-Charge's representative shall together survey the SITE and decide the tentative route considering all obstructions on which the pipeline is to be laid and on which measurements of the WORK are to be based. Such particulars shall be plotted by the contractor and trial pits started thereon.

The Contractor shall be entirely responsible for the correctness of every part of

the WORK and shall rectify any errors or imperfections therein. Such rectifications shall be carried out by the Contractor at his own cost, when instructions are issued to this effect by the Engineer-in-Charge or his representative.

WORK shall be suspended for such times as necessary for checking lines and levels on any part of the WORK.

The Contractor shall at his own expense provide all assistance, which the Engineer-in-Charge may require for checking the setting out to WORKS.

Before commencement of any activity, Contractor's quality control set up duly approved by company must be available at site.

4.0

TESTS, INSPECTION AND COMPLETION

4.1

Tests and Inspection of Material under Contractor's Scope

Inspection and test prior to shipment of material and at final acceptance shall be as specified in Technical Specification. However, without prejudice to the provision of Technical Specification following shall hold good.

The Owner/Consultant or its representative shall have the right to inspect and or to test the material to conform their conformity to the specification.

If any inspected or tested material fail to conform the specification, the Owner/Consultant may reject them and the contractor shall either replace the rejected materials or make all the alteration necessary to meet the specification, free of cost to RSGL.

RSGL / TPIA right to inspect , test and where ever necessary reject the material after the material's arrival in the RSGL site shall in no way be limited to or waived by reason of the material having previously been inspected , tested and passed by RSGL / TPIA or their representative prior to the material shipment from the material supplier.

4.2

Tests and Inspection during execution

The Contractor shall carry out the various tests as enumerated in the technical specifications of this Bidding Document and technical documents that will be furnished to him during the performance of the work at no extra cost to the Owner.

All the tests either on the field or at outside laboratories concerning the execution of the work and supply of materials by the Contractor shall be carried out by Contractor at his own cost.

The work is subject to inspection at all times by the Engineer-in-Charge. The Contractor shall follow all instructions given during inspection and shall ensure that the work is being carried out according to the technical specifications of this Bidding Document, the technical documents that will be furnished to him during performance of work and the relevant codes of practice.

The Contractor shall provide for purposes of inspection access ladders, lighting equipment for testing, necessary instruments etc. at his own cost, low voltage lighting equipment for tray fixing and inspection work.

Compressed air for carrying out works shall be arranged by the Contractor at his own cost.

For material supplied by Owner, Contractor shall carryout the tests, if required by the Engineer-in-Charge, and the cost of such tests shall be reimbursed by the Owner at actual to the Contractor on production of documentary evidence.

Contractor shall inspect carefully all equipment before receiving them from Owner for installation purposes. Any damage or defect noticed shall be brought to the notice of Engineer-in- Charge immediately.

All results of inspection and tests will be recorded in the inspection reports,

proforma of which will be approved by the Engineer-in-Charge. These reports shall form part of the completion documents. Any work not conforming to execution drawings, specifications or codes shall be rejected and the Contractor shall carry out the rectifications at his own cost.

Inspection and acceptance of the work shall not relieve the Contractor from any of his responsibilities under this Contract.

4.3 Final Inspection during execution

After completion of all tests as per specification the whole work will be subject to a final inspection to ensure that job has been completed as per requirement. If any defect is noticed, the Contractor will be notified by the Engineer-in-Charge and he shall make good the defects at his own cost and risk with utmost speed. If, however, the Contractor fails to attend to these defects within a reasonable time (time period shall be fixed by the Engineer-in-Charge) then Engineer-in-Charge may have defects rectified at Contractor's cost.

When these works are carried out at the risk and cost of the Contractor, the Engineer-in-charge would recover the actual cost incurred towards labour, supervisions and material, consumables or otherwise, plus 100% towards overheads from any pending bill of the Contractor or the security deposit.

4.4 Documentation

4.4.1 As - Built Drawings

Notwithstanding the provisions contained in standard specifications, upon completion of commissioning, the BIDDER shall complete all of the related approved drawings along with bill of materials to the "AS BUILT" stage provide to a **scale of 1:200** and submit to RSGL/TPIA, the following:

- a) One complete set in reduced size (279 mm x 432 mm).
- b) One complete set of Soft Copy in CD of all original drawings.
- c) One complete set (original) of approved prints in A2 / A3 sizes for site office and one set for RSGL.
- d) One complete set shall also be submitted/Updated in case the requirement is raised by EIC on the GIS (Map) platform of RSGL.

4.4.2 Completion Document

The following documents shall be submitted in hard binder by the BIDDER in two sets One complete set (original) for site office and one set for RSGL, as a part of completion documents: -

- d) Copies of the Inspection reports, Laying Graphs, HDD Profiles (IF ANY) and valve pit drawings (IF ANY).
- e) Pre testing, final Hydrostatic / pneumatic and other Test results and reports.
- f) Consumption statements of PE / GI / Cu certified by Owner's / Consultant's Site Engineer.
- g) Final Material Reconciliation, stores issue & return statements
- h) All other requirements as specified in the respective specifications.
- i) Completion Certificate issued by Owner's Site Engineer.

- j) No claim certificate by the BIDDER.
- k) Completion certificate for embedded and covered up works wherever applicable.
- l) Recovery statement, if any.
- m) Deviation statement.
- n) Statement for reconciliation of all the payments and recoveries made in the progress bills.
- o) Copies of deviation statement and order of extension of time, if granted.
- p) Any other contractual documents required on completion.
- q) Total list of houses in the area allotted to him giving details of connections provided & reasons where connection could not be given/ completed.
- r) The details recorded in measurement cards of every domestic house.
- s) Details of houses where extra piping done along with materials used.
- t) Total material consumption report.
- u) Material reconciliation with respect to the materials issued.
- v) Test reports & test certificates of gauges.
- w) Any other documents / records required.

4.5 Statement of Final Bills - Issue of No Demand Certificate

The final bill of Contractor shall be accompanied by no-demand certificate from the following departments of the Owner:

- i) Administration & Personnel Department regarding vacation of land, housing accommodation, recovery of tents etc.
- ii) Fire and Safety Officer and CISF. (IF REQUIRED)

The Contractor shall obtain such no-demand certificates from the concerned authorities and furnish the same to the Engineer-in-Charge.

4.6 Issue and Reconciliation of Material

Refer **Annexure-7** to SCC for details.

4.7 GOVERNMENT OF INDIA NOT LIABLE

It is expressly understood and agreed by and between the Contractor and RSGL that RSGL is entering into this agreement solely on its own behalf and not on behalf of any other person or entity. In particular, it is expressly understood and agreed that the Government of India is not a party to this agreement and has no liabilities, obligations or rights there under. It is

expressly understood and agreed that RSGL is an independent legal entity with power and authority to enter into contract, solely in its own behalf under the applicable laws of India and general principal of Contract Law. The Contractor expressly agrees, acknowledges and understands that RSGL is not an agent, representative or delegate of Govt. of India. It is further understood and agreed that the Govt. of India is not and shall not be liable for any acts, omissions, commissions, breaches or other wrongs arising out of the contract. Accordingly, contractor hereby expressly waives, releases and foregoes any and all actions or claims, including cross claims, impleader claims or counter claims against the Govt. of India arising out of this contract and covenants not to sue to Govt. of India as to any manner, claim, cause of action or thing whatsoever arising of or under this agreement.

**5.0 REGISTRATION OF THE CONTRACT WITH STATUTORY AUTHORITIES
(FOR FOREIGN BIDDER (if applicable))**

5.1 Within 30 days of execution of the Contract agreement, the Contractor shall register themselves and the Contract at their own cost with the Reserve Bank of India, Income Tax, and such other statutory authorities, as may be required under the rules and regulations governing in India. The Contract Price shall be deemed to include all costs towards the same. A copy of all documents related to all such registration shall be submitted to RSGL for record.

6.0 LIMITATION OF LIABILITY

6.1 The final payment by the RSGL in pursuance of the Contract terms shall not mean release of the Contractor from all of his liabilities under the Contract. The Contractor shall be liable and committed under this contract to fulfil all his liabilities and responsibilities till the time of release of contract performance guarantee by RSGL.

6.2 Notwithstanding anything contrary contained herein, the aggregate total liability of Contractor under the Contract or otherwise shall be limited to 100% of Contract value. However, neither party shall be liable to the other party for any indirect and consequential damages, loss of profit or loss of production.

7.0 CONTRACT PERFORMANCE GUARANTEE

7.1 Please refer clause no. 37 of ITB (Vol. I) & clause no. 24.0 of GCC (General Condition of Contract).

7.2 In addition to above, following will also apply:

- a) In the event completion of works is delayed beyond the Scheduled Completion Date for any reasons whatsoever, the Contractor shall have the validity of the guarantee suitably extended to cover the period mentioned above.
- b) RSGL shall have an unqualified option under this guarantee to invoke the Banker's Guarantee and claim the amount there under in the event of Contractor failing to honour any of the commitments entered into under this Contract and/or in respect of any amount due from the Contractor to RSGL. In case Contractor fails to furnish the requisite Bank Guarantee as stipulated above, then RSGL shall have the option to terminate the Notification of Award of Work and forfeit the Bid Security/Earnest Money amount and compensation for the works performed shall be payable upon such termination.
- c) Upon completion of the Works as per Completion Schedule stipulated in Contract, the above said guarantee shall be considered to constitute the Contractor's warranty/guarantee for the work done by him or for the Works supplied and performance as per the specifications and any other conditions against this Contract. The warranty/guarantee shall remain in force for 12 months from the date of issuance of

certificate of Completion and Acceptance against this Contract as per GCC. Contractor shall also arrange for the Performance Guarantee to remain valid until expiration of the guarantee period for entire works covered under the contract.

- d) In the event of Completion of Project being delayed beyond the Scheduled Completion Date, RSGL may without prejudice to any other right or remedy available to RSGL, operate the Bank Guarantee to recover the Compensation for delay leviable as per Clause 27 of GCC. The Bank Guarantee amount shall thereupon be increased to the original amount, or the Contractor may alternatively submit a fresh Bank Guarantee for the equivalent amount of compensation for delay recovered.

8.0 TAXES, DUTIES AND LEVIES IN INDIA

- 8.1** The Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes, duties, including GST, custom duty, etc. now in force and hereafter increased, imposed or modified from time to time in respect of works and materials and all contributions and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by any Central or State Government authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to the persons employed by the Contractor and the Contractor shall be responsible for the compliance with all obligations and restrictions imposed by the Labour Law or any other law affecting employer-employee relationship and the Contractor further agrees to comply, and to secure the compliance of all subcontractors with all applicable Central, State, Municipal and local law and regulation, and requirement of any central, State or Local Government agency or authority. Contractor further agrees to defend, indemnify and hold RSGL harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason of any violation by Contractor or Subcontractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against RSGL arising under, growing out of, or by reason of the work provided for by this Contract, by third parties, or by Central or State Government authority or any administrative sub-division thereof. The prices shall also be inclusive of Works Contract Tax/ VAT/ Trade tax/ turnover tax as applicable.

- 8.2** RSGL shall make from Contractors bills such tax deductions as are required as per rules and regulations in force from time to time.

- 8.3** If GST or other duty is applicable during site fabrication, the same must be assessed and deemed to be included by the bidder in the quoted prices. The bidder in this regard shall arrange all required formalities

9.0 SUBSEQUENT LEGISLATION

- 9.1** All duties, taxes (including sales tax on works contract/ trade tax/ turnover tax/GST as applicable), fees, charges, expenses, etc. (except where otherwise expressly provided in the Contract) as may be levied/ imposed in consequence of execution of the works or in relation thereto or in connection therewith as per the Acts, Laws, Rules, Regulations in force shall be to Contractor's account. However, any new taxes /duties imposed after the date of submission of last price bid & up to Contractual Completion date shall be to the RSGL account but such Taxes /duties imposed beyond Contractual Completion date shall be to the Contractor's account. However if such new taxes etc. is in substitute of existing taxes, same will be considered on merit of each case.

10. STATUTORY VARIATION IN TAXES & DUTIES

Refer Clause no. 12.8 of ITB, Vol.-I.

11.0 INCOME TAX & CORPORATE TAX

11.1 Income Tax deductions shall be made from all payments made to the Contractor as per the rules and regulations in force in accordance with the Income Tax Act prevailing from time to time.

11.2 Corporate Tax liability, if any, shall be to the contractor's account.

11.3 Works Contract tax/ VAT as may be applicable shall be deducted as per the trade tax act.

12.0 CUSTOMS DUTY ON CONSTRUCTION EQUIPMENTS

12.1 Contractor is liable to pay custom duty on the Equipments brought into India for executing the project. The Contractor shall be fully liable for observing all the formalities in this regard as well as to pay the custom duty chargeable on the Equipments, including any deposit payable for such purposes. No adjustment in contracted rates shall be permissible for any change in duty drawback applicable in respect of equipment & machinery brought in India for the use of the project and for re-export of equipment and machinery, on completion of the project.

12.2 If the Custom Authorities require the Contractor to furnish a bond to secure payment of any custom duty in respect of any import and that such Bond shall be furnished by /Consultant, RSGL may at the request of the Contractor furnish the said Bond against the Contractor furnishing a Bank Guarantee to RSGL, of the like amount in the form and from a Bank in India approved by RSGL.

12.3 If for any reason RSGL is required by the Customs Authorities during pendency of Contract to pay any customs duty due to the importation or retention by the Contractor of any imports, the Contractor shall forthwith on demand by the RSGL pay the same to RSGL, with the right in RSGL (without prejudice to any other mode of recovery or right of RSGL) to deduct the same from the on account and other payments due and/or becoming due or payable to the Contractor from time to time. The payments under such a case shall be subject to submission of Bank Guarantee from a Bank approved by RSGL, by the Contractor in favour of RSGL for an amount equivalent to amount of custom duty.

12.4 The obligations undertaken and/or any bond or facility provided by RSGL Consultant to the Contractor shall be based on the clear understanding that the said equipment shall be utilised by the Contractor only for the performance of the work covered under this contract and that RSGL shall be discharged forthwith from all said obligations and shall be entitled forthwith to discontinue and recall any bond or other facility to the Contractor if the Contractor shall utilise or permit to be utilised the said equipment(s) or any of them for the performance of any work other than the work covered by the Contract in which event any amount due from Contractor in this connection shall also carry interest @22% (Twenty two percent) per annum from the date of relative payment by RSGL up to the date of recovery in full.

13 ISSUE OF CERTIFICATE- PERTAINING TO IMPORT

RSGL shall not provide any kind of certificate in this regard.

14.0 IMPORT LICENCE

14.1 Contractor shall arrange import of all materials required for permanent incorporation in the works as well as construction equipment as per the guidelines laid down by the Government of India. RSGL shall not provide import license.

15.0 WITHHOLDING, ACCOUNTING AND TAX REQUIREMENTS

- 15.1** Contractor agrees for withholding from wages and salaries of its agents, servants or employees all sums, required to be withheld by the laws of the Republic of India or any other agency having jurisdiction over the area where Contractor is conducting operations, and to pay the same promptly and directly when due to the proper authority. Contractor further agrees to comply with all accounting and reporting requirements of any Nation having jurisdiction over the subject matter hereof and to conform to such laws and regulations and to pay the cost of such compliance. If requested, Contractor will furnish the evidence of payment of applicable taxes, in the country(ies) of the Contractor's and his sub-contractor(s) and expatriate employees.

16.0 INTELLECTUAL PROPERTY

- 16.1** Neither RSGL/TPIA nor Contractor nor their personnel, agents nor any sub-contractor shall divulge to any one (other than persons designated by the party disclosing the information) any information designated in writing as confidential and obtained from the disclosing party during the course of execution of the works so long as and to the extent that the information has not become part of the public domain. This obligation does not apply to information furnished or made known to the recipient of the information without restriction as to its use by third parties or which was in recipient's possession at the time of disclosure by the disclosing party. Upon completion of the works or in the event of termination pursuant to the provisions of the contract, Contractor shall immediately return to RSGL all drawings, plans, specifications and other documents supplied to the Contractor by or on behalf of RSGL or prepared by the Contractor solely for the purpose of the performance of the works, including all copies made thereof by the Contractor.

17.0 FIRM PRICE

- 17.1** The quoted prices shall be firm and shall not be subjected to price escalation till the work is completed in all respects.

18.0 WORKS CONTRACT

- 18.1** The work covered under this contract shall be treated as "Works Contract".

19.0 PROVIDENT FUND ACT

- 19.1** The Contractor shall strictly comply with the provisions of Employees Provident Fund Act and register themselves with RPFC before commencing work. The Contractor shall deposit Employees and RSGL contributions to the RPFC every month. The Contractor shall furnish along with each running bill, the challan/ receipt for the payment made to the RPFC for the preceding months.

20.0 MOBILIZATION ADVANCE- NOT APPLICABLE**21.0 TERMS OF PAYMENT**

Terms of payment shall be as set out in **Annexure-5 to SCC**.

22.0 COMPENSATION FOR EXTENDED STAY- NOT APPLICABLE

23.0 COORDINATION WITH OTHER AGENCIES

Work shall be carried out in such a manner that the work of other agencies operating at the site is not hampered due to any action of the Contractor. Proper coordination with other agencies will be Contractor's responsibility. In case of any dispute, the decision of Engineer-in-Charge shall be final and binding on the Contractor.

24.0 SETTLEMENT OF DISPUTE BETWEEN TWO PSU

FOR THE SETTLEMENT OF COMMERCIAL DISPUTES BETWEEN PUBLIC SECTOR ENTERPRISES (s) INTER-SE AND PUBLIC SECTOR ENTERPRISES(s) AND GOVERNMENT DEPARTMENT(s) THROUGH PERMANENT MACHINERY OF ARBITRATION (PMA) IN THE DEPARTMENT OF PUBLIC ENTERPRISES.

"In the event of any dispute or difference between relating to the interpretation and application of the provisions of the contracts, such disputes or difference shall be referred by either party for Arbitration to the sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitrator under this clause. The award of the Arbitrator shall be binding upon the parties to the disputes, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary or the Special Secretary / Additional Secretary, when so authorized by the Law Secretary, whose decision shall bind the Parties finally and conclusively. The parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator."

25.0 ROYALTY

25.1 Contractor's quoted rate should include the royalty on different applicable items as per the prevailing Government rates. In case, RSGL is able to obtain the exemption of Royalty from the State Government, the contractor shall pass on the same to RSGL for all the items involving Royalty.

26.0 THE FACILITIES FOR WORKMEN

26.1 Following facilities are to be ensured at all work places where workmen are deployed / engaged by Contractor & any other, as required by law at the time of execution.

- Arrangement of first aid
- Arrangement for clean drinking water
- Toilets
- Canteen where tea & snacks are available
- A crèche where 10 or more women workmen are having children below the age of 6 years.

27.0 ARBITRATION (LATEST CIRCULARS/NOTIFICATION/OFFICE ORDER BY GOVT. OF RAJASTHAN/ GOVT. OF INDIA SHALL BE APPLICABLE AS A GUIDELINES FOR ARBITRATION)

27.1 Clause No.107.1 of GCC pertaining to Arbitration shall be replaced by the following:-

27.1.1 All disputes, controversies, or claims between the parties (except in matters where the decision of the Engineer-in-Charge is deemed to be final and binding) which cannot be mutually resolved within a reasonable time shall be referred to Arbitration by sole arbitrator.



- 27.1.2 RSGL shall suggest a panel of three independent and distinguished persons to the party (Bidder/Contractor/ Supplier/Buyer as the case may be) to select any one among them to act as the sole Arbitrator.
- 27.1.3 In the event of failure of the other party to select the sole Arbitrator within 30 days from the receipt of the communication suggesting the panel of arbitrators, the right of selection of sole Arbitrator by the other party shall stand forfeited and RSGL shall have discretion to proceed with the appointment of the sole Arbitrator. The decision of RSGL on the appointment of Sole Arbitrator shall be final and binding on the parties.
- 27.1.4 The award of the Sole Arbitrator shall be final and binding on the parties and unless directed/awarded otherwise by the Sole Arbitrator, the cost of arbitration proceedings shall be shared equally by the Parties. The arbitration proceeding shall be in English language and the venue shall be at Jaipur, India.
- 27.1.5 Subject to the above, the provisions of (Indian) Arbitration & Conciliation Act, 1996 and the rules framed there under shall be applicable.
- 27.1.6 All matters relating to this contract are subject to the exclusive jurisdiction of the Courts situated in the **State of Rajasthan (India)**.
- 27.1.7 Bidders/ Supplier/ Contractors may please note that the Arbitration & Conciliation Act, 1996 was enacted by the Indian Parliament and is based on United Nations Commission on International Trade Law (UNCITRAL, model law), which were prepared after extensive consultation with Arbitral Institutions and centres of International Commercial Arbitration. The United Nations General Assembly vide resolution 31/98 adopted the UNCITRAL Arbitration rules on 15 December 1976.
- 27.1.8 DISPUTE RESOLUTION**
- 27.1.8.1 GENERAL**
- Any dispute(s)/ difference(s)/issue(s) of any kind whatsoever between/ amongst the Parties arising under/ out of/ in connection with this agreement shall be settled in accordance with provisions of this Article.
- 27.1.8.1 INVITATION FOR CONCILIATION**
- 27.1.8.1.1 In case of any dispute(s)/ difference(s)/issue(s), as mentioned above, a Party shall notify the other party(ies) in writing about such a dispute(s)/ difference(s)/issue(s) between/ amongst the Parties and that such a Party wishes to refer the dispute(s)/ difference(s)/issue(s) to Conciliation. Such Invitation for Conciliation shall contain sufficient information as to the dispute(s)/ difference(s)/issue(s) to enable the other Party (ies) to be fully informed as to the nature of the dispute(s)/ difference(s)/issue(s), the amount of monetary claim, if any, and apparent cause(s) of action.
- 27.1.8.1.2 Conciliation proceedings commence when the other Party(ies) accept(s) the invitation to conciliate. If the acceptance is made orally, It is advisable that it be confirmed in writing. If the other Party(ies) reject(s) the invitation, there will be no conciliation proceedings.
- 27.1.8.1.3 If the Party initiating conciliation does not receive a reply within thirty days from the date on which he/she sends the invitation, or within such other period of time as specified in the invitation, he/she may elect to treat this as a rejection of the invitation to conciliate. If he/ she so elects, he/she shall inform to other Party(ies) accordingly.

27.1.8.2 CONCILIATION

- 27.1.8.2.1 Where Invitation for Conciliation has been furnished under Article 2, the Parties shall attempt to settle such dispute(s) amicably under Part-III of the Indian arbitration and Conciliation Act, 1996 and GAIL Gas Limited Conciliation Rules, 2013 (available on GAIL Gas website: www.gailgas.com applicable for RSGL). It would be only after exhausting the option of Conciliation as an Alternate Dispute Resolution Mechanism that the Parties hereto shall go for Arbitration as per the provisions of arbitration clause. For the purpose of this Article, the option of 'Conciliation' shall be deemed to have been exhausted, even in case of rejection of 'Conciliation' by any of the Parties.
- 27.1.8.2.2 For dispute(s)/ difference(s)/issue(s) pending before Arbitral or Judicial proceeding, pendency of such proceeding shall not constitute any bar on commencement of Conciliation proceeding and Invitation for Conciliation under Article 2, even if the Conciliation proceedings under this Article are on the same subject matter(s)/ issue(s) as the Arbitral or Judicial proceedings.
- 27.1.8.2.3 The cost of Conciliation proceeding including but not limited to fees for Conciliator(s), Airfare, Local Transport, Accommodation, cost towards conference facility etc. shall be borne by the Parties equally.
- 27.1.8.2.4 The Parties shall freeze claims (s) of interest, if any, and shall not claim the same during pendency of Conciliation proceedings.

The Settlement Agreement, as and when reached/ agreed upon, shall be signed between the Parties and Conciliation proceeding shall stand terminated on the date of the Settlement Agreement.

- 27.2 Clause No.107.2 of GCC-Works pertaining to Arbitration shall be replaced by the following:- Refer Clause 24.0 above.

28.0 PROJECT PLANNING, SCHEDULING AND MONITORING SYSTEM

- 28.1 The Contractor shall follow the specifications with respect to Project Planning, Scheduling and Monitoring system as giving in Bidding Document.

29.0 CHECKING OF LEVELS

- 29.1 The Contractor shall be responsible for checking levels, orientation plan of all foundations, foundation bolts, etc., well in advance of taking up the actual erection work and bring to the notice of Engineer-in-Charge discrepancies, if any. In case of minor variations in levels etc. the Contractor shall carry out the necessary rectifications to the foundations within his quoted price.
- 29.2 The Contractor shall also be responsible for checking with templates, wherever necessary, the disposition of foundation bolts with the corresponding bases of structure and shall effect rectifications, as directed, within his quoted rate.

30.0 STORAGE FACILITIES

- 30.1 The Contractor shall maintain wherever required an air-conditioned room for the storage of the instruments as well as for calibration and testing of the instruments at his own cost. The contractor shall provide these facilities within the quoted price.

31.0 ABNORMALLY HIGH RATED ITEMS (AHR ITEMS) – NOT APPLICABLE

32. COMPUTERIZED CONTRACTORS BILLING SYSTEM



- 32.1 Without prejudice to stipulation in General Conditions of Contract, Contractor should follow following billing system.
- 32.2 The bills will be prepared by the contractors based on joint measurement carried out by contractor and TPIA on their own PCs as per the standard formats and codification scheme proposed by RSGL / TPIA. The contractors will be provided with data entry software to capture the relevant billing data for subsequent processing. Contractors will submit these data to RSGL / TPIA in an electronic media along with the hard copy of the bill, necessary enclosures and documents. The contractor will also ensure the correctness and consistency of data so entered with the hard copy of the bill submitted for payment.
- 32.3 RSGL/ TPIA will utilize these data for processing and verification of the Contractor's bill and payment."

33. ORDER PLACEMENT OF BOUGHT OUT ITEMS

The contractor is required to place firm order for all bought out items of adequate quantity (including 1st lot in those cases where items are required to be procured in more than one lot, if so stated in SOR/ SCC) within 30 days from the date of placement of order, failing which owner reserves the right to procure the same at the risk & cost of the contractor. However the contractor shall always take prior approval of owner and consultant for items required to be procured.

Further lots (for those cases where items are required to be procured in more than one lot, if so stated in SOR/ SCC) shall be procured after suitable period so as to ensure adequate availability of material at site throughout the execution period).

34. REQUIREMENTS FOR CONTRACTOR AT SITE

- 34.1 Contractor shall establish site office in the respective areas with adequate facilities like tables, chairs, telephone, and computer with mailing facility etc. for effective communication and documentation.
- 34.2 Contractor shall provide as and when required a wagon(s) suitable for soil removal, for the delivery or reinstatement materials and for the transport of pipe to and from site.
- 34.3 Contractor shall supply transport for their technical staff and operatives to move from site to site, and to move tools and equipment from site to site, this vehicle will also be fitted with a tow bar suitable for the towing of a mobile air compressor or pipe trailer.
- 34.4 Contractor shall make appropriate arrangements to ensure that their supervisor(s) are adequately mobile and can attend sites or meeting with RSGL/ TPIA & other authorities or customers as required, without any undue delay.
- 34.5 Contractors shall provide cell phones to their supervisors for day to day communication with RSGL/ TPIA.
- 34.6 The RCM/ site in-charge must be a permanent employee of the contractor having desired qualification and work experience, Any change in key persons working at site shall be informed to the Owner promptly.
- 34.7 Owner will not allow switching/ swapping of key personnel of any contractor working at site from one contractor to another during the continuity of the contract.

35. COMPLIANCE WITH LAWS

- 35.1 The Contractor shall abide by all applicable rules, regulations, statutes, laws governing

the performance of works in India, including but not limited to the following:

- i) Contract Labour (Regulation & Abolition) Act 1970 & the centre rules, 1971 framed there under.
- ii) Payment of Wages Act.
- iii) Minimum Wages Act.
- iv) Employer's Liability Act.
- v) Factory Act.
- vi) Apprentices Act.
- vii) Workman's Compensation Act.
- viii) Industrial Dispute Act.
- ix) Environment Protection Act.
- x) Wild life Act.
- xi) Maritime Act.
- xii) Any other Statute, Act, Law as may be applicable.
- xiii) PNGRB Act.

36.0 NOTES TO SCHEDULE OF RATES (SOR)

- i) The SOR items to be operated as per job requirement and shall be decided by Engineer- In- Charge.
- ii) The quantities stated in SOR are tentative and may vary considerably on ± side depending upon site condition, methodology adopted as per site requirement. The payment will be made as per actual certified Measurement at site and as instructed by EIC.
- iii) The scope as mentioned in the SOR is of **indicative nature only** and shall include all activities as detailed in the relevant clauses of the specifications attached and other relevant documents enclosed with tender.
- iv) Any other materials & activities not mentioned/covered in SOR, but otherwise required for satisfactory completion/safety of work as defined in tender has to be supplied /done by contractor within the specified schedule at no extra cost to owner.

37.0 Insurance

All kind of Insurances including transit Insurance shall be borne & arranged by the bidder in line with clause no. 101 of GCC-Works. Price quoted in SOR shall be inclusive of this cost.

38.0 PRICE REDUCTION SCHEDULE

The Price reduction schedule shall be applicable at the rate mentioned as per clause no. 27 of GCC-Works as per following:

In case of delay in completion of work as per total scope of work within the completion schedule, Price Reduction Schedule shall be applicable at the rate of ½ % of the total contract value per week of delay or part thereof.

The maximum PRS shall be 5% of total contract value.

For PRS purpose, Contract value shall be excluding of GST.

The compensation on account of any liability (lies) including penalties other than above shall be as per provisions of bidding documents and shall be applicable in addition to PRS.

39.0 DIRECT PAYMENTS TO SUB-VENDORS/ SUPPORTING AGENCIES OF MAIN CONTRACTOR

Normally, the payment is to be made to vendor/ contractor only as per provision of contract. During execution, in case of financial constraints, RSGL may make direct payment to their sub-vendor/ supporting agencies as an exception from the amounts due to the vendors/ contractors from any of their bills under process upon certification by EIC subject to receipt of such request from the vendor/ contractor. Further, the request for direct payments to the sub-vendor/ sub- contractor shall be considered in performance evaluation of such vendor/ contractor.

40.0 SUB-LETTING OF WORKS

Pursuant to Clause No. 37 of GCC-Works:

The contractor shall not,sublet with previous consent in writing of the Engineer-in- charge, sublet, transfer or assign the contract or any part thereof or interest therein or benefit or advantage thereof in any manner whatsoever. Provided, nevertheless, that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract.

However, subletting of WHOLE WORKS is prohibited. Vendor/ Contractor shall submit undertaking to this effect along with each invoice/ bill.

41.0 BONUS FOR EARLY COMPLETION- - NOT APPLICABLE

The Clause 27.3 of GCC-Works for Bonus for early completion shall not be applicable in this Contract.

42.0 JOINTS MEASUREMENT OF WORK EXECUTED, BILLING, INVOICE AND PAYMENTS.

Measurement shall be recorded as per the methods of measurement spelt out in Specification/Contract Documents/ Procedure of RSGL.

43.0 Opportunity of employment to the people, belonging to Scheduled Castes and weaker sections of the society:

While engaging the contractual manpower, Contractors are required to make efforts to provide opportunity of employment to the people belonging to Scheduled Castes and weaker sections of the society also in order to have a fair representation of these sections

ANNEXURES TO SCC

C O N T E N T S

Annexure-1	:	Scope of Work
Annexure-2	:	Scope of Supply
Annexure-3	:	Time Schedule
Annexure-4	:	Measurement of Work
Annexure-5	:	Terms of Payment
Annexure-6	:	Quality Assurance
Annexure-7	:	Conditions for issue & reconciliation of material
Annexure-8	:	Construction equipment to be deployed Annexure-
9	:	Schedule of Labour Rate
Annexure-10	:	Schedule of Equipment Hourly Rental Rate

SCOPE OF WORK

**(ANNEXURE-1 TO SPECIAL CONDITIONS OF
CONTRACT)**



ANNEXURE-1 TO SCC

1.0 SCOPE OF WORK

Scope of work shall be as detailed in Particular Job Specification, Technical Specifications, Schedule of Rates & various other parts of this Bidding Document.

SCOPE OF SUPPLY

**(ANNEXURE-2 TO SPECIAL CONDITIONS OF
CONTRACT)**

ANNEXURE-2 TO SCC**1.0 SCOPE OF SUPPLY****1.1 Owner's Scope of Supply (Free Issue Item)**

The following items shall be issued as free issue material:

1. MDPE Pipes
2. Meters : Domestic & Commercial
3. Regulators : Domestic, Commercial & Service
4. DRS & MRS
5. GI Pipes (Option of using GI pipe supplied by RSGL may be excised alternatively (2nd option) in case of requirement by EIC/RSGL only for accomplishing the work)

All items, other than above, shall be in Contractor's Scope of Supply.

Owner's scope of supply shall be as specified in Particular Job Specification, Technical Specifications, Schedule of Rates & various other parts of the Bidding Document.

In order to speed up the project Free Issue Materials and also the material on replacement basis shall be issued to the Contractor from the designated store(s) of RSGL/and Contractor shall be responsible for lifting the free issue materials from Owner's storage point(s) and transporting the same to work site(s) at his own cost. In case the material is required to be lifted from a location other than Kota, the cost towards transportation shall be payable as extra work.

Conditions for Issue and Reconciliation of Materials shall be as per Document enclosed as **Annexure-7** to Special Conditions of Contract.

1.2 Contractor's Scope of Supply

All materials including fitting, clamps etc. except what is under Owner's scope of supply as mentioned in Clause No. 1.1 above, and required for successful completion of works in all respects shall be supplied by the Contractor and the cost of such supply shall be deemed to have been included in the quoted price without any additional liability on the part of Owner.

TIME SCHEDULE

**(ANNEXURE-3 TO SPECIAL CONDITIONS OF
CONTRACT)**

ANNEXURE-3 TO SCC

TIME SCHEDULE

The time schedule for Completion is **9 (Nine) months** from the date of issuance of FAX of Acceptance (FOA)

Note: The above time schedule is inclusive of mobilization period of 15 days.

- 1) The time of completion shall be reckoned from the date of award of contract, which shall be the date of issue Fax of Acceptance.
- 2) The time indicated is for completing all the works in all respects as per specifications, codes, drawings and instructions of Engineer-in-charge.
- 3) It should be noted that the period of construction given above includes preparation of drawings (if required), procurement and supply of materials including their inspection & testing, mobilization at site, construction, laying, fabrication, erection inspection, testing, rectification (if any), pre-commissioning, commissioning and demobilization works etc. complete in all respects to the entire satisfaction of Owner/ Engineer-in- charge.

(STAMP & SIGNATURE OF BIDDER)

MEASUREMENT OF WORK

(ANNEXURE-4 TO SPECIAL CONDITIONS OF CONTRACT – TECHNICAL)

ANNEXURE-4 TO SCC**MEASUREMENT OF WORK****1.0 GENERAL**

- 1.1** The mode of measurement shall be as mentioned in relevant standard specification incorporated in the bidding Document. Any other mode of measurements not covered in above specifications shall be followed in accordance with relevant BIS codes/ Schedule of Rates/ Specifications etc. and/ or as decided by Engineer-in-charge.
- 1.2** Payment will be made on the basis of joint measurements taken by Contractor and certified by TPIA Engineer. Measurement shall be based on “Approved for Construction” drawings, to be the extent that the work conforms to the drawings and details are adequate. **Checking of measurement shall be 100% by TPIA, 15% by Site Engineer and 5% by Engineer- In-Charge/Work-In-Charge.**
- 1.3** Wherever work is executed based on instructions of Engineer-in-charge or details are not adequate in the drawings, physical measurements shall be taken by Contractor in the presence of Engineer-in-charge.
- 1.4** Measurements of weights shall be in metric tonnes corrected to the nearest Kilogram. Linear measurements shall be in meters corrected to the nearest centimeters.
- 1.5** The weights mentioned in the drawing or shipping list shall be the basis for payment. If mountings for panels etc. are packed separately their erection weights shall include all mountings.
- 1.6** Welds, bolts, nuts, washers etc. shall not be measured. Rates for structural steel work shall be deemed to include the same.
- 1.7** No other payment either for temporary works connected with this Contractor for any other item such as weld, shims, packing plates etc. shall be made. Such items shall be deemed to have been included for in the rates quoted.
- 1.8** Measurement will be made for various items under schedule of rates on the following basis as indicated in the unit column.

i)	Weight	:	MT or Kg
ii)	Length	:	M (Meter)
iii)	Number	:	No.
iv)	Volume	:	Cu.M
v)	Area	:	Sq.M

2.0 PIPING

- 2.1** Length of pipes shall be measured along the curvilinear centre of the pipelines laid/ installed and shall include all types of fittings, bends etc. but excluding all types of valves. Length of valves shall be excluded from piping measurement and shall be considered on number basis.

3.0 FOR PIPELINE CROSSINGS BY HDD (if required) / BORING / MOLING METHOD

Payment shall be made as specified in SOR, PJS and Technical Specification.

TERMS OF PAYMENT

(ANNEXURE-5 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-5 TO SCC

1.0 TERMS OF PAYMENT

Pending completion of the whole works, provisional progressive payments for the part of work executed by the contractor shall be made by Owner on the basis of said work completed and certified by the Engineer-In-Charge as per the agreed milestone payment schedule and the percentage break-ups given below.

Contractor shall submit his invoices to the Engineer-In-Charge monthly in the manner as instructed by Owner. Each invoice will be supported by documentation acceptable to Engineer-In-Charge and certified by the Engineer-In-Charge. Payments made by owner to the contractor for any part of the work shall not deem that the Owner has accepted the work.

The Contractor has to raise the RA bill on monthly basis and payment shall be made as per the following terms: -

FOR SOR ITEM 1.1 TO 1.8 EXCEPT 1.2

- 50% - In continuous stretches of minimum 100 Metres. including trench less laying or total scope whichever is less after completion of trenching, lowering, electro- fusion jointing of pipeline, back-filling and compaction for the complete stretch as per the scope of work.
- 20% - Testing of network, installation of Permanent Markers & Valve chambers.
- 20% - Pre-Commissioning of the system with Nitrogen at positive pressure or Commissioning with gas charging of the PE pipeline (case decided by EIC), subject to obtaining & submission of NOC (Where as applicable) for restoration from concerned authorities and material re-conciliation.
- 10% - After completion of all works ,Submission of all documents, submission of As built drawings. Closure of contract, Submission of final bill.

FOR SOR ITEM 1.2

- 90% - After Complete area wise restoration as per the standards (bidder may note that restoration work shall be carried out after successful testing and commissioning / Gas charging in respective are) Subject to obtaining NOC from authorities having jurisdiction of land/ road. Obtaining NOC from concerned authority is precondition for payment.
- 10% - After completion of all works and closure of contract.

FOR SOR ITEM 1.9 TO 5.2

- 90% - Upon supply and Complete installation of item and all its associated works
- 10% - After completion of all works and closure of contract.

FOR SOR ITEM 7.1 TO 7.7

- 75 % on installation of GI pipe, Meter, regulator valve, all fittings, and details updated on RSGL Application.
- 5% testing of GI pipe, Meter, regulator valve and all fittings and RFC updated on RSGL application through the TPIA/EIC.
- 10% Pre-commissioning with Nitrogen at positive pressure or Commissioning with gas charging including all related activities (case decided by EIC).
- 10% After completion of all works ,submission of documents and closure of contract.

FOR SOR ITEMS 8

- 90 % submission of registration of domestic PNG form
- 10% After completion of all works, submission of documents and closure of contract.



ANY OTHER WORK (NOT MENTIONED ABOVE)

- a) Completion of individual work as per SOR including supply (wherever applicable): 90%
- b) Completion of all activities and their acceptance submission of final documents, final bill and acceptance of these by owner thereafter for successful closure of work order: 10 %

Note: Any further breakup of each activity for the payment purpose can be done depending upon the site situation / requirement and recommendation by EIC and approval of construction in-charge

2. PAYMENT METHODOLOGY

- I. The Contractor shall raise invoices on monthly basis. Bidder shall enclose all documents as per checklist issued by RSGL/TPIA including during Kickoff meeting
- II. The payment of the contractor will be released within 30 days from the date of receipt of bill duly certified by TPIA/Site Engineer and EIC.
- III. RSGL will release payment through e-payments only as detailed in bidding document.
- IV. All payments against running bills are advance against the work and shall not be taken as Final acceptance of work / measurement carried out till the final bill.
- V. Further break-up of Lumpsum Prices, if deemed necessary for any progressive payment of individual item may be mutually arrived at between Engineer-in- Charge and the Contractor.
- VI. Successful bidder(s) to submit material reconciliation certificate along with each bill.
- VII. Bills shall be raised by contractor in line with check list attached in Tender document.
- VIII. *As per CBDT Notification No. 95/2015 dated 30.12.2015, mentioning of PAN no. is mandatory for procurement of goods / services/works/consultancy services exceeding Rs. 2 Lacs per transaction.*

Accordingly, supplier/ contractor/ service provider/ consultant should mention their PAN no. in their invoice/ bill for any transaction exceeding Rs. 2 lakh. As provided in the notification, in case supplier/ contractor/ service provider/ consultant do not have PAN no., they have to submit declaration in Form 60 along with invoice/ bill for each transaction.

Payment of supplier/ contractor / service provider/ consultant shall be processed only after fulfillment of above requirement.

- IX. RSGL PAN Card No. is AAGCR7499P

QUALITY ASSURANCE
(ANNEXURE-6 TO SPECIAL CONDITIONS OF
CONTRACT)

(Attached Separately- Technical Vol.-II of II- of tender document)

CONDITIONS FOR ISSUE AND RECONCILIATION OF MATERIAL

(ANNEXURE-7 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-7 TO SCC**1.0 CONDITIONS FOR ISSUE OF MATERIALS**

Whenever any material is issued by Owner, following conditions for issue of material in addition to other conditions specified in the contract shall be applicable.

1.1 Necessary indents will have to be raised by the Contractor as per procedure laid down by the Engineer-in-charge from time to time, when he requires the above material for incorporation in permanent works.

1.2 Materials will be issued only for permanent works and not for temporary works, enabling works etc. unless specifically approved by the Engineer-in-charge and the same shall not be taken into account for the purpose of materials reconciliation.

1.3 The contractor shall bear all other cost including lifting, carting from issue points to work site/ contractor's store, custody and handling etc. and return of surplus/ serviceable scrap materials to Owner's storage points to be designated by the Engineer-in-charge etc. No separate payment for such expenditure will be made.

1.4 No material shall be allowed to be taken outside the plant without a gate pass.

1.5 The contractor shall be responsible for proper storage, preservation and watch & ward of the materials.

1.6 Reconciliation of Owner supplied materials

1.6.1 Every month, the contractor shall submit an account for all materials issued by Owner in the Performa prescribed by the Engineer-in-charge. On completion of the work the contractor shall submit "Material Appropriation Statement" for all materials issued by the Owner in the Performa prescribed by the Engineer-in-charge.

Waste materials like part lengths of pipes and other partly used items are the property of RSGL and must be returned to the store with the appropriate documentation so that they can be considered as part of the material reconciliation.

The PE pipe less than 0.5 Mtr. Shall be declared as scrap.

For PE pipes allowable scrap shall be upto 2% of total free issue materials.

The percentage allowance shall be accounted on the basis of final measurement book.

1.6.2 All unused, scrap materials and salvageable materials shall be the property of the Owner and shall be returned by the Contractor category-wise at his cost to



the Owner's designated store yard(s). In case the Contractor fails to do so/ or exceeds the limits of allowances specified above for scrap/ serviceable materials, then recovery for such quantities not returned as well as returned in excess of permitted limit by the Contractor will be done at the penal rate i.e. 125% of landed cost at the time of final bill/ closing of contract by Engineer-in- charge shall be effected from the Contractor's bill(s) or from any other dues of the Contractor to the Owner. Contractor shall be responsible for the adjustment/ weighthment/ measurement of the surplus materials to be returned to the store. Contractor shall also be responsible for suitable segregation of returned materials into separate stacks of serviceable and scrap materials.

CONSTRUCTION EQUIPMENT TO BE DEPLOYED FOR MDPE AND LMC WORKS

(ANNEXURE-8 TO SPECIAL CONDITIONS OF CONTRACT)



ANNEXURE-8
CONSTRUCTION EQUIPMENT TO BE DEPLOYED (FOR MDPE AND LMC WORKS)

Sl. No.	Description of Item	Qty. to be Deployed* for KOTA
i.	Electro-fusion machine with Bar Code, GPS antenna, Memory to store upto 2048 weld data, USB interface and control box with leads	2
ii.	Moling Equipment	As and when required
iii.	PE Squeeze Tools for 20mm / 32mm /63mm /125mm Pipes	2
iv.	Universal pipe scrapper 20mm, 32mm, 63mm, 125mm / hand scrappers	2
v.	Tapping tools for PE service tees	2 sets of all size
vi.	PE pipe cutter / Guillotine	2
vii.	Gas detection equipment, wherever required	As and when required
viii.	Cable and pipe locator	As and when required
ix.	PE closure plugs / test ends for 20mm / 32mm pipes	As and when required
x.	Towing heads	As required
xi.	Pipe alignment clamps, jointing of elbow, tee, top loading clamps for top tee	2
xii.	Pipe straighteners, re-rounding tools of all pipe sizes	2
xiii.	Jumping Jack compactor	As and when required
xiv.	Roller for asphalting	As and when required
xv.	Water tanker	As and when required
xvi.	Hammer Drill	2
xvii.	Power Generator a) 5.5 kVA, b) 2.5kVA	1 2
xviii.	Piston Drill	As and when required
xix.	Conversion Kit	As and when required
xx.	Pneumatic Test Pumps	2
xxi.	Die sets for thread preparation	2
xxii.	Soldier Torch	4
xxiii.	Cleaning pads	4
xxiv.	Cleaning Brush	4
xxv.	Voltage Stabilizer	2
xxvi.	Calibrated Pressure Gauge (0-6 Bar)	4
xxvii.	Acetone/ H2O2 (pipe cleaner)	As and when required
xxviii.	Harness belts & clamps	As and when required
xxix.	Lacquer and Thinner	As and when required

(*) Number of equipment indicated hereinabove may be revised by Engineer In-charge for various sites depending on quantum of work and work front made available to the contractor. Any additional equipment requirement, whenever asked for by the Engineer In-charge, shall be deployed by the contractor at site without any additional cost to Owner

Notes:

- Any other equipment required for completion of pipeline laying work but not specifically mentioned hereinabove, shall be deployed by contractor without any additional cost to Owner. Contractor shall deploy above mentioned Equipments in good working condition & properly calibrated.
- Mobilization shall be considered complete only after Equipments having quantity specifically mentioned hereinabove / quantity decided by engineer-in-charge on case to case basis at site are made available at site in good working condition as verified by EIC.

(SIGNATURE OF BIDDER)

SCHEDULE OF LABOUR RATES (FOR MDPE AND LMC WORKS)

(ANNEXURE-9 TO SPECIAL CONDITIONS OF CONTRACT)



ANNEXURE -9 to SCC

SCHEDULE OF LABOUR RATES
(FOR EXTRA WORKS)

Sl. No.	Classification Personnel	Rates in INR for 8 hours	Rate per Hour for OT, Sunday & Holiday
		Standard Time (Rs.)	In Rs.
1.	Engineer	2500/-	650
2.	Surveyor Foreman	2000/-	430
3.	Pipe Fitter	750/-	150
4.	Pipe Welder	750/-	150
5.	Gas Cutter	700/-	170
6.	Grinder	700/-	170
7.	Mason	520/-	120
8.	Plumber	500/-	120
9.	Carpenter	500/-	130
10.	Painter	500/-	120
11.	Electrician	600/-	150
12.	Cable Jointer	780/-	190
13.	Instrument Technician	1000/-	190
14.	Rigger	400/-	110
15.	Watchman/Helper	250/-	80
16.	Concrete Mixer Operator	250/-	80
17.	Heavy Machine Operator	700/-	170
18.	Fusion Operation/ Jointer	500	120
19.	Civil labour (unskilled labour)	300	60

(SIGNATURE OF BIDDER)

NOTES:-

Above rates are final and Tenderer is to sign only without deviation.

EQUIPMENT HOURLY RENTAL RATES FOR EXTRA WORKS (FOR MDPE AND LMC WORKS)

(ANNEXURE-10 TO SPECIAL CONDITIONS OF CONTRACT)

ANNEXURE-10 TO SCC

EQUIPMENT HOURLY RENTAL RATES FOR EXTRA WORKS

SL. NO.	DESCRIPTION OF EQUIPMENT	HOURLY RENTAL RATES FOR EXTRA WORKS INCLUDING CONSUMABLES
1)	Dozers	Rs. 4500/-
2)	Excavator/Back Hoe-ex 280/300 & above Or equivalent	Rs. 7000/-
3)	Moling machine	Rs. 1200/-
4)	Compressors 210 CFM	Rs. 2000/-
5)	Dewatering Pumps	Rs. 800/-
6)	Fusion Jointing Machine	Rs. 1000/-
7)	Diesel operated power generators	Rs. 3000/-
8)	Gas cutting set with cylinders	Rs. 350/-
9)	Compressor 600 CFM Capacity	Rs. 2500/-
10)	Trucks	Rs. 2000/-
11)	Car/Jeep	Rs. 800/-
12)	Tractor with trolley	Rs. 600/-
13)	Tripod with 5 Tons Chain Pulley Block	Rs. 300/-
14)	Pipe Tractor (FB/ Semi Low Bed)	Rs. 3500/-
15)	Dumper	Rs. 1500/-

NOTES:-

- 1) Rates are final and Tenderer is to sign only without deviation.
- 2) In case of foreign bidder, Conversion rate applicable on one day prior to price bid Opening date published by the State Bank of India will be considered.
- 3) Rates are inclusive of operators / drivers as applicable
- 4) Rates are inclusive of contractor's overhead & profit
- 5) The recovery rate shall be the rates provided above plus 20%

(SIGNATURE OF BIDDER)

HIRING / RECOVERY RATE FOR DEPLOYMENT OF MANPOWER

(Annexure-11 of Special Condition of Contract)

ANNEXURE –II TO SCC

HIRING / RECOVERY RATE FOR DEPLOYMENT OF MANPOWER

1. The Labour rates are “all inclusive”. These rates include but are not limited to all payroll costs and allowances, payroll taxes, fringe benefits, protective and/or special clothing, construction supplies required for work of a nature included in this contract, overhead, profit insurance, transportation and travel time.
2. The rates are inclusive of providing hand tools and consumables such as electrodes, filler wire, gases, grinding wheels where the concerned category of labour is expected to use in execution of the job but exclusive of all major equipment and machineries.
3. The normal time labour rates shall apply for all hours worked upto eight (8) hours in a day and overtime rates shall apply for all hours worked in excess of eight (8) hours in one working day, Sunday and Public Holidays. The payment for part of the day shall be made on prorata basis.

Sl. No.	Classification Personnel	Rates per day of Normal Hours	Rate per hour for OT, Sunday & Holiday
		(in Rs.)	(in Rs.)
1.	Foreman	2475	545
2.	Supervisor	2475	545
3.	Engineer	3300	650
4.	Gas Cutter	1155	215
5.	Grinder	1155	215
6.	Brick Mason	660	150
7.	Stone Mason	660	150
8.	Structural welder	1650	330
9.	Qualified Arc welder – manual / semi-automatic	1980	330
10.	Qualified Arc welder – automatic	2000	430
11.	Welder helper	380	150
12.	Pipe Fitter /Bender	825	190
13.	Structural Fitter	660	150
14.	Pipeline Fitter	990	240
15.	Coater	660	152
16.	Mechanic	660	152
17.	Site Equipment / Machine Operator	660	152



18.	Electrician	825	190
19.	Fabricator	825	190

Sl. No.	Classification Personnel	Rates per day of Normal Hours	Rate per hour for OT, Sunday & Holiday
		(in Rs.)	(in Rs.)
20.	Carpenter	760	165
21.	Plumber	660	150
22.	Painter	660	150
23.	Cable Jointer	990	240
24.	Instrumentation Technician	990	240
25.	Insulator	570	140
26.	Rigger	570	140
27.	Bhisti (water man)	315	75
28.	Heavy duty driver	910	215
29.	Civil Surveyor	750	130
30.	Document Controller	1000	300
31.	Account Officer	1500	360
32.	Store Keeper / Incharge	1000	300
33.	AUT Interpreter	5000	750
34.	Liasioning Team (2 persons)	2000	430
35.	Light duty driver	660	150
36.	Sand Blaster	735	165
37.	Qualified Surveyor	750	130
38.	Un skilled Worker	380	80
39.	Construction Manager	10000	1000
40.	QA/QC / Safety / Planning / NDT Engineer	5000	750

(SIGNATURE OF BIDDER)

NOTES:-

1. Rates are final and Tenderer is to sign only without deviation.
2. In case of foreign bidder, conversion rate applicable on one day prior to price bid opening date published by the State Bank of India will be considered.
3. The recovery rates shall be the rates provided above plus 20% (twenty percent).

SECTION – IV PARTICULAR JOB SPECIFICATION

(PLEASE ALSO REFER

TECHNICAL VOLUME- II OF II)

PARTICULAR JOB SPECIFICATION

CONTENTS

<u>S. No.</u>	<u>Description</u>
1.0	Project Description & Scope of Work
2.0	General Terms and Condition
3.0	Procurement
4.0	Scope of Supply
5.0	Documents, Specifications, Standards & Drawings
6.0	Resources/ Facilities
7.0	Project Scheduling & Monitoring
8.0	Construction
9.0	Documentation
10.0	Survey and Level/ Setting out Work
11.0	Order of Works/ Permissions/ Right of Entry/ Care of Existing Services
12.0	Make of Material/ Bought Out Items
13.0	Inspection of Supply Items
14.0	Escalation
15.0	Documents to be submitted / produced along with R.A. Bills
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1.0 PROJECT DESCRIPTION & SCOPE OF WORK

1.1 PROJECT DESCRIPTION

This tender deals with the last mile connectivity at consumer end for city gas distribution project at KOTA GA

1.2 SCOPE OF WORK

The scope of work includes laying of underground PE Pipe Laying and PNG connections. As per SOR Further the scope of work also includes identification of existing structures, buildings, roads, paves / by-lanes, nallahs, culverts, drains, utility lines, electric poles, type of ground surface and marking on drawings along with location of all houses by their names and identification number along with preparation of drawings.

The broad scope of this tender comprised of but not limited to the following:

- Installation of Domestic / Commercial / Service / Field Regulators, Domestic & Commercial Meters & other associated fittings (including supply of fittings).
- Supply and above ground GI installation including riser kit (PE to GI transition fittings) from regulator at consumer end.
- Supply of copper tube, isolation valves & appliance valves.
- Supply & installation of GI Pipe connection within Kitchen of Domestic consumers including installation of meters (free issue), regulators (free issue), anaconda, appliance / isolation valve, brass fittings, copper tube etc. complete in all respect.
- Conversion of Domestic appliances (like burner, hotplate etc) for application / use of PNG.
- Supply and Installation of TF along with GI Sleeve.
- Supply and installation of valves and end caps.
- Reconciliation of material received from store each time before submission of RA bills.

2.0 GENERAL Terms and Condition

- i. Special Condition of Contract shall be read in Conjunction with the General Conditions of Contract, SOR, PJS of work, specifications, Drawings and any other documents forming part of this contract wherever the context so requires.
- ii. Notwithstanding the sub-division of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the contract so far as it may be practicable to do so.
- iii. Where any portion of the General Condition of Contract is repugnant, to or at variance with any provisions of the Special Conditions of Contract, unless a different intention appears, the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Condition of Contract and shall to the extent of such repugnancy or variations, prevail.

- iv. The materials, design and workmanship shall satisfy the relevant INDIAN STANDARDS, the TECHNICAL SPECIFICATIONS contained herein and CODES referred to. Where the technical specification stipulate requirement in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.
- v. Wherever it is mentioned in the specifications that the CONTRACTOR shall perform certain work or provide certain facilities, it is understood that the CONTRACTOR shall do so at his cost and the VALUE OF CONTRACT shall be deemed to have included cost of such performance and provisions, so mentioned.
- vi. It will be Contractor's responsibility to bring to the notice of Engineer-in-charge any irreconcilable conflict in the contract documents before starting the work(s) or making the supply with reference to which the conflict exists.
- vii. In the absence of any specifications covering any material, design of work(s) the same shall be performed/ supplied/ executed in accordance with T4S Standard Engineering Practice as per the instructions/directions of the Engineer-in-charge, which will be binding on the Contractor.

3.0 Procurement

- 3.1.1 CONTRACTOR shall procure and supply all the materials other than OWNER supplied materials, required for permanent installation of pipeline and aboveground GI Installation in sequence and at appropriate time. All equipment, materials, components etc. shall be suitable for the intended service. Approved vendor list has been indicated in the bid package for various items. For items which are not covered in the vendor list, CONTRACTOR shall obtain Owner's prior approval for the vendor based on PTR document.
- 3.1.2 CONTRACTOR shall procure all materials, components, equipment, consumable etc. required for successful completion of the pipeline system. CONTRACTOR shall also procure and supply spares required for pre-commissioning and commissioning/ start up as recommended for all items supplied by him as per specifications provided in the bid package. Where no specification is available in the contract, the same shall be prepared by the CONTRACTOR based on the piping material specification and shall be subject to Owner's approval.
- 3.1.3 Material take-off with complete description of size, rating, material, thickness and specifications to be prepared by contractor.
- 3.1.4 Only single offer shall be provided by the bidder fully complying to specifications/ drawings/ requirements for Owner's review and approval. CONTRACTOR shall provide for inspection of the items at vendor's works by the OWNER/ Owner's REPRESENTATIVE or by a reputed inspection agency and shall submit inspection reports for Owner's clearance.
- 3.1.5 Stores management including receipt, warehousing, preserving the material in good condition, issue of material to construction site, reconciling/ handing over surplus material to OWNER for OWNER supplied items.
- 3.1.6 Carry out proper documentation of inspection and quality assurance programmes for all equipment and bulk materials duly approved by OWNER. CONTRACTOR shall maintain an accurate and traceable listing of procurement records for the location, quality and character of all permanent materials in the Project.
- 3.1.7 CONTRACTOR shall immediately report to the OWNER of all changes which will affect material quality, and recommend any necessary corrective actions to be taken.
- 3.1.8 Submit periodic progress reports highlighting hold ups and slippages, if any, to OWNER and take remedial measures.
- 3.1.9 Interact with authorities such as Sales Tax, Octroi, Excise, Customs etc. as necessary and arrange for transportation of the materials under his scope of supply to site.

- 3.1.10 All purchase requisitions including purchase orders shall be approved by Owner/ Owner's Representative.
- 3.1.11 Compliance with vendor's and supplier's instructions and recommendations for transportation, handling, installation & commissioning.

3.2 Construction

3.2.1 General

- 3.2.1.1 All construction works shall be carried out as per "Approved for Construction" drawings, procedures, specification and applicable codes and standards. Any changes at site shall also need prior approval from the OWNER and revision of drawings. Construction drawings will be submitted by the Contractor in a phased manner for Owner's approval in accordance with the procurement and construction plan prepared and furnished by contractor & agreed by Owner.

Owner will take minimum 7 working days from the date of submission of the documents / drawings submitted by the contractor for Owner's comments / approval.

3.2.1.2 Statutory Approvals

The Owner shall provide to the Contractor the basic / in principal approval for laying the pipeline. However, the Contractor at his own initiative shall obtain all permissions, permits and licenses necessary for the performance of the work. **If any such permission, permit or license required for the performance of the work** by the contractor can only be granted at the request or recommendation of the Owner, the Owner shall at the request of the Contractor, provide recommendatory letters to the contractor to obtain or procure the same. The contractor shall not, however be entitled to any additional compensation over and above contracted rates of services for any hardship or increased cost caused by any idleness, suspension or disruption of work or any other account whatsoever as a result of the inability of the contractor to obtain the permission(s), permit(s), license(s) aforesaid to match with the progress of the work nor shall the same constitute a ground for extension of time.

- a) The approval from any authority required as per statutory rules and regulations of Central/ State Government agencies etc. shall be the contractor's responsibility unless otherwise specified in the tender document. The application on behalf of the Owner for submission to relevant authorities along with copies of required certificates complete in all respects shall be prepared and submitted by the Contractor well ahead of time so that the actual construction/ commissioning of the work is not delayed for want of the approval/ inspection by concerned authorities. The Contractor shall arrange the inspection of the works by the authorities and necessary coordination and liaison work in this respect shall be the responsibility of the Contractor. However statutory fees paid, if any, for all inspections and approvals by such authorities shall be reimbursed at actual by the Owner to the Contractor on production of documentary evidence.
- b) The defective work resulting from poor workmanship and/ or material supplied by contractor, as pointed out by any statutory authority shall be rectified by the contractor at no extra cost to the Owner. Any change/ addition required to be made to meet the requirements of the statutory authorities, the same shall be carried out by the contractor free of charge. The inspection and acceptance of the work by statutory authorities shall, however, not absolve the contractor from any of his responsibilities under this contract.

- 3.2.1.3 The Contractor shall comply with all the conditions and requirements issued by Authorities having jurisdiction in the area where the work is to be performed.

It shall be the Contractor's sole responsibility to make arrangements for land for setting up of its string fabrication yards, all storage areas for line pipe and other materials, wherever required, and all other work areas.

The Contractor shall make all arrangements for access to his work site at his own cost and responsibility. If no public road exists Contractor shall arrange on his own for access to his work area at no extra cost to the COMPANY.

The CONTRACTOR shall be responsible for claims if any arising out of damage/ obstruction to public utilities likelines of DOT etc. where the claims will cover the restoration costs as well as loss of revenue due to down time.

- 3.2.1.4** Providing schedules, progress reporting, organization chart at construction site, quality assurance plan and developing quality control procedures, as per requirements indicated elsewhere in the bid package.
- 3.2.1.5** Coordination and supervising the work of sub-contractors.
- 3.2.1.6** Transportation of appropriate materials and taking delivery of Company supply materials, store, worksite, intermediate storage points, maintaining and operating an adequate material control procedure at worksite.
- 3.2.1.7** Fabrication of all GI piping, structural components as per approved drawings.
- 3.2.1.8** All civil/ structural works, electrical and instrumentation, laying and commissioning works shall be performed in accordance with relevant specifications and requirements enclosed elsewhere in the bid package.
- 3.2.1.9** CONTRACTOR shall provide complete details of manpower, equipment etc. to be deployed. Mobilizing and providing all Equipments, manpower (skilled and unskilled), consumable and other resources etc. for each spread as required for the execution of the complete job defined herein and thereafter demobilizing the same upon completion of work.
- 3.2.1.10** Provide, maintain and operate all temporary facilities required for the construction related works and remove after completion of work. Providing barricading at trench in city area as per instruction of engineer in charge for safety.
- 3.2.1.11** Hook up / tie-in of pipeline and piping system with other facilities etc.
- 3.2.1.12** All works related to cleaning, testing, dewatering, swabbing, drying, pre- commissioning and commissioning of the work tendered.
- 3.2.1.13** Idle time preservation of pipeline, if required.
- 3.2.1.14** All incidental and associated works and any other works not specifically listed therein but are required to be carried out to complete entire work related to pipelines and terminals.

3.2.2 Branch / service Pipeline

3.2.2.1 Familiarization of Pipeline Route

Bidders are advised to make site visits to familiarize themselves with all the salient features of available infrastructure along the proposed pipeline in concerned GA area (cities). Contractor shall be deemed to have considered all constraints and eventualities on account of site conditions while formulating his bid. Contractor shall not be eligible for any compensation in terms of cost and / or time, on account of site conditions varying to any extent from whatever described in the Bid Package.

- 3.2.2.2** The city condition field / other fields may have lots of PVC, PE & utility pipelines or other pipelines & cables being used for city utility / other utilities purposes. CONTRACTOR shall ensure that these lines shall not be damaged/ cut affecting the water / power / communication / other supply to concerned Users / Owners / Authorities. Wherever required, temporary necessary precautions have to be maintained for uninterrupted supply.
- 3.2.2.3** Supply, loading, unloading, handling, stacking, storing and transportation to workshop/ work site of all materials that may be used for the construction of pipeline system at their designated stack yard/ dump site/ store and/ or by CONTRACTOR as the case may be.
- 3.2.2.4** Stacking, clearing, grading as required, trenching to all depths in all types of soil including soft & hard rock by chiseling or otherwise cutting etc. to a width to accommodate the PE pipeline as per relevant

standards, drawings, specification etc. transportation of PE pipes along the route, stringing, aligning, bending, jointing including testing, inspection, field jointing including supply of all materials as per specifications, laying and lowering of the pipeline, back filling, Supply and installation of pipeline as shown in approved drawings and as directed by OWNER, installation of supports wherever required, supply of select backfill material as required, clean- up, flushing, pneumatic testing, nitrogen purging / pre-commissioning and commissioning of complete pipeline system, including all associated works as per relevant specifications, standards and approved drawings.

3.2.2.5 Sand / soft soil padding around pipe wherever required in areas where trenching has been done in hard soil area / rocky area including supply of sand/ soft soil. The thickness of sand/ soft soil padding at the top of pipe shall be minimum 150 mm and bottom of pipe shall be minimum 150 mm or as per drawing enclosed whichever is more.

3.2.2.6 Installation of all inline / online instruments / valves / fittings / transition fittings / appurtenances etc. as per requirements of approved drawings.

3.2.2.7 Testing & Purging

A) Testing

Pressure testing will be carried out with compressed air. Compressed air will be provided by Contractor for testing purposes and is to be included in the rates.

Measuring instruments shall have been calibrated and their accuracy and sensitivity confirmed. For testing of Network, calibrated pressure gauges of suitable range shall be supplied by the contractor. The pressure gauges shall be calibrated from time to time as desired by Engineer-in-Charge. All testing shall be witnessed and approved by the EIC or his delegated representative. Tie-in joints may be tested at working pressure following commissioning.

For service lines in some cases testing will be carried out for the test duration of 4 hrs. The service testing in this case will be performed after the service installation is complete but before the service tee has been tapped. Also in some cases the tapping of the service tee will be delayed pending the completion and purging of the main pipelines.

B) Purging

Purging shall be carried out in accordance with the principles defined in the American Gas Association publication 'Purging Principles and Practice'.

Nitrogen required for purging will also be provided by the Contractor. Nitrogen shall be supplied in labeled, tested and certified cylinders, and completed with all necessary regulators, hoses and connections, which will be in good condition and working order.

In addition the Contractor shall submit and get approved a Purging Plan before commencing any purging work. The Plan shall include, but not be limited to, the provision of the following materials and equipment: Personal safety equipment, Fire extinguisher, Purging adaptor, Purge stack with flame trap and gas sampling point, Gas sampling equipment (may be gas leak detector), squash-off tool, Polyethylene connecting pipe work.

The Plan shall also include the purging process along with detail on the sequence of events. The process is to also specifically mention the need to lay a wet cloth over the PE main and in contact with the ground, to disperse static electricity during the purging work.

A purge stack with flame trap shall be used when purging services. Care shall be taken to ensure that the purge outlet is so located that vent gas cannot drift into buildings.

3.2.2.8 Markers

Installation of all types of markers including all associated civil works. Any other work not specifically mentioned above but required for making the entire pipeline system ready for operation.

3.2.2.9 Priorities

The Contractor shall start the execution work as per approved execution methodology / plan / procedure to complete the scope of work and shall deploy adequate manpower, machinery, tool & tackles etc. accordingly.

However, Owner may, at its sole option, assign priority of construction to any part/ segment of the work. Contractor shall comply with such priority of execution and their deployment without any time and cost implication to the Owner.

3.2.2.10 Pre-commissioning and Commissioning Assistance

- Pre-commissioning including supply of all materials, consumables and manpower of the complete pipeline system
- Making the entire system ready for commissioning and providing assistance during the complete duration of commissioning operations.
- Completion of all pipeline activities as detailed in SOR.

3.2.2.11 Civil Works

- Civil works shall be carried out as per scope mentioned at SOR and as per Indian Standard norms.
- Any other work not specifically listed herein but required for the completion of the work.

3.2.2.12 Installation of welded Riser and Lateral Pipes in High Rise Building for PNG connection

- Erection, Fabrication, Socket Welding of GI Pipes (heavy duty, as per IS-1239 Part-I duly Zinc coated in accordance with IS 4736) & wrought steel fittings (forged fittings, conforming to IS-1239 Part-II). The threading of GI pipe shall be NPT and conforming to ANSI B120.1
- Erection, Fabrication, Socket Welding, Testing & Installation of welded GI Pipes & Fittings etc., including NPT threading as per technical specification and sketch attached.
- Preparation and approval of sketches, schedules, execution procedures & WPS as per technical specification. All consumables e.g. electrodes, flux etc. for welding pipes and fittings are under contractor's scope.
- Supply & fixing of MS angle clamps, Ceiling clamps & dowel plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape / lock tight, Supply and fixing of studs & bolts of various sizes ranging from 1/2" to 2" and 3/4" to 2", Jointing of transition fittings to above ground GI pipes, purging, testing and commissioning of the complete installation.
- Welding of Riser is to be carried out in line with duly approved PQR / WPS.
- Galvanized (Zinc) coating shall be removed by light duty grinder or by any other suitable tool at both ends of riser pipe at about 25mm in length where welding is to be performed.
- The entire riser assembly shall be fabricated with socket welds both for threaded riser assembly and plain ended pipes. Threaded joints are permitted after first isolation valve on laterals where riser is not approachable from balcony and in case if riser is in approach of balcony within 300 mm gap from balcony laterals may be threaded with tee of welded riser on account of workability and future maintenance considerations

- Pipe and required fittings shall be first coupled with threaded (NPT) joints. The threaded joints to be made using male tapered thread and female parallel thread fittings.
- Teflon/PTFE Tape or any other joining compound shall not be used in threaded joints for welded riser. Alternatively plain ended pipes and fitting can also be used for welding in welded riser.
- Risers and laterals must be designed to run through the optimal possible route, taking into consideration potential meter positions, design regulations and access for future maintenance. A riser must not be constructed so that the laterals face directly into the wall from the riser.
- Risers and laterals must be laid a minimum of 300 mm from any electrical equipment or installations. On occasions where the pipe has to cross over a cable, this has to be done at right angles and a minimum gap of 25 mm must be maintained between the pipe and cable. Consideration may be given to wrapping the pipe with electrical insulation tape for protection against electrical short circuiting.
- The riser shall be installed in a vertical line from its point of support to its highest point with a minimum of changes in direction. All riser and lateral pipe shall be clamped to the building at intervals not exceeding 1.5 mtrs. Maximum distance between clamps shall be 1.0 - 1.5 m when pipe goes to the straight, if any tee or fittings lies in between the pipe then clamp shall be placed 150 mm far away from centre line of fittings at every sides. However, the same may be changed as per site conditions/as directed by EIC. Minimum gap between pipe & wall shall be 25mm.
- Only pretested riser shall be erected using pulley. Pretesting shall be done with compressed air @ 2bar (g) for minimum duration of 30 minutes.
- Supply and Installation of lateral GI pipes of 1/2" to 2" dia. from welded riser tapping TEE (Isolation Valve) to customer's kitchen appliances including NPT threading of GI pipes, supply of proper seal outs for threads to join fittings such as elbows, tees, connectors, regulators (free issue), meters (free issue), appliance & isolation valves etc., as per approved procedures and specification including clamping and sealing etc.
- The lateral extending from the riser at right- angles must extend a minimum of 400 mm from the riser before passing through a wall. Where the 400 mm length cannot be achieved, a flexible fitting such as stainless steel hose (anaconda) shall be fitted.
- **For the laterals beyond eighth floor, flexible Anaconda shall be used in compliance to the material specification of SS316, fittings shall be used with brass connections conforming to IS 319, in order to account for the temperature induced stresses.**
- Where pipe passes through the balcony and the surface is slightly elevated around the service pipe or its surrounding, sleeves to be provided to prevent the accumulation of water at that point.
- Pipe shall preferably be entered into building above ground and remain in a ventilated location. The location for entry shall be such that it can be easily routed to the usage points by the shortest practicable route.
- Risers and laterals shall be Leak tested with compressed air @ 2 bar (g) for minimum 2 hrs after vertical installation.
- The joints/ fittings of the GI installation shall be painted only after carrying out testing of the installation
- Making temporary but stable platforms/scaffolding/rope ladder etc., required for installation of pipes/fittings at all heights/multi storied flats and locations.

Any other material & activities not mentioned/covered above, but otherwise required for satisfactory completion/safety of work as defined in tender has to be supplied / done by contractor within specified schedule at no extra cost to Owner



4.0 SCOPE OF SUPPLY

4.1 Owner's Scope of Supply (Free Issue Item)

Owner's scope of supply includes all DRS / MRS, MDPE Pipe, Meters, Regulators, only as required.

In addition to above, In order to speed up the project other Materials if available with Owner shall be issued on replacement basis to the Contractor from the designated store(s) of RSGL Contractor shall be responsible for lifting the free issue materials from Owner's storage point(s) and transporting the same to work site(s) at his own cost.

4.2 Material to be supplied by Contractor

The procurement and supply, in sequence and at the appropriate time, of all materials and consumables required for completion of the work as defined in this Bid document except the materials specifically listed above, shall be entirely the CONTRACTOR'S responsibility and item rates quoted for the execution of the CONTRACT shall be inclusive of supply of all these materials. The material to be supplied by the Contractor shall be as per specification and preferred make as indicated in Appendix-I or duly approved / recommended for use by RSGL. The materials will be, but not by way of limitations, as follows:

All materials except what is under Owner's scope of supply as mentioned in Clause No. 4.1 above, and required for successful completion of works in all respects shall be supplied by the Contractor and the cost of such supply shall be deemed to have been included in the quoted price without any additional liability on the part of Owner.

The following materials to be supplied by the contractor **as required** for completing the work. However other additional/ Supplementary materials required for execution of the project is to be supplied by the contractor.

Material under Contractor's Scope of Supply

A) HDPE Casing Pipes PE 63/80, PN 6

- i) HDPE Ducting Pipes of various sizes

B) Coupler / bends / elbows

- i) For 20 to 125 mm (PE)

C) End Caps

- i) Ends caps 20 to 125 mm (PE)

D) Equal Tee

- i) Equal Tee 20 to 125 mm OD (PE)

E) Saddle Tapping Tee

- i) Saddle Tapping Tee 32x20 (PE)
- ii) Saddle Tapping Tee 63x20 (PE)
- iii) Saddle tapping Tee 63x32 (PE)
- iv) Saddle tapping Tee 90x20 (PE)
- v) Saddle Tapping Tee 90x32 (PE)
- vi) Saddle Tapping Tee 125x63 (PE)
- vii) Saddle Tapping Tee 125x90 (PE)
- viii) Saddle Tapping Tee 125x63 (PE)

F) Reducers

- i) Reducers 32x20 (PE)
- ii) Reducers 63x32(PE)
- iii) Reducers 90x63 (PE)
- iv) Reducers 125x63 (PE)
- v) Reducers 125x90 (PE)

G) Transition Fitting

- i) PE to G.I. (20 mm to 1/2")-01(Imp)
- ii) PE to G.I. (32 mm to 1")

H) Warning mat

Warning Mat 300mm Wide-1mm Thick

I) GI Fittings

- i) Elbows F End (1/2") (GI)
- ii) Elbows F End (3/4") (GI)
- iii) Elbows F End (1") (GI)
- iv) Elbows F End (1 1/2") (GI)
- v) M & F Elbows End (1/2") (GI)
- vi) M & F Elbows End (3/4") (GI)
- vii) M & F Elbows End (1") (GI)
- viii) M & F Elbows End (1 1/2") (GI)
- ix) Equal Tee (1/2") (GI)
- x) Equal Tee (3/4") (GI)
- xi) Equal Tee (1") (GI)
- xii) Equal Tee (1 1/2") (GI)
- xiii) Union (1/2") (GI)
- xiv) Union (3/4") (GI)
- xv) Union (1") (GI)
- xvi) Union (1 1/2") (GI)
- xvii) Sockets (1/2") (GI)
- xviii) Sockets (3/4") (GI)
- xix) Sockets (1") (GI)
- xx) Sockets (1 1/2") (GI)
- xxi) Reduced Elbows (3/4" x 1/2") (GI)
- xxii) Reduced Elbows (1" x 3/4") (GI)
- xxiii) Reduced Elbows (1 1/2" x 3/4") (GI)
- xxiv) Reduced Elbows (1 1/2" x 1") (GI)
- xxv) Reduced Elbows (2" x 1 1/2") (GI)

- xxvi) Hex Nipple Size ($\frac{1}{2}$ " x 2") Long (GI)
- xxvii) Hex Nipple Size ($\frac{1}{2}$ " x 3") Long (GI)
- xxviii) Hex Nipple Size ($\frac{3}{4}$ " x 2") Long (GI)
- xxix) Hex Nipple Size (1" x 2") Long (GI)
- xxx) Hex Nipple Size ($1\frac{1}{2}$ " x 2") long (GI)

- xxxii) Reduced Sockets ($\frac{3}{4}$ " x $\frac{1}{2}$ ") long (GI)
- xxxiii) Reduced Sockets (1" x $\frac{3}{4}$ ") (GI)
- xxxiv) Reduced Sockets ($1\frac{1}{2}$ " x $\frac{3}{4}$ ") (GI)
- xxxv) Reduced sockets ($1\frac{1}{2}$ " x 1") (GI)
- xxxvi) Reduced sockets (2" x $1\frac{1}{2}$ ") (GI)
- GI Plugs $\frac{3}{4}$ ", 1"

J) GI PIPEs like

- i) $\frac{1}{2}$ " all floor (including connectivity from TF to regulator)
- ii) $\frac{3}{4}$ " all floor (including installation of riser)
- iii) 1" dia all floor (for riser installation)

K) COPPER TUBES

- i) 12.0 mm OD X 0.6 mm wall thickness

L) ISOLATION VALVES

- i) $\frac{1}{2}$ "
- ii) $\frac{3}{4}$ "
- iii) 1"

M) APPLIANCE VALVES

- i) $\frac{1}{2}$ "

Anaconda (flexible hoses) before meter if required. Steel reinforced rubber hose (before burner) if required

Any other fittings not specified above but required for GI, Cu and PE lines is to be provided by the contractor.

Notes:-

- i. All the supply items shall be procured from the vendors / manufacturers listed in tenderdocuments.
- ii. For any other item(s) for which the vendor list is not provided, bidders can supply those item(s) from vendors/ suppliers who have earlier supplied same item(s) for the intended services in earlier projects and the item(s) offered is in their regular manufacturing/ supply range. The bidder is required to submit documentary evidences (PO copies, Inspection Certificate etc.) before procurement / Placement of Order for approval to Owner / .

- iii. For supply items the contractor has to **submit Material test certificate** and other relevant documents from the approved / listed manufacturer for review of Owner / .
- iv. In case, Contractor proposes a vendor other than those as per the suggested vendor list, Contractor is required to submit documentary evidences such as PO copies, Inspection Certificate and any other information etc (such as reasons for proposing the change of vendor) before procurement / Placement of order for approval to Owner / .
- v. Owner / reserve the right to accept material on MTC basis from listed / approved vendors for procurement of supply items by the contractor.

5.0 DOCUMENTS, SPECIFICATION, STANDARDS AND DRAWINGS

5.1 Owner shall furnish tender purpose drawings as listed in content of Volume-II of II of the tender document and other typical standard drawings attached with respective technical specifications enclosed with Volume-II of II of the tender document. Contractor shall prepare detail engineering drawing, bill of materials and all construction drawings and submit to Consultant for approval prior to start of the job / any procurement.

5.2 Contractor shall prepare isometric drawings, any specific detail drawings (if required by Engineer-in-charge) & bill of materials and submit the same for Owner/ Consultant's approval / record.

Contractor shall prepare drawing for utilities line as required or as per SOR and submit the same for Owner/ Consultant's approval/ record.

5.3 No construction small or big shall be carried out without proper construction / standard drawings duly approved by EIC

5.4 After completion of construction & commissioning of pipeline system, Contractor shall incorporate all the correction in drawings, prepare and issue the drawings "as built drawings" as listed below to Owner as final submission of drawings. For pipeline alignment sheet, all block valves location & details, pipe book etc. and for tap-off point & consumers premises, piping GAD, Isometric and all civil drawings including hook-up arrangement with Meter Regulator. For final submission only 4 sets of documents shall be handed over by Contractor. Any construction done by Contractor without duly approved drawings shall be wholly at his risk and cost. Contractor shall also submit soft copy of pipe book in excel along with hard copy. Soft copy of all as- built drawings shall be also submitted in AutoCAD.

5.5 Specifications

The work shall be carried out by CONTRACTOR strictly in accordance with the following specifications enclosed in Volume-II of this document:

- 1) Laying of Underground PE Pipeline
- 2) Installation of Aboveground GI Piping for Domestic Consumers

- 3) PE Pipes
- 4) GI Pipe
- 5) GI Fittings
- 6) HDPE Pipes
- 7) Cu pipe
- 8) Cu fitting
- 9) Warning mats
- 10) MDPE Fittings and Electro-fusion
- 11) Brass Fitting
- 12) Flexible Hose (anaconda)
- 13) Flux
- 14) Isolation valve & Appliance Valve
- 15) Health safety and environment
- 16) Quality Assurance
- 17) Steel reinforced rubber hose

5.6 Drawings

The drawings to the extent available are included in Vol.-II of the bid package for BIDDER's reference purpose only; Bidders are advised to go through these drawings and also visit the site before submitting their bids. The Contractor shall develop all drawings including for all crossings, along with the all connection drawings required for construction works as detailed in respective SCC, PJS & SOR etc.

6.0 RESOURCES / FACILITIES

6.1 Recruitment of Personnel by Contractor

The Contractor shall not recruit personnel of any category from among those who are already employed by the other agencies working at the sites but shall make maximum use of local labour available.

6.2 Construction Water and Power Supply

No water and power will be provided by the Owner. It should be the responsibilities of the contractor to arrange water and power at his own cost.

6.3 Land for Residential Accommodation

Owner shall not provide any land for residential accommodation of contractors staff and labour.

7.0 PROJECT SCHEDULING & MONITORING

The following schedules/documents/reports shall be prepared and submitted by the Bidder/Contractor for review/approval at various stages of the contract.

7.1 Along with Bid

a) Time Schedule

The Completion Time Schedule for the work (including mobilization period) as per SCC Annexure- 3 **of Tender in all respect, from the date of issue of telex/telegram/letter/Fax of Intent.**

The Bidder is required to submit a Project Time Schedule in Bar Chart Form, along with the Bid. The Schedule shall cover all aspects like sub-ordering, manufacturing and delivery, indicated in the Bid Document. The Owner interface activities shall be clearly identified with their latest required dates. Owner reserves the right to disqualify the Bidder if the above Schedule submitted by the Bidder is not in line with the over all Project requirement.

b) Scheduling & Monitoring System

The Bidders should describe their system of Project Scheduling and monitoring, the extent of computerization, level of detailing, tracing methodology etc. with the name of computer package and sample outputs.

7.2 After the Award of Contract

a) Overall Project Schedule

The Contractor shall submit within 1 week of Fax of Intent, a sufficiently detailed over all Project Schedule in the activity network form, clearly indicating the major milestones, interrelationship/ interdependence between various activities together with analysis of critical path and floats.

The network will be reviewed and approved by Engineer- in-Charge and the comments if any shall be incorporated in the network before issuing the same for implementation. The network thus finalized shall form part of the contract document and the same shall not be revised without the prior permission from Engineer-in- Charge during the entire period of contract.

b) Progress Measurement Methodology

The contractor is required to submit within 1 week of award of WORK, the methodology of progress measurement of sub-ordering, manufacturing/ delivery, sub- contracting construction and commissioning works and the basis of computation of overall services/physical progress informed. Owner reserves the right to modify the methodology in part or in full.

c) Functional Schedules

The contractor should prepare detailed functional schedules in line with network for functional monitoring and control and submit scheduled progress covers for each function viz. ordering, delivery and construction.

7.3 Project Review Meetings

The Contractor shall present the programme and status at various review meetings as required.

a) Weekly Review Meeting

Level of Participation: Contractor's/Consultant's RCM/ Site In charge & Job Engineers.

Agenda: a) Weekly programme v/s actual achieved in the past week & programme for next week.

b) Remedial Actions and hold up analysis.

c) Client query/ approval.

Venue: Site Office

b) Monthly Review Meeting

Level of Participation: Senior Officers of RSGL / and Contractor.

Agenda: a) Progress Status/ Statistics

b) Completion Outlook

c) Major hold ups/slippages

d) Assistance required

e) Critical issues

f) Client query / approval

Venue: RSGL office

7.4 Progress Reporting Performa

A) Monthly Progress Report

This report shall be submitted on a monthly basis within 10 (ten) calendar days from cut-off date, as agreed upon covering overall scenarios of the work. The report shall include, but not limited to the following:

a) Brief Introduction of the work.

b) Activities executed / achievements during the month.

c) Schedule versus actual percentage progress and progress curves for Detail Engg. Sub-ordering, Manufacturing / Delivery, Sub- contracting, Construction, Commissioning and Overall and quantum wise status & purchase orders against schedule.

d) Area of concern/ problem/ hold-ups, impacts and action plans.

e) Resources deployment status.

f) Annexures giving status summary for drawings, MRs, deliveries, sub-contracting and construction.

g) Procurement status for items to be supplied by Contractor.

B) Weekly Reports

The report will be prepared and submitted by the Contractor on weekly basis and will cover following items:

- a) Activities programmed and completed during the week.
- b) Resource deployed men and machines.
- c) Quantities achieved against target in construction
- d) Record of Man-days lost.
- e) Construction percentage progress schedule and actual.

C) Daily Repots

- a) Activity programme for the day
- b) Progress of the previous day and commutative progress.
- c) Manpower & machinery deployed.

7.5 Progress Reports

7.5.1 CONTRACTOR shall make every effort to keep the OWNER adequately informed as to the progress of the WORK throughout the CONTRACT period.

CONTRACTOR shall keep the OWNER informed well in advance of the construction schedule so as to permit the OWNER to arrange for requisite inspection to be carried out in such a manner as to minimize interference with progress of WORK. It is imperative that close coordination be maintained with the OWNER during all phases of WORK.

7.5.2 By the 10th (tenth) of each month, CONTRACTOR shall furnish the OWNER a detailed report covering the progress as of the last day of the previous month. These reports will indicate actual and scheduled percentage of completion of construction as well as general comments of interest or the progress of various phases of the WORK. The frequency of progress reporting by the CONTRACTOR shall be weekly.

7.5.3 Once a week, CONTRACTOR shall submit a summary of the WORK accomplished during the preceding week in form of percentage completion of the various phases of the WORK, to the OWNER.

7.5.4 Progress reports shall be supplied by CONTRACTOR with documents such as chart, networks, photographs, test certificate etc. Such progress reports shall be in the form and size as may be required by the OWNER and shall be submitted in at least 3 (three) copies.

7.5.5 Contractor shall prepare Daily Progress Report (DPR) in the desired format and submit it to Engineer-in-charge along with schedule of next day to Engineer-in-charge.

8.0 CONSTRUCTION

OWNER reserves the right to inspect all phases of CONTRACTOR's operations to ensure conformity to the SPECIFICATIONS. Owner will have Engineers, Inspectors or other duly authorized representatives, made known to the CONTRACTOR present

during progress of the WORK and such representatives shall have free access to the WORK at all times. The presence or absence of OWNER's representative does not relieve the CONTRACTOR of the responsibility for quality control in all phases of the WORK. In the event that any of the WORK being done by the CONTRACTOR or any SUB-CONTRACTOR is found by OWNER's representatives to be unsatisfactory or not in accordance with the DRAWINGS, procedures and SPECIFICATIONS, the CONTRACTOR shall, upon verbal notice of such, revise the work in a manner to conform to the relevant DRAWINGS, procedures and SPECIFICATIONS.

8.1 Rules & Regulations

CONTRACTOR shall observe in addition to Codes specified in respective specification, all National and Local Laws, Ordinances, Rules and Regulations and requirements pertaining to the WORK and shall be responsible for extra costs arising from violations of the same.

8.2 Procedures

Various procedures and method statements to be adopted by CONTRACTOR during the construction as required in the respective specifications shall be submitted to OWNER in due time for APPROVAL. No such construction activity shall commence unless approved by OWNER in writing.

8.3 Field Inspection

CONTRACTOR shall have at all times during the performance of the WORK, a Competent Superintendent on the premises. Any instruction given to such superintendent shall be construed as having been given to the CONTRACTOR.

8.4 Erection and Installation

The CONTRACTOR shall carry out required supervision and inspection as per quality assurance plan and furnish all assistance required by the OWNER in carrying out inspection work during this phase. The OWNER will have engineers, inspectors or other authorized representatives present who are to have free access to the WORK at all times. If an OWNER's representative notifies the CONTRACTOR's authorized representative not lower than a Foreman of any deficiency, or recommends action regarding compliance with the SPECIFICATIONS, the CONTRACTOR shall make every effort to carry out such instructions to complete the WORK conforming to the SPECIFICATIONS and approved DRAWINGS in the fullest degree consistent with best industry practice.

8.5 Construction Aids, Equipment, Tools & Tackles

CONTRACTOR shall be solely responsible for making available for executing the work, all requisite Construction Equipments, Special Aids and Tools, Tackles and testing Equipments and appliances. Such construction Equipments etc. shall be subject to examination by Owner and approval for the same being in first class operating condition. Any discrepancies pointed out by OWNER shall be immediately got rectified, repaired or the equipment replaced altogether, by CONTRACTOR.

OWNER shall not in any way be responsible for providing any such equipment, machinery, tools and tackles.

The OWNER reserves the right to rearrange such deployment depending upon the progress and priority of work in various sections.

Tie-end between main line and starting point of terminal is included in the scope of contract, as and when main line section is available for Tie-ins.

9.0 DOCUMENTATION

9.1 "As Built" Drawings

The Contractor will be required to submit computerized as-built drawings duly certified by EIC in A1/ A2 sheet form at 1:200 scale with one set for RSGL site office in original hard copy and one set hard copy for RSGL, JAIPUR, plus soft copy. The as-built drawing shall be submitted on area wise as specified. The bill of materials used for the particular area shall be specified on the drawings

9.2 Completion Document – PE & GI

The following documents shall be submitted in hard binder by the BIDDER in one set for RSGL site office in original and one set for RSGL, JAIPUR, as a part of completion documents: -

- a) Copies of the Inspection reports, Laying Graphs, HDD Profiles (if required) and valve pit drawings (if required).
- b) Pre testing, final Hydrostatic / pneumatic and other Test results and reports.
- c) Consumption statements of PE / GI certified by Owner's Site Engineer.
- d) Material Reconciliation, stores issue & return statements
- e) All other requirements as specified in the respective specifications.
- f) Completion Certificate issued by Owner's Site Engineer.
- g) No claim certificate by the BIDDER.
- h) Completion certificate for embedded and covered up works wherever applicable.
- i) Recovery statement, if any.
- j) Deviation statement.
- k) Statement for reconciliation of all the payments and recoveries made in the progress bills.
- l) Copies of deviation statement and order of extension of time, if granted.
- m) Any other contractual documents required on completion.
- n) Total list of houses in the area allotted to him giving details of connections provided & reasons where connection could not be given / completed.
- o) The details recorded in measurement cards of every domestic house.
- p) Details of houses where extra piping done along with materials used.
- q) Total material consumption report.
- r) Material reconciliation with respect to the materials issued.
- s) Test reports & test certificates of gauges etc.
- t) Any other documents / records required.

10.0 SURVEY AND LEVEL / SETTING OUT WORK

- 10.1** Before the WORK or any part thereof are begun, the CONTRACTOR's agent and the Engineer-in-Charge's representative shall together survey and take levels of the SITE and decide all particulars on which the survey is to be made, and on which measurements of the WORK are to be based. Such particulars shall be plotted by the CONTRACTOR and after agreement the drawings shall be signed by the Engineer-in-Charge.
- 10.2** The CONTRACTOR shall be entirely responsible for the horizontal and vertical alignment, the level and correctness of every part of the WORK and shall rectify any errors or imperfections therein. Such rectifications shall be carried out by the CONTRACTOR at his own cost, when instructions are issued to this effect by the Engineer-in-Charge or his representative.
- 10.3** The Engineer-in-Charge shall furnish the relevant existing grid point with Bench Mark on the land. It shall be CONTRACTOR's responsibility to set out the necessary control points in and to set out the alignment of the various works. The CONTRACTOR shall have to employ efficient survey team for this purpose and the accuracy of such setting out work shall be CONTRACTOR's responsibility.
- 10.4** The CONTRACTOR shall give the Engineer-in-Charge not less than 24 (twenty four) hours notice in writing of his intention to set out or give levels for any part of the WORK so that arrangements may be made checking the same.
- 10.5** WORK shall be suspended for such times as necessary for checking lines and levels on any part of the WORK.
- 10.6** The CONTRACTOR shall at his own expense provide all assistance, which the Engineer-in-Charge may require for checking the setting out of WORKS.
- 10.7** Before commencement of any activity, contractor's quality control set up duly approved by company must be available at site.

11.0 ORDER OF WORKS / PERMISSIONS / RIGHT OF ENTRY / CARE OF EXISTING SERVICES.

11.1 The order in which the WORK shall be carried out shall be subject to the approval of the Engineer-in-charge and shall be so as to suit the detailed method of construction adopted by the CONTRACTOR, as well as the agreed joint programme. The WORK shall be carried out in a manner so as to enable the other contractors, if any, to work concurrently.

OWNER reserves right to fix up priorities which will be conveyed by Engineer-in-Charge and the CONTRACTOR shall plan and execute work accordingly.

11.2 Existing Service

11.2.1 Drains, pipes, cables, overhead wires and similar services encountered in course of the works shall be guarded from injury by the CONTRACTOR at his own cost, so

that they may continue in full and uninterrupted use to the satisfaction of the Owners thereof, or otherwise occupy any part of the SITE in a manner likely to hinder the operation of such services.

11.2.2 Should any damage be done by the CONTRACTOR to any mains, pipes, cables or lines (whether above or below ground etc), whether or not shown on the drawings the CONTRACTOR must make good or bear the cost of making good the same without delay to the satisfaction of the Engineer-in-Charge.

12.0 MAKE OF MATERIAL / BOUGHT OUT ITEMS

Approved vendors for various major items are enclosed as Appendix-I to Particular Job Specification with this tender document. The bidder shall consider such names only as indicated in the aforesaid list and clearly indicate in the bid the name(s) as selected against these items. For any other item not covered in the list enclosed with this tender document, prior approval shall be obtained by the contractor for its make/ supplier's name.

13.0 INSPECTION OF SUPPLY ITEMS

All inspections and tests shall be made as required by the specifications forming part of this contract. Contractor shall advise Owner/ Consultant in writing at least 10 days in advance of the date of final inspection/tests. Manufacturer's inspection or testing certificates for equipment and materials supplied, may be considered for acceptance at the discretion of Owner/ Consultant. All costs towards testing etc. shall be borne by the contractor within their quoted rates. All inspection of various items shall be carried out based on Quality Assurance Plan, which will be submitted by the Contractor and duly approved by Owner/ Consultant.

14.0 ESCALATION

The Unit Rates quoted shall be kept firm till completion of work and no price Escalation shall be paid.

15.0 DOCUMENTS TO BE SUBMITTED / PRODUCED ALONG WITH R.A. BILLS

Refer 'the checklist- F-21' for details of the documents to be submitted. Checklist duly signed will become part of RA bill.

16.0 INSURANCE FOR FREE ISSUE MATERIAL

Insurance for Free Issue Material

Contractor shall at his own expense arrange, secure and maintain insurance cover for Owner's supplied free issue materials as defined in Tender Document of adequate value as intimated by Owner / consultant. Contractor's quoted price shall be inclusive of all costs on account of insurance liabilities covered under the Contract. Contractor to note that the beneficiary of insurance cover shall be RSGL.

16.2. Insurances in India

16.2.1 Contractor shall at his own expense arrange, secure and maintain insurance with Indian insurance companies to the satisfaction of the Owner as may be necessary and to its full value for all such amounts to protect the works in progress from time to time and the interest of Owner against all risks as detailed herein. The form and the limit of such insurance as defined herein together with the underwriter works thereof in each case should be acceptable to the Owner. However, irrespective of work acceptance the responsibility to maintain adequate insurance coverage at all times during the period of Contract shall be that of Contractor alone. Contractor's failure in this regard shall not relieve him of any of these responsibilities and obligations under Contractor.

16.2.2 Any loss or damage to the equipment during inland transportation, storage, erection and commissioning till such time the Work is taken over by Owner shall be to the account of Contractor. Contractor

shall be responsible for preferring of all claims and make good for the damage or loss by way of repairs and/ or replacement of the parts of the Work damaged or lost. Contractor shall provide the Owner with a copy of all insurance policies and documents shall be submitted to the Owner immediately upon the Contractor having taken such insurance coverage. Contractor shall also inform the Owner regarding the expiry cancellation and/ or changes in any of such documents and ensure revalidation/ renewal etc., as may be necessary well in time.

16.2.3 The risks that are to be covered under the insurance shall include, but not be limited to the loss or damage in handling, transit, theft, pilferage, riot, civil commotion, weather conditions, accidents of all kinds, fire, war risk etc. The scope of such insurance shall cover the entire value of supplies of Equipments, plants and materials.

16.2.4 All cost on account of insurance liabilities covered under this Contract will be to Contractor's account and will be included in Contract Price. However, the Owner may from time to time, during the currency of the Contract, ask the Contractor in writing to limit the insurance coverage risk and in such a case, the parties to the Contract will agree for a mutual settlement, for reduction in Value of Contract to the extent of reduced premium amounts.

Contractor as far as possible shall cover insurance with Indian Insurance Companies.

17.0 SPECIAL POINTS PERTAINING TO SPECIFICATION:-

The technical specification & safety standards as prescribed in PNGRB is to be followed further

- The detailed engineering for above ground installation shall include detail engineering pertaining to all disciplines (if required) along with bill of materials.
- All the documents/ drawings prepared by the Contractor shall be submitted to Owner/ Engineer-in-charge for review and approval. All works shall be executed based on the approved drawings/ documents only.
- Contractor shall obtain all clearance from Government authorities (if required). However bank guarantee/ required fee or charges shall be submitted by Owner.

17a. If any ambiguity arises between SCC (Tech.) & Particular Job Specification in that case later shall govern. However in some cases, decision of Engineer-in-charge shall be final and binding to the contractor.

17b Following points shall be taken care by the contractor before during execution works.

- i) Contractor shall be responsible for taking necessary precautions regarding traffic (installation of notice / warning boards).
- ii) Contractor shall be totally responsible for the occurrence of any accident during excavation of road and shall be liable for damages / expenses due to the same.
- iii) Concerned authority / Owner shall not be responsible for any loss / damage.
- iv) One copy of the permission shall be made available with contractor's responsible workman (if required) at the place where excavation is undertaken.
- v) While executing the subject work, excavation shall be done in consultation with the concerned authority engineer of that area.
- vi) Necessary safety measures shall be taken for the gas pipeline, since high tension lines and other services carriers are running along with in gas pipeline route in the area.

18.0 SPECIAL NOTES PERTAINING TO SCHEDULE OF RATES (SOR)

- i) All SOR item shall be quoted by the bidder in the price part of the bid, other-wise bid will be rejected.
- ii) The quantities given above against individual items are indicative and shall not be considered to be binding. The quantities may be increased, decreased or deleted at site at the time of actual execution and as per discretion of Owner/ Engineer-in-charge. The unit rate shall be operated to work out the final payment due to Contractor.
- iii) The payment will be made as per actual certified measurement at site.
- iv) The scope as mentioned in the SOR is of indicative nature only and shall include all activities as detailed in the relevant clauses of the respective Particular Job Specifications, Technical Specifications, Data Sheets & drawings, etc.

19.0 APPENDIX-I TO PARTICULAR JOB SPECIFICATION

LIST OF APPROVED SUPPLIER FOR BOUGHT OUT ITEMS

PE FITTINGS & PE VALVES

- 1) M/s Friatech AG, Germany (represented by M/s Sherman Sales in India)
- 2) M/s Jain Irrigation Systems Ltd. Jalgaon (Fusion, UK)
- 3) M/s George Fisher
- 4) M/s Plasson Ltd.
- 5) M/s Agru, Australia
- 6) M/s Kimplas, Nasik (PE Fittings only)
- 7) M/s Innogaz & M/s Frialen of M/s Aliaxis Utilities & Industry Pvt. Ltd. (formerly Glynwed pipe systems)
- 8) AL-Aziz Plastics

HDPE PIPES & DUCT

- 1) M/s Climax Synthetics (P) Ltd., Vadodra
- 2) M/s Indian Poly Pipes, Calcutta
- 3) M/s Jain Irrigation Systems Ltd., Jalgaon
- 4) M/s Kirti Industries (India) Ltd., Indore
- 5) M/s Ori Plast Limited, Calcutta
- 6) M/s Phoel Industries Limited, Delhi
- 7) M/s Sangir Plastics (P) Ltd., Mumbai
- 8) M/s Veekay Plast, Jaipur
- 9) M/s Kisan Irrigation
- 10) M/s Dutron Polymers Ltd.
- 11) M/s Manikya Plastics (P) Ltd
- 12) M/s Mangalam Pipes Pvt. Ltd., Bengaluru
- 13) M/s Shand Pipe industry Pvt. Ltd., Bengaluru
- 14) M/s Varun Pipes Pvt. Ltd., Bengaluru
- 15) M/s EPP Composite Pvt. Ltd., Rajkot
- 16) M/s DM Engineering Co. , Mumbai

GI PIPES

- 1) M/s Goodluck Steel Tubes Ltd, Ghaziabad
- 2) M/s Indus Tubes Ltd , New Delhi
- 3) M/s Jindal Pipes Ltd , New Delhi
- 4) M/s Jyotindra Steel & Tubes Ltd, Firozabad
- 5) M/s Rama Steel Tubes Ltd, New Delhi
- 6) M/s Surya Roshni Ltd, Bhadurgarh
- 7) M/s Vishal Pipes Ltd.
- 8) M/s Advance Steel Ltd.
- 9) M/s Swastik Pipe Ltd.
- 10) M/s Fortune Pipe Ltd.
- 11) M/s Indian Seamless Metal Tubes Ltd., Pune
- 12) M/s Appolo Tubes, Bengaluru
- 13) M/s Nezone Tubes Ltd., Kolkata
- 14) M/s Topworth Pipes & Tubes Pvt. Ltd., Navi Mumbai

WARNING MAT

- 1) M/s Sparco Multiplast Pvt. Ltd., Ahmedabad
- 2) M/s Singhal Industries, Ahmedabad
- 3) M/s Raychem RPG Ltd.
- 4) M/s Puja Packings, Mumbai
- 5) M/s Bina Enterprises, Mumbai
- 6) M/s Shree Vijay Wire & Cables Industries, Jaipur

GI FITTINGS

- 1) M/s Jainsons Industries, Jalandhar
- 2) M/s Jupiter Metal Industries Ltd.
- 3) M/s Rajnesh Malleables Ltd., Delhi
- 4) M/s Industrial Valves & Components, Delhi
- 5) M/s Sarin Industries, Delhi
- 6) M/s Excel Metal & Engineering Industries, Mumbai
- 7) M/s Modern Stores & Engineering Concern, Kolkata
- 8) M/s Jinan Meide Casting Co. Ltd., China
- 9) M/s Mehta Brother & Co., Mumbai- (Make: M/s Jinan Meide Casting Co. Ltd., Japan)confirming to IS 1879:2010 latest standard
- 10) M/s Chokhawala Distributors

COPPER TUBES AND FITTINGS

- 1) M/s Paras Industries Ltd.
- 2) M/s Rajco Metal
- 3) M/s Chandan Enterprises
- 4) M/s Mehta Tubes
- 5) M/s Cofit Industries, Bengaluru
- 6) M/s Mandev Tubes
- 7) M/s Sagardeep Alloys
- 8) M/s Pallavi Copper Pipes

BRASS FITTINGS

- 1) M/s Chandan Enterprises



- 2) M/s Paras Industries Ltd.
- 3) M/s Umesh Enterprises
- 4) M/s Om brass Enterprises
- 5) M/s KPC Flexi Tubes
- 6) M/s Mehta Bros, Mumbai

FLEXIBLE HOSE (ANACONDA)

- 1) M/s KPC Flex Tubes
- 2) M/s Vestas Hose Division
- 3) M/s Alfa Flexitubes
- 4) M/s Bengal Industries Pvt. Ltd.
- 5) M/s Vikram & co.
- 6) M/s Gaytri Industrial Corporation, Thane (W)

PE PIPES

- 1) M/s Jain Irrigation System Ltd., New Delhi
- 2) M/s Pennwalt Agru Plastics Ltd., Navi Mumbai
- 3) M/s Pioneer Polyfeb Ltd. Ghaziabad
- 4) M/s Kriti Industries (i) Ltd., Indore
- 5) M/s Ori Plast Ltd., Kolkata
- 6) M/s.Purma Plast Pvt Ltd, Rajasthan

METERS AND REGULATORS

- 1) M/s Actaris Metering System, New Delhi
- 2) M/s Elster Messtechnik Gmbh, Lampertheim
- 3) M/s Emerson Process Management (India) Pvt. Limited, Mumbai
- 4) M/s Equimeter Inc., USA
- 5) M/s Gorter Controls B.V., Netherlands
- 6) M/s Instromet International, Belgium
- 7) M/s Invensys Metering Systems India Ltd., Pune
- 8) M/s Mesura SA, France
- 9) M/s Pietro Fiorentini S.p.A, Italy
- 10) M/s RMG Regal – Messtechnik Gmbh, Germany
- 11) M/s Raychem RPG Limited, Kolkata
- 12) M/s Rockwin Flowmeter India Pvt. Ltd., New Delhi
- 13) M/s Itron India Pvt. Limited, delhi
- 14) M/s. Daniel Solutions Pvt. Ltd. Gurgaon

STEEL REINFORCED RUBBER HOSE

- 1) M/s Suraksha Products Pvt. Ltd.
- 2) M/s Vansh Industries
- 3) M/s T &L Gases
- 4) M/s Vikram & Co.
- 5) M/s Gayatri
- 6) M/s Luxmi Rubtech

ISOLATION VALVES AND APPLIANCE VALVES



- 1) M/s Universal Srl
- 2) M/s Tiemme Raccorderie Sede
- 3) M/s Jainson Industries
- 4) M/s Enolgas Bonimu s.a.s.
- 5) M/s Fratelli Fortis s.r.l
- 6) M/s Giacomo Climbrio
- 7) M/s Parker Hannifin S.P.A.
- 8) M/s Singapore Valve & Amp; Fittings Pte Limited, Singapore
- 9) M/S Rubinetterie Utensilerie Bonomi (RUB)
- 10) M/s Zhejiang Valogin Technology Co. Ltd. , China
- 11) M/s Ningbo Huaping Metalwork Co. Ltd., China
- 12) M/s Mehta Brothers, Mumbai.
- 13) M/s Chokhawala Distributors

SECTION-5
(SCHEDULE OF RATES)



INVESTMENT IN INFRASTRUCTURE
FOR THE PEOPLE OF KARNATAKA

RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07 DATED: 18-07-2025

TENDER DOCUMENT FOR MDPE LAYING INCLUDING LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT KOTA GA

Item No.	Activity	Unit	Qty	Unit Rate inclusive of all applicable taxes, duties & other levies [if any] payable by the Contractor under the Contract, or for any other cause except final GST (In Rs.)	Amount inclusive of all applicable taxes & duties & other levies [if any] payable by the Contractor under the Contract, or for any other cause except final GST (In Rs.)
1.0	PE PIPELINE				
1.1	Pipe Laying(including crossing) in any type of surface like unprepared surface (Katcha surface)/ Normal Surface/ Hard surface/Rock surface etc using open cut/ Moling (without Casing)/ Moling (with Casing)/Directional Drilling technique (with and without casing pipe) methodology.				
	Receipt, Loading, unloading, storing, reloading, transportation, unloading, stringing and laying of PE100, SDR11/17.6 line pipes of all sizes including, proper stacking, identification, and supply of accessories of all sizes & thickness like PE Bends, Couplers, Endcaps, Tee, Reducer, CS / GI to PE Fittings (i.e. Transition Fittings of sizes 20 mm to 63 mm), Warning Mat etc. Handling, Stringing / uncoiling, aligning of the PE line pipe on the pipeline Right-of-Use / route, laying / installation of PE line pipe along with required accessories as mentioned above as per specification wherever required depending on site condition including execution of all works; Storage of material in contractor's store, fabrication, access for construction procurement and supply of all materials, consumables, Equipment's, labor and other inputs. In the case of free issue items, the scope also includes, receiving and loading from Owner's designated store, transportation, unloading and stacking of free issue items at Contractor's store. Laying of all PE Pipe (PE 100 SDR 11), including supply of HDPE casing pipe (In case of HDD (with Case). Moling (with case), couplers End caps etc. Survey of underground utilities, execution of the work as per specification, including excavation of pits Moling with the hole size not exceeding 20% of the pipe dia, jointing and insertion of carrier pipe with casing, testing & commissioning and restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge. Casing details is as given below:- 1. For 20/32 mm PE pipe (in 75 mm dia. HDPE Casing Pipe, PE 63/80). 2. For 63 mm PE pipe (in 125 mm dia. HDPE Casing Pipe, PE 63/80). 3. For 90 mm pipe (in 180 mm dia. HDPE Casing Pipe, PE 63/80). 4. For 125 mm pipe (in 250 mm dia. HDPE Casing Pipe, PE63/80).				
	Carrying out all temporary, ancillary, auxiliary works required to make the PE pipeline ready for commissioning as per drawings.				
	Specifications, scope of work indicated in PJS and other provisions of Contract document and instructions of Engineer-in-charge, including but not limited to carrying out the following works:				
	Surveying of route and detours required at the time of execution, preparation of construction drawings showing survey details and submit same to Owner for review / approval.				
	Carrying out preliminary activities such as preparation of drawings wherever required for crossing etc.				
	Preparation and getting approval of schedules, execution procedures, drawings/ sketches/ wherever required, making trial pits to determine the underground utilities/ services etc., restoration of the abandoned trial pits to original condition.				
	Stacking and installation of construction markers, clearing, fencing, grubbing, cutting of trees, full filling all the requirements of various statutory/ environment authorities to the entire satisfaction of concerned authorities, grading of work area.				
	Barricading the work area as per local authorities norms & to the satisfaction of Owner/ Engineer -in-charge, installation of safety signs.				
	Barricading the pipeline construction area prior to execution of the works to the entire satisfaction of owner / engineer- in -charge.				



	Laying using open trench without casing includes survey of underground utilities (through trial pits), execution of work as per specification including Trenching to all depths by excavation in all types of soils including soft/ rocky strata (Rock Cutting to be paid separately as per SOR no 1.14) and different type of pavement / footpath / roads etc. including rock breaking, chiseling or otherwise cutting etc. as required and storing excavated soil, reusable materials at designated area as directed by Engineer in charge and to a width to accommodate the pipeline as per the relevant standard/ specification etc. [The minimum depth of the top of pipeline shall be 1.0 m measured from top of pipeline to the top of undisturbed surface of the soil or as per Specification/ OISD- 226 & PNGRB latest guidelines whichever is higher]. Dewatering of trenches / pits if required as per site condition. Repairing of all damaged utilities if any, and payment of any compensation (if claimed by owner / other utility agencies)				
	Uncoiling / stringing & aligning of PE pipes, clamping, jointing of the pipe ends / fittings / valves by qualified personnel using approved electro-fusion techniques as per specification.				
	Installation / lowering the pipeline in trench to required depth as per PJS, Technical Specification & drawings, supply & placement of HDPE Yellow colour warning mat (refer PJS item.- 4.2) over the pipeline along the complete route as per standard drawings, data sheets & technical specifications, padding around pipeline including supply of suitable padding material duly approved by EIC, backfilling to its original condition with excavated earth / borrowed select soil/sand duly approved by EIC & its compaction & crowning. At certain specific area of ROU, trench shall be backfilled & compacted and shall be made ready for motorable. All tiles / slabs / curb stones etc. removed during excavation shall be placed properly and no separate payment shall be admissible against this activity. Restoration shall be carried as per separate SOR item mentioned elsewhere in the SOR or to be done by Owner / concerned authorities.				
	The scope of work against this item also include Electro-fusion jointing of valves, fittings wherever required and as directed by Engineer-in-charge.				
	The scope of work against laying of 20 mm pipe also includes works like making of PCC pedestal of grade (1:2:4) and size (8"X6"X4")/RCC guard as per tender drawing, supply and installation of GI Sleeve (Heavy (C-Class) as per IS-1239), filling of sand and installation of TF (along with supply).				
	Pneumatic testing, purging with nitrogen and commissioning as per specification and approved procedures providing all tools and tackles, nitrogen, instruments, manpower and other related accessories and as per the instructions of the Engineer-in-charge.				
	Final clean-up of right-of-use or area disturbed by contractor during their construction activities for laying of pipeline works and disposal of debris and surplus material to designated disposal areas and backfilling of trench and compaction of the same as per satisfaction of Owner and / or as directed by Engineer-in-charge.				
	Maintaining the completed pipelines and installation for any defect or failures during defect liability period (i.e. 12 months from date of completion of work) .				
	Handing over the completed works to Owner for their operation/ use, reconciliation of material area wise and obtaining "no objection certificate" from Owner/ TPL.				
	Preparation and submission of Daily progress report, Monthly Progress Report, Weekly progress report, Laying Graphs / PE line cards on daily basis.				
	On completion of gas charging of pipelines. Preparation and submission of As-built drawings, crossings details, termination, utility graphs and deviation statements.				
	In case, the minimum required depth is not possible due to site condition, necessary mitigation measures (for minimum top cover of 600mm) shall be required to be taken by contractor in consultation with EIC as per PNGRB Guidelines. No additional payment shall be admissible against the same. However required top cover can further be reduce till 375mm and payment against the same shall be made according to SOR item no. 1.3 or 1.4 (whichever is applicable).				
	Submission of all documents required for contract closure in numbers as mentioned in contract.				
	Any other activities not mentioned / covered explicitly above but otherwise required for satisfactory completion / operation / safety / statutory / maintenance of the works shall also be covered under the scope of work and has to be completed by the Contractor within specified schedule at no extra cost to Owner. All the work shall be executed in accordance with the provision of contract.				

a)	20 mm PE 100 pipe Service line laying up to 4 M length including RCC guard	Nos.	8000		



b)	20 mm PE 100 pipe	Meter	3000		
c)	32 mm PE 100 pipe	Meter	40000		
d)	63 mm PE 100 pipe	Meter	8000		
e)	125 mm PE 100 pipe	Meter	3000		
f)	Testing , flushing and charging of existing MDPE line 32mm Dia	Meter	5000		
g)	Testing , flushing and charging of existing MDPE line 63mm Dia	Meter	1000		
	NOTE				
i)	The lengths of pipelines are tentative.				
ii)	In case, contractors prefer to lay the pipeline through HDD/Moling method in place of method as per SOR item- 1.1, contractor shall be required to lay the pipe up to a depth not more than 1.4 m. The payment shall however be made as per SOR item No.- 1.1 only.				
1.2	Restoration				
	Restoration of the roads, pavements, channels, footpaths, tiles, stones etc. to original condition including supply of the approved quality material required, as per local authorities norms, obtaining NOC from concerned local authorities / land owners / third party inspection agencies (if any) designated by owner and to the satisfaction of Engineer-in-charge.				
a)	Asphalting	Meter	2000		
b)	Cement Concrete	Meter	83000		
c)	Tiles / Paver / Blocks / Curb Stones, Red sand stone	Meter	18000		
d)	Brick /Soling / Channels, etc.	Meter	1000		
1.3	Pipe laying inside Private Property i.e. Multistory buildings / apartments with no movement of Heavy Vehicles, surrounded with Boundary wall where pipe top cover could not be achieved 600 mm.				
	Minimum pipe top cover of 375 mm is required and the line pressure shall not exceed 110 mbar.				
	Necessary mitigation measures such as RCC slab (150mm thick and 300mm width) at the top, the RCC slab of the roof of basement shall be treated as bottom. There shall be sand filling across three sides of the line pipe of 100mm each shall be required to be taken by contractor in consultation with EIC as per latest PNGRB Guidelines. No additional payment shall be admissible against the same.				
	Receipt, Loading, unloading, storing, reloading, transportation, unloading, stringing and laying of 20mm, 32mm & 63mm PE pipe (PE 100 SDR11/17) including proper stacking, identification, and supply of accessories of below mentioned sizes & all thickness like PE Bends, Couplers, Endcaps, Tee, Reducer, CS / GI to PE Fittings (i.e. Transition Fittings of sizes 20 mm to 63 mm), Warning Mat etc. Handling, Stringing / uncoiling, aligning of the PE line pipe on the pipeline Right-of-Use / route , laying / installation of PE line pipe along with required accessories as mentioned above as per specification wherever required depending on site condition including execution of all works; Storage of material in contractor's store, fabrication, access for construction procurement and supply of all materials, consumables, Equipments, labour and other inputs. In the case of free issue items, the scope also includes, receiving and loading from Owner's designated store, transportation, unloading and stacking of free issue items at Contractor's store.				
	Carrying out all temporary, ancillary, auxiliary works required to make the PE pipeline ready for commissioning as per drawing.				
	Surveying of route and detours required at the time of execution, preparation of construction drawings showing survey details, and submit same to Owner for review / approval.				
	Preparation and getting approval of schedules, execution procedures, drawings/ sketches/ wherever required, making trial pits to determine the underground utilities/ services etc., restoration of the abandoned trial pits to original condition.				
	Barricading the pipeline construction area prior to execution of the works to the entire satisfaction of owner / engineer- in -charge.				



	Laying using open trench includes survey of underground utilities (through trial pits), trenching by excavation in all types of soils including soft / rocky strata (Rock Cutting to be paid separately as per SOR no 1.14) and different type of pavement / footpath / roads/ PCC/ RCC etc. including rock breaking, chiseling or otherwise cutting etc. as required and storing excavated soil, reusable materials at designated area as directed by Engineer in charge and to a width to accommodate the pipeline as per the relevant standard/ specification etc. Dewatering of trenches / pits if required as per site condition. Repairing of all damaged utilities if any, and payment of any compensation (if claimed by owner / other utility agencies)				
	Uncoiling / stringing & aligning of PE pipes, clamping, jointing of the pipe ends / fittings / valves by qualified personnel using approved electro-fusion techniques as per specification.				
	Installation / lowering the pipeline in trench to required depth, supply & placement of HDPE Yellow colour warning mat (refer PJS item.- 4.2) over the pipeline along the complete route as per drawing no. MEC/U999/05/11/C/ and backfilling to its original condition with excavated earth / borrowed select soil / sand duly approved by EIC & its compaction & crowning. At certain specific area of ROU, trench shall be backfilled & compacted and shall be made ready for motorable. All tiles / slabs / curb stones etc. removed during excavation shall be placed properly and no separate payment shall be admissible against this activity. Restoration shall be carried as per separate SOR item mentioned elsewhere in the SOR or to be done by Owner / concerned authorities.				
	The scope of work against laying of 20 mm pipe also includes works like making of PCC pedestal of grade (1:2:4) and size (8"X6"X4"), supply and installation of GI Sleeve (Heavy (C-Class) as per IS-1239), filling of sand and installation of TF (along with supply).				
	Pneumatic testing, purging with nitrogen and commissioning as per specification and approved procedures providing all tools and tackles, nitrogen, instruments, manpower and other related accessories and as per the instructions of the Engineer-in-charge.				
	Final clean-up of right-of-use or area disturbed by contractor during their construction activities for laying of pipeline works and disposal of debris and surplus material to designated disposal areas and backfilling of trench and compaction of the same as per satisfaction of Owner and / or as directed by Engineer-in-charge.				
	Maintaining the completed pipelines and installation for any defect or failures during defect liability period (i.e. 12 months from date of completion of work) .				
	Handing over the completed works to Owner for their operation/ use, reconciliation of material area wise and obtaining "no objection certificate" from Owner/ Consultant.				
	On completion of gas charging of pipelines. Preparation and submission of As-built drawings, crossings details, termination, utility graphs and deviation statements along with initial graph.				
	Any other activities not mentioned / covered explicitly above but otherwise required for satisfactory completion / operation / safety / statutory / maintenance of the works shall also be covered under the scope of work and has to be completed by the Contractor within specified schedule at no extra cost to Owner. All the work shall be executed in accordance with the provision of contract.				
a)	20 mm PE 100 pipe / 32 mm PE 100 pipe	Meter			
b)	63 mm PE 100 pipe	Meter			



ISILASTING IN
KUTUB KUR

1.4	VOID				
1.5	Pipe laying using Directional Drilling technique (with casing pipe) for PE pipe size of :				
	Laying of all PE pipe (PE 100 SDR11/SDR17.6), Including supply of HDPE casing pipe, Couplers, End caps etc.				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per specification, approved procedure, including excavation of pits and subsequent backfilling compaction, jointing and insertion of carrier pipe in casing pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	32 mm pipe (in 75 mm dia. HDPE Casing Pipe, PE 63/80 PN6.0)	Meter			
b)	63 mm pipe (in 125 mm dia. HDPE Casing Pipe, PE 63/80 PN6.0)	Meter			
c)	125 mm pipe (in 250 mm dia. HDPE Casing Pipe, PE63/80 PN 6.0)	Meter	500		
1.6	Pipe Laying using Directional Drilling Technique (without casing):				
	Laying of all PE pipe (PE 100 SDR11/SDR 17.6), Including supply of Couplers, End caps as required to complete the job. (Ref. cl. 4.3 of Particular job specification)				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per standard procedure attached, including excavation of pits and subsequent backfilling, compaction, jointing and insertion of PE pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	32 mm pipe	Meter	1500		
b)	63 mm pipe	Meter	1500		
c)	125 mm pipe	Meter	1000		
1.7	Pipe Laying using Directional Drilling Technique in Hard Rock (without casing)- ROCK HDD				
	Laying of all PE pipe (PE 100 SDR11/SDR 17.6), Including supply of Couplers, End caps as required to complete the job.				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per standard procedure, including excavation of pits and subsequent backfilling, compaction, jointing and insertion of PE pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				
a)	32 mm/ 63 mm pipe	Meter	500		
b)	125 mm pipe	Meter	500		
1.8	Pipe Laying using Directional Drilling Technique in Soft Rock (without casing)- ROCK HDD				
	Laying of all PE pipe (PE 100 SDR11/SDR 17.6), Including supply of Couplers, End caps as required to complete the job.				
	Survey of U/G utilities, submission of profile for approval, execution of the work as per standard procedure, including excavation of pits and subsequent backfilling, compaction, jointing and insertion of PE pipe, testing & commissioning, restoration of the pits to original condition, submission of As-Built Graph as per specifications and the instruction of Engineer-in-charge.				



a)	32 mm/ 63 mm pipe	Meter			
b)	125 mm pipe	Meter			
	NOTE (item 1.7 & 1.8):				
i)	The lengths of pipelines are tentative.				
ii)	For restoration of asphalt / concrete roads, the item for construction of asphalt top / concrete top / red stone / paver shall be paid separately as per the rates quoted for the same elsewhere in the SOR.				
iii)	For carrying out HDD in Hard/Soft Rock, the Rig Capacity shall be minimum 35 TON				
iv)	For carrying out HDD, contractor may used mud pump for smooth laying process				
1.9	Supply of GI/ MS/ Concrete Sleeves (wherever required as a Special Case as per instructions of the Engineer-in-charge)				
	Supply, installation of sleeve, insertion of pipe, sealing the annuals, firm fixing of Sleeves with concrete mix. Breaking through any obstructions and their subsequent restoration, as per specifications and instructions of the Engineer-in-charge. GI/MS Pipes shall be Heavy (C-Class) as per IS-1239				
a)	GI Sleeves /Concrete Sleeves				
i)	2 1/2" NB, 1' Length	Nos.	1000		
ii)	4" NB, 1' Length	Nos.	2000		
b)	MS Enamel Coated				
i)	4" NB, 3' Length	Nos.	500		
c)	Concrete Sleeve (NP-2 Class)				
i)	4" NB, 3' Length	Nos.	2000		
ii)	6" NB, 3' Length	Nos.	2000		
	The decision regarding use of type of sleeves to be used at various locations shall be made by Engineer In-Charge / Owner				
1.10	Installation of valve in pit including supply of valves				
	Supply of isolation valves (as per data sheet) and installation of valves in the valve pits as per typical drawing and specification enclosed and instructions of Engineer-in-charge. Payment of valve pits shall be paid separately as per SOR.				
a)	PE Valve 32 mm Dia	Nos.	18		
b)	PE Valve 63 mm Dia	Nos.	6		
c)	PE Valve 125mm Dia	Nos.	6		
1.11	Construction of Valve Pits as per the enclosed tender drawing and specification. The item includes supply of all the material including Pre-cast RCC cover, shuttering, reinforcement, labour, curing etc. as per the drwgs, specification and instruction of EIC.		0		
a	Type-I having Internal size of Minimum 1000 x 1000mm	Nos	30		
b	Type-II having Internal size of Minimum 600 x 600mm	Nos			
	Note: The tender drawing enclosed is only for reference purpose and contractor shall be required to prepare drawings (in line with reference tender drawing) for specific sizes of Valve pits and the same shall be approved by EIC.				
1.12	Fabrication & Installation of Markers				
i)	RCC Route Markers				
	Supply, fabrication and installation of RCC route markers as per the attached drawing in technical volume, along the route including all associated civil works such as excavation and construction in all types of soils, construction and pedestals and grouting with concrete.	Nos.	1500		
ii)	Pole Markers with Foundation				
	Supply, fabrication and installation of plate markers as per the attached drawings in technical volume including all associated civil works such as excavation and construction in all types of soils, construction and pedestals and grouting with concrete, cleaning, stencil let.	Nos.	20		



	Warning Plate Markers				
	Supply, fabrication and installation of plate markers, including application of approved color and quality of primer and paint, stencil letter cutting of lettering, numbers, direction, etc. as per the attached drawing in technical volume to be installed near regulator.	Nos	5000		
1.13	Liaisoning with Land Owning Agencies for Permission				
i)	Submission of applications as per approved drawing provided by owner / owner's representative (Initial Route survey, preparation of drawing, measuring and providing details of surface type shall be in scope of contractor with approval from owner / owner's representative), obtaining and submission of demand note, coordination, Liaisoning, obtaining written permission from land owning agencies like NHAI, Indian Railways and any other government agencies who maintains the public lands (all fee paid to authorities excluding demand charges or Bank Guarantees shall be reimbursed against documentary evidence). This rates are not applicable for Private lands i.e. Apartments etc. Permissions required from various authorities like NHAI / Railways / Irrigation (Canal) etc. falling enroute shall be inclusive in the item rate.	KM	55		
1.14	Rock Cutting encountered while excavation of trenches for item 1.1 of SOR, not exceeding 1.5 meter in width, and lift upto 1.5 meter, including getting out the excavated soil and disposal of excavated soil as directed within a lead of 50 meter. In case of rocky soil, the bedding shall be done with approved/ good quality packing sand, subject to the approval of the EIC, the size distribution of the sand / shall be the same as per soil. The packing sand shall be placed to a minimum thickness of 150mm around the pipe in case of rocky terrain.	Cu. Meter	5000		
2	DRS / MRS / Metering Station works				
2.1	Installation of DRS / MRS / Metering Skid				
	Receiving and taking over, handling, loading, transportation and unloading of DRS / MRS / Metering Skid from Owner's designated stockyards to site, installation at foundation (including supply of all structural items) and hooking up with PE pipe including all works as required to complete the job as per the drawings and specification, scope of work mentioned in tender document. The scope includes supply of transition fittings and other MDPE and CS fittings as per requirements and various associated works (including steel welding) to commission DRS / MRS / Skid Note: 1) Amount towards civil work shall be payable as per related SOR items. 2) Rate to include cost of all labour, tools, tackles, equipment, hire charges (this rate not in delicacy with clause no. 3.4). 3) Bolts, nuts, washer, U-clamps, gaskets etc. if required during installation shall be procured and supplied by the Contractor within the rate quoted. These items shall not be separately measured and paid.				
a	DRS (Maximum weight of single DRS shall be about 6.0 T)	Nos.	5		
b	MRS / Metering Skid (Maximum weight of single MRS / Metering skid shall be about 4.0 T)	Nos.	5		
	Note: i) The quantities mentioned are indicative only. ii) For all the supply items mentioned above, procurement shall be made as per specification after due approval of engineer- in - charge.				



	CIVIL WORKS				
	Earth Work				
	Earth in excavation and filling to the grades and levels shown in the approved drawings in all kinds of conditions including for Road embankments, using approved quality good earth from designated borrow area, for all heights and depths including clearing and stripping (min. 150 mm) of the area marked for filling, taking spot levels, consolidating the exposed natural soil surface, excavating the earth from borrow area loading, transporting & unloading, spreading in layers not exceeding 150 mm thickness, breaking clods, watering (if reqd.), ramming and compacting by manual/ mechanical means to give minimum 92% of modified Proctor's density of earth, testing & dressing including disposal of all unserviceable material all complete as per specifications and directions of Engineer-in-charge.	M3			
	(Rate to include cost of all labour, tools, tackles, equipment, hire charges, cost of borrow earth by way of royalties, right of way, cess etc., as applicable with all bye works and sundry works).				
3.2	PCC 1:2:4				
	1 Cement : 2 Coarse sand : 4 stone aggregate 20mm nominal size.	M3	500		
3.3	PCC 1:4:8				
	1 Cement : 4 Coarse sand : 8 stone aggregate 40mm nominal size.	M3	500		
	(Rate to include cost of all labour, tools, tackles, equipment, hire charges, supply of all materials, shuttering, earthwork in excavation and backfilling using approved earth in all conditions etc. with all bye works and sundry works.)				
3.4	Reinforced Cement Concrete				
	Providing and laying reinforced cement of grade M-25 with 20mm and down grade crushed stone aggregate in all types of structures like foundations, pedestals, pedestal bases, pipe supports, sleepers, column, equipment foundation, cable trench including construction joints, bitumen painting on surface in contact with soil, supplying and fixing reinforcing steel, shuttering, inserts, finishes etc. at all depths and heights complete as per drawings, specifications and direction of the Engineer-in-charge.	M3	1000		
	Rate to include cost of all labour, tools, tackles, equipment, hire charges, supply of all materials such as minimum 43 grade cement including sulphate resistant cement for sub-structures, R/F steel, Inserts, bolts, conduits, bitumen, other minor construction materials, shuttering, staging, earthwork in excavation and backfilling using serviceable earth in all conditions, shorting bailing and pumping out water, testing of concrete, curing etc. with all bye works and sundry works.				
3.5	Concrete Pavement				
	Providing and laying reinforced cement concrete of (M-25 grade) with 20mm and down grade crushed stone aggregate in pavement, including preparation of base (i.e. compacted subgrade, 200 thk sand and 50 thk PCC M-10 grade), leaving pockets if necessary, making recess, projections, fixing inserts conduit pipes (GI, PVC, HDPE, etc.) laying in alternate panels, filling the gaps between the panels with bitumen etc., making slopes, finishing edges, leaving bars for pedestals & sleepers including providing sand fill isolation, shuttering, providing and fixing reinforcing steel, curing, chipping and modification works etc. as specified in any shape, thickness, position and finishing the top surface smooth as per requirement etc. all complete as per drawings, specifications and directions of the Engineer-in-charge.				
	- 150mm thick (Type-I)	M2			
3.6	Brick Work				



	Providing brick work with brick class designation M-7.5 of IS:1077 in cm1:4 (1 cement : 4 sand) in steps, walls, retaining walls and load bearing structures drains, or any shape with all lead, depths & height including curing, scaffolding, etc., as per specifications and drawings with all bye-works and direction of the Engineer-in-charge.	M3			
	(Rate to include cost of all labour, tools, tackles, equipment, hire charges, supply of all materials such as minimum 43 grade cement, bricks, finishes, bitumen, other minor construction materials, shuttering, staging, masonry work, plastering, painting etc. with all bye-works and sundry works).				
	Note: The quantities of individual item can varied as per site requirement. The payment will be made as per actual certified measurement at site.				
3.7	Laying of Brick layer/ Concrete				
	Providing single layer of Brick / Concrete / or impact resistant tape to entire width of trench above Warning Mat placed in trench over the laid pipeline as per OISD 226, standard drawing, specification and instruction of Owner. (Rate to include cost of all labour, tools, tackles, equipment, hire charges & supply of all materials, etc.)				
a)	Brick Layer for width of PE pipeline trench as per drawing (75 mm thk.)	Sq.m			
b)	Concrete for width of PE pipeline trench as per drawing (80 mm thk.)	Sq.m			
4	Structural Works				
4.1	Providing and fixing Fencing Structure				
	Supplying, fabricating & fixing steel structural fencing fabricated from pipes conforming to IS:1161 and plates conforming to IS:2062 & fixing of GI weld mesh made from 3mm GI wire @ 75 mm both ways to structural steel frame by means of welding/bolting, including applying two coats of approved quality of synthetic enamel paint over a priming coat of in approved shade including supply of all raw materials, bolts, electrodes, transportation, including making pockets & pouring with PCC (1:2:4) in of block 500x500x500 for fixing of posts etc. complete as per enclosed drawing, technical specifications, scope of works and directions of the Engineer-In-Charge.				
a)	Fencing height 2.1m	RM			
4.2	Providing and fixing Fencing Gates				
	Supplying, fabricating & fixing fencing gates fabricated from pipes conforming to IS:1161 and plates conforming to IS:2062 & fixing of GI weld mesh made from 3mm GI wire @ 75 mm both ways to structural steel frame by means of welding/bolting, painting with enamel paint in approved shade including supply of all raw materials, bolts, electrodes, transportation etc. complete as per enclosed sketch, technical specifications and directions of the Engineer-In-Charge.				
a)	4m Wide x 2.1m High	Nos.			
b)	3m Wide x 2.1m High	Nos.			
c)	1m Wide x 2.1m High	Nos.			
5	Electrical				
5.1	Supply, Installation and testing of Galvanized iron earth electrode with 3mts long 65mm Dia GI perforated pipe Class B, Complete with GI earth bus, test link in RCC / Brick earth pit, charcoal, salt, funnel and earth pit cover as per IS:3043, (as per drwg. enclosed)	Nos.			
5.2	Supply and installation of GI earthing conductor of the following sizes:-				
	Above ground/buried under ground				
(a)	25X 6mm GI Strip	Mtrs			
(b)	2.5 sq.mm CuPVC wire	Mtrs			
(c)	10sq. Mm Cu PVC insulated cable	Mts			
6	Void				
7.0	PNG Connection to Domestic Consumers				



	(iii) The total amount shall also be given by the bidder in the quoted currency(ies).				
	(iv) Some of the may / may not be execute as per site requirements.				
6	Deleted				
	Sub-Total				
7	PNG Connection to Domestic Consumers				
7.1	Installation of GI Service Pipe				
	Supply, loading, storing, unloading and installation of Pre-powder coated GI pipes, including supply of GI fittings/accessories including Anaconda, Fittings of all sizes & thickness like Elbows, Tees, unions, sockets, reducers, GI plugs, Sleeves etc., installation of GI line (along with installation of required accessories as mentioned above) of following sizes, including fabrication with supply of all materials, consumables, labour and other incidental works. The scope of work also includes installation of Regulators (1/6 Kg per sq m to 21 m bar) which shall be provided as free issue item. Carrying out all temporary, ancillary, auxiliary works required to make the GI line ready for commissioning as per drawings specifications.				
	Scope of work indicated in PJS and other provisions of Contract document and instructions of Engineer-in-charge, including but not limited to carrying out the following works: Preparation and approval of schedules, execution procedures, sketches.				
	Finalisation of optimum route with consent of customer, from transition fitting to cooking oven/ appliance.				
	Making temporary but stable platforms/ scaffolding/ rope ladders and all other safety measures including safety belts wherever required.				
	Installation of GI Pipes, Fittings, including NPT threading, painting as specified.				
	Drillings of holes through walls (Brick, RCC), Granite, Marble, Glass Cutting with proper heavy duty hammer drill machine tools and tackles, using proper sealant /grout materialled colors to match the original replacement of damages during drilling, restoring the area to original condition.				
	Supply & Fixing of approved clamps, Dowell Plugs with screws, grout material, suitable thread sealant i.e. Teflon Tape/ lock tight, drilling of holes through tiles/ wood/ marble/ Granite etc. jointing of PE to above Ground service GI pipes, testing, purging with Nitrogen and commissioning of the complete installation as per specification.				
	Painting of entire length of pipe along with fittings after proper surface finish by one coat of approved primer paint and two coats of approved synthetic enamel paint complete as per specification & direction of EIC. Restoring the wall surface to origin.				
	All above activities shall be updated by RSGL LMC app and to be carried out as per specification to the complete satisfaction of consumer & as desired by Engineer-in-charge				
	Handing over the completed works to RSGL for operation/ use, reconciliation of material area wise and obtaining "no objection certificate" from RSGL/ TPIA.				
	Any other activity not mentioned/ covered, explicitly above, but otherwise required for satisfactory completion/ safety/ statutory/ maintenance of works shall also be covered under scope of work and has to be completed by contractor within specified schedule time.				
a)	½" All floors (Including connectivity from TF to regulator)- with supply of pre coated GI Pipes by Contractor	Meter	10000		
	½" All floors (Including connectivity from TF to regulator)- with supply of pre coated GI Pipes by owner	Meter	1000		
b)	¾" All Floors (Including Installation of Risers)- with supply of pre coated GI Pipes by Contractor	Meter	500		
	¾" All Floors (Including Installation of Risers)- with supply of pre coated GI Pipes by owner	Meter	500		



6)	1" Dia All Floors (For Riser Installations & For Commercial Connections)- with supply of pre coated GI Pipes by Contractor	Meter			
	2" Dia All Floors (For Riser Installations & For Commercial Connections)- with supply of pre coated GI Pipes by contractor	Meter			
	Note:-				
i)	Refer Particular Job Specification for supply items.				
ii)	The quantity measurement shall be from the outlet of the Transition Fitting (TF) upto the Meter. All intermediate GI fittings (excluding Flexible hose/Anaconda, valves and regulator) shall be considered while measuring length of GI Pipes.				
iii)	Supply and installation of isolation Ball Valves shall be paid as a separate SOR Item.				
7.2	Supply, Installation, Testing & Commissioning of Copper Service Pipes				
	Supply and installation of copper tubing as per TS and associated fittings including brass fittings at the outlet of the meter and at the entry of appliance valve as per satisfaction of EIC. The copper tube and fittings shall be procured from approved vendors who have supplied these items for similar application earlier and with prior approved of Client / Consultant.				
	Copper tube shall be installed from the downstream of meter upto the isolation valve before the customers' appliance as per requirement and to the satisfaction of EIC. The Contractor to provide all equipment, tools and material necessary to execute the work in an efficient manner by cutting, cleaning, flux application, soldering and lacquering. The work includes supply of all tools, tackles and consumables including clamps for fixing the tubes.				
	12.0 mm OD x 0.6 mm wall thickness	Meter	100		
	Note:				
i)	Supply and installation of Appliance Ball Valves shall be paid as a separate SOR Item.				
7.3	Installation of Meter & regulator				
a.	Installation & fixing of meters with associated inlet and outlet connections/ fittings, valves, regulators (100 mbar to 21 mbar, wherever required), approved meter brackets and other supports by proper scaffolding/ grouting, Restoring the area to original condition as per specification. (Meter and Regulator will be provided as free issue Items)	Nos.	500		
b.	Conversion of Domestic Appliance The work also includes installation and supply of Steel reinforced Flexible Hose as per IS 9573 (with Type as per latest PNGRB guidelines) (Gas tube from end of Isolation Valve upto burner/stove) and conversion of all the burners of the LPG stove (one per household) including supply of all types of burner nozzles/jets and associated controls etc.	Nos.	500		
	Cleaning and performing minor maintenance, greasing etc. of appliance, testing/ showing performance to the customer ,signing of Joint Meter Records (JMR) and instructing customer on use & safety norms, complete as per specifications & to satisfaction of customer				
	installation of lateral or extension in existing riser up to 4 meter- with supply of GI by contractor	nos			
	installation of lateral or extension in existing riser up to 4 meter- with supply of GI by owner	nos			
	Note:				
i)	Installation of Meters & regulators with associated fittings may also be carried out where GI installation have already been carried out by RSGL and payment may be made as per item executed.				
ii)	Conversion of Domestic appliance with supply of steel reinforced Flexible hose may be carried out where Installation of Meters/ Regulators have already carried out by RSGL and payment may be made as per item executed.				
7.4	Installation of Commercial Regulators, Meters & Flexible hose including Conversion				



	Installation of Commercial regulators and Meters of various sizes and capacities and flexible hoses including conversion of burners. The scope of work includes supply of all items required (Only Meters and Regulators shall be provided as free issue) and all associated works.	Nos.	50		
7.5	Isolation Ball Valve And Appliance Valve				
	Supply and installation of Isolation & Appliance Ball Valves as per Technical Specification and as directed by EIC				
a)	Isolation Ball Valve 1/2 " max. 6 bar (g)	Nos.	8800		
b)	Isolation Ball Valve 3/4 " max. 6 bar (g)	Nos.	100		
c)	Isolation Ball Valve 1 " max. 6 bar (g)	Nos.	50		
d)	Appliance Ball Valve 1/2 " max. 35 Mili Bar (g)	Nos.	500		
7.6	Installation of Service Regulator / Field Regulator: Installation & Fixing of regulator with associated inlet and outlet				
a	Service / Field Regulator installation as per sketch attached- (4/6 bar to 100 mbar)	Nos.	50		
b	Installation and fixing of domestic Regulator (4/6 bar to110 mbar or 21mBar) with associated inlet and outlet	Nos.	300		
7.7	Regulator Boxes: Supply including painting of approved make regulator boxes and installing them firmly by grouting using approved bracket /clamps as per drawing enclosed & as per specifications and cleaning the area complete to the satisfaction.				
i)	Service Regulator Boxes: Supply and installation of Service Regulators Boxes as per drawing attached and as per directions of EIC.	Nos	50		
8	Registration of Domestic PNG Connections				
	Assistance in carrying out the work of Domestic PNG registration as per directions/instructions of the Marketing In charge of RSGL / Authorized representative including but not limited to following: 1) Enrolment & Registration of Domestic PNG Customers as per the given target. 2) Collection of filled up form along with Cheque/Demand Draft of Security Deposit amount and documents All other activities as may be required to complete the work in all respect is defined in the Scope of work to be read along with the Special Conditions of Contract and as per instructions of MIC. Carrying out the marketing activities for Domestic PNG connection as detailed in Scope of work, complete in all respects, as per directions/instructions of the Marketing In Charge including but not limited to the following: Distribution of leaflets & FAQ, Installation of banners, to be provided by client, at prime location, Awareness cum Registration Camp, Audio / Visual Presentations, Organizing Road Shows, etc.	Nos.			
	Sub-Total				
	GST@18%				
	Total				
9	TOTAL COST				
10	GST (To be quoted in % and amount)	%		Amount--	
11	TOTAL COST inclusive of all and GST(Rs.)				
12	TOTAL COST inclusive of all and GST(Rs.) in words				
Note:					
1.. Bidder quoting rates without considering the statutory payments applicable & payable to the service unit as specified in the SCC/Bid document shall be out rightly rejected.					
2. Bidders are required to quote the rates strictly as per the above SOR format and not to use any other format. Any quote received in format other than the tendered SOR, they shall be summarily rejected.					
3. If any bidder offers Suo-moto discount after opening of un-priced bids, such reduction / discounts shall not be considered for evaluation. However, if the bidder happens to be the lowest evaluated bidder without considering					
4. Any error in quoting taxes & duties to bidder's account. Statutory Variation in taxes & duties during contractual completion period shall be to RSGL's account.					
Name of authorized person submitting the tender on behalf of the Bidder (s):					
Designation of authorized person:					
Name of the Contractor					



Rajasthan state Gas Limited

(A JV of RSPCL and GAIL Gas Limited)

2nd Floor, Khaniz Bhawan

Tilak Marg C-Scheme

Jaipur-300205

TENDER DOCUMENT

TENDER DOCUMENT FOR MDPE LAYING INCLUDING LAST MILE CONNECTIVITY AT CONSUMER END FOR CGD PROJECT AT KOTA GA.

VOLUME – II OF II

Tender No.: RSGL/KOTA/C&P/PROJ/2025-26/ NIT-07

DATED: 18-07-2025



TECHNICAL **SPECIFICATIONS**

VOL: II OF II

C O N T E N T S
LIST OF
SPECIFICATION/
STANDARDS
VOLUME-II of II

TECHNICAL SPECIFICATION

- 1) LAYING OF UNDERGROUND PE MAIN PIPELINE
- 2) INSTALLATION OF ABOVEGROUND GI/Cu PIPING FOR DOMESTIC, COMMERCIAL AND INDUSTRIAL CONSUMERS
- 3) HDPE PIPES
- 4) PE FITTINGS AND ELECTRO-FUSION
- 5) POLYETHYLENE PIPES
- 6) PE ISOLATION VALVES
- 7) GI PIPE
- 8) CU TUBES
- 9) GI FITTING FOR NATURAL GAS
- 10) COPPER FITTING
- 11) BRASS FITTING
- 12) ISOLATION AND APPLIANCE VALVE
- 13) WARNING MAT
- 14) FLEXIBLE METAL HOSE (ANACONDA)
- 15) FLUX
- 16) STEEL RE-INFORCED RUBBER HOSE
- 17) QUALITY ASSURANCE
- 18) HEALTH SAFETY AND ENVIRONMENT
- 19) DRAWINGS

**TECHNICAL SPECIFICATION
FOR
LAYING OF MDPE MAIN PIPELINES
AND SERVICE PIPELINES**

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TECHNICAL SPECIFICATION

1.0 GENERAL INFORMATION

1.1 INTRODUCTION

Rajasthan State Gas Limited (RSGL), a State incorporated Joint Venture Company of GAIL Gas Ltd. & RSPCL (Rajasthan State Petroleum Corporation Ltd) incorporated to provide CNG (Compressed Natural Gas) as fuel to commercial & private vehicles through filling stations and PNG (Piped Natural Gas) to Industrial, household and commercial sector in the State of Rajasthan. The Kota CGD assets and its business have been transferred from GAIL Gas Ltd to RSGL in 2017.

1.2 Nature of Contract

The contractor shall be paid on a Schedule of Rates basis. He shall execute the work and perform his obligations under the contract, and Owner shall pay the contractor for measured quantity of each item of work actually carried out under the contract. Payment shall be at the rate for the work set out in the agreed Schedule of Rates.

1.3 Call Before U Dig (CBuD) App.

Use of CBuD app is Mandatory. All excavation agencies must use without failure the CBuD app before commencing any excavation activities. Objective of Call Before u Dig (CBuD) is an innovative initiative by the Government of India, available in the form of a mobile app as well as an online portal, to bring excavators and asset owners in one platform to underwrite and mitigate the losses due to unmonitored digging activities across the country.

2.0 SCOPE OF WORK

Generally, the following shall constitute the Contractor's scope of work:

- 2.1** Plan and prepare a schedule for execution and work implementation as per QA/QC plans to be issued by Client /TPIA. Contractor has to submit the Construction/ Execution procedures before commencement of work.
- 2.2** Assist in obtaining permissions from land owning agencies for road cutting for laying of pipelines. Liaisoning with concerned authorities during execution of the job.
- 2.3** Prior to start of Construction activities, Contractor shall carry out area and crossings survey and prepare drawings for proposed gas pipe line laying and submit to Owner /Consultant for approval.

- 2.4** Receipt of free issue items from clients designated stores, loading, transportation, unloading at Contractor's stores near project sites.
- 2.5** Proper storing, stacking, identification, providing security, and insurance, during storage, laying and up to handing over of pipelines.
- 2.6** Making trial pits to determine the underground utilities /services such as existing pipelines, Cables (Electrical/Communication), Conduits, U/G drainage, Sewers, tunnels, Subways foundations etc., and deciding optimum routes and depths for laying the pipelines based on the route plans provided in the tender.

- 2.7 Obtaining the approval for optimum route and ROU from the concerned authority and EIC. Grading the ROU as per requirement for proper movement of workmen, equipment and QA/QC personnel.
- 2.8 Wherever required the grass/ turfing, pavement, linings, drains roads and other such 'pucca' area shall be locally removed to facilitate trenching and pipe laying works. The same is to be reinstated as original.
- 2.9 Supply & Installation of Safety/ Warning Signs, barricading of the entire route to be trenched. Pits to be similarly barricaded along the warning sign.
- 2.10 To make trenches with stable slopes but restricting minimum disturbance to above ground/underground services/ installation as per specifications and approved route plans; keep the trenches free from water and soil till placement of pipes;
- 2.11 Uncoiling/ stringing the PE pipes of required sizes (i.e., 20, 32, 63, 90, 125) pipes into trenches as per specification.
- 2.12 Joining the pipe ends with fittings and valves by approved electro fusion techniques as per specification.
- 2.13 Installation of pipe fittings/installation like elbow, tee, reducers, tapping saddles, joints, connectors, transition fittings, valves, sleeves etc. including construction of supports, valves pits, inspection chambers etc. as per specification.
- 2.14 Laying pipeline using trench less technology methods with or without casing pipes as per specification and as directed by EIC.
- 2.15 Supply & laying of HDPE duct as casing pipe wherever applicable, along with DPE Pipe.
- 2.16 Supply of good quality GI sleeves, MS enamel coated sleeves, concrete casing pipes, sand and other material, fittings to be supplied by the Contractor as per provisions of tender.
- 2.17 Back filling and compaction by jumping jack compactor using approved 'good' soil or using excavated earth or borrow earth as per requirement and specification and replacement of tiles, slabs removed during the excavation. Cleaning all unserviceable material, debris, excess earth near trenches etc. to designated disposal area.
- 2.18 Carrying out pneumatic testing and purging as per specifications and approved procedures; providing all tools, tackles, instruments, manpower and other related accessories for carrying out the testing of pipes.
- 2.19 Nitrogen purging (including supply), commissioning & gas charging of tested pipeline as per approved procedure.
- 2.20 Restoration of existing ground features such as grass/ turfing, paving, roads, drains, concrete, floral beds, fencing, tiles, flooring masonry etc. to original condition and to match with adjoining conditions- functionally and aesthetically up to the entire satisfaction of Client/Consultant any other third-party agency designated by Client and local authorities, failing which, it will be done at the risk and cost of the contractor. Obtaining satisfactory completion certificates and NOC for the restoration work done from the concerned authorities. **A BG with an Equivalent Amount 8.0 Lacs shall be deposited as security Against obtaining NOC from the authorities after completion of work and Restoration. Any claim whatsoever raised by authorities for defects in restoration shall be compensated by the contractor to RSGL failing which the equivalent amount shall be recovered Contractors Bills.**

- 2.21** Installing of permanent site markers, warning signs, valve chamber etc.
- 2.22** Returning surplus material to Clients stores, reconciliation of free issue material/ consumables if supplied by Client and obtaining 'no objection certificates' from Client/Consultant.
- 2.23** Handing over the completed works to Client for their operation / use purposes.
- 2.24** Maintaining the completed pipelines/installation for any defect, failures during defect liability period.
- 2.25** Preparation and submission of as-built drawings, details of crossings, utility graphs, measurement sheets and deviation statements on completion / commissioning of work by way of drawing, sketches and tables.
- 2.26** Any other activity not mentioned/ covered explicitly above, but otherwise required for satisfactory completion/ operation/ safety/ statutory/ maintenance of the works shall also be covered under the Scope of work and has to be completed by the Contractor within specified schedule at no extra cost to Client.

3.0 MATERIAL, LABOUR, PLANT AND EQUIPMENT

3.1 Owner's Scope of Supply (Free Issue Item)

Owner's scope of supply shall be as per PJS clause no 4.1.

In order to speed up the project Free Issue Materials shall be issued to the Contractor from the designated store(s) of Client. Contractor shall be responsible for lifting the free issue materials from Owner's storagepoint(s) and transporting the same to work site(s) at his own cost.

3.2 Supplied by the Contractor

Contractor will supply all size HDPE casing pipe, GI pipe (if applicable) and fittings and PE fittings other materials as per SOR & scope of supply necessary to complete the laying of gas main pipelines and service pipelines.

The contractor is to procure all bought out items from approved vendors and accordingly keep Client /TPIA informed. The inspection of bought out items would be carried out by Client / Third Party Inspection or as instruction by EIC.

In general PE pipe shall be of the following lengths indicated.

20mm/32mm	100 to 300 Mtrs. coils
63 mm	100 Mtrs. Coils
125 mm	50 Mtrs. Coils

The Contractor shall provide the skilled labour, tools, material and equipment necessary for the proper execution of the Work. This will include but not be

limited to list of specialized items included in the enclosure furnished herewith.

3.2.1 Equipment & Machinery

All vehicular type machinery shall be in good working order and shall not cause spillage of oil or grease. To avoid damage to paved surfaces the Contractor will provide pads of timber or thick rubber under the hydraulic feet or outriggers of machinery.

In addition to above, the contractor must have dedicated bar coded electro- fusion (Automatically readable) machine with power generator (at any point of time minimum 2 nos.), Pipe Cutters (like circular guillotine), End Scrapers, Pipe Straightened, approved Top loading clamp for fusing saddle tapping tee, clamps of all sizes for Electro-fusion fittings, re-rounding tools and test ends etc. for pipes of following diameters 180mm, 125mm, 90mm, 63mm, 32mm & 20mm for this project. Contractor has to arrange his own all Equipments for trenchless crossings such as HDD, Moling & rock cutting equipment, HDPE fusion equipment at the site whenever required.

Contractor must also have to arrange his own equipment for restoration work like water tanker and jumping jack compactor for compaction of backfilled trenches and roller and other required equipment/ machinery for asphaltting/ road works.

In case there is non availability of approved Equipments, tools and tackles during the work at site, suitable penalties, as per special terms and condition of the contract, will be levied and deducted from the running bills.

3.2.2 Imported Backfill and Material

The Contractor shall be responsible to arrange the supply of approved soft soil / Coarse Sand free from any impurities like clay, mica and soft flaky pieces as per the instruction of EIC/Owner.

For supply of sand in trench for rocky terrain ,no separate charges are payable and is included in SOR item for excavation of hard rock/ Morrum.

Also supply of sand in valve chambers, Normal chambers & Built up surface, if required, as per the instruction of EIC, is not separately payable.

In case specified trench depths are not achieved & if directed by Engineer-in-charge Contractor to provide concrete casing pipes/ slabs or cement concrete, without any cost implication to Owner.

3.2.3 Other Materials

The Contractor shall supply the following items where required.

- All materials required for form work, trench support, temporary trench crossings.
- All sign boards, barricades, tin sheets, lights and protective equipment.

- Permanent markers as shown in the drawings enclosed in the tender.
- Material required for installation of valve chambers.
- GI ,Half Round concrete sleeves
- All minor items not expressly mentioned in the Contract but which are necessary for the satisfactory completion and performance of the Work under this Contract.

3.2.4 Manpower

The contractor shall provide the skilled labour, tools, materials, and equipment necessary for the proper execution.

3.2.5 Acquisition, Receipt, & Storage Of Materials

In case of material supplied by owner than the contractor shall collect all materials from Client store between working hours following all documentation procedures laid down and as directed by EIC. The contractor shall at the time of receipt of material physically examine all materials and notify the EIC immediately of any damage. Any damage not recorded at the time of inspection done by contractor will be deemed not to have existed at the time of receipt of material. Cost of repair, rectification, replacement will be borne by the contractor. Any defective material found during the time of installation will be noted and forwarded to stores for replacement immediately with P.O reference and only with written approval of EIC. The contractor shall ensure that no defective material shall be returned to store at the time of closure of contract.

The contractor shall maintain permanent locked store preferably near site in so that all the material are stored in such a manner so as to prevent and damage to the materials from scratching , gouging , indentation , excessive heat or by contact with any sharp objects and chemicals.

The contractor shall maintain log book at their respective stores stating issue and availability of free issue material as a given day. Further the contractor is required to undertake and submit an inventory of materials every month to Owners/Owners Representative (mandatory) .

4.0 PROGRESS OF WORK

The Contractor shall proceed with the Work under the Contract with due expedition and without delay.

The EIC may direct in what order and at what time the various stages or parts of the work under the Contract shall be performed.

Contractor has to regularly submit daily progress reports, weekly progress reports, graphs with utilities, testing reports, material consumption and inventory reports, deviation statements etc.

5.0 APPROVALS

Contractor has to assist in getting permissions, obtain statutory approval/ clearances for laying of pipelines. However, Client will pay the departmental charges and Bank Guarantees for getting the clearances. It is the contractor's responsibility to inform and co-ordinate the concerned local authorities and also other utility agencies before commencement of work at site. To ensure smooth execution of the work on a day to day basis, the contractor has to liaison with respective authorities and obtains necessary approvals.

6.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The contractor shall carry out the work in accordance with the requirement of latest relevant applicable standards, this specification, Client's Engineering Standards; relevant Oil Industry Safety Directorate (OISD) norms, Latest PNGRB Guidelines, ASME B31.8 – Gas Transmission and Distribution Piping Systems; Australian Standard 3723 – Installation and Maintenance of Plastics Pipe Systems for Gas; and the American Gas Association Document – Purging Principles and Practice. ISO: 4437/ IS:14885 for underground polyethylene pipes and Client's approved procedures

Should the contractor find any discrepancy, ambiguity or conflict in or between any of the Standards and the contract documents, then this should be promptly referred to the Engineer-in-Charge (EIC) for his decision, which shall be considered binding on the contractor.

7.0

SAFETY

The Contractor shall conform to the requirements outlined elsewhere in the tender document. In addition, the Contractor shall observe safe working practices in the storage and handling of cleaning fluids, flammable fluids, etc., and ensure smoking or naked flames are not permitted in the vicinity when these materials are being used.

Trench walls shall be battered with sufficient slope in order to minimize a trench collapse. Where there is a danger of an earth slide or collapse, the trench shall remain open for the minimum time possible with proper barricading. The Contractor is to ensure that no person enters a trench, which is of a depth of 1.5 meters or greater, unless the trench has adequate shoring or the sides are battered to such an extent as to prevent a trench collapse

The Contractor shall also protect all work sites with warning signs, barricades and night lighting. The Contractor shall inspect all fenced excavations daily, and maintain them in good order.

The trenches/ pits shall not be kept open in night times. However in case the same is essential the same shall be properly barricaded with proper lighting arrangements & manned.

The Contractor shall provide all safety Equipments like helmets, boots, etc. to the labour which are necessary for safe working practice.

Any accident causing injury to any person or damage to property or equipment shall be reported to the EIC.

Where the EIC determines that the work is being performed by the Contractor in an unsafe manner, he may suspend the Work until corrective action is taken by the Contractor.

For further details refer Attached HSE technical specification.

8.0 ROUTE SURVEY

8.1 Plans detailing the size, operating pressure and approximate location of the proposed mains, connections and associated regulator installations will be issued to the contractor at the start of the works.

8.2 The final alignment of mains will be worked out at site in consultations with the site engineers after route survey and trial pits, at his cost, have been carried out. Any change in routing from the issued drawings due to site constraint will be notified to EIC & his specific written approval shall be obtained before carrying out the job.

8.3 Service Lines

8.3.1 A survey will be conducted jointly by RSGL/Consultant third party inspection and the contractor at each premises or housing colony to be supplied. The survey record will note customer details, the potential gas supply points and proposed regulator positions and estimates of material quantities. The contractor's representatives will make a sketch of the agreed pipe routes if necessary.

8.3.2 The contractor will be responsible for contacting the customer and making the necessary arrangements for access, and appointments to carry out the work. Contractor shall maintain job card and complaint books at site. Client will not be responsible for any time lost due to broken appointments or disputes with customers.

9.0 ORGANIZATION OF WORK

9.1 All construction work will be carried out as per direction of EIC, and this will be the primary point of contact between the contractor and Client on site. All work will be issued and sanctioned through the EIC and site control exercised by Site Engineer Client. The

contractor shall ensure that technical quality standards are maintained, that construction is carried out cost effectively and that a good customer and public image of Client is maintained.

9.2 Contractor shall designate RCM who will be the single point coordinator to interact with EIC/Consultant/TPIA and authorized to attend review meetings, receive materials, authorized to sign documents, claims and receive payments etc. . Contractor shall submit the organization chart stating that in charge of projects, store, QA/QC and take approval from the owner.

9.3 The contractor will appoint his own supervisors of minimum number instructed by EIC. These personnel will be responsible to the SE for monitoring construction standards and for ensuring that all detailed technical requirements are met on each and every job which is undertaken. The contractor's supervisor(s) will have day to day liaison with the SE, and will provide the SE with technical reports and audits, and other management information as is required on work progress and construction quality standards.

9.4 The contractor's supervisor shall have mobile telephones or pagers to ensure that they can be contacted at all times. The contractor will also nominate one person who can be contacted if necessary out of hours, for the duration of the works. The contractor's supervisor will have access to transport at all times to allow them to visit sites and attend meetings with Client as is required. The normal day to day issue of work instructions, communication between Client/ TPIA and the contractor's supervisor and the SE. No deviation from the approved technical specification / issued construction drawings shall be undertaken without written approval of EIC.

9.5 Contractor shall maintain a Project site office, Material store with following facilities:

- Telephone, Mobile phones, Fax machine, printers/Scanning/Xerox machines, Computer with e-mail facility
- 1 No. four wheeler with driver for suit survey, meetings etc., with Owner/Owners representative. Also it shall be well equipped with tools and tackles for attending any emergency complaints and ongoing execution work.

On award of the contract , The contractor shall establish and submit documentary evidence for above Which will be verified by owner before of the work order .Any delay and non-compliance of above may result into the termination of contract

10.0 STRUCTURES, SERVICES AND OTHER PROPERTY

10.1 Location of Underground Utilities

The contractor shall locate all buried utility pipes, underground cables, water mains and other obstructions intersecting or adjacent to the Works, and shall make available the necessary labour to expose and record the depth of cover over all obstructions in advance of excavation. This shall be done far enough in advance of excavation to facilitate gradual change in grade or position found necessary to clear any obstructions.

In addition, the contractor shall excavate trial pits as necessary to determine the pipe route. The number of trial pits will be agreed with the EIC in advance of any

excavation. In any event, trial pits shall be made at intervals of a maximum of 30 meters. Restoration of the abandoned trial pits and trenches shall be the contractor's responsibility. No payments shall be made for such type of jobs.

It is contractor's responsibility to interact with other utility agencies regarding their existing utilities and finalize the route along with these agencies and Owner/Owner's representative. There will be no additional payments in respect of abandoned trenches incurred because of insufficient or inadequate trial pits, or any associated lost time or delays.

10.2 Protection of Structures and Utilities

The Contractor shall at his own cost, support and protect all buildings, walls, fences or other structures and all utilities e.g. Electrical cables, Telephone Cables, Water pipelines, Sewer pipelines etc., and property which may, unless so protected, be damaged as a result of the execution of the works. He shall also comply with the requirements in the specification relating to protective measures applicable to particular operations or kind of work. Special care shall be taken while laying Pipelines near the trees.

10.3 Interference with Traffic, Street Drainage and General Public

The Work shall be executed in such a manner as to cause a minimum of inconvenience to persons requiring to use public or private roads, lanes, thoroughfares, walkways, rights-of use or passages through which the Works are to be executed. The trench shall be back filled, compacted, leveled and extra earth shall be removed immediately after laying of pipeline to avoid public inconvenience. Closure of roads, etc, shall not be permitted without the approval of the EIC.

The Contractor shall comply with all local Authorities requirements to traffic, and keep roads open to traffic, and maintain access to and within any private property.

Wherever the pipe route crosses driveways, access tracks or entrances to private properties, the Contractor shall give the owner, occupier or relevant authority at least 24 hours prior notice of intended commencement of excavation and shall be restricted to pass through.

The Contractor shall not, in any circumstance, use a private driveway, access track or entrance without the prior approval of the EIC.

The Contractor shall provide suitable access where necessary in the form of temporary bridges, culverts, flumes, etc, of a size and type approved by the EIC.

The Contractor shall comply with all relevant road Laws. Where limits and/or speed limits have been placed in the vicinity of the Works, the Contractor shall provide for the necessary movement of plant and equipment in accordance with the requirements of the relevant authority.

The Contractor shall not obstruct any drainage pipes or channels in any road but shall deviate them where necessary and use all proper measures to provide for the

free passage of water.

The Contractor shall deliver the completed works after proper cleaning of the site.

The contractor shall conduct his operations at all times, with a view to minimizing as far as practicable noise from plant and other objectionable nuisance (e.g. oil leakage).

11.0 TRENCHING

The schematic diagram with the detail of trench is enclosed as Annexure.

The Contractor shall perform the excavation works so as to enable the pipe to be laid in conformity with the levels, depths, slopes, curves, dimensions and instructions shown on the Drawings, Specifications or as otherwise directed by the EIC.

Contractor shall excavate and maintain the pipeline trench on staked centerlines as per approved alignment sheets taking into account the horizontal curves of the pipelines.

While trenching care shall be taken to ensure that all underground structures and utilities are disturbed to the minimum. Suitable crossing shall be provided and maintained over the ROU wherever necessary to permit general public, property owners or his tenants to cross or move stock or equipment from side of the trench or another.

Trenching shall be made with sufficient slopes on sides in order to minimize collapsing of the trench. On slopes wherever there is danger of landslides, the pipeline trench shall be maintained open only for the time strictly necessary. Client may require excavation by hand tools, local rerouting and limiting the period of executing of the works. Before trench cuts through water table, proper drainage shall be ensured, both near the ditch and ROU in order to guarantee the soil stability.

The Contractor shall ensure that trench bottom is maintained in the square form as far as possible, with equipment, so as to avoid/ minimize the hand grading at the bottom of the trench. The Contractor shall do all such handwork in the trench as required to free the bottom of trench from loose rock, pebbles and to trim protruding roots from the bottom and sidewalls of the trench.

11.1 Depth of Trench

The minimum depth of cover shall be measured from top of pipe to the top of undisturbed surface of the soil or top of the graded working strip or top of road or top of rail, whichever is lower.

The depth of the trench will be such as to provided minimum cover as stipulated below:

* Refer PJS clause No. 17.0 SPECIAL POINTS PERTAINING TO SPECIFICATION.

The minimum depth as mentioned above may be greater than as may be required by Government/ Public authorities under jurisdictions. The Contractor shall perform such work without extra compensation, according to the requirement of concerned authorities.

In cases of Drain/ Culvert crossing through open cut where excavation cut is more than 1.5m, the extra excavation shall be paid in quantity basis. The rate shall include backfilling as specified. No separate payment is chargeable for extra excavation and includes backfilling as well.

In case the depth could not be achieved due to practical problems and the same is demonstrated, EIC after examining thoroughly and considering the codes and standards may allow the contractor to provide suitable protection by way of concrete casing pipes or slabs without extra cost to Client.

11.2 Width of Trench

The width of the trench shall be wide enough to provide bedding around the pipe and to prevent damage to the pipe inside the trench. Unless otherwise directed by the EIC and where ground conditions permit, the minimum distance from the inside edge of the trench wall to the outside of the pipe shall be as per drawing enclosed herewith.

11.3 Trench Base

The trench bottom shall be cut or trimmed to provide a uniform bedding for the pipe, and shall be free of stones, metal, wood, vegetation, clods of earth or other debris before placement of the pipe.

Hard rock is defined as trench material with a single piece dimension exceeding 1.5 m in length which cannot be removed other than by the use of pneumatic chisel/drill or sledge hammer and chisel.

Excavation through soil mixed with boulders that have been used for a road base will not be considered as hard rock for the purposes of payment.

1.4 Clearances

Unless otherwise approved, the following clearances shall be maintained between the external wall of the gas pipe and the external surface of other underground assets in the vicinity of the Works.

- 150-300 mm where the gas pipe crosses other assets, other than electric cables, whereupon the clearance shall be 300 mm.
- 300mm where the gas pipe is on a similar alignment to the other assets. Where the above clearances cannot be achieved, or in other special circumstances, the EIC may

approve/specify protection with concrete/MS coated pipe, etc. The protective material shall be supplied and installed by the contractor at his cost.

11.5 Under Ground Interferences

The Contractor shall locate and expose manually all underground facilities if any during trenching. Safety barriers, if required shall be erected to prevent any damages or accident. On locations where pipeline is laid under the existing facilities and near the approaches to the crossing, the trench shall be gradually deepened to avoid sharp bends.

All sewers, drains, ditches and other natural waterways encountered while trenching shall be maintained open and functional by providing proper temporary installations if required. Suitable dewatering pumps shall be deployed to dewater, if required.

Whenever it is permitted by Authorities and/ or Client to open cut paved road crossing, or where line is routed within the road pavement, the Contractor shall remove the paving in accordance with the restrictions and requirements of the authorities having jurisdiction thereof as directed by Client. After laying the pipeline, backfilling shall be immediately performed and all the areas connected with the works shall be temporarily restored.

In case of damage to any of above referred structures/ utilities the contractor shall be responsible for repairs/ replacement at his own cost, which shall be carried out to satisfaction of concerned authorities, resident and TPIA/ Client.

11.6 Others

Throughout the period of execution of such work, the Contractor shall provide and use warning signs, traffic lights or lanterns, barricades, fencing, watchman etc. as required by the local authorities having jurisdiction and/ or Client.

For all roads, paths, walkways etc. that are open-cut, the Contractor shall provide temporary diversions properly constructed to allow the passage of normal traffic with the minimum of inconvenience and interruptions.

The paving shall be restored to its original condition after the pipeline is installed.

The Contractor shall excavate to additional depth at all the points where the contour of the earth may require extra depth, or where as deep trench is required at the approaches to crossings of roadways, railroads, rivers, streams, drainage ditches without any extra cost implication to Client.

The Contractor shall excavate all such aforesaid depths as may be required at no extra cost of Client.

The trench shall be cut to a grade that will provide a firm, uniform and continuous

support for the pipe.

The Contractor shall take conducive measures to ensure the protection of underground utilities as per the instructions of Client or relevant authorities.

Where the pipeline crosses underground utilities/ structures, Contractor shall first manually excavate to a depth and in a such a manner that the utilities/ structures are located, then proceed with the conventional methods.

The locations, where the pipeline has to be laid more or less parallel to an existing pipeline cable and/ or other utilities in the Right-of-way the Contractor shall maintain proper distances and perform the work to the satisfaction of Client and other utility agencies. In such locations, the Contractor shall perform work in such a way that even under the worst weather and flooding conditions, the existing pipeline/ utilities remain stable and shall neither become undermined nor have the tendency to slide towards the trench.

11.7 Bedding

The contractor shall ensure that the pipe when placed in the trench is supported and surrounded by a bed of screened excavated soil, which shall be stone free and have a maximum grit size of 5mm in order to ensure no damage occurs to the pipe.

However in case of rocky soil, the bedding shall be done with approved/ good quality packing sand, subject to the approval of the EIC, the size distribution of the sand/ shall be the same as per soil. The packing sand shall be placed to a minimum thickness of 150mm around the pipe in case of rocky terrain.

Unless directed by the EIC the quantity of bedding & surrounding sand shall confirm to specifications. There shall be no void space in packing sand around the pipe.

12.0 LAYING

Laying of MDPE pipelines shall commence only after ensuring proper dimensions and clean surface of the trench. The trench bottom shall be free from the presence of cuts, stones, roots, debris, stakes, rock projections upto 150mm below underside of pipe and any other material which could lead of perforation/ tearing of the pipe wall. After ensuring above the MDPE pipe coil shall be uncoiled smoothly through proper equipment's/ care inside the trench ensuring no damage to pipe coil during laying. The Contractor must ensure that pipe caps are provided before lowering of pipeline. The trench after this can be released for back filling leaving adequate lengths open at the ends, for jointing.

Where given specific approval by the EIC a pipe may pass through an open drain or nallah. Where this is permitted the pipe shall be installed inside a concrete or steel sleeve for protection. The sleeve material shall be procured and laid by the Contractor. In general the GI Sleeve and MS sleeves material specification shall be confirming to IS 1239 (Heavy Duty) specification of reputed make. The payment for the length of pipe in the sleeve will be made as per SOR. All other work necessary

to break through the walls of the obstruction, and to seal the annulus between the pipe and the sleeve and the sleeve and the wall, shall be deemed to be included in the rates.

Open ends of pipe placed in the trench shall be securely capped or plugged to prevent the ingress of water or other matter. The Contractor is to ensure that nothing enters the inside of the pipe during the laying process as this could cause a future blockage or regulator malfunction due to dust, etc.

Service lines shall be installed in accordance with the drawing enclosed. Note that the service pipe rises out of the ground at the customer's premises within a GI sleeve pipe. The vertical portion of the sleeve shall be fixed to the wall of the premises in a secure manner. A bending tool shall be used to bend the GI sleeve pipe so that it has the appropriate curvature and is free of kinks. The bending of the sleeve, its fitting and clamping, and the installation of the transition fitting excluding service-isolating valve, is all included in the service connection rate. A rate is included in the SOR for the provision of sleeves for PE laying. Any installation without inspection and approval may lead to penalties as Special condition of contract

A bending tool shall be used to bend the GI sleeve pipe so that it has the appropriate curvature and is free of Kinks. The installation of the GI sleeve for service lines shall be done by sealing the annulus, firm fixing of the GI sleeves with concrete mix, breaking through any obstructions & their subsequent restoration to the satisfaction of the EIC and Govt. authorities..

The contractor shall supply the GI sleeves (Heavy duty OF IS: 1239 reputed make) respectively for domestic & commercial / Industrial installation. The vertical portion of the sleeves shall be fixed to the wall of the premises in a secure manner. The service line shall be installed in accordance with drawing enclosed. The material test certificates

/inspection reports shall be inspected by TPIA/PMC before installation.

Valves shall be installed at locations shown on the Design Plan or as directed by the EIC and joined with PE pipes by electro-fusion techniques. The valves shall be supported on a bed of fine fill of grit size not greater than 5mm to achieve equivalent support as the incoming and outgoing pipe work.

Laying graphs with details of depth, length, offsets from fixed references, other utility crossings, fittings, size of casing pipe used for the pipeline shall be prepared on daily basis and submitted to Site Engineers of the Owner for approval. These details will be further incorporated into As-Built Drawings.

14.0 JOINTING OF POLYETHYLENEPIPE

The procedure for jointing of PE pipe and fittings is enclosed. Only Bar coded electro-fusion machine (Automatically Readable) that can read the bar code of the fittings automatically shall be used for jointing of MDPE pipe / fittings. **Manual feeding electro-fusion machines are not acceptable for jointing purpose.**

The Contractor has to submit the certificate of calibration of Fusion machine at the time of start of work and at fixed intervals as per the instruction of owner. Contractor shall ensure that the machine are always available at site, no stoppage of work due to

the non-availability of machines.

The contractor shall flush the Pipeline with air to remove dust, water, mud etc. before fusing the joints.

Before jointing, the Contractor shall place packing sand under the pipes on both sides of the joint to keep the pipes in line and at the correct alignment during the jointing process. Alignment clamps with the correct size shells should be used to align the pipe during the electro-fusion cycle.

The Contractor shall ensure that polyethylene pipe is only cut with an approved PE pipe cutting tool. Before fusion is attempted he shall remove the oxidized surface of the pipe to be inserted into the electro-fusion coupling. The tool must remove a layer of 0.1 mm to 0.4 mm from the outer surface of the polyethylene pipe. **It may also be noted that no fusion will be allowed without clamping device and only the approved cutting tools (Hack Saw shall not be allowed for cutting the Pipe) shall be used.**

The contractor has to supply all the consumables required for carrying fusion of the joints (like cloth/ paper napkin, acetone etc.).

If, upon inspection, the EIC determines a joint is defective, Contractor shall remove the joint by an approved method. The cost of this work shall be borne by the Contractor.

For electro-fusion jointing, the contractor must bring own tools, tackles and Equipments.

Contractor shall arrange generator for power supply for fusion machine. Taking power connection from electric poles, connections without written permission from concerned authorities or residential premises is strictly not permitted.

Only, Approved Jointers shall carry out fusion of all joints. Contractors shall provide the list of jointers to be used on the job and make arrangements for qualification Testing of the jointers in presence of Owner / Owner's representative. All approved Jointers shall bear Identity cards signed by Owner/Owner's representative..

Taking power connection from electric poles, connection without written permission from the concerned authorities or residential premises is strictly prohibited

15.0 BACKFILLING

Backfilling shall be done after ensuring that appurtenance have been properly fitted and the pipe is following the ditch profile at the required depth that will provide the required cover and has a bed which is free of extraneous material and which allows the pipe to rest smoothly and evenly. Dewatering shall be carried out prior to backfilling. No backfilling shall be allowed if the trench is not completely dewatered. Prior to backfilling it should be ensured that the post padding where required of compacted thickness 150mm is put over and around the pipe immediately after lowering.

Backfilling shall be carried out immediately after the post padding where required has been completed in the trench, inspected and approved by Client/ TPIA, so as to provide a natural anchorage for the pipe, avoiding, sliding down of trench sides and pipe moment in the trench. If immediate backfilling is not possible, a padding of at least 200mm of earth, free of rock and hard lumps shall be placed over and around the pipe and coating.

The backfill material shall contain no extraneous material and/ or hard lumps of soil, which could damage the pipe and/ or coating or leave voids in the backfilled trench. In case, it is required and directed by EIC, screening of the backfill material shall be carried out with specified equipment before backfilling the trench.

The surplus material shall be neatly crowned directly over the trench and the adjacent excavated areas on both sides of the trench to such a height which will, in Client opinion of provide adequately for future settlement of the trench backfill during the maintenance period and thereafter. The down shall be high enough to prevent the formation of the depression in the soil when backfill has settled into its permanent position should depression occur after backfill, Contractor shall be responsible for remedial work at no extra cost to Company. Surplus material, including rock, left from this operation shall be disposed off to the satisfaction of land owner or authority having jurisdiction at no extra cost to Client.

Where small pieces of rock, gravel, lumps of hard soil or like materials are encountered at the time of trench excavation, sufficient earth or select backfill materials shall be placed around and over the pipe to form a protective cushion extending at least to a height of 150mm above the top of the pipe. Select backfill materials for padding that are acceptable shall be screened soil, containing no gravel. All these works shall be carried out by Contractor at no extra cost to Client. Loose rock may be returned to the trench after the required selected backfill material has been placed, provided the rock placed in the ditch will not interfere with the use of the land by landowner, or tenant.

In case where hard rock is encountered or as desired by EIC sand padding is to be provided upto height of 150mm around the pipe.

When the trench has been dug through drive ways or roads, all backfilling shall be executed with suitable material in layers as approved by Client and shall be thoroughly compacted. Special compaction methods as specified may be adopted. All costs incurred there upon shall be borne by the Contractor.

Trenches excavated in dikes which are the properties of railways or which are parts of main roads shall be graded and backfilled in their original profile and condition. If necessary, new and/ or special backfill materials shall be supplied and worked-upto.

PE Warning Grid/Mat 1mm thick and 300mm wide will be placed on distribution main and on service lines inside premises, after backfill of the trench up to a height of 300mm on the top of the carrier pipes. The warning grid is to be unrolled centrally over the pipe section and thereafter further backfilling will commence.

Backfilling activity shall include proper compaction by jumping jack compactor and watering in layers of 150mm above the warning mat. Proper crowning of not more than 150mm shall be done. All the excavated material required to be used during the Restoration process shall be stacked and kept separately and properly. Wherever Road cutting/ Tiles removal/ PCC cutting has been done during excavation for laying, the area shall be back filled and compacted immediately so that no inconvenience is caused to the general public.

Electro-fusion of joints is to be undertaken immediately after lowering and the activity shall not be kept pending for lack of Electro-fusion jointing. The backfilling shall be considered complete only after the joint is completed.

Debris and other surplus material shall be removed immediately after the back filling.

The contractor shall not be entitled for 30% payment on laying & backfilling till the above activities are completed.

16.0 MOLING:

The Moling shall be carried out as per the requirement specified by Client/TPI, and approved procedures. The contractor has to carry out thorough survey of the underground utilities before going for the Moling, to avoid the damage to the other utilities.

No extra payment will be made for any trial/ abandoned pits made during the survey. The supply of all equipment, power required for carrying out Moling work, is in contractor's scope. The type of moling to be carried out i.e., Manual/ Machine with or without casing shall be at the discretion of Client. A prior approval is to be taken before starting the Moling.

For manual Moling the contractor shall ensure that the size of the hole shall not be more than 20% of the size of the casing / carrier pipe whichever is applicable. After completion of Manual Moling the hole shall be properly compacted / filled with soil by watering and by approved procedures, the pits shall be backfilled, compacted & restored.

The rate for such crossing work by using casing pipe & carrier pipe or only carrier pipe shall be payable as per Schedule of Rates. **No separate payment shall be made for pulling the carrier pipe.**

The rates for Moling, as indicated in SOR, are payable as per the size of the casing/ carrier pipe and are inclusive of excavation of pits, backfilling, compaction, restoration, jointing and insertion of carrier pipe.

Any damages occurred to other utilities during the Moling operation shall be immediately notified and rectified by the contractor without any cost implication to Client.

The length of the Hole (excluding the sizes of the pits on both ends) shall be considered for the measurement of Moling length. However, intermediate pits will consider in the moling length.

17.0 BORING/RAMMING/DIRECTIONAL DRILLING

One of the above techniques is required to be carried out by the Contractor where conventional trenching/Moling is not possible viz. railways, major waterways, highways, roads etc. Details of such crossings shall be obtained by the Contractor, and construction drawings shall be prepared by the Contractor in consultation with TPIA/Client. Execution of the work shall be based on the Consultant/ Clients approved drawings. The contractor has do the thorough survey of the underground utilities before commencement of BORING/ RAMMING/ DIRECTIONAL DRILLING to avoid the damage to the other utilities. No extra payment will be made for any trail/ abandoned pits made during the survey. The supply of all equipment is in Contractors scope. Work to be carried out in accordance with API - 1102.

Once the work is allotted, Any delay in mobilizing / non – availability of HDD machines as per site requirement and conditions shall result in levying of penalties on daily basis as per SCC.

The type of HDD to be carried out i.e. conventional (with or without casing) shall be at the discretion of Client/ Consultant. And prior approval is to be taken before starting the HDD.

The rates for HDD, as indicated in SOR, are payable as per the size of the carrier pipe and are inclusive of excavation of pits, backfilling, compaction, jointing and insertion of carrier pipe and restoration of pits. For HDD with casing pipe no separate payment shall be made for pulling of the carrier pipe, the rate quoted by the Contractor shall be inclusive of pulling carrier pipe.

Any damages occurred to other utilities during the HDD operation shall be immediately notified and rectified by the Contractor without any cost implications to Client.

The length of the HOLE (excluding the sizes of the pits on both ends) shall be considered of HDD length.

18.0 CASING PIPE

The tentative sizes of the HDPE casing pipe for Moling/ HDD shall be as follows:-

<u>Size of MDPE pipe</u>	<u>Size of HDPE pipe</u>
20 mm	75mm
32 mm	75 mm
63 mm	125 mm
90mm	180mm
125mm	250mm

However, size of the casing pipe may vary according to length of the carrier pipe

and requirement of laying of OFC Duct.

19.0 RESTORATION

Wherever the restoration is required, the roads, footpaths (including roads and footpaths inside colonies) shall be restored to original condition, and the same shall be done as per concerned local authorities norms and to the satisfaction of the concerned local Authority. To retard curing of the installed concrete, wet sack cloth is to be placed on the finished surface and kept damp for a period of 36 hours.

Where slabs and blocks are to be restored, the level of the compacted sub- base is to be adjusted according to the slab/block thickness. The slabs or blocks should be laid on moist bedding material, which should be graded sand, mortar or mortar mix. The slabs or blocks should be tapped into position to ensure they do not rock after laying.

The restored slabs or blocks should match the surrounding surface levels. Joint widths should match the existing conditions, and be filled with a dry or wet mix of mortar.

The sketch for restoration of Road, Footpath, Channel is enclosed herewith and is indicative. However, the restoration shall be done in accordance with the norms of concerned land owning agencies.

Turf shall be replaced in highly developed grassed area. In lesser-developed grassed areas topsoil should be replaced during the restoration process.

Where permanent surface restorations cannot be completed immediately, the Contractor shall provide and maintain a suitable temporary running surface for vehicular traffic and pedestrians. The Contractor will be responsible for the maintenance of all restoration carried out, for the duration of the Contract guarantee period.

The Contractor is to ensure the restoration work is properly supervised, and that the material used is suitable for the purpose and properly compacted. Where the required standards are not achieved the Contractor will be required to replace the defective restoration work.

Note that Payment for pipe laying will only be authorized on initial-satisfactory restoration, and where the sites has been cleared of all surplus materials, etc.

Contractor has to obtain the clearance certificate from the concerned local authorities after completion of the restoration work. The restoration specification specified in the tender is only a typical specification and the contractor has to carry out restoration as per latest version of the (PWD/ IRC) specification to its original condition and also to the entire satisfaction of land owner (Private/Public). **A BG with an Equivalent Amount 25 Lacs shall be deposited as security Against obtaining NOC from the authorities after completion of work and Restoration. Any claim whatsoever raised by authorities for defects in restoration shall be compensated by the contractor to RSGL failing which the equivalent amount shall be recovered Contractors Bills.**

The expenditure incurred towards testing of the material used for restoration as per applicable standards, shall be borne by the contractor.

20.0 TESTING

Pressure testing will be carried out with compressed air. Compressed air will be provided by Contractor for testing purposes and is to be included in the rates.

For main pipelines work the Contractor shall perform progressive pressure testing to avoid having to find leaks in long lengths of pipe. The test pressure shall be 6.0 bar(g), and there shall be no unaccountable pressure loss during the test period.

Test procedure with sketches showing the pipeline to be tested, vent points, gauge location, and inlet pressure print is to be prepared & got approved by EIC.

For main line the test duration shall be 24 hrs. With these tests the pressure should be allowed to stabilize for a period of 30 minutes after pressurization. The holding period may then commence and continue for 24 hours. Measuring instruments shall have been calibrated and their accuracy and sensitivity confirmed. For testing of Network, calibrated pressure gauges of suitable range shall be supplied by the contractor. The pressure gauges shall be calibrated from time to time as desired by Engineer-in-Charge. All testing shall be witnessed and approved by the EIC or his delegated representative. Tie-in joints may be tested at working pressure following commissioning.

For service lines in some cases testing will be carried out independently of the testing of the mains for which the test duration may be reduced to 4 hrs. The servicetesting in this case will be performed after the service installation is complete but before the service tee has been tapped. Also in some cases the tapping of the servicetee will be delayed pending the completion and purging of the main pipelines.

21.0 PURGING

Purging shall be carried out in accordance with the principles defined in the American Gas Association publication ‘Purging Principles and Practice’.

Nitrogen required for purging will also be provided by the Contractor. Nitrogen shall be supplied in labeled, tested and certified cylinders, and completed with all necessary regulators, hoses and connections, which will be in good condition and working order.

In addition the Contractor shall submit and get approved a Purging Plan before commencing any purging work. The Plan shall include, but not be limited to, the provision of the following materials and equipment: Personal safety equipment, Fire extinguisher, Purging adapter, Purge stack with flame trap and gas sampling point, Gas sampling equipment (may be gas leak detector), squash-off tool, Polyethylene connecting pipe work.

The Plan shall also include the purging process along with detail on the sequence of events. The process is to also specifically mention the need to lay a wet cloth over

the PE main and in contact with the ground, to disperse static electricity during the purging work.

A purge stack with flame trap shall be used when purging services. Care shall be taken to ensure that the purge outlet is so located that vent gas cannot drift into buildings.

22.0 VALVE PIT

The valve pit shall be constructed in accordance with enclosed drawing & payment shall be as per relevant SOR item.

The construction of valve chambers shall be taken up immediately after installation of valve pit. Drawing No. : MEC/23N0/05/25/M/000/016 – 20

22.1 Workmanship

The excavation work shall be done at a location given by Engineer-in-Charge. All care shall be taken not to damage existing facilities and surface of construction shall be restored to its original state.

Sandbags to be placed below pipeline without disturbing the laid pipe. Gunny bags and Sand should be of approved quality.

Precast RC slab shall be placed as indicated in the drawing issued to the contractor. PCC to be placed below the pipe as indicated. Once PCC is set sand is to be filled and properly rammed so that pipe and precast concrete blocks are firmly placed.

Valve will be supplied without the operating stem. Contractor has to supply the operating stem with a handle for the valves of the different sizes. The Contractor has to take prior approval for design and material specification of the stem for installation. Approved quality sand is to be placed in between area.

Surrounding area to be properly cleared and PCC to be placed around the location where precast slab with CI Manhole cover is placed. The RC precast slab to be laid in level and finished smooth.

23.0 PERMANENT MARKERS

23.1 Permanent Marker (As per typical Drawings Placed at Tender) shall be installed on the ROU at regular intervals as per the instructions of the EIC immediately after laying of the pipeline. The installation of the type of the Permanent Marker shall be decided by the EIC depending on the site condition. The Markers shall be painted before installation as per the approved procedure. The supply of the paint and painting as per the specification is in contractor's scope. Separate payment for installation of the markers shall be paid to the Contractor as per the respective Item in SOR

23.2 The artwork shown in the drawing is typical for all the markers. The contractor must take prior approval for the artwork from EIC before installation of Markers. The artwork must have Client's logo and specify the location of the pipeline from the marker.

Guidelines :

- The installation of these markers shall be such that in between two pole markers two RCC markers are installed with spacing of 50 Mtrs on either side. However, Pole markers shall be installed at all the tapping / Branching points in the mainline.
- Interval between any two RCC markers for mainline (180mm to 63mm) shall not be more than 50 m.
- Pole marker or RCC marker shall be installed near to valve chambers on mainline & inside the pockets respectively for indication.
- Pole marker with foundation shall be installed after two RCC marker as per drawings.
- The entry and exit pits for laying of pipeline by HDD/ Moiling for road crossings shall be marked by pole markers or RCC markers depending upon the site condition .
- In addition to the above, pole markers with foundation (As per drawings) shall be installed outside societies / Areas as per the instruction of the site in charge.
- For the distribution network 32 mm & 20 mm pipe, plate markers shall be installed as per the site condition and direction of the site in charge.

24.0 ASSISTANCE IN COMMISSIONING

Contractor shall provide the required personnel, Vehicles, labour, supervision, tools, equipment, instruments and technical assistance for performance tests and commissioning activities as per requirement of Client/Consultant.

25.0 STANDARD OF WORK

- 25.1** All work carried out under this contract shall be to standards, codes of practice, construction procedures and other technical requirements as defined in the technical specifications.
- 25.2** The manpower deployed on the respective work shall be adequately trained & shall have necessary skills to executive/ supervise the work. However, the assessment on the qualification of the personal shall be at the discretion of EIC.
- 25.3** Fusion operators and other skilled personnel shall be approved by Client/ TPIA and identification cards duly signed by EIC shall be issued to them. Only those personnel who are approved by EIC shall be allowed to execute the critical activities like joining of PE Pipes.

26.0 RECORDING (AS-BUILTDRAWINGS)

The Contractor will be required to submit computerized as-built drawings duly certified by EIC in A0/ A1 sheet form at 1:200 scale with six sets of prints plus soft copy. The as-built drawing shall be submitted on area wise as specified. The bill of materials used for the particular area shall be specified on the drawings. The Contractor shall use the area and crossing survey drawings prepared by them as reference. On-site sketches, picking up key reference points, shall be made during the installation of services. The lengths, depths of installed pipe work, changes in direction, major fittings, etc, shall be recorded together with appropriate references

to other services crossed and in the proximity of the gas pipe.

Distance of pipeline from permanent property /structure should be provided at least every 20 meters. If there is any change in alignment/orientation and offset distance etc. of the pipeline in between the above said 20 meters, the same shall be clearly mentioned in the as laid.

Gas objects (off valve, tees, elbows, couplers, T.F, etc shall be shown as block objects (which from a single node to connect) with respect owners symbol and legend. The as laid drawing shall be as per the legends provided by EIC. Details & offset distances from other utilities present should be given in as laid drawing. If there is any change in the depth of pipeline, the same shall be clearly marked with details in the as laid drawings. The details of additional protection provided must be mentioned.

Details of the PE stop off valve and other fittings used should be shown with adequate information and orientation. Technical deviation (if any) should be provided with reference to the buildings and permanent structure around, and the same should be cited clearly with all relevant details.

Complete details of nallah crossings should be shown in a separate sketch

Name of roads, major landmarks and buildings should be mentioned appropriately for reference.

Proper Chainage shall be mentioned on all the drawings to be referred with continuation reference.

Direction of gas flow should be indicated in each drawing.

Land based features shown on the drawing shall match the exact distance as they were on real ground with respect to scale ratio (1:200)

The details shall be prepared in standard format using Map Info/AUTOCAD Map and submitted in CD ROM. Contractor shall also make the item wise material consumption report for the respective areas in a soft copy and to be submitted along with the as- built drawings.

27.0

Civil Works

The contractor has to supply the adequate materials and skilled manpower for the completion of all the civil works. The contractors shall also insure that the work carried out as per the detail mentioned in the schedule of rates.

Special care should be taken at the time of labours working in depths/lifting of the

skids by hydras/ cranes considering all the safety guidelines.

The contractors has to ensure that sample of all the material shall be inspected and approved by EIC before carrying out installation or erection work. The contractor has to submit the test certificates for all the materials to be used at the site. The construction shall be carried out strictly as per the drawings provided by the Client. The party shall ensure extra / Surplus / malba shall be immediately removed from the site after completion of the job. Separate payment shall be made as per the SOR.

TECHNICAL SPECIFICATION

FOR

INSTALLATION OF ABOVE GROUND GI /CU

PIPING

FOR

DOMESTIC, COMMERCIAL AND INDUSTRIAL

CONSUMERS

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1.0 GENERAL INFORMATION

1.1 INTRODUCTION

The main intent of the specification is Supply and installation of above ground GI pipes, fittings, valves, meters and regulators, from the outlet of 'PE/GI transition fitting' upto the DOMESTIC consumers 'Appliance / stove/ oven valve' as per the Distribution Schedule.

The scope for commercial consumer includes installation of above ground GI pipes and associated fittings, valves, regulator up to and including meter. However, the piping may have to be carried out up to Appliance valve, in case of some commercial customers.

In case of large commercials and industries completely assembled metering skids would be supplied to the contractor who would be required to install and provide inlet & outlet connection.

This technical specification defines the basic guidelines to develop an acceptable design and suitable construction methodology for carrying out different activities listed out in the schedule of rates of this tender.

Compliance with these specifications and / or approval of any of the Contractor's documents shall in no case relieve the Contractor of his contractual obligations.

2.0 SCOPE OF WORK

Generally the following shall constitute the contractor's scope of work:

- 2.1** Plan and prepare a detailed execution schedule and procedure for implementation based on QA / QC formats plans issued by Client / TPIA.
- 2.2** Contractor has to submit the Construction/ Execution procedures before commencement of work to owner / owner's representative for approval.
- 2.3** Selection of route and marking on walls / floors between 'transition fitting' to 'cooking oven / stove / appliance' making openings and making provisions for fixing clamps. Making temporary but stable platforms / scaffolding / rope ladder etc., required for installation of pipes /fittings at all heights /multi storied flats and locations. Providing safety equipment to workers / plumbers.
- 2.4** Receipt of regulators, domestic meters, as a free issue items from Owner's Stores, loading, transportation, unloading at project site. Proper storing, stacking, identification, providing security and insurance during and before installation and commissioning of pipelines. Obtaining the approvals for optimum route and permission for work from the concerned authority and EIC.
- 2.5** Contractor shall procure all material, except free issue material from the outlet of PE/GI transition fitting up to the Domestic/Commercial customers "Appliance/Stove/Oven valve for satisfactory completion to the owner/Owner's representative.
- 2.6** Installation of GI pipes of 1/2", 3/4", 1" dia. between transition fittings (installed by PE contractor) and customer's kitchen which would include NPT threading of pipes, and jointing of fittings such as elbows, tees, connectors, regulators, meters, isolation valves etc., as per laid procedures and specification including supply of GI fittings & Teflon tapes for sealing of joints. Painting of GI Pipes & fittings as per specification.

- 2.7** Installation of Copper pipes of ½" (12 mm) OD from the downstream of Meter upto the isolation valve prior to the customers appliance, including the installation of isolation valves, brass fitting at the downstream of meters and at the entry of isolation valves with application of lacquer paint etc. to the satisfaction of EIC.
- 2.8** Supply & Installation of clamps for fixing pipes, isolation valve, appliance valve, box for regulator, Sleeves wherever required, painting of steel pipes & fittings. Providing consumables grout material, repair / restoration of walls / floors / holes including the materials required for conversions along with tools and tackles etc., complete as per specification.
- 2.9** Conversion of all types of LPG kitchen appliances to NG based appliances inclusive of supply of nozzles. Signing of Joint Meter Records (JMRs).
- 2.10** To demonstrate to the customer regarding use, safety and maintenance related aspects of NG based appliances and installations.
- 2.11** Testing & Commissioning of installations including purging as per specification and handing over the installation of Client / customer to the entire satisfaction of Client / TPIA.
- 2.12** Dismantling of scaffolding / temporary structures and cleaning of site.
- 2.13** Restoration of walls, flooring and other damages while executing the above ground installation.
- 2.14** Preparation and submission of above ground installation card for each house / commercial establishment indicating the list of materials used, reasons of not providing connections, testing pressure and date etc. Deviation statements, if any, on completion /commissioning of work.
- 2.15** Any other activity not mentioned / covered explicitly above, but otherwise required for satisfactory completion / operation / safety / statutory/ maintenance of the works shall al so be covered under the Scope of work and has to be completed by the Contractor within specified schedule at no extra cost to Client.
- 2.16** Following activities are also in contractor scope
- Receive customer's request and complaints logged
 - Carry out joint technical feasibility survey for request received.
 - Attend and resolve customer complaint

3.0 MATERIAL, LABOUR, PLANT AND EQUIPMENT

3.1 Owner's Scope of Supply (Free Issue Item)

In order to speed up the project Free Issue Materials shall be issued to the Contractor from the designated store(s) of Client. Contractor shall be responsible for lifting the free issue materials from Owner's storage point(s) and transporting the same to work site(s) at his own cost.

3.2 Supplied by the Contractor

The contractor has to supply all GI pipes (if applicable), GI Fittings, flexible hose, Suraksha hose, Valves, Fittings, Clamps, Cu pipes, GI Pipes, Appliance Valves ½" and isolation Valves

½" , ¾", sleeves, etc. and other materials required for said works.

The contractor shall provide the labour, tools (such as Hammer Drill, Piston Drill, Pipe cutters, Dies for threading, Pipe wrenches, spanners, all types of clamps, Plant and equipment necessary for the proper execution of the work. This will include but not be limited to list of specialized tools & tackles enclosed herewith. Contractor shall submit the specification of all the material to be supplied by him to EIC for approval and get the material checked & approved by him before commencement of execution.

The contractor is to be procure all bought out items from approved vendors and accordingly keep Client. /TPIA informed. The inspection of bought out items would be carried out by Client / TPIA / Third Party Inspection or as instruction by EIC.

3.2.1 Plant and Equipment

All vehicular type machinery shall be in good working order and shall not cause spillage of oil or grease. To avoid damage to paved surfaces the contractor will provide pads of timber or thick rubber under the hydraulic feet or outriggers of machinery.

3.2.2 Sealant, grout

The contractor shall be responsible to arrange the supply of any consumable sealant or ready mix grout material required for execution of work. The sealant / grout supplied by the contractor shall be compatible with the area to be restored / rectified. No separate payment for the supply of sealant and grout shall be made to the contractor.

3.2.3 Clamps, Rawal Plugs, Screws, Nozzles etc.

The Clamps, Rawal Plugs, Screws, Nozzles, etc. shall be approved lot wise by EIC prior to installation. Re-drilling of existing appliance nozzles is strictly not permitted.

The indicative sketch of the Brackets for Meter and GI Pipe Clamps is enclosed herewith.

3.2.4 Consumable Items

Special consumables such as Teflon Tapes, Solder wire, Flux, lacquer, thinner, shall be supplied by the contractor and are included for within the rates.

These consumables shall be of reputed companies and required grades / class and duly approved by EIC.

3.2.5. Other Materials

The contractor shall supply the following items where required. All materials required for formwork, NPT threading, testing etc. All signs, barricades, lights and protective equipment. All material required for working at higher floor levels (i.e., scaffolding, Ladder, safety belts etc.). Special consumable such as grease for maintenance of domestic appliances and all paints or painting of G.I pipes, clamps, sleeves, brackets for meters,

consumables such as Teflon Tapes, Petrol, diesel, fuels and oils required are to be supplied by the contractor and are included for within the rates. All minor items not expressly mentioned in the contract but which are necessary for the satisfactory completion and performance of the work under this contract.

4. Acquisition, Receipt, & Storage of Materials

In case of materials supplied by owner, then the contractor shall collect all materials from Client store between working hours following all documentation procedures laid down and as directed by EIC. The contractor shall at the time of receipt of material physically examine all materials and notify the EIC immediately of any damage. Any damage not recorded at the time of inspection done by contractor will be deemed not to have existed at the time of receipt of material. Cost of repair, rectification, replacement will be borne by the contractor. Any defective material found during the time of installation will noted and forwarded to stores for replacement immediately with P.O reference and only with written approval of EIC. The contractor shall ensure that no defective material shall be returned to store at the time of closure of contract.

The contractor shall maintain permanent locked store preferably near site in so that all the material are stored in such a manner so as to prevent and damage to the materials from scratching, gouging, indentation, excessive heat or by contact with any sharp objects and chemicals.

The contractor shall maintain log book at their respective stores stating issue and availability of free issue material as a given day. Further the contractor is required to undertake and submit an inventory of materials every month to Owners/Owners Representative (mandatory).

5.0 ISSUE OF WORK INSTRUCTIONS

- 5.1** The contractor will be required to carry out GI installation in the areas where MDPE laying is under progress. However, testing of GI installation shall be done in conjunction with laying of MDPE Service Lines to respective premises. A general scheme of distribution to domestic consumer is indicated in the sketch enclosed herewith, for reference. It may vary in case of individual and multistoried flats. A general scheme of distribution to small commercial consumers is indicated in the sketch enclosed herewith for reference.
- 5.2** All skilled personnel like plumbers, conversion technicians shall be approved and certified by EIC. Those who are certified and possess the identify cards duly signed by EIC shall only be authorized to take up respective jobs. The contractor has to arrange the identify cards. In case it is found that contractor personnel other than authorized are carrying out these works, applicable penalty will be levied to the contractor as per contract.
- 5.3** The rates to be quoted by contractor shall be inclusive of all preparatory / bye works, platforms, materials, labour, skills, supervision, tools, taxes, duties, levies, salaries, wages, overheads, profits, escalations, fluctuations in exchange rates and no change in the rates shall be admissible during tenancy of the contract.
- 5.4** The schedule of items of SOR have been described in brief and shall be held to be complete in all respect including safety requirements as per clause 9.0, tests, inspection, QA/ QC works, enabling and sundry works. The payment shall be made against completed and measured works only. No

extra works whatsoever shall be considered in execution of these items.

- 5.5** A general scheme of distribution to domestic consumer is indicated in enclosed drawing .It may vary in case of individual and multistoried flats.

6.0 PROGRESS OF WORK

The contractor shall proceed with the work under the contract with due expedition and without delay.

The EIC may direct in what order and at what time the various stages or parts of the work under the contract shall be performed.

Weekly progress reports shall be submitted in the formats approved by TPIA/ Client. Indicating broadly the laying, testing, RFC, conversions and extra piping. Material consumption statement to be submitted at least once a month.

7.0 WORK SHEETS

- 7.1** The quantities and other details will be checked by TPIA/ Client's site engineer and the same shall be incorporated in measurement cards, signed & dated as certified on site. The cards will then be approved by the EIC.

- 7.2** Measurement sheets shall be prepared based on the measurement cards and checked and certified by the site engineers for billing purpose.
- 7.3** If measurement sheets submitted are illegible, incomplete or incorrectly booked, they will be returned to the contractor.

7.0 PERMISSIONS / APPROVALS

Contractor shall be responsible for obtaining approval from authorities like UIT/Nagar Nigam and any other concerned authority, if required for completion of the work. Contractor must take the prior appointment from the resident for carrying out the work.

8.0 REFERENCE SPECIFICATION, CODES AND STANDARDS

The contractor shall carry out the work in accordance with this specification, Client's Engineering Standards: ASME B31.8 - Gas Transmission and distribution piping systems; Australian standard 3723 - Installation and Maintenance of Plastics Pipe Systems for Gas; Oil Industry Safety Directorate Norms (OISD), Latest PNGRB guidelines and the American Gas Association Document -Purging Principles and Practice.

Should the contractor find any discrepancy, ambiguity or conflict in or between any of the Standards and the contract documents, then this should be promptly referred to the Engineer - in- charge(EIC) for his decision, which shall be considered binding on the contractor.

9.0 SAFETY

The contractor shall take care of all safety norms applicable for such works at site. Contractor shall provide all safety appliances e.g., safety helmets, gloves, safety belts, ladders, staging, shoes, goggles etc.

All necessary care shall be taken while working at heights and workmen with proper skills and work permits only shall be deployed. Proper barricading and warning signs shall be installed. Adequate care shall be taken while taking supports from balconies, chajjas / protection parapets and like structures to be sure of strength and adequacy of the same.

No night working shall be permitted, without proper lighting and prior approval of EIC.

10.0 RIGHT-OF-USE SURVEY AND MARKING

The route of the pipeline to be installed shall be decided with consent of the consumer and SE / EIC. Contractor must ensure that the persons/ workers/ supervisors/workers at site shall have proper identity cards prior to entering the premises of the consumer.

No temporary or permanent deposit of any kind of material resulting from the work shall be permitted in the approach and any other position which might hinder the passage and / or natural water drainage or any area where there is objection from consumer.

The contractor shall obtain necessary permissions from landowners and tenants and shall be responsible for all damages caused by the construction and use of such approaches, pavements, gardens, rooms, walls, roof etc., at no extra cost to Client.

A survey will be conducted jointly by Client /Consultant and the contractor at each premises or housing colony to be supplied. The survey record will note customer details, the potential gas supply points and proposed meter positions and estimates of material quantities. The contractor's representatives will make a sketch of the agreed pipe routes, if necessary.

The contractor will be responsible for contacting the customer and making the necessary arrangements for access, and appointments to carry out the work. Client will not be responsible for any time lost due to broken appointments or disputes with customers.

The contractor shall confine its operations within limits of the Right-in-use. The contractor shall restore any damage to property outside ROU, attributable to him.

The contractor shall also carry out all necessary preparatory work if needed to permit the passage of men and equipment. Lights, curbs, signs shall be provided wherever and / or required by the Consultant/ Client necessary to protect the public.

11.0 PROTECTION OF STRUCTURES AND UTILITIES

The contractor shall at his own cost, support and protect all buildings, walls, fences or other structures and all utilities and property which may, unless so protected, be damaged as a result of the execution of the works. He shall also comply with the requirements in the specification relating to protective measures applicable to particular operations or kind of work.

While painting contractor must take care of the consumer premises while carrying out the job/ such as spillage on floor, walls, ceilings, sun shades etc. if the same does occur, the contractor is to immediately make good to original.

12.0 G.I ABOVE GROUND SERVICE PIPE

The GI service pipe installation work includes all work necessary to connect from the PE / GI transition fitting on the down-stream of the PE service, to the customers appliance, including the installation of appliance valve and isolation valves, except, Suraksha hose, Meters, Regulator for which separate rate shall be paid as per SOR Item of this document. The contractor shall be required to provide all equipment, tools and materials necessary to execute the work in an efficient and effective manner. Amongst other things he will be required to provide ladders, scaffolding pipe, dies, tripods, vices, fittings and Teflon tape, drills for concrete and other masonry, drills for timber and laminated surfaces inside customers property, bending tools, clamps, sleeves to facilitate the pipe passing through floors and walls, paint for pipe marking etc. GI pipes, fittings, valves and regulator shall be provided by Client.

All GI risers on the outside of buildings shall be fully supported to carry the weight of piping. Risers shall be supported by a flanged foot, or similar device, capable of supporting the total weight of the riser. The riser shall rise in a vertical line from its

point of support to its highest point with a minimum of changes in direction. The threading of GI pipe shall be NPT and conforming to ASME/ ANSI B1. 20.1.

Contractor has to supply different types / sizes of approved clamps (Mild Steel) for fixing GI pipes suiting to the site conditions and the same shall be painted before fixing, as per the painting specifications. Every fresh lot of the clamps, brackets, regulators boxes and other consumables shall be approved by the EIC prior to start of installation. All riser and lateral pipe shall be clamped to the building at intervals not exceeding two meters.

All riser and lateral pipe shall be clamped to the building at intervals not exceeding 1.5 meter. Maximum distance between clamps shall be 1.0-1.5m when pipe goes to the straight, if any tee or fittings lies in between the pipe then clamp shall be placed 150mm far away from center line of fittings at every sides. However, the same may be changed as per site conditions/as directed by EIC. Minimum gap between pipe and wall shall be 25 mm. The joints/fittings of the GI installations shall be painted only after carrying out testing of the installation.

Where pipe passes through a balcony floor, the floor surface shall be made slightly elevated around the service pipe or its surrounding sleeve to prevent the accumulation of water at that point. Where a short piece of sleeve is used around the gas pipe, the sleeve should be embedded in the concrete with a mix of mortar and the void between the pipe and sleeve filled with a suitable sealant. The sealant should be beveled such as to prevent an accumulation of water. Supply of clamps for all sizes of the GI pipes are in contractor's scope. Contractor has to take prior approval for design of clamps, paintings etc.

Pipe shall preferably enter a building aboveground and remain in a ventilated location. The location for entry shall be such that it can be routed to the usage points by the shortest practicable route.

The rates are to be paid in bands as shown in SOR e.g., the ground floor to 2nd floor band covers pipe work laid from the ground floor level to ceiling level on the 2nd floor. Payment will be in incremental stages. e.g., if a pipe is laid from the ground floor to the 9th floor of a building, the length of pipe laid up to the 2nd floor will be paid in the first band, The length of pipe laid between 3rd and 5th floor will be paid in second band and the length of pipe from the 6th floor and above will be paid for in the third band. However, it may be noted that all the piping done inside the premises shall be considered as ground floor piping, the payment for such work shall be as per first band. The Pipe installation includes all fittings, Flexible hoses, clamps, Regulators etc.

The contractor shall ensure that gas supply shall not be provided to the customer in any concealed piping.

13.0 COPPER ABOVE GROUND SERVICES PIPE

The Copper service pipe installation work includes all work necessary to connect from the downstream of Meter upto the isolation valve and flexible hose prior to the customers appliance, including the installation of valves, including application of lacquer

paint etc. The contractor shall be required to provide all equipment, tools and material necessary to execute the work in an efficient and effective manner. Amongst other things he will be required to provide ladders, scaffolding pipe, drills for concrete and other masonry, drills for timber and laminated surfaces inside customers property, bending tools, clamps, sleeves to facilitate the pipe passing through floors and walls, etc. Copper pipes, fittings, valves and regulator shall be provided by Client.

During installation the COPPER pipe is to be cut to proper length with a tube cutter, the burrs removed with a file, cleaning of outside surface of pipe & inside surface of fitting, applying flux to the tube and fitting around the outer / inner ends, inserting the tube in to the fitting, applying heat to the assembled joints using conventional Blow torch to melt Solder wire and lacquering.

Lacquer is to be applied to the copper tubes by mixing lacquer with thinner in approved proportions and applied by dipping method or with brush. It should be applied only once at a time and drying time of minimum one hr. is to be given.

Contractor has to supply different types / sizes of approved clamps for fixing COPPER pipes suiting to the site conditions and the same shall be painted, if required, before fixing, as per the painting specifications.

Contractor has to take prior approval of EIC for quality of the clamps, solder, flux, lacquer, thinner etc. The approval shall be taken for every fresh lot of clamps from EIC before installation at site.

All riser and lateral pipe shall be clamped to the building at intervals not exceeding one meter.

Where pipe passes through a balcony floor, the floor surface shall be made slightly elevated around the service pipe or its surrounding sleeve to prevent the accumulation of water at that point. Where a short piece of sleeve is used around the gas pipe, the sleeve should be embedded in the concrete with a mix of mortar and the void between the pipe and sleeve filled with a suitable sealant. The sealant should be beveled such as to prevent an accumulation of water. Supply of clamps for all sizes of the COPPER pipes is in contractor's scope. Contractor has to take prior approval for design of clamps, painting etc.

Pipe shall preferably enter a building aboveground and remain in a ventilated location. The location for entry shall be such that it can be routed to the usage points by the shortest practicable route.

The rates, mentioned in SOR are applicable from ground floor to 2nd floor. However, it may be noted that all the piping done inside the premises shall be considered as ground floor piping, the payment for such work shall be as per the SOR.

After installation of the entire piping system, final painting shall be done to the satisfaction of EIC.

All copper piping shall be clamped to the building at intervals not exceeding 500mm. These solder wire shall be of reputed company, lead free as per BS 29453: 1994 (Soft

solder alloys) and supplied in coils. The details specification attached in tender. Solder for use with Cu tube & fittings generally melt within the temperature range of 180⁰C to 250⁰C. The contractor has to furnish the certificate of confirmation of standards before start of work.

14.0 TESTING OF GI INSTALLATION

- 14.1** The installation from PE/ GI transition fitting up to regulator shall be tested at the [pressure of 6.0 bar (g)].
- 14.2** The testing of GI riser pipe up to regulator shall be done with the isolation valve in open condition and open end plugged.
- 14.3** The GI pipe shall be painted with one coat prior to installation in riser, however the ends / joints shall be painted only after carrying out testing of the installation.
- 14.4** The G I installation from regulator outlet to appliance valve (except meter) shall be tested at a pressure of 2.0 bar (g) for a hold period of 4 hours and all the joints shall be checked with soap solution.
- 14.5** The meter shall be removed while carrying out the testing and joints of the meter shall be tested on line with soap solution after completion of the work. Proper test ends shall be made along with gauges and got approved by EIC. For the installation to be tested by manometer or diaphragm gauge the meter shall not be dismantled/removed and testing shall be carried out at 100 m bar with holding period of 15 min with no pressure drop.
- 14.6** The calibrated pressure gauges of suitable range shall be supplied by the contractor for testing.
- 14.7** The pressure gauges shall be calibrated from time-to-time as desired by Engineer In- charge but positively once in every six months.
- 14.8** Valves supplied by Clients, shall not be used for testing purpose
- 14.9** The details of testing shall be properly recorded in the measurement cards

15.0 INSPECTION

Any defect noticed during the various stages of inspection shall be rectified by the contractor to the entire satisfaction of Engineer-in-Charge before proceeding further. Irrespective of the inspection, repair and approval at intermediate stages of work, contractor shall be responsible for making good any defects found during final inspection/ guarantee period/ defect liability period as defined in general condition of contract.

16.0 PURGING & COMMISSIONING

Payment for the tapping of live mains and GI piping prior to the actual purge is included in normal laying & testing. The connection may involve the fitting of a temporary bypass, disconnection etc. Purging shall be carried in accordance with the principles defined in the American Gas Association Publication "Purging Principles and Practice".

In addition the contractor shall submit and have approved Purging Plan before

commencing any purging work. The plan shall include, but not be limited to the provision of the following materials and equipment: personal safety equipment, fire extinguisher, Purging adapter, Purge stack with flame trap and gas sampling point, Gas sampling equipment (may be gas leak detector), squash-off tool, Polyethylene connecting pipe work etc.

The plan shall also include the purging process along with detail on the sequence of events. The process is to also specially / mention the need to lay a wet cloth over the GI pipe and in contact with the ground, to disperse static electricity during the purging work.

A purging stack with flame trap shall be used when purging services. Care shall be taken to ensure that the purge outlet is so located that vent gas cannot drift into buildings.

The purging work should be performed as follows,

- Ensure the method of purging is such that no pockets of air are left in any part of the customer's piping.
- Ensure that all appliance connections are gas tight, all appliance gas valves are turned off and there are no open ends.
- Where possible, select an appliance with an open burner at which to commence the purge i.e., a hot plate burner.
- Ensure the area is well ventilated, and free from ignition sources.
- Ensure branches that do not have an appliance connected are fitted with a plug or cap.
- Turn on one burner control valve until the presence of gas is detected. A change in the audible tone and smell is a good indication that gas is at the burner. Let the gas flow for a few seconds longer, then turn off and allow sufficient time for any accumulated gas to disperse.
- Turn on one gas control valve again and keep a continuous flame at the burner until the gas is a light and the flame is stable.
- Continue to purge until gas is available at other appliances.

17.0 INSTALLATION OF METERS

The work in this section includes:

- 17.1** Installation of domestic and non-domestic / small commercial meters with associated inlet and outlet connections (GI/Brass fitting), on the wall with approved meter brackets and angles.
- 17.2** Supply of approved meter brackets and angle brackets, properly painted with one coat of Zinc primer and two coats of synthetic enamel paint of approved make. A sketch of the brackets is enclosed herewith. It is required that one sample of each type of bracket is got approved beforehand.
- 17.3** Firmly securing the meters on the wall with good quality supply of proper rowel plugs, screws etc. In case the rowel plugs are not holding than wooden blocks or other fixing arrangements like cement etc. to be used for proper grouting.

- 17.4** The same rates of respective SOR Item will apply irrespective of whether the meter is situated inside or outside the property. Where a bank of meters is constructed the rate shall be for each complete meter installed.
- 17.5** The above activities along with restoration of the area to original shall be carried out to the complete satisfaction of consumer and EIC.
- 17.6** The meter installation will be preferred in open/ventilated space so as to prevent Gas accumulation and easy dispensation of Gas to atmosphere in case of any smell/ leakage of Gas. The meter installation will not be provided in any fixed enclosures, cabinets (below or above the slab) or confined space in the customer premises.
- 17.7** The contractor shall ensure that GI installation and rubber hose shall not be exposed to direct heat of Gas burners. The installation should have minimum clearance of about 1 m from electric [point mains and switches. Minimum distance between appliance valve and Gas Burners shall be 0.3 meters. The isolation valve shall be installed after entering the customer premises /kitchen but before the meter installation.

18.0 PAINTING OF GI PIPES

The entire length of the pipeline along with fittings and clamps are to be painted after proper surface preparation and painting as follows.

- One coat of Primer application (Appropriate Zinc based primer)
- Two coats of synthetic enamel paint – canary yellow of minimum of 30 microns per coat of reputed make like Asian, Berger, Nerolac.

All painting materials including primers and thinners brought to site by contractor for application shall be procured directly from manufacturers/ dealers as per specifications and shall be accompanied by manufacturer's test certificates. Paint formulations without certificates are not acceptable.

Engineer-in-Charge at his discretion, may call for tests for paint formulations. Contractor shall arrange to have such tests performed including batch wise test of wet paints for physical & chemical analysis. All costs there shall be borne by the contractor.

The painting work shall be subject to inspection and certification by Engineer-in- Charge at all times.

After installation of the entire piping system, final touching shall be done to the satisfaction of EIC.

19.0 BOX FOR REGULATOR

Boxes will be supplied and installed outside for regulators after due approval of the sample. The boxes will be installed as per requirement and as per instructions of Client.

The box brackets are too tightly secure to the wall with good quality proper Rowel plugs, screws etc. Wooden blocks to be used in case rowel plugs, do not hold properly.

All the boxes shall be thoroughly cleaned, painted with approved colour code.

As the boxes are installed outside it is to be ensured that they are painted properly to avoid rusting / weathering.

A sketch of regulator box is enclosed herewith.

20.0 CONVERSION OF DOMESTIC APPLIANCES

The work in this section includes,

- The changing of nozzles and associated controls in accordance with manufactures instructions for both domestic and imported burners/ ovens/grills/hotplate.
- The changing of old appliance connection hoses and nozzles and re-greasing taps as necessary.
- The contractor has to supply all types of nozzles / jets required for all types of appliances including imported burners, Grills, Ovens.
- Cleaning and performing minor maintenance of appliances.
- Testing for gas escapes and the soundness and performance of the appliance.
- Instructing the customer in the safe use of natural gas and for fixing of safety and conversion labels.
- Contractor must attend the complaints regarding appliances till the total area is handed over to Client's operation and maintenance.
- All consumables (Nozzles, greases etc.) are in contractor's scope.
- Changing or repairing of any items damaged during conversion.

It may be noted that the rates will apply to all appliance found in both domestic and commercial premises. The contractor will be required under the Rates to provide both Pin gauges and standard sized nozzles.

21.0 RESTORATION

Contractor has to restore the area where ever he has carried out drilling, clamping etc. to its original condition to the satisfaction of the consumer and to ensure no passage to the premises and seepage. If the work was carried out in Govt. Flats (PWD), contractor has to restore the area according to CPWD specifications. For government flats the contractor has to obtain a clearance certificate form the concerned authorities maintaining the flats, after completion of the work.

Where slabs and brick work are to be reinstated, the level of the compacted sub- base is to be adjusted according to the slab / block thickness. The slabs or brick work should be laid on moist bedding material, which should be graded sand, mortar or mortar mix. The slabs or brick work should be tapped into position.

The restored slabs or brick work should match the surrounding surface levels. Joint widths should match the existing conditions, and be filled with a dry or wet mix of mortar.

Wherever any items of the consumer is damaged / broken during working, the same will be made good or replaced to the total satisfaction of the consumer.

The contractor will be responsible for the maintenance of all restoration carried out, for the duration of the contract guarantee period.

The contractor is to ensure the restoration work is properly supervised, and that the material used is suitable for the purpose and proper. Where the required standards are not achieved the contractor will be required to replace the defective reinstatement work.

Note that Payment for GI /Copper piping will only be authorized on satisfactory restoration, and where the sites has been cleared of all surplus materials etc.,

22.0 SUBMISSION OF FINAL RECORDS

Contractor shall submit the following documents in three sets each:

- a) Total list of houses & commercial establishments in the area allotted to him giving details of connections provided & reasons where connection could not be given / completed.
- b) The details recorded in measurement cards of every domestic house.
- c) Details of houses where extra piping done along with materials used.
- d) Total material consumption report.
- e) Material reconciliation with respect to the materials issued.
- f) Test reports & test certificates of gauges etc.
- g) Any other documents / records required.

TECHNICAL
SPECIFICATION FOR
MEDIUM DENSITY
POLYETHYLENE
FITTINGS AND
ELECTRO-FUSION

FOR

NATURAL GAS DISTRIBUTION

C O N T E N T S

<u>Sl. No.</u>	<u>Description</u>
1.0	SCOPE AND FIELD OF APPLICATION
2.0	EQUIPMENT
3.0	SYMBOLS & DEFINITIONS
4.0	DESIGNATION
5.0	DESIGN
6.0	ELECTRICAL CHARACTERISTICS
7.0	DIMENSIONAL
8.0	PERFORMANCE REQUIREMENTS
9.0	MARKING
10.0	PACKAGING

1.0 SCOPE AND FIELD OF APPLICATION

This specification elaborates the requirements for Electrofusion fittings in the nominal size range 20 to 125 mm made from PE compound used with PE pipes for supply of natural gas and to be used at operating temperature not more than 40°C.

The material grades to be used are PE 100. The fittings shall be yellow or black in colour.

Electro Fusion Fitting Jointing

- 1.1** For Electro Fusion fitting jointing an electrical resistance element is incorporated in the socket of fitting which when connected to an appropriate power supply, melts and fuses the materials of the pipe and fitting together.
- 1.2** The effectiveness of this technique depends on attention to the preparation of the jointing surfaces, in particular the removal of the oxidized surface of the pipe over the socket depth and ensuring the jointing surface are clean. If ovality causes gap between concentrically located pipe and the fitting to exceed 1% of the pipe OD after re-rounding to ensure correct welding. If the gap still exceeds 1% of the pipe OD after re-rounding then a check should be made of the pipe OD dimensions to determine if it meets specification.
- 1.3** The maximum gap between eccentrically located pipe and fitting i.e. pipe touching fitting at one point must not exceed 2% of the pipe OD.
- 1.4** Sometimes coiled pipes may be too oval to fit into couplers, or the end of the pipe may make the alignment of the ends impossible. In such circumstances the use of a mechanical pipe straightener or rounding tool is necessary.

1. EQUIPMENT

- 1.1** The control box input supply is to be from a nominal 240V generator, which is normally of approximately 5kVA capacity. The Nominal output of the generator is to be 240V + 15%, -10% between no load and full load.

Control box are to include safety devices to prevent excessive voltages being present at the control box output. The safety devices shall operate in less than 0.5s
Note that extension leads are not to be used on the control box outlet connections.

Warning : Control boxes are not intrinsically safe and must therefore not be taken to trench.

A mechanical pipe surface preparation tool is to be used before fusion is attempted. The tool is capable of removing the oxidized surface of the pipe in excess of the insertion depth. The tool is to remove a layer of surface material 0.2-0.4 mm thick form outer surface of the pipe preferably in a continuous strip of swarf over that length and round of the pipe.

Pipe clamps for rest raining, aligning and re-rounding the pipes in the fusion process are to be used.

Pipe cutters with saw and saw guide Protection against adverse weather conditions.

1.2 Electro Fusion Jointing Method / Procedure

Preparation

- Ensure there is sufficient space permit access to the jointing area. In a trench a minimum clearance of 150 mm is required.
- Check that the pipe ends to be join ted are cut square to the axis of the pipe and any burrs removed.
- Wipe pipe ends clean lint free material to remove traces of dirt or mud
- Mark the area over which the oxidized pipe surface is to be removed i.e. by placing the socket of the bagged fitting alongside the pipe end. Trace a line round the circumference at the appropriate distance from the end of the pipe using a felt tip pen or similar.

Note that the fitting should not to be removed from the packaging at this stage.

- Connect the electro fusion control box input leads to the generator
- Check that the reset stop button, if fitted on the control box is in the correct mode.
- Check that reset stop button if fitted on the control box is in the correct mode
- Using the pipe end preparation tool, remove the entire surface of the pipe uniformly, preferably in continuous swarf over the area identified. i.e. in excess of insertion depth.
- A mechanical scraper could be used however there is a considerable risk that the end preparation will not be adequate with the use of such a tool.

Note that the prepared pipe surface should not be touched by hand.

- Remove the fitting from its packing and clean the scrapped area of the pipe surface and the bore of the fitting with a disposable wipe impregnated with Iso-propanol / Acetone. Ensure the prepared surfaces are completely dry before proceeding

Note that while ISO-propanol is a suitable cleaner, its use is subject to local health and safety regulation.

Check that the pipe clamps are of the correct size for the pipes to be jointed. Insert the pipe ends into the fitting so that they are in contact with center stop using the pipe clamps, secure the pipes so that they cannot move during the fusion cycle. Check that the pipes ends and the fitting are correctly aligned. Connect the control box and check that they have been fully inserted.

If required by the control enter the fusion jointing time into the control box timer. The jointing time is indicated on the fitting. Check the correct time as shown on the control box display.

Note 1: Automatic control box are available which obviate the need to enter the fusion time

Note 2: Gloves and goggles should be worn during the fusion process

Note 3: If the fusion cycle terminates before completion of the countdown, check for faults as indicated by the control box warning lights and check that there is adequate fuel in the generator. DO NOT attempt a second fusion cycle within one hour / cooling of joint at ambient temperature of the first attempt.

1.3 Records: Records of appropriate servicing and calibration shall be kept.

1.4 Training: It is necessary that operators, inspection and supervisory personnel acquire the skills of Electro-fusion fitting. The necessary training should be carried out by qualified instructor with the objective of enabling participants to

- Understand the principles of electro-fusion fitting jointing
- Identify pipe and appropriate fitting markings
- Carry out pre jointing machine and equipment checks
- Make satisfactory Electro-fusion joints from pipes and fittings of different sizes
- Inspect for and identify joints of acceptable

Note that some form of assessment and certification should be associated with the training. The certificate should detail the pipe and fitting size range and the equipment used. A register of successful participants should be kept.

1.5 Electro-Fusion Saddle Jointing

For Electro Fusion fitting jointing an electrical resistance element is incorporated in the socket of

fitting which when connected to an appropriate power supply, melts and fuses the materials of the pipe and fitting together.

The effectiveness of this technique depends on attention to the preparation of the jointing surfaces, in particular the removal of the oxidized surface of the pipe over the socket depth and ensuring the jointing surface are clean.

Method of holding the tapping tee saddle during the fusion cycle are used namely top loading and under clamping space around the pipe. In a trench a minimum clearance of 150 mm is required.

1.6 Electro-Fusion Saddle Jointing Method / Procedure. Preparation

Expose the pipe onto which the tapping tee is to be assembled, ensuring there is sufficient clear space around the pipe. In a trench a minimum clearance of 150mm is required.

Clean the pipe over the general area on which the saddle is to be assembled using clean, disposable lint free material

Without removing the fitting from its packaging, place over the required position on the main. Mark the pipe surface all around and clear of the saddle base area using a felt tip pen or similar.

Remove the surface of the pipe to a depth of 0.2 to 0.4mm over the full area marked using a suitable tool, remove the swarf.

Connect the electro fusion control box input leads to the generator Check that the reset stop button, if fitted on the control box is in the correct mode.

Check that reset stop button if fitted on the control box is in the correct mode.

Remove the fitting from its packing and clean the scrapped area of the pipe surface and the bore of the fitting with a disposable wipe impregnated with ISO - propanol / Acetone. Ensure the prepared surfaces are completely dry before proceeding

Note that while ISO-propanol is a suitable cleaner , its use is subject to local health and safety regulation.

Position the fitting base onto the prepared pipe surface, and bring the lower saddle into position then gradually and evenly tighten the nuts until the upper saddle makes firm contact with scrapped pipe.

Check that there is sufficient fuel for the generator to complete the joint. Start the generator and check that it is functioning correctly Switch on the control box if applicable

Connect the control box output leads to the fitting terminals and check that have they have been fully inserted.

If required by the control box enter the fusion jointing time into the control box timer. The jointing time is indicated on the fitting. Check the correct time as shown on the control box display.

Note 1 : Automatic control box are available which obviate the need to enter the fusion time

Note 2 : Gloves and goggles should be worn during the fusion process

Press the start button on the control box and check that the heating cycle is proceedings as indicated on the display.

On completion of the heating cycle, the melt indicators where incorporated should have risen. If there is no apparent move in the melt indicators a new saddle joint should be made. Cut the tee of the faulty joints from its base.

If a satisfactory joint has been made, the joint is to be left in the clamps for the cooling time specified on the fitting label or any the automatic control box

Note 3 : If the fusion cycle terminates before completion of the countdown, check for faults as indicated by the control box warning lights and check that there is adequate fuel in the

The connection of the service pipe to the fitting outlet should be carried out in accordance with the procedure of the appropriate section of this item

Do Not attempt to tap the main with the integral cutter for at least 10 minutes after the completion of cooling cycle.

Records

Records of appropriate and calibration of electro fusion machines and joint shall be kept.

Trainings

AS PER 2.4

Note that some form of assessment and certification should be associated with the training. The certificate should detail the pipe and fitting size range and the equipment used. A register of successful participants should be kept.

1.7 STOPPING THE GAS FLOW

In the operation of a distribution system there is a periodic need to stop the gas flow for either routine or emergency maintenance. The flow may be stopped through the use of installed fitting such as valves. Where installed fittings are not available or the use of such would cause significant supply disruption, then one of the following methods may be employed.

1.8 SQUEEZE - OFF

- a To control the gas flow a special tool may be used to squeeze the pipe walls together. Hydraulic jacks are used to supply the necessary force to compress the pipe walls for sizes 90 mm and above.
- b As will be seen the squeeze-off equipment comprises two bars to apply pressure to outside of the pipe. The bars are brought together either manually or hydraulically, squeezing the pipe material together until a seal is formed where the

upper and lower walls meet.

- c The hydraulic machines should have a spring return for the jack and locking to prevent accidental release of pressure during operation. All squeeze – off machines should be fitted with check plate or stops to avoid over compression of the pipe.
- d Where the pipe walls are compressed the polyethylene pipe will be severely deformed in the regions of maximum compression. The pipe will eventually regain its original shape after squeezing but there will be reduction in some pressure bearing properties.
- e A complete stop may not always be obtainable because of wrinkling of the inside of the pipe. If a complete stop is required then a second squeeze can be used, with an intermediate vent to remove the gas which passes the first squeeze from say the trench of three pipe diameters area. A second squeeze– off procedure should be a minimum of three pipe diameters and right angles to the squeeze.
- f While not essential it would be good practice to fit a reinforcing stainless steel band / do not squeeze again adhesive tape around the pipe upon the completion of squeezing operation.

1.9 BENDING – BACK

Bending back of the pipe may be performed where the pipe has been severely damaged and stopping them gas flow is imperative. Its application is of a temporary nature and will provide a relief until a permanent repair can be effected. The section of pipe, which has been bent back, will to be replaced because of the damage caused by the service of the band back operation. The need of any bend back operation is most likely to occur as a consequence of damage caused to a PE service pipe.

While it is not the prime function of a saddle tee, controlling the flow in the service may be achieved by opening upon an installed saddle tee and winding down the internal tapping tool to shut off the flow to the service pipe.

2. SYMBOLS & DEFINITIONS

2.1 Symbols for Electro fusion Fittings

2.1.1 Symbols for Electrofusion Socket Fittings

The dimensions and main symbols used in this part of ISO 8085 are shown in figure 1, where

D1 is the mean inside diameter in the fusion zone comprising the mean inside diameter measured in a plane parallel to the plane of the mouth at a distance of $L3 + 0.5 L2$ from the plane at the mouth.

D2 is the minimum bore comprising the minimum diameter of the flow channel through the body of the fitting.

L_1 is the depth of penetration of the pipe or of the male end of a spigot fittings.

L_2 is the nominal length of the fusion zone corresponding to the heated length.

L_3 is the nominal unheated entrance length of the fitting comprising the distance between the mouth of the fittings and the near end of the fusion zone.

3.1.2. Symbols for Electrofusion Tapping Tees

The main symbols used for tapping tees are shown in Figure 2, where. h is the height of the service pipe and comprising the distance between the axis of the main pipe and the axis of the service pipe.

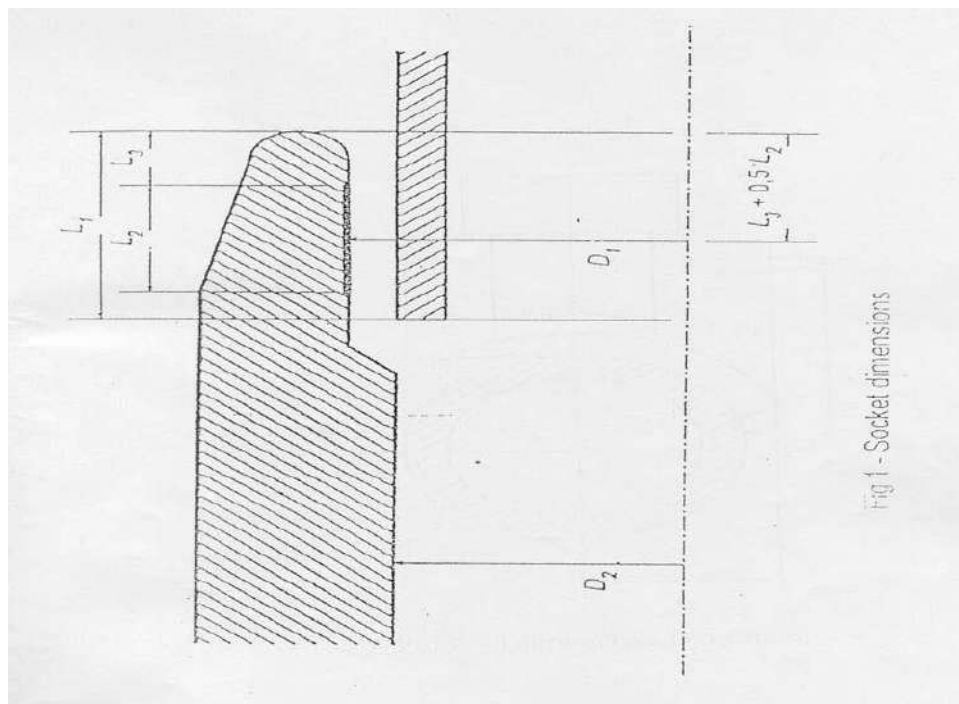


Fig 1 - Socket dimensions

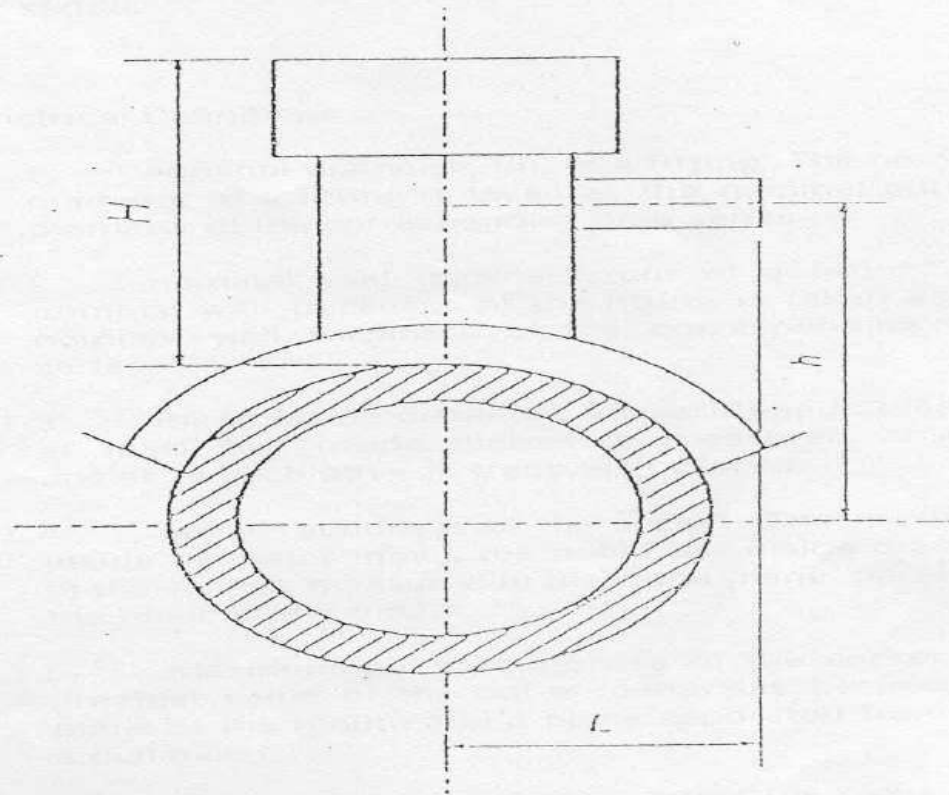


Fig 2 - Tapping Tee Dimensions

L is the width of the tapping tee and comprising the distance between the axis of the main pipe and the plane of the mouth of the service pipe.

H is the height of the saddle which comprises the distance from the top of the main to the top of the tapping tee or saddle.

3.2 Definitions

3.2.1. Geometrical Definitions

3.2.1.1 Nominal diameter, d_n , of a fitting:

The nominal diameter of a fitting is taken as the nominal outside diameter of the corresponding pipe series

3.2.1.2 Nominal wall thickness, e_n , of a fitting:

The nominal wall thickness of the fittings is taken as the nominal wall thickness of the corresponding pipe series.

3.2.1.3 Mean inside diameter:

The arithmetic mean of at least two inside diameter measured at right angles to each other in transverse planes.

3.2.1.4 Out of roundness of the Socket:

The maximum inside diameter minus the minimum inside diameter of the socket, measured in the same plane, parallel to the plane of the mouth.

3.2.1.5 Maximum out of roundness of the socket:

The greatest value of the out of roundness between the plane of the mouth and a plane separated from it by a distance L_1 .

3.2.1.6 SDR value for a fitting:

The SDR value for a fittings is taken as being the same as that for the corresponding pipe series.

Where, $SDR = d_n/e_n$

3.2.1.7 Wall thickness, E of a fitting:

The wall thickness of a fittings at any point of the body of the fitting which could be submitted to a stress inducted by the pressure of the gas in the piping system.

3.2.2.1 Material Definition

3.2.2.2 Virgin Material :

Materials in form such as granules or powder that has not been subjected to use or processing other than that required for its manufacturer and to which no re-processable or recyclable materials have been added.

3.2.2.3 Own Re-processable Material :

Material prepared from rejected unused pipes, fittings or valves, including trimmings from the production of pipes, fittings or valve, that will be reprocessed in a manufacturer's plant after having been previously processed by the same manufacturer by a process such as injection moulding or extrusion.

3.2.2.4 Compound:

A homogenous mix of base polymer (PE) and additives, i.e. antioxidants, pigments, UV-stabilisers and others..., at a dosage level necessary for the processing and of components of this standards. The additives shall not have a negative influence on the performance with respect to feasibility. All additives shall be uniformly dispersed.

3.2.3 Definition related to Material Characteristics

3.2.3.1 Lower Confidence Limit (LCL):

A quantity with the unit in mega Pascals (MPa), which can be considered as a property of the material representing the 97.5% lower confidence limit of the predicted long-term hydrostatic strength at a temperature 20° C for 50 years in water.

3.2.3.2 Overall Service (Design) Coefficient (C):

An over all coefficient with a value larger than 1.0 which takes into consideration service conditions as well properties of the components of a piping system other than those represented in lcl. For gas applications, C can have any value equal to or greater than 2.0.

3.2.3.3 Minimum Required Strength (MRS):

The value of the lcl rounded down to the next lower value of the R 10 series when the lcl is less than 10 Mpa, or to the next lower value of the R 20 series when the lcl is greater than or equal to 10 Mpa.

Note: R10 and R 20 series are the Renard number series according the ISO 3 and ISO 497

3.2.3.4 Melt Mass Flow Rate(MFR):

A value relating to the viscosity of the molten material at a specified temperature and rate of shear.

3.2.4 Definitions Related to Service Conditions

3.2.4.1 Gaseous Fuel:

Any fuel which is in the gaseous state at a temperature of + 15° C and a pressure of 1 bar.

3.2.4.2 Maximum Operating Pressure(MOP)

The maximum effective pressure of the gas in the piping system, expressed in bar, which is allowed in continuous use. It takes into account the physical and the mechanic characteristics of the components of a piping system.

Note : It is given by the equation :
$$MOP = \frac{20 * MRS}{C*(SDR-1)}$$

3.2.5 Definition on Design of Electrofusion Fittings:

3.2.5.1 Electrofusion Socket Fitting:

A polyethylene (PE) fittings which contains one or more integral heating elements, that are capable of transforming electrical energy into heat to realise a fusion joint with a spigot – end or a pipe.

3.2.5.2 Electrofusion Saddle Fitting:

A polyethylene (PE) fitting (top loading or wrap around) which contains one or more integral heating elements, that are capable of transforming electrical energy into heat to realise a fusion joint onto a pipe.

3.2.5.3 Tapping Tee:

An Electrofusion saddle fitting which contains an integral cutter, to cut through the pipe wall. The cutter remains in the body of the saddle after installation.

3.2.5.4 Branch Saddle:

An Electrofusion saddle fitting which requires an ancillary cutting tool for drilling a hole in the adjoining main pipe.

3.2.5.5 U Regulation :

Control of the energy supplied during the fusion process of an Electrofusion fitting, by means of the voltage parameter.

3.2.5.6 I Regulation:

Control of the energy supplied, during the fusion process of an electrofusion fitting by

means of the current parameter.

3. **DESIGNATION**

3.1 Fittings shall be designed according to the grade of material, nominal diameter and Standard Dimension Ratio (SDR).

3.2 **Grade of Material:**

4.2.1. Fittings shall be classified according to the grade of material as given in following table:

Table-1

Material	M.R.S. Mpa	1 cl (20° C, 50 Yrs 97.5%) Mpa	Maximum Allowable Operating Pressure
PE 80	8.0	$8.00 \leq 1 \text{ cl} \leq 9.99$	5.5 Bar
PE 100	10.0	$10.00 \leq 1 \text{ cl} \leq 11.19$	7.0 Bar

3.3 **Nominal Diameter**

The Nominal Diameter for fittings covered in this standard are 16, 20, 25, 32, 40, 63, 75, 90, 110, 125, 140, 160, 180 mm.

3.4 **Material**

3.4.1 Polyethylene Compound:

The Polyethylene compound used in the manufacture of fitting shall be a cadmium free compound. It shall be free from visible water, shall comply with the requirements as specified in Table – 2.



Table-2 : Characteristics of PE Compound

Characteristics	Units	Requirements	Test Parameters	Test Method
Conventional Density	Kg/m ³	≥ 930 (base polymer)	23 °C	ISO 1183 - ISO 1872/1
Melt Mass-flow Rate	g/10 min	± 20% of value nominated by compound producer	190 °C condition 18	ISO 1133
Thermal Stability	Minutes	> 20	200 °C (2)	ISO TR 10837
Volatile Content at Extrusion	mg/kg	≤ 350		ISO 4437 Annex. A
Water Content (3)	mg/kg	≤ 300		ASTM D 4019
Carbon Black Content	% (m/m)	2,0 ≤ ≤ 2,5		ISO 6964
Carbon Black Dispersion (4)	Grade	≤ 3		ISO DIS 11420
Pigment Dispersion (5)	Grade	≤ 3		ISO DIS 13949
Resistance to Gas Constituents	h	≥ 20	80 °C 2 Mpa	ISO 4437 Annex. B
Resistance to rapid crack propagation (RCP) (6)	Mpa	The critical pressure in the FS test shall be greater than or equal to the value of the MOP of the system multiplied by 1:5	0°C	ISO DIS 13478
Full Scale (FS) test : d ≥ 250mm				
Or	Mpa	The critical pressure in the S4 test shall be equal to or greater than the value of the MOP of the system divided by 2,4 (8)	0°C	ISO DIS 13477
S4 Test : in principle according to all diameters (7)				
Resistance to slow crack growth en > 5mm	h	165	80 °C, 8,0 bar (f) (9) 80 °C, 9,2 bar (f) (10)	ISO DIS 13479

- 1) Non black compound shall conform to the weathering requirements to ISO 4437
- 2) Test may be carried out at 210°C providing that there is a clear correlation to the results at 200°C, in case of dispute the reference temperature shall be 200°C
- 3) Only applicable if the compound does not conform to the requirement for volatile content. In case of dispute the requirements for water content shall apply
- 4) Carbon black dispersion for black compounds only.
- 5) Pigment dispersion method for non-black compounds only.
- 6) Only applicable for fittings which incorporate extruded pipe elements.
- 7) Shall be performed on pipe with a wall thickness of ≥15 mm.



- 8) This factor 2.4 is still under study and may be subject to change. If the requirement is not met, then retesting by using the Full Scale (FS) test shall be performed
- 9) Test parameter for PE 80.
- 10) Test parameter for PE 100.

5.0 **DESIGN**

- Fittings shall be designed for system operation at the pressures given in Table – I
- Fittings shall be free from cracks, voids, blisters, distortion, dent or other defects.
- Fittings shall be capable of being fusion jointed to pipes using control boxes. The fittings shall exhibit the strengths and fusion compatibility with, pipes of respective sizes.
- Each fitting shall be bar coated and shall have a permanent fusion indicator.
- Heating coil design shall be such that it should not be damaged during assembly leading to short circuit of heating coil.

5.1 **Electrofusion Socket Fittings**

Electrofusion Socket Fittings shall incorporate a method of controlling pipe penetration within each socket. The inner cold zone of each socket shall not be less than $(0.1 d + 5)$ mm for sizes upto 125 mm & $0.1 d$ for sizes greater than 125 mm.

5.2 **Tapping Tees**

Tapping tees shall be capable of installation by a force between 1 kN and 1.5 kN applied from above and on the centerline of the tapping tees stack. The tapping tees shall provide a means of cutting through the pressurised main pipe and allowing the gas flow into the outlet pipe.

5.3 **Transition Pieces**

To make connection between steel pipe and MDPE pipe specially fabricated transition pieces consisting of steel and MDPE pipes should conform to the requirements mentioned herein.

5.3.1 **MDPE Pipe:**

The MDPE pipe with one end plain should conform to the specification (IS:14885/ SDR 11)

5.3.2 **Steel Pipe:**

Black ERW steel pipe should conform to the specifications as laid in API STD 5L (latest revision)

5.3.2.1 Pipe End:

One end of the pipe should be bevelled for welding angle of bevel should be $30^\circ + 5^\circ$.

5.3.3 Joining between Steel and MDPE Pipes:

Steel and MDPE pipes should be so jointed in the factory so as to have a monolithic joint which is leak free and should be mechanically as strong as or stronger than the PE Pipe.

5.4 **Transition Fittings (MDPE Pipes to threaded G.I. Fitting):**

Transition fitting for jointing of MD PE Pipes confirming to specification IS:14855/ SDR 11 to threaded G.I. tubing confirming to specification. The MDPE end of the transition fitting shall be jointed with MDPE Pipe with the electrofusion method.

6.0 **ELECTRICAL CHARACTERISTICS**

For each size and type of fitting, the manufacturer shall declare the nominal resistance of the heating element and specify the production tolerances.

The manufacturer shall demonstrate that satisfactory joint can be made using the extremes of these tolerances.

All fittings shall have mechanically shrouded metal electrical terminals. The fittings terminals connections shall be suitable for use with voltage less than or equal to 48 volts. Considerations should be given to the design of the shroud with respect to impact damage. When hollow terminal pins are used, the hole at the top of the pin shall be less than 1 mm diameter. The terminal pin material shall be corrosion resistant and the surface finish shall be N7.

Fittings incorporating two electrofusion sockets shall have both sockets fused in a single operation.

The heating elements shall be suitably designed to prevent short circuiting or local overheating/ under heating during the fusion operation. Protective coating applied to the heating element shall not have a detrimental effect on the joint.

The heating element wire shall not be disturbed during assembly.

7.0 **DIMENSIONS**

7.1 **Measuring Temperature**

Fittings shall not be measured within 24 hrs. of manufacture to allow for normalization. The fittings shall be measured at an ambient temperature of $23 \pm 2^\circ\text{C}$, after a conditioning period of 5Hrs.

Methods of measurements shall provide the appropriate degree of accuracy, and the reference conditions specified in this clause 6 apply in case of disputes in dimensional

measurement.

7.2 Dimensional Stability

7.2.1 Couplers (Including all forms of socket fittings)

All coupler dimensions shall conform to their specified value when the fitting has been stored for a period of 12 months at a temperature of $30 \pm 2^{\circ}\text{C}$.

7.2.2 Tapping Tees and Branch Saddles:

All tapping tee and branch saddle dimensions shall conform to their specified agreed values when the fitting has been stored for a period of 12 month at a temperature of $30 \pm 2^{\circ}\text{C}$.

TABLE 3 : SOCKET DIMENSIONS

Pipe Size d mm	Limits for average diameter d on each fitting measured over apparent fusion length L mm		Apparent fusion length L mm	Penetration depth L mm
	Maximum	Minimum	Minimum	Maximum
16	16.6	16.4	15	41
20	20.6	20.4	16	41
25	25.6	25.4	18	41
32	32.9	32.5	18	41
40	41.0	40.6	18	49
50	51.1	50.7	20	55
55	56.1	55.7	21	63
63	64.1	63.7	23	63
75	76.3	75.9	25	70
90	91.5	91.1	28	79
110	111.3	111.1	32	82
125	126.7	126.2	35	87
140	141.7	141.2	38	92

1 6 0	162.1	161.4	42	98
1 8 0	182.1	181.5	46	105

Notes:

1. The apparent fusion length, L, is the length of the integral heating elements, from the first regular section of the element to the end of the regular section, on one side of the fitting. This dimension to be measured from outside edge to outside edge of wire.
2. Any protrusions into the bore of the fitting (e.g. centralization ribs) shall not prevent easy assembly in the field.
3. The overall length of a straight coupler is equal to twice the quoted maximum penetration depth L.

TABLE 4: OVERALL LENGTH OF REDUCERS

Major Diameter mm	Maximum Length mm
25	90
32	90
63	120
90	180
125	215
180	280
200	245
225	260
250	280
280	300
315	320

TABLE 5: BRANCH SADDLE ASSEMBLY OUTLET LENGTH

Off-take Size mm	Shut-off method	Dimension from flange face to crown of main	Dimension from pipe end to crown of main

		Class B fitting mm	Class B fitting mm	Class B fitting mm	Class B fitting mm
63	Valve	-	-	-	-
63	Squeeze	-	260*	-	-
90	Valve	-	-	400	-
90	Squeeze	400	180**	-	-
125	Valve	-	-	550	-
125	Squeeze	360	180***	-	-
180	Valve	-	-	750	-
180	Squeeze	360	180+	-	-
250	Valve	-	-	-	-
250	Squeeze	360	180++	-	-
* Flange size DN 50 ** Flange size DN 100 *** Flange size DN 150 + Flange size DN 250 ++ Flange size DN 250					

8 PERFORMANCE REQUIREMENTS

8.1 Mechanical Characteristics

Fittings shall be tested using pipes, which conform to ISO 4437, Test samples shall be assembled in accordance with ISO DIS 11413, following the technical instruction of the manufacturer and using fusion equipment conforming ISO DIS 12176.2.

When tested in accordance with the test methods as specified in table – 6 using the indicated parameters, the fittings have mechanical characteristics confirming to the requirements given in Table 6.

TABLE 6: MECHANICAL PROPERTIES

Characteristics	Units	Requirements I	Test	Parameters	Test Method
Hydrostatic strength at 20°C	H	Failure time $\geq$ 100	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 1 h 9 Mpa, 12.4 Mpa, 20°C	ISO DIS 9356
Hydrostatic strength at 80°C	H	Failure time $\geq$ 165	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 12 h water-in-water 4.6 Mpa 5.5 Mpa 80°C	ISO DIS 9356
Hydrostatic strength at 80°C	H	Failure time $\geq$ 1000	End caps orientation conditioning time. Type of test circumferential (hoop) stress pipe PE 80, PE 100, Test temperature.	Type a) free 12 h water-in-water 4 Mpa, 5 Mpa, 80°C	ISO DIS 9356
Cohesive resistance	mm	Length of initiation of brittle fracture L/3	Test temperature choice of method	23°C	ISO 13954 (A) ISO 13955 (A) ISO 13956 (B)
Impact strength (B)		No failure No leakage	Test temperature Falling height Mass of the striker	20°C 23°C 5m 5kg	ISO DIS 13957

Characteristics	Units	Requirements I	Test	Parameters	Test Method
Pressure drop (B)	M ³ /h	0.5 mbar : dn ≤ 63 0.1 mbar : dn ² > 63	Air flow rate Test medium Test pressure	Indicated by the manufacturer Air source 25 mbar	PrEN 12117

- (A) Electrofusion Socket Fittings
(B) Tapping Tees

For hydrostatic strength test at 80°C only brittle failure shall be taken into account. If ductile failure occurs before the required time, a lower stress shall be selected and the minimum test time will be obtained from the line through the stress/ time points given in Table – 7.

TABLE 7
Hydrostatic strength (80°C) – Stress/ Minimum
Failure Time Correlation

PE-80		PE-100	
Stress Mpa	Minimum Failure Time h	Stress Mpa	Minimum Failures Time h
4.6	165	5.5	165
4.5	219	5.4	233
4.4	293	5.3	332
4.3	394	5.2	476
4.2	533	5.1	688
4.1	727	5.0	1000
4.0	100	-	-

8.2 Physical Characteristics

When tested in accordance with the test methods as specified in Table 8 using the indicated parameters, the fittings shall have physical characteristics conforming to the requirements given in Table 8.

TABLE 8 : Physical Characteristics of Fittings

Property	Units	Requirements	Test Parameters	Test Method
Thermal Stability	Minutes	> 20	200 °C (1)	ISO TR 10837

Property	Units	Requirements	Test Parameters	Test Method
Melt Mass-flow Rate (MFR)	g/10 min	$0.2 \leq \text{MFR} \leq 1.4$ and after processing maximum deviation of $\pm 20\%$ of the value measured on the batch compound	Condition 18	ISO 4440.1

- (1) Test may be carried out at 210 °C providing that there is a clear correlation to the results at 200 °C, in case of dispute the reference temperature shall be 200 °C.

8.3 Technical File

The manufacturer of the fittings shall make availability of a technical file (generally confidential) with all relevant data to prove the conformity of the fittings to this specification. It shall include all results of the type testing and shall conform to the specification relevant technical brochure (e.g. ISO 12093 for electrofusion fittings).

The technical description of the manufacturer shall include the following information:

1. Field of appliance (pipe and fitting temperature limits SDR's and out of roundness):
2. Assembly instructions:
3. Fusion instruction (fusion parameters with limits)
4. For saddles and tapping tee:
 - The means of attachment (tools and/ or under clamp).
 - The need to maintain the under clamp in position in order to ensure the performances of the assembly.

For electrofusion fitting, the format of the technical brochure shall conform to ISO DIS 12093.

In the event of modification of the fusion parameters, the manufacturer shall ensure that the joint conforms to this standard.

9. MARKING

Following information shall be embossed upto height of 0.15 mm onto the fitting and also in the form of bar code:

- a) The manufacturer's identity
- b) The size of the fitting in mm
- c) Material and Designation
- d) The date of manufacturer (code may be used)
- e) Fusion time in seconds
- f) Cooling time in minutes
- g) Fusion parameters in BAR code
- h) Lot Number.

The information may be printed on a label associated with the fitting.

10.

PACKING

The fittings shall be packaged in bulk or individually protected where necessary in order to prevent deterioration. Whenever possible, they shall be placed in airtight plastic bags in cardboard boxes or cartons.

The cartons and/or individual bags shall bear at least one label with the manufacturer's name, date of manufacture, type and dimensions of the part, number of units in the box, and any special storage conditions and storage time limits.

Note:

All the fittings required shall be bar coded electrofusion fitting type. In case bidder is quoting for spigot fittings, the necessary electrofusion coupler for all non electrofusion ends shall be included in the complete package

The transition fittings shall also be bar coded electrofusion type for PE connection, NPT Female threading conforming to ANSI B 20.1 for G.I connection & butt welded for carbon steel end.

The carbon steel material of transition fittings shall be conforming to APL 5L x 42 and thickness shall be of 4.8 mm.

All the fittings shall be used for the network operating at 4.0 Bar(g) Pressure.

TECHNICAL SPECIFICATION FOR POLYETHYLENE PIPES

CONTENTS

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2.0	INSTRUCTION TO THE TENDERER	2

1.0 **INTENT OF SPECIFICATION**

The intent of this specification is to establish minimum requirements to manufacture and supply of Polyethylene Pipes used for supply of natural gas.

2.0 **INSTRUCTION TO THE TENDERER**

2.1 The PE pipes are to be supplied as per IS:14885.

2.2 The length of the Pipes and their supply will be as per following :-

- 20mm OD – In each Coils of 100 mtrs. length
- 32mm OD – In each Coils of 100 mtrs. length
- 63mm OD – In each Coils of 100 mtrs. Length
- 125mm OD – In each Coils of 50 mtrs. Length

2.3 **PROTECTION**

- i) The ends shall be protected by proper end caps to prevent from shocks and ingress of the foreign body.
- ii) Coils shall be covered by black PVC/ PE Film to prevent exposure to direct sun light.

2.4 The successful bidder shall submit following for approval of Purchaser/ Consultant after placement of order

- a) The Quality Assurance Plan (QAP & Sampling Plan)
- b) Certified test result of PE Compound (clause 5 of IS:14885)
- c) Performance Requirements (clause 8 of IS:14885)
- d) Type Test (clause 9.1.2 of IS:14885).

2.5

The bidder shall submit following documents at the time of bidding,

- a) BIS/ ISO Certification if obtained already, or documentary evidence of applying for the same
- b) List of current orders in hand for similar items with full details such as specification, name of purchaser etc.
- c) Details of the largest supply executed
- d) Name and address of proposed test laboratories along with their credentials/ past records for carrying out all required tests.
- e) The names of standards/ codes being followed in manufacture and supply
- f) Any accreditation certificates obtained or applied for.

2.6

MARKING

The pipe shall be marked in continues length in addition to the requirement of the applicable code.

TECHNICAL SPECIFICATION FOR ISOLATION VALVES

Item	:	PE BALL VALVE
Application	:	Natural Gas Distribution Services
Code	:	ASME B16.40 / EN 1555-4
Rating	:	PE100 SDR 11
Operating Pressure	:	6 bar (g)
Operating Temperature	:	0°C to 60°C
End Connection	:	PE materials (Spigot Type)
Stem Extension	:	Not Required
Valve Design	:	Full Bore
Ball position Indicator	:	Open/Close Limits required

INSPECTION / DOCUMENT

- i) Inspection shall be carried out as per client/consultant's approved Inspection Plan / QAP.
- ii) Third party inspection agency appointed by vendor on prior approval of owner shall carry out stage wise inspection during manufacturing / final inspection.
- iii) Vendor shall furnish all the material test certificates, proof of approval /license from specified authority as per specified standard, if relevant, internal test / inspection reports as per owner Technical Specification and specified code for 100% material, at the time of final inspection of each supply lot of material.

PACKING Packing size to be mentioned to ensure uniformity in delivery condition of the material being procured. Bidder shall submit the packaging details during QAP and also compiled with at the time delivery

TECHNICAL SPECIFICATION FOR GI PIPES

TECHNICAL SPECIFICATION FOR GI PIPES
(For supply by Contractor)

Service	: Natural Gas
Working Pressure	: 4 bar (g)
Hydrostatic Test Pressure	: 6 bar (g)
Working Temperature	: 0°C to 50°C
Material Description	: IS:1239 (Part-I) Heavy Duty, Continuous Welded
Min. Tensile Strength	: 30 kgf/sq.mm
Min. Elongation	: 6%
Tolerance	: + Not limited, - 10%
Protective Coating	: Galvanised uniformly to protect from corrosion as per IS:4736/ ASTM A53 or by Electro Galvanising
Ends of Pipes	: Plain End
Inspection	: Inspection shall be carried out as per applicable code & approved QAP and 100% Pressure Testing shall be carried out at factory.

1.0 GENERAL NOTES

- 1.1** All pipes and the its dimensions, tolerance, chemical composition, physical properties, heat treatment, hydrotest and other testing and marking shall conform to the codes and standards.
- 1.2** Material test certificates (physical property chemical composition & heat treatment report) shall also be furnished for the pipes supplied.
- 1.3** All pipes shall be supplied with length between 5 to 7 mtr but average length of pipes supplied shall not be less than 6 meter. Overall length tolerance shall be (–) zero and (+) one length to complete the ordered quantity.
- 1.3 Pipes shall be galvanised uniformly to protect from corrosion as per IS:4736 / ASTM A53 or by electro galvanising.

2.0 MARKING AND DESPATCH

- 2.1** All pipes shall be marked in accordance with the IS 1239 codes, standards and specifications.
- 2.2** Paint or ink for marking shall not contain any harmful metal or metallic salts, such as zinc lead or copper which causes corrosive attack in heat.
- 2.3** Pipes shall be dry, clean and free from moisture, dirt and loose foreign materials of any kind.
- 2.4** Pipes shall be protected from rust, corrosion and mechanical damage during transportation, shipment and storage.
- 2.5** Both ends of the pipe shall be protected with the following material.

Plain End	:	Plastic Cap
Bevel End	:	Wood, Metal or Plastic Cover
Threaded End	:	Metal or Plastic Threaded Cap



TECHNICAL SPECIFICATION FOR COPPER TUBES

STANDARD TECHNICAL
SPECIFICATION
FOR
SEAMLESS ROUND COPPER
TUBES

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1.0

SCOPE

This specification covers the requirements for Seamless Round Copper Tubes. Specific requirement of Copper Tubes shall be 12 mm OD X 0.6 mm WT, Half Hard, with Physical properties to ensure wrinkle free bend-ability. Unless modified by this specification, requirement of BS EN 1057:2006 shall prevail.

2.0

MATERIAL

The material used for the manufacturer of Copper tube shall conform to BS EN 1057:2006, Grade Cu – DHP or CW024A or ASTM C 12200.

Each lot of copper tubes shall be tested in accordance with BS EN: 1057 to ensure the following properties.

a. Mechanical Properties:

- i. Ultimate Tensile Strength – 250 N/ sq.mm (min)**
- ii. Elongation – 30% (min)**
- iii. Hardness - 75 to 100 on HV scale.**

b. Chemical Properties:

Copper Percentage including silver

(Cu+Ag): Min 99.9% Phosphorus

Percentage (P): 0.015 to 0.040%

3.0

DIMENSIONAL TOLERANCES:

The mean Outside Diameter of the tube shall not vary from the specified outside diameter of 12 mm by more than ± 0.09 mm. And also wall thickness of the tube shall not vary by more than ± 0.06 mm of specified wall thickness of 0.6 mm.

Copper Tubes shall be supplied in cut lengths of 3.0m

4.0

PROCESS OF MANUFACTURE:

The tubes shall be so lid drawn by the process of melting, extrusion and thereafter Bright annealing. The ends shall be cut clean & square with the axis of the tube in no case shall tubes be redrawn from old or used tubes.

5.0 INSPECTION AND TESTING:

Inspection shall be carried out as per design codes/standards, Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by owner/owner's representative.

Even after third party inspection, Client reserves the right to select a sample of tube randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in Technical specification, then client reserves the rights to reject all production supplied from the batch.

a. FREEDOM FROM DEFECT TEST

The tubes shall be free from internal & external fins, flaws, skin defects, blow holes etc. or other irregularities which might restrict the free flow of fluid and shall be so designed that resistance to the flow of fluid through the tubes is minimized.

All the tubes shall be subject to one the following tests:

- i) **Eddy Current Test:** Tubes shall be Eddy Current tested as per Annex. C of BSEN 1057 and ASTM E243. Eddy Current testing is a computer aided test, wherein the tube passes through a probe & an electro- magnetic field is created around the peripheral of the tube to detect any flaw or blow hole which may not be visible to the naked eye. The manufacturer must have in-house Eddy Current testing facilities to supply to IGL. IGL reserves the right to witness the Eddy Current facility at the manufacturer's factory premises
- ii) **Hydrostatic Test:** Hydrostatic test s hall be carried out minimum 35 bar pressure for a period of 10 second as per BS EN 1057.
- iii) **Pneumatic Test:** The tube under test shall be connected to

pressurized air. Air pressure of 4 bar shall be maintained in the tube. The tube shall be completely immersed in water for a minimum period of 10 sec. and inspected for the issue of bubbles from the tube. Tube shall be rejected in case of occurrence of bubble, otherwise accepted.

b. CARBON CONTENT TEST

Copper tubes to be tested for carbon content test to ensure a carbon level to avoid the formation of carbon film during installation. Max. Carbon level shall be permitted as per Table-6 of BS EN 1057. Test shall be carried out as per reference method described in EN 723.

Sampling frequency shall be at least one sample per 5 Km of tube length. However, for small order quantities/ each batch of production, at least one sample shall be drawn.

c. CARBON FILM TEST

The detection and assessment of carbon film shall be carried out as per Annex. B of BS EN 1057. Sampling for this test shall be same as that for 5.0 (b) of this specification.

6.0 RETEST:

In case a sample fails to meet the test requirements of this specification, the whole batch of production represented by the sample shall be kept aside for further test.

Four times the number of samples as sampling criteria defined in 5.0 (b) shall be taken from that batch for the specific test, for which the earlier sample failed, for further testing. If any of these samples fail to meet the test requirements, whole batch shall be rejected. And if, all the samples pass the test, that batch of production shall be accepted.

7.0 MARKING:

Each tube shall be permanently marked every meter with Client's Logo, manufacturer's name, size (ODXWT) and specification (BS EN 1057) of the tube.

Each packing containing tubes shall carry the following, stamped or written in indelible ink.

- a) **Manufacturers name or trade mark**
- b) **Designation of tubes (OD x wall thk)**
- c) **Lot number.**
- d) **No. of the standard (EN 1057)**

8.0 PACKAGING:

Packing size shall be ensured for uniformity in delivery conditions of the material being procured. Packing size shall be approved by owner / owner's representative before packing the material. The vendor shall submit the packaging details during QAP and also comply with at the time of delivery.

9.0 DOCUMENTATION:

- (i) **Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per Technical Specification, at the time of final inspection of each supply lot of material.**
- (ii) **Vendor shall prepare and submit the detail drawings of required Copper Tubes and QAP for approval by Client/ consultant before starting production.**
- (iii) **For any control test or examination required under the supervision of TPIA/owner/owner's representative, latter shall be informed in writing one (1) week in advance by vendor about inspection date & place along with production schedule.**



RAJASTHAN STATE GAS LIMITED
Rajasthan State Gas Limited

Rajasthan State Gas Limited			QAP Copper Tubes			QAP NO.			
						Sheet 1			
						Prepared :		Checked:	
						Approved :			
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION			
						Vendor	TPIA	Client	REMARKS
1	Metallic materials (Chemical & Physical Requirements- Composition, Tensile & Hardness)	As per Sampling Plan in TS	As per BS EN 1057:2007	Clause 2.0 (a) & (b) of Technical Specification	Material Test certificate type 3.1	P	W	R	
2	Freedom From Defects Test One of the following three tests shall be performed :								
2.1	Eddy Current Test	100%	As per BS EN 1057:2007 and Technical Specification	As per BS EN 1057:2007 and Technical Specification	INSPECTION TEST REPORT	P	W	R	
2.2	Hydrostatic Test	100%	As per BS EN 1057:2007 and Technical Specification	As per BS EN 1057:2007 and Technical Specification	INSPECTION TEST REPORT	P	W	R	
2.3	Pneumatic Test	100%	As per BS EN 1057:2007 and Technical Specification	As per BS EN 1057:2007 and Technical Specification	INSPECTION TEST REPORT	P	W	R	
3	Surface Quality Test One of the following two tests shall be performed :								
3.1	Carbon Content Test	As per Sampling Plan in TS	As per BS EN 1057:2007 and Technical Specification	As per BS EN 1057:2007 and Technical Specification	INSPECTION TEST REPORT	P	W	R	
3.2	Carbon Film Test	As per Sampling Plan in TS	As per BS EN 1057:2007 and Technical Specification	As per BS EN 1057:2007 and Technical Specification	INSPECTION TEST REPORT	P	W	R	
4	Visual	1%	--	As per BS EN 1057:2007 and Technical Specification	--	P	W	R	
5	Dimensional	1%	--	As per BS EN 1057:2007 and Technical Specification	--	P	W	R	
6	Marking	100%	As per Technical Specification		INSPECTION TEST REPORT	P	W	R	
7	Packaging		As per Technical Specification		INSPECTION TEST REPORT	P	R	R	
8	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP	EN 10204 3.1 Certificate	P	H	H	

LEGENDS: R - REVIEW, W - Witness, H- Hold, P - Perform, TPIA - Third Party Agency (Owner / Owner's Representative)

Note:-

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS and Design Standard.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the location to facilitate Owner/Owner's representative and TPIA to organize Inspection.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/Consultant/CLIENT at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

TECHNICAL
SPECIFICATION FOR
GI FITTINGS

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1.0 SCOPE

This specification covers the requirements for Malleable Cast Iron Fittings. Unless modified by this specification, requirements of IS 1879 – latest edition shall be valid.

2.0 MATERIAL

The material used for the manufacturing of GI fittings shall conform to IS 14329 – 1995 with latest amendments Grade BM 300. Relevant test certificates conforming to all the test agreements of IS 14329 shall be provided with fittings.

3.0 DIMENSIONS AND DIMENSIONAL TOLERANCES

1. Dimensions of various types of fittings shall be as specified in sections 2 to 10 of IS 1879 – 1987 with latest amendments, as applicable.
2. Wall thickness of fittings and tolerances on them shall be as given in Table 1.2 of IS 1879 – 1987 with latest amendments,
3. In case of reducing fittings, the dimensions at each outlet shall be those appropriate to the nominal size of the outlet.
4. All GI fittings shall be of reinforced type. Reinforcement shall be provided as per Table 1.2 of IS: 1879.

4.0 WEIGHT

Weights of various types of fittings shall be as specified in sections 2 to 10 of IS 1879 – 1987 with latest amendments, as applicable.

5.0 THREADS

1. Threads shall be NPT type and conforming to ASME B1.20.1.
2. Outlets of fittings shall be threaded to dimensions & the tolerances as specified in ASME B1.20.1.
3. All internal & external threads shall be tapered.
4. For checking conformity of threads gauging practice in accordance with ASME B1.20.1 shall be followed.
5. Chamfering: The outlet of fittings shall have chamfer.

6.0 FREEDOM FROM DEFECTS

On visual examination, the outside & inside surfaces of fittings shall

be smooth & free from any defects such as cracks, injurious flaws, fine sand depth etc.

7.0

GALVANIZING

- i. Fittings shall be galvanized to meet the requirement of IS: 4759 – 1996 with latest amendments.
- ii. Zinc conforming to any grade specified in IS: 13229-1991 with latest amendments shall be used for the purpose of galvanizing.
- iii. Galvanizing bath: The molten metal in the galvanizing bath shall contain not less than 98.5% by mass of zinc.
- iv. Coating requirements: Mass of coating shall be 610 - 700 g/m².
- v. Freedom from defect: The zinc coating shall be uniform adhered, reasonably smooth & free from such imperfections as flux, ash bare patches, black spots, pimples, lumpiness runs, rust stains, bulky white deposits & blisters.
- vi. **Sampling plan and testing for Galvanization:**
 - a. All materials of the same type in coating bath having uniform coating characteristics shall be grouped together to continue a lot. Each lot shall be tested separately for the various requirements of the specification. The number of units to be selected from each lot for this purpose shall be given in Table 2 of IS 4759 – latest edition.
 - b. The sample selected according to Column 1 & 2 of Table 2, IS: 4759 – latest edition shall be tested for visual requirements as per Clause 6.2 of IS:4759 – latest edition
 - c. The sample found conforming to above requirements shall then be tested for mass of zinc coating in accordance with Clause 9.2 of IS: 4759 – latest edition.
- vii. Criteria for conformity: As per Clause 8.3 of IS: 4759-latest edition.
- viii. Test procedure shall be as per Clause 9 of IS: 4759-latest edition.

8.0 PRESSURE TEST

Vendor shall carry out pneumatic pressure test as per Clause 12.1b of IS:1879 – 1987 with latest amendments on each & every fittings. Vendor has to submit the Internal Quality control certificate for the same.

9.0 COMPRESSION TEST

This test shall be conducted to judge the malleability of the pipe fittings & shall be carried out as per Clause 13 of IS:1879 – 1987 with latest amendments.

10.0 SAMPLING

Owner Representative of Third Party Inspection Agency appointed by Owner shall witness the tests as per Appendix-B of IS 1879 – 1987 with latest amendments. However, vendor to perform 100% inspection of visual, dimensional & pressure test. Vendor shall furnish Internal test certificates at the time of final inspection to the Owner.

11.0 MARKING

1. Each fitting shall be embossed with Client's logo, manufacturer's name or trademark and the size designation to the extent possible depending upon available space. Detailed marking arrangement shall be submitted by vendor for approval.
2. Each packing containing fittings shall carry the following embossed, stamped or written by indelible ink.
3. Manufacturer's name or trade mark.
4. Designation of fittings.
5. Lot number.
6. Each fitting conforming to this standard shall also be marked with BIS standard mark.

12.0 PACKAGING

Packing size is to be mentioned to ensure uniformity in delivery conditions of the material being procured. Packing size shall be approved by owner / owner's representative before packing the material. The vendor shall submit the packaging details during QAP and also complied with at the time of delivery.

13.0 INSPECTION / DOCUMENTS

1. Inspection shall be carried out as per Owner Technical Specification/ referred codes.
2. Owner Representative/ Consultant or Third Party Inspection Agency appointed by Owner shall carry out inspection during manufacturing / final inspection.
3. Vendor shall furnish all the material test certificates, proof of approval / license from specified authority as per specified standard, if relevant, internal test / Inspection reports as per Technical Specification & specified code for 100% material, at the time of final inspection of each supply lot of material.
4. Even after third party inspection, Owner reserves the rights to select a sample of fittings randomly from each manufacturing batch & have these independently tested. Should the results of these tests fall outside the limits specified in Owner technical specification, then Owner reserves the rights to reject all production



supplied from the batch.



Rajasthan State Gas Limited			QAP GI FITTINGS			QAP NO.			
						Sheet 1			
						Prepared :		Checked:	
						Approved :			
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION			
						Vendor	TPIA	CLIENT	REMARKS
1	Materials (Chemical Properties)	IS:14329	IS:14329	IS:14329	Material Test certificate	P	R	R	
2	Materials (Mechanical Properties)	IS:14329	IS:14329	IS:14329	Material Test certificate	P	R	R	
3	Galvanizing								
3a	Visual inspection (Free from defects)	As per IS 4759-1996	As per IS 4759-1996	As per IS 4759-1996	INSPECTION TEST REPORT	P	W	R	
3b	Mass of Zinc Coating	As per IS 4759-1996	As per IS 4759-1996	As per IS 4759-1996	INSPECTION TEST REPORT	P	W	R	
4	Pneumatic Pressure Test	As per TS	As per IS 1879-1987	As per IS 1879-1987	INSPECTION TEST REPORT	P	W	R	
5	Compression Test	As per TS	As per IS 1879-1987	As per IS 1879-1987	INSPECTION TEST REPORT	P	W	R	
6	Weight of the Fittings	As per TS	As per IS 1879-1987	As per IS 1879-1987	INSPECTION TEST REPORT	P	W	R	
7	Dimension tolerances (Min. length of engagement. OD. Wall thk.)	1%	As per IS 1879-1987	As per IS 1879-1987	INSPECTION TEST REPORT	P	W	R	
8	Marking	1%	As per IS 1879-1987	As per IS 1879-1987	INSPECTION TEST REPORT	P	W	R	
9	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP		P	H	R	

LEGENDS: R - REVIEW, W - Witness, H-Hold, P - Perform, TPIA - Third Party Agency (Owner / Owner's Representative)

Note:

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/CONSULTANT/Client at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

TECHNICAL SPECIFICATION FOR COPPER FITTINGS

Table of Contents

- 1.0 SCOPE
- 2.0 MATERIAL
- 3.0 DIMENSIONAL TOLERANCES
- 4.0 CARBON IN BORE
- 5.0 CHEMICAL PROPERTIES
- 6.0 FREEDOM FROM DEFECT
- 7.0 PRESSURE TEST
- 8.0 MARKING
- 9.0 INSPECTION / DOCUMENTS
- 10.0 DRAWINGS

1.0 SCOPE

This specification covers the requirements for Copper Capillary fittings (End feed). Unless modified by this specification requirement European EN 1254 Part-I shall be valid.

2.0 MATERIAL

- i) The material used for the manufacturer of Copper Capillary Fittings shall confirm to BS EN 1254 - 1: latest Half hard
- ii) Material used for the solder should conform to BS 219 & BS EN 29453 or equivalent and should be lead free.

3.0 DIMENSIONAL TOLERANCES

Dimensions tolerances of various types of copper capillary fittings (End feed) shall be as per BS 864 Part-2 (latest) & EN 1254 (Open tolerances on dimensions shall be +/-0.1 mm).

The tolerances as specified in EN 1254 in nominal diameter are as follows (Ref Table 2).

Nominal Diameter	Tolerance on the mean diameter with respect to the nominal diameter		Resulting Difference	Diametrical
D	Outside Dia of male end (mm)	Inside Dia of Socket (mm)	Max. (mm)	Min. (mm)
12 mm	+ .0.04 - .0.05	+ 0.15 - 0.06	0.20	0.02

The minimum wall thickness of a fitting shall be in accordance as given below (Ref. Table 5 of EN 1254).

Nominal Dia mm D	Minimum wall thickness (mm) Wrought Coppers
12	0.6

End connection of the Fitting must be capable of end feeding.
Internal solder ring type fitting is not acceptable

4.0 CARBON IN BORE

The internal surface of copper capillary fittings for soldering or brazing shall not contain any detrimental film nor present a carbon level high enough to allow the formation of such a film during installation. The maximum total carbon level on internal surfaces



shall not exceed 1.0 mg/dm² when tested in accordance with the specification.

5.0 CHEMICAL PROPERTIES

Each heat no. of the copper fitting will be tested for chemical properties to conform to non-arsenical copper DHP grade C 106 as per BS EN 1057 & BS 2871 to have the following chemical composition:

Copper Percentage : Min 99.9% Phosphorus

Percentage : 0.015 to 0.040%

6.0 FREEDOM FROM DEFECTS

The fittings shall be free from internal fins, blow holes, skin defects etc. or other irregularities which might restrict the free flow of fluid, and shall be designed that resistance to the flow of fluid through the fittings is minimized.

7.0 PRESSURE TEST

All fittings shall be leak tested at the option of BGL at a pressure of 1 bar (g) for a period of 2 minutes and no leakage is permitted during this period Manufacturer's Test Certificate is necessary with supply.

STRESS CORROSION RESISTANCE TEST

A Stress Corrosion Resistance is to be carried out as per method defined in ISO 6957 using test solution of pH 9.5 but without pickling

8.0 MARKING

Each tube shall be embossed with manufacturers name or trade mark BS 864 or EN 1254. Each packing containing fittings shall carry the following stamped or written in indelible ink.

- a) Manufacturers name or trade mark
- b) Designation of tubes
- c) BS Symbol mentioning as 864 or EN 1254 to be used.

9.0 INSPECTION / DOCUMENTS

- i) Inspect shall be carried out as per Client. Technical Specification and Inspection Plan / QAP.
- ii) Client representative or third party inspection agency appointed by Client shall carry out stage wise inspection during manufacturing / final inspection.
- iii) Vendor shall furnish all the material test certificates, proof of approval / license from specified authority as per specified standard, if relevant, internal test / inspection reports as per Client technical Specification and specified code for 100% material, at the time of final inspection of each supply lot of material.
- iv) Even after third party inspection, Client reserves the right to Select a sample of tube randomly from each manufacturing batch and have these independently



tested. Should the results of these tests fall outside the limits specified in Client Technical specification, then Client reserves the rights to reject all production supplied from the batch.

- v) Vendor shall prepare and submit the detail drawing of required copper fittings for approval by Client Before starting production
- vi) For any control test the date and place of inspection shall be provided by the vendor in writing to the Owner /Owner representative along with Production Schedule.

STANDARD TECHNICAL SPECIFICATION FOR BRASS FITTINGS

TABLE OF CONTENTS

1.0	SCOPE
2.0	MATERIAL
3.0	DIMENSIONAL TOLERANCES
4.0	END CONNECTION
5.0	CHEMICAL PROPERTIES
6.0	CARBON IN BORE
7.0	RESISTANCE TO DEZINCIFICATION
8.0	STRESS CORROSION RESISTANCE TEST
9.0	FREEDOM FROM DEFECT
10.0	HYDROSTATIC PRESSURE TEST
11.0	PNEUMATIC PRESSURE TEST
12.0	MARKING
13.0	PACKAGING
14.0	INSPECTION / DOCUMENTS

1.0 SCOPE

This specification covers the requirements for Brass Capillary fittings (End feed fittings). Unless modified by this specification, requirement of EN 1254 Part 1 shall be valid.

2.0 MATERIAL

- i) The material used for the manufacturer of Brass Capillary Fittings shall conform to IS 319 Grade-2 or CW 602N as per EN12164.
- ii) Material used for the solder should conform to BS EN2 9453 and should be lead free. Solder material shall be generally melting within the temperature range 180 ° C to 250 °C.
- iii) Threading on the Brass fittings shall be done as per NPT (ASME 1.20.1).

3.0 DIMENSIONS

- i. Dimensions tolerances of various types of brass capillary fittings (End feed fittings). shall be as per EN 1254 Part 1 .The tolerances at the end shall be as per EN 1254 Part I in nominal diameter which are as follows (Ref. table 2)

Diameter	Tolerance on the mean diameter with respect to the nominal diameter		Resulting Diametrical difference	
	Outside Dia of male end (mm)	Inside Dia of socket (mm)	Max (mm)	Min (mm)
12 mm	+0.04 -0.05	+ 0.15 +0.06	0.20 0.0	

The minimum wall thickness of a fitting shall be in accordance as given below (Ref table 5 of EN 1254 Part 1)

Nominal Dia mm, D

Minimum wall thickness (mm) Brass

12

1.1

- ii. Minimum length of engagement shall be as per table-3 of BS EN 1254-1.

- III. Minimum bore area of fittings shall be corresponding to minimum bore as per table-4 of BS EN 1254-1.
- IV. Tube abutment shall be shown in the drawing submitted for approval as per guidelines of BS EN 1254-1.

4.0 END CONNECTION

End connection of the fitting must be capable of end feeding to the NP Tx 12 mm. Integral solder ring type fitting is not acceptable.

5.0 CHEMICAL PROPERTIES

Chemical composition & mechanical properties of Brass shall be as mentioned in IS:319 Grade-2/ CuZn36Pb2As or CW602N as per EN12164. The material shall be Dezincification- resistant.

6.0 CARBON IN BORE

The internal surface of brass capillary fittings for soldering or brazing shall not contain any detrimental film nor present a carbon level high enough to allow the formation of such a film during installation. The maximum total carbon level on internal surfaces shall not exceed 1.0 mg/dm². The test shall be carried out as per clause no. 5.4 and Annexure-A of EN 1254 -1.

7.0 RESISTANCE TO DEZINCIFICATION

The fittings shall be manufactured from alloys containing more than 10% Zinc. Accordingly resistance to dezincification test shall be carried out as per Cl. 5.5 of EN 1254 -1. The acceptance criteria shall be as per Clause 4.5.3.

8.0 STRESS CORROSION RESISTANCE TEST

A stress corrosion resistance is to be carried out on fittings as per method defined in ISO 6957 using test solution of pH 9.5 but without pickling.

9.0 FREEDOM FROM DEFECT

The fittings shall be free from internal fins, blow holes, skin defects etc. or other irregularities which might restrict the free flow of fluid, and shall be designed that resistance to the flow of fluid through the fittings is minimized.

10.0 HYDROSTATIC PRESSURE TEST

All fittings shall be leak tightness tested at 1.5x25 bars for a period of 15 minutes and no leakage is permitted. This test shall be performed on each size of the fittings.

11.0 PNEUMATIC PRESSURE TEST

All fittings shall be leak tested at 6 bars for a period of 10 seconds and no leakage is permitted.

12.0 MARKING

Each fittings shall be embossed with client's logo, manufacturers name and trade mark EN 1 254 P art – I and designation of fittings. Each packing containing fittings shall carry the following stamped or written in indelible ink.

- a) Manufacturer's name or trade mark.
- b) Designation of fittings.
- c) Month and year of manufacturing

13.0 PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Bidder shall submit the packaging details during QAP and also comply with at the time of delivery.

14.0 INSPECTION / DOCUMENTS

- (i) Inspection shall be carried out as per design codes/standards, Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by owner/owner's representative.
- (ii) Client's representative or third party inspection agency appointed by client/ vendor shall carry out random inspection during manufacturing/ final inspection.
- (iii) Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if

relevant, internal test/ inspection reports as per Technical Specification, at the time of final inspection of each supply lot of material.

- (iv) Even after third party inspection, Client reserves the right to select a sample of tube randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in Technical specification, then client reserves the rights to reject all production supplied from the batch.
- (v) Vendors shall prepare and submit the detail drawings of required brass fitting and QAP for approval by Client/ consultant before starting production.
- (vi) For any control test or examination required under the supervision of TPIA/owner/owner's representative, latter shall be informed in writing one (1) week in advance by vendor about inspection date & place along with production schedule.



RAJASTHAN STATE GAS LIMITED
Rajasthan State Gas Limited

Rajasthan State Gas Limited			QAP BRASS FITTINGS			QAP NO.			
						Sheet 1			
						Prepared :		Checked:	
						Approved :			
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION			
						Vendor	TPIA	Client	REMARKS
1	Raw Material Testing:								
1.1	Metallic materials (Chemical / Physical Requirement)	One sample in each heat	As per EN12164 for Gr. CW602N/ IS:319 Gr. 2)	As per EN12164 for Gr. CW602N/ IS:319 Gr. 2)	Material Test certificate type 3.1	P	R	R	
2	Leak tightness under Internal Hydrostatic Pressure Test	1%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
3	Gas Tightness Test (Pneumatic test)	1%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
4	Carbon in Bore	1%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
5	Dezincification Resistance Test	1%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
6	Stress Corrosion Resistance Test	1%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
8	Visual inspection (Free from defects)	10%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
9	Dimension tolerances (Min. length of engagement. OD. Wall thk.)	10%	As per Approved Drawing/ BS EN 1254- 1	As per Approved Drawing/ BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
10	Marking	10%	BS EN 1254-1	BS EN 1254-1	INSPECTION TEST REPORT	P	W	R	
11	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP	EN 10204 3.1 CERTIFICATES	P	H	H	

LEGENDS: R - REVIEW, W - Witness, H-Hold, P - Perform, TPIA - Third Party Agency (Owner / Owner's Representative)

Note:-

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the location to facilitate Owner/Owner's representative and TPIA to organize Inspection.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/CLIENT at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

RAJASTHAN STATE GAS LIMITED			QAP ISOLATION AND APPLIANCE BALL VALVES			QAP		
						Sheet		
						Prepared : Checked:		
						Approved :		
						INSPECTION		
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	Vendor	TPIA	REMARKS
1	Raw Material Testing:							
1.1	Metallic materials (Chemical / Physical Requirement)	One in each heat	As per ASTM B 283 (ALLOY UNS C37700)	As per ASTM B 283 (ALLOY UNS C37700)	Material Test certificate	P	R	EN10204-3.1 certificate
1.2	Seat & Stem Seal Material	One in each heat	As per TS/ B16.33	As per TS/ B16.33	Material Test certificate	P	R	EN10204-3.1 certificate
2	Final Product:							
2.1	Gas Tightness Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Twist (Torque) Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Bending Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Tensile Test	One in each heat	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Turning Torque Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.2	Temperature Resistance test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.3	Flow Capacity Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.4	Production pressure test	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
2.5	Visual inspection (Free from defects)	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
2.6	Dimension tolerances (Min. length of engagement. OD, Wall thk.)	100%	As per Approved Drawing	As per Approved Drawing	INSPECTION TEST REPORT	P	RW	
2.7	Marking	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
3	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP	EN 10204 3.1 CERTIFICATES for raw material	P	H	

LEGENDS: R REVIEW, W Witness, RW Random Witness (Minimum 0.5% of lot size) H-Hold, P Perform, TPIA Third Party Agency, CA Control Authority (Owner / Owner's Representative)

Note:-

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the location to facilitate Owner/Owner's representative and TPIA to organize Inspection.
- Special manufacturing procedures have to the specially approved or only previously approved procedures have to be used.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/RSGL at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

TECHNICAL
SPECIFICATION FOR
ISOLATION & APPLIANCE BALL
VALVES



Contents of TS No. MEC/TS/05/62/038

<u>Sl.No.</u>	<u>Description</u>
1.0	INTENT OF SPECIFICATION
2.0	SCOPE OF WORK
3.0	MATERIAL SPECIFICATION
4.0	DESIGN AND CONSTRUCTION
5.0	INSPECTION AND TESTING
6.0	PACKING AND MARKING

INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of Isolation & Appliance Ball Valves used for supply of natural gas.

2.0 SCOPE OF WORK

- 2.1 The scope of the tenderer will include manufacture/ supply, inspection/ testing/ marking/ packaging/ handling and dispatch of Isolation & Appliance Ball Valves, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in ASME B16.33 and should be approved by any certified agency for Gas application.
- 2.2 All codes and standards for manufacture, testing, inspection etc. shall be of latest edition.

3.0 MATERIAL SPECIFICATION

- 3.1 **Metallic parts of Valves shall be manufactured as per material specified in respective datasheets.**
- 3.2 **Lubricants and Sealants. Lubricants and/or sealants shall be resistant to the action of fuel gases such as natural, manufactured, and LP gases. The valve manufacturer is responsible for the selection of lubricants and sealants, and for the determination of their suitability for the service conditions specified in the scope of this Standard.**
- 3.3 **Seating and Stem Seal Materials. The valve manufacturer is responsible for selection of seating and stem seal materials and for determination of their suitability for the service conditions specified in the scope of this Standard.**
- 3.4 **Air Aging Tests. Elastomer parts that are exposed to fuel gas shall be made from materials that, following 70-hr air aging in accordance with ASTM D573 at 212°F (100°C), meet elongation, tensile, and hardness property requirements as per ASME B16.33.**
- 3.5 **Elastomeric components' material shall qualify swell test and compression set tests as per requirement of ASME B16.33.**

4.0 DESIGN AND CONSTRUCTION

- 4.1 **DESIGN QUALIFICATION: Manufacturer shall qualify the design of the valves as per clauses mentioned below. Relevant documents for establishment of design qualification shall be**

submitted along with bid.

4.1.1 Each basic valve design shall be qualified and demonstrated as suitable for the service by testing randomly selected production valves of each size, type, and pressure shell material.

4.1.2 Following tests shall be carried out for design qualification as per ASME B 16.33 a) Gas tightness

b) Temperature resistance

c) Structural tests viz. Strength test, Twist test, Bend Test, Tensile Test, Turning Torque test

d) Flow Capacity

4.2 Production Testing

Each Valve shall be tested to a test pressure of 1.5 times the pressure rating of the valve according to test method of gas tightness. No leakage is permitted during production testing.

4.3 Valve ends shall be as specified in respective datasheets.

5.0 Inspection and Testing

5.1 Each valve shall be tested for leakage as specified in cl. 4.2 above. Test certificate shall be provided for production testing.

5.2 Test certificates for physical and chemical properties of all the components of valves shall be provided as per agreed QA/QC requirements.

5.3 Test certificates of all the tests conducted for design qualification as per ASME B16.33 shall be submitted for review.

5.4 Type of inspection documents as per EN 10204 shall be as defined in respective QAP/ Datasheet.

6.0 Packing and Marking

6.1 Valves shall be marked as mentioned below.

6.1.1 The manufacturer's name or trademark and, where space permits, the designation "B16.33." The B16.33 mark is the manufacturer's acknowledgement that the valve was manufactured in conformance with ASME B16.33.

6.1.2 Pressure Rating.

6.1.3. Open and close indication. when a 1/4 turn valve is in the open or closed position (if flat head, longitudinal axis of the head shall be perpendicular to the longitudinal axis of the valve when valve is in

the closed position)

- 6.2 Each Valve shall be packed in individual card board boxes so as to avoid wear and tear during transport.
- 6.3 For threaded end valves, end caps shall be provided.

Data Sheet - Isolation Ball Valve		
S.NO	Description	Details
1	Process Data	
1.01	Fluid	Natural Gas
2	Operating Condition	
2.01	Pressure	4 Bar (g)
2.02	Temperature (°C)	0-48
3	Design Condition	
3.01	Pressure	-
3.02	Temperature (°C)	-29 to 65
4	Valve Data	
4.01	Size	1/2" and 3/4"



IS 1185 (Part 1)
1993
First Revision

4.02	Type	Isolation Ball Valve of Full Bore with NPT Female (Confirming to ANSI B1.20.1) as an inlet with operating Knob and locking arrangement with provision for sealing wire and lead seal (without Key). metallic operating Knob for full open/close at 90 deg. position.
4.03	Rating	125#
4.04	End Connections	NPT Female (Confirming to ANSI B1.20.1)
4.05	Body Material	Total Body Including the Nozzle shall be of forged Brass (ASTM B 283, Alloy UNSC37700) with Nickel/ Chrome plated.
4.06	Ball Material	Hard Chrome/ Nickel Plated, ASTM B 283
4.07	Stem	ASTM B283
4.08	Seat	Teflon
4.12	Extension Stem	Not required
4.13	Operator	Butterfly Arrangement
5	Painting	
5.01	Surface Preparation	Not Required
5.02	primer	Not Required
5.03	finish	Not Required
5.04	insulation	Not Required
6	Test	
	Production Test	-
6.01	Production Test Pressure	1.5 times of design class pressure
6.02	Test Medium	As per ASME B16.33
6.05	Test duration	15 seconds
Note	1. Lever type handle not acceptable.	
	2. Minimum Nickel/ Chrome Plated on the ball & body of Isolation ball valve shall be 25 micron	
	3. The above specified tests in TS/ Data sheet are minimum however, the other remaining/ specified test shall be done as per ASME B.16.33	



Data Sheet - Appliance Ball Valve

S.NO	Description	Details
	Process Data	
1.01	Fluid	Natural Gas
2	Operating Condition	
2.01	Pressure	4 Bar (g)
2.02	Temperature (°C)	0-48
3	Design Condition	
3.01	Pressure	-
3.02	Temperature (°C)	-29 to 65
4	Valve Data	
4.01	Size	1/2"
4.02	Type	Appliance Ball Valve of Full Bore with ½" NPT (Confirming to ANSI B1.20.1) Female as an inlet and the outlet shall be having Ni/ Cr plated brass or steel a nozzle (Serrated to suit ¼" rubber tubing/ hose connection) and the material is required for Domestic Natural Gas Service with a metallic operating Knob for full open/close at 90° position.
4.03	Rating	125#
4.04	End Connections	Female as an inlet and the outlet shall be having Ni/ Cr plated brass or steel as nozzle
4.05	Body Material	Total Body Including the Nozzle shall be of forged Brass (ASTM B 283, Alloy UNSC37700) with Nickel/ Chrome plated.
4.06	Ball Material	Hard Chrome/ Nickel Plated, ASTM B 283
4.07	Stem	ASTM B283
4.08	Seat	Teflon
4.12	Extension Stem	Not required
4.13	Operator	Knob Arrangement.
5	Painting	
5.01	Surface Preparation	Not Required
5.02	primer	Not Required
5.03	finish	Not Required
5.04	insulation	Not Required
6	Test	
	Production Test	-
6.01	Production Test Pressure	1.5 times of design class pressure
6.02	Test Medium	As per ASME B16.33
6.05	Test duration	15 seconds
Note	1. Minimum Nickel/ Chrome Plated on the ball & body of Isolation ball valve shall be 25 micron	
	2. The above specified tests in TS/ Data sheet are minimum however, the other remaining/ specified test shall be done as per ASME B.16.33	



RAJASTHAN STATE GAS LIMITED			QAP ISOLATION AND APPLIANCE BALL VALVES			QAP/05/62/038		
						Sheet 1		
						Prepared : SK Checked: HK		
						Approved : GS		
						INSPECTION		
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	Vendor	TPIA	REMARKS
1	Raw Material Testing:							
1.1	Metallic materials (Chemical / Physical Requirement)	One in each heat	As per ASTM B 283 (ALLOY UNS C37700)	As per ASTM B 283 (ALLOY UNS C37700)	Material Test certificate	P	R	EN10204-3.1 certificate
1.2	Seat & Stem Seal Material	One in each heat	As per TS/ B16.33	As per TS/ B16.33	Material Test certificate	P	R	EN10204-3.1 certificate
2	Final Product:							
2.1	Gas Tightness Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Twist (Torque) Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Bending Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Tensile Test	One in each heat	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
	Turning Torque Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.2	Temperature Resistance test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.3	Flow Capacity Test	1%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	W	
2.4	Production pressure test	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
2.5	Visual inspection (Free from defects)	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
2.6	Dimension tolerances (Min. length of engagement. OD. Wall thk.)	100%	As per Approved Drawing	As per Approved Drawing	INSPECTION TEST REPORT	P	RW	
2.7	Marking	100%	ASME B 16.33	ASME B 16.33	INSPECTION TEST REPORT	P	RW	
3	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP	EN 10204 3.1 CERTIFICATES for raw material	P	H	

LEGENDS: R - REVIEW, W - Witness, RW - Random Witness (Minimum 0.5% of lot size) H-Hold, P - Perform, TPIA - Third Party Agency, CA- Control Authority (Owner / Owner's Representative)

Note:-

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Contractor shall in coordination with Supplier/Sub vendor issue detailed Production and Inspection schedule indicating the dates and the location to facilitate Owner/Owner's representative and TPIA to organize Inspection.
- Special manufacturing procedures have to the specially approved or only previously approved procedures have to be used.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/RSGL at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

TECHNICAL SPECIFICATION FOR WARNING MATS

SPECIFICATION FOR THE WARNING MATS

Purpose	:	For using as a warning sign for Under Ground Natural Gas Pipeline and HDPE Duct/ OFC
Width Pipeline	:	300mm for Underground Gas
Thickness	:	0.25mm thk. for HDPE Duct/ OFC 1.00mm thk. for Underground Gas Pipeline
Material of the mat	:	The material shall be of high density Polyethylene
Colour of the mat	:	Red for HDPE Duct/ OFC Golden Yellow for Underground gas Pipeline
Art Work	:	A sample piece of 30mm wide and 200mm long of every batch shall be checked by immersing in 20% solution of Ammonium Sulphide for period of 2 weeks at a temperature of 15°C for colour intactness of the strip. Art work would be finalized after placement of order.

Mechanical Properties of HDPE

Tensile Strength	:	Minimum 1.8 kg/cm²
Elongation at Break	:	Minimum 125%
Bundle Length	:	1.0mm thick warning mat shall be



supplied as 50 mtrs. bundle. 0.25mm thick warning mat shall be supplied as 100 mtrs. each bundle.

Test Certificates

: Vendor has to submit the all test certificates to Purchaser

Inspection

: The manufacturer has to submit the QAP and get the sample approved before commencement of production



**HIGHLY INFLAMMABLE
GAS PIPELINE
BELOW
RAJASTHAN STATE GAS LIMITED**

**IN EMERGENCY PLEASE CONTACT
PHONE NOS.**

TECHNICAL
SPECIFICATION FOR
FLEXIBLE HOSE PIPE
(Anaconda)

CONTENTS

Sl. No.	DESCRIPTION
1.0	INTENT OF SPECIFICATION
2.0	SCOPE OF WORKS
3.0	TECHNICAL SPECIFICATIONS
4.0	TESTING, CLEANING & PACKAGING
5.0	MARKING
6.0	PACKAGING
7.0	INSPECTION / DOCUMENTS

1.0 INTENT OF SPECIFICATION

The intent of this specification is to establish minimum requirements to manufacture and supply of corrugated flexible metal hose used for supply of domestic natural gas.

2.0 SCOPE OF WORKS

The scope of the tender will include manufacture/ supply, inspection, testing, marking, packaging handling and dispatch of corrugated flexible metal hose assembly, as indicated in the Material Requisition & Schedule of Rates, meeting all the requirements as laid down in manufacturing standard BS: 6501 Part 1(latest)/ ISO 10380.

All codes and standard for manufacture, testing, inspection etc. shall be of latest edition.

Owner/ Owner's Representative reserves the right to delete or order additional quantities during execution of order, based on unit rates and other terms & conditions in the original order.

3.0 TECHNICAL SPECIFICATIONS

Item	: Corrugated Flexible metal Hose Assembly (Type-A flexibility) for Natural Gas Service
Applicable Code	: BS: 6501 Part-I: (latest)/ ISO 10380 Specification for Corrugated Hose Assemblies
Nominal Size	: DN 12
Total Length of Hose Assembly	: 350mm end to end
Movement Required	: Static
Medium Flowing through Hose assembly	: Natural gas (PNG)
Nominal Pressure/Design Pressure	: 0.25 bar (g) at 20°C
Temperature Range	: 0–65°C
Cyclic Life	: 30 Bends minimum when tested in accordance with Cl.14.2 Of BS: 6501 Part-I (latest)/ ISO 10380.

Static Bend Radius : 25mm

Type & Material of End Fitting : $\frac{3}{4}$ " NPT SS316L Female Swivel Nut with Flat Seat
Nipple with Rubber Gasket / 'O' Ring (and second end shall be SS Male $\frac{3}{4}$ " NPT and threads shall be conforming to ANSI B1.20.1 . Fittings shall be conforming to SS316L.

Note: TIG welding shall be carried out for welding SS fittings to corrugated hose.

Material of rubber gasket : Polymer NBR / nitrile with thickness 3-4 mm

Material of Hose : SS316L, 0.3 mm thickness

Braiding : Not required

Product to be conveyed : Natural Gas

Heat Treatment Requirement : Parent sheet or the finished hose must undergo annealing. The purpose of this is to relieve stress due to cold working.

Surface Coating : No zinc plating is required on SS hose, SS fittings & welded portion. At the welded portion suitable anti rusting provision shall be made. .

4.0 TESTING, CLEANING & PACKAGING

Tests : Pneumatic Test at a pressure of 1.5 kg/cm²(g) & Type testing as per Cl. Nos. 14.1, 14.2, 14.5 & 14.6 of BS: 6501 Part-I (latest)/ ISO10380

Cleaning & Packaging : As per Cl. No. 17.0 of BS:6501 Part-I (latest)/ ISO 10380

Test Certificate : As per Cl. No. 18.0 of BS:6501 Part-I (latest)/ ISO 10380

5.0 MARKING

Each corrugated flexible metal hose and SS316 fittings shall be embossed with owner's logo, manufacturers name or trade mark BS: 6501 part I (latest)/ ISO 10380 and designation of fittings.

Each packing containing corrugated flexible metal hose shall carry the following stamped or written in indelible ink.

- Indication of the source of manufacture/Trade mark/Type
- Designation of fittings
- Maximum working pressure
- Nominal bore
- Month and year of manufacture

6.0

PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Bidder shall submit the packaging details like numbering of pieces per package, along with QAP and also complied with at the time of delivery. One package will consist of one corrugated flexible metal hose assembly (metal hose + end fitting on both sides) & two gaskets for each end.

7.0

INSPECTION / DOCUMENTS

- a) Inspection shall be carried out as per design code/standard, Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by Owner/Owner's representative.
- b) Owner representative or third-party inspection agency appointed by owner shall carry out random inspection during manufacturing/ final inspection.
- c) Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per Technical Specification and specified code for 100% material, at the time of final inspection of each supply lot of material.
- d) Even after third party inspection, owner reserves the right to select a sample of flexible metal hose randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in Technical specification, then owner reserves the rights to reject all production supplied from the batch.
- e) For any control test or examination required under the supervision of TPIA/owner/owner's representative, latter shall be informed in writing one (1) week in advance by vender about inspection date & place along with production schedule.
- f) Vendor shall submit the dimensional drawing for Hose, end fittings and Rubber Gasket along with the technical bid.



Rajasthan State Gas Limited			QAP FLEXIBLE HOSES (ANACONDA)			QAP NO.			
						Sheet 1			
						Prepared :			
						Approved :			
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION			
						Vendor	TPIA	Client	REMARKS
1	Materials (Chemical Properties)	One sample each heat	Material code	Material code	Material Test certificate	P	R	R	
2	Materials (Mechanical Properties)	One sample each heat	Material code	Material code	Material Test certificate	P	R	R	
3	TIG welding (End fitting to hose)	100%	Approved WPS	ASME Section IX	Welding report	P	R	R	
4	Cyclic Test (Type test)	One sample each lot	As per ISO 10380	As per ISO 10380	INSPECTION TEST REPORT	P	W	R	
5	Pliable Test (Type Test)	One sample each lot	As per ISO 10380	As per ISO 10380	INSPECTION TEST REPORT	P	W	R	
6	Pneumatic test (Production test)	100%	As per Technical specification	As per Technical specification	INSPECTION TEST REPORT	P	W	R	
7	Leakage Test	1%	As per ISO:10380	As per ISO:10380	INSPECTION TEST REPORT	P	W	R	
8	Dimensional Check	1%	-	As per approved Drawing	INSPECTION TEST REPORT	P	W	R	
9	Marking	1%	As per TS	As per TS	INSPECTION TEST REPORT	P	W	R	
10	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP		P	H	R	

LEGENDS: R - REVIEW, W - Witness, H-Hold, P - Perform, TPIA - Third Party Agency (Owner / Owner's Representative)

Note:-

- 1 The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- 2 The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- 3 Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- 4 Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- 5 All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/Client at the time of Inspection
- 6 At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

TECHNICAL SPECIFICATION
FOR
FLUX

TECHNICAL SPECIFICATION FOR FLUX

- I) Flux should be Non-Acidic, Lead Free as per ANSI / NSF 6 or equivalent to be approved by EIC.
- II) The Flux should be supplied in paste form packed in small tin container of 500 gms. & should have compatibility to use with solder wire (Lead free & as per BS 219 or equivalent).
- III) Certificate of confirmation with the specified standard & relevant material test certificate should be furnished by vendor.
- IV) Vendor should supply branded material.

SPECIFICATION NO.

CONTENTS

Sl.No.	Description
1.0	INTRODUCTION
2.0	DEFINITIONS
3 . 0	CONTRACTORS SCOPE OF WORK
4 . 0	QUALITY ASSURANCE REQUIREMENTS

ATTACHMENTS:

TITLE	NUMBER
FORMAT FORQUALITYPLAN	FORMAT 00001
FORMATFOROBSERVATIONON	FORMAT00002

1.0

INTRODUCTION

This specification establishes the Quality Assurance Requirements to be met by the sub-contractors (including turnkey Contractors) and their sub-vendors.

In case of any conflict between this specification and other provisions of the contract/ purchase order, the same shall be brought to the notice of Client/ TPIA, at the stage of bidding and shall be resolved with Client/ TPIA, prior to the placement of order.

2.0

DEFINITION

Bidder

For the purpose of this specification, the word "Bidder" means the person(s), firm, company or organisation who is under the process of being contracted by Client/TPIA for delivery of some products (including service). The word is considered synonymous to supplier, contractor or vendor.

Correction

Action taken to eliminate the detected non-conformity.

Refers to repair, rework or adjustment and relates to the disposition of an existing non-conformity.

Corrective Action

Action taken to eliminate the causes of an existing non-conformity, defect or other undesirable situation in order to prevent recurrence.

Preventive Action

Action taken to eliminate the causes of a potential non-conformity, defect or other undesirable situation in order to prevent its recurrence.

Process

Set of inter-related resources and activities which transform inputs into outputs.

Special Process

Processes requiring pre-qualification of their process capability.

3.0 CONTRACTORS SCOPE OF WORK

3.1 Prior to award of contract

The bidder shall understand scope of work, drawings, specifications and standards etc., attached to the tender/ enquiry document, before he makes an offer.

The bidder shall submit milestone charts hawing the time required for each milestone activity and linkages between different milestone activities along with overall time period required to complete the entire scope of work.

The bidder shall develop and submit manpower and resource deployment chart.

The bidder shall submit, along with the bid, a manual or equivalent document describing/ indicating/ addressing various control/ check points for the purpose of quality assurance and the responsibilities of various functions responsible for quality assurance.

3.2 After the award of contract

The bidder shall submit the schedule for submission of following documents in the kick-off meeting or within two weeks of the placement of order, whichever is earlier.

- Detailed Bar Chart
- Quality plan for all activities, required to be done by the bidder, to accomplish offered scope of work.
- Inspection and test plans, covering various control aspects.
- Job procedures as required by TPIA/ Owner.
- Procurement schedule for items to be supplied by contractor covering inspection of the same.

Various documents submitted by the bidder shall be finalised in consultation with TPIA/Owner. Here it shall be presumed that ones a bidder has made an offer, he has understood the requirements given in this specification and agrees to

comply with them in totality unless otherwise categorically so indicated during pre-award stage through agreed deviation/ exception request. All Quality Assurance Plan (QAP) documents shall be reviewed by concerned functional groups of TPIA and the bidder shall be required to incorporate all comments within the framework of this specification at this stage of the contract. It is also obligatory on the part of the bidder that obtains approval on every Quality Assurance Plan (QAP) documents, before he starts using a particular document for delivery of contracted scope of work. Participation of TPIA/ Owner in review/ approval of quality plan/ QAP documents does not absolve the contractor of his contractual obligations towards specified and intended use of the product (or service) provided/ to be provided by him under the contract.

3.3 During job execution

During job execution, the bidder shall fully comply with all quality document submitted and finalised/ agreed against the requirements of this specification. Approval of TPIA on all these documents shall be sought before start of work.

Bidder shall produce sufficient quality records on controlled/ agreed forms such that requirements given in this specification are objectively/ demonstrable.

Bidder shall facilitate TPIA/ Owner during quality/ technical audits at his works/ sites.

Bidder shall discharge all responsibilities towards enforcement of this specification on all his sub-contractors for any part of the scope which is sub- contracted.

4.0 QUALITY ASSURANCE SYSTEM REQUIREMENTS

- 4.1** The bidder shall nominate an overall in-charge of the contract titled as "Project Manager" for the scope of work of agreed contract. The name of this person shall be duly intimated to TPIA including all subsequent changes, if any. TPIA shall correspond only with the project manager of the bidder on all matters of the project. The project manager of the bidder shall be responsible for co-ordination and management of activities with bidder's organization and all sub-vendors appointed by the bidder.

After award of work, the bidder may review augmentation of manpower and resources deployment chart (submitted earlier), detail it out, if so consented by TPIA/ Owner and resubmit the same as "issued for effective implementation of the project".

- 4.2** The bidder shall plan the contract scope of work on quality plan format such that no major variation is expected during delivery of contract scope of work. These quality plan shall be made on enclosed format complete in all respect. The quality plan shall be assumed to be detailing bidder's understanding and planning for the contract/ offered scope of work. The bidder shall plan the type of resources including various work methodology which he agrees to utilize for delivery of contract scope of work.

- 4.3** The bidder is required to review the contract at all appropriate stages to evaluate his capabilities with respect to timely and quality completion of all activities pertaining to contracted scope of work and shall report for constraints, if any to TPIA/ Owner.

- 4.4** The design activities, if any, performed during delivery of contract scope of work shall be so controlled that the outputs is reliable enough. It is expected that during development of design, the bidder shall take recourse to detailed checking, inter departmental reviews

and documented verification methods.

- 4.5** For all documents which the bidder is likely to utilise for delivery of contract scope of work, a system must exist which assures that latest/ required version(s) of the document(s) is available at all location/ point of use.
- 4.6** In case the bidder decides to sub-contract any part/ full of the contract scope of work (without prejudice to main Contractual condition), the bidder shall :
- Evaluate the technical and financial capabilities and past performance of the sub-contractor(s) and their products and/ or services before awarding them with the sub-contracted scope of work. Selection of a sub-contractor should meet TPIA approval in documented form.
 - Requirement of this specification shall be enforced on sub-contracted agency also. The bidder shall choose sub-contractor based on their capability to meet requirements of this specification also.
- Note: It may so happen that, in a given situation, a sub-contractor may not have a system meeting the requirements of this specification. In all such eventualities, bidder may lend his system to sub-contractor for the contract such that sub-contractor effectively meets the requirements of this specification. In all such cases TPIA shall be duly informed.
- 4.7** Bidder shall establish adequate methodology such that the materials supplied by the Owner/ TPIA shall be adequately preserved, handled and made use of for the purpose for which they are provided.
- 4.8** All output delivered against contract scope of work shall be suitably identified in such a manner that either through identification or some other means, sufficient traceability is maintained which permits effective resolution of any problem reported in the outputs.
- 4.9** Critical activities shall be identified and the bidder is required to have documented methodologies which he is going to utilize for carrying out such activities under the contract scope of work. Wherever it is difficult to fully inspect or verify the output (special process), bidder shall pre-qualify, the performers and methodologies.
- 4.10** All inspections carried out by the bidder's surveillance/ inspection staff shall be conformity to quality plans and/ or inspection and test plans. All inspection results shall be duly documented on controlled/ agreed forms such that results can be co-related to specific product that was inspected/ tested.
- 4.11** All inspection, measuring & test Equipments (IMTEs) shall be duly calibrated as per National/ International standards/ codes and only calibrated and certified IMTEs shall be utilized for delivery of contract scope of work.
- 4.12** All out puts/ products delivered against contract scope of work shall be duly marked such that their inspection status is clearly evident during all stages/ period of the contract.
- 4.13** All non-conformities (NCs) found by the contractor's inspection/ surveillance staff shall be duly recorded, including their disposal action. The deficiencies observed during stage of the product, shall be recorded and resolved suitably. Effective corrective and

preventive action shall be implemented by the bidder for all repetitive NCs, including deficiencies.

- 4.14** All deficiencies noticed by TPIA/ Owner representative(s) shall be recorded on a controlled form (Format No. 00002). Such deficiencies shall be analysed by the bidder and effective and appropriate correction, corrective and preventive actions shall be implemented. Bidder shall intimate TPIA/ Owner of all such corrective and preventive action implemented by him.
- 4.15** Bidder shall establish appropriate methodologies for safe and effective handling, storage, preservation of various materials/ inputs encountered during delivery of contract scope of work.
- 4.16** Bidder shall prepare sufficient records for various processes carried out by him for delivery of contract scope of work such that requirements of this specification are objectively demonstrable. In case TPIA/ Owner finds that enough objective evidence/ recording is not available for any particular process, bidder shall be obliged to make additional records so as to provide sufficient objective evidence. The decision of TPIA/ Owner shall be final and binding on such issues.
- 4.17** The bidder shall arrange internal quality audits at quarterly intervals, to independently assess the conformance by various performers to the requirements of this specification. The findings of such assessment shall be duly recorded and a copy shall be sent to TPIA/ Owner for review.
- 4.18** For all special processes, bidder shall deploy only qualified performers. Wherever TPIA/Owner observes any deficiency, the bidder shall arrange the adequate training to the performer(s) before any further delivery of work.

OBSERVATION OF QUALITY ASPECTS

FORMAT - 00002

Job No. and Description		No.		Date:	
Issued to : M/s					
Location of Work :					
Item of Work :					
Details of Observation(Deficiency)			Recommended Course of Action		
			Time Allowed for Correction :		
Issued by : _____					
Name of Signature of TPIA					
Corrective Action taken report by Contractor/ Vendor :					
Date: _____ Name and Signature _____					
Distribution (before resolution) :					
Project Manager					
Owner					
Verification of Resolution by :					
Date: _____ Name of Signature _____					
Distribution (before resolution) :					
Project Manager					
Owner					

**FORMAT – 00001**

Bidder's Quality Plan			Project Name :			PO/ Contract Ref:				
General			Performing Functions			Inspection Functions			Audit Function	
Activity Description	Procedure Number	Code of Conformance	Performer	Checker	Reviewer/ Approver	Sampling Plan	Testing and Inspection Code	Type of (Approval) Surveillance	Audit Scope	Owner's/ TPIA Review/ Audit Requirement

- Note: 1) The bidder ensures that the filled up format conforms to minimum requirements on Quality Plan/ Quality Assurance, specified by TPIA on drawings/ standards/ specifications/ write-up.
 2) The bidder confirms that document is issued for information/ approval of Owner/ TPIA for the project implementation



TECHNICAL SPECIFICATION
OF
STEEL REINFORCED RUBBER
HOSE

CONTENTS

SI No.	DESCRIPTION
1.0	SCOPE
2.0	MATERIAL
3.0	DIMENSIONS & TOLERANCES
4.0	FEATURES
5.0	MARKING
6.0	PACKAGING
7.0	INSPECTION / DOCUMENTS

1.0 SCOPE

This present document covers the technical specification for the procurement of steel reinforced rubber hose, Type 4 used in distribution systems. It describes the general requirements, controls, tests, QA/QC examination and final acceptance criteria which need to be fulfilled.

This specification covers the requirements for steel reinforced rubber hose unless modified by this specification, requirements of IS: 9573 shall be valid.

2.0 MATERIAL

- i. Lining: - It shall be nitrile – butadiene rubber (NBR) or chloroprene rubber (CR) compound. It shall be smooth in bore, uniform in thickness and free from air blisters, porosity and splits.
- ii. Reinforcement material :- It shall have wire reinforcement in braided form in between the lining & cover.
- iii. Cover :- It shall be manufactured out of synthetic rubber compound resistant to abrasion, weather and natural gas. The cover color shall be orange.
- iv. The whole shall be consolidated by wrapping or any other suitable method and uniformly vulcanized to give good adhesion between reinforcement plies and the rubber lining of the cover.

3.0 DIMENSIONS & TOLERANCES

- i. Bore size

Nominal size (mm)	Minimum base diameter (mm)	Minimum bend radius (mm)
8 mm	7.9	95

The Nominal bore size of the hose shall be accordance to table # 1 of IS 9573 : 1998 shall be as given above table. It shall be tested/ checked as method defined in IS 4143

- ii. The Minimum thickness of lining & cover shall be 2 mm & 1 mm respectively.
- iii. Length of hose shall be as defined in M.R. & the tolerances on length shall be permitted $\pm 1\%$.

4.0 FEATURES

4.1 Mechanical properties

Tensile strength (Lining & cover) at break - 10 MPa (minimum)

Elongation (Lining & cover) in at break (%) - 200 & 250 respectively
(minimum)

4.2 Resistance of Lining to n-pentane

The n-pentane absorbed and the n-pentane extractable matter as determined Clause no. 5.4.3.2 of IS 9573: 1998 shall not exceed 10% & 5% respectively to the initial mass of lining.

4.3 Adhesion

The minimum adhesion between rubber lining & reinforcement, between layers of reinforcement and between reinforcement & cover shall be 2KN/m.

4.4 Low temperature flexibility

Flexible hose is conditioned at -40° C for at least 5 hrs. and then bent at 180° around a mandrel with a diameter 12 times the nominal bore diameter of the hose, no cracks or breaks shall be shown.

4.5 Flexibility of Hose

The hose shall be capable of being bent empty to the radius 95 mm without flattening and suffering structural damages.

4.6 Ozone resistance

It shall be carried out as per clause no. 5.5. of IS 9573: 1978

4.7 Hydrostatic test

All hoses shall be leak tightness tested at 2 Mpa for a period of 1 minutes and no leakage is permitted. This test shall be performed on each size of the hoses as per clause no. 5.5.5.1 of IS 9573: 1978.

4.8 Bursting pressure

It shall be carried out as per Clause 5.5.2 of IS 9573. The minimum burst pressure shall be 5 Mpa.

4.9 Grip strength test

The hose shall comply to the requirement of Clause no. 5.5.7 of IS 9573.

4.10 Burning behaviour

The burning test shall be carried out on hose as per clause no. 5.5.8 of IS 9573. The hose at least shall not burn till 45 second.

**5.0****MARKING**

Each hose shall be indelibly marked as follows:

- a) Manufacturer's name or trade mark., if any
- b) Nominal bore
- c) Batch no. / Lot no.
- d) Month and year of manufacturer
- e) Type of hose i.e. Type 4
- f) BIS marking

6.0 PACKAGING

Packing size to be mentioned to ensure uniformity in delivery conditions of the material being procured. Bidder shall submit the packaging details during offer and also complied with at the time of delivery.

7.0 INSPECTION / DOCUMENTS

- i. Inspection shall be carried out as per design codes/standards, Technical Specification and Inspection Plan/ Vendor's detailed QAP duly approved by owner/owner's representative.
- ii. For all tests purposes, the minimum time between vulcanization & testing shall be 16 h.
- iii. Owner representative or third party inspection agency appointed by Owner shall carry out random inspection during manufacturing/ final inspection.
- iv. Vendor shall furnish all the material test certificates, proof of approval/ license from specified authority as per specified standard, if relevant, internal test/ inspection reports as per Technical Specification, at the time of final inspection of each supply lot of material.
- v. Even after third party inspection, Owner reserves the right to select a sample of hose randomly from each manufacturing batch and have these independently tested. If the results of these tests fall outside the limits specified in Technical specification, then Owner reserves the rights to reject all production supplied from the batch.
- vi. Vendor shall prepare and submit the detail drawings of required steel reinforced rubber hose for approval by Owner before starting production.
- vii. For any control test or examination required under the supervision of TPIA/owner/owner's representative, latter shall be informed in writing one (1) week in advance by vender about inspection date & place along with production schedule.

 Rajasthan State Gas Limited			QAP STEEL REINFORCED RUBBER HOSES			QAP NO. Sheet 1 Prepared : Checked: Approved :			
Sr. No.	INSPECTION AND TESTING	QUANTUM OF CHECK	PROCEDURE	ACCEPTANCE CRITERIA AND CERTIFICATE	FORMAT OF RECORD	INSPECTION			
						Vendor	TPIA	Client	REMARKS
1	Materials (Chemical Properties)	IS :9573	Manufacturer Std.	IS :9573	Material Test certificate	P	R	R	
2	Dimensional check	IS : 9573	-	IS :9573	INSPECTION TEST REPORT	P	W	R	
3	Physical Properties (Tensile Strength and Elongation)	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
4	Accelerated aging test	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
5	Resistance of lining to N-Pentane	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
6	Adhesion	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
7	Low Temperature Flexibility	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
8	Flexibility	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
9	Ozone Resistance	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
10	Hydrostatic Test	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
11	Bursting Pressure Test	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
12	Grip Strength Test	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
13	Burning Behaviour test	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
14	Marking	IS : 9573	IS : 9573	IS : 9573	INSPECTION TEST REPORT	P	W	R	
15	Final Documentation		Document pertaining to all tests specified in this QAP	Document pertaining to all tests specified in this QAP		P	H	R	

LEGENDS: R - REVIEW, W - Witness, H-Hold, P - Perform, TPIA - Third Party Agency (Owner / Owner's Representative)

Note:-

- The Above Testing and acceptance criteria are minimum requirements, however, manufacturer shall ensure that the product shall also comply to the additional requirements as per TS.
- The supplier shall submit their own details ITP prepared on the basis of above/ Technical specification for approval of Owner/Owner's representative.
- Owner/Owner representative shall review/approve all the documents related to ITP/Quality manuals/Drawings etc. submitted by supplier.
- Owner / Owner's representative including TPIA will have to right to inspect any activity of manufacturing at any time
- All reference Codes/ Standards, Documents. P.O. Copies shall be arranged by vendor / Supplier for reference of TPIA/Client at the time of Inspection
- At the time of delivery of material in stores, vendor will submit copy of all related document of inspection along with release note & MTC.

SPECIFICATION FOR HEALTH, SAFETY AND ENVIRONMENT (HSE) MANAGEMENT

SPECIFICATION NO.:

C O N T E N T S

<u>SL.NO.</u>	<u>DESCRIPTION</u>
1.0	SCOPE
2.0	REFERENCES
3.0	REQUIREMENT OF HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT SYSTEM TO BE COMPLETED BY BIDDERS.
4.0	DETAILS OF HSE MANAGEMENT SYSTEM BY CONTRACTOR
5.0	RECORDS
	ANNEXURE-A
	ANNEXURE-B
	ANNEXURE-C
	ANNEXURE-D
	ANNEXURE-E

1.0

SCOPE

This specification establishes the Healthy, Safety and Environment (HSE) management requirement to be complied with by the Contractors during construction.

This specification is not intended to replace the necessary professional judgment needed to design & implement an effective HSE system for construction activities and the contractor is expected to exceed requirements given in this specification.

Requirement stipulated in this specification shall supplement the requirement of HSE management given in relevant Act (S)/ legislations. General Condition of Contract (GCC) Special Condition of Contract (SCC) and Job Specifications. Where different documents stipulate different requirements, the most stringent shall be adopted.

2.0

REFERENCES

This document should be read in conjunction with following:

- General Conditions of Contract (GCC)
- Special Conditions of Contract (SCC)
- Building and other construction workers (regulation of employment and condition of service) Act, 1996
- Job Specifications
- Relevant IS Codes (refer Annexure-A)
- Reporting Formats (refer Annexure-B)
- Statutory requirements

3.0

REQUIREMENT OF HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT SYSTEM TO BE COMPLETED BY BIDDERS.

3.1

Management Responsibility

3.1.1

The Contract should have a document HSE policy to cover commitment of the organization to ensure health, safety and environment aspects in their line of operations

3.1.2

The HSE management system of the Contractor shall cover HSE requirement including but not limited to what specified under clause 1.0 & 2.0 mentioned above

3.1.3

Contractor shall be fully responsible for planning and implementing HSE requirement to the satisfaction of the company. Contractor as a minimum requirement shall designate/deploy the following to co-ordinate the above:

No. Of workers deployed

Up to 250

- Designate one safety supervisor who will guide the workers from time to time, as well as impart training basic guidelines at least weekly once.

- Above 250 & upto 500 - Deploy one qualified and experienced safety Engineer/ Officer who will guide the workers from time to time as well as impart basic guideline & training at least weekly once. He / She shall possess a recognized Degree in any branch of engineering or technology or architecture and had a post qualification construction experience of minimum two years or possess a recognized Diploma in any branch of engineering or technology or Graduate in Science stream and had a post qualification construction experience of minimum five years.
- Above 500 - One additional safety engineer/Officer (for every 500 or less) whose function Will be as mentioned above

Contractor shall indemnify and hold harmless OWNER/TPIA & their representative's from any and all liabilities arising out of non-fulfillment of HSE requirements.

Above is the minimum requirement and the Contractor shall ensure physical presence of a safety personnel at each place where Hot work permit is required. No work shall be started at site until above safety personnel are physically present at site. The contractor shall submit a safety organogram clearly indicating the lines of responsibility and reporting system. He shall furnish Bio-Data/Resume/Curriculum Vitae of the safety personnel he intends to mobilize, at least 1 month before the intended mobilization, for TPIA/Owner's approval.

- 3.1.4 The Contractor shall ensure that the Health, Safety and Environment (HSE) requirements are clearly understood & faithfully implemented at all levels, at each and every site/ work place.
- 3.1.5 The Contractor shall promote and develop consciousness for Health, Safety and Environment among all personnel working for the Contractor. Regular awareness programs and fabrication shop/work site meeting shall be arranged on HSE activities to cover hazards involved in various operations during construction.
- 3.1.6 Arrange suitable first aid measures such as First Aid Box, trained personnel to give First Aid, Stand by Ambulance or Vehicle and install fire protection measures such as: adequate number of steel buckets with sand and water and adequate fire extinguishers to the satisfaction of OWNER/ TPIA. In case the number of workers exceeds 500, the Contractor shall position an ambulance /vehicle on full time basis very close to the worksite.
- 3.1.7 The Contractor shall evolve a comprehensive planned and documented system for implementation and monitoring of the HSE requirements. This shall submitted to

OWNER & TPIA for approval well in advance, prior to start of work. The monitoring for implementation shall be done by regular inspection and compliance to the observations thereof. The Contractor shall get similar HSE requirements implemented at his sub-contractor (s) work site/ Office. However, compliance of HSE requirement shall be the sole responsibility of the Contractor. Any review/ approval by OWNER/ TPIA shall not absolve the Contractor of his responsibility/ liability in relation to all HSE requirements.

3.1.8 Non-Conformance on HSE by the Contractor (including his Sub-contractors) as brought out during review/ audit by TPIA/ OWNER representative shall be resolved forthwith by Contractor. Compliance report shall be possibility submitted to TPIA / OWNER at the earliest.

3.1.9 The Contractor shall ensure participation of his Resident Engineer/Site-in-Charge in the Safety Committee/HSE Committee meetings arranged by OWNER/ TPIA. The compliance of any observation shall be arranged urgently. Contractor shall assist OWNER/ TPIA to achieve the targets set by them on HSE during the project implementation.

The contractor shall ensure that his staff members & workers (permanent as well casual) shall not be in a state of intoxication during working hours and shall abide by any law relating to consumption & possession of intoxicating drinks or drugs in force. Awareness about local laws on this issue shall form part of the Induction Training.

The contractor shall ensure that all personnel working for him comply with No-smoking requirements of the owner as notified from time to time. Cigarettes, lighters, auto ignition tools or appliances shall not be allowed inside the plant complex. Smoking shall be permitted only inside smoking booths expressly designated & authorized by the Owner/TPIA.

3.1.10 The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliance or continuous failure in implementation of any of HSE provisions; OWNER/ TPIA may impose stoppage of work without any Cost & Time implication to Owner and/or impose a suitable penalty for non-compliance with a notice of suitable period, upto a cumulative limit of 1.0% (one percent) of Contract value with a ceiling of Rs. 10 lakhs.

0.2 % (Zero decimal two percent) of the contract value for LSTK, EPC, EPCC or Package contracts with an overall ceiling of Rs. 1,00,00,000/- (Rupees one crore).

S. No.	Violation or HSE norms	Penalty Amount
1.	For not using personal protective equipment (Helmet, Shoes, Goggles, Gloves, Full body harness, Face shield, Boiler suit, etc.)	Rs. 250/- per day / item / person
2.	Working without Work Permit Clearance	/ Rs.5,000/- per occasion

S. No.	Violation or HSE norms	Penalty Amount
3.	Unsafe electrical practices (not installing ELCB, using poor joints of cables, using naked wire without top plug into socket, laying wire / cables on the roads, electrical jobs by incompetent person, etc.)	Rs.3,000/- per item per day.
4.	Working at height without full body harness, using non-standard / rejected scaffolding and not arranging fall protection arrangement as required like Safety Nets.	Rs.1,000/ per case per day.
5.	Unsafe handling of compressed gas cylinders (No trolley, jubilee clips double gauge regulator, improper storage / handling).	Rs. 100/- per item per day
6.	Use of domestic LPG for cutting purpose.	Rs.1,000/-per
7.	No fencing / barricading of excavated areas.	occasion Rs.1,000/-
8.	Not providing shoring / strutting / proper slope and not keeping the excavated earth at least 1.5 M away from excavated area.	per occasion Rs.5,000/-per
9.	Non display of caution boards, list of hospitals, emergency services available at work locations.	occasion
10.	Traffic rules violations like over speeding of vehicles, rash driving, wrong parking, not using seat belts, vehicles not fitted with reverse warning alarms.	Rs.500/- per occasion Rs.1,000/- per occasion
11.	Absence of Contractor's top most executive at site in the safety meetings whenever called by TPIA / Owner	Rs.1,000/- per occasion
12.	Failure to maintain safety records by Contractor Safety personnel.	Rs.1,000/- per month.
13.	Failure to conduct daily safety site inspection, HSE meeting and HSE audit at predefined frequencies.	Rs.1,000/- per occasion
14.	Failure to submit the monthly HSE report by 5 th of subsequent month to Engineer- in-Charge.	Rs. 1,000/- per occasion and Rs. 100/- per day for further delay.
15.	Poor House Keeping	Rs.1,000/- per occasion
16.	Failure to report & follow up accident (including Near Miss) reporting system.	Rs. 10,000/- per occasion

S. No.	Violation or HSE norms	Penalty Amount
17.	Degradation of environment (not confining toxic spills oil / lubricants onto ground)	Rs.1,000/- per occasion
18.	Not medically examining the workers before allowing them to work at height, not providing ear muffs while allowing them to work in noise polluted areas, made them to work in air polluted areas without respiratory protective devices, etc.	Rs.1,000/- per occasion
19.	Violation of any other safety condition as per job HSE plan, work permit and HSE conditions of contract (using crowbar on cable trenches, improper welding booth, not keeping fire extinguisher ready at hot work site, unsafe rigging practices, non- availability of First-Aid box, etc.)	Rs.1,000/- per occasion
20.	Any violation not covered above.	To be decided by TPIA/ Owner

This penalty shall be in addition to all other penalties specified elsewhere in the contract. The decision of imposing stoppage of work, its extent & monetary penalty shall rest with TPIA/OWNER & binding on the Contractor.

3.1.11 All fatal accidents and other personnel accidents shall be investigated by a team of Contractor's senior personnel for root cause and recommend corrective and preventive actions. Findings shall documented and suitable actions taken to avoid recurrences shall be communicated to OWNER / TPIA shall have the liberty to independently investigate such occurrences and Contractor shall extend all necessary help and co-operation in this regard. TPIA / Owner shall have to right to share the content of this report with the outside world.

3.2 House Keeping

3.2.1 Contractor shall ensure that a high degree of house keeping is maintained and shall ensure the followings:

- All surplus earth and debris are removed/disposed off from the working site to identified location (s).
- Unused/Surplus Cables Steel items and steel scrap lying scattered at different places within the working areas are removed to identified location (s).
- All wooden scrap, empty wooden cable drums and other combustible packing materials shall be removed from work place to identified location(s).

- d. Roads shall be kept clear and materials like pipes, steel, sand, boulders, concrete chips and bricks, etc. shall not be allowed in the roads to obstructs free movement of men & machineries.
- e. Fabricated steel structurals, pipes & piping materials shall be stacked properly for erection.
- f. Water logging on rods shall not be allowed.
- g. No parking of trucks/ trolleys, cranes and trailers etc. shall be allowed on of roads, which may obstruct the traffic movements.
- h. Utmost care shall be taken to ensure over all cleanliness and proper up keep of the working areas.
- i. Trucks carrying sand, earth and pulverized materials etc. shall be covered while moving within the plant areas.
- j. The contractor shall ensure that the atmosphere in plant area and on roads is free from particulate matter like dust, sand, etc. by keeping the top surface wet for ease in breathing.
- k. At least two exits for any unit area shall be assured at all times.

3.3

Healthy, Safety and Environment

- a) The Contractor shall provide safe means of access to any working place including provision of suitable and sufficient scaffolding at various stages during all operations of the work for the safety of his workmen, and OWNER/ TPIA. Contractor shall ensure deployment of appropriate equipment and appliances for adequate safety and healthy of the workmen and protection of surrounding areas.

Contractor shall ensure identification of all Occupational Health, Safety & Environmental hazards in the type of work he is going to undertake and enlist mitigation measures. Contractor shall carry out Job Safety Analysis (JSA) specifically for high risk jobs like working at height & in confined space, deep excavations, radiography jobs, electrical installations, blasting operations, demolishing / dismantling activities, welding / gas cutting jobs and submit the findings to TPIA / Owner. The necessary HSE measures devised shall be in place prior to start of an activity by the contractor.

- b) The Contractor shall ensure that all their staff workers including their sub-Contractor (s) shall wear Safety Helmet and Safety shoes. Contractor shall also ensure use of safety belt, protective goggles, gloves etc. by the personnel as per jobs requirements. All these gadgets shall conform to relevant IS specification equivalent.

The Contractor shall ensure that all their staff, workers and visitors including their sub-contractor(s) have been issued (records to be kept) & wear appropriate PPEs like nape strap type safety helmets preferably with head & sweat band with $\frac{3}{4}$ " cotton chin strap (made of industrial HDPE), safety shoes with steel toe cap and antiskid sole, full body harness (CE marked and conforming to EN361), protective goggles, gloves, ear muffs, respiratory protective devices, etc. All these gadgets shall conform to applicable IS Specifications / CE or other applicable international standards.

Owner may issue a comprehensive color scheme for helmets to be used by various agencies. The Contractor shall follow the scheme issued by the owner. All Safety / Fire personnel shall preferably wear red colour helmet so that workmen can approach them for guidance during emergencies.

For shot blasting, the usage of protective face shield and helmets, gauntlet and protective clothing is mandatory.

For offshore jobs/contracts, contractor shall provide PPEs (new) to TPIA & Owner's personnel, at his (contractor's) cost. All personnel shall wear life jacket at all time.

An indicative list of HSE standards/codes is given under Appendix-A.

The contractor shall issue height permit for working at height after verifying and certifying the checkpoints as specified in the attached permit (Format No. HSE-6). He shall also undertake to ensure compliance to the conditions of the permit during the currency of the permit including adherence to personal protective Equipments.

The permit shall be issued initially for one week or expected duration of an activity and extended further for the balance duration. This permit shall be applicable in areas where specific clearance from Owner's operation Deptt. / Safety Deptt. is not required. TPIA field Engineers / Safety Officers / Area Coordinators may verify and counter sign this permit (as an evidence of verification) during the execution of the job.

In case work is undertaken without taking sufficient precautions as given in the permit, TPIA Engineers may cancel the permit and stop the work till satisfactory compliance is arranged. Contractors are expected to maintain a register for issuance of permit and extensions thereof including preserving the used permits for verification during audits etc.

Contractor shall arrange (at his cost) and ensure use of Fall Arrester Systems by his workers. Fall arresters are to be used while climbing / descending tall structures. These arresters should lock automatically against the anchorage line, restricting free fall of the user. The device is to be provided with a double security opening system to ensure safe attachment or release of the user at

Any point of rope. In order to avoid shock, the system should be capable of keeping the person in vertical position in case of a fall.

Contractor shall ensure that Full body harnesses conforming EN361 and having authorized CC marking is used by all personnel while working at height. The lanyards and life lines should have enough tensile strength to take the load of the worker in case of a fall. One end of the lanyard shall be firmly tied with the harnesses and the other end with life line. The harness should be capable of keeping the workman vertical in case of a fall, enabling him to rescue himself.

Contractor shall provide Roof Top Walk Ladders for carrying out activities on sloping roofs in order to reduce the chances of slippages and falls.

- c) Contractor shall ensure that a proper Safety Net System shall be used at appropriate locations. The safety net shall be located not more than 30 feet (9.0 metres) below the working surface at site to arrest or to reduce the consequences of possible fall of persons working at different heights.
- d) Contractor shall ensure that flash back arrestors conforming to BS:6158 or equivalent are installed on all gas cylinders as well as at the torch end of the gas hose, while in use. All cylinders shall be mounted on trolleys and provided with a closing key. The burner and the hose placed downstream of pressure reducer shall be equipped with Flash Back Arrestor / Non Return Valve device. The hoses for acetylene and oxygen cylinders must be of different colours. Their connections to cylinders and burners shall be made with a safety collar. At end of work, the cylinders in use shall be closed and hoses depressurized. All welding machines shall have effective earthing. In order to help maintain good housekeeping, and to reduce fire hazard, live electrode bits shall be contained safely and shall not be thrown directly on the ground.
- e) The Contractor shall assign to his workmen, tasks commensurate with their qualification, experience and state of health for driving of vehicles, handling and erections of materials and equipment's. All lifting Equipments shall be tested certified for its capacity before use. Adequate and suitable lighting at every work place and approach there to shall be provided by the contractor before starting the actual work/ operation at night.

Contractor shall ensure installation of Safe Load Indicator (SLI) on all cranes (while in use) to minimize overloading risk. SLI shall have capability to continuously monitor and display the load on the hook, and automatically compare it with the rated crane capacity at the operating condition of the crane. The system shall also provide visual and audible warnings at set capacity levels to alert the operator in case of violations.

The contractor shall be responsible for safe operations of different Equipments mobilized and used by him at the workplace like transport

vehicles, engines, cranes, mobile ladders, scaffoldings, work tools, etc.

- f) Hazardous and/or toxic material such as solvent coating or thinners shall be stored in appropriate containers.
- g) All hazardous materials shall be labeled with the name of the materials, the hazards associated with its use and necessary precautions to be taken.

The work place shall be checked prior to start of activities to identify the location, type and condition of any asbestos materials which could be disturbed during the work. In case asbestos material is detected, usage of appropriate PPEs by all personnel shall be ensured and the matter shall be reported immediately to TPIA/ Owner.

- h) Contractor shall ensure that during the performance of the work all hazards to the health of personnel have been identified assessed and eliminated.
- i) Chemical spills shall be contained & cleaned up immediately to prevent further contamination.
- j) All personnel exposed to physical agents such as ionizing or non-ionizing radiation ultraviolet rays or similar other physical agents shall be provided with adequate shielding or protection commensurate with type of exposure involved. For ionizing radiation, requirements of Bhabha Atomic Research Centre (BARC)/ Atomic Energy Regulatory Board (AERB) shall be followed.
- k) Where contract or exposure of hazardous materials could exceed limits or could otherwise have harmful affects, appropriate personal protective equipment's such as gloves, goggles, aprons, chemical resistant clothing and respirator shall be used.
- l) Contractor shall ensure the following facilities at work sites:
 - l) A Crèche where 10 or more female workers are having children below the age of 6 years.

II) Reasonable Canteen facilities are made available at appropriate location depending upon site conditions.

- m) Suitable facilities for toilet, drinking water, proper lighting shall be provided at site and labor camps, commensurate with applicable Laws/Legislation.
- n) Contractor shall ensure storage and utilization methodology of material that are not detrimental to the environment. Wherever required Contractor shall ensure that only the environment friendly material are selected.

Emphasize on recycling of waste materials such as metals, plastics, glass, paper, oil & solvents. The waste that can not be minimized, reused or

recovered shall be stored and disposed of safely. In no way, toxic spills shall be allowed to percolate into the ground. The contractor shall not use the empty areas for dumping the wastes.

- o) All person deployed at site shall be knowledgeable of and comply with the environmental laws, rules & regulation relating to the hazardous materials substance and wastes. Contractor shall not dump, release or otherwise discharge or dispose off any such materials without the authorization of OWNER/ TPIA.

Suitable scaffoldings shall be provided to workmen for all works that cannot be safely done from the ground or from solid construction except such short period work that can be safely done using ladders. When a ladder is used, an extra workman shall be engaged for holding the ladder.

The contractor shall ensure that the scaffolds used during construction activities shall be strong enough to take the designed load. Owner / TPIA reserves the right to ask the contractor to submit certification and or design calculations from his Engineering regarding load carrying capacity of the scaffoldings.

All scaffolds shall be inspected by a Scaffolding Inspector of the contractor. He shall paste a GREEN tag on each scaffold found safe and a RED tag on each scaffold found unsafe. Scaffolds with GREEN tag only shall be permitted to be used and RED ones shall immediately be removed from the site.

All electrical installations / connections shall be carried out as per the provisions of latest revision of following codes/standards, in addition to the requirements of Statutory Authorities and IE / applicable international rules & regulations:

- OISO SID 173 :Fire prevention & protection system for electrical installations
- SP 30 (BIS) :National Electric Code

All electrical installations shall be approved by the concerned statutory authorities.

- The contractor shall meet the following requirements:
 - i) Ensure that electrical systems and equipment including tools & tackles used during construction phase are properly selected, installed, used and maintained as per provisions of the latest revision of the Indian Electrical / applicable international regulations.
 - ii) Shall deploy qualified & licensed electricians for proper & safe installation and for regular inspection of construction power

distribution system / points including their earthing. A copy of the license shall be submitted to TPIA / Owner for records. Availability of at least one competent licensed electrician shall be ensured at site round the clock to attend to the normal / emergency jobs.

- iii) All switchboards / welding machines shall be kept in well-ventilated & covered shed. The shed shall be elevated to avoid water logging. No flammable materials shall be used for constructing the shed. Also flammable materials shall not be stored in and around electrical equipment / switchboard. Adequate clearances and operational space shall be provided around the equipment.
 - iv) Fire extinguishers and insulating mats shall be provided in all power distribution centers.
 - v) Temporary electrical equipment shall not be employed in hazardous area without obtaining safety permit.
 - vi) Proper house keeping shall be done around the electrical installations.
 - vii) All temporary installations shall be tested before energising, to ensure proper earthing, bonding, suitability of protection system, adequacy of feeders/cables etc.
 - viii) All welders shall use hand gloves irrespective of holder voltage.
 - ix) Multilingual (Hindi, English and local language) caution boards, shock treatment charts and instruction plate containing location of isolation point for incoming supply, name & telephone No. of contact person in emergency shall be provided in substations and near all distribution boards / local panels.
 - x) Operation of earth leakage device shall be checked regularly by temporarily connecting series test lamp (2 bulbs of equal rating connected in series) between phase and earth.
 - xi) Regular inspection of all installations (at least once in a month)
- The following features shall also be ensured for all electrical installations during construction phase by the contractor:
 - i) Each installation shall have a main switch with a protective device, installed in an enclosure adjacent to the metering point. The operating height of the main switch shall not exceed 1.5 M. The main switch shall be connected to the point of supply by means of armoured cable.
 - ii) The outgoing feeders shall be double or triple pole switches with fuses / MCBs. Loads in a three phase circuit shall be balanced as far as

possible and load on neutral should not exceed 20% of load in the phase.

- iii) The installation shall be adequately protected against overload, short circuit and earth leakage by the use of suitable protective devices. Fuses wherever used shall be HRC type. Use of rewirable fuses shall be strictly prohibited. The earth leakage device shall have an operating current not exceeding 30 mA.
- iv) All connections to the hand tools / welding receptacles shall be taken through proper switches, sockets and plugs.
- v) All single phase sockets shall be minimum 3 pin type only. All unused sockets shall be provided with socket caps.
- vi) Only 3 core (P+N+E) overall sheathed flexible cables with minimum conductor size of 1.5 mm² copper shall be used for all single phase hand tools.
- vii) Only metallic distribution boxes with double earthing shall be used at site. No wooden boxes shall be used.
- viii) All power cables shall be terminated with compression type cable glands. Tinned copper lugs shall be used for multistrand wires / cables.
- ix) Cables shall be free from any insulation damage.
- x) Minimum depth of cable trench shall be 750 mm for MV & control cables and 900 mm for HV cables. These cables shall be laid over a sand layer and covered with sand, brick & soil for ensuring mechanical protection. Cables shall not be laid in waterlogged area as far as practicable. Cable route markers shall be provided at every 25 M of buried trench route. When laid above ground, cables shall be properly cleated or supported on rigid poles of at least 2 M high. Minimum head clearance of 6 meters shall be provided at road crossings.
- xi) Under ground road crossings for cables shall be avoided to the extent feasible. In any case no under ground power cable shall be allowed to cross the roads without pipe sleeve.
- xii) All cable joints shall be done with proper jointing kit. No taped / temporary joints shall be used.
- xiii) An independent earthing facility should preferably be established within the temporary installation premises. All appliances and equipment shall be adequately earthed. In case of armoured cables, the armour shall be bonded to the earthing system.
- xiv) All cables and wire rope used for earth connections shall be terminated through tinned copper lugs.
- xv) In case of local earthing, earth electrodes shall be buried near

the supply point and earth continuity wire shall be connected to local earth plate for further distribution to various appliances. All insulated wires for earth connection shall have insulation of green colour.

- xvi) Separate core shall be provided for neutral. Earth / Structures shall not be used as a neutral in any case.
- xvii) ON/OFF position of all switches shall be clearly designated / painted for easy isolation in emergency.

The contractor shall identify all operations that can adversely affect the health of its workers and issue & implement mitigation measures.

For surface cleaning operations, sand blasting shall not be permitted even if not explicitly stated elsewhere in the contract.

To eliminate radiation hazard, Tungsten electrodes used for Gas Tungsten Arc Welding shall not contain Thorium.

Appropriate respiratory protective devices shall be used to protect workmen from inhalation of air borne contaminants like silica, asbestos, gases, fumes, etc.

Workmen shall be made aware of correct methods for lifting, carrying, pushing & pulling of heavy loads. Wherever possible, manual handling shall be replaced by mechanical lifting Equipments.

For jobs like drilling / demolishing / dismantling where noise pollution exceeds the specified limit of 85 decibels, ear muffs shall be provided to the workers.

To avoid upper limb disorders and backaches, Display Screen Equipments' workplace stations shall be carefully designed & used with proper sitting postures. Power driven hand-held tools shall be maintained in good working condition to minimize their vibrating effects and personnel using these tools shall be taught how to operate them safely & how to maintain good circulation in hands.

The contractor shall arrange health check up for all the workers at the time of induction. Health check may have to be repeated if the nature of duty assigned to him is changed necessitating health check or doubt arises about his wellness. TPIA / Owner reserve the right to ask the contractor to submit test reports.

Weather Protection

Contractor shall take appropriate measures to protect workers from severe storms, solar radiations, poisonous gases, dust, etc. by ensuring proper usage of PPEs like Sun glasses, Sun screen lotions, respirators, dust masks, etc. and rearranging / planning the construction activities to suit the weather conditions.

Communication

All persons deployed at the work site shall have access to effective means of communication so that any untoward incident can be reported immediately and

assistance sought by them.

All health & safety information shall be communicated in a simple & clear language easily understood by the local workforce.

Unsuitable Land Conditions

Contractor shall take appropriate measures and necessary work permits / clearances if work is to be done in or around marshy areas, river crossings, mountains, monuments, etc.

Under Water Inspection

Contractor shall ensure that boats and other means used for transportation, surveying & investigation works shall be certified seaworthy by a recognized classification society. It shall be equipped with all life saving devices like life jackets, adequate fire protection arrangements and shall possess communication facilities like cellular phones, wireless, walkie-talkie. All divers used for seabed surveys, underwater inspections shall have required authorized license, suitable life saving kit. Number of hours of work by divers shall be limited as per regulations. TPIA / Owner shall have the right to inspect the boat and scrutinize documents in this regard.

TOOL BOX MEETING (TBM)

Contractor shall conduct daily TBM with workers prior to start of work and shall maintain proper record of the meeting. A suggested format is given below. The TBM is to be conducted by the immediate supervisor of the workers.

TOOLBOX MEETING RECORDING SHEET

Date & Time		
Subject		
Presenter		
Hazards involved		
Precautions to be taken		
Worker's Name	Signature	Section
Remarks, if any		

The topics during TBM shall include

- Hazards related to work assigned on that day and precautions to be taken.
- Any forthcoming HSE hazards / events / instruction / orders, etc.

The above record can be kept in local language, which workers can read. These records shall be made available to TPIA / Owner whenever demanded.

TRAINING

Contractor shall ensure that all his personnel possess appropriate training to carry out the assigned job safely. The training should be imparted in a language understood by them and should specifically be trained about

- Potential hazards to which they may be exposed at their workplace
- Measures available for prevention and elimination of these hazards

topics during training shall cover, at the minimum;

- Education about hazards and precautions required
- Emergency and evacuation plan
- HSE requirements
- Fire fighting and First-Aid
- Use of PPEs
- Local laws on intoxicating drinks, drugs, smoking in force

Records of the training shall be kept and submitted to TPIA / Owner whenever demanded.

For offshore and jetty jobs, contractor shall ensure that all personnel deployed have undergone a structured sea survival training including use of lifeboats, basket landing, use of radio communication etc. from an agency acceptable to Owner /TPIA.

INSPECTION

The contractor shall carryout daily HSE inspection and record observations at a central location. These inspection records shall be freely accessible to Owner / TPIA representatives. The contractor shall also assist Owner / TPIA representatives during the HSE inspections conducted by them.

ADDITIONAL SAFETY REQUIREMENTS FOR WORKING INSIDE A RUNNING PLANT

As a minimum, the contractor shall ensure adherence to following safety requirements while working in or in the close vicinity of an operating plant:

- a) Contractor shall obtain permits for Hot work, Cold work, Excavation and Confined Space from Owner in the prescribed format.
- b) The contractor shall monitor, record and compile list of his workers entering the operational plant/unit each day and ensure & record their return after completing the job.
- c) Contractor's workers and staff members shall use designated entrances and proceed by designated routes to work areas only assigned to them. The workers shall not be allowed to enter units' area, tanks area, pump rooms, etc. without work authorization permit.
- d) Work activities shall be planned in such a way so as to minimize the disruption of other activities being carried out in an operational plant / unit and activities of other contractors.
- e) The contractor shall submit a list of all chemicals / toxic substances that are intended to be used at site and shall take prior approval of the Owner.
- f) Specific training on working in a hydrocarbon plant shall be imparted to the work force and mock drills shall be carried out for Rescue operations / First-Aid measures.
- g) Proper barricading / cordoning of the operational units / plants shall be done before starting the construction activities. No unauthorized person shall be allowed to trespass. The height and overall design of the barricading structure shall be finalized in consultation with the Owner and shall be got approved from the Owner.
- h) Care shall be taken to prevent hitting underground facilities such as electrical cables, hydrocarbon piping during execution of work.
- i) Barricading with water curtain shall be arranged in specific/critical areas where hydrocarbon vapors are likely to be present such as near horton spheres or tanks. Positioning of fire tenders (from owner) shall also be ensured during execution of critical activities.

- j) Emergency evacuation plan shall be worked out and all workmen shall be apprised about evacuation routes. Mock drill operations may also be conducted.
- k) Flammable gas test shall be conducted prior to any hot work using appropriate measuring instruments. Sewers, drains, vents or any other gas escaping points shall be covered with flame retardant tarpaulin.
- l) Respiratory devices shall be kept handy while working in confined zones where there is a danger of inhalation of poisonous gases. Constant monitoring of presence of Gas / Hydrocarbon shall be done.
- m) Clearance shall be obtained from all parties before starting hot tapping, patchwork on live lines and work on corroded tank roof.
- n) Positive isolation of line/equipment by blinding for welding/cutting/grinding shall be done. Closing of valve will not be considered sufficient for isolation.
- o) Welding spatters shall be contained properly and in no case shall be allowed to fall on the ground containing oil. Similar care shall be taken during cutting operations.
- p) The vehicles, cranes, engines, etc. shall be fitted with spark arresters on the exhaust pipe and got it approved from Safety Department of the Owner.
- q) Plant air should not be used to clean any part of the body or clothing or use to blow off dirt on the floor.
- r) Gas detectors should be installed in gas leakage prone areas as per requirement of Owner's plant operation personnel.
- s) An experienced full time safety personnel shall be exclusively deployed to monitor safety aspects in running plants.

HSE PROMOTION

The contractor shall encourage his workforce to promote HSE efforts at workplace by way of organizing workshops / seminars / training programmes, celebrating HSE awareness weeks & National Safety Day, conducting quizzes & essay competitions, distributing pamphlets, posters & material on HSE, providing incentives for maintaining good HSE practices and granting bonus for completing the job without any lost time accident.

4.0 DETAILS OF HSE MANAGEMENT SYSTEM BY CONTRACTOR

4.1 On Award of Contract

The Contractor shall prior to start of work submit his Health, Safety and Environment Manual of procedure and HSE Plans for approval by OWNER/TPIA. The Contractor shall participate in the pre-start meeting with OWNER/TPIA to finalize HSE plans including the following.

- Job procedure to be followed by Contractor for activities covering Handling of equipment's, Scaffolding, Electric Installation, describing the risks involved, actions to be taken and methodology for monitoring each.
- Organizations structure along with responsibility and authority records/reports etc. on HSE activities.

4.2 During job execution

4.2.1 Implement approved Health, Safety and Environment management procedure including but not limited to as brought out under para 3.0. Contractor shall also ensure to:

- Arrange workmen compensation insurance, registration under ESI Act, third party liability insurance etc. as applicable.
- Arrange all HSE permits before start of activities (as applicable) like hot work, confined space, work at heights, storage of Chemicals/explosives materials and its use and implement all precautions mentioned therein
- Submit timely the completed check list on HSE activities, Monthly HSE report, accident report, investigation report, etc. as per OWNER/TPIA requirements. Compliance of instructions on HSE shall be done by Contractor and informed urgently to OWNER/TPIA.
- Ensure that resident Engineers/Site-In-Charge of the Contractor shall attend all the Safety Committee/HSE meeting arranged by OWNER/TPIA only in case of his absence from site, a second senior most person shall be nominated by him in advance and communicated to OWNER/TPIA.
- Display at site office and work locations caution boards, list of hospitals for emergency services available.
- Provide posters, banners, for safe working to promote safety consciousness
- Carry out audits/inspection at sub Contractor work as per approved HSE documents & submit the reports for OWNER/TPIA review.

- Assist in HSE audits by OWNER/ TPIA and submit compliance report.
- Generate & submit HSE records/ reports as per HSE Plan.
- Appraise OWNER/ TPIA on HSE activities at site.

5.0

RECORDS

At the minimum, the contractor shall maintain/ submit HSE records in the following reporting formats:

1.	Monthly HSE Checklist cum compliance report	HSE-1
2.	Accident / Incident Report	HSE-2
3.	Supplementary Accident / Incident Investigation report	HSE-3
4.	Near Miss Incident Report	HSE-4
5.	Monthly HSE Report	HSE-5
6.	Permit for working at height	HSE-6
7.	Permit for working in confined space	HSE-7
8.	Permit for radiation work	HSE-8
9.	Permit for demolishing / dismantling	HSE-9

ANNEXURE-A

A. I.S. CODES ON HSE

SP:53	Safety code for the use, Care and protection of hand operated tools.
IS: 818	Code of practice for safety and health requirements in electric and gas welding and cutting operations
IS: 1179	Eye and Face precautions during welding, equipment etc.
IS: 1860	Safety requirements for use, care and protection of abrasive grinding wheels.
IS: 1989(Part-I & II)	Leather safety boots and shoes
IS: 2925	Industrial Safety Helmets
IS: 3016	Code of practice for fire safety precautions in welding and cutting operations.
IS: 3043	Code of practice for earthing.
IS: 3764	Code of safety for excavation work
IS: 3786	Methods for computation of frequency and severity rates for industrial injuries and classification of industrial accidents.
IS: 3996	Safety Code of scaffolds and ladders.
IS: 4082	Recommendation on stacking and storage of construction materials and components at site.
IS: 4770	Rubber gloves for electrical purposes
IS: 5121	Safety code for piling and other deep foundations
IS: 5216 (Part-I)	Recommendations on Safety procedures and practices in electrical works
IS: 5557	Industrial and Safety rubber lined boots.
IS: 5983	Eye protectors
IS:6519	Selection, care and repair of Safety footwear
IS: 6994 (Part-I)	Industrial Safety Gloves (Leather & Cotton Gloves)
IS: 7293	Safety Code for working with construction Machinery

IS: 8519	Guide for selection of industrial safety equipment for body protection
IS: 9167	Ear protectors
IS: 11006	Flash back arrestor (Flame arrestor)
IS:11016	General and safety requirements for machine tools and their operation
IS: 11057	Specification for Industrial safety nets
IS: 11226	Leather safety footwear having direct moulded rubber sole
IS: 11972	Code of practice for safety precaution to be taken when entering a sewerage system
IS: 13367	Code of practice-safe use of cranes
IS: 13416	Recommendations for preventive measures against hazards at working place

B. INTERNATIONAL STANDARDS ON HSE

Safety Glasses	:	ANSI Z 87.1, ANSI ZZ 87.1, AS 1337, BS 2092, BS 1542, BS 679, DIN 4646 / 58211
Safety Shoes	:	ANSI Z 41.1, AS 2210, EN 345
Hand Gloves	:	BS 1651
Ear Muffs	:	BS 6344, ANSI S 31.9
Hard Hat	:	ANSI Z 89.1 / 89.2, AS 1808, BS 5240, DIN 4840
Goggles	:	ANSI Z 87.1
Face Shield	:	ANSI Z 89.1
Breathing Apparatus	:	BS 4667,
NIOSH Welding & Cutting	:	ANSI Z 49.1
Safe handling of compressed Gases USA) in cylinders	:	P-1 (Compressed Gas Association 1235 Jefferson Davis Highway, Arlington VA 22202 –

ANNEXURE-B
DETAILS OF FIRST AID BOX

SL. NO	DESCRIPTION	QUANTITY
1.	Small size Roller Bandages, 1 inch wide (Finger Dressing small)	6 Pcs.
2.	Medium size Roller Bandages, 2 inch wide (Hand and Foot Dressing)	6 Pcs.
3.	Large size Roller Bandages, 4 inch wide (Body Dressing Large)	6 Pcs.
4.	Large size Burn Dressing (Burn Dressing Large)	4 Pkts.
5.	Cotton wool (20 gms packing)	4 Pkts.
6.	Antiseptic Solution Dettol (100 ml.) or Savlon	1 Bottle
7.	Mercurochrome Solution (100 ml.) 2% in water	1 Bottle
8.	Ammonia Solution (20 ml.)	1 Bottle
9.	A Pair of Scissors	1 Piece
10.	Adhesive Plaster (1.25 cm x 5 m)	1 Spool
11.	Eye pads in Separate Sealed Packet	4 Pcs.
12.	Tourniquet	1 No.
13.	Safety Pins	1 Dozen
14.	Tinc. Iodine / Betadin (100 ml.)	1 Bottles
15.	Ointment for burns (Burnol 20 gms.)	1 Bottle
16.	Polythene Wash cup for washing eyes	1 No.
17.	Potassium Permanganate (20 gms.)	1 Pkt.
18.	Tinc. Benzoine (100 ml.)	1 Bottle
19.	Triangular Bandages	2 Nos.
20.	Band Aid Dressing	5 Pcs.
21.	Iodex / Moov (25 gms.)	1 Bottle
22.	Tongue Depressor	1 No.
23.	Boric Acid Powder (20 gms.)	2 Pkt.
24.	Sodium Bicarbonate (20 gms.)	1 Pkt.
25.	Dressing Powder (Nebasulf) (10 gms.)	1 Bottle
26.	Medicinal Glass	1 No.
27.	Duster	1 No.
28.	Booklet (English & Local Language)	1 No. each
29.	Soap	1 No.
30.	Toothache Solution	1 No.
31.	Eye Ointment	1 Bottle
32.	Vicks (22 gms.)	1 Bottle
33.	Forceps	1 No.
34.	Cotton Buds (5 nos.)	1 Pkt.
35.	Note Book	1 No.
36.	Splints	4 Nos.
37.	Lock	1 Piece
38.	Life Saving/Emergency/Over-the Counter Drugs	As decided at site
	Box size : 14" x 12" x 4"	

Note : The medicines prescribed above are only indicative. Equivalent medicines can also be used.
A prescription, in this regard, shall be required from a qualified Physician.

ANNEXURE – C

TYPE OF FIRES VIS-À-VIS FIRE EXTINGUISHERS

Fire	Fire Extinguishers				
	Water	Foam	CO ₂	Dry Powder	Multi Purpose (ABC)
Originated from paper, clothes, wood	√	√	Can control minor surface fires	Can control minor surface fires	√
Inflammable liquids like alcohol, diesel, petrol, edible oils, bitumen	x	√	√	√	√
Originated from gases like LPG, CNG, H ₂	x	x	√	√	√
Electrical Fires	x	x	√	√	√

Legend : √ Can be used
 x Not to be used

Note : Fire extinguishing equipment must be checked at least once a year and after every use by an authorized person. The equipment must have an inspection label on which the next inspection date is given. Type of extinguisher shall clearly be marked on it.

ANNEXURE – D

Indicative List of Statutory Acts & Rules Relating to HSE

- The Indian Explosives Act and Rules
- The Motor Vehicle Act and Central Motor Vehicle Rules
- The Factories Act and concerned Factory Rules
- The Petroleum Act and Petroleum Rules
- The Workmen Compensation Act
- The Gas Cylinder Rules and the Static & Mobile Pressure Vessels Rules.
- The Indian Electricity Act and Rules
- The Indian Boiler Act and Regulations
- The Water (Prevention & Control & Pollution) Act
- The Water (Prevention & Control of Pollution) Cess Act
- The Mines & Minerals (Regulation & Development) Act
- The Air (Prevention & Control of Pollution) Act
- The Atomic Energy Act
- The Radiation Protection Rules
- The Indian Fisheries Act
- The Indian Forest Act
- The Wild Life (Protection) Act
- The Environment (Protection) Act and Rules
- The Hazardous Wastes (Management & Handling) Rules
- The Manufacturing, Storage & import of Hazardous Chemicals Rules
- The Public Liability Act
- The Building and Other Construction Workers (Regulation of Employment and Condition of service) Act
- Other statutory acts Like EPF, ESIS, Minimum Wage Act.

ANNEXURE – E

CONSTRUCTION HAZARDS, THEIR EFFECTS & PREVENTIVE MEASURES

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
(A) EXCAVATION Pit Excavation up to 3.0m	➤ Falling into pit	➤ Personal injury	➤ Provide guard rails/barricade with warning signal. ➤ Provide at least two entries/exits. ➤ Provide escape ladders.
	➤ Earth Collapse	➤ Suffocation / Breathlessness ➤ Buried	➤ Provide suitable size of shoring and strutting, if required. ➤ Keep soil heaps away from the edge equivalent to 1.5m or depth of pit whichever is more. ➤ Don't allow vehicles to operate too close to excavated areas. Maintain at least 2m distance from edge of cut. ➤ Maintain sufficient angle of repose. Provide slope not less than 1:1 and suitable bench of 0.5m width at every 1.5m depth of excavation in all soils except hard rock. ➤ Battering/benching the sides.
	➤ Contact with buried electric cables ➤ Gas/ Oil Pipelines	➤ Electrocutation ➤ Explosion	➤ Obtain permission from competent authorities, prior to excavation, if required. ➤ Locate the position of buried utilities by referring to plant drawings. ➤ Start digging manually to locate the exact position of buried utilities and thereafter use

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			mechanical means.
Pit Excavation beyond 3.0m	➤ Same as above plus ➤ Flooding due to excessive rain/ underground water	➤ Can cause drowning situation	➤ Prevent ingress of water ➤ Provide ring buoys ➤ Identify and provide suitable size dewatering pump or well point system
	➤ Digging in the vicinity of existing Building/ Structure	➤ Building/ Structure may collapse ➤ Loss of health & wealth	➤ Obtain prior approval of excavation method from local authorities ➤ Use under-pining method ➤ Construct retaining wall side by side
	➤ Movement of vehicles / Equipments close to the edge of cut.	➤ May cause cave-in or slides ➤ Persons may get buried	➤ Barricade the excavated area with proper lighting arrangements ➤ Maintain at least 2m distance from edge of cut and use stop block to prevent over-run. ➤ Strengthen shoring and strutting
Narrow deep excavations for pipelines, etc.	➤ Same as above plus ➤ Frequent cave-in or slides	➤ May cause severe injuries or prove fatal	➤ Battering/benching of sides ➤ Provide escape ladders
	➤ Flooding due to Hydrostatic testing	➤ May arise drowning situation	➤ Same as above plus ➤ Bail out accumulated water ➤ Maintain adequate ventilation
Rock excavation by blasting	➤ Improper handling of explosives	➤ May prove fatal	➤ Ensure proper storage, handling & carrying of explosives by trained personnel. ➤ Comply with the applicable explosive acts & rules.
	➤ Uncontrolled explosion	➤ May cause severe injuries or prove fatal	➤ Allow only authorized persons to perform blasting operations. ➤ Smoking and open



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			flames are to be strictly prohibited.
	➤ Scattering of stone pieces in atmosphere	➤ Can hurt people	➤ Use PPE like goggles, face mask, helmets etc.
Rock excavating by blasting (Contd)	➤ Entrapping of persons/ animals.	➤ May cause severe injuries or prove fatal	➤ Barricade the area with red flags and blow siren before blasting.
	➤ Misfire	➤ May explode suddenly	➤ Do not return to site for at least 20 minutes or unless announced safe by designated person.
Piling Work	➤ Failure of pile-driving equipment	➤ Can hurt people	➤ Inspect Piling rigs and pulley blocks before the beginning of each shift.
	➤ Noise pollution	➤ Can cause deafness and psychological imbalance	➤ Use personal protective Equipments like earplugs, muffs, etc.
	➤ Extruding rods / casing	➤ Can hurt people	➤ Barricade the area and install sign boards ➤ Provide first-aid
	➤ Working in the vicinity of 'Live-Electricity'	➤ Can cause electrocution / asphyxiation	➤ Keep sufficient distance from Live-Electricity as per IS code. ➤ Shut off the supply, if possible ➤ Provide artificial/rescue breathing to be injured.
(B) CONCRETING	➤ Air pollution by cement	➤ May affect Respiratory System	➤ Wear respirators or cover mouth and nose with wet cloth.
	➤ Handling of ingredients	➤ Hands may get injured	➤ Use gloves and other PPE.
	➤ Protruding reinforcement rods.	➤ Feet may get injured	➤ Use Safety shoes. ➤ Provide platform above reinforcement for movement of workers.
	➤ Earthing of electrical mixers,	➤ Can cause electrocution / asphyxiation	➤ Ensure earthing of Equipments and proper functioning of

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
	vibrators, etc. not done		electrical circuit before commencement of work.
	➤ Falling of materials from height	➤ Persons may get injured	➤ Use hard hats ➤ Remove surplus material immediately from work place ➤ Ensure lighting arrangements during night hours.
	➤ Continuous pouring by same gang	➤ Cause tiredness of workers and may lead to accident.	➤ Insist on shift pattern ➤ Provide adequate rest to workers between subsequent pours.
	➤ Revolving or concrete mixer/ vibrators	➤ Parts of body or clothes may get entrapped.	➤ Allow only mixers with hopper ➤ Provide safety cages around moving motors ➤ Ensure proper mechanical locking of vibrator
Super-structure	➤ Same as above plus ➤ Deflection in props or shuttering material	➤ Shuttering / props may collapse and prove fatal	➤ Avoid excessive stacking on shuttering material ➤ Check the design and strength of shuttering material before commencement of work ➤ Rectify immediately the deflection noted during concreting
	➤ Passage to work place	➤ Improperly tied and designed props / planks may collapse	➤ Ensure the stability and strength of passage before commencement of work ➤ Do not overload and under the passage.
(C) REINFORCEMENT	➤ Curtailment and binding of rods	➤ Persons may get injured	➤ Use PPE like gloves, shoes, helmets, etc. ➤ Avoid usage of shift tools
	➤ Carrying of rods for short distance/ at	➤ Workers may injure their hands and shoulders	➤ Provide suitable pads on shoulders and use safety

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
	heights		➤ gloves. ➤ Tie up rods in easily liftable bundles ➤ Ensure proper staging.
	➤ Checking of clear distance/ cover with hands	➤ Rods may cut or injure the finger	➤ Use measuring devices tape, measuring rods, etc.
	➤ Hitting projected rods and standing on cantilever rods	➤ Persons may get injured and fall down	➤ Use safety shoes and avoid standing unnecessarily on cantilever rods ➤ Avoid wearing loose clothes
	➤ Falling of material from height	➤ May prove fatal	➤ Use helmets ➤ Provide safety nets
	➤ Transportation of rods by trucks / trailers	➤ Protruded rods may hit the persons	➤ Use red flags/lights at the ends ➤ Do not protrude the rods in front of or by the side of driver's cabin. ➤ Do not extend the rods 1/3rd of deck length or 1.5 m which is less
(D) WELDING AND GAS CUTTING	➤ Welding radiates invisible ultraviolet and infrared rays	➤ Radiation can damage eyes and skin.	➤ Use specified shielding devices and other PPE of correct specifications ➤ Avoid throat tungsten electrodes for GTAW.
	➤ Improper placement of oxygen and acetylene cylinders	➤ Explosion may occur	➤ Move out any leaking cylinder ➤ Keep cylinder in vertical position ➤ Use trolley for transportation of cylinders and chain them ➤ Use flash back arrestors
	➤ Leakage / cuts in hoses	➤ May cause fire	➤ Purge regulators immediately and then turn off ➤ Never use grease or



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			oil on oxygen line connections and copper fittings on acetylene lines ➤ Inspect regularly gas carrying hoses ➤ Always use red hose for acetylene & other fuel gases and black for oxygen.
	➤ Opening-up of cylinder	➤ Cylinder may burst	➤ Always stand back from the regulator while opening the cylinder ➤ Turn valve slowly to avoid bursting ➤ Cover the lug terminals to prevent short circuiting.
	➤ Welding of tanks, container or pipes storing flammable liquids	➤ Explosion may occur	➤ Empty & purge them before welding ➤ Never attach the ground cable to tanks, container or pipe storing flammable liquids ➤ Never use LPG for gas cutting
(E) RADIOGRAPHY	➤ Ionizing Radiation	➤ Radiations may react with the skin and can cause cancer, skin irritation, dermatitis, etc.	➤ Ensure safety regulations as per BARC/AERB before commencement of job. ➤ Cordon off the area and install Radiation warning symbols ➤ Restrict the entry of unauthorized persons ➤ Wear appropriate PPE and film badges issued by BARC/AERB
	➤ Transportation and Storage of Radiography source	➤ Same as above	➤ Never touch or handle radiography source with hands ➤ Store radiography source inside a pit in an exclusive isolated

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			storage room with lock and key arrangement. The pit should be approved by BARC/AERB ➤ Radiography source should never be carried either in passenger bus or in a passenger compartment of trains. ➤ BARC/AERB have to be informed before source movement. ➤ Permission from Director General of Civil Aviation is required for booking radio isotopes with airlines.
	➤ Loss of Radio isotope	➤ Same as above	➤ Try to locate with the help of Survey Meter. ➤ Inform BARC/AERB(*) (*) Atomic Energy Regulatory Board (AERB), Bhabha Atomic Research Centre (BARC) Anushaktinagar, Mumbai – 400 094
(F) ELECTRICAL INSTALLATION AND USAGE	➤ Short circuiting	➤ Can cause Electrocutation or Fire	➤ Use rubberized hand gloves and other PPE ➤ Don't lay wires under carpets, mats or door ways. ➤ Allow only licensed electricians to perform on electrical facilities ➤ Use one socket for one appliance ➤ Ensure usage of only fully insulated wires or cables ➤ Don't place bare wire ends in a socket

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			➤ Ensure earthing of machineries and Equipments ➤ Do not use damaged cords and avoid temporary connections ➤ Use spark-proof/flame proof type field distribution boxes. ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Protect electrical cables / equipment's from water and naked flames ➤ Check all connections before energizing.
	➤ Overloading of Electrical System	➤ Bursting of system can occur which leads to fire	➤ Display voltage and current ratings prominently with 'Danger' signs. ➤ Ensure approved cable size, voltage grade and type. ➤ Switch off the electrical utilities when not in use. ➤ Do not allow unauthorized connections. ➤ Ensure proper grid wise distribution of Power.
	➤ Improper laying of overhead and underground transmission lines / cables	➤ Can cause electrocution and prove fatal	➤ Do not lay unarmored cable directly on ground, wall, roof of trees ➤ Maintain at least 3m distance from HT cables ➤ All temporary cables should be laid at least 750 mm below ground on 100 mm

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			- fine sand overlying by brick soling ➤ Provide proper sleeves at crossings/ intersections ➤ Provide cable route markers indicating the type and depth of cables at intervals not exceeding 30m and at the diversions / termination.
(G) FIRE PREVENTION AND PROTECTION	➤ Small fires can become big ones and may spread to the surrounding areas	➤ Cause burn injuries and may prove fatal.	➤ In case a fire breaks out, press fire alarm system and shout "Fire, Fire" ➤ Keep buckets full of sand & water/fire extinguishing equipment near hazardous locations ➤ Confine smoking to 'Smoking Zones' only ➤ Train people for using specific type of fire Equipments under different classes of fire ➤ Keep fire doors/ shutters, passages and exit doors unobstructed ➤ Maintain good house keeping and first-aid boxes (for detail refer Annex-2) ➤ Don't obstruct access to Fire extinguishers ➤ Do not use elevators for evacuation during fire ➤ Maintain lightening arrestors for elevated structures ➤ Stop all electrical motors with internal combustion. ➤ Move the vehicles from dangerous



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			➤ locations. ➤ Remove the load hanging from the crane booms. ➤ Remain out of the danger areas.
	➤ Improper selection of Fire Extinguisher	➤ It may not extinguish the fire	➤ Ensure usage of correct fire extinguisher meant for the specified fire (for details refer Appendix-C) ➤ Do not attempt to extinguish Oil and electric fires with water. Use foam cylinders/CO₂/sand or earth.
	➤ Improper storage of highly inflammable substances	➤ Same as above	➤ Maintain safe distance of flammable substances from source of ignition ➤ Restrict the distribution of flammable materials to only min. necessary amount ➤ Construct specifically designed fuel storage facilities ➤ Keep chemicals in cool and dry place away from heat. Ensure adequate ventilation ➤ Before welding operation, remove or shield the flammable material properly ➤ Store flammable materials in stable racks, correctly labeled preferably with catchments trays. ➤ Wipe off the spills immediately

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
	➤ Short circuiting of electrical system	➤ Same as above ➤ Can cause Electrocutation	➤ Don't lay wires under carpets, mats or door ways ➤ Use one socket for one appliance ➤ Use only fully insulated wires or cables ➤ Do not allow open/bare connections ➤ Provide all connections through ELCB ➤ Ensure earthing of machineries and Equipments
(H) VEHICULAR MOVEMENT	➤ Crossing the Speed Limits (Rash driving)	➤ Personal injury	➤ Obey speed limits and traffic rules strictly ➤ Always expect the unexpected and be a defensive drive ➤ Use seat belts/helmets ➤ Blow horn at intersections and during overtaking operations. ➤ Maintain the vehicle in good condition ➤ Do not overtake on curves, bridges and slopes
	➤ Adverse weather condition	➤ Same as above	➤ Read the road ahead and ride to the left ➤ Keep the wind screen and lights clean ➤ Do not turn at speed ➤ Recognize the hazard, understand the defense and act correctly in time.
	➤ Consuming alcohol before and during he	➤ Same as above	➤ Alcohol and driving do not mix well. Either choose

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
	driving operation		➤ alcohol or driving. ➤ If you have a choice between hitting a fixed object or an oncoming vehicle, hit the fixed object ➤ Quit the steering at once and become a passenger. Otherwise take sufficient rest and then drive. ➤ Do not force the driver to drive fast and round the clock ➤ Do not day dram while driving
	➤ Falling objects / Mechanical failure	➤ May prove fatal	➤ Ensure effective braking system, adequate visibility forthe drives, reverse warning alarm. ➤ Proper maintenance of the vehicle as per manufacturer instructions
(I) PROOF TESTING (HYDROSTATIC/ PNEUMATIC TESTING	➤ Bursting of piping ➤ Collapse of tanks ➤ Tanks flying off	➤ May cause injury and prove fatal	➤ Prepare test procedure & obtain CONSULTANT/ Owner's approval ➤ Provide separate gauge for pressurizing pump and piping/equipment ➤ Check the calibration status of all pressure gauges, dead weight testers and temperature recorders ➤ Take dial readings at suitable defined intervals and ensure most of them fall between 40-60% of the gauge scale range ➤ Provide safety reliefvalve (set at



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			pressure slightly higher than test pressure) while testing with air/nitrogen ➤ Ensure necessary precautions, stepwise increase in pressure, tightening of bolts/nuts, grouting, etc. before and during testing ➤ Keep the vents open before opening any valve while draining out of water used for hydro testing of tanks ➤ Pneumatic testing involves the hazard of released energy stored in compressed gas. Specific care must therefore be taken to minimize the chance of brittle failure during a pneumatic leak test. Test temperature is important in this regard and must be considered when the designer chooses the material of construction ➤ A pressure relief device shall be provided, having a set pressure not higher than the test pressure plus the lesser of 345 KPa (50 psi) or 10% of the test pressure. The gas used as test fluid, if not air, shall be nonflammable and nontoxic.
(J) WORKING AT HEIGHTS	➤ Person can fall down	➤ May sustain severe injuries or	➤ Provide guard rails/barricade at the

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
		prove fatal	➤ work place ➤ Use PPE like safety belts, full body harness, life line, helmets, safety shoes, etc. ➤ Obtain a permit before starting the work at height above 3 meters ➤ Fall arrest systems like safety nets, etc. must be installed ➤ Provide adequate working space (min. 0.6 m) ➤ Tie/weld working platform with fixed support ➤ Use roof top walk ladder while working on a slopping roofs ➤ Avoid movement on beams
		➤ May hit the scrap / material stacked at the ground or in between	➤ Keep the work place neat and clean ➤ Remove the scrap immediately
	➤ Material can fall down	➤ May hit the workers working at lower levels and prove fatal.	➤ Same as above plus ➤ Do not throw or drop material or equipment from height ➤ All tools to be carried in a toolkit bags or on working uniform ➤ Remove scrap from the planks ➤ Ensure wearing of helmet by the workers at low level
(K) CONFINED SPACES	➤ Suffocation / drowning	➤ Unconsciousness, death	➤ Use respiratory devices, if required ➤ Avoid over crowding inside a confined space ➤ Provide Exhaust Fans for ventilation ➤ Do not wear loose clothes, neck ties,

ACTIVITY	TYPE OF HAZARD	EFFECT OF HAZARD	PREVENTIVE MEASURES
			etc. ➤ Fulfill conditions of the permit. ➤ Check for presence of hydrocarbons, O ₂ level ➤ Obtain work permit before entering a confined space ➤ Ensure that the connected piping of the equipment which is to be opened is pressure free, fluid has been drained, vents are open and piping is positively isolated by a blind flange
	➤ Presence of foul smell and toxic substances	➤ Inhalation can pose threat to life.	➤ Same as above plus ➤ Check for hydrocarbon and Aromatic compounds before entering a confined space ➤ Depute one person outside the confined space for continuous monitoring and for extending help in case of an emergency
	➤ Ignition / flame can cause fire	➤ Person may sustain burn injuries or explosion may occur	➤ Keep fire extinguishers at a hand distance ➤ Remove surplus material and scrap immediately ➤ Do not smoke inside a confined space ➤ Do not allow gas cylinders inside a confined space ➤ Use low voltage (24V) lamps for lighting ➤ Use tools with air motors or electric tools with max.

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			➤ voltage of 24V ➤ Remove all Equipments at the end of the day
(L) HANDLING AND LIFTING EQUIPMENTS	➤ Failure of load lifting and moving Equipments	➤ Can cause accident and prove fatal	➤ Avoid standing under the lifted load and within the operating radius of cranes ➤ Check periodically oil, brakes, gears, horns and tyre pressure of all moving machinery ➤ Check quality, size and condition of all chain pulley blocks, slings, U-clamps, D-shackles, wire ropes, etc. ➤ Allow crane to move only on hard, firm and leveled ground ➤ Allow lifting slings as short as possible and check gunny packings at the friction points ➤ Do not allow crane to tilt its boom while moving ➤ Install Safe Load Indicator ➤ Ensure certification by applicable authority.
	➤ Overloading of lifting Equipments	➤ Can cause electrocution and fire	➤ Safe lifting capacity of derricks and winches written on them shall be got verified. ➤ The max safe working load shall be marked on all lifting Equipments ➤ Check the weight of columns and other heavy items painted on them and accordingly decide about the crane

<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			➤ capacity, boom and angle of erection ➤ Allow only trained operators and riggers during crane operation
	➤ Overhead electrical wires	➤ Can cause electrocution and fire	➤ Do not allow boom or other parts of crane to come within 3 m reach of overhead HT cables ➤ Hook and load being lifted shall preferably remain in full visibility of crane operator.
(M) SCAFFOLDING, FORMWORK AND LADDERS	➤ Person can fall down	➤ Person may sustain severe injuries and prove fatal	➤ Provide guard rails for working at height ➤ Face ladder while climbing and use both hands ➤ Ladders shall extend about 1m above landing for easy access and tying up purpose ➤ Do not place ladders against movable objects and maintain base at ¼ unit of the working length of the ladder ➤ Suspended scaffolds shall not be less than 500 mm wide and tied properly with ropes ➤ No loose planks shall be allowed ➤ Use PPE, like helmets, safety shoes, etc.
	➤ Failure of scaffolding material	➤ Same as above	➤ Inspect visually all scaffolding materials for stability and anchoring with permanent structures. ➤ Design scaffolding



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
			➤ for max. load carrying capacity ➤ Scaffolding planks shall not be less than 50x250 mm full thickness lumber or equivalent. These shall be cleared or secured and must extend over the end supports by at least 150mm and not more than 300 mm ➤ Don't overload the scaffolds ➤ Do not splice short ladders to make a longer one. Vertical ladders shall not exceed 6m.
	➤ Material can fall down	➤ Persons working at lower level gets injured.	➤ Remove excess material and scrap immediately ➤ Carry the tools in a tool-kit bag only ➤ Provide safety nets
(N) STRUCTURAL WORKS	➤ Personal negligence and danger of fall	➤ Can cause injury or casualty	➤ Do not take rest inside rooms built for welding machines or electrical distribution system ➤ Avoid walking on beams at height ➤ Wear helmet with chin strap and safety belts when working at height ➤ Use hand gloves and goggles during grinding operations ➤ Cover or mark the sharp and projected edges ➤ Do not stand within the operating radius of cranes
	➤ Lifting / slipping of	➤ Same as above	➤ Do not stand under the lifted load



<i>ACTIVITY</i>	<i>TYPE OF HAZARD</i>	<i>EFFECT OF HAZARD</i>	<i>PREVENTIVE MEASURES</i>
	material		➤ Stack properly all the materials. Avoid slippage during handling ➤ Control longer pieces lifted up by cranes from both ends ➤ Remove loose materials from height ➤ Ensure tightening of all nuts and bolts
(O) PIPELINE WORKS	➤ Erection / lowering failure	➤ Can cause injury	➤ Do not stand under the lifted Load ➤ Do not allow any person to come within the radii of the side boom handling pipes ➤ Check the load carrying capacity of the lifting tools and tackles ➤ Use safe Load Indicators ➤ Use appropriate PPEs
	➤ Other	➤ Same as above	➤ Wear gum boots in marshy areas ➤ Allow only one person to perform signaling operations while lowering of pipes ➤ Provide night caps on pipes ➤ Provide end covers on pipes for stoppage of pigs while testing/cleaning operations.

FORMAT NO. : HSE-1, REV. 0

HSE CHECKLIST CUM COMPLIANCE REPORT (1/6)

Project: _____ Date: _____ Contractor _____ Inspection by: _____

Owner: _____ Report N _____

Frequency : Fortnightly Job No : _____

Note: write 'NA' wherever the item is not applicable

SL. NO.	ITEM	YES	NO	REMARKS	ACTION
1	HOUSEKEEPING				
a)	Waste containers provided and used				
b)	Sanitary facilities adequate and clean				
c)	Passageways and Walkways clear				
d)	General neatness of working areas				
e)	Others				
2	PERSONNEL PROTECTIVE EQUIPMENT				
a)	Goggles; Shields				
b)	Face protection				
c)	Hearing protection				
d)	Safety shoes				
e)	Hand protection				
f)	Respiratory Masks etc.				
g)	Safety Belts				
h)	Safety Helmet/Hard Hat				
I)	Others				
3	EXCAVATIONS/OPENINGS				
a)	Openings properly covered or barricaded				
b)	Excavations shored				
c)	Excavations barricaded				
d)	Overnight lighting provided				
e)	Others				
4	WELDING & GAS CUTTING				
a)	Gas cylinders chained upright				
b)	Cables and hoses not obstructing				
c)	Screens or shields used				
d)	Flammable materials protected				
e)	Fire extinguisher(s) accessible				
f)	Others				
5	SCAFFOLDING				
a)	Fully decked platforms				
b)	Guard and intermediate rails in place				



SL. NO.	ITEM	YES	NO	REMARKS	ACTION
c)	Toe boards in place				
d)	Adequate shoring				
e)	Adequate access				
f)	Others				
6	LADDERS				
a)	Extension side rails 1m above				
b)	Top of landing				
c)	Properly secured				
d)	Angle + 70 from horizontal				
e)	Others				
7	HOISTS, CRANES AND DERRICKS				
a)	Condition of cables and sheaves OK				
b)	Condition of slings, chains, hooks and eyes OK				
c)	Inspection and maintenance logs maintained				
d)	Outriggers used				
e)	Signs/barricades provided				
f)	Signals observed and understood				
g)	Qualified operators				
h)	Others				
8	MACHINERY, TOOLS AND EQUIPMENT				
a)	Proper instruction				
b)	Safety devices				
c)	Proper cords				
d)	Inspection and maintenance				
e)	Others				
9	VEHICLE AND TRAFFIC				
a)	Rules and regulations observed				
b)	Inspection and maintenance				
c)	Licensed drivers				
d)	Others				
10	TEMPORARY FACILITIES				
a)	Emergency instructions posted				
b)	Fire extinguishers provided				
c)	Fire-aid equipment available				
d)	Secured against storm damage				
e)	General neatness				
f)	In accordance with electrical requirements				
g)	Others				
11	FIRE PREVENTION				
a)	Personnel instructed				
b)	Fire extinguishers checked				
c)	No smoking in Prohibited Areas				
d)	Hydrants Clear				



SL. NO.	ITEM	YES	NO	REMARKS	ACTION
e)	Others				
12	ELECTRICAL				
a)	Use of 3-core armoured cables				
b)	Usage of 'All insulated' or 'double insulated' electrical tools				
c)	All electrical connection are routed through ELCB				
d)	Natural Earthing at the source of power (main DB)				
e)	Continuity and tightness of earth conductor				
f)	Covering of junction boxes, panels and other energized wiring places				
g)	Ground fault circuit interrupters provided				
h)	Prevention of tripping hazards				
i)	Others				
13	HANDLING AND STORAGE OF MATERIALS				
a)	Properly stored or stacked				
b)	Passageways clear				
c)	Others				
14	FLAMMABLE GASES AND LIQUIDS				
a)	Containers clearly identified				
b)	Proper storage				
c)	Fire extinguishers nearby				
d)	Others				
15	WORKING AT HEIGHT				
a)	Erection plan and work permit obtained				
b)	Safety nets				
c)	Full body harness and lanyards; chute lines				
d)	Health Check record available for workers going up?				
e)	Others				
16	CONFINED SPACE				
a)	Work permit obtained				
b)	Test for toxic gas and sufficient availability of oxygen conducted				
c)	At least one person outside the confined space for monitoring deputed				
d)	Availability of sufficient means of entry, exit and ventilation				
e)	Fire extinguishers and first-aid facility ensured				
f)	Lighting provision made by using 24V lamps				
g)	Proper usage of PPEs ensured				
17	RADIOGRAPHY				
a)	Proper storage and handling of source as per BARC / AREB guidelines				
b)	Working permit obtained				
c)	Cordoning of the area done				



SL. NO.	ITEM	YES	NO	REMARKS	ACTION
d)	Use of appropriate PPE's ensured				
e)	Proper training to workers/supervisors imparted				
f)	Minimum occupancy of workplace ensured				
18	HEALTH CHECKS				
a)	Workers medically examined and found to fit for working : i) At heights ii) In confined space.				
b)	Availability of First-aid facilities				
c)	Proper sanitation at site, office and labour camps				
d)	Arrangement of medical facilities				
e)	Measures for dealing with illness				
f)	Availability of Portable drinking water for workmen & staff				
g)	Provision of crèches for children				
h)	Stand by vehicle available for evacuation of injured.				
19	ENVIRONMENT				
a)	Chemical and other effluents properly disposed				
b)	Cleaning liquid of pipes disposed off properly				
c)	Seawater used for hydro-testing disposed off as per agreed procedure				
d)	Lubricant Waste/Engine oils properly disposed				
e)	Waste from Canteen, offices, sanitation etc. disposed properly				
f)	Disposal of surplus earth, stripping materials, oily rags and combustible materials done properly				
g)	Green belt protection				

Signature of Site
Engineer with Seal



FORMAT NO. : HSE-2, REV. 0

ACCIDENT / INCIDENT REPORT**(To be submitted by Contractor after every Accident / Incident within 24 hours)**

Report No: _____ Date: _____

Name of Site:- _____

CONTRACTOR _____

Type of Accident / Incident ☐ Fatal ☐ Other Lost Time ☐ Non Loss Time ☐ First-Aid case
:

NAME OF THE INJURED.....
AGE
FATHER'S NAME.....
SUB-CONTRACTOR M/S.....
DATE & TIME OF ACCIDENT.....
LOCATION

BRIEF DESCRIPTION OF ACCIDENT

CAUSE OF ACCIDENT

NATURE OF INJURY/DAMAGE

MEDICAL AID PROVIDED/ACTIONS TAKEN

INTIMATION TO LOCAL AUTHORITIES (IF APPLICABLE)

DATE:

SIGNATURE OF CONTRACTOR
WITH SEALTo : OWNER.....
: RCM/SITE-IN-CHARGE1 COPY
3 COPIES

→ Divisional Head (Constn.) through
→ Project Manager

FORMAT NO. : HSE-3, REV. 0

SUPPLEMENTARY ACCIDENT / INCIDENT INVESTIGATION REPORT

Supplementary to Report No: _____ (Copy enclosed)

Project: _____

Site: _____ Date: _____

Name of Work : _____

Work Order No. : _____

NAME OF THE INJURED

AGE :

SUB-CONTRACTOR M/S.....

DATE & TIME OF ACCIDENT / INCIDENT

LOCATION.....

BRIEF DESCRIPTION & CAUSE OF A ACCIDENT/ INCIDENT

NATURAL OF INJURY/DAMAGE

COMMENTS FROM MEDICAL PRACTITIONER WHO ATTENDED THE VICTIM/INJURED

SUGGESTED IMPROVEMENT IN THE WORKING CONDITION IF ANY

LOSS OF MANHOURS AND IMPACT ON SITE WORKS

ANY OTHER COMMENT BY SAFETY OFFICER.

DATE:

SIGNATURE OF CONTRACTOR
WITH SEAL

To : OWNER.....
: SITE-IN-CHARGE

1 COPY
3 COPIES

→ Divisional Head (Constn.) through
→ Project Manager

FORMAT NO. : HSE-4, REV.

0 NEAR MISS INCIDENT – SUGGESTED PROFORMA

Name of Site : _____ Name of Work _____ Report No: _____
Contractor : _____

INCIDENT REPORTED BY :

DATE & TIME OF INCIDENT :

LOCATION :

BRIEF DESCRIPTION OF INCIDENT

PROBABLE CAUSE OF INCIDENT

SUGGESTED CORRECTIVE ACTION

STEPS TAKEN TO AVOID RECURRENCE

YES ☐ NO ☐

DATE:

SIGNATURE OF CONTRACTOR
WITH SEAL

To : OWNER.....
: SITE-IN-CHARGE

1 COPY
3 COPIES

→ Divisional Head (Constn.) through
→ Project Manager

FORMAT NO. : HSE-5, REV. 0

MONTHLY HEALTH, SAFETY & ENVIRONMENT (HSE) REPORT
(To be submitted by each Contractor)

Actual work start Date: _____ For the Month of: _____
Project: _____ Name of the Contractor: _____ Name of Work: _____
Status as on: _____
Name of Safety officer: _____

ITEM		UPTO PREVIOUS MONTH	THIS MONT H	CUMU- LATIVE
a)	Average number of Staff & Workmen (average daily headcount, not man days)			
b)	Manhours Worked			
c)	Number of HSE meeting organized at site			
d)	Number of HSE awareness programmes conducted at site			
e)	Number of Lost Time Accidents (LTA)	Fatal		
		Other LTA		
f)	Number of Loss time Injuries (LTI)	Fatalities		
		Other LTI		
g)	Number of Loss Time Accidents			
h)	Number of First Aid Cases			
i)	Number of Near Miss Incidents			
j)	Man-days lost due to accidents			
k)	LTA Free Manhours i.e. Number of LTA free manhours from the Lst LTA			
l)	Compensation cases raised with Insurance			
m)	Compensation case resolved and paid to workmen			
n)	Whether workmen compensation policy taken	Y/N		
o)	Whether workmen compensation policy valid	Y/N		
p)	Whether workmen registered under ESI Act	Y/N		
Remark				

DATE:

Safety Officer /Resident Engineer
(Signature and Name)

To : OWNER
: TPIA (2 COPIES)

FORMAT NO. : HSE-6, REV. 0

PERMIT FOR WORKING AT HEIGHT (ABOVE 2 METER)

Project Site : Sr. No.:
 Name of the work: Date:
 Name of Contractor : Nature of Work :
 Total No.of Workers: Exact location of work :
 Duration of work: from to

The following items have been checked and compliance shall be ensured during the currency of the permit:

- SI.	ITEM	DONE	NOT REQD.
1.	Equipment/Work Area inspected	☐	☐
2.	Considered hazard from other routine/non-routine operations and concerned person alerted	☐ ☐	☐ ☐
3.	ELCB provided	☐	☐
4.	Proper lighting provided	☐	☐
5.	Area cordoned off.	☐	☐
6.	Precautions against public traffic taken	☐	☐
7.	Sound Scaffolding provided	☐	☐
8.	Adequate protected Platform provided	☐	☐
9.	Acces and Exit to the area (Ladder properly fixed)	☐ ☐	☐ ☐
10.	Floor Openings covered	☐	☐
11.	Safety Net provided	☐	☐
12.	Heath check of personnel	☐	☐

A. Following personal protective equipment are provided (mark) and used as relevant Safety helmet/Gloves/Goggles/Shoes/Face Shield/Life Line/Safety Belt/Safety Harness.

B. This permit shall be available at the work site at all times.

- Permission is granted to work (See overleaf) = Yes/No**

Name of Contractor's Safety
(Issuing Authority)

[illegible]

Additional safety instructions, if any.

FORMAT NO. : HSE-7, REV. 0

CONFINED SPACE ENTRY PERMIT

Project Site : Sr. No.:
 Name of the work: Date:
 Name of Contractor : Nature of Work :
 Exact location of work :

Safety Requirements : POSITIVE ISOLATION OF THE VESSEL IS MANDATORY

(A) Has the equipment been ?					
Y	NR		Y	NR	
┘	┘	isolated from power / steam / air	┘	┘	water flushed &/or steamed
┘	┘	isolated from liquid or gases	┘	┘	Manways open & ventilated
┘	┘	depressurized &/or drained	┘	┘	cont. inset gas flow arranged
┘	┘	blanked / blinded / disconnected	┘	┘	adequately cooled
					radiation sources removed
					Proper lighting provided

(B) Expected Residual Hazards					
Y	NR		Y	NR	
┘	┘	lack of O ₂	┘	┘	combustible gas / liquid
┘	┘	corrosive chemicals	┘	┘	pyrophoric iron / scales
┘	┘	Heat / stream / frost	┘	┘	high humidity
┘	┘		┘	┘	
					H ₂ S / toxic gases
					electricity / static
					ionizing radiation

(C) Protective Measures					
Y	NR		Y	NR	
┘	┘	gloves	┘	┘	ear plug / muff
┘	┘	protective clothing	┘	┘	dust / gas / air line mask
┘	┘	Grounded air educater / blower / AC	┘	┘	attendant with SCBA / air mask
┘	┘	Fire fighting arrangements	┘	┘	safety harness & lifeline
┘	┘		┘	┘	
					goggles / face shield
					personal gas alarm
					rescue equipment / team
					communication equipment

[illegible]

(A)	Entry	┘ was closed	┘ stopped	┘ will continue on
(B)	┘ Site left in a safe condition	┘ Housekeeping done		
(C)	Multi lock	┘ removed	┘ key transferred	
	┘ Ensured all men have come out	┘ Manways		

barricaded Remarks, if any :

FORMAT NO. : HSE-8, REV. 0

RADIATION WORK PERMIT

Project: _____ Sr. No.: _____
 Name of the work: _____ Date: _____
 Name of Contractor: _____ Job No. : _____

Location of work : _____

Source Strength : _____

Cordoned distance (m) : _____

Name of Radiographing agency: _____ Approved by Owner /TPIA ☐

The following items have been checked & compliance shall be ensured during currency of the permit :

S. No.	Item Description	Done
1.	Safety regulations as per BARC/AERB ensured while source in use/ in transit & during storage.	☐
2.	Area cordoned off.	☐
3.	Lighting arrangements for working during nights ensured.	☐
4.	Warning signs / flash lights installed.	☐
5.	Cold work permit taken (if applicable)	☐
6.	PPEs like film badges, dosimeters used.	☐

Additional precautions, if any _____

(Radiography Agency's BARC / AREB authorized Supervisor) (Contractor's Safety Officer)

Permission is granted.

Permit is valid from _____AM/PM _____Date to _____AM/PM _____Date

(Signature of permit issuing authority)

Name : _____ Designation : _____ Date : _____

**Permit renewal :**

Permit extended upto		Additional precautions required, if any.	Sign of issuing authority with date
Date	Time		

Work completed / stopped / area cleared at _____ Hrs. of Date _____

(Sign of permit issuing
authority)

Name :

FORMAT NO. : HSE-9, REV. 0

RADIATION WORK PERMIT

Project : Sr. No.:
 Name of the work : Date:
 Name of Contractor : Job No. :

Name of Contractor :

Line No. / Equipment No. /Structure to be dismantled :

Location details of dismantling / demolition with sketch : (Clearly indicate the area)

The following items have been checked & compliance shall be ensured during currency of the permit :

S. No.	Item Description	Done	Not Applicable
1.	Services like power, gas supply, water, etc. disconnected.	☐	☐
2.	Dismantling / Demolishing method reviewed & approved.	☐	☐
3.	Usage of appropriate PPEs ensured.	☐	☐
4.	Precautions taken for neighboring structures	☐	☐
5.	First-Aid arrangements made	☐	☐
6.	Fire fighting arrangements ensured	☐	☐
7.	Precautions taken for blasting	☐	☐

(Contractor's Supervisor)

(Contractor's Safety Officer)

Permission is granted.

(Permit issuing authority)

Name :

Date :

**Completion Report :**

Dismantling / Demolishing is completed on _____ Date at _____ Hrs.

Materials / debris transported to identified location ☐

Tagging completed (as applicable) ☐

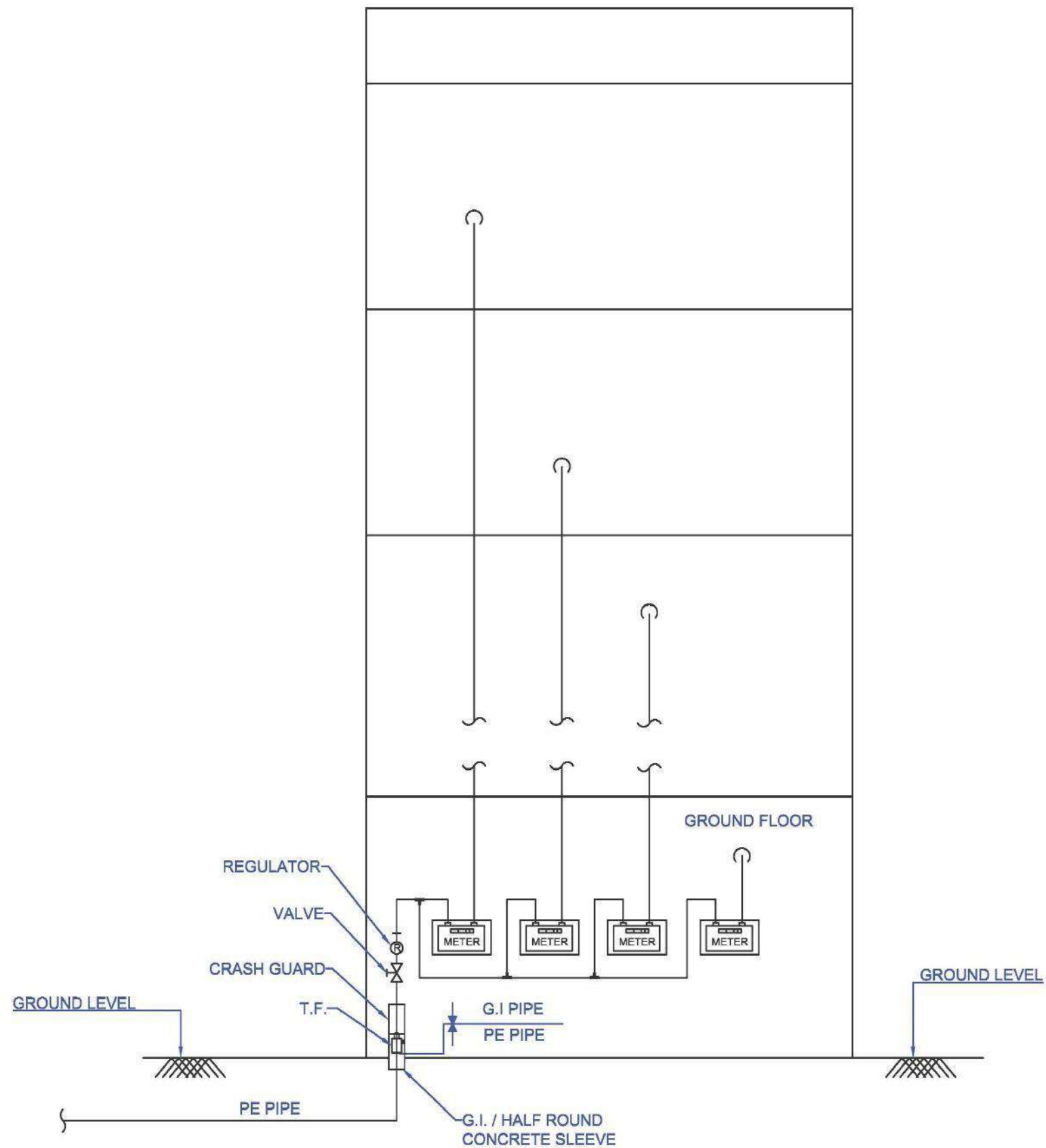
Services like power, gas supply, water, etc. restored ☐

(Permit issuing authority)



DRAWINGS





INDICATIVE RISER ARRANGEMENT IN BUILDING,
IF METER INSTALLED AT GROUND FLOOR

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
3. PIPING DOWNSTREAM METER SHALL BE COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
4. TENTATIVE RISER LENGTH (FROM OUTLET OF TRANSITION FITTING TO INLET OF ISOLATION VALVE) SHALL BE 1.5M. ANY CHANGES IN RISER LENGTH SHALL BE AFTER APPROVAL FROM EIC.
5. G.I. INSTALLATION / METER INSTALLATION SHALL BE DECIDED BY OWNER / OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THEN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR IF G.I. PIPE GOES TO THE APPLIANCE VALVE THEN G.I. FITTING SHALL BE USED AT THE OUTLET OF THE METER.
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1.5M WHEN PIPE GOES IN THE STRAIGHT LENGTH, IF ANY TEE OR ANY FITTING IS USED IN BETWEEN THE PIPE THEN CLAMP SHALL BE PLACED 150 MM AWAY FROM CENTER LINE OF THE FITTING AT EVERY SIDE. HOWEVER, THE SAME MAY BE CHANGED AS PER SITE CONDITIONS / AS DIRECTED BY EIC.
8. TAPPING SHALL BE LEFT NEAR OUTSIDE THE KITCHEN AS DIRECTED BY OWNER / OWNER'S REPRESENTATIVE.
9. FROM TRANSITION FITTING TO THE ISOLATION VALVE, SHALL BE CONSIDERED IN THE OUTSIDE KITCHEN PIPING.
10. AT THE TIME OF MEASURING LENGTH OF G.I./COPPER PIPE, G.I./COPPER FITTINGS SHALL BE COUNTED IN THE PIPE LENGTH.

THIS IS THE GENERAL LAYOUT.
FOR LMC AND NON-LMC

OWNER:



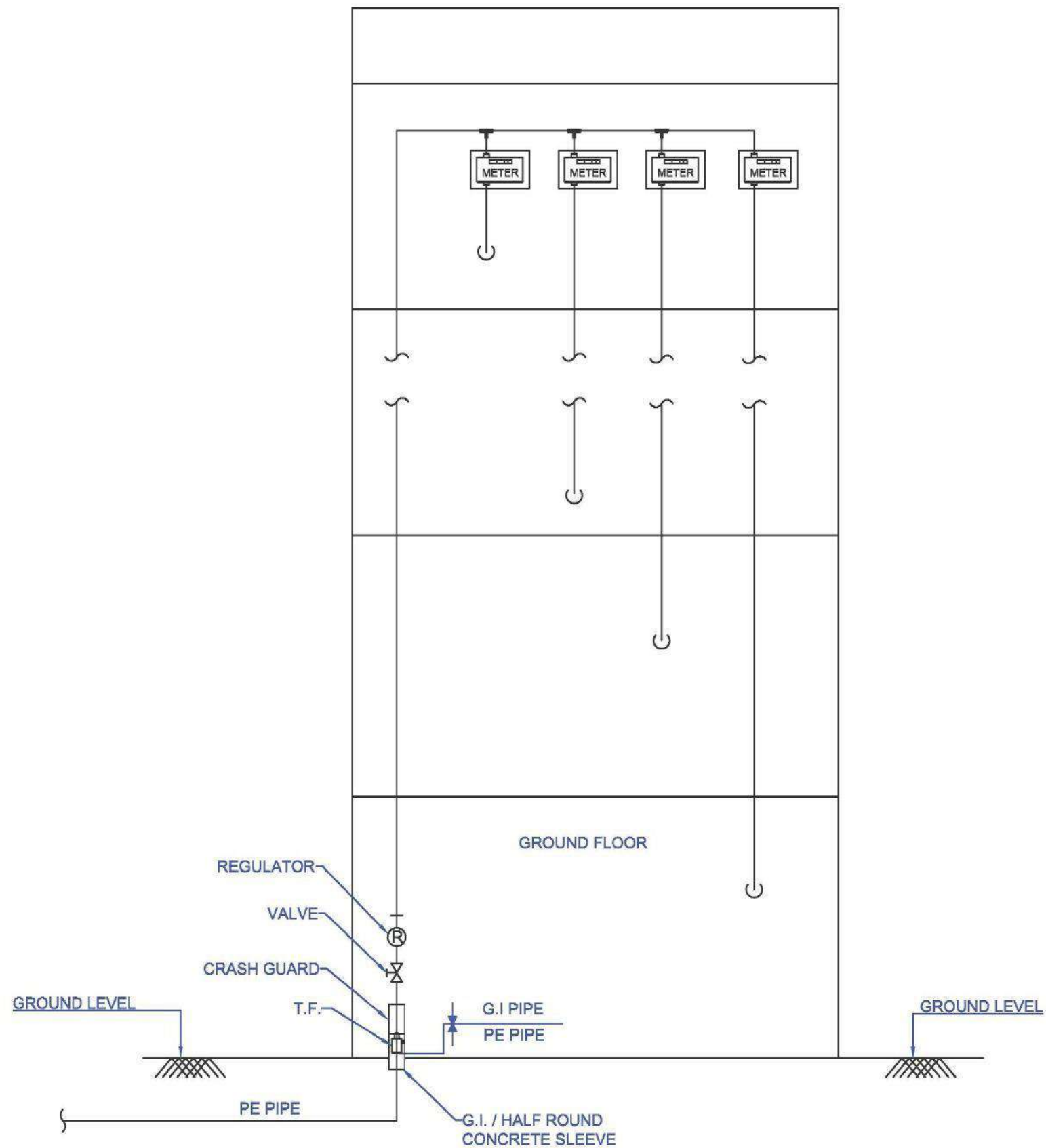
RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG DISTRIBUTION

SCALE: N.T.S. DATE: CAD FILE: CAD A3

DRG. NO. 1008 -20-05-15 REV-0



INDICATIVE RISER ARRANGEMENT IN BUILDING,
IF METER IS INSTALLED AT TOP OF FLOOR

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
3. PIPING DOWNSTREAM METER SHALL BE COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
4. TENTATIVE RISER LENGTH (FROM OUTLET OF TRANSITION FITTING TO INLET OF ISOLATION VALVE) SHALL BE 1.5M. ANY CHANGES IN RISER LENGTH SHALL BE AFTER APPROVAL FROM EIC.
5. G.I. INSTALLATION / METER INSTALLATION SHALL BE DECIDED BY OWNER / OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THEN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR IF G.I. PIPE GOES TO THE APPLIANCE VALVE THEN G.I. FITTING SHALL BE USED AT THE OUTLET OF THE METER.
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1.5M WHEN PIPE GOES IN THE STRAIGHT LENGTH, IF ANY TEE OR ANY FITTING IS USED IN BETWEEN THE PIPE THEN CLAMP SHALL BE PLACED 150 MM AWAY FROM CENTER LINE OF THE FITTING AT EVERY SIDE. HOWEVER, THE SAME MAY BE CHANGED AS PER SITE CONDITIONS / AS DIRECTED BY EIC.
8. TAPPING SHALL BE LEFT NEAR OUTSIDE THE KITCHEN AS DIRECTED BY OWNER / OWNER'S REPRESENTATIVE.
9. FROM TRANSITION FITTING TO THE ISOLATION VALVE, SHALL BE CONSIDERED IN THE OUTSIDE KITCHEN PIPING.
10. AT THE TIME OF MEASURING LENGTH OF G.I./COPPER PIPE, G.I./COPPER FITTINGS SHALL BE COUNTED IN THE PIPE LENGTH.

THIS IS THE GENERAL LAYOUT.

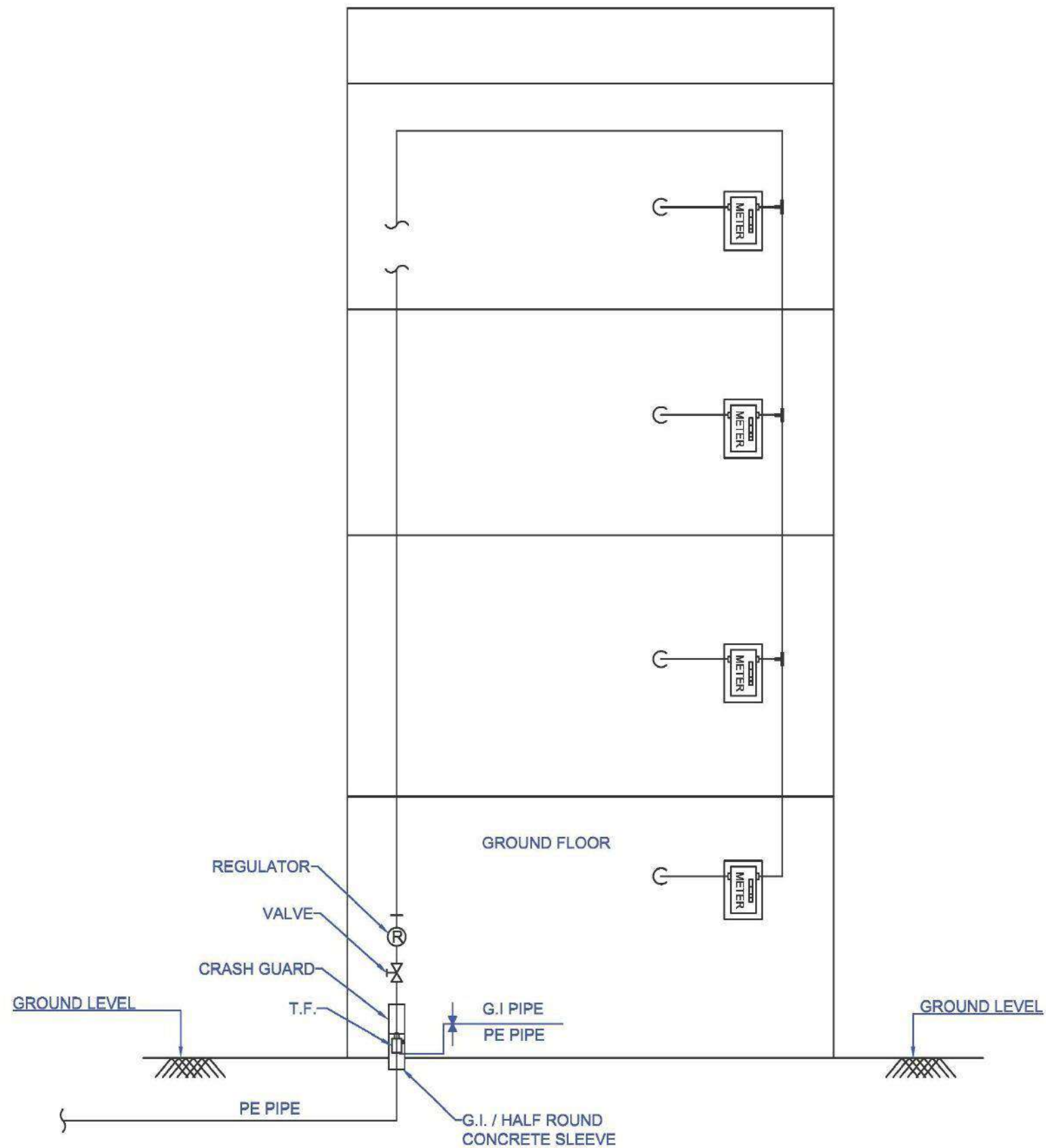
OWNER:  RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG DISTRIBUTION

SCALE	DATE	CAD FILE	CAD	A3
N.T.S.		DATE		

DRG. NO. 1008-20-05-07 REV-0



NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
3. PIPING DOWNSTREAM METER SHALL BE COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
4. TENTATIVE RISER LENGTH (FROM OUTLET OF TRANSITION FITTING TO INLET OF ISOLATION VALVE) SHALL BE 1.5M. ANY CHANGES IN RISER LENGTH SHALL BE AFTER APPROVAL FROM EIC.
5. G.I. INSTALLATION / METER INSTALLATION SHALL BE DECIDED BY OWNER / OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THEN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR IF G.I. PIPE GOES TO THE APPLIANCE VALVE THEN G.I. FITTING SHALL BE USED AT THE OUTLET OF THE METER.
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1.5M WHEN PIPE GOES IN THE STRAIGHT LENGTH, IF ANY TEE OR ANY FITTING IS USED IN BETWEEN THE PIPE THEN CLAMP SHALL BE PLACED 150 MM AWAY FROM CENTER LINE OF THE FITTING AT EVERY SIDE. HOWEVER, THE SAME MAY BE CHANGED AS PER SITE CONDITIONS / AS DIRECTED BY EIC.
8. TAPPING SHALL BE LEFT NEAR OUTSIDE THE KITCHEN AS DIRECTED BY OWNER / OWNER'S REPRESENTATIVE.
9. FROM TRANSITION FITTING TO THE ISOLATION VALVE, SHALL BE CONSIDERED IN THE OUTSIDE KITCHEN PIPING.
10. AT THE TIME OF MEASURING LENGTH OF G.I./COPPER PIPE, G.I./COPPER FITTINGS SHALL BE COUNTED IN THE PIPE LENGTH.

THIS IS THE GENERAL LAYOUT.

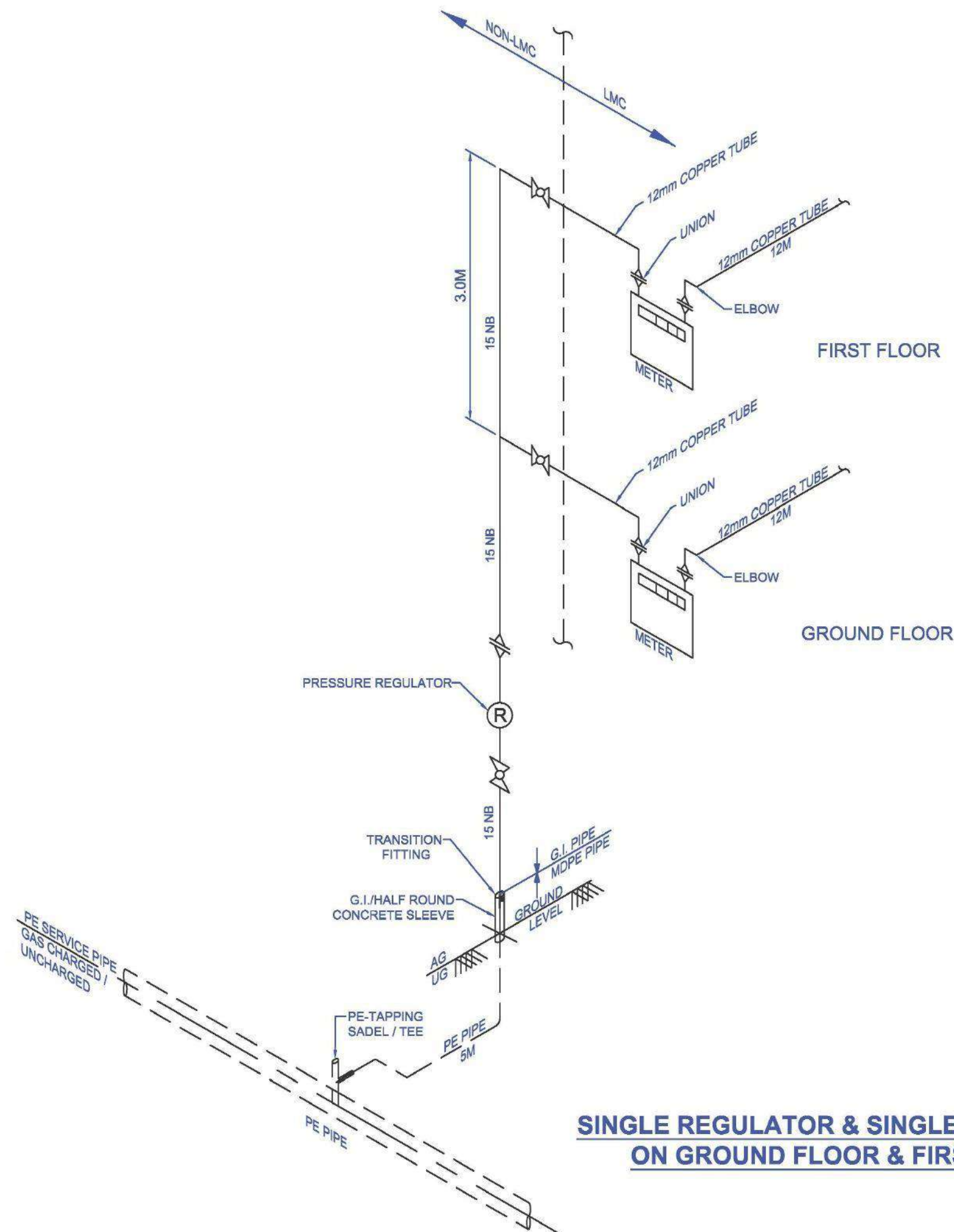
OWNER: RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION LAYOUT OF NG DISTRIBUTION

SCALE: N.T.S. DATE: CAD FILE: DATE: CAD A3

DRG. NO. 1008-20-05-08 REV-0



NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
3. PIPING DOWNSTREAM METER SHALL BE COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
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5. G.I. INSTALLATION / METER INSTALLATION SHALL BE DECIDED BY OWNER / OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THEN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR IF G.I. PIPE GOES TO THE APPLIANCE VALVE THEN G.I. FITTING SHALL BE USED AT THE OUTLET OF THE METER.
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1.5M WHEN PIPE GOES IN THE STRAIGHT LENGTH, IF ANY TEE OR ANY FITTING IS USED IN BETWEEN THE PIPE THEN CLAMP SHALL BE PLACED 150 MM AWAY FROM CENTER LINE OF THE FITTING AT EVERY SIDE. HOWEVER, THE SAME MAY BE CHANGED AS PER SITE CONDITIONS / AS DIRECTED BY EIC.

THIS IS THE GENERAL LAYOUT.
FOR LMC AND NON-LMC

OWNER: RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG FOR KOTHI

SCALE	DATE	CAD FILE	DATE	CAD	A3
N.T.S.					

DRG. NO. 1008 -20-05-14 REV-0

- NOTES:-
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
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THIS IS THE GENERAL LAYOUT.
FOR LMC AND NON-LMC

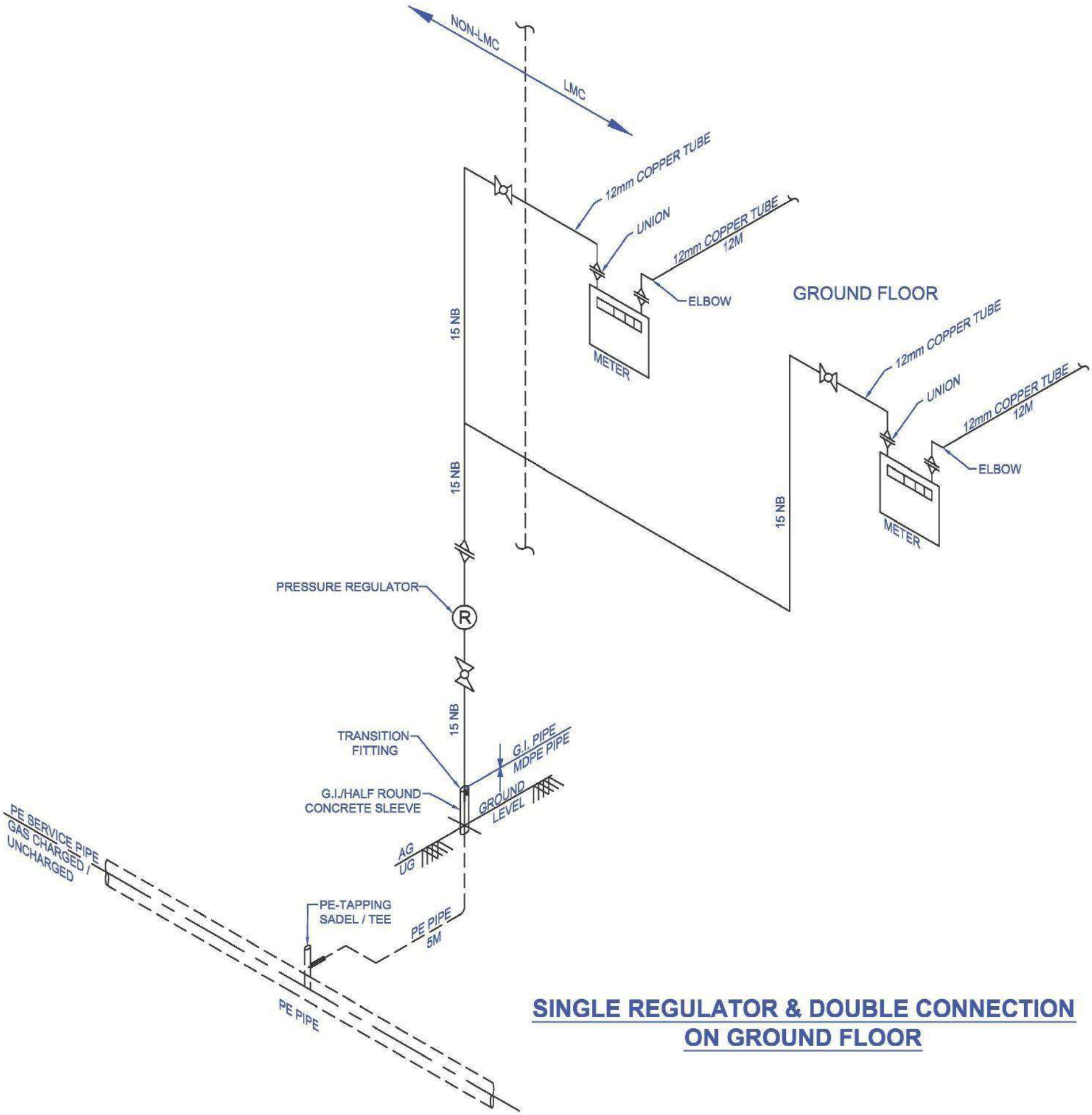
OWNER: RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG DISTRIBUTION

SCALE	DATE	CAD FILE	CAD	A3
N.T.S.		DATE		

DRG. NO. 1008-20-05-13 REV-0





DRG. NO. 1008-20-05-11 REV-0

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
3. PIPING DOWNSTREAM METER SHALL BE COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
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THIS IS THE GENERAL LAYOUT.
FOR LMC AND NON-LMC

OWNER:

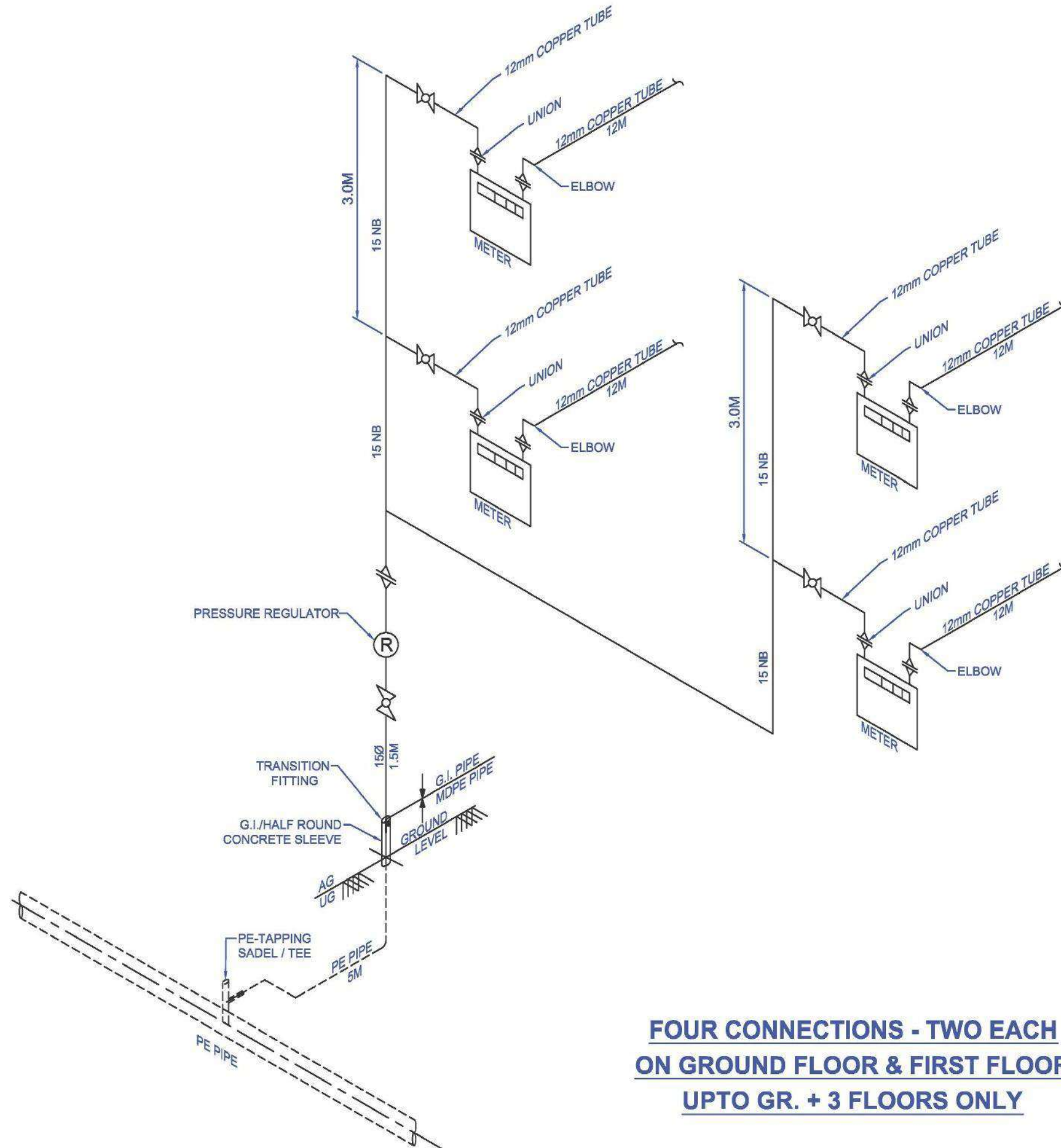
RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

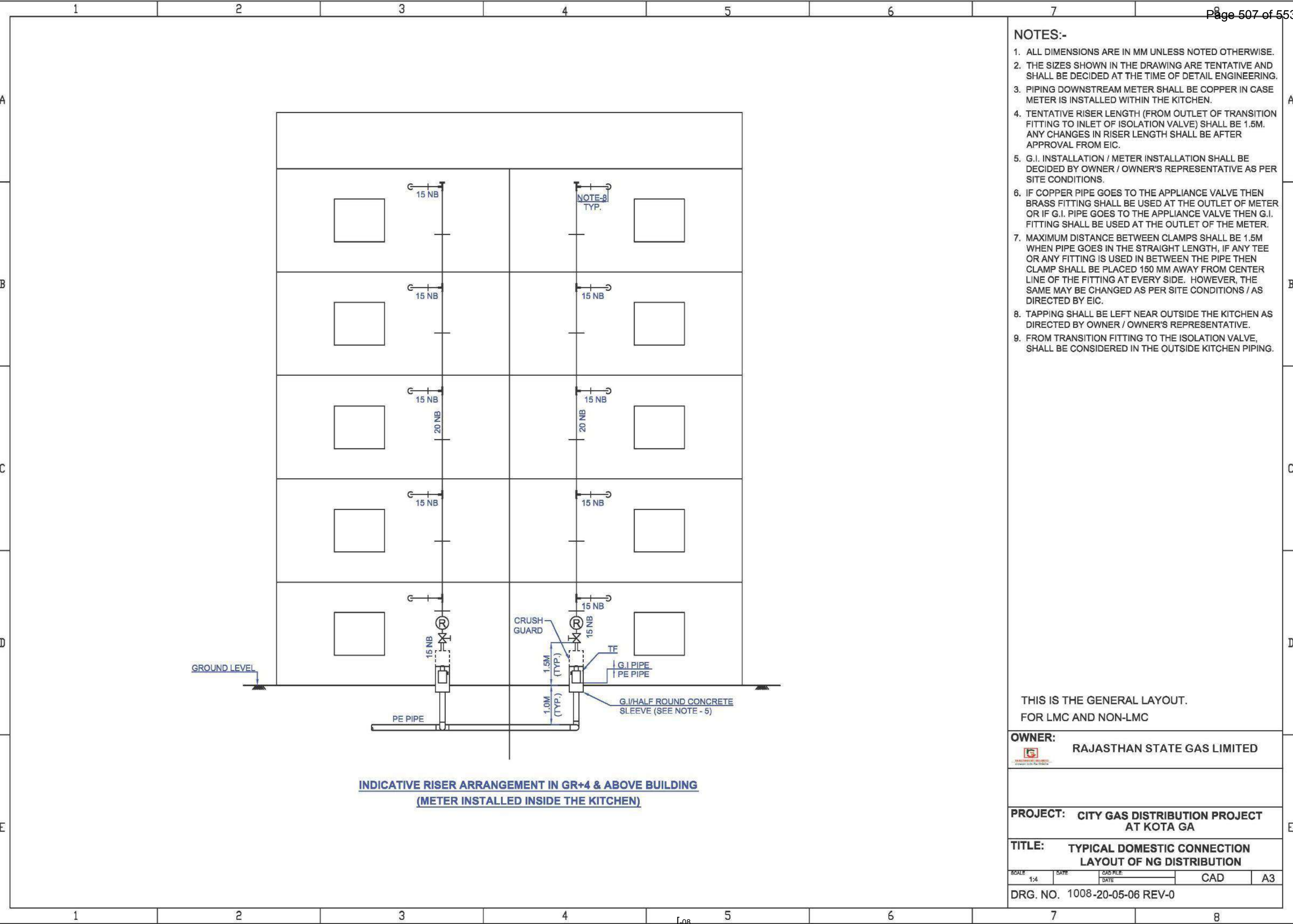
TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG DISTRIBUTION

SCALE	DATE	CAD FILE	DATE	CAD	A3
N.T.S.					

DRG. NO. 1008 -20-05-10 REV-0



**FOUR CONNECTIONS - TWO EACH
ON GROUND FLOOR & FIRST FLOOR
UPTO GR. + 3 FLOORS ONLY**



- NOTES:-**
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
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 8. TAPPING SHALL BE LEFT NEAR OUTSIDE THE KITCHEN AS DIRECTED BY OWNER / OWNER'S REPRESENTATIVE.
 9. FROM TRANSITION FITTING TO THE ISOLATION VALVE, SHALL BE CONSIDERED IN THE OUTSIDE KITCHEN PIPING.

THIS IS THE GENERAL LAYOUT.
FOR LMC AND NON-LMC

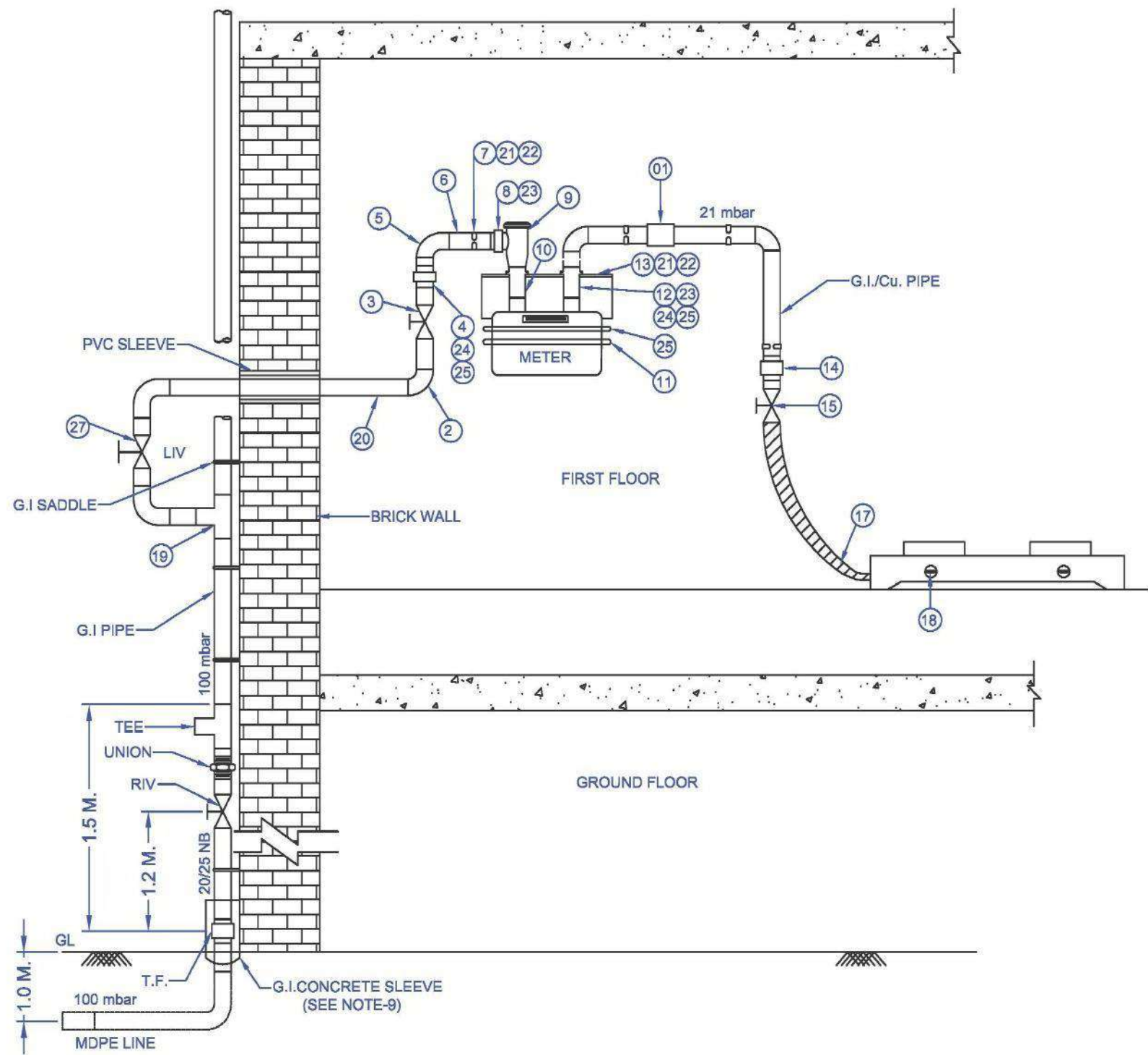
OWNER: RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION
LAYOUT OF NG DISTRIBUTION

SCALE 1:4	DATE	CAD FILE DATE	CAD	A3

DRG. NO. 1008-20-05-06 REV-0



NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE AND SHALL BE DECIDED AT THE TIME OF DETAIL ENGINEERING.
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8. TAPPING SHALL BE LEFT NEAR OUTSIDE THE KITCHEN AS DIRECTED BY OWNER / OWNER'S REPRESENTATIVE.
9. G.I CONCRETE SLEEVE INSTALLATION SHALL BE DECIDED BY OWNER / OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
10. REGULATOR TO BE FIXED NEAR THE METER AS PER INSTRUMENT AS PER INSTRUCTION OF EIC.

BILL OF MATERIAL			
SR. No.	MATERIAL DESCRIPTION	QTY.	REMARK
1.	COPPER COUPLER	01	
2.	90 DEG. ELBOW G.I.(1/2"-M/F END)	01	
3.	METER CONTROL VALVE (1/2")	01	
4.	BRASS DISCONNECTING UNION (1/2"x12mm)	01	
5.	G.I./Cu ELBOW (12mm)	02	
6.	G.I./Cu TUBE(12mm)	3m	INDICATIVE
7.	PVC. CLIP	05	
8.	BRASS DISCONNECTING UNION (3/4"x12mm)	01	
9.	METER REGULATOR	01	
10.	METER INLET UNION (3/4"x3/4")	01	
11.	GAS METER (2.5 m3/hr)	01	
12.	METER OUTLET UNION (3/4"x12mm)	01	
13.	METER BRACKET	01	
14.	BRASS ADAPTER(1/4"x12mm)	01	
15.	APPLIANCE VALVE WITH NOZZLE (1/4")	01	
16.	GAS STOVE	01	
17.	STEEL REINFORCED RUBBER HOSE	1m	TYPICAL
18.	NOZZLE JET	02	
19.	COPPER EQUAL TEE	01	OPTIONAL
20.	25mm OD. PVC. PIPE AS PER IS - 4986	01	
21.	RAWAL PLUGS	07	
22.	WOOD SCREW	07	
23.	TEFLON TAPE	4m	INDICATIVE
24.	SOLDER WIRE	20 gms	
25.	FLUX	15 gms	
26.	METER CLAMP	01	
27.	LATERAL VALVE	01	

THIS IS THE GENERAL LAYOUT.

OWNER: RAJASTHAN STATE GAS LIMITED

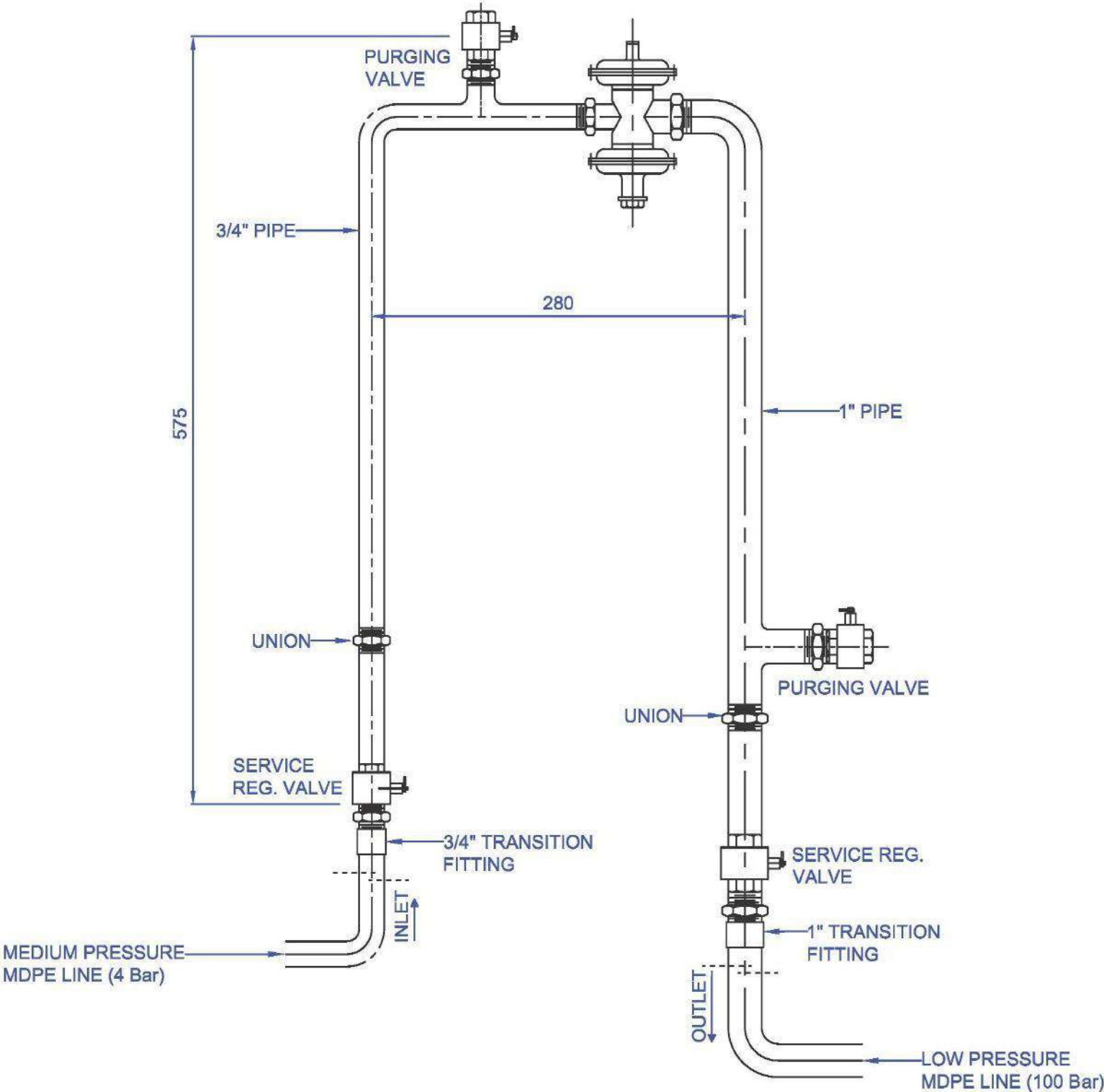
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA

TITLE: TYPICAL DOMESTIC CONNECTION LAYOUT OF NG DISTRIBUTION

SCALE: N.T.S. DATE: CAD FILE: DATE: CAD A3

DRG. NO. 1008-20-05-07 REV-0

- NOTES:-
- 1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
 - 2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING.



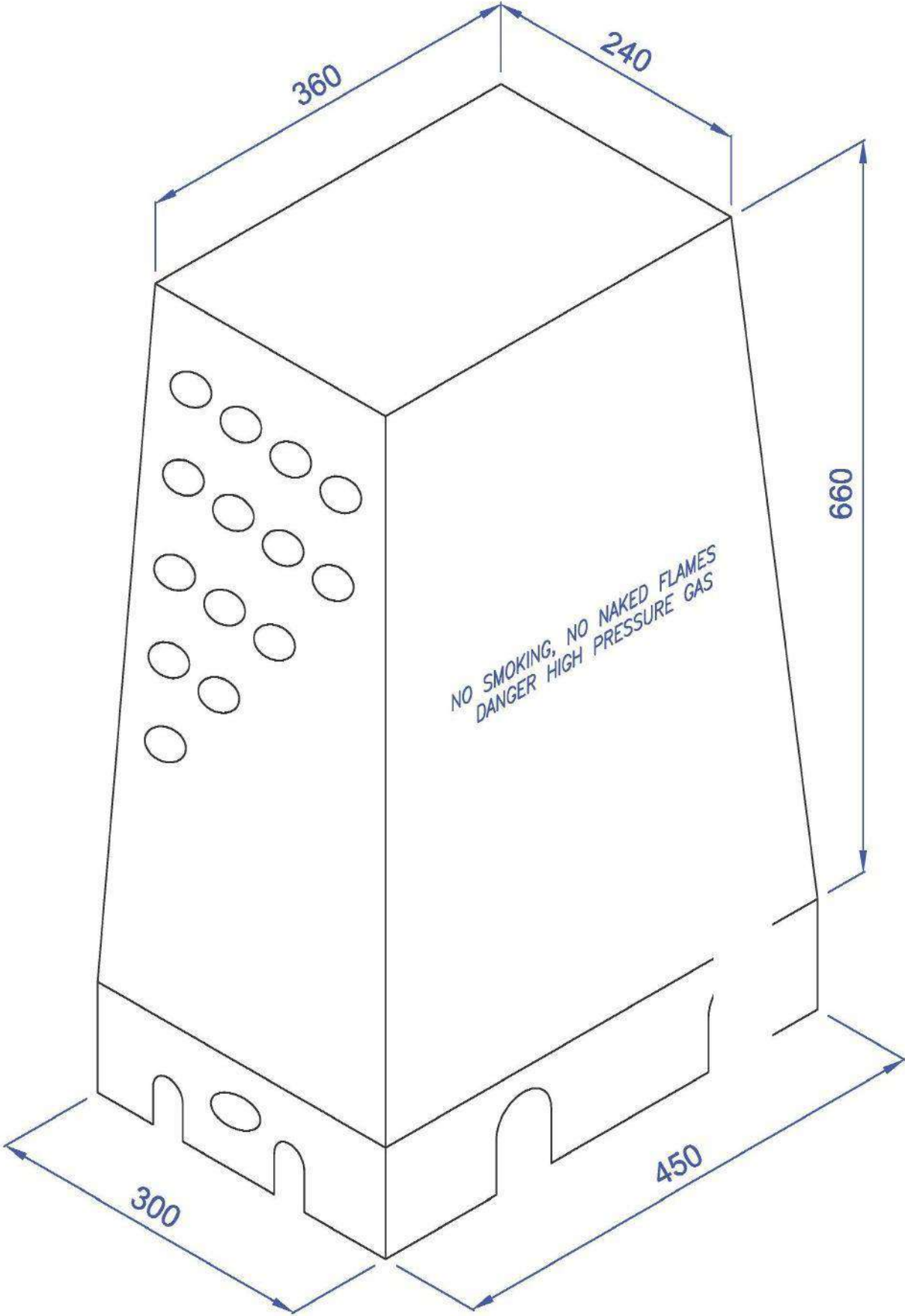
OWNER:  RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: SCHEMATIC DIAGRAM FOR SINGLE
STREAM REGULATOR

SCALE 1:4	DATE	CAD FILE DATE	CAD	A3

DRG. NO. 1008-20-05-37 REV-0



NOTES:-

- 1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- 2. THE HOUSING SHOULD BE OF FIBER REINFORCED PLASTIC (FRP).
- 3. 40mm GROUTING WITH NON SHRINKAGE COMPOUND SHALL BE PROVIDED AT BOTTOM OF SERVICE REGULATOR.

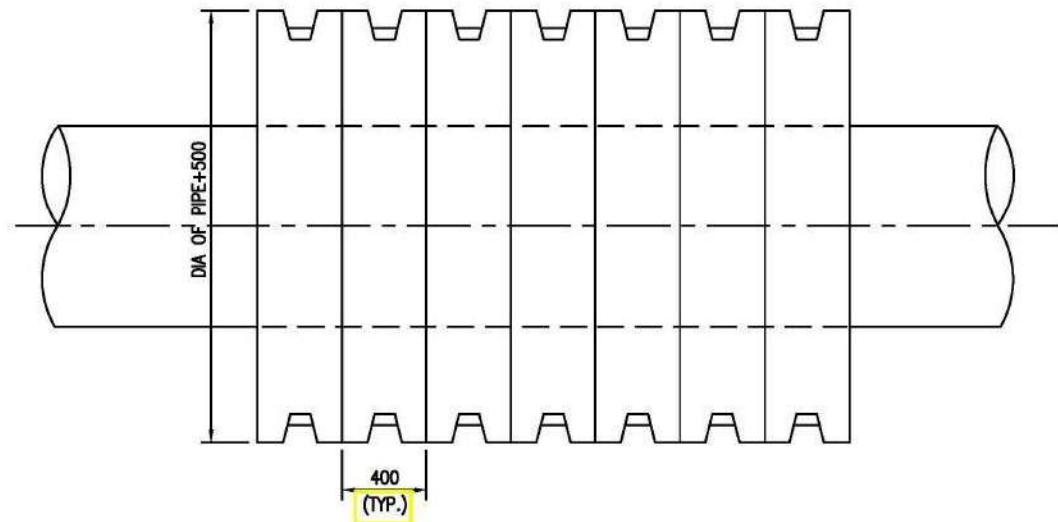
OWNER:  RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

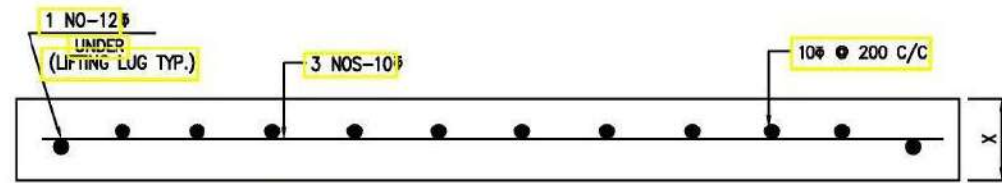
TITLE: SCHEMATIC DIAGRAM OF HOUSING
FOR SINGLE SERVICE REGULATOR

SCALE 1:5	DATE	CAD FILE DATE	CAD	A3

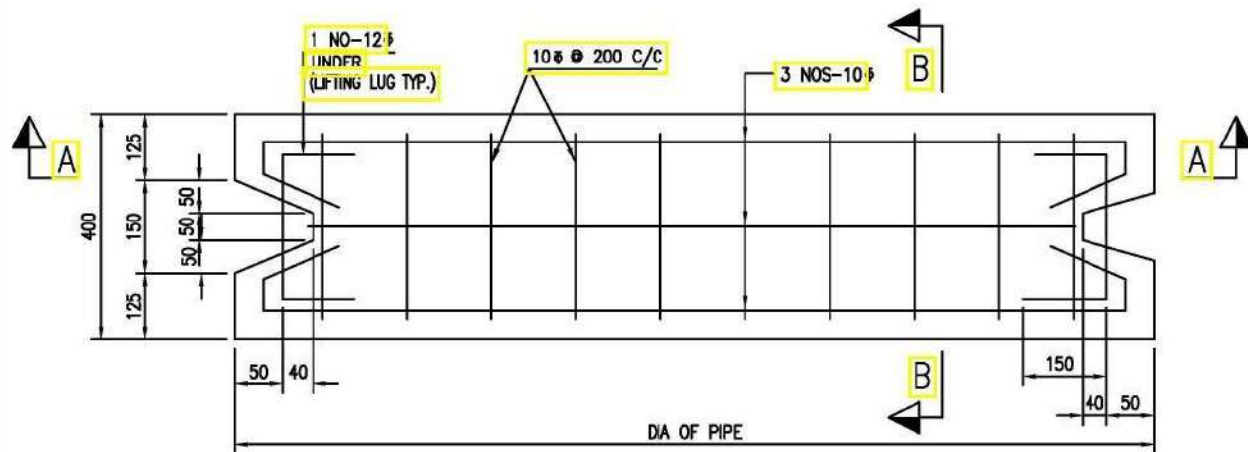
DRG. NO. 1008-20-05-42 REV-0



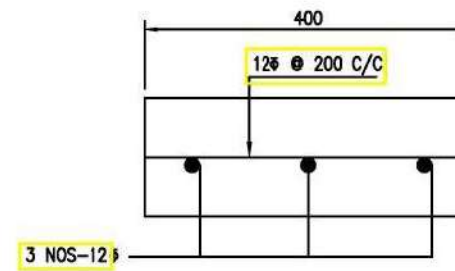
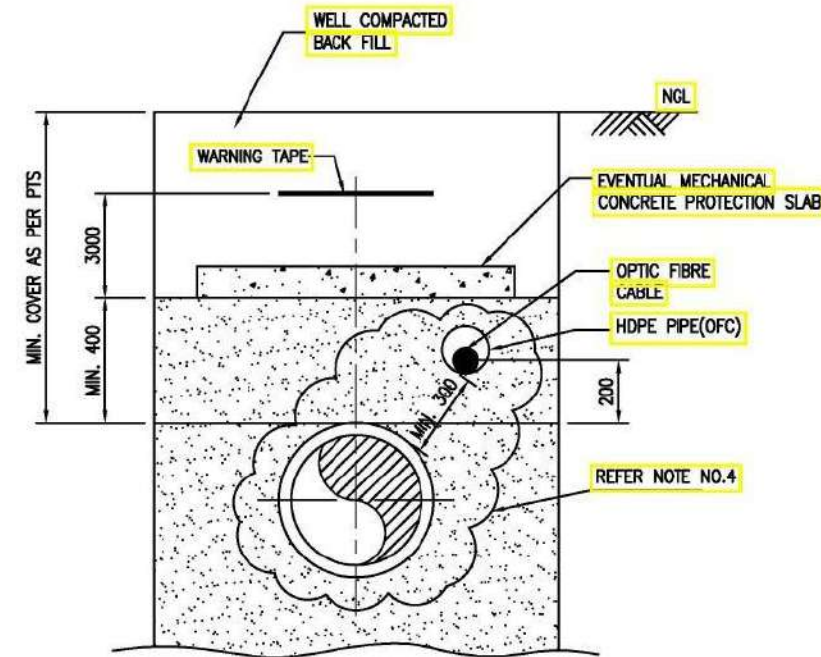
PROTECTIVE CONCRETE SLAB PLAN



SECTION A-A



REINER DETAIL PROTECTIVE CONCRETE SLAB

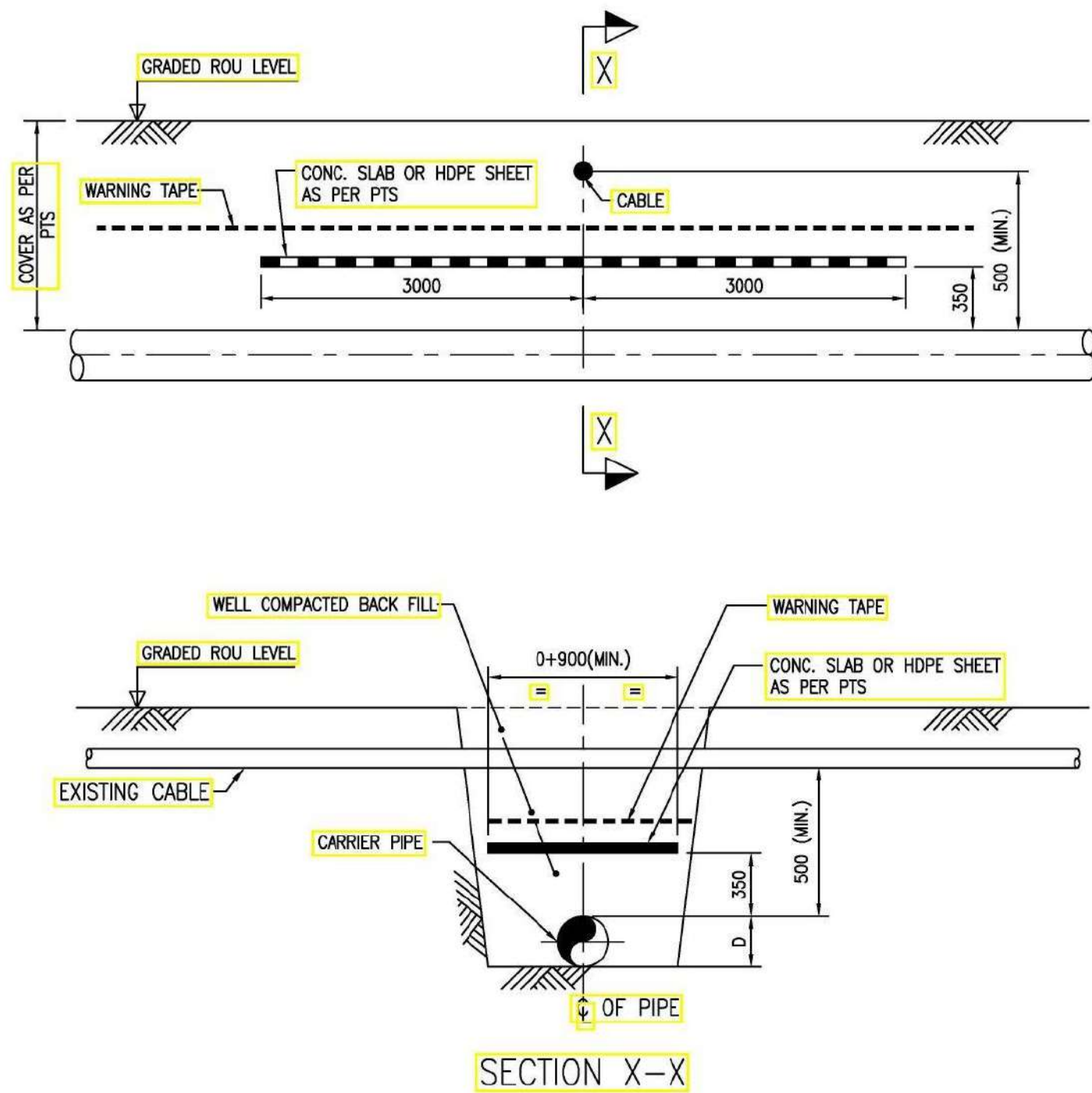


SECTION B-B

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. MINIMUM COVER OVER LINE PIPE SHALL BE AS PER SPECIFICATION AND REQUIREMENT OF CONCERNED AUTHORITIES.
3. THIS SKETCH IS INDICATIVE ONLY.
4. TYPE OF TRENCHING SHALL BE AS PER PTS AND APPROVED PROCEDURE.
5. CONCRETE MIX M20 SHALL BE USED.

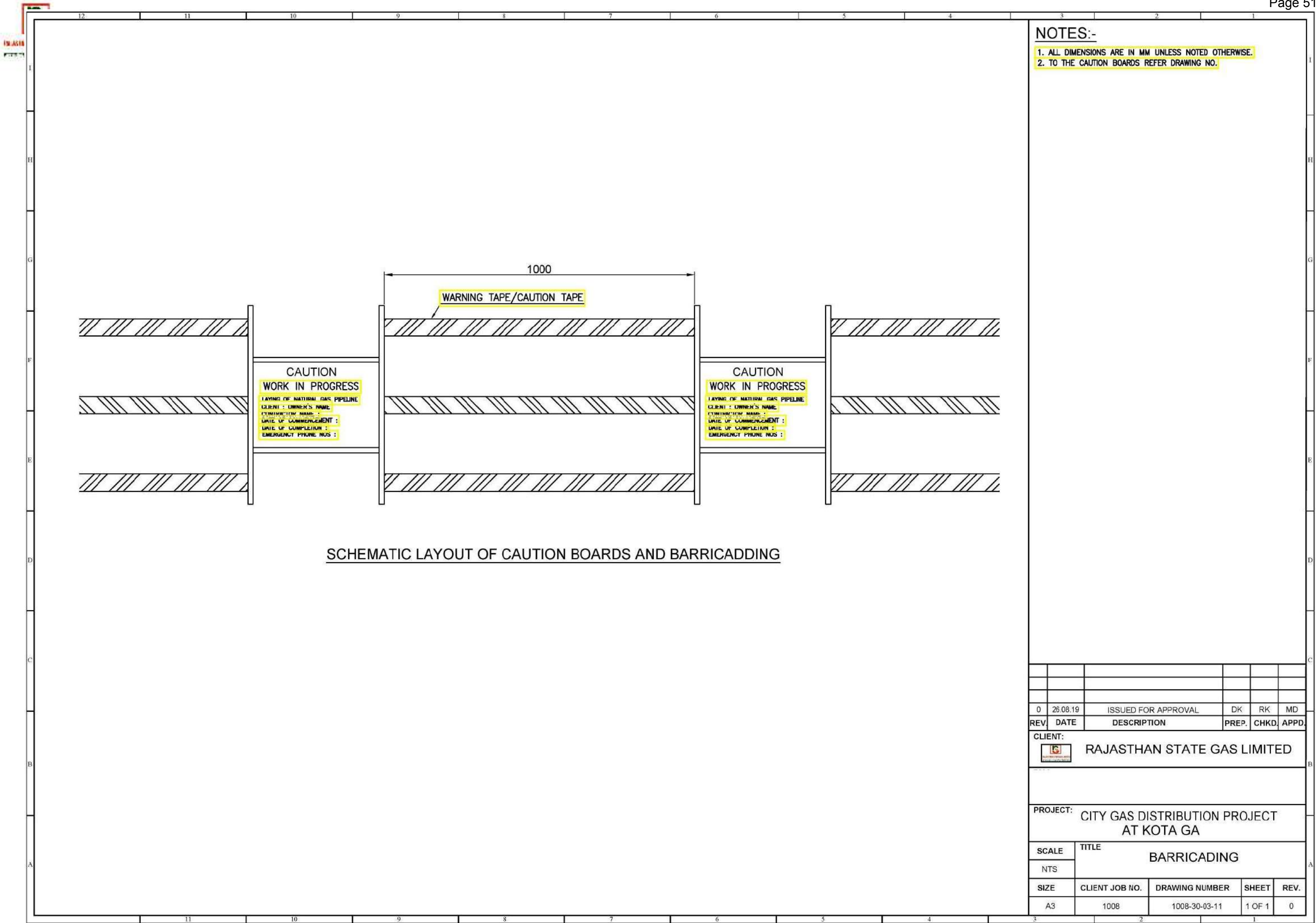
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REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT: RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	TYPICAL MECHANICAL PROTECTION CONCRETE SLAB DETAILS				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-03	1 OF 1	0	



NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. A MODIFIED PIPELINE WARNING SIGN SHALL BE INSTALLED CLOSE TO THE CROSSING.
3. IN CASE OF ARMoured OFC CABLE, C.P. BONDING IS TO BE PROVIDED BETWEEN PIPELINE AND CABLE ARMOUR, IN CASE OF UNARMoured CABLE ARRANGEMENT FOR SHIFTING (BY PROVIDING CASING ON EITHER SIDE OF THE PIPELINE OR CABLE) SHALL BE CONSIDERED.
4. APPROVAL OF THE CROSSING SHALL BE OBTAINED FROM CONCERNED AUTHORITIES. FOR CONCRETE SLAB, REFER STD. DRG NO. WGI
5. FOR CONCRETE SLAB REFER DWG. NO. - 11-0432-02-05-05-01-109.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT:					
 RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	TYPICAL UNDERGROUND CABLE CROSSING DETAILS				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-04	1 OF 1	0	



NOTES:-

- 1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
- 2. TO THE CAUTION BOARDS REFER DRAWING NO.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.

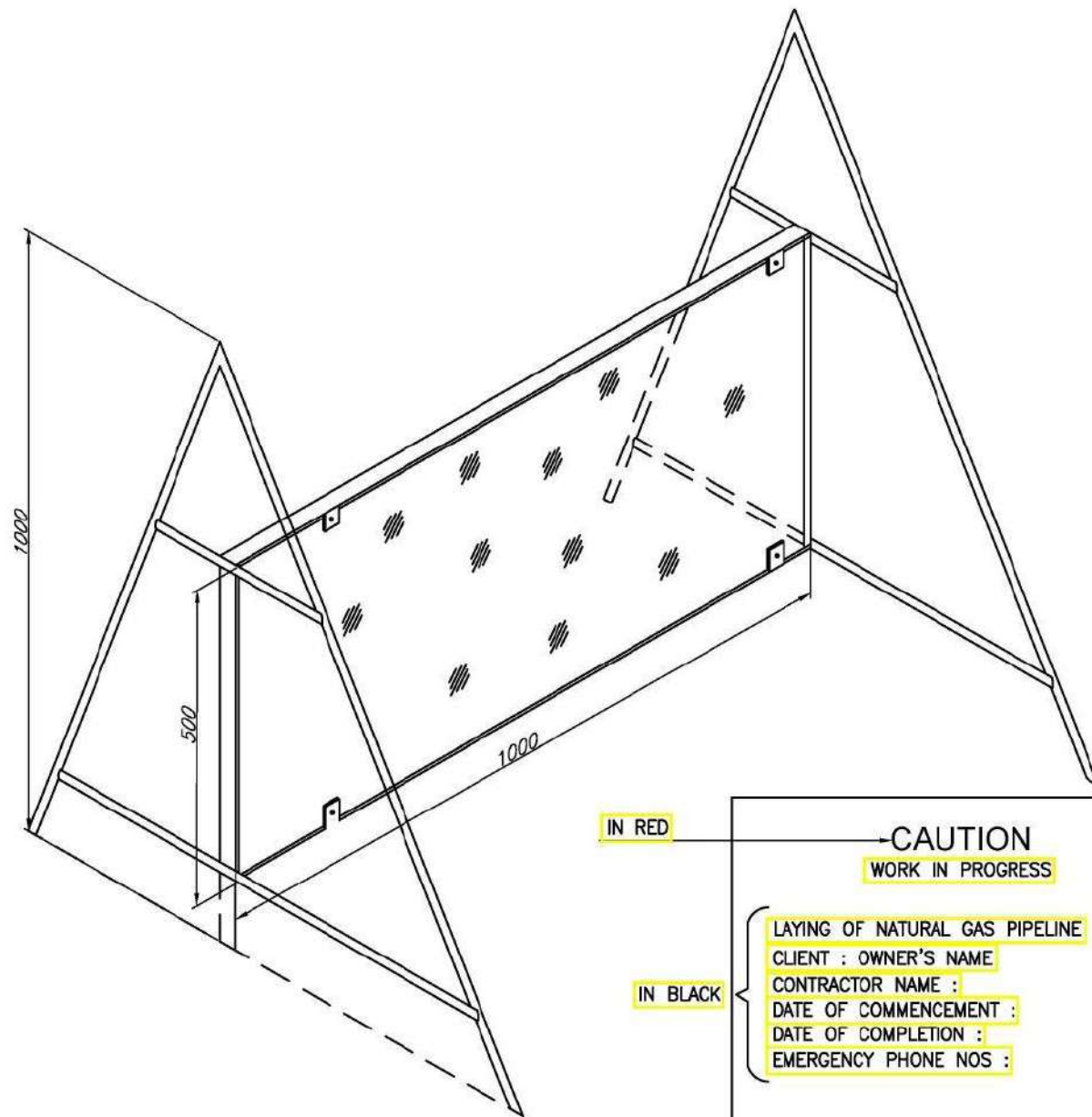
CLIENT:

 **RAJASTHAN STATE GAS LIMITED**

PROJECT:

**CITY GAS DISTRIBUTION PROJECT
AT KOTA GA**

SCALE	TITLE				
NTS	BARRICADING				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-11	1 OF 1	0	



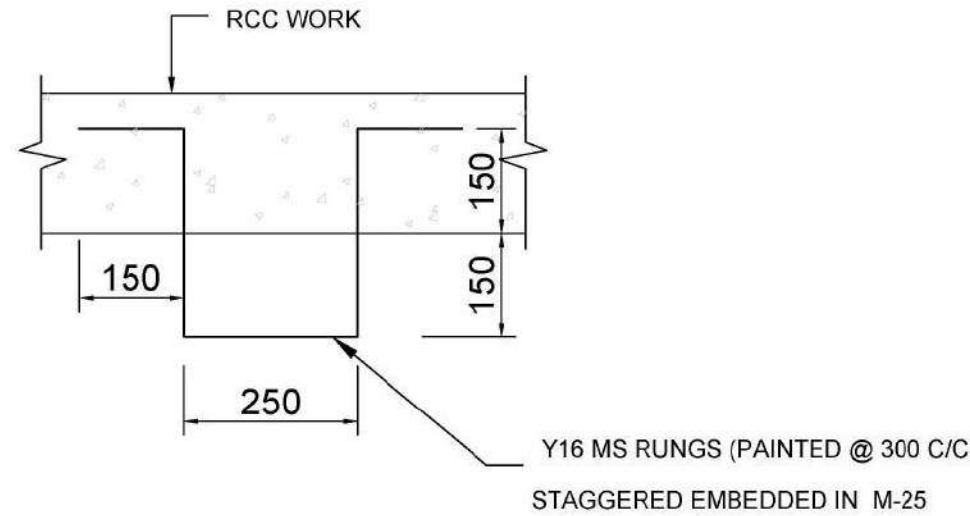
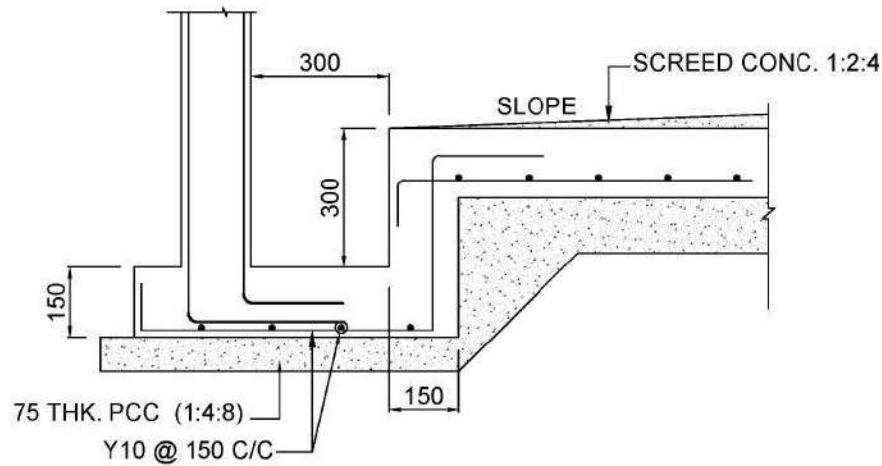
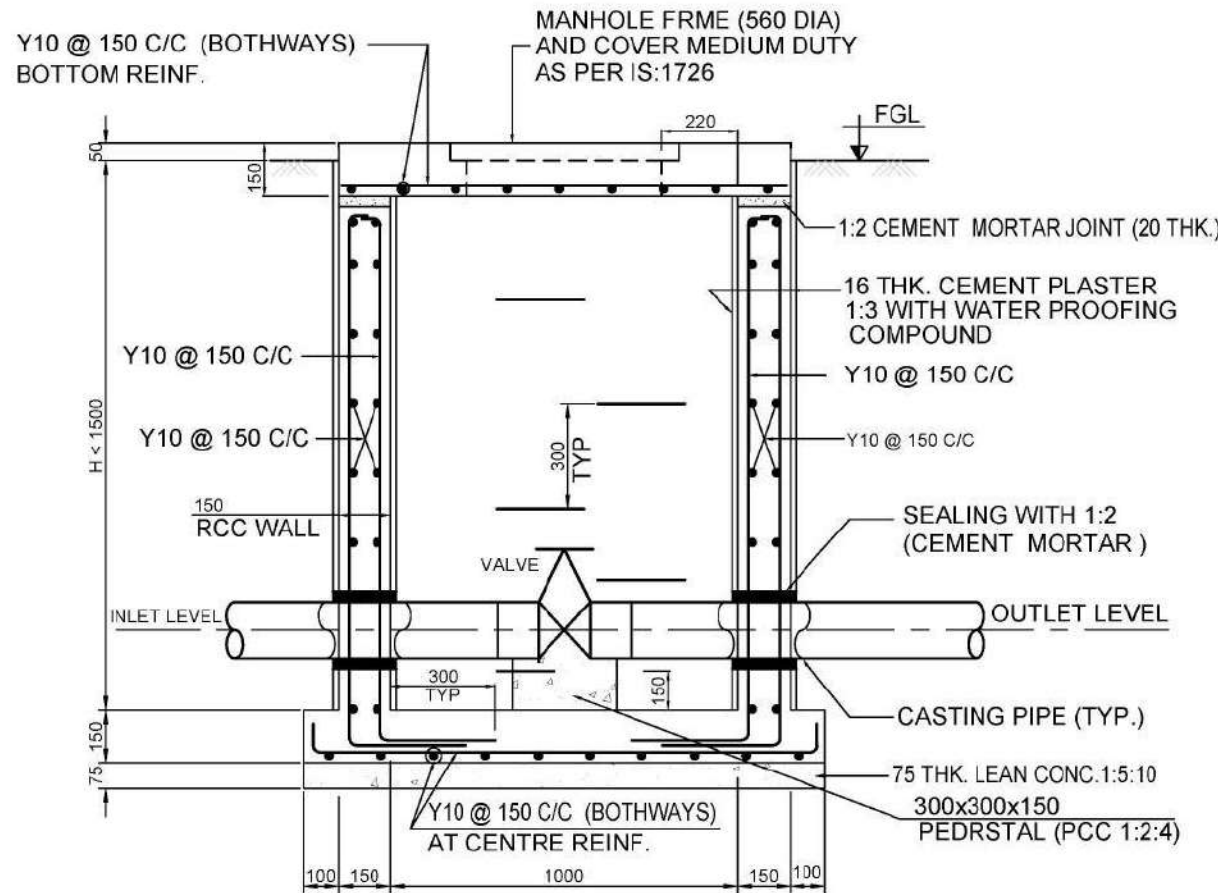
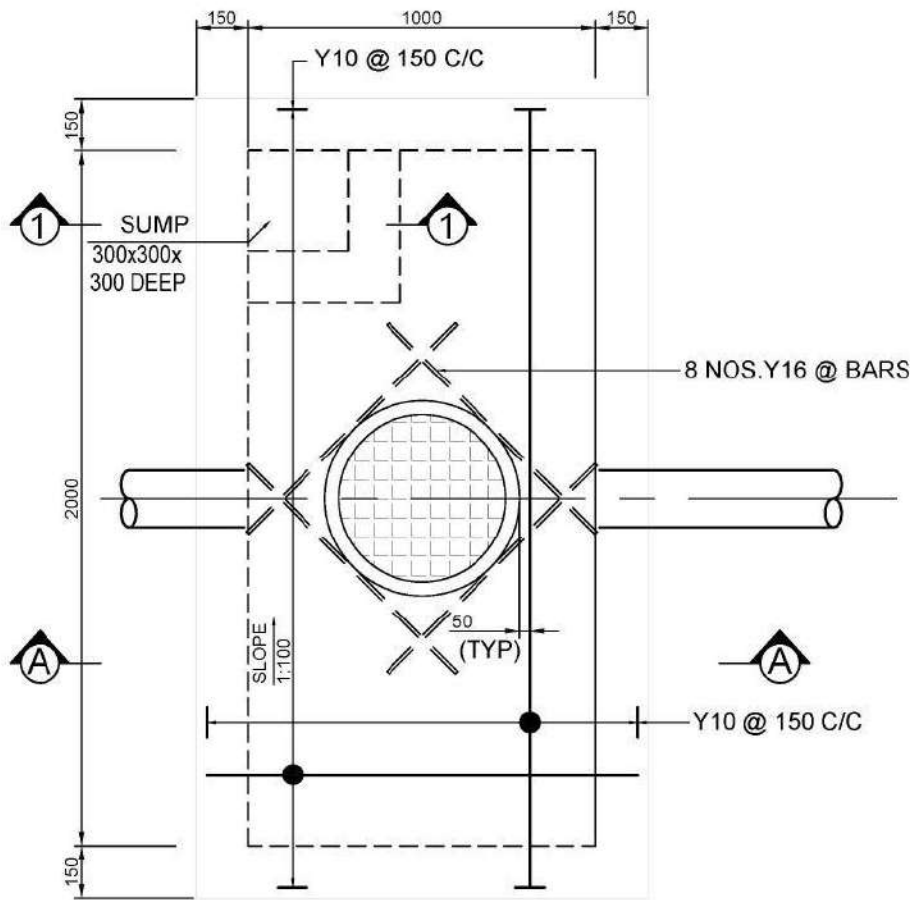
NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.

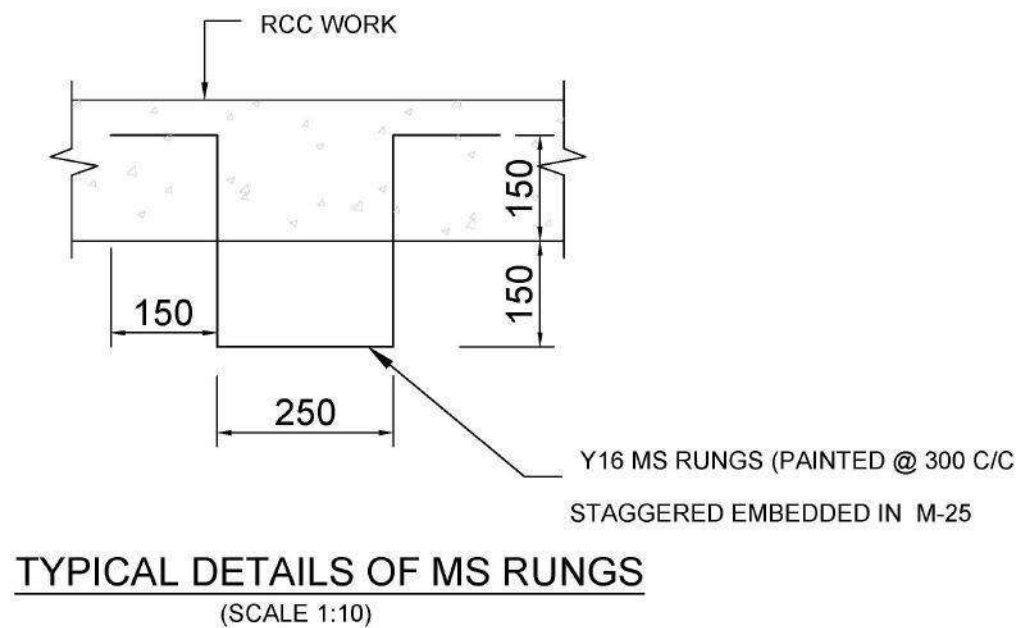
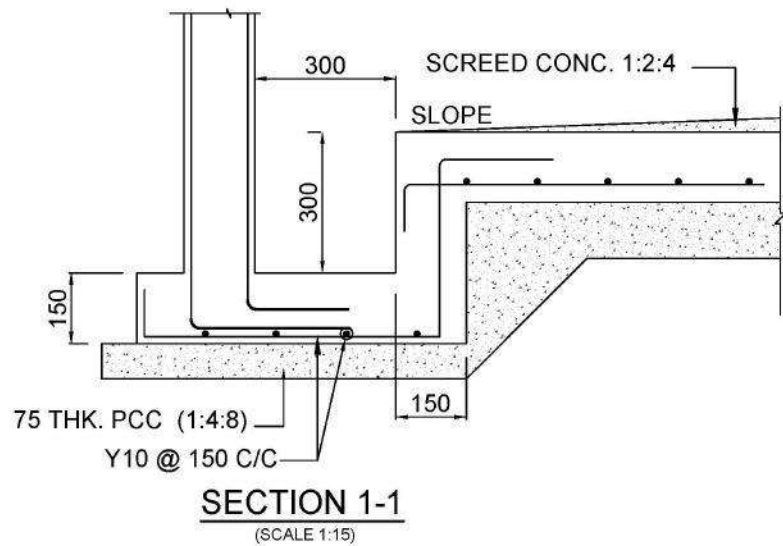
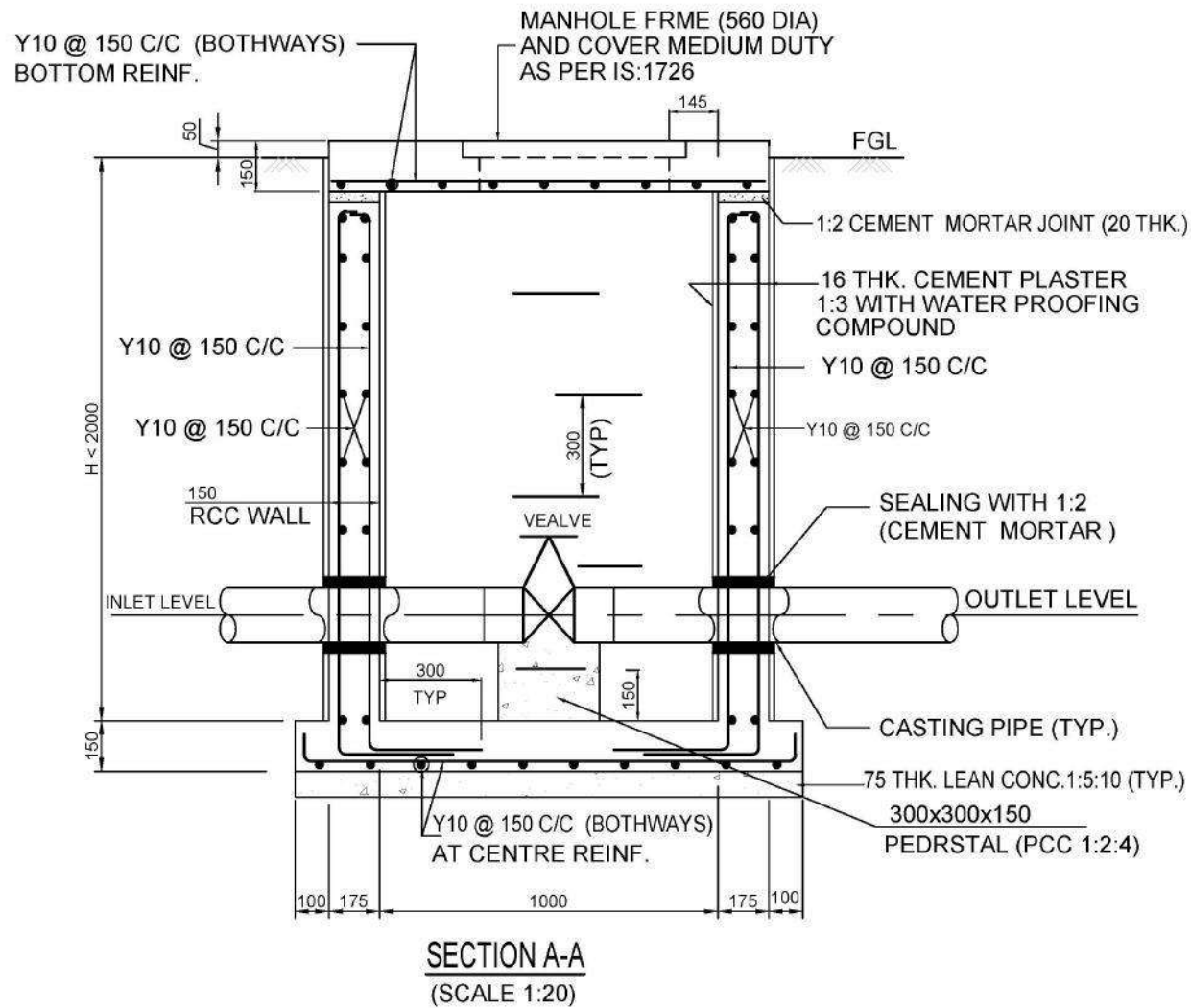
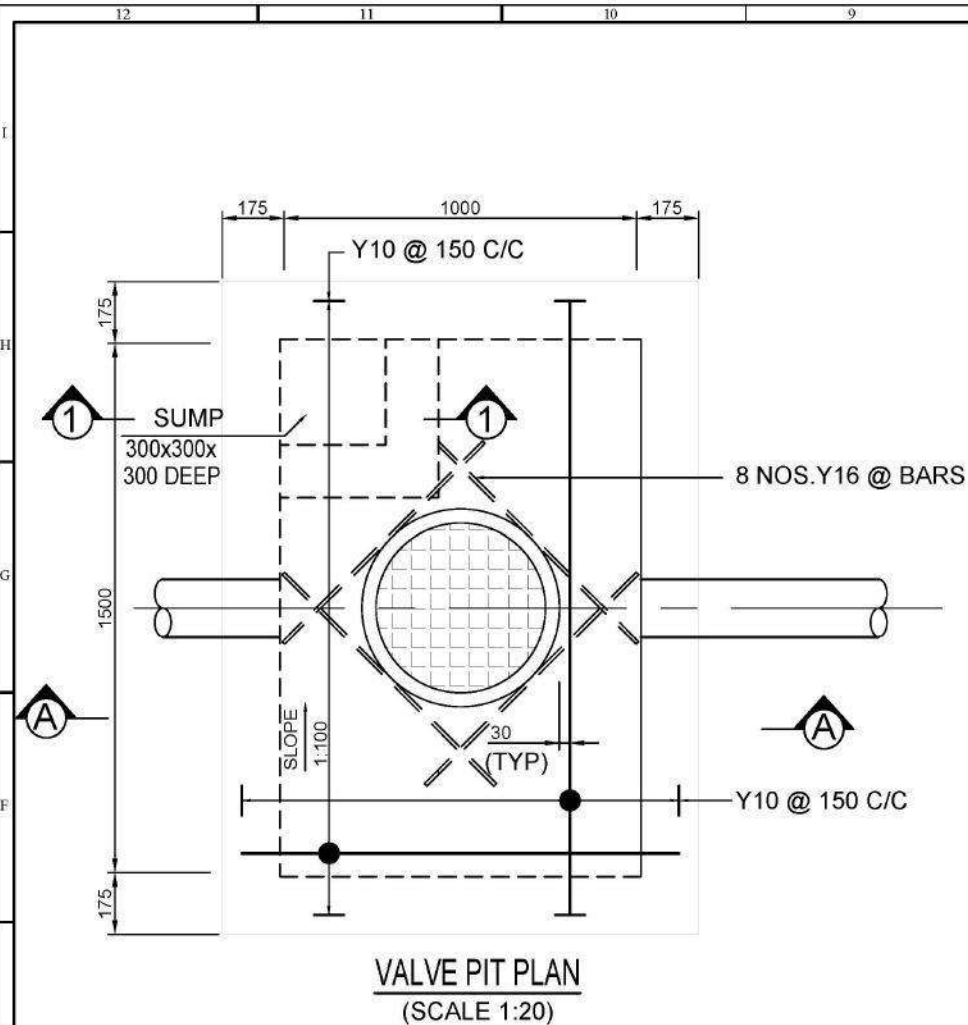
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REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT:					
 RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	CAUTION BOARD				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-12	1 OF 1	0	

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE (a) SLAB 20mm
4. GRADE OF CONCRETE USED SHALL BE M-25 CONFORMING.
5. REINFORCEMENT SHALL BE HYSD BARS OF (GRADE Fe 415) CONFORMING TO IS:1786.



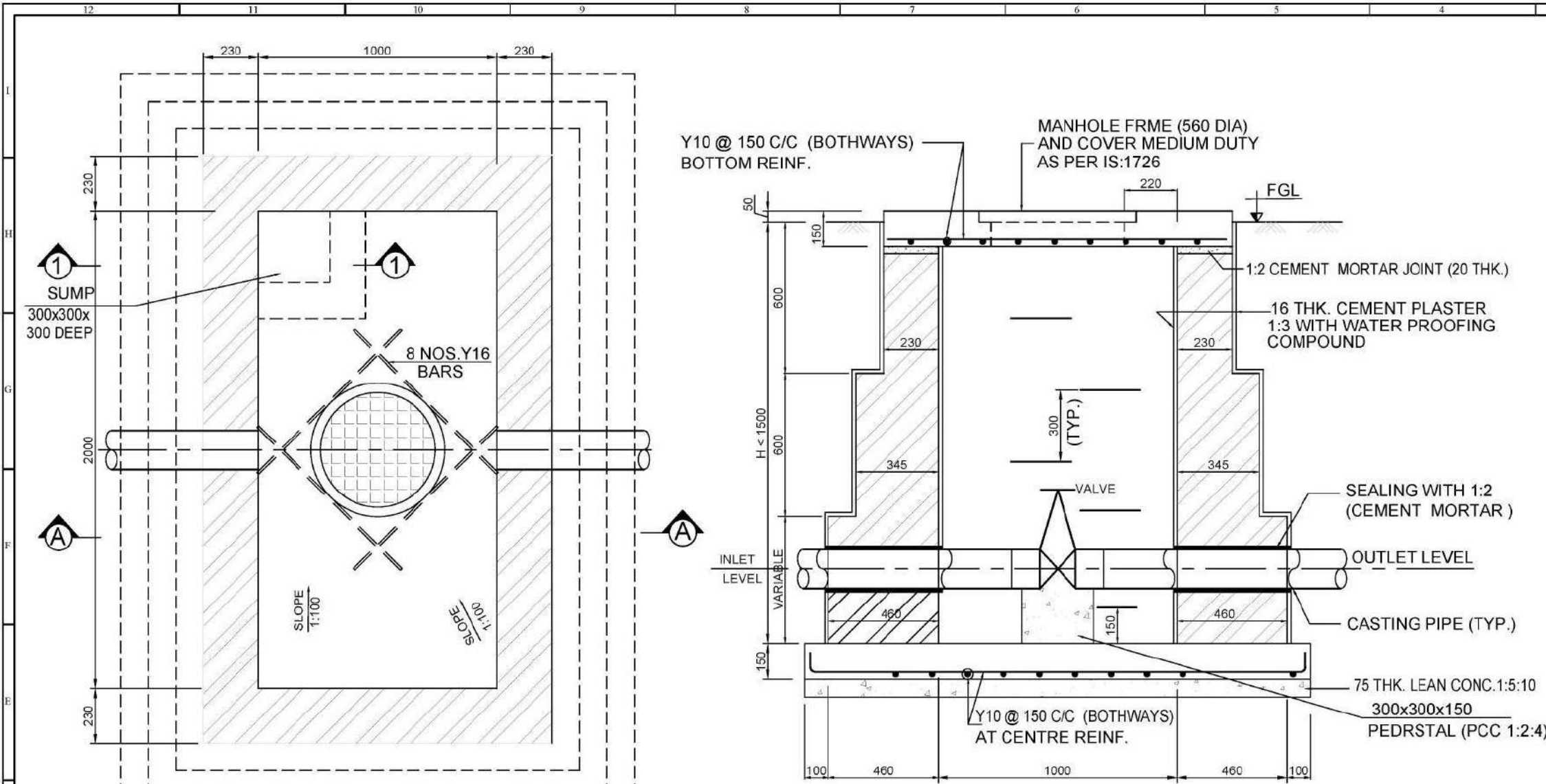
0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT: RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
TITLE: STANDARD DETAIL OF RCC VALVE CHAMBER (TYPE-1)					
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-20	1 OF 1	0	



NOTES:-

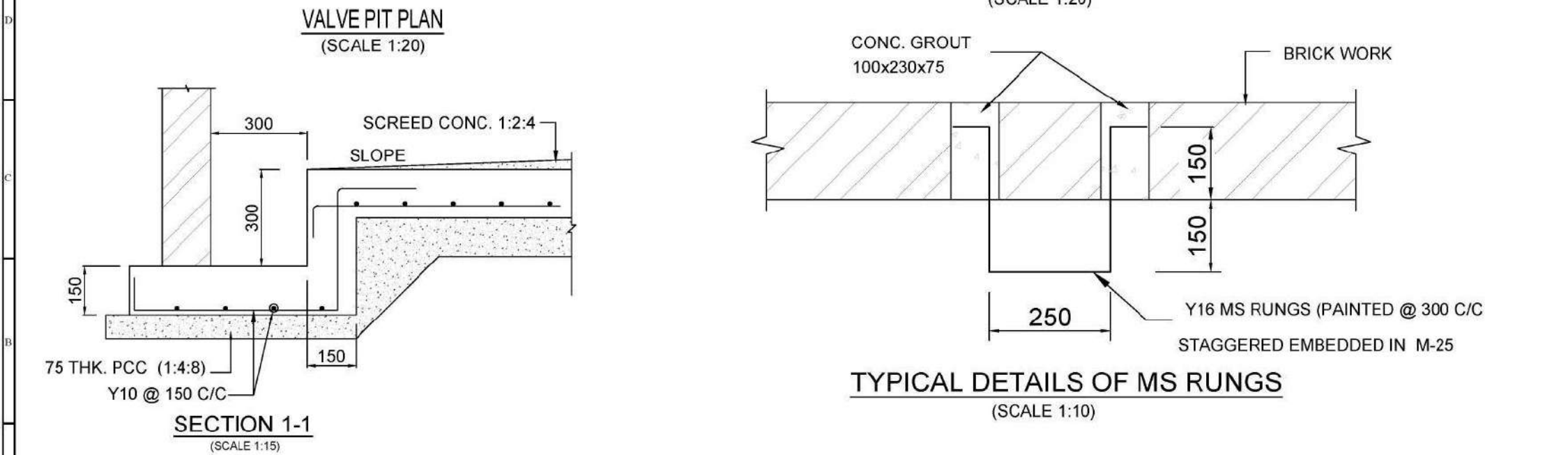
1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE (a) SLAB 20mm
4. GRADE OF CONCRETE USED SHALL BE M-25 CONFORMING
5. REINFORCEMENT SHALL BE HYSD BARS OF (GRADE Fe 415) CONFORMING TO IS:1786.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT: RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	STANDARD DETAIL OF RCC VALVE CHAMBER (TYPE-2)				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-21	1 OF 1	B	

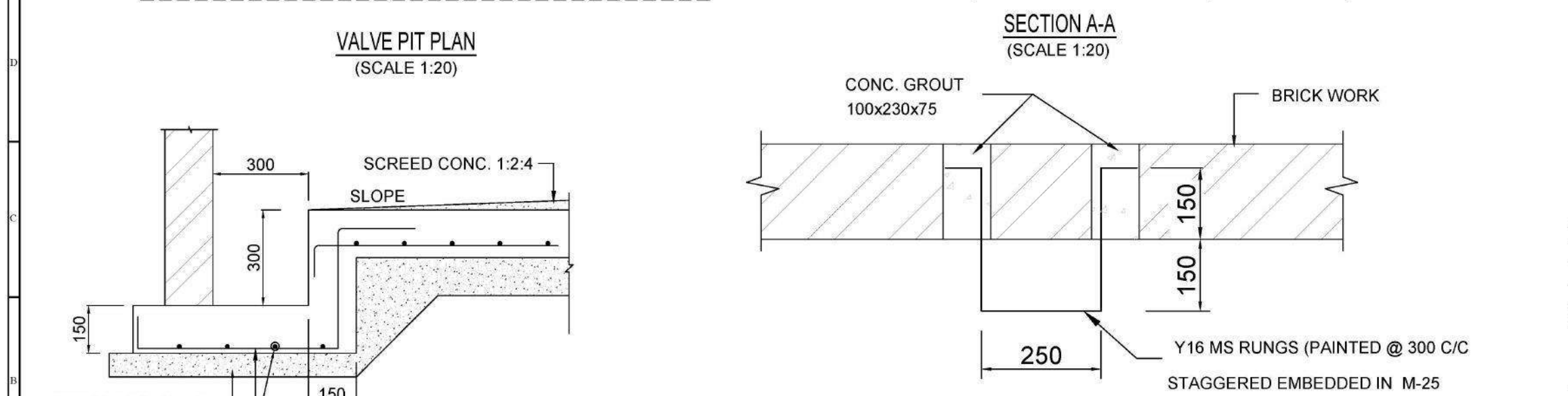
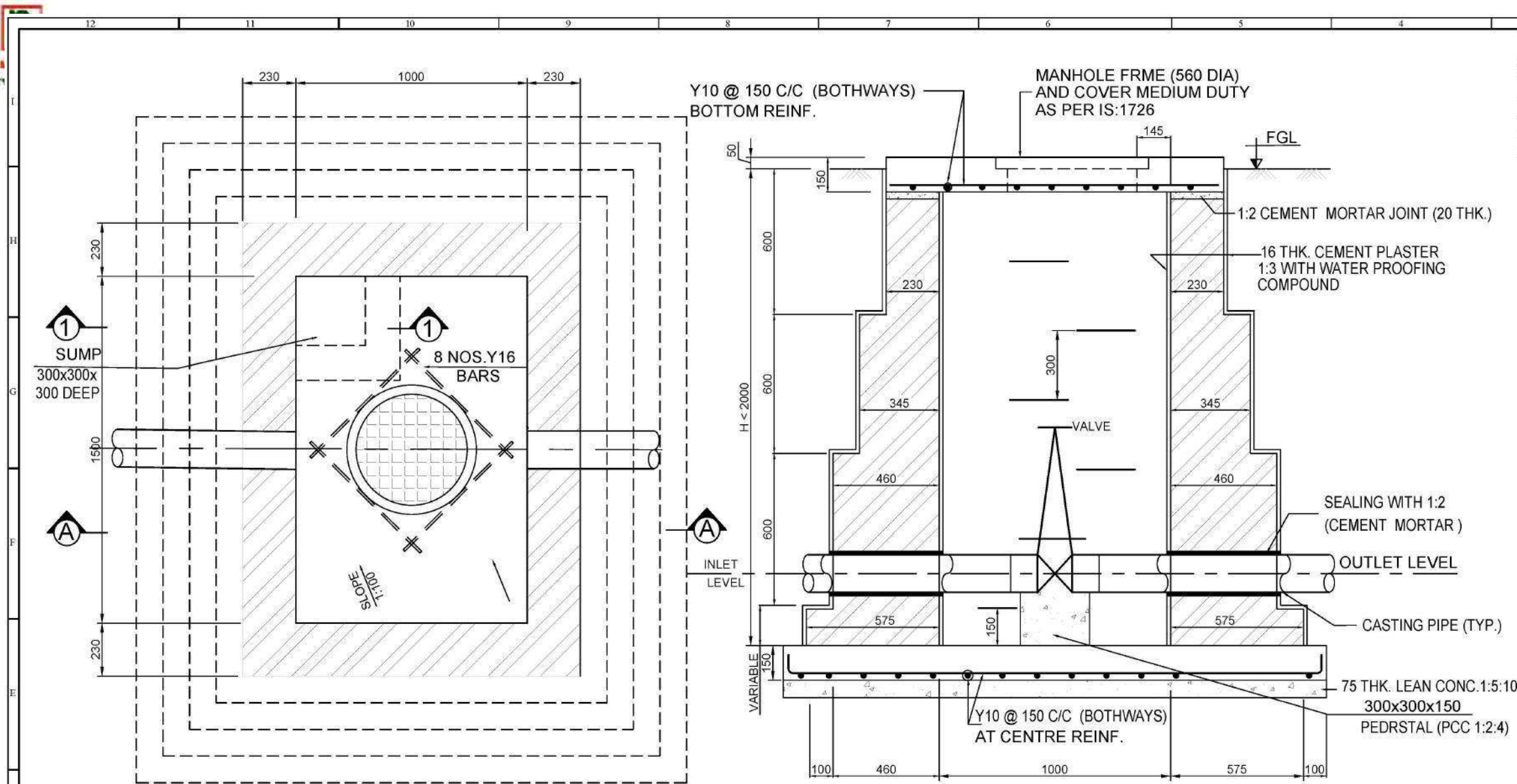


NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE (a) SLAB 20mm
4. GRADE OF CONCRETE USED SHALL BE M-25 CONFORMING.
5. REINFORCEMENT SHALL BE HYSD BARS OF (GRADE Fe 415) CONFORMING TO IS:1786.



0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT: RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
TITLE: STANDARD DETAIL OF BRICK VALVE CHAMBER (TYPE-1)					
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-22	1 OF 1	0	



REFERENCE DRAWINGS / DOCUMENTS

S.NO.	TITLE	NO.

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. FOLLOW WRITTEN DIMENSIONS ONLY. DO NOT SCALE THE DRAWING
3. CLEAR COVER TO MAIN REINFORCEMENT SHALL BE (a) SLAB 20mm
4. GRADE OF CONCRETE USED SHALL BE M-25 CONFORMING
5. REINFORCEMENT SHALL BE HYSD BARS OF (GRADE Fe 415) CONFORMING TO IS:1786.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD.	APPD.

CLIENT: **RAJASTHAN STATE GAS LIMITED**

PROJECT: **CITY GAS DISTRIBUTION PROJECT AT KOTA GA**

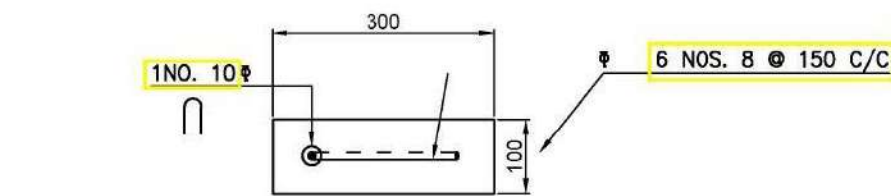
SCALE: **TITLE**
STANDARD DETAIL OF BRICK VALVE CHAMBER (TYPE-2)

SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.
A3	1008	1008-30-03-23	1 OF 1	0

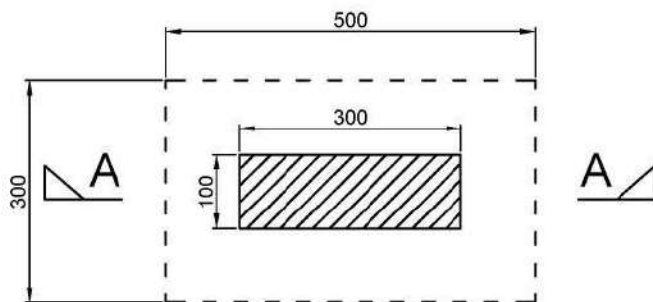
NOTES:-

-

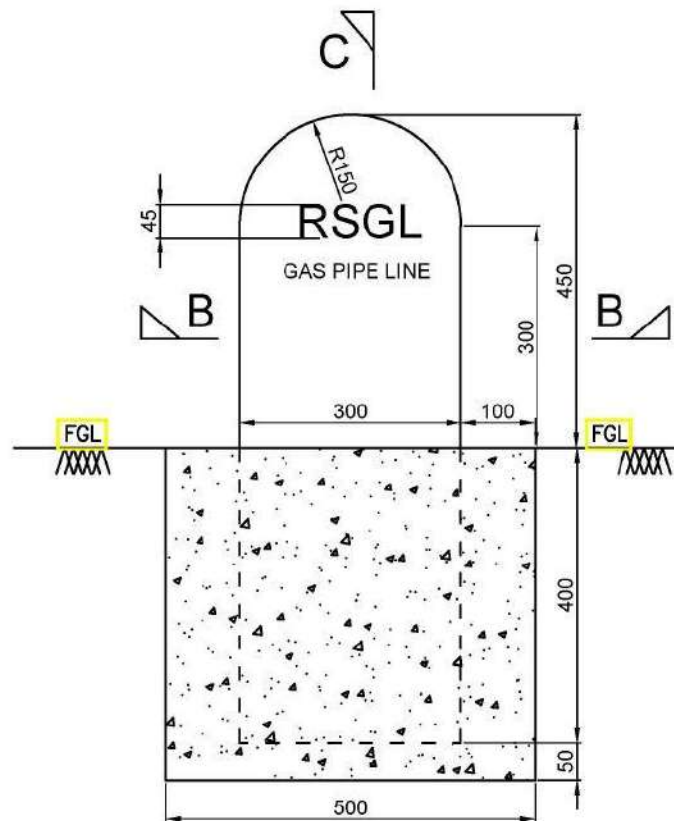
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REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT:  RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE POLE MARKER WITH FOUNDATION				
NTS					
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-30	1 OF 1	0	



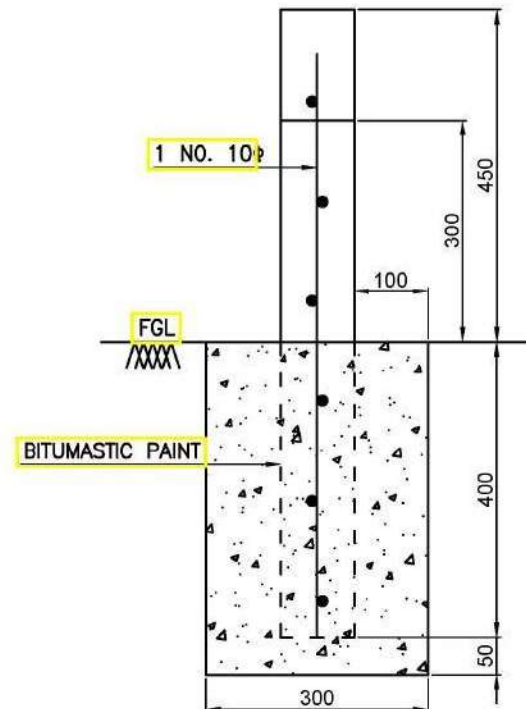
SECTION - B-B



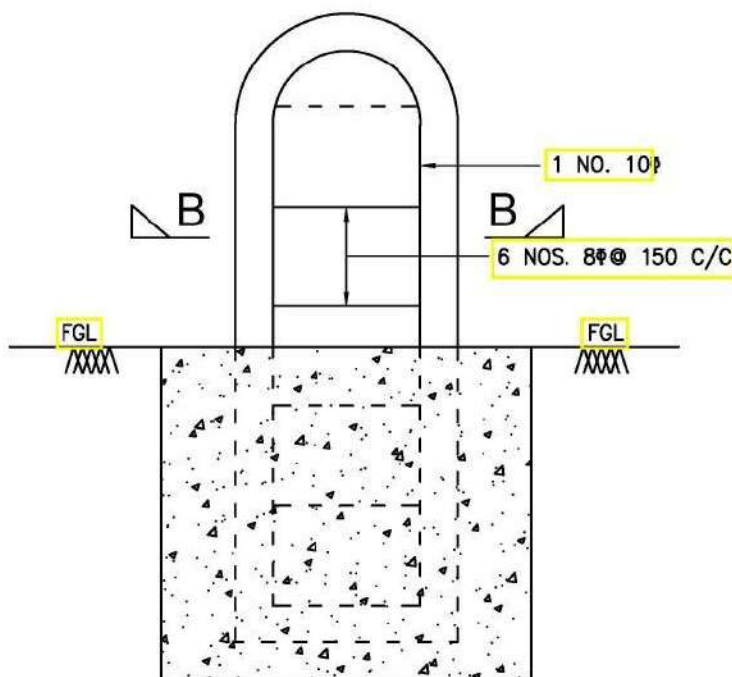
PLAN



SECTION - A-A
(FOR DIMENSION)



SECTION - C-C

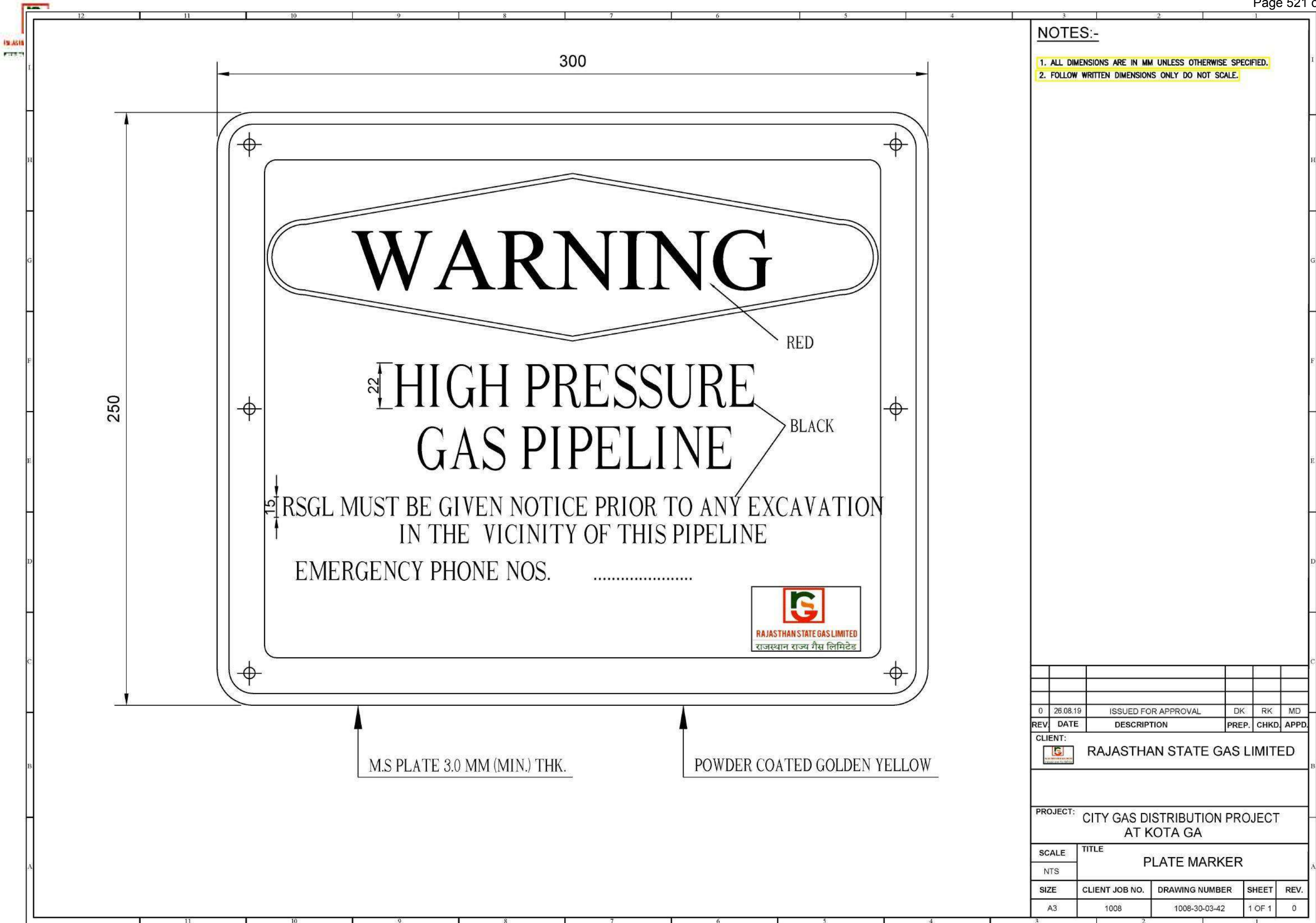


SECTION - A-A
(FOR REINFORCEMENT)

NOTES:-

1. DRAWING IS NOT TO SCALE.
2. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
3. MARKERS SHALL BE INSTALLED IN EVERY 50 METER INTERVAL AS PER INSTRUCTIONS OF ENGINEER-IN-CHARGE.
4. ALL BOUNDARY MARKERS SHALL BE PRESENT & INSCRIPTION SHALL BE ENGRAVED 5mm DEEP IN THE MOULD ON BOTH FACE.
5. CONCRETE FOR BOUNDARY MARKERS SHALL BE M-20.

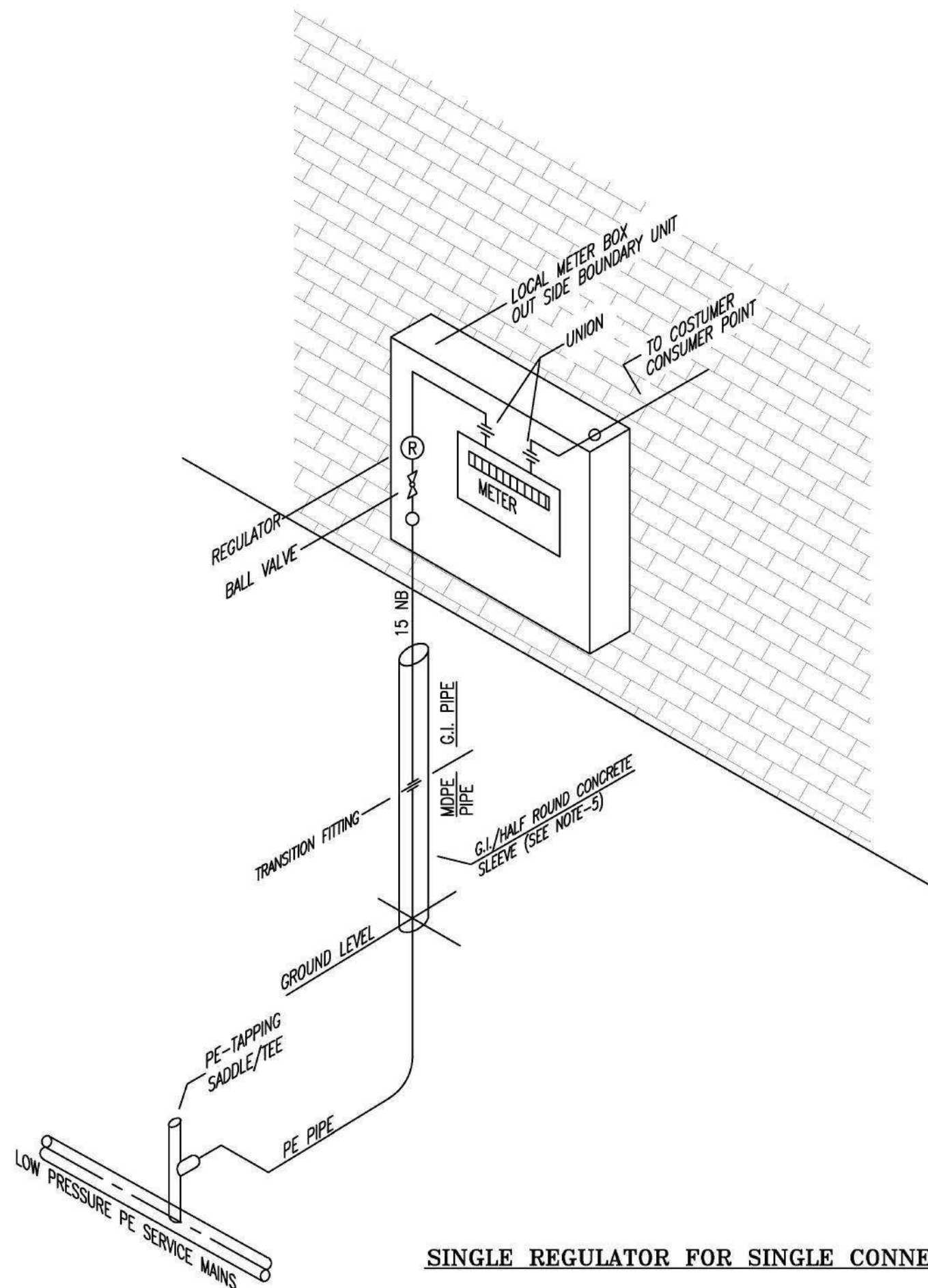
0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT:  RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	SKETCH FOR RCC ROUTE MARKER				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-38	1 OF 1	0	



NOTES:-

- 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
- 2. FOLLOW WRITTEN DIMENSIONS ONLY DO NOT SCALE.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT: RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	PLATE MARKER				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-42	1 OF 1	0	



SINGLE REGULATOR FOR SINGLE CONNECTION

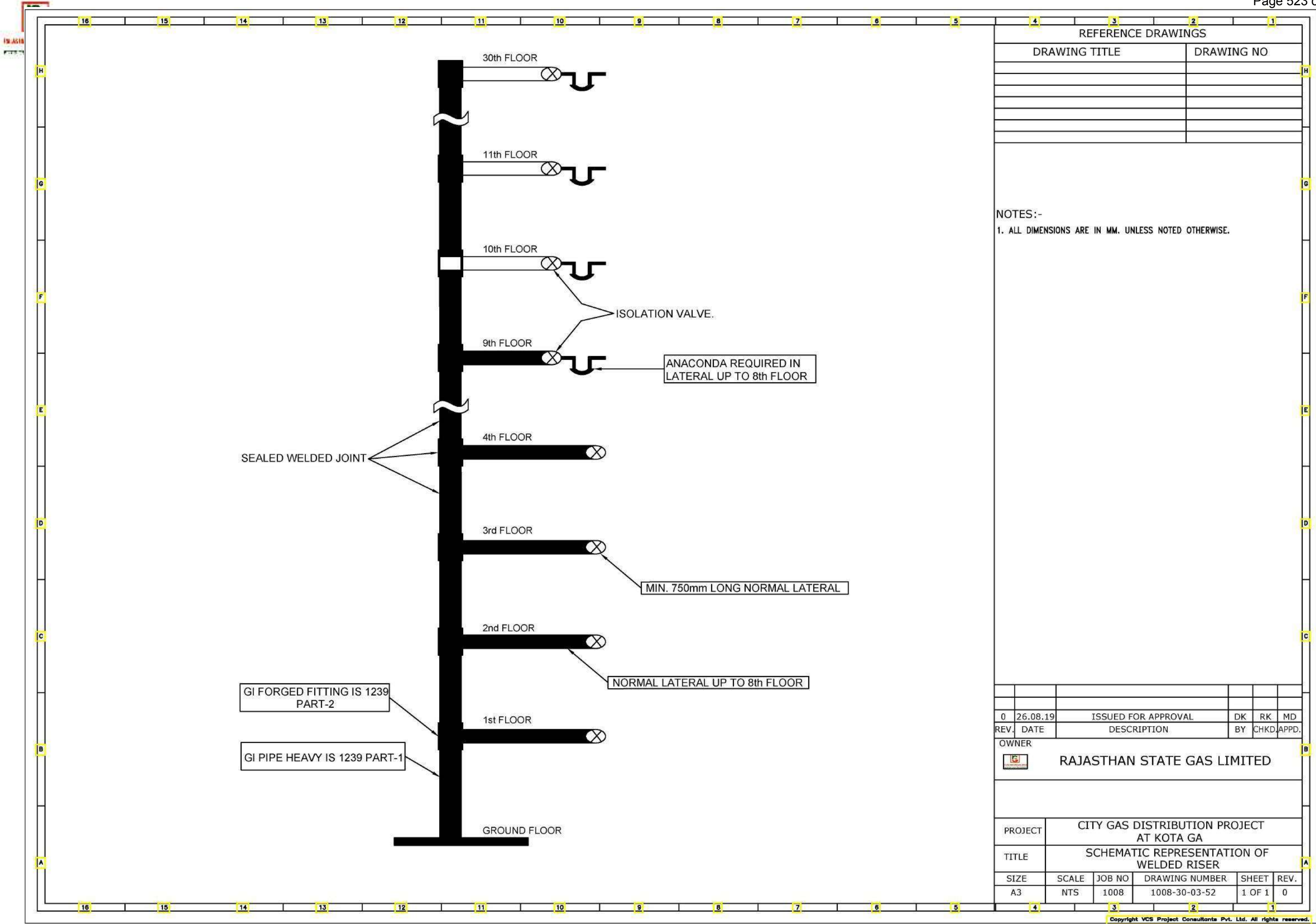
REFERENCE DRAWINGS

DRAWING TITLE	DRAWING NO

NOTES:-

1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE.
2. THE SIZES SHOWN IN THE DRAWING ARE TENTATIVE. IT SHALL BE DECIDED DURING DETAILS ENGINEERING.
3. PIPING DOWN STREAM METER SHALL BE OF COPPER IN CASE METER IS INSTALLED WITHIN THE KITCHEN.
4. TENTATIVE RISER LENGTH (FROM OUTLET OF TRANSITION FITTING TO INLET OF ISOLATION VALVE) SHALL BE 1.5m. ANY CHANGES IN RISER LENGTH SHALL BE AFTER APPROVED FROM EIC.
5. G.I. INSTALLATION/METER INSTALLATION SHALL BE DECIDED BY OWNER/ OWNER'S REPRESENTATIVE AS PER SITE CONDITIONS.
6. IF COPPER PIPE GOES TO THE APPLIANCE VALVE THAN BRASS FITTING SHALL BE USED AT THE OUTLET OF METER OR GI PIPE GOES TO THE APPLIANCE VALVE THAN GIFFITING SHALL BE USED AT THE OUTLET THE METER
7. MAXIMUM DISTANCE BETWEEN CLAMPS SHALL BE 1.5M PIPE GOES IN THE STRAIGHT LENGTH, IF ANY TEE OR ANY FITTING USE IN BETWEEN THE PIPE THAN CLAMP SHALL BE PLACED 150MM FAR AWAY FROM CENTER LINE OF FITTINGS AT EVERY SIDE. HOW EVER THE SAME MAY BE CHANGES AS PER SITE CONDITIONS/AS DIRECTED BY EIC.

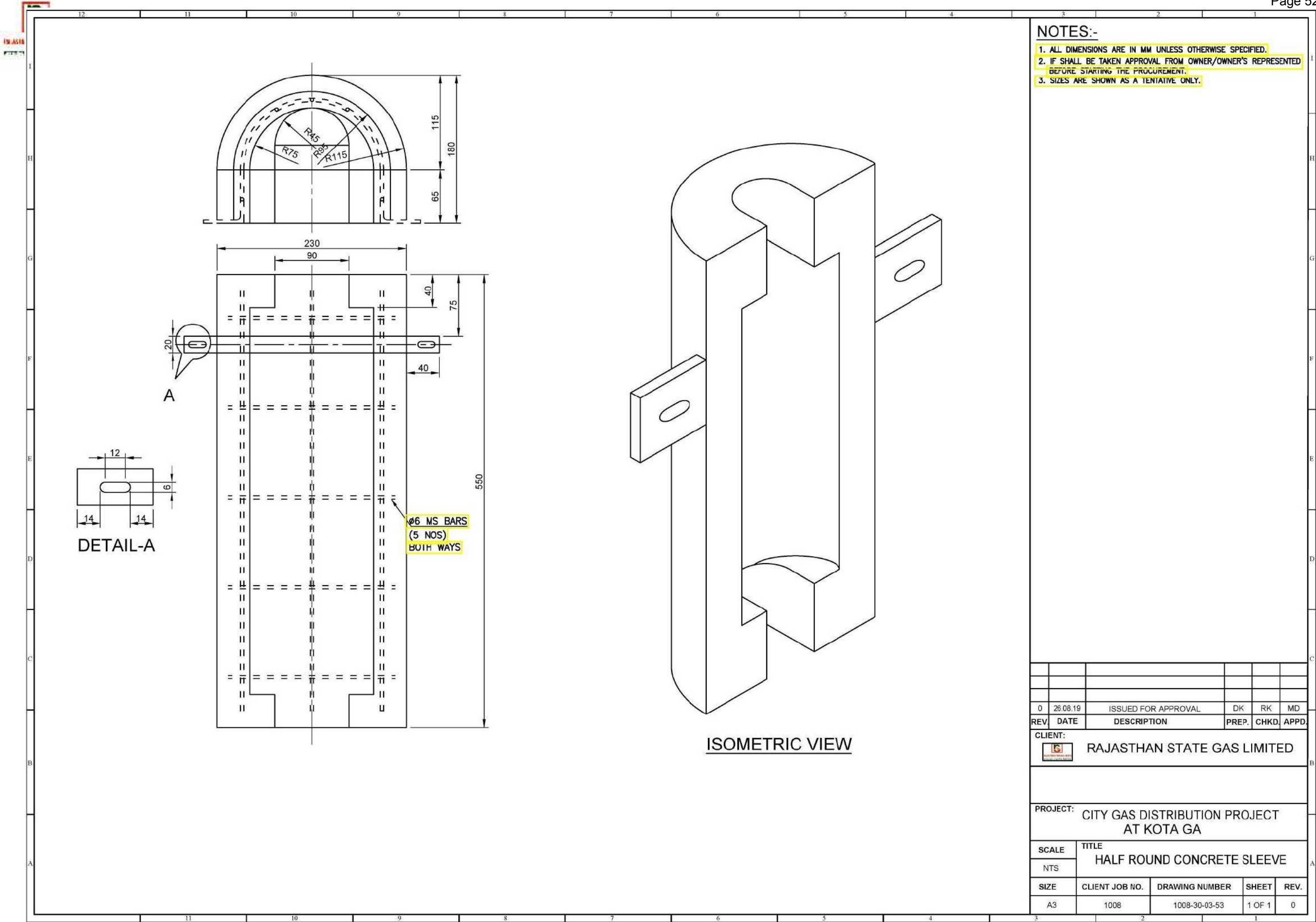
0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV.	DATE	DESCRIPTION	BY	CHKD	APPD.
OWNER					
 RAJASTHAN STATE GAS LIMITED					
PROJECT	CITY GAS DISTRIBUTION PROJECT AT KOTA GA				
TITLE	TYPICAL DOMESTIC CONNECTION LAYOUT OF NG DISTRIBUTION				
SIZE	SCALE	JOB NO	DRAWING NUMBER	SHEET	REV.
A3	NTS	1008	1008-30-03-51	1 OF 1	0



REFERENCE DRAWINGS	
DRAWING TITLE	DRAWING NO

NOTES:-
1. ALL DIMENSIONS ARE IN MM. UNLESS NOTED OTHERWISE.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV.	DATE	DESCRIPTION	BY	CHKD	APPD.
OWNER					
 RAJASTHAN STATE GAS LIMITED					
PROJECT	CITY GAS DISTRIBUTION PROJECT AT KOTA GA				
TITLE	SCHEMATIC REPRESENTATION OF WELDED RISER				
SIZE	SCALE	JOB NO	DRAWING NUMBER	SHEET	REV.
A3	NTS	1008	1008-30-03-52	1 OF 1	0

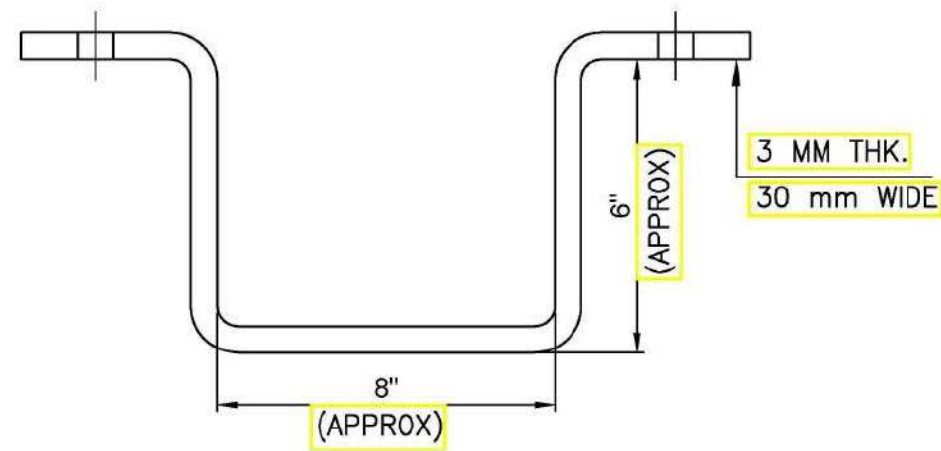
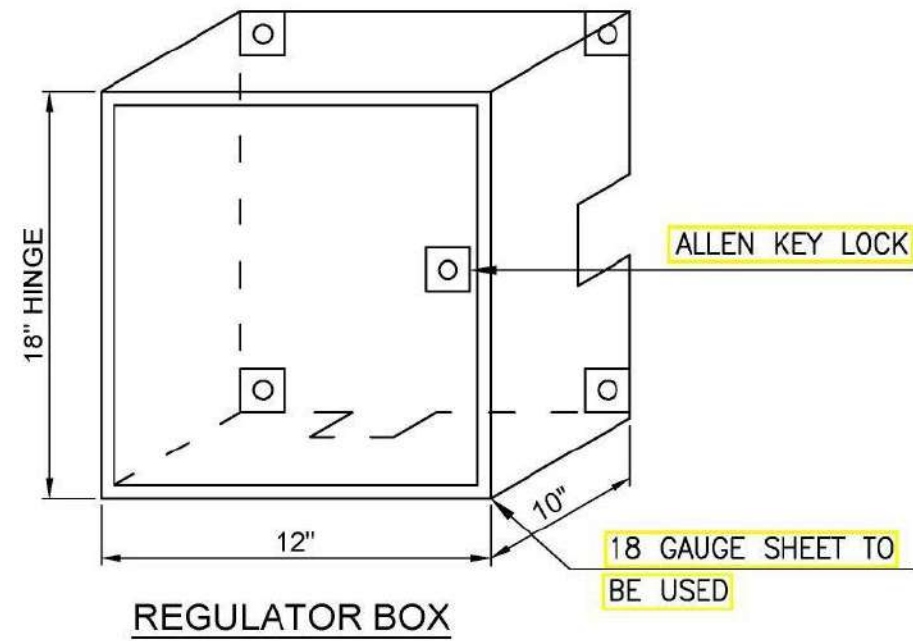


NOTES:-

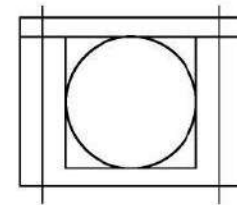
- 1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
- 2. IF SHALL BE TAKEN APPROVAL FROM OWNER/OWNER'S REPRESENTED BEFORE STARTING THE PROCUREMENT.
- 3. SIZES ARE SHOWN AS A TENTATIVE ONLY.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT:  RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	HALF ROUND CONCRETE SLEEVE				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-53	1 OF 1	0	

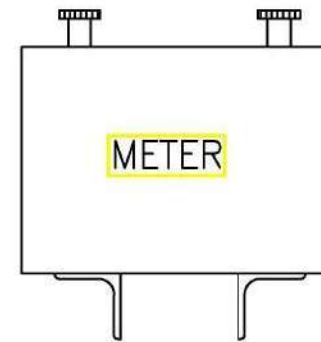
SKETCH OF REGULATOR BOX, BRACKETS & CLAMPS



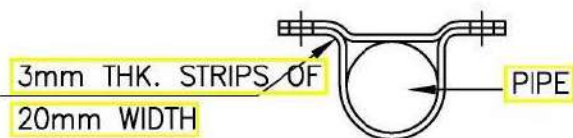
BRACKETS FOR METER (DOMESTIC)



TYPE-1
PE/PVC CLAMPS FOR COPPER PIPE



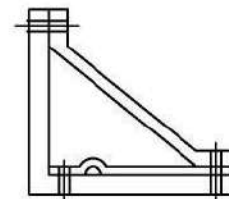
METER
ANGLE BRACKETS 50x50mm
FOR NON DOMESTIC METERS



TYPE-1
MS CLAMPS FOR
3/4" & 1/2" GI PIPE



TYPE-2

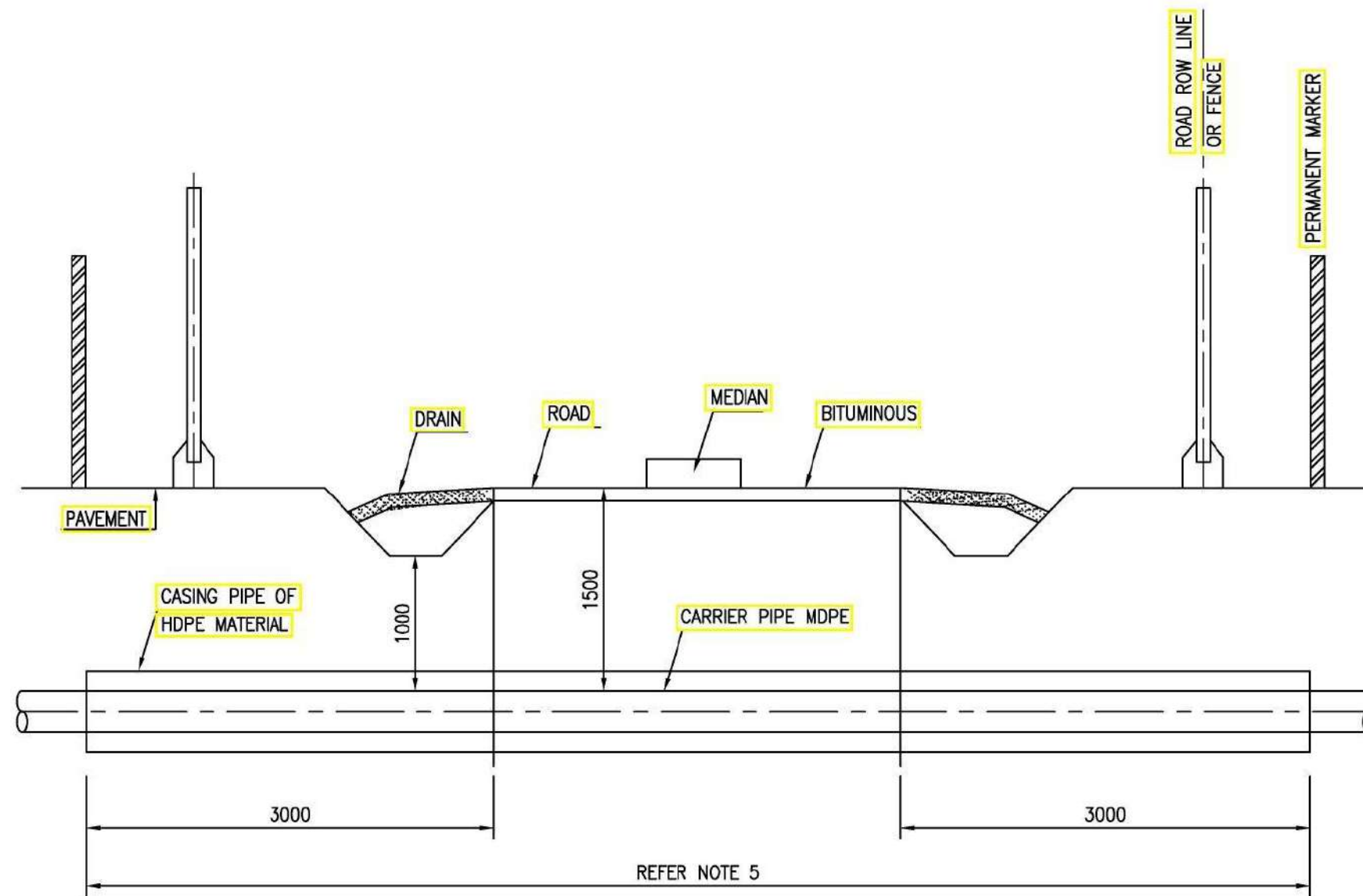


TYPE-3

NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS OTHERWISE SPECIFIED.
2. CLAMPS, REGULATOR BOX AND METER BRACKET ARE TO BE MADE AS PER DIRECTION AND APPROVAL OF EIC.
3. CLAMPS/BOXES BRACKETS TO BE TIGHTLY SECURED TO THE WALL WITH PROPER ROWEL PLUGS, SCREWS ETC. WOODEN BLOCKS TO BE USED IN CASE ROWEL PLUGS DO NOT HOLD PROPER THE AREA.
4. PAINTING WITH ONE COAT OF ZINC PRIMER AND THREE COATS OF SYNTHETIC ENAMEL PAINT OF REPUTED MAKE.
5. CLAMPS ON PIPES TO BE FIXED AT MAXIMUM DISTANCE OF 1.5 METERS AND AT BENDS.

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV.	DATE	DESCRIPTION	PREP.	CHKD.	APPD.
CLIENT:  RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	SKETCH OF REGULATOR BOX, BRACKETS & CLAMPS				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-54	1 OF 1	0	



TYPICAL SECTION

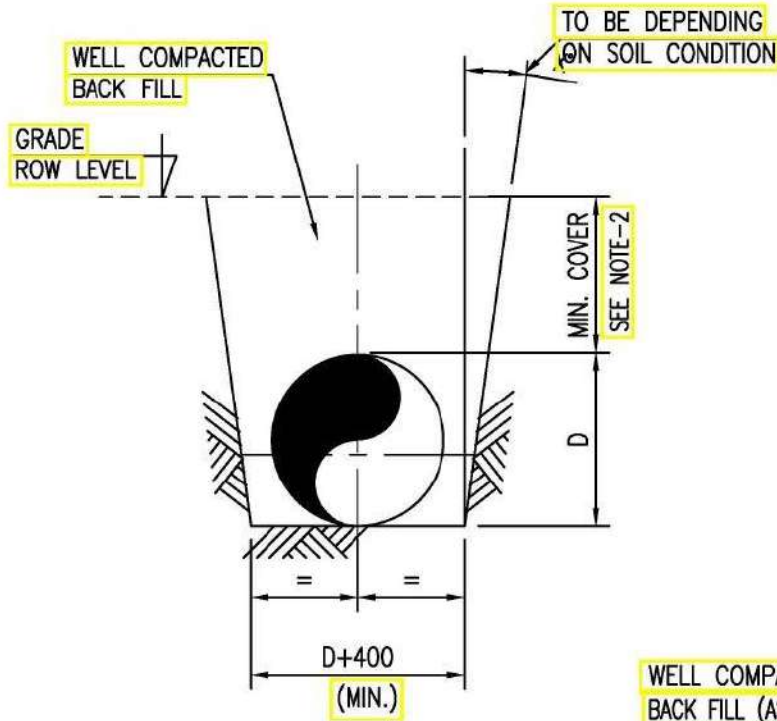
NOTES:-

1. ALL DIMENSIONS ARE IN MM UNLESS NOTED OTHERWISE.
2. ROAD HIGHWAY CROSSING SHALL BE RESTORED TO ORIGINAL CONDITION TO THE ENTIRE SATISFACTION OF OWNER AND CONCERNED AUTHORITIES HAVING JURISDICTION.
3. REFER API RP 1102 FOR OTHER DESIGN AND INSTALLATION REQUIREMENTS.
4. ANGLE OF INTERSECTION BETWEEN PIPELINE AND THE ROAD/HIGHWAY SHALL BE AS CLOSE TO 90° AS POSSIBLE BUT IN CASE LESS THAN 30°.
5. CONTRACTOR SHALL VERIFY THE ACTUAL DIMENSION WITH RESPECT TO SURVEY DETAIL FOR INDIVIDUAL CROSSING ENGINEER IN CHARGE APPROVAL BEFORE COMMENCEMENT OF CONSTRUCTION.

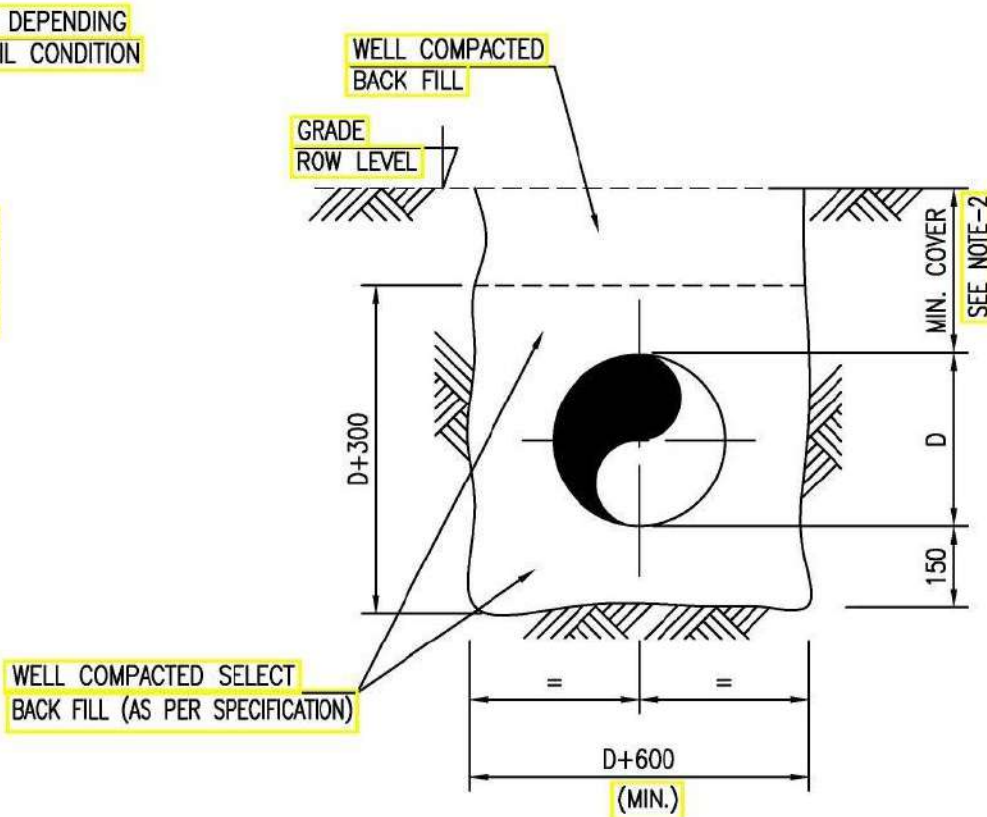
0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT:					
 RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
SCALE	TITLE				
NTS	ROAD/HIGHWAY CASED CROSSING FOR MDPE PIPE				
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-04	1 OF 1	0	

NOTES:-

1. ALL DIMENSIONS ARE IN MM .
2. FOR ALL PIPELINE TO BE CONSTRUCTED IN THE LAND UNDER JURISDICTION OF GOVT OF INDIA THE MIN COVER TO BE ADOPTED SHALL BE 1000MM IN ACCORDANCE WITH GOVT. OF INDIA PETROLEUM PIPELINE (ACQUISITION OF RIGHT OF USER IN LAND) ACT NO 50, 1962 AND AMENDMENT ACT NO 13 OF 1977. ANY EXTRA COVER REQUIREMENT SHALL BE IN ACCORDANCE WITH SPECIFICATIONS.
3. MIN. COVER REQUIREMENT SHALL BE SUBJECT TO APPROVAL OR CONCERNED AUTHORITIES WHEREVER REQUIRED.
4. EXTRA COVER REQUIREMENT SHALL BE ESTABLISHED AT ALL OVER BE NOS AND HORIZONTAL BE NOS WHEREVER NECESSARY.
5. FOR MIN. COVER REQUIREMENT AT PIPELINE CROSSING ROADS, RAILWAY TRACKS, RIVER MARSHY AREAS ETC REFER RELEVANT STANDARDS.

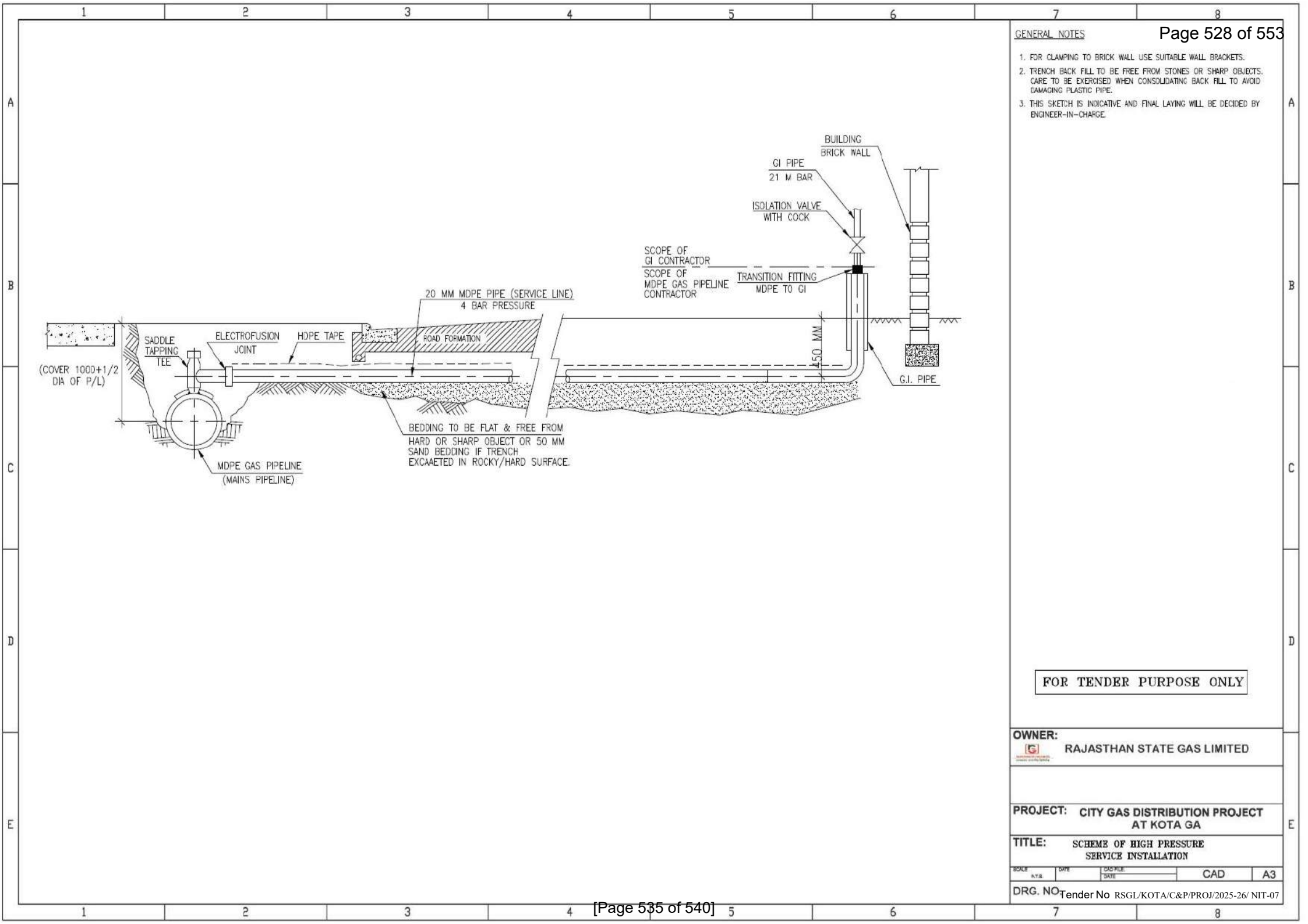


TRENCH IN NORMAL SOIL
TYPICAL SECTION



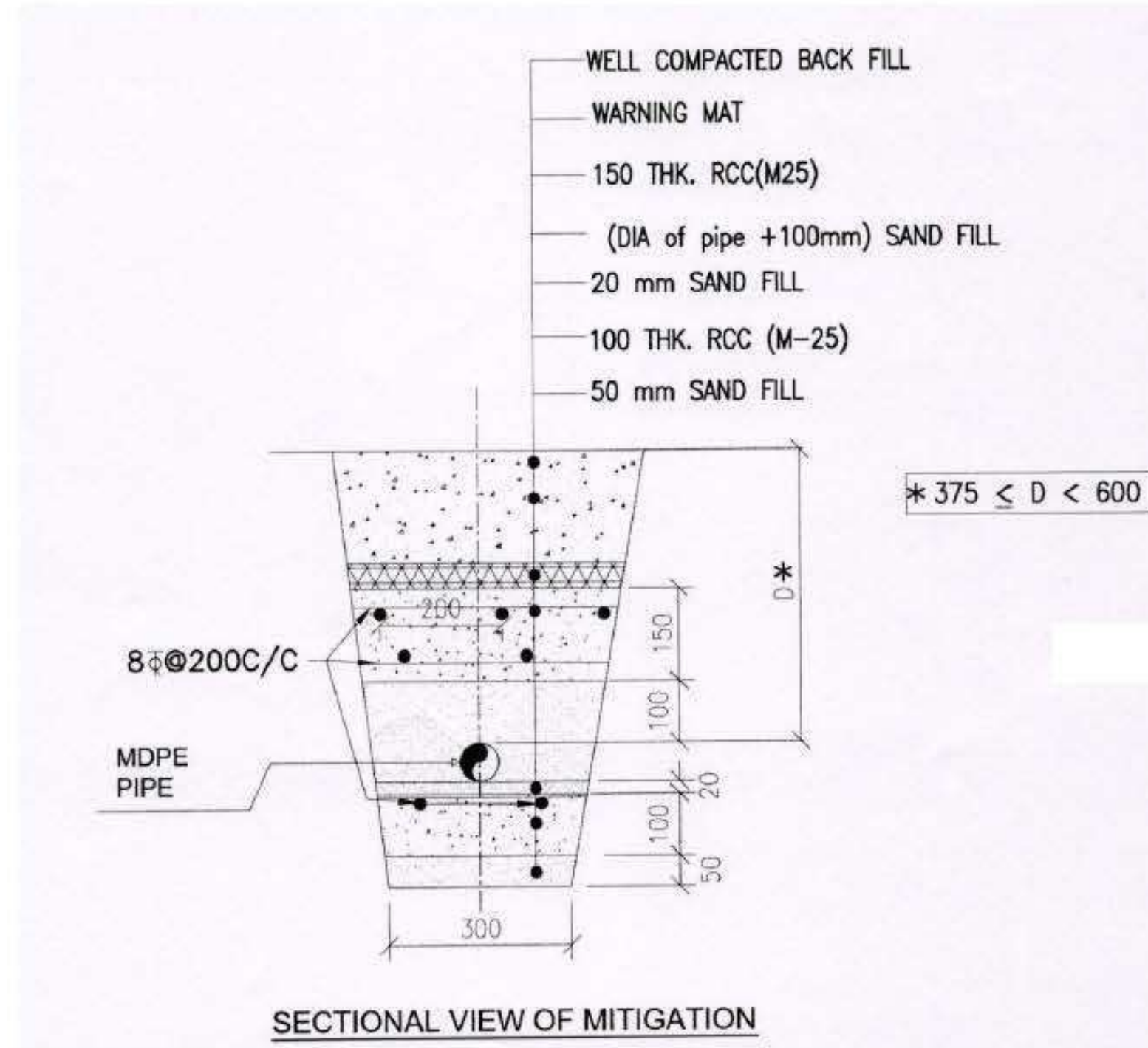
TRENCH IN CONSOLIDATED ROCK
TYPICAL SECTION

0	26.08.19	ISSUED FOR APPROVAL	DK	RK	MD
REV	DATE	DESCRIPTION	PREP.	CHKD	APPD.
CLIENT:  RAJASTHAN STATE GAS LIMITED					
PROJECT: CITY GAS DISTRIBUTION PROJECT AT KOTA GA					
TITLE: TYPICAL TRENCH DIMENSIONS FOR PIPELINE					
SIZE	CLIENT JOB NO.	DRAWING NUMBER	SHEET	REV.	
A3	1008	1008-30-03-01.01	1 OF 1	0	



GENERAL NOTES

All dimensions are in MM and Levels are in Meter



FOR TENDER PURPOSE ONLY

OWNER:



RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

TITLE: Mitigation - Sectional View

SCALE N.T.S.	DATE	CAD FILE DATE	CAD	A3

DRG. NO.



RAJASTHAN STATE GAS LIMITED
Rajasthan State Gas Limited

1

2

3

4

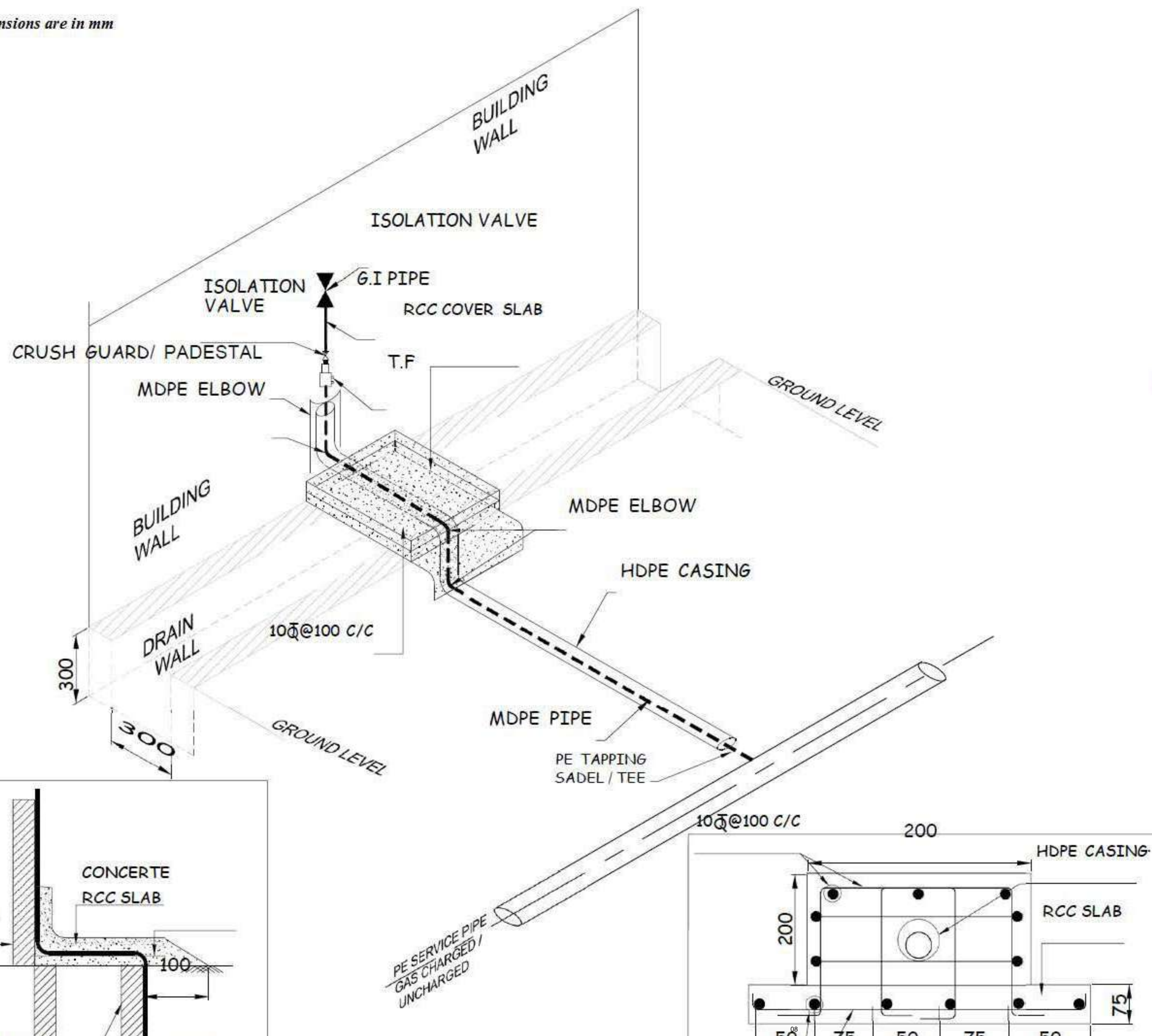
5

6

7

8

Note: All dimensions are in mm



GENERAL NOTES

THE GRADE OF CONCRETE FOR RCC WORKS SHALL BE M25 CONFORMING TO IS-456.
REINFORCEMENT SHALL BE HYSD BARS OF GRADE FE415 CONFORMING TO IS-1786.

A

B

C

D

FOR TENDER PURPOSE ONLY

OWNER:

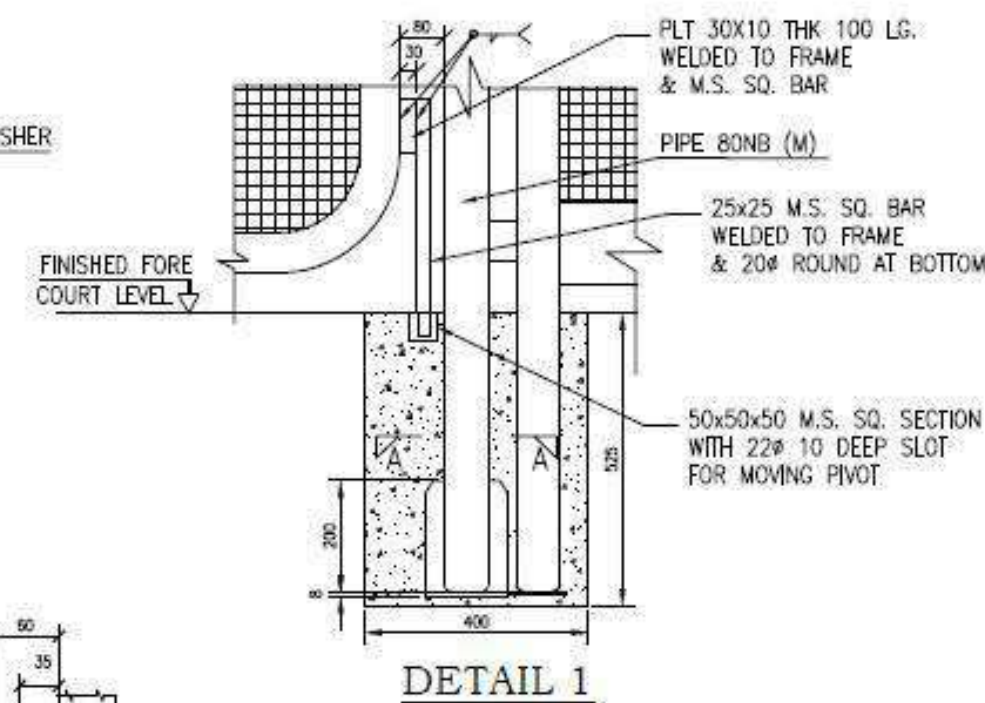
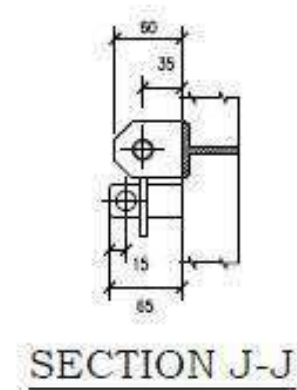
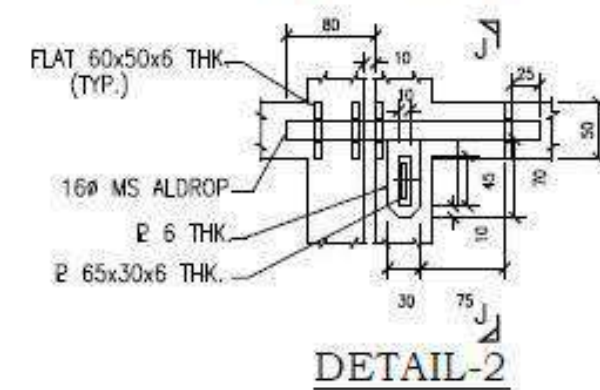
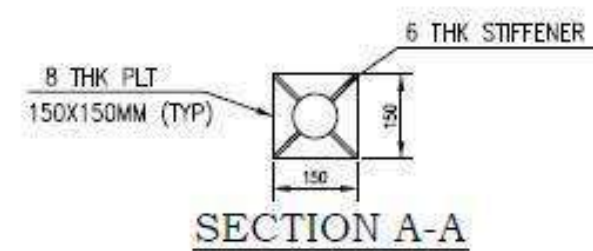
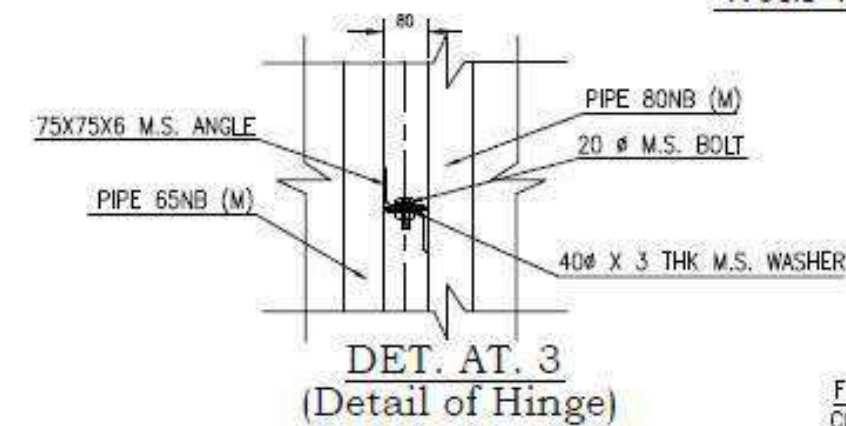
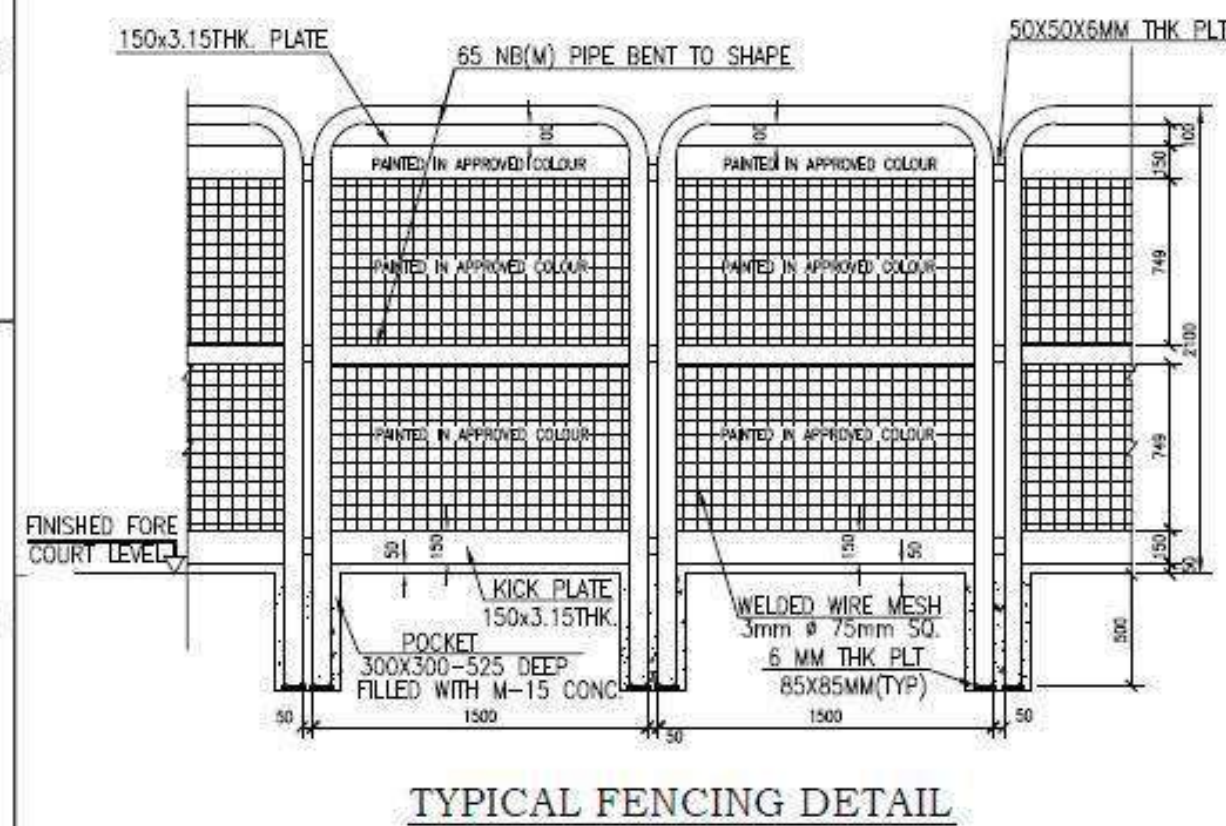
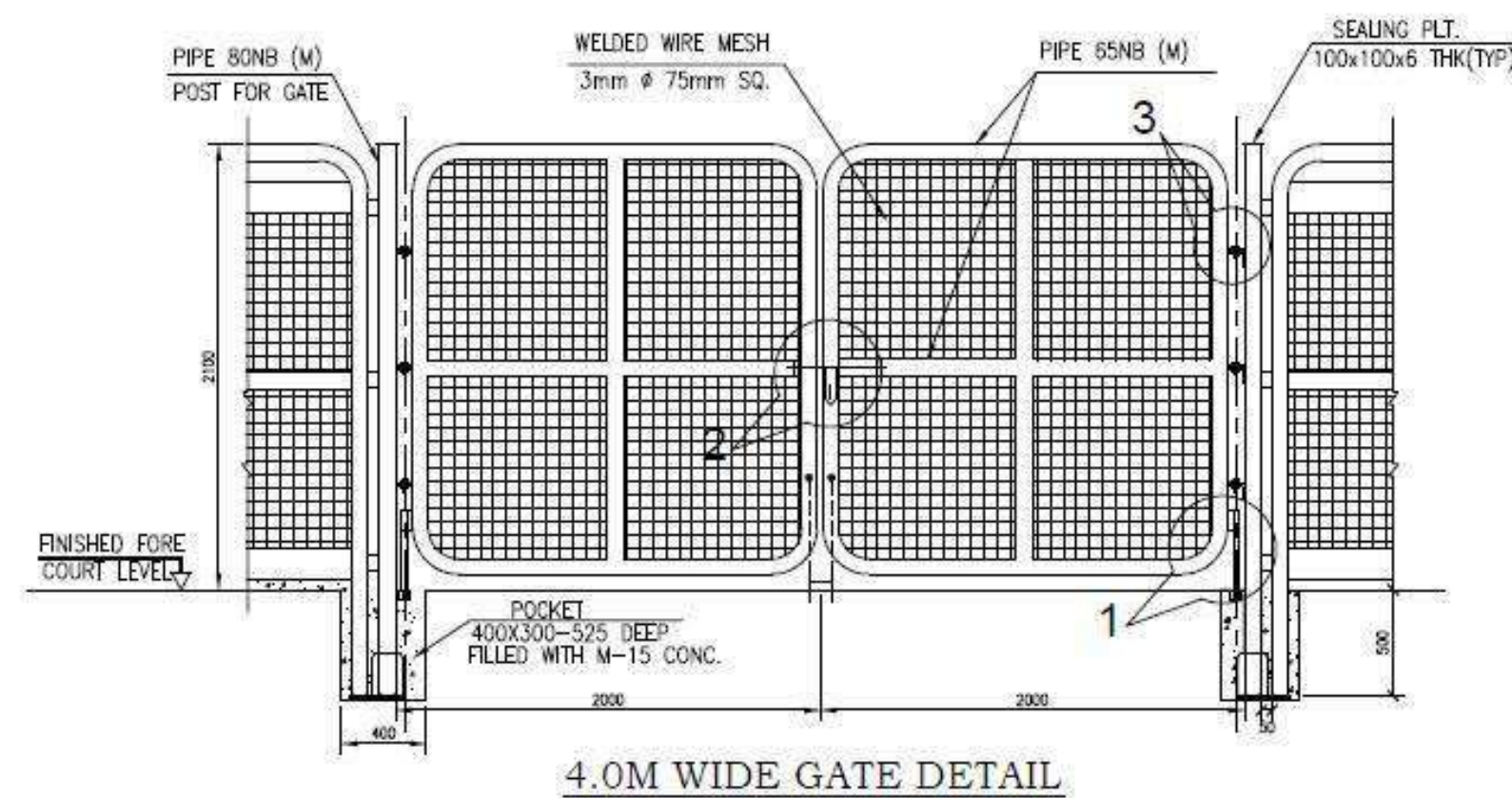
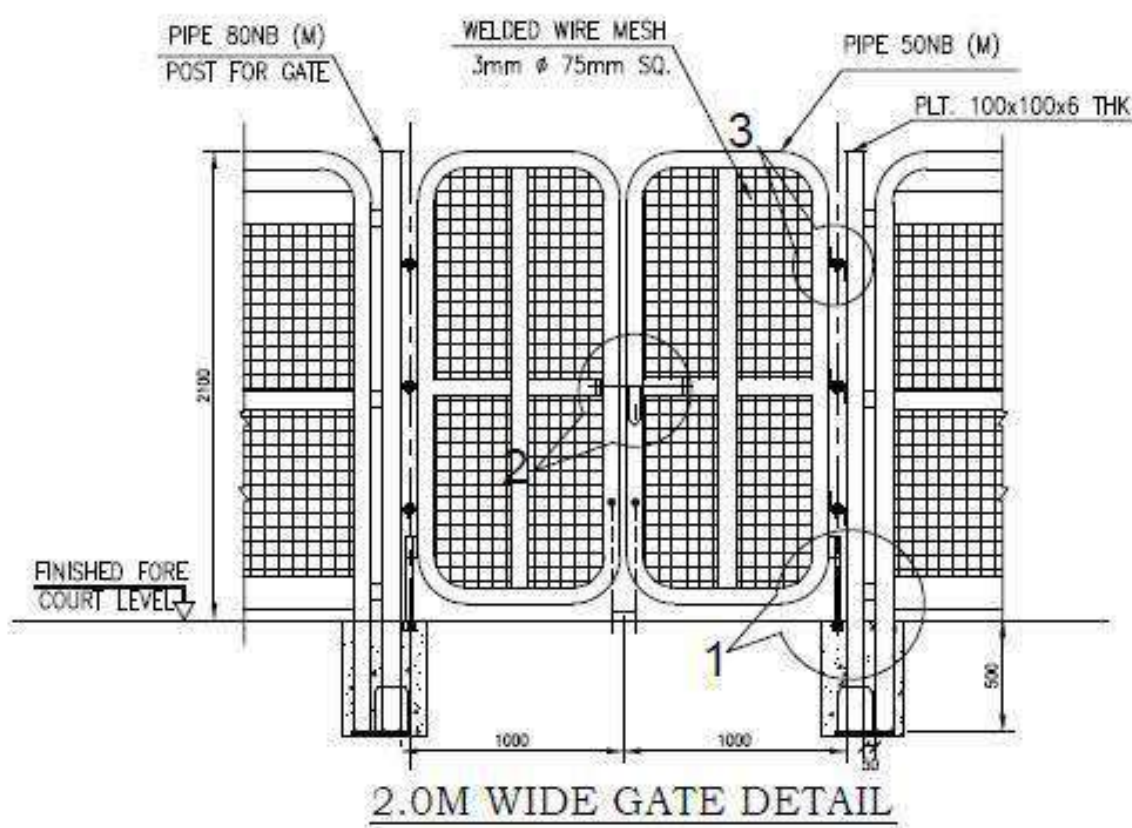


RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT

GENERAL NOTES

1. All Dimensions are in mm



FOR TENDER PURPOSE ONLY

OWNER:



RAJASTHAN STATE GAS LIMITED

PROJECT: CITY GAS DISTRIBUTION PROJECT
AT KOTA GA

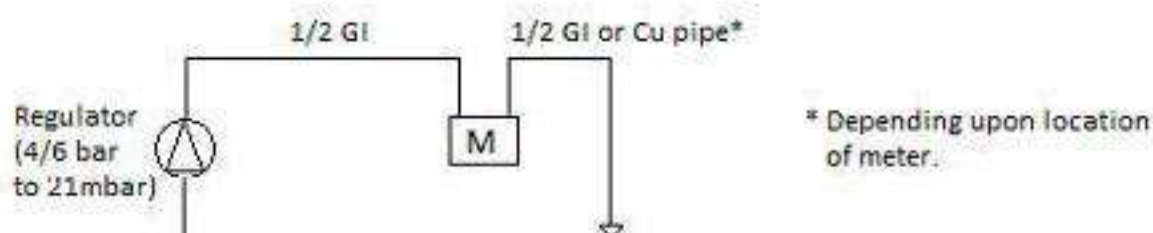
TITLE: Typical Detail of Gate & Fencing

SCALE: N.T.S. DATE: CAD FILE: DATE: CAD A3

DRG. NO.

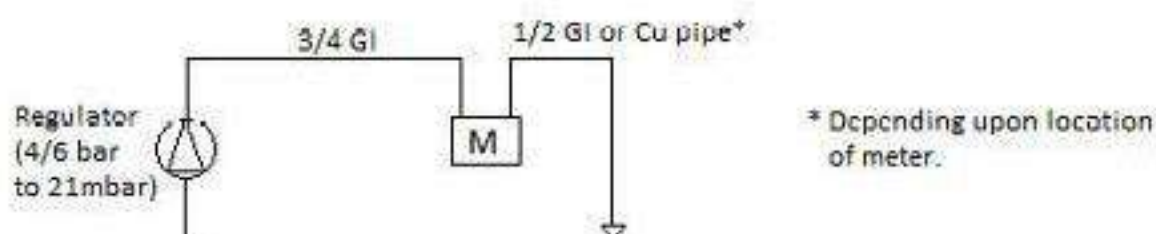
Schemes for GI Piping for Domestic Consumers

Scheme 1- For Independent house upto G+2:



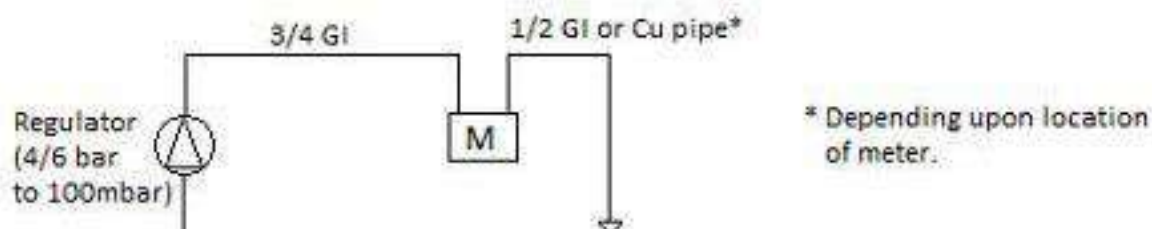
- Regulator shall be of range **from 4/6 bar to 21mbar**.
- Pipe from outlet of regulator to inlet of meter shall be **1/2" GI pipe**.
- From outlet of meter, **1/2" GI pipe or Copper pipe** shall be used depending upon the location of installation of domestic meter.

Scheme 2- For High-Riser society from G+3 to G+7:



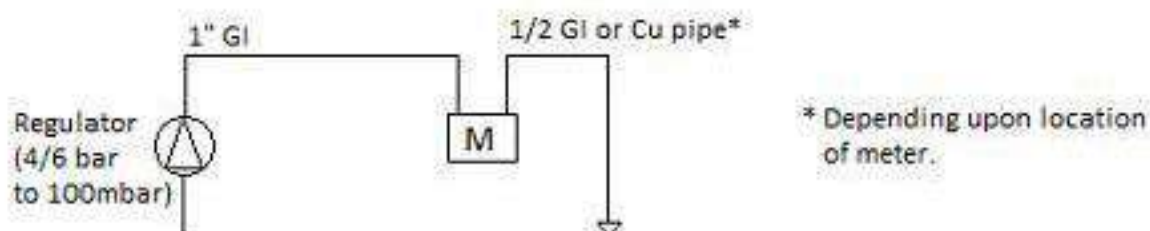
- Regulator shall be of range **from 4/6 bar to 21mbar**.
- Pipe from outlet of regulator to inlet of meter shall be **3/4" GI pipe**.
- From outlet of meter, **1/2" GI pipe or Copper pipe** shall be used depending upon the location of installation of domestic meter.

Scheme 3- For High-Riser society from G+8 to G+12:



- Regulator shall be of range **from 4/6 bar to 100mbar**.
- Pipe from outlet of regulator to inlet of meter shall be **3/4" GI pipe**.
- From outlet of meter, **1/2" GI pipe or Copper pipe** shall be used depending upon the location of installation of domestic meter.

Scheme 4- For High-Riser society from G+13 to G+20:



- Regulator shall be of range **from 4/6 bar to 100mbar**.
- Pipe from outlet of regulator to inlet of meter shall be **1" GI pipe**.
- From outlet of meter, **1/2" GI pipe or Copper pipe** shall be used depending upon the location of installation of domestic meter.

STANDARD WORK PROCEDURE FOR PE LAYING AND GI WORKS

Project: City Gas Distribution Projects

Client: M/s Rajasthan State Gas Limited (RSGL)

Consultant/TPI: M/s Resonance Energy Private Limited

Contractor:

Standard Work Procedure (SWP) For G I & Meter Installation

1. Route Survey

1	Initial survey to finalize route of GI Piping to be done by Contractor & EIC/TPI to confirm feasibility and acceptance of customer.
2	Hand sketch of route to be signed by Customer, Contractor & EIC/TPI.
3	Route to be finalized ensuring proper ventilation.
4	Concealed piping is strictly not allowed

2. GI Installation

1	All the machinery & adequate manpower should be available at site (by contractor) before commencement of work.
2	Test Report of all the bought out items to be submitted by contractor
3	All pipes should be vertically plumbed.
4	Clamping must be provided on either sides of each fitting with maximum of 150 mm gap.
5	Minimum 2 Clamps must be provided in to support 1.5 m 1/2" dia. GI pipe below regulator
6	One clamp must be provided above regulator with maximum gap of 150 mm.
7	At each service tee there should be provision of isolation valve (3/4").
8	Minimum offset distance from riser and hole piece should be 150mm.
9	Drill holes must pass through PVC pipe.
10	In case of approach riser, all droppings must have individual valves.
11	All piping must be visible and installed in well-ventilated area.
12	Kitchen room shall have sufficient ventilation.
13	One coat Zinc based primer
14	Two coats of synthetic enamel canary yellow paint (Asian, Nerolac, Berger or as per Tech Spec.) per coat 30 micron must be applied prior to installation of pipes and same is not applicable in case of powder coated GI pipe and fitting.
15	All fittings must be painted after testing of installation.
16	Minimum distance between Electrical items like points/wiring/cable etc. and installation of GI pipe shall be 300-500 mm or if distance is not adequate then GI pipe shall be covered with PVC sleeve.
17	GI installation shall not be done below kitchen platform.
18	GI routing on wooden /false ceiling is not permitted.

3. GI Testing

1	At the time of riser testing all isolation valves must be in opened and plugged condition.
2	Riser testing should be done at 2.2Kg/cm ² pressure and it should be witnessed for two to four hours.
3	Pressure gauge used for testing must be (0-4) Kg/Cm ² and it must be within calibration period.
4	Calibration certificates of pressure gauge must be approved by EIC or TPI or TPI and signed seal must be pasted on the gauge.
5	After testing of riser it must be socket plugged which indicates that riser has been tested.
6	Riser measurement must be done prior to testing and measurement sheet report is to be signed by EIC/TPI.
7	Customer must be informed about extra piping if applicable and extra piping consent is to be signed by customer.
8	Plate marker at TF point is to be ensured before final gas charging.
9	After testing final touch up of painting is to be done as per requirement.

4. Meter Installation

1	Meter must be installed in ventilated location.
2	Flexible hose pipe should be used in 3 patterns as shown in figure below.
3	Isolation Valve inside kitchen must be on maximum height of 2.0 m from ground level.
4	All GI piping inside kitchen must be minimum 300-500 mm away from electric wires.
5	Gas piping should not cross over any electric line.
6	Distance from appliance valve and gas burner must be minimum of 1000 mm.
7	Piping must not run over gas burner.
8	PVC clamp must be on either side of each bend in copper piping.
9	One supporting PVC clamp must be provided just before Appliance Valve.
10	GI installation shall not be done below kitchen platform.
11	Selection of GI/Cu, From Meter outlet to Appliance valve will be decided by customer.
12	GI pipe clamping and routing through wooden surface must be avoided.

5. Online Tapping

1	All work to be carried out in the presence of TPI/EIC only.
2	Tapping in front of all probable houses (domestic consumer) is to be done.
3	Shut down form to be filled and signed by connected consumers.
4	Isolation Valve to be installed in balance tap offs and it must be plugged.
5	Inform connected consumers that gas is available and take their initials.
6	Internal testing from the "Isolation valve of service tee" up to the "appliance Valve" with meter to be done at not more than 400 mbar with manometer or diaphragm gauge with MCV in open condition.
7	At the time of commissioning ensure that there is no leakage from the Isolation Valve with soap solution.
8	Presence of fire extinguisher must at the time of online tapping.

6. Meter testing/Ready for conversion (RFC) Checklist

1	GI Sleeves shall be properly sand filled.
2	Ensure proper clamping & painting of the installation.
3	Ensure riser testing is done. Also make sure that socket is plugged.
4	Holes for filled with cement mortar.
5	Make sure that all other Isolation Valves are closed except of those whose RFC's are to be done.
6	Ensure no leakage in Regulator assembly by soap solution test.
7	Ensure that Copper Pipe Clamping has been properly done along with lacquer coating.
8	Internal Testing (from Meter inlet to Appliance valve) is to done at 100 mbar for a period of 3 minutes.
9	Socket Plugged after RFC.
10	Safety Manual Chart to be provided to the customer.
11	Obtain feedback forms duly signed by the customer.
12	Emergency Phone No. stickers to be stuck over the meter bearing the initial of TPI with date.

7. Conversion Checklist

1	Make Sure that socket is plugged and is RFC done before NG conversion.
2	Nozzles should be changed.
3	Suraksha Rubber Hose Pipe to be provided & C clamped on both ends.
4	Old nozzles should be handed over to the customer.
5	Soap solution test to be carried out.
6	Portable Fire Extinguisher should be carried at the time of conversion.
7	After NG JMR is to be filled and duly signed by Customer, Contactor & EIC/TPI

Note:-

This Procedure is to be read along with PNGRB and T4S Guidelines.

CHARGING PLAN/PROCEDURE

Project: City Gas Distribution Projects

Client: Rajasthan State Gas Limited (RSGL)

Consultant / TPIA:

Contractor:

Date of charging: -

S. No.	Description	Details			
1	N ₂ Purging Detail	Purging Date: -			
		Number of nitrogen cylinder consumed: -			
2	Length of PE P/L Pneumatically Tested and flushed as well as cleaned (m)	Date of Pneumatic testing: -			
		Type/size	ø125	ø63	ø32
		Revived PE line			
		New PE line			
		Total (meter)			
3	No of PE Isolation Valve Chamber (in Nos.): -				
4.	Check List: -				
a)	Isolation valve plugged	Yes / No /NA			
b)	Any Exposed Pipe	Yes / No			
c)	RCC/Plate/Pole Markers installation	Yes / No			
d)	Charging Tools available	Yes / No			
e)	As-built Drawing	Yes / No			
f)	Certificates confirming nitrogen available	Yes / No			
g)	Fire Extinguisher / Gas Detector	Yes / No			
h)	Sleeves / half round filled with sand	Yes / No/NA			
i)	Valve Chamber construction done	Yes / No/NA			
j)	Safety equipment /First Aid available	Yes / No			
k)	Emergency Nos.provided to the society	Yes / No / NA			

ACTIVITY/PROCEDURE FOR CHARGING

Sr. No.	Steps to be followed	Activity Description
1.	Integration of PE network to be charged	Ensure that 125mm primary/main line is integrated with 63mm secondary line and further integrated with 32mm/20mm service line. If step-1 is ensured then proceed to step-2.
2	Pneumatic testing	Final pneumatic testing at 6.2kg/cm ² of all PE network to be charged and the same pressure will be held up for at least 4-6 hrs. Ensure no leak is observed throughout the network to be charged. If step-2 is ensured then proceed to step-3.
3	Purging procedure	Purging will be done with the help of Nitrogen medium of 99.96% purity. Proper vent to be provided at specified safe location. If step-3 is ensured then proceed to step-4.
4	Gas charging	1. Ensure all the PE valve on the network to be charged is in closed position. 2. DRS outlet valve to be open and pressure point to be set at 2kg/cm². 3. Valve of 125 mm main line will be plugged in / open position. Now the pressure will be checked at the tail end of the main pipeline with the help of pressure gauge and reducing arrangement made at the tail end. 4. If all is ok then valve of 63mm secondary line will be plugged in/open position and ensured that there is no any pressure drop on the gauge of the main line. 5. If all is ok then valve of 32mm tertiary/service line will be plugged in/open position and ensured that there is no any pressure drop on the gauge of the main line and gauge of the tertiary line at different locations.

CHARGING PHILOSOPHY IN DETAIL

1. Intent

It is intended to apply this guideline for the purpose of safe purging, commissioning and de-commissioning of City or Local Natural Gas Distribution Network, which has been constructed and tested confirming to specifications laid down in the PNGRB Technical Standards for CGD Networks (T4S).

2. Pre-Commissioning checks

Prior to commissioning, the entire pipeline system shall be checked with respect to the “as built drawings” and other design specifications.

The pre-commissioning checks should include, but not limited to, following, namely:-

(a) Tightness test- The tightness test (pneumatic) should be completed at a pressure of at least 2 bar(g) with air after completion of all mechanical activities including pneumatic test, cleaning and flushing process. For low pressure network tightness test should be done at least at operating / working pressure. Once the pipeline is connected with live line for purging/ gas-in, it should be commissioned immediately and completed as a continuous process.

(b) Function-test of field equipment and system- The supports, route markers, valves, instruments, controls, interlocks etc. are adequately installed and physically checked along the pipeline. All the valves / equipments are checked for intended applications by simulating the operation condition before the gas is introduced to ensure that each valve is operating correctly.

The pipeline and allied systems, including safety systems shall be fully function-tested. The pressure and temperature gauges shall be calibrated prior to use before installation.

(c) Survey of the pipeline- A detailed survey (preferably through line walk) of the pipeline route shall be carried out to confirm that no leakage is observed along the pipeline alignment and at the associated equipment & installations and also to ensure that proper fittings / supports, route markers etc. have been installed along the network. Ensure all points other than purging & venting are in closed condition.

(d) Purging in the Pipeline- The entire primary network, which is ready and proposed for commissioning, shall be purged with air or Inert Gas at positive pressure of not less than 2 bar(g). Reading of Pressure Gauge installed at each Inlet point, Exit point and other specific points shall be noted in a specified format.

Displacement method to be adopted for purging activity. Purging stack, Flame-trap and purging adapter to be arranged at site.

(e) Checking of Communication System- Availability of proper communication system should be checked and confirmed to the Commissioning In-charge.

- 3. Safety Clearance-** Before start of commissioning works, the Safety Officer of CGD entity shall carry out a Safety clearance, the relevant details of which shall be recorded on the Safety Checklist in accordance with the Technical & Safety Guidelines as per Technical standards. They shall verify that:
- a) All Commissioning personnel have been made aware of the safety hazards of the operations to be undertaken.
 - b) Procedures & Documents including those for possible emergencies shall be developed and followed.
 - c) Communications are working satisfactorily.
- 4. Safety Measures-** Adequate no. of Safety gadgets, personal protective equipments, emergency handling facilities, sign boards, do and don'ts etc as required in the commissioning document should be positioned and available at designated place before start of commissioning activities. A minimum of following shall be ensured at all purging sites.
- a) A minimum of 2 dry powder type extinguishers (5 kg) should be available on all purging /venting sites.
 - b) Smoking, naked light or other sources of ignition should be prohibited. Warning signage/ pictograms like "NO SMOKING" and "NO NAKED LIGHTS" should be prominently displayed around the work site, including at vent points.
 - c) Electrical continuity bonds (copper) need to be fitted across separated metallic pipes prior to purging operation.
 - d) Adequate hearing protection should be available, where required.
 - e) It should be emphasized that purged gas other than air is potentially dangerous leading to asphyxiation and information to prevent asphyxiation should be provided in procedure.

5. Responsibilities during the commissioning operations-

The CGD entity authorized for a GA shall have the overall responsibility for the implementation, record and control of all procedures, forms & formats contained in this Technical Document. The Commissioning In-charge along with the team of Supervisors/Technicians, involved in the Main Line (ML) network commissioning shall have the direct responsibility for following all the procedure(s) and generating all the records as per the formats prescribed in this Technical Document.

6. Commissioning Process-

As a part of procedure, the entity should ensure specific checklist prior to pipeline commissioning based on type of purging method adopted by them i.e. complete displacement as discussed herein. However, illustrative check lists are annexed to this guideline for reference.

- (a) Valves are checked for respective opening / closing positions.
- (b) Check Line Pressure.
- (c) Nitrogen flow rate shall be controlled by opening / closing the inlet purging valve.
- (d) Record the line pressure at every 30 minutes interval.
- (e) Ensure Positive Pressure (not less than 2 kg/cm²) for Nitrogen Purging in the entire Pipeline.
- (f) After ensuring the nitrogen purging, close purging valve.
- (g) Remove the Nitrogen Purging Connection and install a Blind / Plug and Close the Valve.
- (h) Gas-in to be started after confirmation of readiness at all valve stations with closed valves in closed position.
- (i) Gas Inlet valve to be opened for 50 angle (crack open) and simultaneously nitrogen shall be vented. With further valve opening, Pipeline shall be pressurized up to 4 kg/cm². Gas availability shall be ensured at this point by LEL / Methane detector and shall be communicated back to DRS station.
- (j) Subsequently, each section of Pipeline shall be pressurized so that entire ML network is free from Nitrogen and is pressurized with Natural Gas at a pressure of 2 kg/cm² up to end of the pipeline.
- (k) Hold the pressure of 4 kg/cm² for a minimum of 04 hour and check the entire ML network for No Leakage.
- (l) If any leakage is observed, it shall be recorded and arrested properly.

7. Commissioning Records- The commissioning records should as a minimum include, but not limited to, following, namely: -

- a) Pneumatic test report.
- b) Functional-testing of pipeline.
- c) Completed pre-start checklist.
- d) Purging report.
- e) Commissioning report.
- f) As-built Drawings.

Remarks If any:		
SIG:	SIG:	SIG:
NAME:	NAME:	NAME:
CONTRACTOR	TPIA	RSGL Project/ O&M

Contractor's Logo

COMMISSIONING REPORT
(P.E. LINE)

Client	M/S Rajasthan State Gas Limited	Area Name:	
Consultant		Locality Name	
CONTRACTOR			

Details :

1	Length of the Pipe :		5	Date of commissioning :	
2	Size of Pipe:		6	Number of nitrogen cylinders consumed:	
3	Purging Medium:	Nitrogen	7	Line Pr. before gas charging:	
4	Date of Pneumatic testing :				

Check List:

1	Isolation valve plugged	Yes / No /NA	7	Fire Extinguisher / Gas Detector	Yes / No
2	Any Exposed Pipe	Yes / No	8	Sleeves / half round filled with sand	Yes / No/NA
3	RCC/Plate/Pole Markers installation	Yes / No	9	Valve Chamber construction done	Yes / No/NA
4	Charging Tools available	Yes / No	10	Safety equipment /First Aid available	Yes / No
5	As-built Drawing	Yes / No	11	Emergency Nos.provided to the society	Yes / No / NA
6	Certificates confirming nitrogen available	Yes / No			

Contractor

TPIA

RSGL



Contractor's Logo

Fusion welding Checklist

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT

Dia. Of Pipe _____ Loop No. _____ Joint no. _____

Coupler Type _____

Project : CITY GAS DISTRIBUTION
 Client : M/s Rajasthan State Gas Limited
 PMC/ TPIA :
 Contractor :
 Location :

Joining Details:

Sr. No.	Description	Requirement	Remarks
1	Fusion Machine	Bar coded electro-fusion machine (Automatically Readable)	
2	Whether Fusion Machine verification format available		
3	Coupler Type		
4	Whether material inspection report available		
5	Whether Pipeline is free from dust, water, mud etc.		
6	Whether Alignment Clamp available		
7	Whether approved pipe cutting tool available		
8	Availability of DG set		
9	Whether Jointer is having ID card signed by Contractor		
10	Whether Removal of oxidized surface (0.1 to 0.4 mm from outer surface of PE pipe)		
11	Whether Pipes Securely fasten		



Contractor's Logo

Fusion welding Checklist

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT

12	Whether Pipes Faces are parallel & aligned through proper alignment clamp		
13	Whether bar code reading done		
14	Fusion completed as per required time through automatic bar code reading		
15	Joint hold immobile under fusion force for 5 minutes		
16	Avoided of any activity near or on joint for 30 minutes		
17	GPS coordinates for joint/joint no. with location		

Contractor	TPIA/RSGL

Standard Work Procedure (SWP) PE Laying

Specification of PE Pipes

1	PE Pipes as per IS code- 14885
2	Grade: PE 100 SDR 11

3	PE Carrier Pipe Size (mm)	Thickness (mm)	Length m	HDPE Casing Pipes Min. Dia (mm)	HDPE Casing Pipes Max. Dia (mm)
	20	3	200	50	50
	32	3	150	50	90
	63	5.8	100	110	160
	125	11.4	50	200	250
	180	16.4	12	250	315

ROUTE SURVEY

1	PE Route for assigned area shall be finalized by PMC/EIC and accordingly sketch will be prepared by contractor.
2	Sketch prepared by contractor to be approved by PMC/ EIC and same shall be used for laying of PE network.
3	Sketch shall have following information/data:-
a.	Total route length
b.	Type of Method for laying like Open cut, HDD or Moling
c.	sizing detail
d.	Break-up of Katcha and Pakka Road

TRENCHING

DEPTH OF TRENCH

1	Minor water body crossing/Canal	2.5 meter
2	Uncased/Cased Road Crossing	1.5 meter
3	Rail/Road Cased Crossing	1.5 meter
4	Normal Areas	1.5 meter

Minimum depths may change depending on requirement of approving authority.

CLEARANCES

1	150 mm Where the gas pipe Crosses other assets/utilities
2	300 mm Where the gas pipe Crosses (or along) Electrical Cable
3	300 mm Where the gas pipe is laid along other assets /utilities

TF PROTECTION

1	GI sleeve IS 1239 (Heavy Duty) L 300 mm x Dia. 2.5 inch (3-inch dia. in case of commercial connections)
2	Making of Pedestal (PCC pedestal of grade (1:2:4) and size (300mm(L)X200mm(W) X Height (H)), (H>=300mm & will be as per site condition)))
3	Half round concrete sleeve (min size 250 x 250 x 150 mm)
4	Material M-20 1:2:4
5	T F Pits Will be must restored as per site condition.



PE WARNING MAT

1	Specification of Warning mat shall be as per Approved QAP.
2	Warning Mat is to be placed after pedding of about 300 mm on the top of carrier pipes.

PE Laying

1	Before starting of PE laying written permission (From concerned Authorities) should be provided by Owner/EIC/PMC to contractor
2	All the machinery & adequate manpower should be available at site (by contractor) before commencing of the job. Extent of mobilisation is to be finalised by EIC as per availability of work front.
3	Safety measure like Sign board, barricading ,PPE is to be taken up as specified in Technical Specification during PE laying.
4	After PE laying, jointing & before backfilling ,top cover of PE pipe is to witnessed by EIC/PMC.

Flushing

1	Flushing of PE network is to be done by Air from 4-6 kg/cm ² pressure.
2	Proper flushing is to be ensured before testing.

Testing

1	PE network is to be tested by Air at 6.2 Kg/cm ² pressure.
2	Pressure is to be hold for the duration as given below:-
a.	PE Length <=500 M ,4 hours.
b.	PE Length >=500 M ,24 hours.

Purging

1	Purging is to be done using Nitrogen at 2 kg/cm ² pressure.
2	Pressure Holding is to be ensured by contractor till gas charging.

Commssioning

1	Before Gas charging in PE network following points are to be complied:
a.	Completeness of valve chamber along with valves.
b.	installation of Pole, and RCC marker.
c.	As built drawing
d.	Also refer Annexure-1

VALVE SIZE

	Dia	Length	Valve Chamber Size
1	180 mm	650 mm	As per tender
2	125 mm	600 mm	
3	63 mm	450 mm	
4	32 mm	300 mm	

Note:-

- 1 This Procedure is to be read along with PNGRB and T4S Guidelines.



Contractor's Logo

PNEUMATIC TESTING REPORT PE Line

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT

Project: City Gas Distribution

Client: Rajasthan State Gas Limited

Consultant:

Contractor:

Location:

Details :-

1	Size of PE Pipe :	6	Holding Time:
2	Total Length of the pipe:	7	Pressure Gauge Make & No.:
3	Testing Medium: Compressed air (oil free):	8	Gauge calibration valid upto:
4	Testing Pressure:	9	Result:
5	Start Date:	10	Line Pr. after release :

Observation Chart:

S.No.	Time	Reading (Kg.f/cm ²)	S.No.	Time	Reading (Kg.f/cm ²)
1.			13.		
2.			14.		
3.			15.		
4.			16.		
5.			17.		
6.			18.		
7.			19.		
8.			20.		
9.			21.		
10.			22.		
11.			23.		
12.			24.		



Contractor's Logo

PNEUMATIC TESTING REPORT PE Line

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT

Check List :-

Flushing

Pipe cleared from water & debris: - Yes/ No

Witnessed by :

1. GI Sleeves/ Half round concrete sleeve properly installed : - Yes/ No
2. Isolation Valve plugged: - Yes/ No
3. Regulator piece properly clamped: - Yes/ No
4. Sand filling in GI/ Half round concrete sleeve and non exposure of PE pipe/ Transition fitting – Yes/ No
5. Isolation Valve in open condition with open end plugged- Yes/ No

Contractor	TPIA	RSGI

STANDARD WORK PROCEDURE FOR PE LAYING AND GI WORKS

Project: City Gas Distribution Projects

Client: M/s Rajasthan State Gas Limited

Consultant/TPIA:

Contractor:

Date: -

Standard Work Procedure (SWP) For PE Laying

Specification of PE Pipes

1	PE Pipes as per IS code- 14885
2	Grade: PE 100 SDR 11

3	PE Carrier Pipe Size (mm)	Thickness (mm)	Length m	HDPE Casing Pipes Min. Dia (mm)	HDPE Casing Pipes Max. Dia (mm)
	20	3	200	50	50
	32	3	150	50	90
	63	5.8	100	110	160
	125	11.4	50	200	250
	180	16.4	12	250	315

ROUTE SURVEY

1	PE Route for assigned area shall be finalized by PMC/EIC and accordingly sketch will be prepared by contractor.
2	Sketch prepared by contractor to be approved by PMC/ EIC and same shall be used for laying of PE network.
3	Sketch shall have following information/data:-
a.	Total route length
b.	Type of Method for PE laying like Open cut, HDD or Moling.
c.	Sizing detail
d.	Break-up of Katcha and Pakka Road

TRENCHING

DEPTH OF TRENCH

1	Minor water body crossing/Canal	2.5 meter
2	Uncased/Cased Road Crossing	1.5 meter
3	Rail/Road Cased Crossing	1.5 meter
4	Normal Areas	1.5 meter

STANDARD WORK PROCEDURE FOR PE LAYING AND GI WORKS

Minimum depths may change depending on requirement of approving authority.

CLEARANCES

1	150 mm Where the gas pipe Crosses other assets/utilities
2	300 mm Where the gas pipe Crosses (or along) Electrical Cable
3	300 mm Where the gas pipe is laid along other assets /utilities

TF PROTECTION

1	GI sleeve IS 1239 (Heavy Duty) L 300 mm x Dia. 2.5 inch (3-inch dia. in case of commercial connections)
2	Making of Pedestal (PCC pedestal of grade (1:2:4) and size (300mm(L)X200mm(W) X Height (H)), (H>=300mm & will be as per site condition)))
3	Half round concrete sleeve (As per tender)
4	Material M-20 1:2:4
5	T F Pits Will be must restored as per site condition.

PE WARNING MAT

1	Specification of Warning mat shall be as per Approved QAP.
2	Warning Mat is to be placed after padding of about 300 mm on the top of carrier pipes.

PE Laying

1	Before starting of PE laying written permission (From concerned Authorities) should be provided by Owner/EIC/PMC to contractor
2	All the machinery & adequate manpower should be available at site (by contractor) before commencing of the job. Extent of mobilization is to be finalized by EIC as per availability of work front.
3	Safety measure like Sign board, barricading, PE is to be taken up as specified in Technical Specification during PE laying.
4	After PE laying, jointing & before backfilling, top cover of PE pipe is to be witnessed by EIC/PMC.

Flushing

1	Flushing of PE network is to be done by Air from 4-6 kg/cm ² pressure.
2	Proper flushing is to be ensured before testing.

Testing

1	PE network is to be tested by Air at 6.2 Kg/cm ² pressure.
2	Pressure is to be hold for the duration as given below: -
a.	PE Length <=500 M, 4 hours.
b.	PE Length >=500 M, 24 hours.

Purging

1	Purging is to be done using Nitrogen at 2 kg/cm ² pressure.



भारत सरकार
GOVERNMENT OF INDIA

STANDARD WORK PROCEDURE FOR PE LAYING AND GI WORKS

- 2 Pressure Holding is to be ensured by contractor till gas charging.

Commissioning

- 1 Before Gas charging in PE network following points are to be complied:

- a. Completeness of valve chamber along with valves.
- b. Installation of Pole, and RCC marker.
- c. As built drawing
- d. Also refer Annexure-1

VALVE SIZE

	Dia	Valve Chamber Size*
1	180 mm	1000 (L)X1000 (W)
2	125 mm	1000 (L)X1000 (W)
3	90 mm	1000 (L)X1000 (W)
4	63 mm	1000 (L) X 1000 (W)
5	32 mm	1000 (L) X 1000 (W)

*Valve chamber size may be finalized as per site conditions

Note:-

- 1 This Procedure is to be read along with PNGRB and T4S Guidelines.



Contractor's Logo

VALVE CHAMBER CONSTRUCTION CHECKLIST/POUR CARD

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT, _____

Report no: _____

Project	:	CITY GAS DISTRIBUTION, _____	
Client :		M/s Rajasthan State Gas Limited	
PMC / TPIA	:		
Contractor	:	-----	
Location	:	-----	
Dia of Pipe	:	-----	Dia of Valve:
Type of Valve chamber	:	-----	Size of Valve chamber:
Date:-	:		

Valve Chamber Details

Sr. No.	Description	Requirement	Witnessed by
1.	Excavation of Pit	As per Drawing/tender requirement	
2.	Inspection of contractor supplied materials	Sand, Corse Sand, Cement, Steel Bar, Concrete	
3.	Concrete Grade		
a)	Aggregate Size	20 MM & Down	
b)	Sand	Coarse sand of approved quality	
c)	Cement	Reputed manufacturer	
4.	Reinforcement Rods	As per Drawing/tender requirement	
5.	Manhole cover	As per tender drawing	
6.	Laying of PCC for foundation (Casting of 100 mm thick PCC for foundation, M10 Grade)	As per Drawing/tender requirement	
7.	Curing of base PCC	At proper interval	
8.	Inspection of Shuttering, Spacing and Dimension of walls	As per Drawing/tender requirement	
9.	Laying of RCC on top of PCC (Casting of 150mm thick RCC on top of PCC (M-25))	As per Drawing/tender requirement	



Contractor's Logo

VALVE CHAMBER CONSTRUCTION CHECKLIST/POUR CARD

Ref. No.:

Project: CITY GAS DISTRIBUTION PROJECT, _____

10.	Concrete casting of pedestal to support of Valve	As per Drawing/tender requirement	
11.	Fabrication of reinforcement along with angle insert as per drawing for wall	As per Drawing/tender requirement	
12.	Spacing of reinforcement between shuttering	Proper in between and as per Drawing/tender requirement	
13.	Casting of 150mm thick RCC for walls (M-25)	RCC M-25	
14.	Curing of casting (walls) along with base PCC/RCC	At proper interval	
15.	Fabrication of reinforcement as per drawing for top cover	Not Require	
16.	Centering, Shuttering, Spacing and Dimension of top Cover	Not Require	
17.	Casting of top RCC	As per Drawing/tender requirement	
18.	Curing of top cover RCC	As per standard	
19.	Plastering of wall with Cement Mortar with water Proofing (16 mm thk)	As per Drawing/tender requirement	
20.	Coping and sealing of entry and exit of pipe in the chamber	As per drawing	
21.	Sand filling	Coarse sand of approved quality	
22.	Supply and placement of Manhole cover	Heavy duty (with lifting hook) and proper placement	

Contractor	TPIA/RSGL

