



ऑयल इंडिया लिमिटेड
(भारत सरकार का उद्यम)
Oil India Limited
(A Government of India Enterprise)

PO : Udayan Vihar
Guwahati – 781171, Assam (India)
Phone: +91-361-2595682
Email: bikramjit_singha@oilindia.in
erp_mm@oilindia.in



INVITATION TO e-BID UNDER SINGLE STAGE TWO BID SYSTEM

Tender No. & Date : SGI1207P20 dated 20.04.2019

Tender Fee : Not Applicable

Bid Security : INR 14,25,433.00

Bidding Type : SINGLE STAGE TWO BID SYSTEM

Bid Closing on : 23.05.2019 at 11:00 (IST)

Bid Opening on : 23.05.2019 at 14:00 (IST)

Bid Validity : Bid should be valid for 120 days from bid closing date.

Bid Bond Validity : Bid Bond should be valid upto 23.12.2019.
(Bid bond format has been changed. Please submit bid bond as per revised format)

Performance Guarantee : Applicable @ 10% of order value.

Pre-Bid Date & Place : On 09.05.2019 at Main Conference Room, Oil India Limited, Pipeline Headquarters, Narangi, Guwahati.

Last date of receipt of pre-bid queries : 02.05.2019 within 15.30 Hrs. (Pre-bid queries to be sent to the following email ids -
(i) bikramjit_singha@oilindia.in (ii) harendrasharma@oilindia.in)

Integrity Pact : Applicable

OIL INDIA LIMITED invites electronic bids from Indian bidders under SINGLE STAGE TWO BID SYSTEM through its e-procurement site for the item detailed below –

ITEM NO.	MATERIALS DESCRIPTION	QTY	UNIT
10	Design, Engineering, Supply, Transportation, Installation, Commissioning, Testing and Documentation for CCTV based surveillance monitoring system with True IP Cameras for Pump Stations, Repeater Stations and Refinery Terminals of Oil India Limited (Technical Specification as per Annexure – AA)	1	NO.

The general details of tender can be viewed by opening the eRFx [Tender] under RFx and Auctions in the e-portal through Guest Login. The details of tendered items can be found in the Item Data and details uploaded under Technical RFX. The bidding document is available in the Technical RFX -> External Area -> Tender Documents.

STANDARD NOTES

1.0 The tender will be governed by “General Terms & Conditions for National Tender (National Competitive Bidding)” for e-Procurement as per Booklet No. MM/LOCAL/E-01/2005(For e-tenders).

2.0 This Bidding document consists of:

- | | | |
|-------|-------------|---|
| (i) | Annexure AA | : Technical Specification and Terms & Conditions |
| (ii) | Annexure BB | : Bid Rejection Criteria |
| (iii) | Annexure CC | : Commercial Compliance Sheet |
| (iv) | Annexure DD | : Price Schedule |
| (v) | Annexure EE | : Annual Turn Over and Net Worth Certificate |
| (vi) | Annexure FF | : Undertaking towards submission of authentic information/documents |

“General Terms & Conditions for National Tender (National Competitive Bidding)” for e-Procurement as per Booklet No. MM/LOCAL/E-01/2005(For e-tenders).

3.0 Bidders without having E-tender Login ID and Password should complete their online registration at least 7(seven) days prior to the scheduled bid closing date and time of the tender. For online registration, Bidder may visit the OIL’s E-tender site <https://etender.srm.oilindia.in/irj/portal>.

4.0 Necessary Login ID & Password will be issued by OIL only after submitting the complete online registration by the Bidder. In the event of late registration/incomplete registration by Bidder, OIL INDIA LIMITED shall not be responsible for late allotment of User ID & Password and request for bid closing date extension on that plea shall not be entertained by Company.

5.0 Bidders to note that Govt. of India under Micro, Small and Medium Enterprises Development (MSMED) Act 2006, has proclaimed the Public Procurement Policy, 2012 with effect from 1st April, 2012 in respect of procurement of goods and services, produced and provided by micro and small enterprises, by its Ministries, Departments and Public Sector Undertakings for promotion and development of Micro and Small Enterprises. A new Clause on applicability of Public Procurement Policy for procurement of goods from Micro and Small Enterprises (MSE) in the tender is furnished vide Amendment to General Terms and Conditions for Global Tender (MM/GLOBAL/E-01/2005). Bidders are requested to take note of the same and to submit their offers accordingly.

5.1 For availing benefits of Purchase Preference under Public Procurement Policy, the interested MSE Bidders must ensure that they are the manufacturer of tendered item(s) and registered with the appropriate authority for the said item(s). The technical offer of such MSE Bidders must include a valid copy of relevant MSE Certificate issued by appropriate authority specifying the item as per tender. Purchase Preference of 15% (fifteen percent) shall be extended to the eligible MSE Bidder (i.e. Manufacturer of tendered goods for procurement) over non-MSE L1 Bidder and PO shall be awarded for full tender quantity on such MSE bidder, subject to matching their quoted rates/costs with non-MSE L1 Bidder.

5.2 **MSEs Units (manufacturers/Service Providers only and not their dealers/distributors) who are already registered with District Industry Centers or Khadi & Village Industries Commission or Khadi & Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts & Handloom or any other body specified by Ministry of MSME are exempted from payment of Bid Security (EMD) irrespective of their product category & capacity, subject to submission of valid MSME registration certificate issued by appropriate authority.**

5.3 Bids without EMD shall be rejected, if the technical offer does not include a valid copy of relevant MSE Certificate issued by appropriate authority. It is in the interest of such MSE Vendors to furnish a copy of complete certificate to the concerned tender handling officer of OIL at least seven (7) days prior to the scheduled Bid Closing Date of the tender. Late communication in this regard and request for bid closing date extension on that plea shall not be entertained by Company.

6.0 **Purchase Preference (Linked with Local Content) (PP-LC) is not applicable against this tender.**

- 7.0 Bidder seeking benefits of MSME and Purchase Preference Policy (Linked with Local Content) shall clearly indicate the same in the tender with proper documents as stipulated in the tender.
- 8.0 OIL INDIA LIMITED (OIL) has upgraded its E-tender Portal. As part of the new system, the intending bidder must have Encryption Certificate along with Digital Signature Certificate (DSC) of Class III [Organization]. **All the Bids must be Digitally Signed using “Class III” digital certificate (e-commerce application) with ‘Certificate Type: Organisation Certificate’ as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India. The bid signed using other than “Class 3 with Organisation’s Name” digital certificate, will be rejected.**
- 9.0 EMD must be paid either through online mode or submitted as Bank Guarantee/LC. No DD/Cheques/Cashier Cheque or any other mode will be acceptable.
- 9.1 OIL has made arrangement for online confirmation of Bank Guarantee through SFMS Platform with Axis Bank, Guwahati. Therefore, bidders submitting Bid Security in the form of Bank Guarantee must route the BG through SFMS platform as per following details –
- a. (i) MT 760/MT 760 COV for issuance of bank guarantee
(ii) MT 767/MT 767 COV for amendment of bank guarantee*
- The above message/intimation shall be sent through SFMS by the BG issuing bank branch to Axis Bank, Guwahati Branch, IFS Code – UTIB0000140, Branch Address – Axis Bank Ltd., Guwahati Branch, Chibber House, G.S. Road, Dispur, Assam, Pin – 781005.*
- b. The Bidder shall submit to OIL the copy of SFMS message as sent by the issuing bank branch along with the original bank guarantee.*
- 9.2 Bank Guarantee issued by a Scheduled Bank in India at the request of some other Non-Scheduled Bank in India shall not be acceptable.
- 10.0 Bidders are requested to go through the ‘Vendor User Manual’, ‘Guidelines to Bidders for participating in OIL e-tenders’, ‘New Instruction to bidders for submission of bid’ and ‘Vendor User Manual for e-tendering’ available in the e-portal home page before submitting offer in system.
- 11.0 Deemed export/Custom Duty benefits are not applicable against this tender and bidders should furnish prices without considering these benefits.
- 12.0 Please note that all tender forms and supporting documents are to be submitted through OIL’s e-Procurement site only except following documents which are to be submitted manually in sealed envelope super scribed with Tender no. and Due date to **The Deputy General Manager - Materials (PL), Oil India Limited (Pipeline Headquarter), P.O. Udayan Vihar, Guwahati -781171 before 14.00 Hrs. IST on the Bid Closing Date** mentioned in the Tender.
- a) Bid Security(EMD) submitted in the form of Bank Guarantee.
b) Detailed Catalogue (if any).
c) Any other document required to be submitted in original as per tender requirement.
- All documents submitted in physical form should be signed on all pages by the authorised signatory of the bidder and to be submitted in triplicate.
- 13.0 Bidders are requested to examine all instructions, forms, terms and specifications in the tender. Failure to furnish all information required as per the tender or submission of offers not substantially responsive to the bid in every respect will be at the bidder’s risk and may result in rejection of its offer without seeking any clarifications.
- 14.0 Any deviation(s) from the tender specification should be clearly highlighted specifying justification in support of deviation.

- 15.0 Original Bid Closing Date shall be considered by OIL for evaluation of BRC Criteria in case of any extension of the original bid closing date.
- 16.0 Along with the technical bid, bidders must submit duly filled undertaking as per format provided vide Annexure-FF as undertaking towards submission of authentic information/documents.
- 17.0 The tender is invited under **SINGLE STAGE-TWO BID SYSTEM**. The bidder has to submit both the "TECHNO-COMMERCIAL UNPRICED BID" and "PRICED BID" through electronic form in the OIL's e-Tender portal within the Bid Closing Date and Time stipulated in the e-Tender. The "Techno-commercial Unpriced Bid" shall contain all technical and commercial details except the prices which shall be kept blank. Details of prices as per Price Schedule to be uploaded as attachment in the Attachment Tab "Notes and Attachments". Any offer not complying with above submission procedure will be rejected as per Bid Rejection Criteria mentioned in the tender.
- 18.0 In Technical Bid opening, only Technical Rfx will be opened. Therefore, the bidder should ensure that "TECHNO-COMMERCIAL UNPRICED BID" should contain details as mentioned in the technical specifications as well as BEC/ BRC and upload the same in the Technical RFX Response-> User - > Technical Bid. No price should be given in above Technical Rfx otherwise the offer will be rejected. Please go through the help document in details before uploading the document and ensure uploading of technical bid in the Technical RFX Response-> User - > Technical Bid only. The "PRICE BID" must contain the price schedule and the bidder's commercial terms and conditions. Details of prices as per Price Schedule can be uploaded as Attachment under the attachment option under "Notes & Attachments".

Notes and Attachments

→ Only price details should be uploaded

Technical attachments

→ All technical bid documents except price details

Bidders are requested to go through the 'New Vendor Manual', 'Guidelines to Bidders for participating in OIL e-tenders', 'New Instruction to bidders for submission of bid' and 'Vendor User Manual for e-tendering' available in the e-portal home page before submitting offer in system.



Oil India Limited e-Procurement

User ID *

Password *

Ligon Problems? [Get Support](#)

[Supplier Enlistment for E-Tender](#)

Important Note for New Portal Users:

[Click here to View Compatability Settings](#)

[General Guidelines to bidders](#)

[Click for User Manuals](#)

Click here for the New Manual & Instruction

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[Click for Terms of use, Privacy Policy, Refund Policy Docs](#)

- 19.0 For the convenience of the qualified Bidders and to improve transparency, the rates/costs quoted by bidders against OIL's e-tenders shall be available for online viewing by such Bidders whose price bids are opened by Company. A Bidder can view item-wise rates/costs of all other such peer bidders against the tender immediately after price bid opening, if the e-tender is floated by Company with PRICE CONDITION. In case the Price Bid is invited by Company through attachment form under "Notes & Attachments" (i.e., NO PRICE CONDITION), Bidder must upload their detailed Price-Bid as per the prescribed format under "Notes & Attachment", in addition to filling up the "Total Bid Value" Tab taking into account the cost of all individual line items and other applicable charges like freight, tax, duties, levies etc.. Under NO PRICE Condition (i.e. Price Bid in attachment form), the "Total Bid Value" as calculated & quoted by the Bidder shall only be shared amongst the eligible bidders and Company will not assume any responsibility whatsoever towards calculation errors/omissions therein, if any. Notwithstanding to sharing the "Total Bid Value" or the same is whether filled up by the Bidder or not, Company will evaluate the cost details to ascertain the inter-se-ranking of bidders strictly as per the unloaded attachment and Bid Evaluation Criteria only. Online view of prices as above shall be available to the Bidders only upto seven days from the date of Price-Bid opening of the e-tender.
- 20.0 **PRE-BID CONFERENCE:**
- 20.1 A Pre-Bid Conference is planned to be held on **09.05.2019** at **Main Conference Room, Oil India Limited, Pipeline Headquarters, Narangi, Guwahati** to explain the requirements of Company in details to the interested prospective Bidders and to understand bidders' perspective including exchange of views/clarifications, if any, on the tender requirements and other terms & conditions of the Tender. For details, bidders may contact Senior Manager Materials(PL), Oil India Ltd., Pipeline Headquarters, P.O. Udayan Vihar, Guwahati -781171, Assam Phone: 0361 – 2595682, E-mail: bikramjit_singha@oilindia.in.
- 20.2 Maximum 2(two) representatives from each prospective Bidder, who purchased the tender document, shall be allowed to participate in the pre-bid conference. All costs associated to attend the pre-bid conference by their representatives shall be borne by the interested Bidders.
- 20.3 The prospective bidders shall submit their queries/clarifications against the tender through Fax /Courier addressed to Senior Manager Materials(PL), Oil India Ltd., Pipeline Headquarters, P.O. Udayan Vihar, Guwahati -781171, Assam or through email to bikramjit_singha@oilindia.in with a copy to harendrasharma@oilindia.in. Such queries must reach OIL's office at Guwahati latest by 02.05.2019 upto 15.30 Hrs.. OIL shall provide clarifications to only those queries received within this date and time. Queries/Clarifications against the tender received beyond 02.05.2019 (15.30 Hrs) will not be entertained and replied. OIL will not be responsible for non-receipt or late receipt of any bidder's query in OIL's office.
- 20.4 Clarifications/exceptions/deviations, if required, should be brought out by the bidder prior to as above or during the Pre-Bid Conference only. After processing these suggestions, as a sequel to the pre-bid conference, Company may communicate the changes in this regard, if agreed to any, through an addendum to tender document to the prospective bidders who purchased the tender document. Company will not accept any exception/deviation to tender conditions/specifications once the same are frozen after the pre-bid conference and the non-compliant bid (s) shall be rejected outright against this tender.
- 20.5 Non-attendance in the pre-bid Meeting shall not be cause of disqualification of the bidder against the tender.
- 21.0 Bidders are requested to examine all instructions, forms, terms and specifications in the tender. Failure to furnish all information required as per the tender or submission of offers not substantially responsive to the bid in every respect will be at the bidder's risk and may result in rejection of its offer without seeking any clarifications.
- 22.0 Bidders must ensure that their bid is uploaded in the system before the tender closing date and time. Also, they must ensure that all documents which are to be submitted in a sealed envelope are also submitted at the address mentioned in note 12.0 above before **14:00 Hrs (IST)** on the bid closing date failing which the offer shall be rejected.
- 23.0 Other terms and conditions of the tender shall be as per "General Terms & Conditions for National Tender (National Competitive Bidding)" for e-Procurement as per Booklet No. MM/LOCAL/E-01/2005(For e-tenders). However, if any of the clause of the Bid Rejection Criteria / Bid Evaluation Criteria (BEC / BRC) contradicts the

clauses in the General Terms & Conditions of the tender and/or elsewhere, those mentioned in the BEC/BRC shall prevail.

- 24.0 To ascertain the substantial responsiveness of the bid OIL reserves the right to ask the bidder for clarification in respect of clauses covered under BRC also and such clarifications fulfilling the BRC clauses in toto must be received on or before the deadline given by the company, failing which the offer may be summarily rejected.
- 25.0 **No press advertisement will be published regarding amendment to Bidding Document or extension of Bid Closing Date. The same will be uploaded in OIL's website and informed to all prospective bidders who have received the bidding documents. Bidders to keep themselves updated.**

Sd-
(M.B. SINGHA)
SR. MANAGER MATERIALS (PL)
FOR GENERAL MANAGER - MATERIALS (PL)
FOR: CHIEF GENERAL MANAGER (PLS)

ANNEXURE – BB

BID REJECTION CRITERIA/BID EVALUTION CRITERIA

I. BID REJECTION CRITERIA (BRC):

The bids must conform to specifications, terms and conditions given in the tender document. Bids shall be rejected in case the items offered do not conform to the required minimum/maximum parameters stipulated in the technical specifications and to the respective national/international standards wherever stipulated. All the documents related to BRC clauses shall be submitted along with the techno-commercial Bid. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the offer/offers will be considered as not-responsive and is/are liable to be rejected, if the following conditions are not fulfilled:

(A) TECHNICAL:

1.0 The bidder shall be an Original Equipment Manufacturer (OEM) of the tender item(s).

OR

A certified authorised dealer/authorised representative/authorised system integrator of OEM of CCTV cameras, Network switches etc. offered in the bid. In case of bidder is a certified authorised dealer/ authorised representative /authorised system integrator, valid authorisation certificate from the OEM has to be submitted along with the bid. The authorisation certificate should have signature, email and contact number of the issuer.

2.0 IN CASE THE BIDDER IS AN ORIGINAL MANUFACTURER (OEM):

If the bidder is an OEM, then it must satisfy the following criteria and furnish the relevant documentary evidence as under along with the bid:

2.1 The bidder should be manufacturer of cameras items for five (05) years preceding the original bid closing date of the tender.

2.2 The bidder shall have successfully supplied:

2.2.1 At least 21 (Twenty-One) nos. of Ex-proof and 08 (Eight) nos. weather proof PTZ cameras in single order.

OR

2.2.2 At least 21 (Twenty-One) nos. of Ex-proof and 08 (Eight) nos. weather proof PTZ cameras in separate orders (Both to be complied).

OR

2.2.3 At least 29 (Twenty-Nine) nos. of Ex-proof PTZ cameras in a single order.

to Central government/State government/PSUs/Oil & Gas organisations in India during last five years preceding the original bid closing date.

2.3 The following supporting documents with respect to bidder's past supply experience as per para 2.2 above must be uploaded/submitted along with the technical bid, failing which the bid shall be considered as incomplete/non-responsive and be rejected.

2.3.1 Copy (ies) of purchase order(s)/Contract(s) placed on the bidder by client(s)

2.3.2 In addition to Copy (ies) of purchase order(s)/Contract(s), any of the following document or combination of documents that substantially confirm(s) successful execution of the order(s):

i) Satisfactory completion certificate/performance report

ii) Tax invoice etc.

iii) Consignee receipt delivery challan

2.4 The originals of these above-mentioned documents shall have to be produced by the bidder as and when asked for.

Note: For the purpose of above clause, the date of those purchase order(s)/Contract(s) need not be within five (5) years preceding the bid closing date of the tender, but the date of execution must fall within the period of five (5) years prior to the original bid closing date of the tender.

3.0 IN CASE THE BIDDER IS NOT AN ORIGINAL MANUFACTURER:

If the bidder is certified authorised dealer/ authorised representative / authorised system integrator of the offered equipment(s) of any OEM, then the bidder must furnish the following documentary evidences along with the technical bid, failing which the bid shall be rejected:

3.1 Authorisation letter/Certificate from the OEM, who satisfies experience criteria as per 2.1 above, shall be submitted along with the technical bid. This certificate should be valid at the time of bidding and should remain valid throughout the duration of purchase order execution, including extension, if any. Moreover, the bidder has to submit OEM authorisation for this specific tender with technical vetting of the solution by OEMs.

3.2 The bidder shall have successfully supplied:

3.2.1 At least 21 (Twenty-One) nos. of Ex-proof and 08 (Eight) nos. weather proof PTZ cameras in single order.

OR

3.2.2 At least 21 (Twenty-One) nos. of Ex-proof and 08 (Eight) nos. weather proof PTZ cameras in separate orders (Both to be complied).

OR

3.2.3 At least 29 (Twenty-Nine) nos. of Ex-proof PTZ cameras in a single order.

of same 'Make' of the offered item to Central government/State government/PSUs/Oil & Gas organisations in India during last five years preceding the original bid closing date.

3.3 The following supporting documents with respect to bidder's past supply experience as per para 3.2 above must be uploaded/submitted along with the technical bid, failing which the bid shall be considered as incomplete/non-responsive and be rejected.

3.3.1 Copy (ies) of purchase order(s)/Contract(s) placed on the bidder by client(s)

3.3.2 In addition to Copy (ies) of purchase order(s)/Contract(s), any of the following document or combination of documents that substantially confirm(s) successful execution of the order(s):

i) Satisfactory completion certificate/performance report

ii) Tax invoice etc.

iii) Consignee receipt delivery challan

3.4 The originals of these above-mentioned documents shall have to be produced by the bidder as and when asked for.

Note: For the purpose of above clause, the date of those purchase order(s)/Contract(s) need not be within five (5) years preceding the bid closing date of the tender, but the date of execution must fall within the period of five (5) years prior to the original bid closing date of the tender.

4.0 A job/supply executed by a bidder for its own organisation/subsidiary shall not be considered as experience for the purpose of meeting Bid Rejection Criteria/Bid Evaluation Criteria.

5.0 Bidder shall quote for all items as per the tender, otherwise the offer shall be rejected.

6.0 The explosion-proof PTZ cameras and explosion-proof junction boxes shall have valid certificate for use in hazardous locations by Petroleum and Explosives Safety Organisation (PESO), Nagpur.

7.0 DELIVERY:

Supply of all item: Within TWELVE (12) weeks from the date of issue of firm purchase order.

Installation, configuration, Integration testing and commissioning of entire project: Within TWENTY (20) weeks from the date of handing over of site.

8.0 GENERAL:

- 8.1 In case Bidder takes exception to any clause of Tender Document not covered under BEC/BRC, then the Company has the discretion to load or reject the offer on account of such exception if the Bidder does not withdraw/ modify the deviation when/as advised by the Company. The loading so done by the Company will be final and binding on the Bidders. No deviation will however, be accepted in the clauses covered under BEC/BRC.
- 8.2 Any exceptions/deviations to tender must be spelt out/discussed by Bidder in the Pre Bid Meeting which will be organized at Pipeline Head Quarter, Guwahati. Any additional information/terms/conditions furnished in 'Price Bid' will not be considered by Company for evaluation/award of contract.

(B) FINANCIAL:

- 1.0 Annual Financial Turnover of the bidder during any of preceding three financial/accounting years from the original bid closing date should be at least **INR 3,91,81,077.50**.
- 2.0 **Net Worth** of the bidder should be positive for the financial/accounting year just preceding to the original Bid Closing Date of the Tender (i.e. FY 2018 - 19).
- 3.0 Considering the time required for preparation of Financial Statements, if the last date of preceding financial/accounting year falls within the preceding six months reckoned from the original bid closing date and the Financial Statements of the preceding financial/accounting year are not available with the bidder, then the financial turnover of the previous three financial/accounting years excluding the preceding financial/accounting year will be considered. In such cases, the Net worth of the previous financial/accounting year excluding the preceding financial/accounting year will be considered. However, the bidder has to submit an affidavit/undertaking certifying that the balance sheet/Financial Statements for the financial year 2018-19 has actually not been audited so far.

Notes:

- a) For proof of Annual Turnover & Net worth any one of the following document must be submitted along with the bid: -
- i) A certificate issued by a practicing Chartered/Cost Accountant (with Membership Number and Firm Registration Number), certifying the Annual turnover & Net worth as per format prescribed in **ANNEXURE EE**.
OR
- ii) Audited Balance Sheet along with Profit & Loss account.
- b) In case the bidder is a Central Govt. Organization/PSU/State Govt. Organization/Semi-State Govt. Organization or any other Central/State Govt. Undertaking, where the auditor is appointed only after the approval of Comptroller and Auditor General of India and the Central Government, their certificates may be accepted even though FRN is not available. However, bidder to provide documentary evidence for the same.

(A) COMMERCIAL

- 1.0 Bids are invited under **SINGLE STAGE TWO BID SYSTEM**. Bidders shall quote accordingly. **Please note that no price details should be furnished in the Technical (i.e. Unpriced) bid**. The "Unpriced Bid" shall contain all techno-commercial details except the prices, which shall be kept blank. The "Price Bid" must contain the price schedule and the bidder's commercial terms and conditions. Bidder not complying with above submission procedure will be rejected.
- 2.0 **Bid security of INR 14,25,433.00 shall be furnished as a part of the bid**. Any bid not accompanied by a proper bid security in ORIGINAL will be rejected without any further consideration. For exemption for submission of Bid Security, please refer Clause No. 8.8 of General Terms & Conditions for National Tenders (National Competitive Bidding), Booklet No. MM/LOCAL/E-01/2005 (For E-tenders). **The Bid Security shall be valid till 23.12.2019.**
- 3.0 Warranty shall be as per clause no. G8 of Annexure AA.

- 4.0 MSME Bidders are exempted from payment of Bid Security (EMD) irrespective of their product category & capacity, subject to submission of valid MSME registration certificate issued by appropriate authority. Bids without EMD shall be rejected, if the technical offer does not include a valid copy of relevant MSE Certificate issued by appropriate authority.
- 5.0 The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as non-responsive and rejected.
- 6.0 **Validity of the bid shall be minimum 120 days from the final Bid Closing date. Bids with lesser validity will be rejected.**
- 7.0 All the Bids must be Digitally Signed using Class III digital certificate (e-commerce application) with **‘Certificate Type: Organisation Certificate’** as per Indian IT Act obtained from the licensed Certifying Authorities operating under the Root Certifying Authority of India (RCAI), Controller of Certifying Authorities (CCA) of India. **The bid signed using other than “Class 3” digital certificate, will be rejected.**
- 8.0 Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Security specified above must be valid for 3(three) months beyond the Warranty period indicated in the Purchase Order/contract agreement *[Please refer General Terms & Conditions for National Tenders (National Competitive Bidding), Booklet No. MM/LOCAL/E-01/2005 (For E-tenders)]*. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.
- 9.0 Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.
- 10.0 Bids containing incorrect statement will be rejected.
- 11.0 No offers should be sent by Telex, Cable, E-mail or Fax. Such offers will not be accepted.
- 12.0 The following points are deemed as “non-negotiable” and offer shall be rejected straightaway without seeking clarification:
- Validity of bid shorter than validity indicated in the tender.
 - Original Bid Security not received within the stipulated date and time mentioned in the tender.
 - Bid security with (a) Validity shorter than the validity indicated in tender and/or (b) Bid security amount lesser than the amount indicated in the tender.
 - In case the party refuses to sign Integrity Pact.
- 13.0 Bidder must accept and comply with the following clauses as given in the Bid Document, failing which bid shall be liable for rejection:
- Liquidated Damages *(Note: In case of deduction of LD, LD amount will be deducted along with applicable rate of GST)*
 - Guarantee of material
 - Arbitration / Resolution of Dispute
 - Force Majeure
 - Applicable Laws
- 14.0 **DELIVERY LOCATION:** Delivery shall be made at Pump Stations as per the following:
- For PS1 (Duliajan), PS11 (Tengakhat), RT-1 (Digboi), Digboi Repeater Station and RS18 (Fatengbor) delivery shall be at:**

Pump Station-1, OIL India Limited,
PO: Duliajan, Dist: Dibrugarh,
Assam, PIN-786602

2. **For PS2 (Moran) delivery shall be at:**

Pump Station-2, OIL India Limited,
PO: Khatkhati, Dist: Sivasagar,
Assam, PIN-785669

3. **For PS3 (Jorhat), RS1 (Maduri) and RS2 (Badulipur) delivery shall be at:**

Pump Station-3, OIL India Limited,
PO: Chengali Gaon, Dist: Jorhat,
Assam, PIN-785010

4. **For NT (Numaligarh Terminal) delivery shall be at:**

Numaligarh Despatch Terminal, OIL India Limited,
PO: Numaligarh Refinery Project,
Dist: Golaghat, Assam, PIN-785699

5. **For PS4 (Sekoni), RS3 (Kaziranga) and RS4 (Ghani) delivery shall be at:**

Pump Station-4, OIL India Limited,
PO: Jakhalabandha, Dist: Nagaon,
Assam, PIN-782136

6. **For PHQ (Guwahati) and RS5 (Jagiroad) delivery shall be at:**

Pipeline Headquarters, Oil India Limited,
PO: Udayan Vihar, Guwahati, Dist - Kamrup Metropolitan,
ASSAM, PIN – 781171

Note: Station wise item distribution list shall be provided to successful bidder by OIL.

15.0 **PRICE SCHEDULE:**

Bidder shall submit the Price Break up as per Annexure DD. Bidders should fill up the annexures, sign and upload under “Notes & Attachments” > “Attachments” only. Evaluation of offers shall be done on F.O.R. Destination basis.

15.1 The bids conforming to the specifications, terms and conditions stipulated in the enquiry and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

1. Basic Material Value
2. Packing & Forwarding Charges, if any
3. **Total Ex-Works Value (1+2)**
4. GST on Total Ex-Works Value
5. Compensatory Cess, if any
6. **Total FOR Despatching Station Value (3+4+5)**
7. Freight Charges upto destination
8. GST on Freight Charges
9. Insurance Charges @0.5% of (6) inclusive of GST
10. Charges for Trenching for cable laying
11. GST on Charges for Trenching for cable laying
12. Charges for OFC and Power Cable Laying
13. GST on Charges for OFC and Power Cable Laying
14. Charges for CAT6 Cable Laying
15. GST on Charges for CAT6 Cable Laying

16. Installation & Commissioning Charges
17. GST on Installation & Commissioning Charges
18. Charges for Factory Acceptance Test (FAT)
19. GST on Charges for Factory Acceptance Test (FAT)
20. Training Charges
21. GST on Training Charges
- 22. Total Value (6+7+8+9+10+11+12+13+14+15+16+17+18+19+20+21)**

15.2 Comparison of offers shall be done on Total Value vide Srl. No. 22 (Total Value).

- 15.3 Domestic bidders must quote inland freight charges upto Destination. In case bidder fails to quote inland freight charges, highest freight quoted by domestic bidder (considering pro-rata distance) against this tender or OIL's estimated freight, whichever is higher, shall be loaded to their offer for comparison purpose.
- 15.4 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.
- 15.5 Other terms and conditions of the enquiry shall be as per General Terms and Conditions for LCB Tender. However, if any of the Clauses of the Bid Rejection Criteria / Bid Evaluation Criteria (BEC/BRC) mentioned here contradict the Clauses in the General Terms & Conditions of LCB Tender of the tender and/or elsewhere, those mentioned in this BEC/BRC shall prevail.

<p>ANNEXURE – CC</p> <p>COMMERCIAL COMPLIANCE SHEET</p>

COMMERCIAL COMPLIANCE SHEET

The check list must be completed and submitted with the offer. Please ensure that all these points are covered in the offer. These will ensure that the offer is properly evaluated. Please mark 'Yes', 'No' or 'Not Applicable' or specify against the following questions, in the right hand column.

OFFER REF:			
NAME OF THE BIDDER:			
Srl. No.	Particulars	Yes/No/Not Applicable	Remarks
1	Whether bid submitted under Single Stage Two Bid System?		
2	Whether ORIGINAL Bid Bond (not copy of Bid Bond) submitted exactly as per format? If YES, provide details -		
	(a) Amount		
	(b) Name of issuing Bank		
	(c) Validity of Bid Bond		
	(d) Whether Bid Bond is valid till		
3	Whether offered firm prices?		
4	Whether quoted offer validity of 120 days from the date of final bid closing of the tender?		
5	Whether quoted firm delivery period?		
6	Whether quoted as per tender (without any deviations)?		
7	Whether quoted any deviation?		
8	Whether deviation separately highlighted?		
9	Whether agreed to the Warranty clause?		
10	Whether Price Bid submitted as per Price Schedule		
11	Whether quoted all the items/qty. of tender?		
12	Whether indicated the country of origin for the items quoted?		
13	Whether technical literature / catalogue enclosed?		
14	Whether confirmed acceptance of tender Payment Terms?		
15	Whether indicated the place from where the goods will be dispatched. To specify:		
16	Whether road transportation charges up to Destination quoted?		
17	Whether offered Ex-works price including packing/forwarding charges?		
18	Whether weight & volume of items offered indicated?		
19	If Pre-despatch/shipment inspection charges applicable, whether quoted separately?		
20	Whether confirmed to submit PBG as asked for in tender?		
21	Whether agreed to submit PBG within 30 days of placement of order?		
22	Whether indicated import content in the offer?		
23	Whether all applicable Taxes & Duties have been quoted?		
24	Whether all BRC/BEC clauses accepted?		
25	Whether MSME? If yes, whether documents enclosed as per tender.		

ANNEXURE – EE

CERTIFICATE OF ANNUAL TURNOVER & NETWORTH

CERTIFICATE OF ANNUAL TURNOVER & NETWORTH

TO BE ISSUED BY PRACTISING CHARTERED ACCOUNTANTS' FIRM ON THEIR LETTER HEAD		
<u>TO WHOM IT MAY CONCERN</u>		
<p>This is to certify that the following financial positions extracted from audited financial statements of M/s..... (Name of the bidder) for the last 3 (three) completed accounting years upto.....(as the case may be) are correct.</p>		
YEAR	TURNOVER In INR (Rs.) Crores/ USD Million*	NET WORTH In INR (Rs.) Crores / USD Million*
<p>*Rate of conversion (if used any): USD 1.00 = INR</p> <p>Place:</p> <p>Date:</p> <p>Seal:</p> <p>Membership No.:</p> <p>Registration Code:</p> <p>Signature:</p>		

****Applicable for Global Tenders.***

ANNEXURE – FF

**FORMAT OF UNDERTAKING BY BIDDERS TOWARDS
SUBMISSION OF AUTHENTIC INFORMATION/
DOCUMENTS**

**FORMAT OF UNDERTAKING BY BIDDERS TOWARDS SUBMISSION
OF AUTHENTIC INFORMATION/DOCUMENTS**

(To be typed on the letter head of the bidder)

Ref. No _____

Date _____

To,

**The Dy. General Manager (Materials)PL
Oil India Limited, Pipeline Headquarters
Narangi, Guwahati**

Sub: Undertaking of authenticity of information/documents submitted

Ref: Your tender No. _____ Dated _____

Sir,

With reference to our quotation no. dated..... against your above-referred tender, we hereby undertake that no fraudulent information/documents have been submitted by us.

We take full responsibility for the submission of authentic information/documents against the above cited bid.

We also agree that, during any stage of the tender/contract agreement, in case any of the information/documents submitted by us are found to be false/forged/fraudulent, OIL has right to reject our bid at any stage including forfeiture of our EMD and/or PBG and/or cancel the award of contract and/or carry out any other penal action on us, as deemed fit.

Yours faithfully,

For (type name of the firm here)

Signature of Authorised Signatory

Name :

Designation :

Phone No.

Place :

Date :

(Affix Seal of the Organization here, if applicable)

ANNEXURE – VII (Revised)

BID SECURITY FORMAT

TO,

**OIL INDIA LIMITED
PIPELINE HEADQUARTERS
P. O. – UDAYAN VIHAR,
GUWAHATI - 781171
ASSAM, INDIA**

Whereas (herein after called 'the Bidder') has submitted their Bid No..... dated..... against OIL INDIA LIMITED, PIPELINE HEADQUARTERS, GUWAHATI, ASSAM, INDIA (hereinafter called the Purchaser) 's tender No..... for the supply of (hereinafter called 'the Bid') KNOW ALL MEN by these presents that we..... of having our registered office at (hereinafter called 'the Bank') are bound unto the Purchaser, in the sum of for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its successors and assigns by these presents.

Sealed with the said Bank thisday of

THE CONDITIONS of this obligation are:

1. If the Bidder withdraws their Bid during the period of Bid validity specified by the Bidder,
or
2. If the Bidder, having been notified of the acceptance of their bid by the Purchaser during the period of bid validity:
 - a) fails or refuses to accept the order; or
 - b) fails or refuses to furnish the performance securityor
3. If the Bidder furnishes fraudulent document/information in their bid.

We undertake to pay to the Purchaser up to the above amount upon receipt of their first written demand (by way of letter /fax/cable) without the Purchaser having to substantiate their demand, provided that in their demand the Purchaser will note that the amount claimed by it is due to it owing to the occurrence of one or all of the conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including _____ (Bidder to indicate specific date as mentioned in the tender), and any demand in respect thereof should reach the Bank not later than the above date.

The details of the issuing bank and controlling bank are as under:

A. Issuing Bank

1. Full address of the bank:
2. Email address of the bankers:
3. Mobile nos. of the contact persons:

B. Controlling Office

1. Address of the controlling office of the BG issuing banks:
2. Name of the contact persons at the controlling office with their mobile nos. and email address:

Signature & Seal of the Bank

ANNEXURE – AA

SCOPE OF WORK AND TERMS & CONDITIONS



ऑयल इंडिया लिमिटेड

(भारत सरकार का उद्यम)

Oil India Limited

(A Government of India Enterprise)

**Design, Engineering, Supply, Transportation, Installation,
Commissioning, Testing and Documentation for CCTV
based surveillance monitoring system with True IP
Cameras for Pump Stations, Repeater Stations and
Refinery Terminals of Oil India Limited**

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DESIGN, ENGINEERING, SUPPLY, TRANSPORTATION, INSTALLATION, COMMISSIONING, TESTING AND DOCUMENTATION FOR SUPPLY OF CCTV BASED SURVEILLANCE MONITORING SYSTEM WITH TRUE IP CAMERAS FOR PUMP STATIONS, REPEATER STATIONS AND REFINERY TERMINALS OF OIL INDIA LIMITED.

A. INTRODUCTION

Oil India Limited, a Public Sector Undertaking of Govt. of India, engaged in exploration, production and transportation of hydrocarbon materials in India and abroad, is proposing to install CCTV based surveillance monitoring system with PTZ cameras for its Pump Stations, Repeater Stations and Refinery Terminals from Digboi to Jagiroad in the state of Assam.

B. SCOPE OF SUPPLY AND SERVICES

1. The scope of work for the CCTV system defined in this document shall be on turnkey basis and shall include but not be limited to the following:
The scope involves Project Management, survey/design, detailed engineering, manufacture/procurement, supply of all related items, providing all related services including installation and commissioning, testing, training, integration, trial run, commissioning etc., all complete, including the related civil works, cabling, preparation of the related drawings, documents etc. The system shall comprise of CCTV system and required accessories as per requirements & specifications of this tender document on Turnkey basis including five years comprehensive post warranty maintenance services, as per the specification and conditions. Any hardware or software not specifically mentioned but required to achieve full functionality as per specifications and for the safe operation, shall be included in the Bidder's scope of supply, installation & commissioning.
2. Bidder is requested to carefully examine and understand the specifications and seek clarification, if required, to ensure that they have understood the specifications. The authorized representatives of the prospective bidders shall be able to visit the sites for initial assessment so that they can submit a detailed offer.
3. CCTV Camera System shall be installed in Pump Stations namely PS1-Duliajan, PS11-Tengakhat, PS2-Moran, PS3-Jorhat, PS4-Sekoni, RT1-Digboi Refinery Terminal & NT-Numaligarh Refinery Terminal and Repeater Stations namely Digboi repeater station, RS18-Fatengbore, RS1-Maduri, RS2-Badulipur, RS3-Kaziranga, RS4-Ghani & RS5-Jagiroad. Pipeline Headquarters (PHQ) at Narengi, Guwahati shall be main recording station along with the backup in PS3, Jorhat. There shall be small capacity recording in Pumping Stations as well. All these locations will be connected with existing Oil India OFC network. At pumping stations, recording capacity shall be for 30 days. All the pumping stations shall be able to view the respective CCTV cameras of Pumping Stations and Repeater Stations.
4. The scope of work and supply shall broadly consist of the following parts:
 - 4.1 CCTV system comprising of ex-proof PTZ cameras, weather proof PTZ cameras, IR illuminators, FO Tx/Rx, Recorders, Network elements like switches, media converter, surge protectors etc.
 - 4.2 All associated services for installation, testing, commissioning & start-up.
 - 4.3 Training
 - 4.4 Factory Acceptance Test
 - 4.5 Documentation
 - 4.6 Warranty
 - 4.7 Comprehensive AMC
 - 4.8 Spares
5. In case of any conflict between this scope of work, related codes and standards etc., bidder shall refer the matter in writing to OIL and shall obtain clarification in writing before starting the manufacturing. However, in general more stringent requirements will prevail.
6. Any other item felt necessary for the completion and making the system functional as per the Scope of Work and Technical Specifications shall also be supplied by bidder. Bidder shall clearly mention details of all such additional items or quantity in their offer.
7. **A pre-bid meeting with the prospective bidders, who wish to participate in the tender, shall be held for clarifying the requirements of OIL and any techno-commercial points of the tender document not clear to the bidders. The authorized representatives of the prospective bidders shall be able to visit the site for initial assessment so that they can submit a detailed offer. After the pre-**

bid discussion, it shall be assumed that all the bidders have understood the tender requirement fully.

C. DETAILED SCOPE OF SUPPLY AND SERVICES

Detailed scope of supply and services shall include but not be limited to the following:

1. Gathering of information for complete system design and detailed engineering to meet the overall system availability objectives.
2. Supply and installation of all items as required for CCTV System: Closed Circuit Tele-Vision cameras are required at Pumping Stations, Repeater Stations and Terminal Stations for monitoring process area and control room area. CCTV cameras shall be provided at various locations as per following details:

Station Name	Control Room	No of Ex-Proof IP PTZ Cameras	No of Weather Proof IP PTZ cameras	Monitoring Area
PS1, Duliajan	New Control Room	06	0	Ex-Proof: <ol style="list-style-type: none"> 1. Pump Shed 2. Booster & Filter Shed 3. New Scrapper Trap Shed, Approach road from Chemical Dept., Control Room building side road, Station Piping Corridor, Old Pump House, Old Scrapper Trap, Boundary wall 4. Administrative Building Entry, Station Piping Corridor, Auto Sampler area, C I Dosing Shed, Old Booster area 5. Main Approach road to Pump Station, Control Room Approach Road, Pump House Piping, Restart Pump Shed back side. 6. Control Room Approach roads, Metering Area, Piping behind Metering Shed
PS11, Tengakhat	New Control Room	05	03	Ex-Proof: <ol style="list-style-type: none"> 1. Pump Shed 2. Booster Shed 3. New Scrapper Trap Shed, Old Scrapper Trap, Pump Shed back side, Metering area, Emergency Exit Gate and road, Boundary wall 4. Filter Shed, C I Shed, House, Approach road from Tank Farm, Piping Corridor, Auto Sampler area, C I Dosing Shed, Old Booster area 5. Front side and Approach road to Control room, C I Dosing Shed, Sump Tank, Station Piping corridor, old D6 & D7 Tanks Weather Proof: <ol style="list-style-type: none"> 1. Pump Station Entry Gate from OCS, Road to Admin Building, Booster Shed, Entry Road from ITF, POL Shed, Boundary wall 2. Sub Station, Boundary Walls, GEG 3. House, Road along Boundary wall

				Sub Station, Watch Tower, Road along Boundary, Boundary wall
PS2, Moran	New Control Room	04	02	Ex-Proof: <ol style="list-style-type: none"> 1. Pump House 2. Booster House 3. Basket Filter Shed, Boundary Wall, Sump Tank Shed, Sub Station 4. C I Dosing Shed, Sump Tank Shed, Road along Boundary, Boundary wall, Watch Tower Weather Proof: <ol style="list-style-type: none"> 1. Watch Tower, Boundary Wall, Road along Boundary Wall, Backside of Sub Station 2. Station Entry Road & Gate, Plant Roads, Metering Shed, Meter Prover, Scrapper Shed, Boundary wall
PS3, Jorhat	New Control Room	08	0	Ex-Proof: <ol style="list-style-type: none"> 1. Basket Filter shed-1 2. Basket Filter shed-2 3. Crude oil service tank, HSD tank, CEG area 4. Mainline Pump House 5. ONGC Booster Pump & Auto Sampler shed 6. Sump Tank, Compressor, Fire Pump House, ONGC Flowmeter, ROAD, ONGC Tank 7. Metering Skid & Meter Prover 8. Scrapper Trap, old Balance Tank, POL shed
NT, Numaligarh Terminal	New Control Room	04	02	Ex-Proof: <ol style="list-style-type: none"> 1. NSPL Booster shed with Basket Filter 2. NSPL Pump shed 3. NT Basket Filter shed 4. Surge Transfer Pump Weather Proof: <ol style="list-style-type: none"> 1. NSPL control room entrance, Gate, Scrapper Trap 2. Numaligarh Terminal area
PS4, Sekoni	New Control Room	07	01	Ex-Proof: <ol style="list-style-type: none"> 1. NSPL shed (IP1) 2. Mainline & Restart Pump shed 3. Slop Transfer & CI Dosing shed 4. Basket Filter & Metering shed 5. New Scrapper Trap, old Fire pump house, Static water tank, Buffer 6. Day Tank, Diesel Tank 7. Fire Pump House, Fire Tank, VFD room Weather Proof: <ol style="list-style-type: none"> 1. Industrial area new entrance gate, Control room, Mainline Pump House, Approach Roads
RT, Digboi	Existing Room	01	01	Ex-Proof: <ol style="list-style-type: none"> 1. Scrapper Trap, Valve area

				Weather Proof: 1. Entrance gate, walk ways
Digboi Repeater Station	Existing Telecom Room	0	01	Weather Proof: Entrance gate, walk ways.
Repeater Stations- 06 Nos. (RS18, RS1, RS2, RS3, RS4, RS5)	Existing Telecom Room	06	06	Ex-Proof: 1. Scrapper Trap, Valve area, back side gate Weather Proof: 1. Entrance gate, walk ways.

3. At Pump stations, cameras shall be connected to respective control rooms of pump stations through network switch. Inter connection from control room to optical equipment room shall be through OFC. Ethernet switch shall be provided at equipment room which shall be terminated into Ethernet Card of existing optical equipment. All the control rooms shall be connected together with provision of monitoring, control & recording at Master control room at PHQ, Guwahati and PS3, Jorhat.
4. At Repeater stations, cameras shall be connected to Ethernet Switch and shall be terminated into Ethernet Card of existing optical equipment.
5. At Digboi Repeater station and RT1-Digboi, cameras shall be connected to Ethernet Switch and shall be terminated into Ethernet port of existing radio equipment.
6. Bidder's scope shall include supply, laying & installation of Fibre Optic cable for extending the camera connectivity over Fibre Optic Cable if the distance between camera and control room is more than 60 meters and Power Supply Cables as per requirement. Necessary media convertors, Ex-proof JB / Weather Proof JB for housing fibre termination closure, media convertors, power supply convertors, surge suppressors for CCTV cameras, other accessories etc. as required shall be in the Bidder's scope. Bidder's scope shall also include supply and installation of poles / masts etc. Bidder to provide cable laying procedure along with their bid.
7. The exact location of cameras shall be decided during detailed engineering in consultation with OIL.
8. PHQ, Guwahati shall be main recording station along with backup in PS3, Jorhat with recording capacity for 90 days. Recording of the all the cameras of all the stations shall be done in the Video Recorder provided at PHQ location. However, synchronization of both the Video Recorders at PHQ and PS3 shall be done through existing optical network. Small capacity recording (30 days) shall also be provided in other pump stations and NT for local recording. Pump stations and NT shall have to be able to monitor the cameras under its jurisdiction from pump station recorders (Pump station wise jurisdiction is provided in Clause G6-1-1.2-Installation).
9. Bidder shall provide Client Workstation along with 43 inch (min) LED monitor at PS1, PS11, PS2, NT & PS4 for viewing cameras within their station jurisdiction. Monitors at master control room PHQ and PS3 shall be 65 inch (min) LED. Necessary Client licenses shall be provided in this regard.
10. Bidder shall provide the calculations of the storage media considering the cameras of pumping stations and repeater stations.
11. The CCTV LANs shall be made available through existing optical network infrastructure by OIL for recording of CCTV cameras at recorders. Each PTZ camera shall be allotted bandwidth in the existing optical equipment located at each station.
12. **Network Connectivity:** One no. of 24 fibres (conforming to ITU-T G.652) OFC already exists along the pipeline using which existing optical equipment are connected along the entire pipeline. At all the locations (Except Digboi Repeater Station and RT1, Digboi), optical equipment is placed at existing Telecom Room. The existing Telecommunication system shall be reconfigured by OIL to provide voice, data and video transmission system. The connectivity between various stations shall be provided through the existing transmission system configured over two fibres linearly. At Digboi Repeater Station and RT1-Digboi, the connectivity shall be through radio network. System integration including providing requisite interfaces, accessories and cables to realize the complete system which shall include the following:
 - (a) Integration of the CCTV system with the existing Optical system or radio network.
 - (b) Integration of all above systems and sub-systems to provide a complete working CCTV system to the satisfaction of OIL.

13. Supply and Installation of necessary equipment, cables and accessories to meet the system requirements including Ethernet CAT-6 cables (for indoor applications the Ethernet cable shall be unshielded and for outdoor applications the Ethernet cable shall be shielded), Optical Fibre Cables from camera locations to Control Rooms and Control room to Optical Equipment room, converters including all patch cords, pigtails (including splicing of pigtails to optical fibres at Fibre Termination Closures (FTC) and routing the fibres from FTC to network switches, coaxial cable, connectors, distribution boxes and all other items not indicated here but required for completion of the system. Surge protection to be provided at units terminated on all outdoor Ethernet cables.
14. All the systems offered associated with CCTV shall be placed in the Control Room. For establishing connectivity between control room and existing Telecom room, OFCs shall be laid and terminated in the FTC (Fibre Termination Closure) through pigtails.
15. Bidder's scope shall include any software up gradation (providing the software including Installation, testing of software etc. all complete) till warranty period, free of charge.
16. Two nos. of DVD ROM's shall be provided for each type of software provided for this project.
17. Earth pits along with required chemical, cable for earthing etc for all Cameras, cabinets & systems shall be provided by the bidder. Bidder shall ensure that the earth resistance shall be less than 1Ω (ohm).
18. Carrying out the Factory Acceptance Tests of the overall system, various subsystems, equipment as per the approved specifications and procedures in the presence of OIL's representatives.
19. Supply of the technical literature, drawings, software & licenses and documentation for the complete system.
20. Provide suitable Power Distribution Box and complete wiring from the distribution box to the respective equipment at each station.
21. **Temporary facilities:** To arrange temporary power supply, test instruments, trained manpower, transport & any other facility required for installation, testing & commissioning of total system.
22. To obtain all statutory clearances as required for implementation of the project. However, OIL shall provide necessary assistance, as required.
23. Bidder shall provide Commissioning and Warranty Spares. The bidder shall utilize their spares of all the equipment that may be required during commissioning and warranty period separately. Any other spares required within warranty period shall be in bidder's scope.
24. Quality assurance, Site Acceptance Testing, trial run & commissioning of the complete system at site to the complete satisfaction of OIL.
25. Bidder shall separately quote for Post Warranty Comprehensive Maintenance Contract for five (5) years.
26. **Provenness Requirements:** The system/sub-system/bought out items and services offered should have been supplied and working satisfactorily for a period of minimum one (01) year on the bid due date for similar application. Certificate of satisfactory working for a period of minimum 1(one) year (from the client in client's letter head duly signed and sealed) to be provided in the bid.
27. **Certificate for Logistic Supports:** Bidder shall provide back-up engineering, maintenance support and spare parts for a period of ten (10) years for the system, sub-system, bought out items and services offered, being supplied. Logistic support certificates shall be furnished by bidder for providing necessary support services as per format attached with the bid document. Certificates from sub-vendors (if any) for items shall be furnished.

CERTIFICATE FOR LOGISTICS SUPPORT

(To be signed by Manufacturer's corporate level signatory on company's letterhead)

I, _____ on behalf of M/s _____ confirm that the _____ Model No. _____ for quoted by M/s _____ for M/s OIL shall continue to be supported by us for a period of minimum 10 years. The quoted system shall not be withdrawn from Indian market as a matter of our corporate policy.

I further confirm that in case of placement of order by OIL on us, we shall continue to support OIL in providing back-up engineering, maintenance support and spare part support for a period of 10 years from the date of placement of order.

SIGNATURE WITH SEAL

AUTHOURIZED, SENIOR MANAGEMENT LEVEL SIGNATORY

D. DESIGN OBJECTIVES AND GUIDE LINES

- 1. SYSTEM AVAILABILITY:** The System availability shall be greater than 99.99 % excluding logistics (i.e. availability of power supply and optical fibres).
- 2. STANDARDS APPLICABLE:** The equipment and the system provided shall conform to the latest editions of standards like ITU-T, ITU-R, ETSI, IEC, ISO, EIA etc.

In case of any conflict between the above standards and the specifications, the specifications given in this document shall precede, however in case of further confusion, the matter shall be referred to OIL. Decision of OIL shall be final and binding.

- 3. ENVIRONMENTAL SPECIFICATIONS:** All equipment, test instruments, special tools and tackles, etc shall be capable of maintaining the guaranteed performance with operational lifetime of 10 years minimum when operating continuously under the following environmental conditions:

- | | |
|-------------------------------------|--|
| 3.1 Operating Temperature | : 0 deg C to 50 deg C guaranteed and upto +55 deg C degraded. |
| For all supplies except IT Hardware | |
| For IT Hardware | : 0 deg C to +40 deg C |
| Storage: | : -10 deg C to +70 deg C |
| 3.2 Humidity | : At any relative humidity upto 95% within the temperature range of 0 deg C to 40 deg C. |
| 3.3 Altitude | : At any altitude upto 600 m above sea level. |
| 3.4 Sand and Dust | : With a build-up of dust on operational surface to a level such as may occur because of imperfections in the sealing of equipment, housing and conditions prevailing in sub-tropical desert conditions. |
| 3.5 Shock and vibration | : Shall withstand transportation and handling by air, sea, and road under packed conditions. |
| 3.6 Electromagnetic Compatibility | : Shall meet the requirements as per IEC 801. |

4. POWER SUPPLY SYSTEM

- 4.1 Pump Stations, RT and NT:** 230V AC UPS (+/- 10%, 50 Hz +/- 3%) single phase is available. Necessary AC/DC rectifier & converter as required shall be supplied and installed by bidder (AC input power supply may be grounded or may be floating, in either case, bidder to make necessary provision as required, for better protection of the equipment/system). Isolation transformers with proper grounding etc., as required for protection may be provided). Computers & printers shall work on 230V, 50 Hz, single-phase AC input power supply voltage without any external converter. Bidder shall provide Power Distribution Panel for equipment at all locations in the cabinets provided.
- 4.2 Repeater Stations:** Both 230V AC (+/- 10%, 50 Hz +/- 3%) single phase and -48V DC are available at all the repeater stations. Normally system shall use 230V AC power. During AC failure, offered system shall automatically switch to -48V DC power. Necessary AC/DC rectifier & DC-DC convertor as required shall be supplied and installed by bidder (AC input power supply may be grounded or may be floating, in either case, bidder to make necessary provision as required, for better protection of the equipments/system. Isolation transformers with proper grounding etc., as required for protection may be provided. Bidder shall provide Power Distribution Panel for equipment at all locations in the cabinets provided.

- 4.3 The input power supply feeder(s), as applicable shall be available in the rack room (AC input may be provided through single or two feeders). Bidder shall terminate the cable in the distribution box to be provided by the bidder.
- 4.4 The DC distribution box(s) shall be equipped with requisite number of outlets including five spare outlets of 5A capacity each. All the outlets shall be provided with Miniature Circuit Breakers of required capacity and shall be terminated in two pin sockets. The AC distribution box(s) shall be equipped with requisite number of outlets including five spare outlets of 5A capacity each for 230 V AC. All the outlets shall be provided with Miniature Circuit Breakers of required capacity and shall be terminated in three pin sockets. All necessary cables for power connection (AC/DC) from Client's panel to bidder supplied AC/DC DB shall be supplied and installed by bidder.
- 4.5 Bidder shall provide Equipment-wise Power Consumption details per station for each system and sub-system in the offer.
- 4.6 All equipment shall be provided with Over-voltage, Under-voltage protection.
- 4.7 All equipment shall be provided with Short-Circuit and reverse power protection.
- 4.8 All outdoor installations e.g. CCTV camera over poles shall be provided with lightning strike arrestors, suitable to divert the resultant transients/ surges safely to earth thereby protecting the electronic component and the system itself.

5. SYSTEM GUIDELINES

- 5.1 Bidder shall be totally responsible for the completion of works as per job specifications.
- 5.2 If during the course of execution of the work any discrepancy or inconsistency, error or omission in any of the provisions of the contract is discovered, the same shall be referred to OIL who shall give its decision in the matter and issue instruction directing the manner in which the work is to be carried out. The decision of OIL shall be final and conclusive and the Bidder shall carry out the work in accordance therewith.

6. DESIGN GUIDELINES

- 6.1 The system design shall be flexible enough to meet future expansion program upto the maximum capacity of each sub-system without deteriorating the performance of the system.
- 6.2 In general, specifications provided throughout this document shall apply. In case of conflict, decision of OIL in all such cases shall be final.
- 6.3 The maximum noise level with opened cabinet doors shall not exceed 85 dBA.
- 6.4 All equipment shall have sufficient number of alarms and supervisory indications and shall be provided with self-diagnostic facilities. All alarms and monitoring & diagnostic facilities shall be built-in & shall be displayed on the front panel of the equipment for ease of maintenance. The following shall also be provided:
 - 6.4.1 Test points shall be available on the front panel for system monitoring and easy fault-location.
 - 6.4.2 The healthy condition of the units shall be displayed by green LEDs, unhealthy conditions by red LEDs.
 - 6.4.3 All-important switches, controls on the front panel shall be provided with suitable safeguard to avoid accidental operation by the maintenance personnel.
- 6.5 All equipment shall be immune to EMI; RFI interference generated by any nearby source & shall meet the latest international standards in this regard.
- 6.6 All wiring-including field interconnection wirings shall be cabled and clamped to the chassis. The wiring shall follow standard color-code. All patch cords shall be provided with connectors matching to the cable used and shall have identification markings.
- 6.7 All sub-assemblies or modules, switches and controls and the circuit components shall be so mounted as to permit their replacement without appreciable disturbance to other components.
- 6.8 All test instruments, special tools and tackles etc., shall be procured and supplied as a package with its carrying cases, accessories (interconnecting cables, connectors, lamps, batteries, fuses etc) from their respective manufacturer.
- 6.9 All software to be used shall be provided with latest anti-virus protection software with one-year validity. All software should be licensed software and certificates for the same shall be provided. Certificate of calibration of all instruments shall be provided. Warranty cards for all instruments, workstations, PCs, etc shall be provided and same shall be in the name of the OIL.

E. BILL OF MATERIAL (BOM) (NOT LIMITED TO):

S/N	Item Description	Qty	UOM	Vendor's Remark
	Camera and Associated Components			
1	Explosion Proof PTZ Camera, True IP with Mounting	41	Nos.	
2	Weather Proof PTZ Camera, True IP with Mounting	16	Nos.	
3	Central Data Storage	2	Nos.	
4	Server Hardware for VMS (For PS3 & PHQ)	2	Nos.	
5	Central Video Management System (VMS) for PS3 Jorhat & PHQ Guwahati	2	Nos.	
6	VMS Software licenses for all Servers for Monitoring, Control, Recording, Archival for minimum 100 nos. Camera License and Unlimited Concurrent Client License.(For PS3 & PHQ)	2	Nos.	
7	Pump Station Recording server (except PS3 Jorhat and PHQ Guwahati)	5	Nos.	
8	Pump Station Video Recording and Management Software	5	Nos.	
9	Client Workstation along with OS	7	Nos.	
10	Joystick Keyboard	2	Nos.	
11	65" LED Monitor	2	Nos.	
12	43" LED Monitor	5	Nos.	
13	Local Croft Terminal/Laptop	2	Nos.	
	Accessories at Camera End			
14	CAT-6 Cable, 4 Pair, Armored, Outdoor	4000	M	
15	Ethernet Surge and Lightning Protector	57	Nos.	
16	Electrical Surge and Lightning Protector	57	Nos.	
17	6 Port LIU, Fully Loaded with accessories, JB Mount	57	Nos.	
18	4 port Gigabit Industrial Grade Switch with 2 SFP ports	42	Nos.	
19	Chemical Earthing with connectivity	57	Nos.	
	Power Distribution Components			
20	Power Cable 3C, 6 Sqmm, Armored	9000	M	
21	Explosion Proof Junction Box at Field	41	Nos.	
22	Weather Proof Junction Box at Field	16	Nos.	
23	Power Cable 3C, 2.5 Sqmm, Armored	5000	M	
24	MCB of Suitable Rating at Control Room	71	Nos.	
	Hardware/ Software			
25	42U Rack for Servers & Switches, LIU, Media Converters, UPS etc. at Control Rooms at PHQ & PS3	2	Nos.	
26	6U Rack for switch	20	Nos.	
27	24 Port Patch Panel	7	Nos.	
28	CAT6 Cable, Indoor	1000	M	
29	UTP CAT6 I/O	62	Nos.	
30	LIU 24 port, Fully Loaded with accessories, Rack Mount	6	Nos.	
31	8 Port Gigabit Enterprise Grade Layer-3 Switch with 2 SFP ports	22	Nos	
	Miscellaneous Items			

32	Fiber Optic Cable, 12 Core, Armored	10000	M	
33	Pole for CCTV including all Supports, 6 metre	22	Nos.	
34	Pole for CCTV including all Supports, 3 metre	19	Nos.	
35	Power Converter at Repeater Stations 48V DC to 230V AC/230V AC to 230V AC	7	Nos.	
36	OFC Patch Chord, SM	114	Nos.	
37	Patch Chord CAT6	114	Nos.	
38	GI Pipe for OFC/Power Cable as required for road crossing/ under-ground cabling	1000	M	
39	HDPE Pipe for OFC/Power Cable as required for under-ground cabling	7000	M	
40	Industrial Grade Power Extension Board	22	Nos.	
41	Computer Table for Work Stations and Joysticks	7	Nos.	
42	Cable Glands, Connecting accessories and other Commissioning Accessories	1	Lot	
	Spare Items			
43	Explosion Proof PTZ Camera (as SI No. 1 above)	5	Nos.	
44	Weather Proof PTZ Camera, (as SI No. 2 above)	4	Nos.	
45	Ethernet Surge and Lightning Protector (as SI No. 15)	8	Nos.	
46	Electrical Surge and Lightning Protector (as SI No. 16 above)	8	Nos.	
47	6 Port LIU, Fully Loaded with accessories, JB Mount ((as SI No. 17 above)	5	Nos.	
48	4 port Gigabit Industrial Grade Switch with 2 SFP ports (as SI No. 18 above)	5	Nos.	
49	MCB (as SI No. 24 above)	5	Nos.	
50	LIU 24 port, Fully Loaded with accessories, Rack Mount (as SI No. 30 above)	1	Nos.	
51	8 Port Gigabit Enterprise Grade Layer-2 Switch with 2 SFP ports (as SI No. 31 above)	5	Nos.	
52	Power Converter at Repeater Stations 48V DC to 230V AC/230V AC to 230V AC (as SI No. 35 above)	3	Nos.	
53	OFC Patch Chord, SM (as SI No. 36 above)	20	Nos.	
54	Patch Chord CAT6 (as SI No. 37 above)	20	Nos.	
55	Industrial Grade Power Extension Board (as SI No. 40 above)	3	Nos.	
56	Any other item required for successful installation, commissioning and working of the system as a whole			
	Services			
1	Trenching for cable laying	5000	M	
2	GI Pipe, Power cable & HDPE Laying with OFC & Termination of OFC	7000	M	
3	CAT6 Cable Laying with proper conduiting	4000	M	
4	Installation & Commissioning (Engineering, Erection, Installation, Testing, Commissioning, integration, Documentation of all system and sub-system offered).	1	AU	
5	Factory Acceptance Test (FAT)	1	AU	
6	Training	1	AU	

7	Any other item required for successful installation, commissioning and working of the system as a whole			
	5 Year Post Warranty Comprehensive Annual Maintenance Contract (AMC)			
1	1 st Year AMC	1	AU	
2	2 nd Year AMC	1	AU	
3	3 rd Year AMC	1	AU	
4	4 th Year AMC	1	AU	
5	5 th Year AMC	1	AU	

F. DETAILED TECHNICAL SPECIFICATION

Bidder shall provide exact specification value against each parameter for their offered model in right most columns, viz. "Bidder to Specify/Confirm" instead of writing only "Yes" as compliance. "Yes" shall only be accepted where quantization is not possible.

Bidder shall submit catalogue, dimensional & interconnection drawing, BOM and other relevant technical details against each parameter.

1. EX PROOF PTZ IP CAMERA

Ex Proof IP PTZ True Day Night Camera shall be installed at strategic locations. The unit shall be suitable for indoor/outdoor installation. Offered camera should meet the below mentioned camera specifications as minimum.

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Image Sensor	1/ 2.8" or better type CCD/CMOS/MOS sensor	
4	Optical Zoom	Minimum 30X	
5	Digital Zoom	Minimum 16X	
6	Effective Pixels	1920 X 1080, Minimum 2MP	
7	Resolution	1080p Full HD images up to 25 FPS or better	
8	Television System	PAL	
9	Scanning system	Progressive Scan	
10	Wide Dynamic Range	WDR 100dB or better	
11	Min. illumination (Sensitivity)	Normal mode -0.2 lux Night mode -0.01 lux & IR with 0 lux	
12	IR Range	80 Mtr or better	
13	Shutter Speed	1/30, 1/100, 1/500, 1/1000, 1/10000, Auto	
14	Colour , Brightness , Contrast	Functionality Required	
15	S/N Ratio	>50 dB	
16	Digital Noise Reduction	On/OFF	
17	Video motion detection	Minimum 3 areas	
18	AGC(Auto Gain Control)	Yes, On / Off (Selectable)	
19	Day & Night	On/Off/Automatic	
20	Lens	Min Optical zoom 30 X	

21	Lens Focal Length	Minimum Focal Length: 4.3 to 4.5 -129 to 135 MM or better & Auto focus Motorised Zoom Lens	
22	Day & Night Operation	Available with IR cut filter	
23	White Balance	Automatic	
24	Video encoding/compression	H.264, MJPEG	
25	Video profile	Min 2 simultaneous stream of H.264	
26	Frame Rate	25 FPS or better	
27	ONVIF S profile compliance	Required for Offered Make/Model	
28	Bit Rate	256 kbps min, max 8MBPS, CBR/VBR	
29	Presets	128 preset positions	
30	Heater	Built In	
31	Pan range	360° continuous rotation	
32	Tilt range	-90° to 90° with auto flip	
33	Pan speed	Minimum '0.1° to 30° per second, variable speed operation	
34	Tilt Speed	Minimum '0.1 ° to 30° per second, variable speed operation	
35	Preset Speed	Minimum 30 Deg/sec or better	
36	Supporting protocols	IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, SSL, ICMP, FTP, SMTP, DHCP, PPPoE, UPnP, IGMP, SNMP, Bonjour, DNS, DDNS, IEEE 802.1x, QoS, NTP, IP Filter, ONVIF	
36	Weather proof protection	Minimum IP 67 or better	
37	Alarm Input / Output	1/1	
37	Video Analytics	Auto-tracking	
38	Network	Ethernet (RJ-45 Connector, for 10/100 Mbps speed.	
39	General Construction	Stainless Steel 316L factory fitted housing	
40	Mounting Pole	Shall be on pole with stand/wall mounted/ceiling mounted with suitable brackets	
41	Viewing Window	Tempered plate glass with motorized wiper	
42	Lightning and Surge Protection	Internal /External	
43	Power source	AC 100-240V 50Hz, +/- 10% (shall be provided by OIL)	
44	Power Consumption	Bidder to specify	
45	Dimensions	Bidder to specify	
46	Product Weight	Bidder to specify	
47	Operating temperature	-10 to 60 Deg C	
48	Operating Humidity	20 to 95 % RH non condensing	
49	Certification	IP67 and PESO (CCOE)	
50	Iris Type	Auto	

51	Aspect Ratio	Compatible to HD 16:9	
52	Image settings	Compression, color, brightness, sharpness, contrast, white balance, exposure control, exposure zone, Motorized focus, WDR-dynamic contrast & text overlay	
53	Auto focus	Yes	
54	Alarm terminal	Dedicated Output for washer Unit	
56	Alarm triggers	Intelligent Motion video, Tamper alert	
57	Security	Password Protected access, IP address filtering & user access log facility.	
58	Accessories	The cost of Camera shall include all the required accessories, etc to connect Camera with Cat-6 Cable & for mounting on the pole/existing infrastructure, surge arrestor in-built or external for power & Ethernet circuits. Ex proof JB's should be used.	

2. WEATHER PROOF PTZ IP CAMERA:

Weatherproof High speed PTZ IP Camera shall be installed at strategic locations. The unit shall be suitable for outdoor installation. The cameras should have following specifications:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Image Sensor	1/ 2.8" or better type CCD/CMOS/MOS	
4	Optical Zoom	30x	
5	Digital Zoom	16x	
6	Number of Pixels	(H x V) 1920x1080 (1080p)	
7	Shutter WDR	WDR 100dB or better	
8	S/N Ratio	>50 dB (AGC Off)	
9	Minimum Illumination	0.005 lux (colour)/0.0005 lux (B/W) @ F1.6	
10	IR Range	200 Mtr or better	
11	Focal Length	4.5 mm - 135 mm	
12	Max Aperture	F1.6 - F4.4	
13	Focus Mode	Manual/Auto/PTZ Trigger/Zoom Trigger	
14	Angle of View	H: 62.35° – 2.53°	
15	White Balance	Auto/Indoor/Outdoor/ATW/Manual	
16	Exposure Mode	Iris Priority/Shutter Priority/Gain Priority/Manual	
17	Electronic Shutter	1/1 to 1/30,000 sec	
18	Backlight Compensation	BLC / HLC / WDR	
19	Electronic Image Stabilization	On/Off	
20	Defog	On/Off	
21	Day/Night	Auto/Colour/BW	
22	Pan Travel	360° endless	
23	Tilt Travel	0° to 90°, auto flip 180°	
24	Manual Pan Speed	Up to 200°/s	
25	Manual Tilt Speed	Up to 200°/s	

26	Presets	250	
27	Preset Accuracy	0.2°	
28	Preset Speed	Pan: Up to 200°/s ; Tilt: Up to 120°/s	
29	Tours	8	
30	Auto Pan/Scan	1/1	
31	Pattern	5	
32	Privacy Masks	24	
33	Auto Resume After Power	Yes	
34	Motion Detection	On/Off	
35	Image Rotation	Flip	
36	Audio In / Out	1/1	
37	Alarm Input / Output	2/1	
38	Video Analytics	Auto-tracking; Face detection; Audio detection	
39	Event	Motion Detect; Video Tamper; Audio Detect; No SD card; SD card error; SD card capacity warning; Network disconnection; IP address conflict; Illegal access; Face detection	
40	Event Notification	Record (SD card and FTP), Relay output, Email, Preset, Tour, Pattern, Snapshot	
41	Languages Supported	English	
42	Surge Protection	Shall be built-in or external	
43	Power source	AC 100-240V 50Hz, +/- 10%	
44	Power Consumption	Bidder to specify	
45	Dimensions	Bidder to specify	
46	Product Weight	Bidder to specify	
47	Connectors	Bidder to specify	
48	Construction Material	Bidder to specify	
49	Construction Colour	Bidder to specify	
50	Operating Temperature	–40°C to 60°C (–40°F to 140°F)	
51	Storage Temperature	–40°C to 60°C (–40°F to 140°F)	
52	Relative Humidity	0% to 90%, non-condensing	
53	Ingress Protection	IP66 (IP certification shall be provided)	
54	Video Compression	H.265 / H.264 / MJPEG	
55	Video Streaming	Primary Stream:1080p @ 60/50 fps; 1.3M/720p @ 30/25 fps Second Stream: 1080p/1.3M/720p @ 30/25 fps	
56	Video Resolution	Up to 1920x1080p	
57	Audio Compression	G.711a/G.711Mu	
58	Audio Stream	Full-duplex, Simplex	
59	Interface	RJ-45, 10/100 Mbps Ethernet	
60	Supported Protocols	IPv4/v6, TCP/IP, UDP, RTP, RTSP, HTTP, HTTPS, SSL, ICMP, FTP, SMTP, DHCP, PPPoE, UPnP, IGMP, SNMP, Bonjour, DNS, DDNS, IEEE 802.1x, QoS, NTP, IP Filter, ONVIF	

61	Security	Multiple user access levels should be available with enhanced password policy, IP filtering, IEEE 802.1x	
62	Minimum Users Access	20 users	
63	MicroSD	Support for microSD up to 128 GB	
64	MicroSD Function	Event trigger recording, Continuous and scheduled recording, Automatic recording when network fails	
65	Supported Web Browsers	Internet Explorer (11.0+), Firefox, Chrome	
66	Communication	ONVIF Profile S and G	
67	Mounting	Suitable for mounting in pole/mast/ existing structure. Local JB & conduits if required for termination at camera end to be supplied along with camera.	
68	Regulatory	UL, CE, FCC Part 15, EN 55022, EN50130, EN60950-1	

3. CENTRAL DATA STORAGE

Recording Server with configuration of 128 cameras with 90 days recording facility: Recording Server shall operate with no performance degradation using the following minimum hardware and operating system configuration:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Operating system	Microsoft Windows Storage Server R2 2016 Standard Edition or higher	
4	File access protocols	CIFS, NFSv4.1, FTP, SMB3.0, SMB Direct (RDMA)	
5	Block access protocols	Microsoft iSCSI target	
6	Form factor	2U rack-mount system	
7	Processors	Intel Xeon Bronze 3104 1.7G, 6C/6T, 9.6GT/s, 8M Cache, Turbo, HT (85W) DDR4-2133	
8	Memory	16 GB RDIMM, 2666 MT/s & scalable upto 128GB	
9	Bezel	LCD Bezel	
10	Storage capacity	9x8TB 7.2krpm NLSAS drives should be supplied to achieve 50TB usable after RAID 5, total 16 data drive slots should be available in the base unit for future scalability	
11	Drive types supported	SATA, NL-SAS & SAS	
12	External expansion	Yes	
13	USB ports	Min 2 ports of USB 3.0	
14	RAID	1, 5	
15	RAID Controller	Internal RAID controller with 2GB NVcache	
16	Power	Redundant hot-plug 750W	
17	Network Interfaces	2 x10GbE, 2 x1GbE & one RJ45	
18	Rack Rails	Ready Rails Sliding Rails with Cable	

19	Cooling Fans	Hot-plug hard drives, hot-plug redundant	
20	Management	OEM Management Console or Windows	
21	Data protection features	Replication (DFS-R), Snapshots (VSS)	
22	Slots	Four PCIe 3.0 slots (all x8 bandwidth)	

4. VMS SERVER: CENTRAL VIDEO MANAGEMENT SYSTEM

VMS Server shall operate with no performance degradation using the following minimum hardware and operating system configuration:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Processor	2xIntel Silver 4116, 12 core, 2.1GHz Processor with 16.5 Mb Cache scalable 2 processor	
4	Chipset	Intel C621 or later OEM Chipset	
5	Memory	128GB DDR4 RAM	
6	DIMM Slots	Min 24 DIMM Slots	
7	Server Chassis	Server chassis should be toolless serviceable	
8	Hard Disk	4 nos. of 1.2TB or higher capacity 10K RPM SAS 6G Enterprise Hot Swap HDD in RAID 5 configuration	
9	Bays	Should support at least 8 nos. of SAS Drives	
10	RAID Controller	12 Gbps RAID Controller (RAID 0,1,5,6,1+0) with 2 GB Write Cache.	
11	Ethernet Ports	2 nos of 10 Gigabit Ethernet ports with SFP+ and 2 nos of 1GBE Ethernet	
12	Security	The server should support "Silicon Root of Trust"	
13	I/O Expansions	Up to 7 PCIe Gen3 slots + 1 RAID slot + 1 NDC slot and the server should have an additional 2 PCIe slots available and free for future expansion	
14	Graphics Controller	Integrated on-board graphics controller (1280 X 1024) with 16.7 million colours	
15	Remote Management	It shall be possible to manage the server hardware and software components remotely. The server hardware shall be manageable even when it is shutdown or crashed. It shall be possible to power on/off and boot the system remotely; management log; Browser and CLI support; Secure Socket Layer; Secure Shell. The management port shall support automatic fencing (in case of clustering whenever required)	

16	Form Factor	2U Rack mountable with rack mount kit and rails	
17	Server Management	<p>OEM software for management of Servers must be included as standard. It should integrate with any SNMP based industry standard. Network Management Software. (The SNMP MIBs for the hardware and software components shall be provided). Should provide Fault management and automatic event handling through e-mail. SNMP alerts and monitoring should be supported and enabled on all of the server types to be supplied. All the required licenses shall be quoted separately. Should provide Role based secured remote management using Secure Sockets Layer (SSL) and Secure Shell (SSH) to encrypt management communications. Should provide Pre-failure warning for –</p> <ul style="list-style-type: none"> •CPU •Memory •HDD. <p>Local LED/LCD based diagnostic panel for easy fault identification.</p>	
18	Operating System	The Server should be pre-loaded with Windows 2010 or higher Standard License	
19	Availability	<p>Server should be provided with Redundant hot swappable Power supplies.</p> <p>Server should have redundant fully populated hot swappable Fans.</p>	
20	Environmental	Server should be capable of operation in a temperature range of 10 to 45 Deg Centigrade	
21	Gartner's Magic Quadrant	The Server OEM should be in leaders quadrant for server, in the last report produced by Gartner in year 2016	

5. CENTRAL VIDEO MANAGEMENT SOFTWARE

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	SYSTEM DESCRIPTION		
3.1	The VMS supports simultaneous viewing, search, and system management for high definition cameras. Multiple NVMRS may be deployed for system expansion using a distributed architecture and integrated with the multi-site Video management system.		
3.2	VMS Client Software: The VMS Client software shall render video and act as a main human/machine interface.		
3.3	The VMS Software shall include 5 concurrent client software license.		
4	FUNCTIONAL REQUIREMENTS		

4.1	VMS shall provide a user-friendly graphical user interface (GUI) to configure multiple NVRMS and perform video surveillance and view various reports.	
4.2	VMS must support Virtualization by which VMware virtualization can be applied	
4.3	VMS shall have following major capabilities:	
4.3.1	VMS shall have provision for Audio with live, playback and clip export on VMS desktop client.	
4.3.2	The VMS shall have live viewing HD video rendering on remote desktop clients with support for monitoring of up to 23 1080p HD cameras in real time (30 fps)/690 fps 1080p HD with no-time lapse using the GPU capabilities of in-built processor graphics with 6th generation Intel® Core™ Processors for client systems.	
4.3.3	Powerful investigation and video archive search tools from local or remote client.	
4.3.4	VMS is capable to manage failover and redundant capabilities of the recording device(s) and the database server. 1+1/N+M Recording server failover and fallback automatically or manually. 1+1/N+M NVR failover features for unforeseen/maintenance scenarios in enterprise and critical infrastructure applications. Once there is a failure on NVR equipment, system database or network, the redundant and failover feature can continue to support the system functions with minimal interruption. Incidents will be reported in a system log for future auditing and reporting View and playback on one client panel (Optional requirement)	
4.3.5	<p>Anonymization Support: Anonymization feature is to help the business / mission critical areas to meet Privacy requirement. The objective of this feature is to hide the identifiable personal data or personal identity in a video surveillance system using masking techniques.</p> <p>Anonymization feature shall support two types of masking:</p> <ul style="list-style-type: none"> • Blur: Blurs the region • Pixelize: Pixelizes the region 	
4.3.6	Four Eye Authentication Support: This feature is also part of Privacy Protection setting. This feature is to restrict all users in a surveillance system to perform Playback operation. While performing playback operation at least two people from different roles should authenticate. For an Administrator, user authentication is not required and can do any playback operation. For an operator user, a popup is displayed and an Administrator user or any other User with different role needs to authenticate to perform playback operation.	
4.3.7	Hashing function Support: For increased security, credentials are hashed. Upon upgrade user password, will be set to expire in 90 days. User shall able to control these setting in VMS configuration. This guards against the possibility that someone who gains unauthorized access to the database can retrieve the passwords of every user in the system.	

4.3.8	The VMS shall have feature of preview and calendar search permitting search for videos and events based on user-selected date and time from local or remote client. SMART motion search — fast and efficient forensic search and investigation for objects/motion on recorded video using SMART motion detection Analytics algorithms on the client PC without impacting the VMS Server load.	
4.3.9	The VMS supports the following languages: English.	
4.3.10	Email configuration is available in VMS on alarm.	
4.3.11	The VMS shall have snapshot feature, operator can playback the video with reference of snapshot.	
4.3.12	Advanced security features with encryption support for communication between desktop client to VMS or NVRMS.	
4.4	The VMS shall have the option of two modes of user logins:	
4.4.1	Windows Authentication: Uses Windows logged-in user name.	
4.4.2	User DB Authentication: Uses preconfigured user name and password.	
4.5	VMS network video client application shall provide the following operator options:	
4.5.1	Configuration: The operator (with Administrator privileges) shall have the option to configure the VMS. Live update of all configurations is supported. The following configurations shall be possible:	
4.5.1.1	System Configuration: Provide options to configure the system level settings.	
4.5.1.1	Users and Roles shall provide option to add/edit/delete users.	
4.5.1.1	<p>Password Complexity and Expiry Enhancements</p> <p>The following are the enhancements:</p> <p>Improved change of password security by introducing complexity requirements.</p> <p>The following are the password requirements.</p> <p>The password should have a minimum length of 12 characters. The password should consist of at least one number, one uppercase letter and one special character.</p> <p>If user changes the password, it will expire for every 90 days.</p> <p>Never Expire password option shall also be applied for specific user.</p> <p>User is notified with the message Your Password will expire in number of days on the top right corner of the screen.</p> <p>If Admin password is expired then the administrator can use the Change Password feature in VMS log in screen to create a new one.</p>	
4.5.2	Surrounding Cameras: Provide option to grant a user the ability to view a single camera surrounded by the cameras programmed as the “Surrounding Cameras”.	
4.5.3	3D Positioning: The user shall be able to view a specific object in the live video in a 3-dimensional view. This feature is available in the Context menu options. 3D positioning options include: Click-based camera positioning, Rectangle selection 3D positioning, and Restore to last PTZ position.	
4.6	Surrounding Cameras: Provide option to grant a user the ability to view a single camera surrounded by the cameras programmed as the “Surrounding Cameras”.	

4.7	3D Positioning: The user shall be able to view a specific object in the live video in a 3-dimensional view. This feature is available in the Context menu options. 3D positioning options include: Click-based camera positioning, Rectangle selection 3D positioning, and Restore to last PTZ position.	
4.7.1	Main video viewing screen capable of showing 1, 2x2, 3x3, 4x4, 5x5, 6x6, 7x7 and 8x8 split salvos of live or recorded video. Standard presets shall be customizable to the user preferences.	
4.7.2	Capable of saving current salvo as a View and allowing the user to drag this view at any later point in time.	
4.7.3	Capable of configuring and running scan sequences.	
4.7.4	Capable of adjusting the contrast, brightness, and saturation settings for each camera independently.	
4.7.5	Capable of exporting user selected image or video clips in simple .wmv, .asf, .mpvc and .bmp formats. Capable of attaching a digital signature for authentication of exported clips in .wmv format.	
4.7.6	Capability to play back the video clips exported. Each video channel that is being recorded by the recording system shall be overlaid with text and a time stamp that is customizable by the user.	
4.7.7	Clip Export with Anonymization support: Anonymization masking feature is supported for both Playback and Clip Export operations.	
4.7.8	Video Container format support — only playable in desktop clients and standalone Clip Player. Features quicker exports of raw video and support for estimating clip size and split to multiple clips to ensure clip storage media matches. Include the clip player with exported clip for easier review of video evidence and efficient investigation. Clip Player — Portable standard secure player for archived and exported clips, 360 camera de-warping and 2x2 Salvo support. Smooth playback support with up to 256x review speed. No software needed to run on a Windows PC, with the option to include the clip player with the exported clip.	
4.7.9	Capability of complete alarm management for the alarms coming from the VMS.	
4.7.10	Facility of surrounding camera view.	
4.7.11	Option to perform various operations through context menu on a particular video (live/recorded/sequence). These operations include: Full screen, point and drag, maintain aspect ratio, toggle text, digital PTZ, add bookmark, mark in, mark out, save image, save image as, show surrounding cameras.	
4.7.12	Timeline control shall have the following features: Mark input (with looping facility), bookmark, snapshot, time slider, time jump, play controls.	
4.7.13	Preference configuration including: frame rate of unselected panels, rendered type, preview pane, text display format.	
4.8	Search: The Search facility shall include search for recorded video and events based on date and time.	
4.9	Reports: The Report facility shall include event history report and audit log report.	
4.10	VMS INTEGRATIONS VMS shall have the ability to access and manage necessary functions through the VMS client interface, such as live video, recorded video, camera configuration, PTZ control and other associated functions.	

4.11	VMS shall be compatible with the following interoperability standards:	
4.11.1	Physical Security Interoperability Alliance (PSIA)	
4.11.2	Open Network Video Interface Forum Profile S (ONVIF Profile S)	
4.11.3	Real Time Streaming Protocol (RTSP)	
4.11.4	Electronic Access Control System Integration	
4.11.5	IP Surveillance Control Keyboard	

7. PUMP STATION RECORDING STORAGE/SERVER

Recording Server with configuration of 16 cameras: Recording Server shall operate with no performance degradation using the following minimum hardware and operating system configuration:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Processor	1 x Intel Silver 4116, 12 core, 2.1GHz Processor with 16.5 Mb Cache scalable 2 processor or higher	
4	Memory	32GB DDR4 RAM	
5	Chipset	Intel C621 or later OEM Chipset	
6	DIMM Slots	Min 24 DIMM Slots	
7	Hard Disk	4 nos. of 1.2TB or higher capacity 10K RPM SAS 6G Enterprise Hot Swap HDD in RAID 5 configuration	
8	Bays	Should support at least 8 nos. of SAS Drives	
9	RAID Controller	12 Gbps RAID Controller (RAID 0,1,5,6,1+0) with 2 GB Write Cache.	12 Gbps RAID Controller (RAID 0,1,5,1+0) with 2 GB Write Cache.
10	Ethernet Ports	2 nos of 10 Gigabit Ethernet ports with SFP+ and 2 nos of 1GBE Ethernet populated	2 nos. of 1GBE Ethernet populated
11	Security	The server should support "Silicon Root of Trust"	
12	I/O Expansions	Up to 7 PCIe Gen3 slots + 1 RAID slot + 1 NDC slot and the server should have an additional 2 PCIe slots available and free for future expansion	
13	Graphics Controller	Integrated on-board graphics controller (1280 X 1024) with 16.7 million colours	
14	Remote Management	It shall be possible to manage the server hardware and software components remotely. The server hardware shall be manageable even when it is shutdown or crashed. It shall be possible to power on/off and boot the system remotely; management log; Browser and CLI support; Secure Socket Layer; Secure Shell. The management port shall support automatic fencing (in case of clustering whenever required)	

15	Form Factor	2U Rack mountable with rack mount kit and rails	
16	Server Management	<p>OEM software for management of Servers must be included as standard.</p> <p>It should integrate with any SNMP based industry standard Network Management Software. (The SNMP MIBs for the hardware and software components shall be provided).</p> <p>Should provide Fault management and automatic event handling through e-mail.</p> <p>SNMP alerts and monitoring should be supported and enabled on all of the server types to be supplied. All the required licenses shall be quoted separately.</p> <p>Should provide Role based secured remote management using Secure Sockets Layer (SSL) and Secure Shell (SSH) to encrypt management communications.</p> <p>Should provide Pre-failure warning for –</p> <ul style="list-style-type: none"> • CPU • Memory • HDD. <p>Local LED/LCD based diagnostic panel for easy fault identification.</p>	
17	Operating System	The Server should be pre-loaded with Windows 2010 or higher Standard License	
18	Availability	<p>Server should be provided with Redudant hot swappable Power supplies.</p> <p>Server should have redudant fully populated hotswappable Fans.</p> <p>Should be supplied with OEM management controller and software required to update and rollback system and PCI card firmware.</p> <p>Earlier versions of formware should be stored locally of the system.</p>	
19	Enviormental	Server should be capable of operation in a temprature range of 10 to 45 Deg Centigrade	
20	Gartner's Magic Quadrant	The Server OEM Should be in leaders quadrant for server, in the last report produced by Gartner in year 2016	

8. PUMP STATION VIDEO RECORDING AND MANAGEMENT SOFTWARE

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	SYSTEM DESCRIPTION		

3.1	NVRMS Server	The NVRMS Server shall contain the recording engine, database of all network-connected cameras and encoders, integrated components and their configurations. Server shall be provided as a combined hardware and software device.	
3.2	Workstation Software	The Client software shall render video and act as a main human/machine interface.	
3.3	Software license	The NVRMS shall include 9 concurrent client software license.	
4	FUNCTIONAL REQUIREMENTS		
4.1	NVRMS shall provide a user-friendly graphical user interface (GUI) to configure the cameras, create schedules for recording, perform video surveillance and recording operations, and view various reports.		
4.2	NVRMS must support Virtualization by which VMware virtualization can be applied		
4.3	NVRMS shall support the configuration to store and to view images captured by 128 cameras.		
4.4	NVRMS shall have following major capabilities:		
4.4.1	NVRMS shall have 16 cameras at location @ 1080p 25FPS for recording in single server. Support for configuring one (1) preferred stream for continuous recording and one (1) preferred stream for live video/motion based recording per camera. Support for Audio with live, playback and clip export on NVRMS desktop client.		
4.4.2	The NVRMS shall have live viewing HD video rendering on remote desktop clients with support for monitoring of up to 23 1080p HD cameras in real time (30 fps)/690 fps 1080p HD with no-time lapse using the GPU capabilities of in-built processor graphics with 6th generation Intel® Core™ Processors for client systems. Up to 4 1080p HD @ 30 fps/120 fps on local client.		
4.4.3	Powerful investigation and video archive search tools from local or remote client.		
4.4.4	Hashing function Support: For increased security, credentials are hashed. Upon upgrade user password, will be set to expire in 90 days. User shall able to control these setting in NVRMS configuration. This guards against the possibility that someone who gains unauthorized access to the database can retrieve the passwords of every user in the system.		
4.4.5	Native device integrations supporting new features: 4K resolution, H.265 video compression codec, 3D PTZ control, 360° camera support, and intelligence events.		
4.4.6	Capable of managing motion detection-based recording with pre-event and post-event recording based on camera based motion detection or Server based motion detection events (SMART VMD) and “advanced” search on recordings from local or remote client.		
4.4.7	The NVRMS shall have feature of preview and calendar search permitting search for videos and events based on user-selected date and time from local or remote client. SMART motion search — fast and efficient forensic search and investigation for objects/motion on recorded video using SMART motion detection Analytics algorithms on the client PC without impacting the NVRMS Server load.		

4.4.8	Simultaneous use of multiple video compressions including MJPEG, MPEG-4, H.265 and H.264.	
4.4.9	The NVRMS supports English language	
4.4.10	Email configuration is available in NVRMS on alarm.	
4.4.11	The NVRMS shall have snapshot feature, operator can playback the video with reference of snapshot.	
4.4.12	Dynamic IP Camera Discovery – Automatically discover all compatible cameras connected to NVRMS and multi-level user access rights for viewing and managed access to the recorder functions.	
4.4.13	The NVRMS can manage continuous, scheduled, manual, event-based, and alarm-based recording features.	
4.4.14	Advanced security features with encryption support for communication between desktop client to NVRMS or network video recorder and secure https login for Web Client and mobile apps.	
4.4.15	Support for web client and mobile apps.	
4.4.16	Finger Print Authentication must support in Mobile app.	
4.5	The NVRMS shall have the option of two modes of user logins:	
4.5.1	Windows Authentication: Uses Windows logged-in user name.	
4.5.2	User DB Authentication: Uses preconfigured user name and password.	
4.6	NVRMS network video client application shall provide the following	
4.6.1	Configuration: The operator (with Administrator privileges) shall have the option to configure the NVRMS. Live update of all configurations is supported. The following configurations shall be possible:	
4.6.1.1	System Configuration: Provide options to configure the system level settings.	
4.6.1.2	Camera Configuration: Provide options to add/edit/delete IP cameras and encoders.	
4.6.1.3	Schedules: Provide options to configure schedule based recording for cameras connected to the NVRMS.	
4.6.1.4	Input and Output: Provide options to configure camera input and output.	
4.6.1.5	Sequences: Provide options to group a fixed number of cameras to view video.	
4.6.1.6	Users and Roles shall provide option to add/edit/delete users.	
4.6.1.7	Clip Deletion Settings: Provide the ability to automatically utilize more storage on event-initiated recording.	
4.6.1.8	Independent deletion setting for continuous recording.	
4.6.1.9	Independent deletion setting for event recording.	
4.6.1.10	Surrounding Cameras: Provide option to grant a user the ability to view a single camera surrounded by the cameras programmed as the “Surrounding Cameras”.	
4.6.1.11	3D Positioning: The user shall be able to view a specific object in the live video in a 3-dimensional view. This feature is available in the Context menu options. 3D positioning options include: Click-based camera positioning, Rectangle selection 3D positioning, and Restore to last PTZ position.	
4.6.1.12	Profile Cameras: Multi-zoom views on HD video and support to create virtual cameras by digitally zooming into the field of view. For example: zooming in on a cash register in one view of the HD camera while at the same time monitoring the cashier in the zoomed-out view of that HD camera.	

4.6.2	Configurations for cameras connected to NVRMS: The user shall be able to configure the following parameters for each camera connected to the NVRMS.	
4.6.2.1	Camera Name	
4.6.2.2	IP Address	
4.6.2.3	Camera Type	
4.6.2.4	Fixed/PTZ	
4.6.2.5	Continuous Recording: All cameras added shall be defaulted to "24/7" recording with the option to select other recording modes.	
4.6.2.6	Event Based Recording: Shall be "None" by default, with the option to select motion-based recording.	
4.6.2.7	User name: Shall display and enable setting the user name for a camera.	
4.6.2.8	Password: Shall enable setting the password for a camera.	
4.6.2.9	Camera Advanced Settings: Shall enable configuration of Video Format, Compression Format, Resolution, Compression, Video Frame Rate, GOP, Record Quality Settings, Clip Deletion Settings, Launching Web View of camera for Advanced Setup, Motion detection zones configuration for Server based motion detection, Video Archival Settings, Multi-Stream Settings and Video Preview. Shall enable configuration of RTSP URL for cameras or encoders added with camera type – Generic RTSP.	
4.6.3	The following video recording options shall be supported:	
4.6.3.1	Scheduled based recording: The system shall support the ability to schedule recordings for each individual camera for times in the future. By default, the NVRMS shall be pre-loaded with the following four schedules: 24x7, Weekday, Daytime, and Nighttime, which cannot be edited. A maximum of 50 schedules can be created in the NVRMS.	
4.6.3.2	User based recording: The user shall be able to configure user activated settings for recording moments of interest while viewing live video from a camera. After configuring the user activated settings, the operator can start recording of video when needed. The video is recorded for the time period specified in the System settings for user activated recording. The User based Recording Time Duration shall be selectable from a list of values ranging between 30 seconds and 5 minutes.	
4.6.3.3	Event based recording: Event based recording shall be possible on SMART Video Motion Detection and alarm triggers. The NVRMS must be capable of managing motion detection-based recording with pre-event and post-event recording based on camera and Server-based motion detection events. The server-based SMART VMD analytics must be object-based and not traditional pixel-based, reducing false alarms due to changing light conditions, video noise, rain or other false alarm triggers that occur using pixel-based (traditional) VMD.	
4.7	NVRMS Client Software: The NVRMS Client shall have the following minimum capabilities:	
4.7.1	Main video viewing screen capable of showing 1, 2x2, 3x3, 4x4 split salvos of live or recorded video. Standard presets shall be customizable to the user preferences.	
4.7.2	Capable of saving current salvo as a View and allowing the user to drag this view at any later point in time.	

4.7.3	Capable of configuring and running scan sequences.	
4.7.4	Capable of adjusting the contrast, brightness, and saturation settings for each camera independently.	
4.7.5	Capable of exporting user selected image or video clips in simple .wmv, .asf, .mpvc and .bmp formats. Capable of attaching a digital signature for authentication of exported clips in .wmv format.	
4.7.6	Capability to play back the video clips exported. Each video channel that is being recorded by the recording system shall be overlaid with text and a time stamp that is customizable by the user.	
4.7.7	Allow the user to initiate recording through the GUI or a controller.	
4.7.8	Facility of surrounding camera view.	
4.7.9	Ability to manage timeline control of the recording device, which provides camera recording statistics. Timeline control shall have the following features: Mark input (with looping facility), bookmark, snapshot, time slider, time jump, play controls.	
4.7.10	Preference configuration including: frame rate of unselected panels, rendered type, preview pane, text display format.	
4.8	Search: The Search facility shall include search for recorded video and events based on date and time.	
4.9	Reports: The Report facility shall include event history report and audit log report.	

9. CLIENT WORKSTATION

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Processor	Intel® Core™ i7 processor minimum 8 th generation with processor base frequency minimum 3.6 GHz	
4	Chipset	Intel Q- series compatible chipset	
5	Graphics Adapter	In-built Processor Graphics Intel® UHD Graphics 630	
6	System Memory (RAM)	8 GB (2 x 4GB) , DDR4 SD RAM and expandable RAM	
7	Optical Drive	16X DVD-RW	
8	Hard Disk	Minimum 1 TB SATA ,7200rpm	
9	LAN interface	10/100/1000 Mbps , IPv6 compliant	
10	Serial, parallel communication	Atleast one port each	
11	Other Ports	VGA, HDMI	
12	USB ports	Minimum Six ports, out of which 2 ports must be USB 3.0	
13	Human Interface	102-key keyboard and a USB mouse pointing device of same make and model as CPU and monitor	
14	Power Supply	110-203VAC, 50Hzs	
15	Operating System	Preloaded Genuine Microsoft® Windows 10 Professional 64 bit version	
16	Anti-virus software	Latest software at the time of tender with three year subscription	
17	MS office	Latest software at the time of tender	

18	Speaker	Internal	
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10. JOYSTICK KEYBOARD

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Speed Dome Controller should have variable speed joystick		
4	Shall have LCD display for programming		
5	Shall be able to control the speed dome for PAN/TILT/Zoom		

11. 65" LED MONITOR (Industrial Display)

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Panel		
3.1	Monitor Type	LED	
3.2	Panel Technology	IPS	
3.3	Screen Size	65" or Higher	
3.4	Aspect Ratio	16:09	
3.5	Native Resolution	1,920 x 1,080 (Full HD)	
3.6	Brightness	450cd/m2 or higher	
3.7	Contrast Ratio	1,300 : 1 or higher	
3.8	Dynamic CR	4000,000 : 1 or higher	
3.9	Orientation	Portrait & Landscape	
3.10	Circuit board Protection	Dust & Humidity Protection Coated	
3.11	Operating Hours	24Hrs	
3.12	Viewing Angle (H x V)	178 x 178 degree	
4	Connectivity		
4.1	Inputs	AVI/VGA/DVI/HDMI/RGB/Audio/SD card	
4.2	Outputs	DP, Audio, External Speaker	
4.3	External Control	RS232C (In/Out), RJ45, IR Receiver, Pixel	
4.4	USB	Minimum 01 no.	
5	Environment Conditions		
5.1	Operating Temperature	0 °C to 50 °C	
5.2	Operating Humidity	10 % to 95 %	
6	Power Supply		
6.1	Power Supply	100-240V~, 50, +/- 10%	
6.2	Power Consumption	120W or less (Typ)/ 75W (SES) or less	
7	Mounting	Swivel-able Stand mounting, all mounting accessories shall be provided along with each Monitor.	
8	Industrial Grade / Certification		
8.1	Safety	UL / cUL / CB / TUV / KC	
8.2	EMC	FCC Class "A" / CE / KCC	
8.3	Energy Star	Energy star 6.0	

12. 43" LED MONITOR (Industrial Display)

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Panel		
3.1	Monitor Type	LED	
3.2	Panel Technology	IPS	

3.3	Screen Size	43" or Higher	
3.4	Aspect Ratio	16:09	
3.5	Native Resolution	1,920 x 1,080 (Full HD)	
3.6	Brightness	450cd/m2 or higher	
3.7	Contrast Ratio	1,100 : 1 or higher	
3.8	Dynamic CR	4000,000 : 1 or higher	
3.9	Orientation	Portrait & Landscape	
3.10	Circuit board Protection	Dust & Humidity Protection Coated	
3.11	Operating Hours	24Hrs	
3.12	Viewing Angle (H x V)	178 x 178 degree	
4	Connectivity		
4.1	Inputs	AVI/VGA/DVI/HDMI/RGB/Audio/SD card	
4.2	Outputs	DP, Audio, External Speaker	
4.3	External Control	RS232C (In/Out), RJ45, IR Receiver, Pixel	
4.4	USB	Minimum 01 no.	
5	Environment Conditions		
5.1	Operating Temperature	0 °C to 50 °C	
5.2	Operating Humidity	10 % to 95 %	
6	Power Supply		
6.1	Power Supply	100-240VAC, 50Hz, +/- 10%	
6.2	Power Consumption	70W (Typ)/ 50W (SES)	
7	Mounting	Swivel-able wall mounting or Stand mounting as per site condition, all mounting accessories shall be provided along with each Monitor.	
8	Industrial Grade / Certification		
8.1	Safety	UL / cUL / CB / TUV / KC	
8.2	EMC	FCC Class "A" / CE / KCC	
8.3	Energy Star	Energy star 6.0	

13. LOCAL CROFT TERMINAL (LCT) / LAPTOP:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Processor type	Intel Core i7 processor, Minimum 8th Generation	
4	RAM	8 GB , DDR4 SD RAM	
5	Hard disc	Minimum 1 TB	
6	DVD writer	16X DVD With Read and Write functions	
7	Colour Monitor	15 inch LED with supporting minimum Full HD resolution.	
8	Ethernet	Integrated 10/100 /1000 Mbps with IPv06	
9	Wireless	Intel PRO/wireless 3945 network connection 802.11a/g	
10	Carry bag	Standard good quality, briefcase type	
11	USB ports	Minimum 4 ports with at least 1 USB 3.0	
12	Other ports	HDMI, VGA, RJ45 LAN port	
13	AC adapter	Required	

14	Battery pack	Required. The battery shall be able to operate for minimum 5 hours before requiring recharging.	
15	Software	Preloaded Genuine Microsoft® Windows 10 Professional 64 bit version	
16	Mouse	USB Optical Scroll Mouse	
17	USB Ports	Dual	
18	Power Supply	110V AC ~ 230VAC, 50HZ	
19	MS Office	Latest software at the time of tender	
20	Speaker	Internal	

14. CAT6 UTP CABLE, OUTDOOR

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	Cat6 U/UTP, 4 pair Outdoor Cable, solid bare copper with cross filler pair separator with overall foiled screen.	
4	Standards	Compliant with standards ISO/IEC 11801 2nd Ed., EN 50173-1: May 2007 (DIN EN 50173-1), DIN 44332-5, IEC 61156-5 2nd Ed., EN 50288 x-1, 10GBase T in acc. with IEEE 802.3an: June 2006.	
5	Application	Horizontal Cabling Category 6 shall be 23 AWG, 4 Pair UTP, Outdoor double jacketed. Cable shall be rodent resistant & UV Stabilized	
6	Cable shield	F/UTP	
7	Number of conductors	8	
8	Stranding	4P	
9	Jacketing	Inner Jacket - Polyethylene (PE), LSZH complying IEC 60332-1 or better	
10	Frequency	Tested upto 250 MHz	
11	Outer Diameter	Maximum 7.2 mm	
12	Conductor Resistance	<=9.38 Ohms / 100 Mtr	
13	Temperature Range	-20 to +70 Deg C	
14	Aarmor over inner sheath	Galvanized steel wire for UAD less than 13 mm, Galvanized steel strip for UAD greater than 13mm. Dimensions as per table 5 of IS 1554 Part I	

15. ETHERNET SURGE & LIGHTNING PROTECTOR

Bidder shall use Ethernet Surge and Lightning protectors suitably to protect the Ethernet switches. Offered surge protector should have following features:

- Advanced 3 stage hybrid protection
- Dual port – protects two Ethernet devices
- DIN rail or direct panel mounting
- Protective grounding to DIN rail
- UL&CE&FCC rated for industrial use

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	

3	Usage	10 Base or 100 BaseTx	
4	Ports Protected	2 (4 Lines Per Port)	
5	Surge Capacity	1 KA/Line	
6	Connectors	RJ 45 (Pins 1, 2, 3, 6)	
7	Clamp & Rated	10 V & 5V	
8	Max Frequency	155 MHz	
9	Operating Temp.	0 Deg Celsius to +60 Deg Celsius	
10	Attenuation	Better than –0.3dB at 100MHz	
11	N.E.X.T.	Better than –43dB at 100MHz	
12	Ratings	UL 497B, EIA/TIA (TSB 40A)	

16. ELECTRICAL SURGE & LIGHTNING PROTECTOR:

Bidder shall supply class B+C / type I+II lightning cum switching surge protectors inside each field junction boxes to protect the entire equipments inside filed JB & CCTV camera from power surge and lightening.

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Phase	1ØNPE	
4	IN	30Ka	
5	Iimp	25kA	
6	I _{max}	60kA	
7	UN	240VAC	
8	UC	320VAC	
9	Up	1.3 KV	

17. LIGHT INTERFACE UNIT (LIU)

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Accessories	All necessary accessories shall be supplied along with each LIU including PIGTAILS for splicing /termination of OFC cores and further hook up with media converters/switches.	
4	No of ports	As per scope of supply	
5	Mounting	As per scope of supply	
6	Fiber Management shelf	Should be fully loaded and factory fitted assembly with no assembling required during installation at site. High Density: 6/12/24/48 Fiber terminations. Should be supplied loaded with LC adapters, splice trays, LC SM Pigtailes and fiber management rings. Min 4 cable entry points. Sealed cable inlets for dust and rodent protection.	

7	Drawer style shelf	Easy access to splicing tray and Easy access to back side of connector	
8	Accessories	Fiber management guides, radius controls & secure tie downs provided and Pre loaded with labeling strips	
9	Material	Min 1.6mm CRCA Sheet steel with powder coating	
10	Compliance	ROHS / ELV Compliant	

Bidder shall supply fully loaded Light Interface Units suitable for installation inside control room Rack and field junction boxes.

18. 4 PORT GIGABIT INDUSTRIAL GRADE SWITCH WITH 2 SFP PORTS

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Hardware Architecture	Industrial Grade Managed Switch with minimum 4x10/100/1000Mbps Ethernet ports and 2x100/1000X SFP ports (Min. 6 simultaneously active ports). Each switch should be fully loaded with Single Mode fibre SFP modules from day1 of the same OEM as the Switch. Necessary power supply of 30W, 48VDC must be supplied along with the switch.	
4	Performance	Switching Bandwidth min. 12 Gbps, Console port: RJ45 x 1 or Equivalent. Min 2K MAC address table and support 4K VLAN simultaneously.	
5	Input Voltage, Enclosure, Mounting and Protection Rate	The switch should have 48 VDC Redundant power inputs. Min. IP 30/31 Metal Case, Switch enclosure should be with Aluminium Shell, DIN Rail / Wall mount support.	
6	Layer 2 Features	VLAN IEEE 802.1Q, GVRP, double tagging (Q-in-Q), Port Based VLAN, LACP, RSTP, MSTP	
7	Multicasting Features	IGMPv1, v2, v3, IGMP Snooping, MLD v1/v2 Snooping	
8	QoS	IEEE 802.1p, Policy-based QoS on VLAN, port, MAC and general packet classifiers	
9	Security	MAC filtering (Static), TACACS+, RADIUS, MAC based authentication, AAA Support, DHCP snooping	

10	Resiliency	Rapid Ring Protection /resiliency technology as per the IEEE 802.17 / RPR / ERPS or equivalent technology providing the convergence time as per the standards specified above for less than/sub 50 millisecond convergence. The resiliency technology should be seamlessly integrated with the proposed Core / Distribution switch directly	
11	Management	Support TFTP firmware update, system configure, restore and backup, should have USB port for ease of configuration backup/restore. Should support SNMP v1/v2c/v3, Web, Telnet, CLI, SSLV3, SSH, SNMPv6, Telnetv6 and SSHv6	
12	Temperature Range	Operating Temperature: -40 ~ 70°C Storage Temperature: -40 ~ 85°C	
13	OEM Criteria	OEM should be in Gartner's Magic quadrant in the latest Gartner report for Wired / Enterprise LAN. (Report should be attached along with the Bid)	
14	Compliance and Certifications	Switch Should be UL, cUL, EN61000-4-2, EN61000-4-3, EN61000-4-5, EN60068-2-27, EN60068-2-6, RoHS and NEMA TS2	

19. CHEMICAL EARTHING

S/N	Specifications and Requirement	Bidder to specify/confirm
1	Providing C.I. Pipe Electrode Including Boring of Min. 300MM Dia of depth 2900MM	
2	Supply and fixing cast iron earth electrode of size (min) 75MM dia 2900MM Long and 3.5MM thick, with casted holes and Funnel for watering.	
3	GI Clamp (50X6MM) Joint to Pipe using 50X6 & 50X6MM GI strip and Galvanized Nut Bolts size (10/37) & washer	
4	Filling the PIT with homogeneous mixture of Bentonite Powder	
5	Construction and provision of suitable CI cover.	
6	Masonry work and Back Filling	

20. POWER CABLE

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type of cable	FRLS armored copper cable	
4	Voltage Rating	Up to and including 1100 volts	
5	Construction	Multi stranded annealed bare electrolytic grade copper conductor Core size: As per scope of supply	

6	Primary insulation	Extruded PVC compound as per IS 5831 type C	
7	Inner Sheath	Extruded PVC compound type ST2	
8	Outer Sheath	Extruded PVC compound, type ST2	
9	Armor over inner sheath	Galvanized steel wire for UAD less than 13 mm, Galvanized steel strip for UAD greater than 13mm Dimensions as per table 5 of IS 1554 Part I	
10	Core Identification	3 Cores: Red, Yellow & Blue	

21. EXPLOSION PROOF JUNCTION BOX

All the Driver Unit, Power Supply, FO Converter, Circuit Breakers, LIU, etc. near the camera will be housed in a suitable explosion proof junction box as per classification of the area, which will be mounted properly near the camera mounting. All the Power and Signal Cables shall be terminated in the junction box through proper glanding.

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Cable entry	Minimum 8 nos. ½" NPT as per requirement	
4	Ex. Proof area classification	Zone-1 & 2, Gas Group IIC	
5	Size	As required to accommodate various CCTV components like LIU, Media Converter, Ethernet Switch, Surge Protector, MCB, Power Supply adapters, Termination blocks etc. as applicable.	
6	Accessories	(a) DIN RAIL for mounting of CCTV components (b) 8 nos. double compression ½" NPT SS cable glands to be supplied with each junction box (c) Remaining cable entry if any shall be blinded with SS plugs.	
7	Certification	PESO	

22. WEATHER PROOF JUNCTION BOX

All the Driver Unit, Power Supply, FO Converter, Circuit Breakers, LIU, etc. near the camera will be housed in a suitable weather proof junction box as per classification of the area, which will be mounted properly near the camera mounting. All the Power and Signal Cables shall be terminated in the junction box through proper glanding.

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Protection	IP-66 As per IS/IEC 60529:2001	
4	Size	As required to accommodate various CCTV components like LIU, Media Converter, Ethernet Switch, Surge Protector, MCB, Power Supply adapters, Termination blocks etc. as applicable.	

5	Cable entry	1/2" NPT * 8 NOS	
6	Mounting	Stand/Wall/Pole as per site condition	
7	Accessories	DIN RAIL for mounting of CCTV components, 8 nos. double compression ½" NPT SS cable glands to be supplied with each junction box, Remaining cable entry if any shall be blinded with SS plugs, Lock inserts, wall mounting brackets, plastic gland plate, earthing straps, wiring plan pockets, door stay, panels	
8	Certificate	IP certification	

25. 42U RACK

S/N	Specifications and Requirement	Bidder to specify/confirm
1	Make: Vendor has to clearly mention	
2	Model: Vendor has to clearly mention	
3	Rack shall be suitable for the Control Room equipments for mounting LIU, Switches, Media Converters, Servers, UPS, Power Supplies, Terminations etc., with proper arrangements for power distribution.	
4	Panel shall be fabricated of cold rolled steel of thickness not less than 1.5mm for front and rear equipment bearing surfaces and 1.5 mm for sides, top and bottom portions. The panels shall be free from undulations, dents and flaws and sufficiently reinforced to provide level surfaces and rigidity during transportation and installation.	
5	Rack should be 42U (1U = 44.45 mm) in Height.	
6	Rack should have Front Convex Perforated Door and Dual Perforated door at Rear.	
7	Panels shall be equipped with front & rear access doors. Both front & rear doors shall be equipped with lockable handles and concealed hinges with pull pins for easy door removal Front door of each panel shall be shatter proof glass type for clear visibility of inside components.	
8	Rack should Conform to DIN 41494 or Equivalent EIA /ISO / EN/CEA Standard	
9	Rack should have Adjustable mounting depth,	
10	Rack should have 100% assured compatibility with all equipments conforming to DIN 41494 (General industrial standard for equipments)	
11	Powder coated finish with seven Tanks pretreatment process meeting IS	
12	Rack should have Proper Grounding & Bonding	
13	Rack should have one number Monitor tray & Keyboard tray	
14	Rack should have Fan module Mount Provision on top Cover	
15	1Ph, 230V, 32A, Zero U standard Vertical rack mount power distribution unit with 12 X Indian Round Pin 5/15A, (Inlet Plug Not Installed, Recommended IEC30932A 2P +E), 16A MCB X 2 Circuits-PDU Rating 7.3KVA	
16	Rack should have 2 No Vertical & 4 No Horizontal Cable Organizer with Plastic Loops.	

17	Rack should have provision for cable entry Exit from Both top & Bottom. Spare holes for cable entry should be plugged with removable type cap so that additional cable can be routed online. All the cable entry points shall be properly sealed to prevent ingress of lizards and rats.	
18	Rack should have 1 Packet of mounting hardware.	
19	Illumination shall be provided for all cabinet by incandescent lamps, which shall be operated by door switch. Termination point for door switch should not be bare. Each cabinet shall be with internal temperature device and dual cooling fans.	
20	All doors shall be provided with concealed type hinges. Panel shall be fitted with removable gland plates of adequate size for fixing the cable gland.	
21	Equipment within the cabinet shall be laid out in an accessible and logically segregated manner. Cable glands shall be provided for incoming and outgoing cables to prevent excessive stress on the individual terminals. All metal parts of the cabinet shall be electrically continuous and shall be provided with a common grounding lug.	

26. 6U RACK

S/N	Specifications and Requirement	Bidder to specify/confirm
1	Make: Vendor has to clearly mention	
2	Model: Vendor has to clearly mention	
3	Racks shall be manufactured out of steel sheet punched, formed, welded and Powder coated	
4		
5	Rack should be from ISO 9001:2008 Certified Company & UL Listed	
6	Standard for Racks configuration will be welded frame and vented top cover	
7	Rack should have Front Toughened Glass Door with lock & Key and Back Cover	
8	Rack should be 6U(1U=44.45 mm) in Height, 550MM Width, 500MM Depth and overall height 613 MM.	
9	Rack should Conform to DIN 41494 or Equivalent EIA /ISO / EN/CEA Standard	
10	Rack should have Adjustable mounting depth,	
11	Rack 4 No Adjustable, 19" verticals with Punched 10mm Square Hole and Universal 12.7mm-15.875mm-15.875mm alternating hole pattern offers greater mounting flexibility, maximizes usable mounting space.	
12	Powder coated finish with seven Tank pre-treatment process meeting IS	
13	Rack should have Proper Grounding & Bonding	
14	Rack should have one cantilever self	
15	Rack should have Fan module Mount Provision on top Cover	
16	1Ph, 230V, 8A, 2U standard rack mount power distribution unit with 6 X Indian Round Pin 5A, Inlet Plug type 6A Indian Round Pin, 8A Fuse - PDU Rating 1.8KVA	
17	Rack should have 1 No Horizontal Cable Organizer with Plastic Loops.	

18	Rack should have provision for cable entry Exit from Both top & Bottom.	
19	Rack should have 1 Packet of Mounting hardware	

27. 24 PORT PATCH PANEL

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	24/16-port, Modular, 1U, PCB based,	
4	Port arrangement	Configured as 6 Port Module with individually replaceable CAT-6 Jacks	
5	Circuit Identification	Front of each module shall be capable of accepting 9 mm to 12 mm labels	
6	Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply)	
7	Accessories	Integrated bend-limiting and strain-relief unit for cable entry on each port	
8	Materials	Housing: Polyphenylene oxide, 94V-0 rated Jack contacts: Beryllium copper, plated with 1.27 mm [.000050] thick gold Panel: Black, powder coated steel	
9	Approvals	UL listed	
10	Termination Pattern	TIA / EIA 568 A and B;	

28. CAT6 UTP CABLE, Indoor

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568 C.2 & ISO/IEC 11801 2nd edition	
4	Conductors	23 AWG Solid bare copper	
5	Jacket	LSZH jacket complying to: Fire rating IEC 60332-3-22 Acid gas IEC 60754-2 Smoke density IEC 61034-2	
6	Pair Separator	Cross-member (+) fluted Spline.	
7	Approvals	Intertek Report, ETL 4 connector channel verified to - ANSI/TIA Cat 6 - ISO 11801 for Class E and - IEEE802.3 for Zero BER (Test reports against each standard to be submitted)	
8	Frequency tested up to	Intertek (ETL) 4 connector channel certified for ANSI/TIA 568-C.2 CAT6 requirements upto 600Mhz. Report to be submitted with bid.	
9	Standards Compliance	ROHS Compliant UL subject 444	

29. UTP CAT6 I/O

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	Single Gang shuttered	
	Material	ABS / UL 94 V-0	
	No. of ports	One/Two	
	Compliance	ROHS/ELV Compliant	

31. 8 PORT GIGABIT ENTERPRISE GRADE LAYER-3 SWITCH WITH 2 SFP PORTS

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Hardware Architecture	Enterprise grade L3 Managed Switch with 8x10/100/1000Mbps Base-T ports and additional 2x1G SFP ports. Each switch should be fully loaded with single mode fibre SFP modules from day 1 of the same OEM as the Switch. Necessary power supply must be supplied along with the switch.	
4	Performance	Should have Minimum 20Gbps switching bandwidth and Min. 14Mpps Switch-forwarding rate. The switch should work Wire speed forwarding from day 1.	
5	Layer 2 Features	Should support STP, RSTP, MSTP, IGMP v1/v2/v3 snooping, loop protection, STP root guard, Voice VLAN, MLD snooping (MLDv1 and v2), 16k MAC Table or more, PVST+ compatibility mode, VLAN Mirroring (RSPAN), Support IEEE 802.1Q (4000 VLAN IDs), VLAN classification by protocol and port, VLAN tagging.	
6	Resiliency	Should support IEEE 802.17/equivalent for sub 50ms ring protection in following scenario: single, dual fibre cuts in ring, Control Plane Prioritization (CPP), Loop Detection and Loop protection.	
7	Security	Should support ACL, DHCP (relay and client), IP Source guard, DAI, Private VLAN, AAA, Authentication (MAC, Web and IEEE 802.3x), BPDU Protection, sflow or equivalent, SSLv2 and SSLv3, TACACS+	
8	QoS	Policy-based QoS based classifying traffic based on MAC, Port, VLAN, Protocol, Tail drop for queue congestion control, Strict priority/ weighted round robin.	
9	Layer 3 Features	Switch should support static routing and RIP from day 1.	

10	Management	CLI, GUI, USB interface for taking backup of software release files configurations, DDM – Optical digital diagnostic monitoring, UDLD or equivalent, Open flow for SDN, Time Domain Reflectometry /equivalent, RMON 4 groups, SNMPv3, LLDP-MED, IEEE 802.3az, SNMPv6, Telnetv6, SSHv6 and Syslogv6 and NTPv6 Client and Server	
11	Diagnostic Features	The switch should support ping pooling and trace route for IPv4 and IPv6	
12	Operating Temperature Range	Should inherently support operating temperature range of 0°C to 50°C	
13	IPv6 Features	Switch should have IPv6 ready logo from Day 1.	
14	OEM Criteria	OEM should be in Gartner's Magic quadrant in the latest Gartner report for Wired / Enterprise LAN. (Report should be attached along with the Bid)	
15	Compliance and Certifications	Switch Should Be RoHS compliant and Certifications: UL, cUL, EN, FCC	

32. FIBRE OPTIC CABLE, 12 CORE, ARMORED, FRLS, SINGLE MODE

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Fiber type	Single Mode (SM), 9/125 micron primary coated buffers, OS2 (IEC 60793-2-50, B1.3 and ITU T G652.d)	
4	Number of core	12 core	
5	Cable jacket	Cable, water-tight	
6	Cable armoring	Corrugated Steel Tape Armour of min. 0.15 mm thickness	
7	Loose tube material	Single PBTP Loose tube filled with water blocking Thixotropic gel	
8	Jacket material	HDPE outer jacket 2mm thickness	
9	Strength members	Water Swellable Glass yarn strength members	
10	Tensile Strength	Minimum 1200 N or better	
11	Crush Resistance	Minimum 2800 N or better	
12	Cladding diameter	125.0 ± 0.7	
13	Cladding non-	≤ 0.7	
14	Core (MFD) non-	≤ 6	
15	Core (MDF) -	≤ 0.5	
17	Primary coating	242 ± 7	
18	Primary coating	250 ± 15	
19	Primary coating non-	≤ 5	
20	Primary coating-	≤ 12.0	
21	Proof stress level	≥ 0.7 (≈ 1 %)	
22	Polarization mode	≤ 0.5	
23	Macro bending loss	≤ 0.05	

24	Attenuation	@1310nm <=0.34 db/Km MAX @1550nm <=0.22 db/Km MAX @ 1380-1386nm <= 0.31db/Km	
25	Operating	-40 Degree C to +70 Degree C	
26	Standards	• IEC 60793-2-50 Category	

33. POLE FOR CCTV

CCTV structure is required for installation of Ex Proof or Weather Proof PTZ cameras where proper support is not available. Vendors to quote heavy duty mounting poles. The pole should be designed such that it is capable of supporting at least 2 times of its mounted load. Bidder shall provide design and submit detailed dimensional drawing with the offer for OIL's approval.

Minimum requirement for design shall be as under:

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Material	GI	
4	Weight	Bidder to specify	
5	Wind Capacity	140 Kmph	
6	Height	Maximum 6 Mtrs and 03 Mtrs	
7	Weight handling capacity	Bidder to specify	
8	Design and dimensional	Bidder shall provide	

35. POWER CONVERTERS REPEATER STATIONS

Both 230V AC (+/- 10%, 50 Hz +/- 3%) single phase and -48V DC are available at all the repeater stations. Normally system shall use 230V AC power. During AC failure, offered system shall automatically switch to -48V DC power. Necessary AC/DC rectifier & DC-DC convertor as required shall be supplied and installed by bidder (AC input power supply may be grounded or may be floating, in either case, bidder to make necessary provision as required, for better protection of the equipments/system. Isolation transformers with proper grounding etc., as required for protection may be provided. Bidder shall provide Power Distribution Panel for equipment at all locations in the cabinets provided.

Make: Bidder to specify

Model: Bidder to specify

36. OFC PATCH CORD SM

S/N	Parameter	Requirement	Bidder to specify/confirm
1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	Duplex tuned Fiber Optic Patch Cord 3 Mtr, 9/125 Micron	
4	Cable Sheath	LSZH	
5	Cable Diameter	3.6 mm twin zip	
6	Ferrule	Ceramic	
7	Insertion Loss	MAX 0.3 db	
8	Return Loss	> 45 db	
9	Temperature Range	-25 Degree C to +70 Degree C	
10	ROHS	ROHS/ELV Compliant	

37. PATCH CORDS CAT6 UTP

1	Make	Vendor has to clearly mention	
2	Model	Vendor has to clearly mention	
3	Type	Unshielded Twisted Pair, Category 6, TIA / EIA 568-C.2 & ISO/IEC 11801	
4	Conductor	24 AWG 7 / 32, stranded copper conductors 100 Ohm	
5	Length	3 Mtr	
6	Plug Protection	Factory fitted Strain relief boots on either side	
7	Jacket	LSZH	
8	Manufacturing	Shall have ISO 9001:2008 certified	

41. COMPUTER TABLE FOR WORK STATION AND JOYSTICKS:

Shall be of Godrej or Featherlite or equivalent to accommodate Work Station/Joystick.

SERVICES 1 & 2: TRENCHING FOR CABLE LAYING AND GI PIPE, POWER CABLE & HDPE LAYING WITH OFC & TERMINATION OF OFC:**Trenching and Cable Laying:**

1. Trenching shall be executed by manual open cut or mechanised or manual boring method.
2. The bottom of the trench shall be of standard depth of 1.65 metre.
3. Power cable and HDPE duct along with OFC cable shall be laid at the bottom of the trench. Cables shall be covered with sand layer of 6" and 1st class brick layer to be placed length wise for protection above the sand layer.
4. Any rework for collapsing of trench before laying shall be to the bidder's account.
5. A minimum free clearance of 50 cms shall be maintained above or below any existing underground lines or structure crossing the trench.
6. For road crossings, GI pipes of required size shall be used for laying cables.
7. Duct couplers shall be used for jointing ducts, if required.
8. The back filling of the trench shall be done with the excavated earth and dressing shall be done to original.
9. Fusion splicing technique shall be used for jointing of OFC, if required.
10. Termination of OFC and power cable shall be in the scope of the bidder.
11. The cable route diagram shall be submitted to OIL.

Cable laying in existing trench includes the following:

1. Opening the trench by withdrawing trench covers
2. Digging of sand bed of existing trench to required depth
3. Laying of power cable and HDPE duct along with OFC cable in the trench
4. Back filling of sand bed
5. Placing the trench covers back in the original position

For trenching and laying of HDPE duct along with OFC and power cable, payment shall be made on the measurement of running length.

G. GENERAL TERMS AND CONDITIONS

G1. TRAINING

Training shall have to be provided by the vendor to OIL personnel as per following details:

1. **Training at site:** Owner's personnel shall be fully associated during Engineering, Installation, Testing and commissioning activities and bidder shall impart on-the-job training to OIL personnel on all aspects of System Engineering, Equipment operation and functional details, theory of operation of equipment, trouble shooting and familiarization with the equipment at card and component level, operation of equipment and system including testing of equipment/subassembly, preventive breakdown, trouble shooting and normal maintenance activities. The training imparted shall cover all aspects of equipment incorporated in the system.
2. **Training at OEM's facility:** Bidder shall train personnel of OIL in all aspect of CCTV at **OEM's facility** at a time to be mutually agreed upon with the successful bidder. Number of owner's personnel shall be 03 (three) engineers in one batch and 03 (three) operators in another batch for training to be conducted. Bidder shall mention the number of days and place of training for each batch. Bidder shall quote the training charges. Charges like transport, accommodation etc shall be in the scope of OIL.
3. Bidder shall provide comprehensive documentation, course material, manuals, literature etc as required for proper training of personnel at his own cost. Consolidated and comprehensive documentation shall be available to each participant. After the completion of course, all such materials shall become the property of the owner. Bidder shall update the course material of manuals in case there are changes owing to revisions/modifications in equipment/system specifications.
4. Bidder shall send complete training program for approval of Oil India Ltd including details of each course, subject matter, etc Thirty (30) days prior to start of training.

G2. PACKING

1. All equipment shall be individually packed in suitable containers/crates designed to avoid damage to the equipment during transit and storage in accordance with best commercial practice and with the requirements of applicable specifications. The materials used for packaging, wrapping, sealing, moisture resistant barriers, corrosion preventers, etc shall be of recognized brands and shall conform to best standards in the areas in which the articles are packaged. The packing shall protect the equipment from impact, vibration, rough handling, rain, dust, dampness, insects, rodents, etc. Each container/crate shall be subjected to impact, vibration and other mechanical tests. Each container shall be clearly marked with the following information at prominent places (provided as sample):
OWNER: M/s OIL
PROJECT: CCTV SYSTEM
DESCRIPTION:
SERIAL NO. OF EQUIPMENT:
ADDRESS (Location): (Station Name)
Location wise distribution list shall be provided by OIL to the successful bidder.
2. All equipment shall be tested for damage after their receipt at respective sites by bidder. If any equipment, part, subsystem, component, accessory is found to be damaged during the transit, the same shall be replaced by the Bidder, free of all costs to OIL. The bidder shall replace such item as shall be found damaged by bidder or as indicated to bidder, within 30 days of receipt of intimation.

G3. QUALITY ASSURANCE

1. Successful Bidder shall submit the details of Quality Assurance Program followed by him.
2. For Factory inspection and testing, Bidder shall arrange all that is required e.g., space, test gear etc for successful carrying out of the job by OIL, at Bidder's cost, at the Manufacturer's works.
3. OIL shall have free entry and access to any and all parts of the Manufacturer's facilities associated with manufacturing and testing of the system.
4. It shall be explicitly understood that under no circumstances shall any approval of OIL relieve the Bidder of his responsibility for material, design, quality assurance and the guaranteed performance of the system and its constituents.

G4. TEST CATEGORIES, INSTALLATION, TESTING & COMMISSIONING

1. Test categories

1.1 The following tests (in the same sequence) shall be conducted for acceptance of the equipment and the system before final acceptance of the system:

1.1.1 Factory Acceptance Testing (FAT)

1.1.2 Pre-commissioning test (after installation) for total integrated system

1.1.3 Site Acceptance testing (SAT)

1.1.4 Trial Run

1.2 These tests shall be carried out on all equipment supplied by Bidder including those supplied by sub-vendors, if any.

1.3 Bidder shall arrange all necessary test instruments, manpower, test-gear, accessories, etc.

1.4 All technical personnel assigned by Bidder shall be fully conversant with the system specifications and requirements. They shall have the specific capability to make the system operative quickly and efficiently. They shall also have the capability to incorporate any minor modifications/suggestions put forward by OIL without any cost implication to OIL.

1.5 Power supply and any temporary commissioning facility including communication system required for installation/testing/commissioning shall be arranged by the Bidder.

2. Test Plan

Bidder shall submit to OIL 'Test Plans' well in advance of commencement of actual testing in each of the above mentioned test categories. The plans shall include:

2.1 System, Equipment functional and performance description (in short) and Tests to be conducted and purpose of test.

2.2 Test procedures (including time schedule for the tests) and identification of test inputs details and desired test results.

3. Test Report

The observations and test results obtained during various tests conducted shall be compiled and documented to produce Test Reports by Bidder. The Test Reports shall be given for each equipment/item and system as a whole. The report shall contain the following information to a minimum:

3.1 Test results

3.2 Comparison of test results with anticipated (as per specifications) test result as given in test plans and reasons for deviations if any.

3.3 The data furnished shall prove convincingly that:

3.3.1 The system meets the guaranteed performance objectives.

3.3.2 Mechanical and Electrical limits were not exceeded.

3.3.3 Failure profiles of the equipment during the tests are well within the specified limits.

4. Failure of Components

4.1 Till the system is accepted by OIL, a log of each and every failure of components shall be maintained. It shall give the date and time of failure, description of failed component, circuit, module, component designation, effect of failure of component on the system/equipment, cause of failure, date and time of repair, mean time to repair etc. Repair/modification done at any point of time at one site, shall be carried out by bidder at all the sites. Detailed documentation for the same shall be submitted to OIL for future reference.

4.2 If the malfunctions and/or failures of a unit/module/sub-system/ equipment repeat during a test, the test shall be terminated and Bidder shall replace the necessary component or module to correct the deficiency. Thereafter, the tests shall commence all over again from the start.

4.3 If after the replacement the equipment still fails to meet the specifications, Bidder shall replace the equipment with a new one and tests shall begin all over again. If a unit/subsystem/module has failed during the test, the test shall be suspended and restarted all over again only after the Bidder has placed the Equipment back into acceptable operation. OIL's approval shall be obtained for any allowable logistics time required to replace the failed component/unit/module/sub-system.

G5. FACTORY ACCEPTANCE TEST

1. Factory acceptance tests shall be carried out after review and approval of FAT procedures / documents / Engineering drawings, etc as per bid requirements. FAT procedures/documents/Engineering drawings etc. shall be submitted to OIL atleast 30 (thirty) days prior to FAT date.
2. Bidder shall invite OIL, at least 30 days in advance, of the date at which system shall be ready for Inspection and Testing.
3. Two nos. of OIL engineers shall visit OEM's site for the inspection.
4. Factory Acceptance Test shall be conducted in the presence of the OIL personnel.
5. The FAT shall include but not be limited to System Integration Testing. Functional and performance test should be conducted for the complete system including the equipment supplied by sub-vendors, simulating the complete network. All equipment shall be connected using the same cables (interfaces/components) as will be used during final installation so that the system can be tested in its final configuration. This testing shall be conducted at the manufacturing facility of the main equipment. All instruments and test gadgets shall be made available by the supplier during this inspection.
6. The equipment, system and sub-systems shall be cleared for dispatch only after it is found to have met with the various technical specifications and requirements. After successful completion of FAT, OIL shall approve material for dispatch and factory acceptance certificates shall be issued. The factory tests shall include but not be limited to:
 - 6.1 Mechanical checks to the equipment for dimensions, inner and outer supports, finishing, welds, hinges, terminal boards, connectors, cables, painting etc.
 - 6.2 Electrical checks including internal wiring, external connections to other equipment etc.
 - 6.3 Check for assuring compliance with standards mentioned in the specifications.
 - 6.4 Individual check on each/module/sub-assembly in accordance with the modes and diagnostics programs of the bidder.
 - 6.5 Checks on power consumption and heat dissipation characteristics of equipment.
 - 6.6 Environmental testing
 - 6.7 Functional tests
 - 6.8 Any other test not included in FAT document but relevant to the project as desired by OIL at the time of factory acceptance testing.

G6. INSTALLATION AND COMMISSIONING

1. Installation

- 1.1 The whole project is required to be completed on Turn-Key basis. Accordingly, supplier is understood to have assessed and quoted for all the items required for successful completion of the Project. It will be the responsibility of the vendor to provide free of charge such items, not quoted in the bid, but otherwise required to have been provided at the time of installation for completion and successful commissioning of the project.
- 1.2 The systems shall be installed & commissioned in the following stations of Pipeline Department of Oil India Limited in the state of Assam:

Sl. No.	Name of Station	Station Jurisdiction	Location/State
1	RT1, Digboi	PS1, Duliajan	Assam
2	Digboi Repeater Station	PS1, Duliajan	Assam
3	PS1, Duliajan	PS1, Duliajan	Assam
4	PS11, Tengakhat	PS11, Tengakhat	Assam
5	RS18, Fatengbore	PS1, Duliajan	Assam
6	PS2, Moran	PS2, Moran	Assam
7	RS1, Maduri	PS3, Jorhat	Assam
8	PS3, Jorhat	PS3, Jorhat	Assam
9	RS2, Badulipur	PS3, Jorhat	Assam
10	NT, Numaligarh Terminal	NT, Numaligarh Terminal	Assam
11	RS3, Kaziranga	PS4, Sekoni	Assam
12	PS4, Sekoni	PS4, Sekoni	Assam

13	RS4, Ghani	PS4, Sekoni	Assam
14	RS5, Jagiroad	PHQ, Guwahati	Assam
15	PHQ, Guwahati	PHQ, Guwahati	Assam

- 1.3 After successful completion of Factory Acceptance Testing, equipment shall be sent to site for installation. Equipment without factory acceptance certificates shall not be acceptable at site.
- 1.4 Prior to installation, all equipment shall be checked for completeness as per the specifications of equipment required for a particular station. Installation shall be carried out in accordance with the installation manuals and approved installation drawings in the best workmanship.
- 1.5 Bidder shall indicate the number of teams and the list of equipment for each team to be deployed for installation of the total system in order to complete the work within the stipulated time frame.
- 1.6 Bidder shall engage installation experts to take up the job of installation of all equipment at various stations.
- 1.7 Interconnection of various equipment including cameras, readers, Ethernet, co-axial cables etc including supply of Ethernet, power and Optical Fibre cables, at various locations in the station premises, laying of Ethernet cable & Optical Fibre Cables within the control room building, Ethernet cables & Optical Fibre Cables outside control room within the plant area, earthing of equipment at all the sites etc shall be done as per scope of work.
- 1.8 Bidder shall bring all installation tools, accessories, special tools, test gears, spares parts etc at his own cost as required for the successful completion of the job. A list of all such items, equipment wise shall be submitted to OIL for review.
- 1.9 If during installation and commissioning any repairs are undertaken, the maintenance spares supplied with the equipment shall not be used for the repair. Bidder shall arrange his own spare parts for such activities till such time the system has been finally accepted by OIL. A detailed report & log of all such repairs shall be made available by the bidder to OIL and shall include cause of faults and repair details, within 2 weeks of fault occurrence.
- 1.10 A detailed time schedule for these activities shall be submitted by Bidder to OIL to enable their representatives to be associated with the job.
- 1.11 Bidder shall include all installation materials required for proper installation of the equipment. These shall include but not be limited to, all connectors, inter-bay and inter equipment cables, power supply cables and connectors, power distribution boxes, anchoring bolts, nuts, screws, junction boxes etc.
- 1.12 The installation of equipment shall be done as to present neat and clean appearance in accordance with approved installation document. All inter bay, power supply and other cables shall be routed through wall mounted cable trays. No cable shall be visible. All through wall openings, trenches, etc. shall be properly sealed to prevent the entry of rodents, insects and foreign materials.

2. Pre-Commissioning

- 2.1 On completion of installation of equipment, the correctness and completeness of the installation as per Manufacturer's manual and approved installation documents shall be checked by the bidder on his own.
- 2.2 A list of Pre-commissioning tests and activities shall be prepared by bidder and the tests shall be carried out by the bidder on his own. After the tests have been conducted to the Bidder's own satisfaction, the bidder shall provide the test results for review by OIL and then offer the system for Site Acceptance Testing.
- 2.3 During pre-commissioning, if any fault occurs to any equipment or system, bidder shall identify the same and provide report/history of all faults to OIL.
- 2.4 During installation and pre-commissioning of the system, bidder shall ensure enough number of commissioning spares so that the installation is not held up because of non-availability of commissioning spares.

3. Site Acceptance Testing (SAT)

On completion of Pre-commissioning, Site Acceptance Testing shall be conducted on the system as per the approved SAT procedures and its constituents by the bidder under the presence of OIL personnel. SAT procedure shall be submitted to OIL for approval minimum ten (10) days prior to SAT. The tests shall include, but not be limited to the following:

- 3.1 Checks for proper installation as per the approved installation procedure for each equipment/item and system as a whole.
- 3.2 Guaranteed performance specifications of individual equipment/item
- 3.3 Self-diagnostics test on individual equipment
- 3.4 System tests END TO END for the system, all complete.
- 3.5 The complete record of site acceptance tests results shall be maintained by the Vendor. The records shall be maintained in a logical form and shall contain all the relevant information and provided to OIL by the vendor in hardcopy. The test reports shall be signed by the testing engineer and the engineer witnessing the tests. A field test report to be produced by the vendor with a standard format. The format to be cleared by OIL before field acceptance starts.

4. Trial Run

- 4.1 As last leg of the site acceptance testing the Bidder shall keep the facilities **up** for 30 days for 'TRIAL RUN'. During this period Bidder shall provide all specialist Engineers & Technicians including experts to maintain the total log, incidents, failures & for assisting site engineer & for total co-ordination. However, the normal operation and maintenance of the system shall be performed by the personnel of OIL trained for the purpose.
- 4.2 If during 'Trial Run' any defect is noted in the system, the Bidder shall rectify, replace the same to the satisfaction of OIL. The decision to repeat the final test or restart the 'Trial' shall be of OIL, depending upon the severity of the defect.
- 4.3 During trial run, if any fault occurs to any equipment or system, bidder shall identify and rectify the same and provide report, history of all faults to OIL.
- 4.4 Ideally, during the 'Trial Run', no shutdown of the system due to failure of equipment, power supply etc. should happen. A record of all failures shall be kept for each manned/unmanned station and the availability of the system shall be calculated accordingly and results submitted to OIL.
- 4.5 If the system fails to come up to the guaranteed performance, the Bidder, within a period of thirty (30) days shall take any and all corrective measures and resubmit the system for another 'Trial Run' of trial period. All modifications, changes, corrective measures, labour etc shall be at the cost of the Bidder. In case the date of completion for the second trial run exceeds the time schedule for the project, he shall be liable to pay liquidated damages. If the system fails to reach the guaranteed performance even after the second trial run, OIL shall be free to take any action as deem fit against the Bidder and to bring the system to the guaranteed performance with the help of a third party at the expense of the bidder.

5. Final acceptance of the system

- 5.1 Upon successful completion of the 'TRIAL RUN', any shortfalls when compared to the contract shall be made good by the Bidder. After this, OIL shall notify the Bidder in writing within reasonable time, pre-warranty acceptance of the system.
- 5.2 Nothing herein provided above, inclusive of the 'Pre-Warranty Acceptance Certificate; shall absolve bidder of his full liabilities under the contract inclusive of and relative to the system performance and material Warranty.

G7. DOCUMENTATION

Vendor shall furnish technical documentation, including drawings, specifications, handbooks, manuals, CD's, Licenses', software and other technical publications of the equipment, layout drawings including fault diagnostics details necessary to test, maintain and support the system. Documentation should be provided on installation, operation, administration, programming details and maintenance. Three complete sets of hard copy shall be provided.

The documentation shall cover the following:

1. User / operation / administration / maintenance manuals.
2. Programming Manuals
3. Detailed Engineering Diagram, signal flow / cabling diagram indicating the complete cable routing and integration of the various equipment blocks, in the system
4. User and technical manuals for other bought out items like power systems etc.
5. All the system software, application software, compatibility software, Maintenance and operation.
6. Soft copy of all the above documentation shall also be provided in addition to hard copy wherever possible.

G8. WARRANTY

1. The systems, sub systems and accessories shall be under warranty period of 12 months from the date of Final acceptance of the system or 18 months from last material dispatch whichever is earlier. The warranty shall ensure that the vendor carries out all required jobs to ensure trouble free operation of the system hardware & software.
2. OIL shall not issue any spares/ consumables during the warranty period and the vendor will have to arrange for the same, if at all required, to ensure uninterrupted functioning of the complete systems during the entire warranty period.
3. The vendor shall warrant that all equipments are manufactured, with highest quality of materials and standards. The equipment supplied and installed, software, documentation and workmanship are of the highest grade and consistent with the established and general standards for the application area and is in full conformity with the specifications given in the Purchase order. If any part or component or sub-system is found to be defective, the same shall be replaced free of all costs to OIL. The decision of OIL in deciding defective component or part or sub-system shall be final.
4. Material for repair during Warranty Period shall be handed over to/taken over by vendor's engineer at mutually agreed OIL location.
5. The vendor's Engineer shall be responsible to identify any fault arises and advise corrective measures.
6. The vendor shall have back to back contract agreement for all sub-systems procured from other vendors for such warranty period.
7. Bidder shall have to arrange all facilities like transport, accommodation etc.
8. Any software upgrades which are developed during the warranty period shall be supplied free of cost to OIL.
9. During the warranty period, bidder's representative shall make minimum two periodic visits a year to sites for regular check-up, testing, rectification and testing of the system for trouble free operation. In addition, bidder's representative shall make additional visits as per the exigencies that may arise.
10. The time period for warranty shall be extended by the elapsed time if the vendor fails to resolve any problem within one week of reporting by OIL. Any time taken after one week to resolve the problem will be considered as elapsed time.
11. Bidder's personnel shall visit site within 24 hours of notifying for the following emergency situations as & when required:
 - 11.1 Failure of any or part of the systems.
 - 11.2 The system crash/ non-communication with the control systems.
 - 11.3 The software failure/ communication failure/ software bug etc.
12. Bidder shall carry out testing/ calibration of the system cards, displays etc. of the total system every six months. The bidder shall arrange the necessary tools/ tackles & accessories.
13. **List of hardware to be covered during warranty:**
 - 13.1 All parts & components of the complete CCTV System supplied including all individual cameras, OFC, servers, monitors, OFC communication system components, spares/ consumables & accessories etc. supplied under the tender scope.
 - 13.2 All consumables, components having limited life-span/ shelf-life but integral to the CCTV system.
 - 13.3 All the controllers, server & software components.
 - 13.4 Entire cables of the systems.
 - 13.5 Communication hardware & software.
 - 13.6 PC/ workstations & all peripherals supplied.
 - 13.7 All parts & components of the control/ monitoring system.
 - 13.8 All power supply modules
 - 13.9 Any other Hardware and Software forming part of the System to achieve the specified Functional Requirement.

G9. COMPREHENSIVE POST WARRANTY ANNUAL MAINTENANCE CONTRACT (AMC)

The systems/sub-systems & accessories being supplied, installed and commissioned are required to be fully operational round the clock. The bidder must provide maintenance service through Comprehensive Onsite Annual Maintenance Contracts for Five (05) years after warranty period (extendable by another five years on review), taking following points into consideration:

1. Bidder shall quote for 5-year post warranty comprehensive maintenance of the complete system supplied under the present tender. Price quoted for the 5-year post warranty comprehensive maintenance shall be considered for the purpose of evaluation of bids. However, at the end of the warranty period, OIL shall place separate work order and enter into a comprehensive annual maintenance contract with the successful bidder as per rates and agreed terms and condition of present tender.
2. The AMC shall be applicable to all systems and subsystems, accessories and software supplied.
3. Any defective item/ components shall be repaired / replaced by the vendor free of cost during maintenance contract period. In urgency, bidder may utilize the spare modules available with OIL at site. At the end of the post warranty maintenance contract OIL shall have same amount of spares as ordered. In case any hardware/ software used from OIL stock, it shall be replaced by bidder within 7 days with no cost to OIL.
4. However, if bidder desires, additional spares other than what is available with OIL as spares may be stored at client premises to meet the schedule of rectification of fault during emergency/ maintenance.
5. The time period for AMC shall be extended by the elapsed time if the vendor fails to resolve any problem within one week of reporting by OIL. Any time taken after one week to resolve the problem will be considered as elapsed time. Bidder shall maintain a record of all faults during post warranty period.
6. The proposal shall include supply of tools and tackle as required, travel, boarding & lodging of service engineers.
7. The bid shall be made year wise up to 5 years and the price validity shall be available for the entire period of contract.
8. In the event of any malfunction of the system hardware/ system software, experienced service engineer shall be made available at site within twenty-four (24) hours on the receipt of such information from OIL.
9. OIL personnel will work on system on day to day basis and wherever possible, OIL shall inform the type of failure of hardware/ software to bidder based on diagnostics available with the system. However, bidder shall be fully responsible to attend and rectify the root cause and the failure.
10. OIL shall not procure any spares/ consumables during the 5-year post warranty maintenance period. Bidder may utilize the spare modules available with OIL if necessary and available with OIL at site. However, if bidder desires, additional spares other than what is available with OIL as spares may be stored at client premises to meet the schedule of rectification of fault during emergency/ maintenance.
11. The service under Comprehensive Post Warranty Maintenance Agreement, including supply of spare parts and services, shall broadly comprise of:
 - Preventive/Periodic Maintenance
 - Emergency Maintenance Service
 - Repair Maintenance
 - Software Support
- 11.1 **Preventive/ Periodic Maintenance:** The preventive/periodic maintenance shall be carried out for minimum 02 (two) times in a year with site visits during the contract period by the bidder. Vendor will inform OIL one month in advance for the maintenance. Maintenance shall involve complete overhaul of the system, inspection of hardware and software, fault prediction, inspection of power supply quality, environmental operating condition checks, calibration checks, major repairs/ replacements, replacement of cards and accessories because of expected ageing failure and detailed reporting, manual cleaning of each card and cabinet filters. This visit is in addition to visits required for periodic maintenance. The schedule of these services can be drawn after mutual agreement. The details of service under periodic maintenance shall be:
 - 11.1.1 **Checking of Operating Conditions:** The operating conditions of the system and environment like dust, moisture and temperature shall be checked by the vendors and suggestions made wherever necessary.
 - 11.1.2 **Checking of General Healthiness of the System:** Test programs shall be run to detect any functional problems. Further bidder's engineer shall check physically and verify each component and clean them if required for proper functioning

- 11.1.3 **Inspection of Power Sources:** Measurement of voltage / ripples of the main supply, system grounding facilities, any other power source shall be carried out and adjustment of the voltage shall be made, if necessary.
- 11.1.4 **Cleaning and Inspection of Electronic Hardware:** All the monitors/ displays, cameras, Panel, Terminal & hardware shall be cleaned. OIL shall provide necessary clearance for the same. Each component inside field JB & control room panel shall be inspected for loose connections (and rectified if necessary) and cleaned with suitable cleaner.
- 11.1.5 **Functional Tests:** Function of each component of the system shall be checked. Vendor's diagnostic software shall be run to check the functioning of the total system including peripheral devices. Each module shall be checked for their desired function with accuracy by giving inputs from standard instruments and adjustment or calibration shall be done wherever required.
- 11.1.6 **Saving of Images:** Existing software image of the system shall be saved for future ready reference in case of any problem.
- 11.1.7 **Inspection of Movable Parts:** Inspection and lubrication of movable shall be done.
- 11.1.8 **Investigation of Problems:** If any problem is identified by the vendor's engineer during testing or highlighted by OIL personnel, the same shall be investigated by vendor's engineer and take necessary steps to resolve the same at site during the visit.
- 11.1.9 **Replacement of Parts:** If some parts are required to be replaced the same shall be done. A detail report of the job done and observations shall be submitted after each visit.
- 11.1.10 **Recommissioning:** After overhaul, the system shall be re-assembled and commissioned.
- 11.1.11 **Observation of System Operation:** After each maintenance visit, vendor's service engineer shall be present to observe the system for one full day to ensure proper operation.
- 11.1.12 **Service Assistance:** A deputed service engineer shall keep stock of sufficient spares of various modules like LIU, Media Converters, Power supply adapters, Ethernet switches, Fiber Pigtails, Patch Chords, SFP Modules, Camera assemblies and other major sub modules which are integral part of the system for quick maintenance. The service engineer shall be fully conversant with the offered system and properly trained for all kind of maintenance activities. He shall report to OIL immediately on phone call, as & when required for assessment of the system, health check, maintenance, recording, archival etc. The job of the service engineer shall include the following as a minimum:
 - (a) Healthiness checks of each component including camera performance.
 - (b) Video analysis of recorded data & MIS generation.
 - (c) Generation of daily report on system performance.
 - (d) Weekly & monthly report for performance of entire CCTV system detailed upto up to component level status, vendor to submit detailed checklist for health check of their system along with as built document for OIL approval.
 - (e) Periodic archival of recorded data as intimated by OIL.
 - (f) Any other, as intimated by OIL.

11.2 Emergency Maintenance Service

Emergency services shall be provided on demand during the contract period. In the event of breakdown of the system, upon call from OIL, bidder has to give remedial advice to OIL personnel over telephone / Fax / E-mail. If still expert's visit is required, their Service Engineer shall report at site within twenty-four (24) hours of report of failure, with necessary spares to attend the problem and restore the system to normalcy. The system must be brought back within twenty-four (24) hours after reporting at site. Emergency situation is defined as:

- 11.2.1 Failure of the system or part of the system.
- 11.2.2 Failure in which operator is not able to obtain any of the information supposed to be available through the system.
- 11.2.3 Failure of system internal power source.
- 11.2.4 Crash of cards, parts / non communication with the control system etc. Spare shall be provided for the defective parts.
- 11.2.5 The software failure/ communication failure/ software bug etc.

11.3 Repair Maintenance (As and when required)

- 11.3.1 In the event of failure of any system or any module/ component/ camera etc., any item or any part supplied, bidder shall repair such parts upon sending them to their work site at free of cost.

Vendor shall provide a replacement from its stock (or from OIL's stock) till repair is completed; vendor shall check & certify proper functioning of the parts and sent back the same to OIL.

- 11.3.2 Transportation of faulty material from OIL to vendor's site and repaired/replaced material from vendor's site to OIL shall be totally vendor's responsibility including all necessary transit clearances. OIL shall only hand over the material at site and provide necessary gate pass to take the material out of OIL.

11.4 Software Maintenance/ Support:

The bidder shall maintain the existing operating & application software and extend the benefits of software updates made by OEM on the installed systems on existing release from time to time to improve performance. If required for restoration or rectification of severe problems all the software upgradation, re-installation shall be done by the bidder during the period of AMC. Software modification and upgradation, as & when required, shall also be covered under this scope at no extra cost.

12. The payment for AMC shall be released quarterly after providing satisfactory service during last quarter.

13. Notes:

- 13.10 Bidder to note that while carrying out the Comprehensive Post Warranty Maintenance Contract activities, OIL engineers shall be associated for maintenance of the system. On-job training of these associated engineers shall be covered under this scope.

- 13.11 This shall include all items being supplied by bidder, including any bought out items but not limited to the following:

- 13.11.1 Labour and materials, at no additional cost, to repair any system devices and related equipment, network devices, printers etc procured under this bid.

- 13.11.2 Labour and materials, at no additional cost, to provide tests and adjustment to system devices.

- 13.11.3 Regular check-ups to ensure that a correct procedure is established for data base backup and archiving.

14. Force Majeure

- 14.1 Should any Force Majeure circumstances arise, each of the contracting party shall be excused for the non-fulfilment or for the delayed fulfilment of any of its contractual obligations, if the affected party within fifteen (15 days) of its occurrence informs the other party in writing.

- 14.2 Force Majeure shall mean fires, floods, natural disasters or other acts, that are unanticipated or unforeseeable, and not brought about at the instance of the party claiming to be affected by such event, or which, if anticipated or foreseeable, could not be avoided or provided for, and which has caused the non- performance or delay in performance, such as war, turmoil, strikes, sabotage, explosions, quarantine restriction beyond the control of either party.

- 14.3 A party claiming Force Majeure shall exercise reasonable diligence to seek to overcome the Force Majeure event and to mitigate the effects thereof on the performance of its obligations under this contract.

G10. DELIVERY SCHEDULE

1. **Supply of all item: Within TWELVE (12) weeks from the date of issue of firm purchase order.**

2. **Installation, configuration, Integration testing and commissioning of entire project: Within TWENTY (20) weeks from the date of handing over of site.**

3. **Delivery shall be made at Pump Stations as per the following:**

- 3.1 For PS1 (Duliajan), PS11 (Tengakhat), RT-1 (Digboi), Digboi Repeater Station and RS18 (Fatengbore) delivery shall be at:

Pump Station-1, OIL India Limited, PO: Duliajan, Dist: Dibrugarh, Assam, PIN-786602

- 3.2 For PS2 (Moran) delivery shall be at:

Pump Station-2, OIL India Limited, PO: Khatkhathi, Dist: Sivasagar, Assam, PIN-785669

- 3.3 For PS3 (Jorhat), RS1 (Maduri) and RS2 (Badulipur) delivery shall be at:

Pump Station-3, OIL India Limited, PO: Chengali Gaon, Dist: Jorhat, Assam, PIN-785010

- 3.4 For NT (Numaligarh Terminal) delivery shall be at:

Numaligarh Despatch Terminal, OIL India Limited, PO: Numaligarh Refinery Project, Dist: Golaghat, Assam, PIN-785699

- 3.5 For PS4 (Sekoni), RS3 (Kaziranga) and RS4 (Ghani) delivery shall be at:

Pump Station-4, OIL India Limited, PO: Jakhalabandha, Dist: Nagaon, Assam, PIN-782136

3.6 For PHQ (Guwahati) and RS5 (Jagiroad) delivery shall be at:

Pipeline Headquarters, Oil India Limited, PO: Udayan Vihar, Guwahati, Dist - Kamrup Metropolitan ASSAM, PIN – 781171

4. Station wise item distribution list shall be provided to successful bidder by OIL.

G11. BIDDER TO OBTAIN OWN INFORMATION

1. In their own interest, bidders may visit the sites, prior to submission of BID, to acquaint himself with the site data, availability of facilities etc.
2. During such visit, bidder shall interact with the OIL engineer and obtain information regarding exact requirement of proposed system.
3. It is presumed that SOQ will follow the indicative BOM. However, the bidder may quote any addition/deletion justifying the cause of change. Bidder shall ensure that all the items required for successful commissioning of the system are quoted in this enquiry. Items/service not quoted but later on found to be required for successful completion of this project have to be provided by the bidder free of cost without any financial obligation to OIL.

H. SPARES

H1. MANDATORY SPARES

1. Bidder shall supply the mandatory spares as listed in BOM (Spares).
2. The major BOM of the system including spares shall be freezed with vendor. Further requirement of hardware or software required if any shall be in the scope of vendor without any price implication.

H2. COMMISSIONING AND WARRANTY SPARES AND CONSUMABLES

1. The Bidder shall provide all the commissioning and warranty spares and consumables, if required, as part of Lump sum quote. It is bidder's responsibility to ensure the adequacy & completeness of the commissioning and warranty spares & consumables and supply the spares & consumables as required during the commissioning and warranty period.
2. The spares & consumables shall be arranged by the bidder to cater to the requirement during installation, pre-commissioning, site acceptance testing, trial-run, commissioning and warranty. It shall be obligatory on the part of bidder to modify/ upgrade, rectify any hardware problems in the system or replace any hardware component in the supplied equipments during installation and commissioning and operation & maintenance of the system during warranty. The spares and consumables shall be readily available with the bidder and the bidder shall build-up the cost for spares & consumables required for complete system as part of initial bid itself and no separate list of these spares is required to be provided as part of their proposal.
3. The consumables during installation & commissioning and warranty shall be adequate and complete.
4. These spares are different from mandatory spares and bidder shall not use mandatory spares as commissioning and warranty spares.

I. SPECIAL TERMS AND CONDITIONS

1. Bidder should have in their company payroll at least five experienced & dedicated skilled manpower for design, engineering, installation/ commissioning & testing CCTV based monitoring system. Bidder shall submit documentary evidence in the form of PF documents against the manpower.
2. Bidder shall have experience in executing supply and installation of CCTV system comprising of CCTV cameras, related network system, software and accessories during any of the last five years ending on last day of the month immediately previous to the month in which last date of bid submission falls. Copy of minimum one (01) no. of completed purchase order along with installation/completion certificate must be submitted along with the bid as proof of experience.
3. At least one such system supplied by the bidder should be in continuous operation successfully for at least 1 (one) year. Bidder shall submit certificate of experience and performance of the working system.
4. Bidder should have valid purchase order, for a similar job, in their own name from clients. Job done as a sub-contractor shall not be considered.
5. The bidder should be an Original Equipment Manufacturer (OEM) or authorised representative/ authorised system integrator of OEM of CCTV cameras, Network switches etc. offered in the bid. Letters of valid authorisation issued by each OEM shall be submitted along with the offer. The authorisation letters should have signature, email and contact number of the issuer.

6. Bidder must state categorically whether or not their offer meet all the technical requirements listed in the Tender Documents. Any deviation shall be listed clause wise in a separate chapter.
7. Offer shall be considered as complete only if accompanied by relevant technical catalogue in English Language.
8. Bidder shall bring out any hardware/ software limitation with respect to functional requirements.
9. Bidder to note that OIL's Engineers shall be associated in any phase of the job execution, detailed design, development, testing, FAT, commissioning, SAT, post audit etc.
10. Bidder shall furnish written guarantee that back up engineering; maintenance support shall be available for a minimum period of ten (10) years after expiry of warranty period.
11. All consumables, components having limited life-span/ shelf-life but integral to the proposed system shall be supplied free of cost during the warranty period.
12. Bidder to note that items not indicated clearly in the Bill of Quantity, but required to complete the functional requirement of OIL shall be considered as included in the vendor's scope. Such items shall be considered to be completed by vendor on his full responsibility.
13. Vendor shall include all the accessories/ special cables/ fittings and any other items required for the safe operation/ online maintenance/ smooth functioning/ installation of items supplied. Any such item requirement discovered at a later date even after purchaser has reviewed the vendor documents shall be to vendor's account.
14. All the selected model nos. shall be completely suitable for the ambient conditions. Vendor shall replace the selected instruments/ items at no extra charge, if found unsuitable at a later date or at any stage of the project.
15. The selection of models shall be vendor's responsibility and the selected models shall have a proven track record of minimum twelve months since the date of commissioning for similar application in similar industries. Vendor shall furnish a list of such installations for the quoted models. The list shall include model nos., no. of units, plant, and completion date along with performance certificate from end user or reference contact details of the end user as minimum. Experimental or prototype of instruments shall not be quoted.
16. Bidder to note that all intrinsic safety, Ex-proof certificates etc. shall have endorsement from PESO, Nagpur for installation in hazardous area in petroleum industries.
17. The bidder shall submit a detailed System configuration drawing for the quoted system along with their offer.
18. Bidder shall quote for post warranty comprehensive maintenance as per the AMC requirement and shall furnish year wise breakup for five (05) years of services.
19. Bidder to submit drawings, documents, information as per Vendor data Requirement.
20. For trenching and laying of HDPE duct along with OFC, power cable, GI pipe and CAT cable; payment shall be made on the measurement of running length.
21. All labor law/ statutes/ rules/ regulations including minimum wages act, employees' state insurance, payment of bonus act, employee's provident fund, contract labor law etc. are to be strictly complied with. Bidder will be solely responsible for any claim/ liability arising due to/ on account / consequent to the workmen engaged by him. Bidder shall keep the owner indemnified against all such claims of whatsoever nature.
22. Bidder at its own expenses shall take out worker's compensation insurance to cover any claim that may be made by bidder's employees and/ or their heirs and dependents alleging bodily injuries sustained or death suffered by employees as a result of or in connection with the performance of any bidder's obligations under this agreement and will hold the owner and its employees and representatives harmless from any and all such claims. Bidder's insurance policy shall include a waiver clause as to any insurer's actions against owner, its employees and representatives.
23. The bidder shall keep the owner both during and after the term of agreement, fully & effectively indemnified against all losses, damages, injuries, deaths, expenses, actions, proceedings, demands and costs & claims, including but not limited to, legal fees & expenses, suffered by the owner or any third party, here such losses, damages, injuries or death is the result of a wrongful action, negligence or violation of the job site regulations by the bidder or its subcontractors or the personnel or agents or either of them.

J. COMPLIANCE OF SAFETY MANAGEMENT SYSTEM NORMS:

The vendor must comply to various guidelines on safety management system being followed in OIL for executing works under the scope and also during Warranty and Post Warranty (AMC) period. Salient points of this Safety Management System are mentioned below:

1. The vendor shall engage only highly skilled, capable and competent personnel who are fully conversant with the existing system, proposed system, installation & commissioning, repair/maintenance jobs.
2. The vendor's personnel shall abide by all relevant statutory safety and environment rules, regulations, applicable codes and standards.
3. Tool Box Meeting to be regularly held.
4. The vendor shall ensure complete safety of the personnel engaged by him, and of all the equipment they will handle and must take full responsibility for their safety.
5. The vendor's personnel shall follow safe operating procedures while carrying out any work.
6. The vendor shall ensure the quality and reliability of all the tools, equipment and instruments they use.
7. The vendor's personnel shall follow and take necessary work permit before carrying out any work.
8. The vendor shall provide comprehensive & well documented plan for implementation, monitoring & reporting.
9. The vendor's personnel shall take every possible care to keep the environment clean and free from pollution.
10. The vendor's personnel should understand the implication of the known hazards related to the work undertaken by them and the necessity of having an emergency plan ready to counter them, should anything go wrong.
11. While providing the services, the vendor's personnel shall follow the procedures and systems taking all control measures in all the stages of works to avoid any untoward incidents/accidents.
12. The vendor shall fully understand OIL's safety policy and should take necessary steps to align their safety policy with OIL's; so as to accommodate and implement OIL's safety policy in the jobs undertaken by them.
13. The vendor shall have to report all sorts of near misses, incidents and accidents to OIL Engineer immediately. For any clarification with regard to the above, the Successful Bidder may contact GM(T&I)/concerned Telecomm Engineer. The vendors' personnel engaged shall observe the rules and regulations as per Factory Act (Latest Addition).
14. **PENALTY FOR VIOLATION OF SAFETY PROVISIONS:**
 - 14.1 Violation of applicable safety, Health & Environment related norm: a penalty of Rs. 5,000/- per occasion.
 - 14.2 **Violation as above resulting in:**
 - 14.2.1 Any physical injury, a penalty of 0.5% of the contract value (maximum of Rs. 2, 00,000/-) per injury in addition to Rs. 5,000/-.
 - 14.2.2 Fatal accident, a penalty of 1% of the contract value (maximum of Rs. 10, 00,000/-) per fatality in addition to Rs. 5,000/-.
 - 14.2.3 Bidders should note that the aforesaid penalty clause is over and above the applicable statutory requirements. Successful bidder will have to take suitable insurance policy.
