



एचपीसीएल बायोफ्यूल्स लिमिटेड

(हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन लिमिटेड के पूर्ण स्वामित्व वाली सहायक कम्पनी)

HPCL BIOFUELS LIMITED

(A wholly owned subsidiary company of Hindustan Petroleum Corporation Ltd.)

पंजीकृत कार्यालय : प्रथम मंजिल, श्री सदन, प्लॉट नं. 09, पाटलीपुत्र कॉलोनी, पटना-800013, बिहार

Regd. Office : 1st Floor, Shree Sadan, Plot No.09, Patliputra Colony, Patna-800013, Bihar

दुरभाष / Telephone : 0612 - 2260185 / 2270483, Website : www.hpclbiofuels.co.in, CIN - U24290BR2009GOI014927

TENDER ENQUIRY (Unpriced BID)

तकनीकी बीड

(This is only a Price Enquiry not a Purchase Order)

From: (Name & Address to be written below by the tenderer)

To,

M/s _____ _____ _____ _____ _____ _____
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Tender No: HBL/TEN/PUB/20-21/165

Tender Date: 15.10.2020

Direct Queries Related to Sugauli

To: SAKET BANSAL

Designation: GM-UNIT

Mobile No:- +919415775544

Direct Queries Related to Lauriya:

To: DP DWIVEDY

Designation: GM-UNIT

Mobile No:- +918298743211

Title : CONSTRUCTION OF STORM WATER DRAIN SYSTEM INCLUDING CIVIL WORKS AT HBL PLANTS SUGAULI, EAST CHAMPARAN & LAURIYA, WEST CHAMPARAN IN BIHAR STATE.

Tender (Technical & unpriced commercial bid and priced bid) to be received on or before 06/11/2020 by 1430 Hrs at the address mentioned below.

Tenders are to be dropped in the designated tender box at the address mentioned below. In situation where the tenders are big which cannot be dropped in the box or where the specific tender boxes are not available, tenders are to be submitted with the concerned purchasing authority at the following address.

**HPCL Biofuels Limited.
1St Floor, Shree Sadan,
Plot No. 09, Patliputra Colony,
Patna, Bihar - 800013.**

Tender received after due date and time due to whatever reasons will be rejected.

1. For any grievance related issue, queries to be sent to Grievance Redressal cell of HPCL Biofuels Limited (HBL) at above address.
2. All unit rates in **Indian Rupees** (Specify currency)

PART - A - SUGAULI

Please quote your most competitive rate in the Price Bid (only) for Construction of Storm Water Drain System Including Civil Works at HBL Sugauli Plant as per specimen given below:

(SPECIMEN OF PRICE BID AND SCHEDULE OF QUANTITY) - NOT TO BE QUOTED BELOW

Deliver To: HPCL Biofuels Ltd, Village - Sugauli, Near Sugauli Railway Station, Dist - East Champaran, Bihar - 845456.

Item No.	Item short Description	Qty	Unit	Unit rate (Rs/Unit) to be written in figures as well as in words in this Column**	Amount (Rs) = Qty x rate to be written in figures as well as in words in this Column **
1A	<p><u>Excavation:</u></p> <p>Earth work in excavation by mechanical means (Hydraulic excavator) / manual means including disposal of excavated earth within and outside site to unobjectionable place, disposed earth to be levelled, neatly dressed & compaction wherever required. It also includes providing shoring, strutting, dewatering as required. Note.</p> <p>(i) Vendor shall consider any extra width required for providing shuttering, shoring, struttin for earth retention etc in his scope which will not be considered for measurements / payments.</p> <p>ii) Contrator to note that initial & final level survey shall be undertaken jointly by himself & / or representatives with HBL site engineer for calculation of earth volume using Simpson's rule in case of Land Development / cutting works.</p> <p>iii) Also note that the scope of works include provision of permanent & temporary bench marks.</p>	3250	CUM		NOT TO BE QUOTED HERE (यहाँ कोट न करें)
2A	<p><u>Backfilling:</u></p> <p>With selected excavated earth-Backfilling around foundations, trenches, sumps, pits, substructures, etc. at all depth with stacked soil near construction boundary including placing, spreading, watering, hammering and even compaction by plate compactor or any other mean instructed by engineer to achieve CBR Value 4 (compaction should</p>	3250	CUM		NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	be at least 95% of standard proctor density), thickness of backfilled layers should not exceeding 150 mm in depth, complete by works as per specification or instruction by engineer. (The measurement for payment shall be for the theoretical net volume only)			
3A	<p><u>PCC:</u> Supplying and Laying Plain cement concrete of Volumetric Mix 1:3:6 (1 CEMENT: 3 SAND: 6 COARSE AGGREGATES) grade concrete with 20mm downgraded coarse aggregate for pits, foundations, drains etc. including shuttering at all level as per drawings, specifications and EIC. Concrete cubes tested on 28 days shall give a result meeting M-15 requirement of IS 456</p>	100	CUM	<p>NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>
4A	<p><u>RCC- M30:</u> Providing and Laying controlled M-30 reinforced cement concrete using, 20 mm and down size stone aggregates with PPC or OPC 53 at all levels in foundations,pits, rafts, drain raft, drain wall, drain precast cover including providing, fabricating and erecting form work of STEEL conforming to IS 4990 at all levels, heights and places wherever need/ specified with adequate adjustable steel props and sufficient bracings as per approved drawing including striking/ de-shuttering (No Ply shall be used). No deviation will be acceptable if proper line, level and plumb is not maintained in the drain wall and contractor may be asked to reconstruct the same without any cost to HBL. Cost to include sealing the joints with heavy duty brown self-adhesive tape, applying mould releasing agents (HBL approved) aligning to line and levels including mild steel ties, Polyvinyl chloride spacer, etc for drain if applicable. Contractor to arrange shuttering for minimum 70 RM before commencement of Job. Rate to include supply and fixing of HDPE pipe of length 150mm for weep holes at every 3m interval.(Gratings which</p>	910	CUM	<p>NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>

	is to be fixed in the pipe opening of dia 250 mm will be paid separately in the structural steel item.)			
5A	<p><u>Reinforcement:</u></p> <p>HYSD/TMT reinforcement steel FE 500 - Reinforcement for RCC works including straightening, cutting, bending, placing in position and binding with annealed GI wire of 16 gauge, providing spacers, chairs all complete with HYSD/TMT reinforcement - Fe 500 grade as per BIS 1786 including the cost of all labour, material, equipment etc., complete as per specifications, approved drawings and as directed by the engineer-in-charge.</p> <p>(i) Measurements for only authorized laps & chairs as per approved drawing will be counted.</p> <p>ii) Reinforcement shall range from 6 mm dia to 32 mm dia as per construction drawings.</p> <p>iii) Rate also includes providing necessary cover blocks in CM 1:2 as per required thickness & as per drawings.</p>	34	MT	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
6A	<p><u>Brick Work:</u></p> <p>Providing Brick masonry 230 to 850 mm thick and above in cement mortar 1:4 in foundation, trenches, drains, walls & plinth at all depths & heights including (with/without scaffolding if required), Providing & Fixing chicken wire mesh (of best quality Galvanized or as specified in drawings or instructed by Engineer In charge) in strips of 200 mm widths over junctions between concrete & masonry including screw, nails and washers prior to plastering, including curing etc. Complete by work as per instruction of Engineer In charge.</p>	200	CUM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
7A	<p><u>Plaster 20mm:</u></p> <p>Providing 20 mm thick exterior sand faced cement plaster in two layers (First layer of 12mm thick and second layer of 8mm) including fixing chicken mesh at joints of</p>	1000	SQM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	RCC Beams, Columns with Masonary at all heights & locations for cement mortar 1:4 for external surfaces including chipping concrete surface, providing, bands, drip moulds, grooves etc. finishing, curing, scaffolding etc. complete all bye work, including integral Waterproofing compound Emperor or approved equivalent @1kg/cement bag and a coat of adhesive if required complete.			
8A	<p><u>Dismantling Brick work & RCC:</u></p> <p>Dismantling of RCC/PCC/Brick/Stone Masonry: Breaking RCC/PCC/BM/Stone masonry, removal, loading & transportation of all broken debris and muck and disposal to an unobjectionable disposal site outside the premises, keeping the area clean, observing all safety precautions and ensuring that there is no damage to existing lines/structures, all complete as per instructions of HPCL EIC. Quoted rates are deemed to include payment of all applicable royalty/seignorage for permission to dump debris at disposal site.</p>	1000	CUM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
9A	<p><u>Structural Steel:</u></p> <p>Supply and Fabrication of Structural steel – Supply, Fabrication, Welding & erection and Painting of structural steel IS:2062 E 250 (Fe410 W) or higher Grade A/B columns/ beams, angles, channels, Gate, inserts, gratings for weep holes including Preparation of all necessary fabrication drawings including bill of materials; supply of bolts, nuts, washers, shims, packs, gas, welding electrodes and all other consumables, as required all complete. The scope includes loading, transportation ,unloading and delivery at erection site of all fabricated structures, erection, alignment and welding of all structures true to line, level, plumb and dimension, including rectification if any, splicing, site assembly all as per technical specifications and drawings, use of all safety equipment, hydra crane, chain pulley blocks etc.; carrying out</p>	0.5	MT	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	<p>welding procedure/welder qualification tests; pug cutting/gas cutting; drilling holes of suitable size; supplying & providing erection and permanent bolts with nuts & washers all complete as per drawings and instructions of Engineer-in-Charge. Unit wt. will be considered as per BIS only. In case actual wt. is less than wt. as per BIS, then actual wt. will be considered for measurement. Painting scope shall include surface preparation to SA 2 ½ by Copper Slag Blasting; Supply & application of 1 coat of IZS Primer (65-75 microns DFT); Supply & application of HB MIO Epoxy intermediate coat of 100 micron DFT followed by Supply & application of two coats of Acrylic Modified 2 pack Polyurethane recoatable of 2 x 40 micron DFT. (Total:245 micron DFT). Quoted rates are deemed to include the entire scope as per item as described herein above.</p>			
10A	<p><u>Design and Approval of drawing for construction:</u></p> <p>Contractor to submit design for segregation of Storm water and effluent drain & ensuring discharge of storm water into nearest government drain without any water logging in the plant premises (Sugauli and Lauriya Plant). Job will include taking levels using auto level or total station with respect to existing benchmark of the total plant area and designing of drain invert level for flow due to gravity by maintaining proper slope and chambers wherever necessary for cleaning purpose. 20 % Payment will be disbursed on completion and submission of Road and drain levels. 20% Payment will be disbursed on completion and finalization of drain layout (Layout & depth of wall should be based on flow due to gravity). 20% Payment will be disbursed on approval of drain layout for construction and rest 40 % will be disbursed on successful testing of the drain where it should be strictly ensured to segregate effluent and storm water and no water logging should be observed in the plant premises.</p>	1	LS	<p align="center">NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>

A	SUB TOTAL (BASIC PART - A)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
Taxes/Duties/ Levies (Extra if Any)		
B	GST @ _____ %	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
C	Any other _____ (Please write N/A if not applicable)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
	GRAND TOTAL (a+b+c)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

Note: Vendor may quote for either or for both the Part.

Please Note: Part A shall be evaluated separately and independently for evaluating the successful bidder on this part. Tenderer to quote for all the items of this part and evaluation shall be done on overall basis which includes landed cost i.e including taxes, duties, levies etc. complete.

Note in case any of the above fields (i.e from “a” to “c”) is left blank without mentioning taxes, levies, duties component etc. then the applicable taxes, levies, duties, or any statutory charges if found applicable during the billing time shall be considered inclusive of the rate quoted by the tenderer and shall be borne by the tenderer. Please note no extra cost shall be re-imbursed to the contractor/supplier.

Evaluation shall be done on overall basis. The successful bidder shall be determined basis lowest landed cost to HBL which includes taxes, duties, levies etc. complete.

PART - B - LAURIYA

Please quote your most competitive rate in the Price Bid (only) Construction of Storm Water Drain System Including Civil Works at HBL Lauriya Plant as per specimen given below:

(SPECIMEN OF PRICE BID AND SCHEDULE OF QUANTITY) - NOT TO BE QUOTED BELOW

Deliver To: HPCL Biofuels Ltd, Village Lauriya, Lauriya Bagha Highway, Dist - West Champaran, Bihar - 845453

Item No.	Item short Description	Qty	Unit	Unit rate (Rs/Unit) to be written in figures as well as in words in this Column**	Amount (Rs) = Qty x rate to be written in figures as well as in words in this Column **
1B	<p><u>Excavation:</u></p> <p>Earth work in excavation by mechanical means (Hydraulic excavator) / manual means including disposal of excavated earth within and outside site to unobjectionable place, disposed earth to be levelled, neatly dressed & compaction wherever required. It also includes providing shoring, strutting, dewatering as required. Note.</p> <p>(i) Vendor shall consider any extra width required for providing shuttering, shoring, struttin for earth retention etc in his scope which will not be considered for measurements / payments.</p> <p>ii) Contrator to note that initial & final level survey shall be undertaken jointly by himself & / or representatives with HBL site engineer for calculation of earth volume using Simpson's rule in case of Land Development / cutting works.</p> <p>iii) Also note that the scope of works include provision of permanent & temporary bench marks.</p>	3250	CUM		NOT TO BE QUOTED HERE (यहाँ कोट न करें)
2B	<p><u>Backfilling:</u></p> <p>With selected excavated earth-Backfilling around foundations, trenches, sumps, pits, substructures, etc. at all depth with stacked soil near construction boundary including placing, spreading, watering, hammering and even compaction by plate compactor or any other mean instructed by engineer to achieve CBR Value 4 (compaction should</p>	3250	CUM		NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	be at least 95% of standard proctor density), thickness of backfilled layers should not exceeding 150 mm in depth, complete bye works as per specification or instruction by engineer. (The measurement for payment shall be for the theoretical net volume only.)			
3B	<p><u>PCC:</u> Supplying and Laying Plain cement concrete of Volumetric Mix 1:3:6 (1 CEMENT: 3 SAND: 6 COARSE AGGREGATES) grade concrete with 20mm downgraded coarse aggregate for pits, foundations, drains etc. including shuttering at all level as per drawings, specifications and EIC. Concrete cubes tested on 28 days shall give a result meeting M-15 requirement of IS 456</p>	100	CUM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
4B	<p><u>RCC- M30:</u> Providing and Laying controlled M-30 reinforced cement concrete using, 20 mm and down size stone aggregates with PPC or OPC 53 at all levels in foundations,pits, rafts, drain raft, drain wall, drain precast cover including providing, fabricating and erecting form work of STEEL conforming to IS 4990 at all levels, heights and places wherever need/ specified with adequate adjustable steel props and sufficient bracings as per approved drawing including striking/ de-shuttering (No Ply shall be used). No deviation will be acceptable if proper line, level and plumb is not maintained in the drain wall and contractor may be asked to reconstruct the same without any cost to HBL. Cost to include sealing the joints with heavy duty brown self-adhesive tape, applying mould releasing agents (HBL approved) aligning to line and levels including mild steel ties, Polyvinyl chloride spacer, etc for drain if applicable. Contractor to arrange shuttering for minimum 70 RM before commencement of Job. Rate to include supply and fixing of HDPE pipe of length 150mm for weep holes at every 3m interval.(Gratings which</p>	910	CUM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	is to be fixed in the pipe opening of dia 250 mm will be paid separately in the structural steel item.)			
5B	<p><u>Reinforcement:</u></p> <p>HYSD/TMT reinforcement steel FE 500 - Reinforcement for RCC works including straightening, cutting, bending, placing in position and binding with annealed GI wire of 16 gauge, providing spacers, chairs all complete with HYSD/TMT reinforcement - Fe 500 grade as per BIS 1786 including the cost of all labour, material, equipment etc., complete as per specifications, approved drawings and as directed by the engineer-in-charge.</p> <p>(i) Measurements for only authorized laps & chairs as per approved drawing will be counted.</p> <p>ii) Reinforcement shall range from 6 mm dia to 32 mm dia as per construction drawings.</p> <p>iii) Rate also includes providing necessary cover blocks in CM 1:2 as per required thickness & as per drawings.</p>	34	MT	<p>NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>
6B	<p><u>Brick Work:</u></p> <p>Providing Brick masonry 230 to 850 mm thick and above in cement mortar 1:4 in foundation, trenches, drains, walls & plinth at all depths & heights including (with/without scaffolding if required), Providing & Fixing chicken wire mesh (of best quality Galvanized or as specified in drawings or instructed by Engineer In charge) in strips of 200 mm widths over junctions between concrete & masonry including screw, nails and washers prior to plastering, including curing etc. Complete by work as per instruction of Engineer In charge.</p>	200	CUM	<p>NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>
	<p><u>Plaster 20mm:</u></p> <p>Providing 20 mm thick exterior sand faced cement plaster in two layers (First layer of 12mm thick and second layer of 8mm) including fixing chicken mesh at joints of</p>			

7B	RCC Beams, Columns with Masonary at all heights & locations for cement mortar 1:4 for external surfaces including chipping concrete surface, providing, bands, drip moulds, grooves etc. finishing, curing, scaffolding etc. complete all bye work, including integral Waterproofing compound Emperor or approved equivalent @1kg/cement bag and a coat of adhesive if required complete.	1000	SQM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
8B	<u>Dismantling Brick work & RCC:</u> Dismantling of RCC/PCC/Brick/Stone Masonry: Breaking RCC/PCC/BM/Stone masonry, removal, loading & transportation of all broken debris and muck and disposal to an unobjectionable disposal site outside the premises, keeping the area clean, observing all safety precautions and ensuring that there is no damage to existing lines/structures, all complete as per instructions of HPCL EIC. Quoted rates are deemed to include payment of all applicable royalty/seignorage for permission to dump debris at disposal site.	1000	CUM	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
9B	<u>Structural Steel:</u> Supply and Fabrication of Structural steel – Supply, Fabrication, Welding & erection and Painting of structural steel IS:2062 E 250 (Fe410 W) or higher Grade A/B columns/ beams, angles, channels, Gate, inserts, gratings for weep holes including Preparation of all necessary fabrication drawings including bill of materials; supply of bolts, nuts, washers, shims, packs, gas, welding electrodes and all other consumables, as required all complete. The scope includes loading, transportation ,unloading and delivery at erection site of all fabricated structures, erection, alignment and welding of all structures true to line, level, plumb and dimension, including rectification if any, splicing, site assembly all as per technical specifications and drawings, use of all safety equipment, hydra crane, chain pulley blocks etc.; carrying out	0.5	MT	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

	<p>welding procedure/welder qualification tests; pug cutting/gas cutting; drilling holes of suitable size; supplying & providing erection and permanent bolts with nuts & washers all complete as per drawings and instructions of Engineer-in-Charge. Unit wt. will be considered as per BIS only. In case actual wt. is less than wt. as per BIS, then actual wt. will be considered for measurement. Painting scope shall include surface preparation to SA 2 ½ by Copper Slag Blasting; Supply & application of 1 coat of IZS Primer (65-75 microns DFT); Supply & application of HB MIO Epoxy intermediate coat of 100 micron DFT followed by Supply & application of two coats of Acrylic Modified 2 pack Polyurethane recoatable of 2 x 40 micron DFT. (Total:245 micron DFT). Quoted rates are deemed to include the entire scope as per item as described herein above.</p>			
<p>10B</p>	<p><u>Design and Approval of drawing for construction:</u></p> <p>Contractor to submit design for segregation of Storm water and effluent drain & ensuring discharge of storm water into nearest government drain without any water logging in the plant premises (Sugauli and Lauriya Plant). Job will include taking levels using auto level or total station with respect to existing benchmark of the total plant area and designing of drain invert level for flow due to gravity by maintaining proper slope and chambers wherever necessary for cleaning purpose. 20 % Payment will be disbursed on completion and submission of Road and drain levels. 20% Payment will be disbursed on completion and finalization of drain layout (Layout & depth of wall should be based on flow due to gravity). 20% Payment will be disbursed on approval of drain layout for construction and rest 40 % will be disbursed on successful testing of the drain where it should be strictly ensured to segregate effluent and storm water and no water logging should be observed in the plant premises.</p>	<p>1</p>	<p>LS</p>	<p>NOT TO BE QUOTED HERE (यहाँ कोट न करें)</p>

A	SUB TOTAL (BASIC PART - B)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
Taxes/Duties/ Levies (Extra if Any)		
B	GST @ _____ %	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
C	Any other _____ (Please write N/A if not applicable)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)
	GRAND TOTAL (a+b+c)	NOT TO BE QUOTED HERE (यहाँ कोट न करें)

Note: Vendor may quote for either or for both the Part.

Please Note: Part B shall be evaluated separately and independently for evaluating the successful bidder on this part. Tenderer to quote for all the items of this part and evaluation shall be done on overall basis which includes landed cost i.e including taxes, duties, levies etc. complete.

Note in case any of the above fields (i.e from “a” to “c”) is left blank without mentioning taxes, levies, duties component etc. then the applicable taxes, levies, duties, or any statutory charges if found applicable during the billing time shall be considered inclusive of the rate quoted by the tenderer and shall be borne by the tenderer. Please note no extra cost shall be re-imbursed to the contractor/supplier.

Evaluation shall be done on overall basis. The successful bidder shall be determined basis lowest landed cost to HBL which includes taxes, duties, levies etc. complete.

Bidders are advised to ensure that the Price Bid is quoted in the given format. Quoted price shall include Basic cost, packing charges, loading charges, Insurance, Freight, Third Party Inspection Charges and any other charges, if any.

Bidders have to ensure that Bid Price is not mentioned anywhere in the Techno Commercial bid, failing which the bid is liable to be rejected.

Please Note: The GST should be clearly mentioned in the above fields. In the event the GST/taxes fields are left blank then the Unit Rate quoted by the party shall be understood and shall be evaluated inclusive of all applicable taxes and Duties.

NOTE TO SCHEDULE OF QUANTITY (SOQ)

- (i) All mode of measurement shall be as per IS code if not specified in the SOR/SOQ.
- (ii) All Quality Assurance Plan and technical specifications will be followed as per IS code and CPWD if not specified in the SOR/SOQ/tender document.
- (iii) Detailed scope of work, supply of material, other technical specifications, requirements of relevant codes, SCC(special conditions of contract), GTC (general terms and conditions) and any other requirement to complete the work as per tender document and item description shall be deemed to be included in to SOR items and applicable quoted rates.
- (iv) For all SOR items, required machineries, equipment's for testing, inspection, fixtures, tools, tackles, consumables, supervision, labour (skilled/unskilled/semi-skilled) shall be included in quoted rates and supplied by contractor.
- (v) All materials and consumables required for completion of work in SOR item shall be included in contractor's scope. Any item covered in applicable standards and specifications shall be deemed to be included in SOR and shall be supplied by contractor. HBL shall not supply any material. Contractor shall supply cement, Sand, coarse aggregates, reinforcement steel, water and all other items required for the work.
- (vi) Quoted rates are deemed to include providing temporary openings wherever required for entry of rigs, men and materials and closure of Same after completion of works.
- (vii) For all SOR items, preparation of drawings wherever required and Bar bending schedule, job procedures, QAP, progress reporting, submission of all the above documents and obtaining approval from Hpcl, etc as applicable is deemed to be included in the scope of work and supply of the contractor.
- (viii) The electrical power and water required for the entire constructional activity and testing shall be arranged by the contractor only and quoted rates are deemed to include such cost.
- (ix) All tools, tackles, equipment's and items brought to site by the contractor will be permitted to be taken out upon completion of work and fulfillment of necessary formalities.

INSTRUCTION TO VENDOR

1) Taxes & Duties:

- a) Bidders to provide applicable GST rates separately in the space provided for the same.
- b) In case of any issues regarding HSN/SAC Code of the Material/Services being supplied, mentioned in tender, Bidder (s) to bring notice of the same to HBL within 4 Working Days' before Due Date and Time of the Tender.** Bidder to quote the applicable GST rates in priced Bid document provided for the same.
- c) In case of different rates of GST quoted by the vendors in priced bid, Corporation reserves the right to query on the same and adopt the correct classification and GST rate. The decision of Corporation in this regard will be final and binding on the vendor.
- d) The Vendor accepts full and exclusive liability for the payment of any and all applicable taxes (CGST, SGST, IGST, UTGST), levies and statutory payments payable under all or any of the prevailing Central/State statutes.
- e) The Vendor shall comply with all the provisions of the GST Act / Rules / requirements like providing of tax invoices, payment of taxes to the authorities within the due dates, filing of returns within the due dates etc. to enable HBL to take Input Tax Credit.
- In case of imports, vendor shall provide import documents and invoice fulfilling the requirement of Customs Act and Rules. Vendor will be fully responsible for complying with the Customs provisions to enable HPCL to take Input Tax Credit.
- In case, HPCL is not able to take Input Tax Credit due to any noncompliance/default/negligence of the seller of goods / service provider, the same shall be recovered from the pending bills/dues (including security deposit, BG etc.).
- Vendor shall be responsible to indemnify the Company for any loss, direct or implied, accrued to the Company on account of supplier/service provider failure to discharge his statutory liabilities like paying taxes on time, filing appropriate returns within the prescribed time etc.
- f) Every invoice of the vendor shall contain invoice number, date, GSTIN number and HSN/SAC code (Harmonized system of Nomenclature/service accounting code) for the items being supplied or services being provided along with tax rate.
- g) The Vendor shall mention their registration status (Registered / Composition / Unregistered) on the bill/invoice. In case there is change in the Registration status of the vendor during the execution of the contract the same should be advised immediately. Due to change in the Registration status from Composition to Registered vendor etc. Corporation will not be liable for any additional tax payments.
- h) GST (CGST/SGST/IGST/UTGST) as applicable shall be reimbursed for the supplies/services.
- i) Company will be liable to pay only those taxes and levies as indicated by vendor at the time of Price Bid submission/as agreed subsequently (prior to opening of priced bids).
- j) Any tax, levies or any other form of statutory levies or cost as on closing date of the tender will be treated as included in Priced bid. Taxes, Duties, and Levies not indicated by vendor in the unpriced Bid, but payable, shall be to Vendor's account.
- k) New taxes / change in tax rates / levies imposed by the Indian/State Governments through Gazette notification after the date of submission of last Price Bid but prior to Contractual Delivery Date, the Corporation shall reimburse/ adjust the increase/ decrease in taxes on satisfactory supporting documents being provided by the vendor.
- l) In case goods are not supplied/services not provided within the scheduled delivery period, then the increase in the statutory levies, if any, shall be on vendor's account.

2) GST Clause:

- In respect of the supplies covered by this tender, the 100% GST liability will be discharged by Vendor.
- Hence vendor should quote applicable GST separately and not as inclusive.
- In case, if bidder quotes the rate, '0 (zero)' for GST under "Tax element details", it would be considered that the bidder has included the total applicable GST in base rate and accordingly evaluation will be done.
- In case bidder quotes less than applicable GST rate, the quoted rate will be taken for evaluation and it will be assumed that bidder has included balance bidder's portion of GST in base rate.
- In case any bidder quotes more than applicable GST then such bidder has to submit documentary evidence in support along with bid, else HBL reserves the right to evaluate the bid at applicable GST rate.
- GST complaint invoice will be raised by the successful bidder.

3) Road Permit/Way Bill Clause

With affect from 1st Feb 2018 onward e-way bill shall be issued through national portal of GST E-Way bill website address. Kindly visit the below address for issuing E-way bill. <https://ewaybill2.nic.in/ewbnat3/>

4) GSTIN Number:

Vendor is required to provide the GSTIN number of state from where supplies will be made to each of the HPCL Biofuels Ltd delivery locations.

In case any changes are warranted during the execution of the contract with regard to change in state where delivery is required or change in the supply location of vendor, the same will be made with mutual consent.

****Unless otherwise specifically mentioned in HBL Tender Enquiry.**

1. When there is a difference between the rates in figures and words, the rate which corresponds to the amount worked out by the tenderer shall be taken as correct.
2. When the rate quoted by the tenderer in figures and words tallies but the amount is incorrect, the rate quoted by the tenderer shall be taken as correct.
3. When it is not possible to ascertain the correct rate in the manner prescribed above, the rate as quoted in words shall be adopted.

❖ NOTE:

1. The "commercial & Technical unpriced bid" in short shall be understood or called as "Unpriced bid" in tender.
2. Rates to be quoted in the "Priced Bid" form only. Priced Bids received in open/unsealed condition or with rate quoted in any unprescribed form other than the "Price Bid" form (enclosed) or in the Technical & Unpriced commercial bid" shall be summarily rejected.

Please mention whether your firm / company is registered in any of the following:

NSIC Unit (Y/N) : _____.

DGS&D Unit (Y/N) : _____.

PSE Unit (Y/N) : _____.

SSI/MSME (Y/N) : _____.

NOTES / TERMS / CONDITIONS:

KINDLY MENTION FOLLOWING CORRESPONDENCE DETAILS:

COMPLETE NAME OF CONTACT PERSON: _____

COMPLETE NAME OF FIRM: _____

CONTACT NO: _____ **E-mail id:** _____

FULL ADDRESS FOR CORRESPONDENCE: -----

❖ PLEASE NOTE:

- ❖ Please read the enclosed terms and condition carefully before quoting your rate and return the “Un-priced bid” and “Priced bid” duly signed and stamped on all pages of this tender along with enclosures within the specified due date and time of this tender.
- ❖ Note both “Un-priced bid” and “Priced bid” shall be enclosed in two separate envelopes duly mentioning “Un-priced bid” and “Priced bid” at the body of the respective envelopes. Both the envelopes is to be sealed and enclosed in another separate Envelope (big size) addressing to HPCL Biofuels Limited, Patna Office (as given above) and mentioning tender No and due date in the body of the big envelope and to be submitted within the specified due date & time of this tender.
- ❖ Please note in case the Priced bid is enclosed in the Un-priced bid envelope or along with un-priced bid documents or in the case if rates are quoted in the Un-priced bid then this bid in total shall be summarily rejected and shall not be considered for evaluation.
- ❖ Bids without seal and sign (both) will not be considered for evaluation and shall be liable for rejection.
- ❖ Incomplete and/or partially filled items of tender shall be liable for rejection.
- ❖ Rates must be clearly filled in ink neatly and over writing should be avoided.
- ❖ The above items should be strictly as per makes/specification specified against each & every item.
- ❖ Bidders have to submit sample before dispatch of materials if asked by HBL.
- ❖ **Every Consignment of should be strictly as per item Specifications any deviation with same shall be liable for rejection of entire lot.**

❖ REJECTION OF TENDERS:

Tenders will be rejected in the event of the bidders not complying with any of the following tender conditions:

- a) Tender without EMD
- b) Tenders incomplete in any respect or with any additions/ deletions or modifications in original tender document are liable to be summarily rejected without any further communication to the bidders and decision of OWNER in this regard will be final and binding.
- c) In case it is observed that all the bidders or a group of bidders have quoted in cartel, HPCL Biofuels Limited reserves the right to reject some or all the bids of the bidders who have quoted in cartel.
- d) OWNER reserve the right to accept or reject any or all the tenders in part or in totality without assigning any reason whatsoever.

❖ **EMD:- EARNEST MONEY DEPOSIT** of Rs. 3,00,000/- (Three Lakh Only) for Part-A of the tender, and Rs. 3,00,000/- (Three Lakh Only) for Part-B in form of account payee crossed Demand Draft, drawn in favour of HPCL Biofuels Ltd. payable at Patna of any schedule bank. Vendor quoting for both parts has to submit Rs. 6,00,000/- (Six Lakh Only). Tender without the valid EMD, will not be considered for evaluation. SSI/NSIC/MSME registered vendor shall be exempted from EMD. However vendor has to submit/enclosed the supporting documents.

❖ **EMD Details:** DD no. _____ Amount _____ Bank _____ Date _____

❖ **Exemption from EMD:**

Units registered with National Small Industries Corporation (NSIC) /Small Scale Industry (SSI)/ Micro and Small Enterprises (MSE) are exempted from payment of EMD subject to:

- Registration certificate being valid as on date of quotation.
- Technical Bid shall be accompanied by a photocopy of valid NSIC/SSI Registration Copy.
- Technical Bid Shall be accompanied by a photocopy of acknowledged copy of Entrepreneurs Memorandum Part-II (EM - II) for MSEs OR AADHAR UDYOG ACKNOWLEDGEMENT.
- The copy of Registration Certificates is required to be submitted along with tender documents.
- Photocopy of application for registration as NSIC / MSE or for renewal of NSIC will not be acceptable. Such offers will be treated as offers received without EMD.
- The EMD is liable to forfeited or parties who have opted for exemption from submitting the EMD , shall be barred for a period of one year from taking part in any tender floated by HBL in future, in the event of : Withdrawal of offers during the validity period of the offer. Non-acceptance of Orders, if and when placed.
- EMD will be refunded to all the unsuccessful tenderers after finalisation of the Tender. For successful tenderers, refund will be made only on payment of Security Deposit against LOI / PO, as placed. EMD shall not bear any interest and shall be refunded / paid by Cheque / e-payment.
- Tenders submitted without EMD and submission of EMD other than the above methodology / mode as above will be rejected.

❖ **SECURITY DEPOSIT:** Successful bidder has to submit security deposit of 1% of the Purchase Order Value in form of Demand Draft of any Scheduled (Other Than Co-operative Bank) Bank drawn in favor of **HPCL Biofuels Ltd, Patna**, and Payable at Patna.

The Security deposit shall be interest free and shall be refunded (interest free) to the supplier/vendor after 3 months from the date of successful completion of the contractual period/extended contractual period of the PO/order.

❖ **PREBID MEETING IS SCHEDULED TO BE HELD ON 22/10/2020 AT 1000 HRS AT HPCL BIOFUELS LIMITED ADDRESS AS MENTION BELOW.**

HPCL BIOFUELS LIMITED

INTEGRATED SUGAR, ETHANOL & COGEN PLANT

NEAR SUGAULI RAILWAY STATION

DIST: EAST CHAMPARAN (BIHAR), PIN - 845456

Mob : 7277705022

- ❖ Your sealed quotation (both priced & unpriced bids) should be submitted to this office on or before **06/11/2020 at 1430 Hrs.** The tenders (unpriced bids) received may be opened on the same day by 1530 Hrs. **Bidders and other interested bidders may witness the opening of the tender.**
- ❖ **The priced bid opening date and time of the technically qualified bidder/s shall be intimated later.**

RETENTION MONEY: As per GTC

Completion Period: - 3 (Three) Months

THREE Months from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.

LIQUIDATED DAMAGES AS PER CLAUSE THE GENERAL TERMS & CONDITIONS WILL BE APPLICABLE FOR THE JOB.

Break up of completion period for various structures shall be as follows:

- Submission of drawing for approval- 15 days from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.
- Completion of Civil Jobs and overall completion of job in all aspect- THREE (03) Months from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.
- Note: Delayed delivery clause shall be applicable basis time period given above

Payment terms: - As per the Special Conditions of the Contract (SCC)

Enclosures:

Price bid and Unpriced bid (Yes/No)
Detailed item Description / specifications (Yes/No)
Technical Terms and Conditions (Yes/No)
Commercial Terms and Conditions (Yes/No)
Special Terms and Conditions (Yes/No)
General Terms and Conditions (Yes/No)
Others: Scope of job (Yes/No)

Signature: _____.

Name: Atul Kumar

Designation: Assistant Manager-Purchase

CONTENTS ENCLOSED ALONGWITH THE TENDER

CONSTRUCTION OF STORM WATER DRAIN SYSTEM INCLUDING CIVIL WORKS AT HBL PLANTS SUGAULI, EAST CHAMPARAN & LAURIYA, WEST CHAMPARAN IN BIHAR STATE.

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CONDITIONS & INSTRUCTIONS TO BIDDERS

PART A

1. This is only a Tender Enquiry and not a Purchase Order.

2. HPCL Biofuels Limited (hereafter called HBL) whose registered office is situated at 1st Floor, Shree Sadan, Plot No. 09, Patliputra Colony, Patna, Bihar - 800013, A wholly subsidiary of Hindustan Petroleum Corporation Limited, Govt. of India Enterprise (hereafter called HPCL) invites this tender for CONSTRUCTION OF STORM WATER DRAIN SYSTEM INCLUDING CIVIL WORKS AT HBL PLANTS SUGAULI, EAST CHAMPARAN & LAURIYA, WEST CHAMPARAN IN BIHAR STATE. AS PER TENDER DOCUMENTS. Contractor shall be technically and financially competent to carry out the contract /supplies.

The tender should be submitted at **HPCL Biofuels Limited, 1st Floor, Shree Sadan, Plot No. 09, Patliputra Colony, Patna, Bihar - 800013**, by the due date and time, as specified in the tender. Late/ delayed tenders submitted after the due date and time, for whatsoever reasons will not be considered. Offers sent through telegram, fax, telex, e-mail will not be considered.

3. Partially completed / incomplete tenders shall not be considered.

4. Two Bid System

Bidders are required to submit offer in two parts, namely “Unpriced” & “Priced”.

The bid prepared by the **BIDDER** shall comprise of the following:

- Completed bid form and with complete details including the all schedules completed in accordance with the requirement.
- Documentary evidence established to the requirement of the relevant clause that the **BIDDER** is qualified to perform the contract if the bid is accepted.

The bid prepared by the **BIDDER** shall be in two (2) parts.

Part - I - Un-priced Bid

Part - II - Price Bid

PART - I - UNPRICED BID

Unpriced bid shall indicate the following to the extent applicable:

- Duly filled, signed and stamped on all pages complete bid tender document in acceptance of scope, specifications, terms and conditions.
- Duly filled, signed and stamped on all pages complete tender document. Without this tender shall be liable for rejection
- Assumption, Exception & Deviation if any on page in the bidder’s letter head.
- GST Registration Certificate

PART - II -PRICE BID

Should cover the bid price and other related costs in the attached format.

5.The price/discount to be quoted by the BIDDERS shall be in Indian rupees and the quotation shall be in accordance with the requirement of the relevant schedules in the bid specification. The price/discount quoted shall be inclusive of basic price, transportation, loading, unloading, all taxes and duties etc complete.

6. Sealing and Marking of Bid

- The BIDDERS are requested to seal their bid documents in (2) separate envelopes and all (2) shall be enclosed in one common envelope as below:
- The first envelope should contain two 1 set (One original) of technical bid/ unpriced bid. This envelope should be clearly marked “Unpriced Bid”

- c. The Second envelope should contain one original copy of price bid and should be clearly marked as “PRICE BID” and shall be addressed to the registered office of the PURCHASER (HBL).
- d. The Third big envelope should contain all the above (2) envelopes.
- e. All the envelopes shall bear the title, “Subject of enquiry, enquiry number, bid submission due date and brief description of the contents”.
- f. The name and address of the BIDDER shall be clearly marked on the envelope to enable the bid to be returned unopened in case it is declared "late".

7. Validity

Quoted prices shall be valid for a period of 90 days from the due date / extended due date for the placement of order.

8. HBL shall not be responsible for any postal or other delays in submitting tender bids wherever applicable.
9. Request for extension of tender submission due date, if any, received from bidders within 48 hours of tender submission due date / time, shall not be considered.
10. Tender opening (unpriced bid) will be done at the time and dates specified in the tender.
11. HBL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason. HBL reserves right to accept any or more tenders in part. Decision of HBL in this regard shall be final and binding on the bidder.
12. HBL shall follow Purchase Preference/ Price Preference as per prevailing guidelines of Government of India.
13. Since this tender is for standing order for jobs/supplies will be entrusted “as and when required basis”.
14. **Contract Period:** The contract shall remain in force for a period of 1 year from the date of PO or as specified in the order.

PART B

1.0 SITE VISIT

- 1.1 The bidder is advised to visit and examine the site of works/supplies at all HBL plants and their surrounding and obtain for himself on his own responsibility all information that may be necessary for preparing of the bid and entering into the contract. The cost of visiting the sites shall be at bidder’s own expenses. No extra claim on account of non-familiarity of site conditions shall be entertained during execution of works.
- 1.2 The bidder and any of his personnel or agents will be granted permission by the Owner to enter upon his premises and lands for the purpose of such inspection, but only upon the explicit condition that the bidder, his personnel or agents will release and indemnify the Owner and his personnel and agents from and against all liability in respect thereof and will be responsible for personnel injury (whether fatal or otherwise), loss of or damage and expenses incurred as a result hereof.
- 1.3 To address and clarify doubts and queries of the bidders a prebid meeting may scheduled, if required, at HPCL Biofuels Limited Office, 1st Floor, Shree Sadan, Plot No. 09, Patliputra Colony, Patna, Bihar - 800013 at 1000 hrs.

2.0 INFORMATION REQUIRED WITH BIDS

The following details are required to be submitted in one original + 01 (One) copies along with offer:

- a) Power of Attorney in the name of person who has signed the bid.

b) List of Exception & Deviation, if any. In case of no deviation the bidder shall furnish the same duly signed & stamped. Also in case no such list is provided then it will be construed that the bidder has agreed the tendered terms and conditions without any deviations.

d) Schedule of Rates, duly signed & stamped keeping rates & amount blank.

3.0 SUBMISSION AND OPENING OF BID

3.1 This is only a Price Enquiry (Invitation to Offer) and not an Order.

3.2 The bidder shall take utmost care of the following:

The Bid shall be submitted in two parts namely, UNPRICED and PRICED Part, respectively.

Unpriced Part/bid will be opened by HBL as per the due date and time mentioned in notice /tender in the presence of Bidders. The Priced part of the Offer of technically qualified bidders will be subsequently opened at a later date or as per date advised subsequently.

4.0 VALIDITY OF OFFER

4.1 Bid submitted by Bidder shall remain valid for a minimum period of 90 days from the date of submission of Bids. Bidders shall not be entitled during the said period of 90 days, without the consent in writing of the Owner (HBL), to revoke or cancel their Bid or to vary the Bid given or any term thereof. In case of Bidders revoking or canceling their Bid or varying any of the terms in regard thereof without the consents of Owner in writing, Owner shall reject such Offers and forfeit Earnest Money (if any) paid by them along with their offers.

4.2 Bidders are advised to refrain from contacting by any means HBL and/or their employees / representatives on their own, on matters related to Bids under consideration. HBL, if necessary, will obtain clarification on the Bid by requesting for such information/clarifications from any or all Bidders, either in writing or through personnel contact. Bidders will not be permitted to change the substance of Bids after opening of Bids.

4.3 Notwithstanding sub-clauses 4.1 and 4.2 above, HBL may solicit the bidder's consent to an extension of the period of validity of offer. The request and the response there to shall be made in writing. If the bidders agree to the extension request, the validity of Bank Guarantee towards Earnest money (if any) shall also be suitably extended. Bidders may refuse the request without forfeiting his EMD. However, bidders agreeing to the request for extension of validity of offer will neither be permitted to revise the price nor to modify the offer.

5.0 BID CLARIFICATIONS/AMENDMENTS BY HBL

5.1 HBL may issue clarifications / amendments in the form of addendum/ corrigendum during the bidding period and may also issue amendments subsequent to receiving the bids. For the addendum/corrigendum issued during the bidding period, bidders shall confirm the inclusion of addendum/corrigendum in their bid. Bidder shall follow the instructions issued along with addendum/ corrigendum.

5.2 Bidders shall examine the Bidding Document thoroughly and submit to HBL any apparent conflict, discrepancy or error. HBL shall issue appropriate clarifications or amendments, if required. Any failure by Bidder to comply with the aforesaid shall not excuse the Bidder from performing the Services in accordance with the contract if subsequently awarded.

6.0 CONFIDENTIALITY OF DOCUMENTS

Bidder shall treat the Bidding Document and contents therein as private and confidential and shall not use the Bidding Document for any other purposes.

7.0 APPLICABLE LANGUAGE

The bid prepared by the bidder, all correspondences and documents related to this bid shall be written in English language only. For document submitted in any other language, an English translation shall also be submitted, in which case, for the purpose of interpretation of the bid, the English translation shall govern.

8.0 CAUTION AND DISCLAIMER

Transfer of Bid document by the bidder is not permitted.

Bidder shall make his own interpretation of any and all information provided in the Bidding Document. HBL shall not be responsible for the accuracy or completeness of such information and/or interpretation.

Although certain information's are provided in the Bidding Document, however, bidder shall be responsible for obtaining and verifying all necessary data and information as required by him.

HBL reserves the right to accept or reject any/all tender in whole or in part without assigning any reason whatsoever.

HBL shall not be bound to accept the lowest tender and reserves the right to accept any or more tenders in part. Decision of HBL in this regard shall be final.

9.0 EVALUATION OF UNPRICED BIDS

The bids shall be evaluated on the basis of the following criteria:

9.1 RECEIPT OF BID

Bids received late i.e. after due date and time, due to any reason (s) whatsoever shall be rejected.

9.2 DEVIATIONS TO TENDER REQUIREMENTS

9.2.1 The bidders are required to submit offers strictly as per the terms and conditions/specifications given in the Bidding Document and not to stipulate any deviations. The offer of bidders stipulating deviations to any of the following terms/conditions will not be considered for priced bid opening. However, HBL reserves the right to give opportunity to bidder for withdrawal of deviation to the following clauses. In case, bidders refuse to withdraw the deviation against following clauses, the offers shall be rejected without any further correspondence with them

- i) Security Deposit
- ii) Delayed Delivery
- iii) Scope of tender/Supply
- iii) Schedule of Rates
- iv) Validity of offer
- v) Arbitration
- vi) Deviation in payment terms
- vii) Deviation in delivery period as per callup

9.2.2 In case Bidders wish to stipulate any deviation to Bidding Document requirements other than those stated above, they shall indicate the same as per the proforma enclosed in the Bidding Document. Bidder shall note that clarification/queries/deviations mentioned elsewhere in the offer shall not be given any cognizance. However HBL reserves their right to reject bids containing deviations to any of the Bidding Document stipulations.

9.3 UNSOLICITED POST BID MODIFICATION

Bidders are advised to quote strictly as per terms and conditions of the Bidding Document and not to stipulate any deviation / exceptions. Once, quoted the bidders shall not make any subsequent price changes, whether resulting or arising out of any technical / commercial clarifications sought/allowed on any deviations or exceptions mentioned in the bid unless discussed and agreed by HBL in writing.

9.4 DETERMINATION OF RESPONSIVENESS

- i) Prior to the financial evaluation of bids, the HBL will determine whether each bid is substantially responsive to the requirements of the Bidding Document.
- ii) For the purpose of this Clause, a substantially responsive bid is one which conforms to all the terms and conditions and specifications of the Bidding Document without material deviation or reservation. A material deviation or reservation is one which affects in any substantial way the scope, quality, or performance of the works or which limits in any substantial way, inconsistent with the Bidding Document, the HBL's rights or Bidder's obligation under the Contract and retention of which deviation or reservation would affect unfairly the competitive position of other bidders presenting substantially responsive bids.
- iii) If a bid is not substantially responsive to the requirements of the Bidding Document, it may be rejected by the HBL. Such rejection may be intimated to the Bidder.

10.0 EVALUATION OF PRICE BIDS

10.1 The "PRICE BIDS" of only substantially responsive bidders and techno – commercially accepted shall be considered for opening.

10.2 Bidders shall quote the prices in Indian Rupees only.

10.3 The quoted prices shall be checked to determine the arithmetical correctness of the same.

10.4 HBL reserves their right to extend purchase/price preference to NSIC/Public Sector Enterprises as admissible under the existing policies of Government of India as on the date of opening unpriced bids.

10.5 HBL reserves their right to negotiate the quoted prices with lowest bidder.

10.6 HBL reserves the right to delete any of the items in the Schedule of Rates at the time of placement of Fax of Intent/Purchase Order. The decision of HBL shall be final and binding.

10.7 The Contractor shall quote for all the items of the Schedule of Rates. It may be noted that if any item is left unquoted, then such a quotation will be loaded with the highest quoted rate for that particular item for evaluation purpose.

10.8 The bids shall be evaluated on a consolidated basis for all Sections.

10.9 EVALUATION CRITERIA:

Evaluation will be done inclusive of all taxes as under:

Registered Vendors: The tax liability will be borne by the vendor and the same shall be considered for the purpose of evaluating the bid.

Unregistered vendors: The tax liability will be borne by HPCL Biofuels Ltd under reverse charge and the same shall be loaded for the purpose of evaluating the bid.

Vendors under composition scheme: The rate is considered to be inclusive of all taxes and no separate tax shall be billed to HPCL Biofuels Ltd and the bid shall be accordingly evaluated.

For this purpose vendor should give status whether Registered, Unregistered or Composition Scheme.

In case of different rates of GST quoted by the vendors, Company reserves the right to query on the same and adopt the correct classification and GST rate. The decision of Company in this regard will be final and binding on the vendor.

For imports, all relevant costs/taxes (as mentioned elsewhere in the tender documents) will be included for the purpose of evaluation.

11.0 REBATE

No suo-moto reduction in prices quoted by bidder shall be permitted after opening of the bid. If any bidder unilaterally reduces the prices quoted by him in his bid after opening of bids, the bid (s) of such bidder(s) will be liable to be rejected. Such reduction shall not be considered for comparison of prices but shall be binding on the bidder in case he happens to be a successful bidder for award of work.

12.0 PURCHASE ORDER (PO)

12.1 Purchase Order shall be prepared for award of works/supply contracts. Successful bidder shall be intimated regarding award of works through Fax/Letter of Intent. Until the final PO is prepared and executed, this Bidding Document together with the annexed documents, modification, deletions agreed upon by the HBL and Bidder's acceptance thereof shall constitute a binding contract between the successful bidder and the HBL based on terms contained in the aforesaid documents and the finally submitted and accepted prices.

12.2 The Purchase Order shall consist of the following:

- a) Original Bidding Document along with its enclosures issued.
- b) Addendum/Corrigendum to Bidding Document issued, if any.
- c) Fax/Letter of Intent.
- d) The detailed Letter of Award/Acceptance along with Statement of Agreed Variations (if any) and enclosures attached therewith.

12.3 The statement of agreed variations shall be prepared based on the finally retained deviations, if any, by the Bidder and accepted by HBL. All other correspondences between HBL and the Bidder prior to issue of Fax/Letter of Intent shall be treated as Null & Void. Any deviations or stipulations made and accepted by HBL after award of the job shall be treated as amendments to the contract document as above.

13.0 Contractor shall visit the sites before quoting to familiarise themselves with the scope of work and also to acquaint themselves with the working conditions, safety precautions to be observed etc. No claims for additional payment will be entertained at later date. The HBL Plant addresses is as follows :

SUGAULI UNIT:

HPCL BIOFUELS LIMITED HPCL BIOFUELS LIMITED
INTEGRATED SUGAR, ETHANOL & COGEN PLANT
NEAR SUGAULI RAILWAY STATION
DIST: EAST CHAMPARAN (BIHAR), PIN – 845456

LAURIYA UNIT:

HPCL BIOFUELS LIMITED HPCL BIOFUELS LIMITED
INTEGRATED SUGAR, ETHANOL & COGEN PLANT
LAURIYA-BAGAHA ROAD, THANA - LAURIYA
DIST: WEST CHAMPARAN (BIHAR), PIN - 845453

SPECIAL CONDITIONS OF THE CONTRACT (SCC)

1. COMPLETION PERIOD: 3 (THREE) MONTHS

It shall be defined as below: (To be read together with General terms & Conditions) THREE Months from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.

LIQUIDATED DAMAGES AS PER CLAUSE THE GENERAL TERMS & CONDITIONS WILL BE APPLICABLE FOR THE JOB.

Break up of completion period for various structures shall be as follows:

Submission of drawing for approval- 15 days from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.

Completion of Civil Jobs in all aspect - THREE Months from the date of receipt of LOI / PO or the date of advice to start the work by Site-in-charge whichever is later.

Note: Delayed delivery clause shall be applicable basis time period given above

RA Bills:

The payments shall be made against monthly R.A. Bills by e-payment from Patna, however more than one R.A. Bill per month may be considered provided the bill value exceeds Rs.30 Lakhs. (To be read together with clause of general terms & Conditions)

Defects liability Period: 12 months from the date of completion of the entire job. (To be read together with General terms & Conditions)

Water: Water shall be arranged by contractor at his own cost. Water will not be provided by HBL.

Power: Contractor has to arrange for power required for lighting / fabrication etc. on his own and all deposits for connections / meters etc. for this purpose shall be borne by contractor.

Labor: The contractor shall make all necessary arrangements for workers and their rest, accommodation at his own cost.

Time Extension: Time extension, if required on any account will have to be brought to the notice of HBL at least one month in advance from date of scheduled job completion with proper details. (To be read together with clause of General terms & Conditions)

The site will be offered on AS IS WHERE IS for the execution of this job. HBL will not provide any Roads, infrastructure such as water, power, lighting, security etc., at Site. Vendor has to make their own arrangements for Transportation of Material, Movement of heavy equipment at site.

REPORT OF ACCIDENT: In case of any accidents, the contractor shall report the incident as required by Factories rules to the concerned authorities. He will be fully responsible for the same including any expenses for medical treatment or compensation or any other charges required to be borne.

2. TENDER QUANTITIES:

Tender quantities appearing in the schedule of rates are only indicative quantities. Exact quantities of each item shall be ascertained by the Contractor and approved by HBL. Only such ascertained quantities shall be procured /executed. The contractor shall obtain necessary approvals before any quantity is brought to site. For getting approval, he shall submit break-up of quantities.

Bidders are advised to visit site where various works are in progress to assess the site condition. They are free to study the earth profile for clear information on the item of excavation, through test pits or by seeing the soil / weathered stone layers at site.

Safe working / Permit System:

Contractor shall ensure that all the workmen are well equipped with Safety Helmets, Shoes during working

Hours and permits if required shall be taken well in advance.

Cement:

Cement required for construction shall be arranged by the contractor at his own cost. The approved Brand names are given in the Technical conditions of the contract. For all computation purposes, the theoretical cement consumption shall be considered as per CPWD standards and as per the approved design-mix as the case may be.

Contractor shall be required to maintain a stock register for receipt, issue & daily consumption of cement at site. Cement not consumed within three months after bringing to site shall not be used & shall be removed from site with prior permission of Site-in-charge.

All running bills as well as Final bills will be accompanied by Cement Consumption Statements giving detailed working of cement used.

Contractor shall construct a temporary go down at site for storage of cement & shall be fully responsible for the safe custody of cement. The contractor shall not remove from the site any cement bag at any time.

The Penal rate for any under consumption of cement shall be Rs.15000 per MT.

EVALUATION CRITERIA:

The evaluation of this tender will be overall lowest L1 basis.

Performance Bank Guarantee:

As per GTC, Original PBG for defect liability period (If vendor chose not to deduct 10% retention) to be submitted at Purchase dept, Patna and copy at site.

Bidders to note that the drawings, area and scope of work provided in this tender are tentative and for reference purpose only. Approved for construction (AFC) final drawings & floor plan shall be issued to the successful bidder.

DEFECTS LIABILITY PERIOD: As per GTC

3. PAYMENT TERMS:

ITEM NO.	ITEM DESCRIPTION	BREK-UP
1	RCC items	Completion of work: 65% Testing & acceptance: 30% Completion of all works: 5%
2	Steel Reinforcement and Cement	<ul style="list-style-type: none">70% on supply of material with MTC & Test certificate (If material invoice value is less than 70%, lesser will be paid)25% on completion of bar binding of RCC work5% after completion of all works
3	Steel structural & fencing works	<ul style="list-style-type: none">70% on supply of material with MTC & Test certificate (If material invoice value is less than 70%, lesser will be paid)15% on completion of Fabrication work10% on erection & painting works5% after completion of all works
4	All other items	<ul style="list-style-type: none">95 % on completion of respective items5 % on completion of entire work

NOTE: Decision of site in-charge in deciding the items on which partial release shall be applicable, will be final

RETENTION MONEY: As per GTC

Offers received from following vendors shall not be considered for evaluation and shall be rejected:

- Bidder whose Purchase Order was terminated by HBL/HPCL.
- Bidder who has been Black-listed or Holiday listed by HBL/HPCL or by any other Public Sector Undertaking/Enterprise/Government Organization as on due date for this Tender.

VENDOR SHALL READ ALL THE BELOW DETAILS CAREFULLY:

GENERAL

Special Conditions of Contract (SCC) shall be read in conjunction with the General Conditions of Contract (GTCC) also referred to as General Terms & Conditions of Works Contract, Schedule of Rates, specifications of work, drawings and any other document forming part of this Contract wherever the context so requires.

Notwithstanding the sub-division of the document into these separate sections and volumes, every part of each shall be deemed to be supplementary of every other part and shall be read with and into the Contract so far as it may be practicable to do so.

Where any portion of the GTCC is repugnant to or at variance with any provisions of the Special Conditions of Contract, then unless a different intention appears, the provision(s) of the Special Conditions of Contract shall be deemed to override the provision(s) of GTCC only to the extent that such repugnance's or variations in the Special Conditions of Contract are not possible of being reconciled with the provisions of GTCC.

Wherever it is stated in this Bidding Document that such and such a supply is to be affected or such and such a work is to be carried out, it shall be understood that the same shall be affected and/or carried out by the Contractor at his own cost, unless a different intention is specifically and expressly stated herein or otherwise explicit from the context. Contract Price shall be deemed to have included such cost.

The materials, design & workmanship shall satisfy the applicable relevant Indian Standards, the job specifications contained herein & codes referred to. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied. In the absence of any Standard / Specifications / Codes of practice for detailed specifications covering any part of the work covered in this bidding document, the instructions / directions of Engineer-in-Charge will be binding upon the Contractor.

In case of contradiction between relevant Indian standards, GTCC, Special Conditions of Contract, Specifications, Drawings and Schedule of Rates, the following shall prevail in order of precedence.

- i. Detailed Purchase Order along with Statement of Agreed Variations, if any, and its enclosures.
- ii. Schedule of Rates with Quantities.
- iii. Fax of Intent (FOI)/Letter of Intent (LOI) iv) Drawings/ Data Sheets
- iv. Scope of Work
- v. Standard Specifications
- vi. Special Conditions of Contract
- vii. General Conditions of Contract
- viii. Instructions to Bidders
- ix. Relevant Indian Standards/ Specifications.

SAFETY, FIRE FIGHTING AND SPECIFIC REQUIREMENTS OF HBL

Contractor shall supply a minimum of eight Nos. IS Stamped DCP Fire extinguishers, Eight Nos. fire buckets with sand to fight any fire arising at Site. These items can be taken back by the Contractor after completion of work. In case of damage to any of the above items, Contractor shall arrange for replacement/

repair within 48 hours. Sand shall also be maintained dry by the Contractor with fresh supply, whenever required.

Safety Helmets shall be provided to all the members of Fabrication, Welding, Erection and Painting Gang by the Contractor. Shoes and Gloves shall also be provided in adequate number by the Contractor.

Safety Belts and Harnesses shall be provided by the Contractor in adequate number for the workers working at heights.

All Diesel driven equipment shall be provided with proper Flame Arrestors, Mufflers, etc as applicable.

Proper earthing shall be provided for all welding equipment's and generators.

THE WORK

Scope of Work & Scope of Supply: The scope of work and Scope of Supply covered in this Contract will be as described in Scope of work for respective sections, Job Specifications, Standard Specifications, Drawings, and Schedule of Rates etc.

4. Time Schedule

Time is the essence of this Contract. The period of completion given includes the time required for mobilization as well as testing, rectifications, if any, retesting, demobilization and completion in all respects to the satisfaction of the Engineer-in-Charge.

A joint programme of execution of work will be prepared by the Engineer-in-Charge and Contractor. This programme will take into account the time of completion period of the Contract.

Monthly/weekly execution programme will be drawn up by the Engineer-in-Charge jointly with the Contractor based on availability of materials, work fronts and the joint programme of execution as referred to above. The Contractor shall scrupulously adhere to the Targets / Programmes by deploying adequate personnel, Construction Equipment, Tools and Tackles and also by Timely Supply of required materials coming within his scope of supply as per Contract. In all matters concerning the extent of target set out in the weekly / monthly programme and the degree of achievement, the decision of the Engineer-in-Charge will be final and binding upon the Contractor.

Contractor shall give every day category-wise labour and equipment deployment report along with the progress of work done on previous day in the proforma prescribed by the Engineer-in-Charge.

Measurement of Works

Mode of measurement will be as specified in Specifications or SOR.

Payment Terms

Please refer Payment Break-up and General Terms & Conditions of works Contract for payment terms.

Temporary Works

All temporary works, enabling works, including dewatering of surface and subsoil water, preparation and maintenance of temporary drains at the work site, preparation and maintenance of approaches to working areas, wherever required, for execution of the work, shall be the responsibility of the Contractor and all costs towards the same shall be deemed to have been included in the quoted prices.

5. Quality Assurance

Detailed quality assurance programmed to be followed for the execution of Contract under various divisions of works will be submitted by the contractor for HBL approval.

The Contractor shall establish, document and maintain an effective quality assurance system as outlined in the specifications and various codes and standards.

Quality Assurance System plans / procedures of the Contractor shall be furnished in the form of a QA manual. This document should cover details of the personnel responsible for the quality assurance, plans or procedures to be followed for quality.

The Owner or their representative shall reserve the right to inspect/witness, review any or all stages of work at shop/site as deemed necessary for quality assurance and / or timely completion of the work.

The Contractor has to ensure the deployment of quality Assurance and Quality Control Engineer(s). This QA / QC group shall be fully responsible to carry out the work as per standards and all codes requirements. In case Engineer-in-Charge feels that Contractor's QA/QC Engineer(s) are incompetent or insufficient, Contractor has to deploy other experienced Engineer(s) as per site requirement and to the full satisfaction of Engineer-in-Charge.

*In case Contractor fails to follow the instructions of Engineer-in-Charge with respect to above clauses, **next payment due to him shall not be released unless and until he complies with the instructions to the full satisfaction of Engineer-in-Charge.***

Leads

For the various works, in case of contradiction, leads mentioned in the Schedule of Rates shall prevail over those indicated in the Technical specifications.

ROYALTY

Proof of royalty payments, wherever applicable, shall be furnished by the Contractor to HBL along with the RA Bills. Royalty shall be applicable for sand, murrum/earth, bricks and aggregates.

6. PROVIDENT FUND, LABOUR, LABOUR LAWS AND SITE REQUIREMENTS

The Contractor shall strictly comply with the provisions of Employees

Provident Fund Act and register himself with Regional Provident Fund Commissioner (RPFC) before commencing work. The Contractor shall deposit Employees and Employers contributions to the RPFC every month. The Contractor shall furnish along with each Running bill, the challan / receipt for the payment made to the RPFC for the preceding month. The Contractor shall furnish the code number allotted by the RPFC Authority to the Engineer-in-Charge before commencing the work. In case, these details are not furnished for a particular Bill then, HBL will Hold 12 % of RA Bill till such time requisite details are furnished.

Labour License

Before starting of work, Contractor shall obtain a license from concerned authorities under the Contract Labour (Abolition and Regulation) Act 1970, and furnish copy of the same to Owner.

Labour Relations

In case of Labour unrest/Labour dispute arising out of non-implementation of any law, the responsibility shall solely lie with the Contractor and he shall remove/resolve the same satisfactorily at his cost and risk.

The Contractor shall at all times take all reasonable precautions to prevent any unlawful, riotous or disorderly conduct by or amongst his staff and labour and to preserve peace and protection of persons and properly in the neighborhood of the Works against such conduct.

Employment of Labour

The Contractor shall not recruit personnel of any category from among those who are already employed by other agencies working at site.

Site Cleaning

The Contractor shall clean and keep clean the work site from time to time to the satisfaction of the Engineer-in-Charge for easy access to work site and to ensure safe passage, movement and working.

The Contractor shall dispose off the unserviceable materials, debris etc., to the earmarked area within the terminal premises as decided by the Engineer-in-Charge. No extra payment shall be paid on this account.

HBL Review/Approval of Drawings, Design and other documents submitted by Contractor

HBL will normally require and utilize a maximum time frame of seven (07) working days from the date of Receipt for Review/Approval of Drawings, Design and other documents submitted by Contractor. Upon Review of the submitted documents, HBL may give their comments and ask for redesign/ resubmission after necessary rectifications/ modifications and the time frame of 7 working days will be applicable for same.

7. Protection of Existing Facilities

Contractor shall obtain all safety clearance (viz. Excavation, Hot/Cold work permit) from the Owner, as may be required from time to time, prior to start of work.

Contractor shall obtain plans and full details of all existing and planned underground services from the relevant Deptt. Of Owner and shall follow these plans closely at all times during the performance of work. Contractor shall be responsible for location and protection of all underground lines and structures at his own cost.

Despite all precautions, should any damage to any structure / utility etc. occur, the Contractor shall contact the Owner / authority concerned and Contractor shall forthwith carry out repair at his expenses under the direction and to the satisfaction of Engineer-in-Charge and the Owner/concerned authority.

Contractor shall take all precautions to ensure that no damage is caused to the existing pipelines, cables etc., during construction. Existing structures, existing stone pitching and other stabilization measures damaged / disturbed during construction shall be repaired and restored to their original condition by Contractor after completion of construction to the complete satisfaction of Owner.

Contractor shall in consultation with Owner and the concerned authorities, take adequate measures for strengthening the existing electric poles, telephone poles etc in the proximity of proposed Construction works. Contractor shall take adequate protective measures to prevent damage to these facilities during construction. Contractor shall have to adopt such method of construction as will be suitable for working in these areas using the limited space available and without causing any damage to these facilities. Contractor shall be deemed to have taken cognizance of all such constraints, etc. while working in this area and Contractor shall not be entitled to claim any extra at a later stage.

Work Front

The work involved under this Contract may include such works as have to be taken up and completed after other agencies have completed their jobs. The Contractor will be required and bound to take up and when the fronts are available for the same and no claim of any sort whatsoever shall be admissible to the Contractor on this account. Only extension of time limit shall be admissible, if the availabilities of work

fronts to the Contractor are delayed due to any reason not attributable to the Contractor and the same are clearly recorded.

8. Site Facilities

The Contractor shall arrange for the following facilities at site, for workmen deployed/engaged by him at his own cost:

- i) Arrangement for First Aid.
- ii) Arrangement for clean & potable drinking water.
- iii) A crèche where 10 or more women workers are having children below the age of 6 years.
- iv) Any other facility/utility as may be required under the Contract as per the existing legislation.

9. Contractor's Site Office and Stores

Owner shall provide land only for contractor's site office and stores and fabrication yard, if any at site. However, same shall be dismantled prior to submission of Final Bill.

The Contractor shall make his own arrangement as required by him for his Camp Facilities/Residential Accommodation, labour colony etc. Labour camps will not be permitted inside the premises.

The Contractor shall remove all temporary buildings / facilities etc., before leaving the site after completion of works in all respect.

10. Construction Power and Water

Owner shall not provide power and the Contractor shall be exclusively responsible to make his own arrangements for supply of power, without any extra cost to the Owner.

Water required for the works shall be arranged by the Contractor. The contractor has to make all necessary arrangement for drawing water including making temporary storage, pumping etc.

Based on Contractor request, HBL may permit Contractor to open a Borewell for water at his own cost.

Construction

Rules and Regulations

Contractor shall observe in addition to Codes specified in respective specification, all national and local laws, ordinances, rules and regulations and requirements pertaining to the work and shall be responsible for extra costs arising from violations of the same.

Procedures

Various procedures and method statements to be adopted by Contractor during the construction as required as per the respective specifications shall be submitted to Engineer-in-Charge in due time for approval.

Security

Entry into the Depot area shall be restricted and may be governed by issue of photo gate passes. The Contractor shall arrange to obtain through the Engineer-in-Charge, well in advance, all necessary entry permits/gate passes for his staffs and labourers and entry and exit of his men and materials shall be subject to vigorous checking by the security staff. If required, Police verification for the labourers and staff shall be arranged by the Contractor.

Drawings and Documents

Drawings accompanying the Bidding Document are indicative of scope of work and issued for bidding purpose only. Purpose of these drawings is to enable the tenderer to make an offer in line with the requirements of the owner.

The contractor as per 'scope of work' shall carry out preparation of detailed and working drawings. Detailed construction layout drawings as needed shall be prepared by contractor and got reviewed by Engineer-in-Charge before taking up the work.

11. Survey and Level/Setting Out Work

The Engineer-in-Charge shall furnish the relevant existing grid point with Bench Mark on the land. It shall be Contractor's responsibility to shift the existing benchmark to his work site to set out the necessary control points and alignment of the various works. The Contractor shall have to employ efficient survey team for this purpose and the accuracy of such setting out works shall be the Contractor's sole responsibility.

The Contractor shall at his own expense provide all assistance, which the Engineer-in-Charge may require for checking the setting out of works.

The Contractor shall be entirely responsible for the horizontal and vertical alignment, the level and correctness of every part of the work and shall rectify any errors or imperfections therein. The Contractor at his own cost shall carry out such rectifications, when instructions are issued to his effect by the Engineer-in-Charge or his representative.

Checking of Levels

Contractor shall be responsible for checking levels / orientation / alignment of all foundations, bolts, supports, structures etc. well in advance of taking up erection work, and bring to the notice of Engineer-in-Charge, discrepancies, if any. Necessary rectifications on account of any minor variations shall be carried out by the Contractor within the contracted rates.

Construction Equipment & Mechanization of Construction Activities

The Contractor shall without prejudice to his overall responsibility to execute and complete the work as per specifications and Time Schedule, progressively deploy adequate equipment, and tools & tackles and augment the same as decided by the Engineer-in-Charge depending on the exigencies of the work so as to suit the construction schedule. The Owner shall supply no construction Equipment, Contractor to ensure deployment of suitable cranes (if required), other tools & tackles and take all safety precautions during execution of work.

The Contractor shall mechanize the construction activities to the maximum extent by deploying all necessary construction equipment / machinery in adequate numbers and capacities.

Contractor's Billing System

HBL will provide an approved format for Measurement sheets, Bill Summary and Bill Abstract. Contractor has to ensure that these data are updated for each subsequent RA and Final Bill. Contractor has to capture measurements, Abstract and Bill on format provided by HBL on PC. HBL will utilize these data for processing and verification of the Contractor's bill.

Contractor's RA Bills shall be accompanied by progress photographs.

Site Organization

The Contractor shall without prejudice to his overall responsibility to execute and complete the works as per specifications and time schedule progressively deploy adequate qualified and experienced personnel together with skilled / unskilled manpower and augment the same as decided by Engineer-in-Charge depending on the exigencies of work to suit the construction schedule without any additional cost to Owner.

The Contractor shall provide all necessary superintendence during the execution of the Works and as long thereafter as the Engineer-in-Charge may consider necessary for the proper fulfilling of the Contractor's obligations under the Contract. Such superintendence shall be given by sufficient persons having adequate knowledge of the operations to be carried out (including the methods and techniques required, the hazards likely to be encountered and methods of preventing accidents) for the satisfactory and safe execution of the Work. The workmen deployed by the Contractor should also possess the necessary license etc., if required under the existing laws, rules and regulations.

Additional / Extra Works

Owner reserves the right to execute any additional works / extra works, during the execution of work, either by themselves or by appointing any other agency, even though such works are incidental to and necessary for the completion of works awarded to the Contractor.

Responsibility of Contractor

It shall be the responsibility of the contractor to obtain the approval for any revision and/or modifications decided by the contractor from the Owner / Engineer-in-Charge before implementation. Also such revisions and / or modifications if accepted / approved by the Owner / Engineer-in-Charge shall be carried out at no extra cost to the owner. Any change required during functional requirements or for efficient running of system, keeping the basic parameters unchanged and which has not been indicated by the contractor in the data / drawings furnished along with the offer shall be carried out by the contractor at no extra cost to the owner.

All expenses towards mobilization at site and demobilization including bringing in construction equipments, work force, materials, demobilising the equipment, clearing the site etc. shall be deemed to be included in the prices quoted and no separate payments on account of such expenses shall be entertained.

It shall be entirely the contractor's responsibility to provide, operate and maintain all necessary construction equipment, steel scaffoldings and safety gadgets, cranes and other lifting tackles, tools and appliances to perform the work in a workman like and efficient & safe manner and complete all the jobs as per time schedule.

Preparing approaches and working area for the movement and operation of the lifting equipments, levelling the areas for assembly and erection shall also be responsibility of the contractor. The contractor shall acquaint himself with access availability facilities, local labour etc. to provide suitable allowances in his quotation. The contractor may have to build temporary access roads to aid his own work, which shall also be taken care of while quoting for the work.

The procurement and supply in sequences and at the appropriate time of all materials, and consumables shall be entirely the contractor's responsibility and his rates for execution of work will be inclusive of supply of all these items.

12. Coordination with other agencies

Contractor shall be responsible for proper coordination with other agencies operating at the site of work so that work may be carried out concurrently, without any hindrance to others. The Engineer – in – Charge shall resolve disputes, if any, in this regard, and his decision shall be final and binding on the Contractor.

Underground and overhead structures

The Contractor will familiarize himself with and obtain information and details from the Owner in respect of all existing structures, overhead lines, existing pipelines and utilities existing at the job site before commencing work. The Contractor shall execute the work in such a manner that the said structures, utilities, pipelines etc. are not disturbed or damaged, and shall indemnify and keep indemnified the Owner from and against any destruction thereof or damages thereto.

Statement of final bills – issue of No Claim/ No Due Certificate

The Contractor shall furnish a No - Claim/No- Due declaration indicating that there are no balance dues to his sub-vendor/sub-contractors along with the Final Bill.

Working hours

Normal working hours shall be from 0900 hrs to 1730 hrs on all days except Sundays and holidays. However, HBL may permit the Contractor to carry out work on extended hours and on Sundays/holidays subject to the following:

- Request from Contractor
- Observing all required safety norms
- Providing adequate lighting
- Providing required manpower, tools & tackles HBL's decision shall be final and binding in this regard.

Contractor's authorized representative shall be available at Site to oversee the work at all times.

13. TESTS, INSPECTION AND COMPLETION

Tests and Inspection

The Contractor shall carry out the various tests as enumerated in the technical specifications of this Bidding Document and technical documents that will be furnished to him during the performance of the work at no extra cost to the Owner.

All the tests either on the field or at outside laboratories concerning the execution of the work and supply of materials by the Contractor shall be carried out by Contractor at his cost.

The work is subject to inspection at all times by the Engineer-in-Charge. The Contractor shall carry out all instructions given during inspection and shall ensure that the work is being carried out according to the technical specifications of this bidding document, the technical documents that will be furnished to him during performance of work and the relevant codes of practice.

Compressed air for carrying out works shall be arranged by the Contractor at his own cost.

For material supplied by Owner, Contractor shall carry out the tests, if required by the Engineer-in-Charge, and the cost of such tests shall be reimbursed by the Owner at actual to the Contractor on production of documentary evidence.

All results of inspection and tests will be recorded in the inspection reports, proforma of which will be approved by the Engineer-in-Charge. These reports shall form part of the completion documents. Any work not conforming to execution drawings, specifications or codes shall be rejected and the Contractor shall carry out the rectifications at his own cost.

Final Inspection

After completion of all tests as per specification the whole work will be subject to a final inspection to ensure that job has been completed as per requirement. If any defect is noticed, the Contractor will be notified by the Engineer-in Charge and he shall make good the defects with utmost speed. If however, the Contractor fails to attend to these defects within a reasonable time (time period shall be fixed by the Engineer-in-Charge) then Engineer-in-Charge may have defects rectified at Contractor's cost.

Inspection of Supply Items

All inspection and tests on bought out items shall be made as required by specifications forming part of this contract. Various stages of inspection and testing shall be identified after receipt of Quality Assurance Programme from the contractor / manufacturer.

All drawings, general arrangement and other contract drawings, specifications, catalogues etc. pertaining to equipment offered for inspection shall be got approved by Owner and copies shall be made available to Owner beforehand for undertaking inspection.

The contractor shall ensure full and free access to the inspection engineer of Owner at the contractor's premises at any time during contract period to facilitate him to carry out inspection and testing assignments.

The contractor shall provide all instruments, tools, necessary for testing and other inspection facilities to inspection engineer of Owner free of cost for carrying out inspection.

Where facilities for testing do not exist in the contractor's laboratories, samples and test pieces shall be drawn by the contractor in presence of Inspection Engineer of Owner and duly sealed by the latter and sent for tests in Government approved test house or any other testing laboratories approved by the Inspection Engineer at the contractor's cost.

The contractor shall comply with the instructions of the Inspection Engineer fully and with promptitude.

The contractor shall ensure that the equipment / assemblies / component of the plant and equipment required to be inspected are not assembled or dispatched before inspection.

The contractor shall not offer equipment for inspection in painted conditions unless otherwise agreed in writing with the Owner.

The contractor shall ensure that the parts once rejected by the inspection engineer are not used in the manufacture of the plant and equipment. Where parts rejected by the inspection engineer have been rectified or altered, such parts shall be segregated for separate inspection and approval, before being used in the work.

On satisfactory completion of final inspection and testing, all accepted items shall be stamped suitably and inspection certificate shall be stamped suitably and inspection certificate shall be issued in requisite copies for all accepted items. Contractor shall arrange to replace/repair the rejected items, as applicable.

All inspections and tests shall be made as required by the specifications forming part of this contract. Contractor shall advise HBL in writing at least fifteen days in advance of the date of final inspection / tests. Manufacturer's inspection or testing certificate for equipment and materials supplied may be

considered for acceptance, at the discretion of Engineer-in-Charge. All costs towards testing etc. shall be borne by the contractor within their quoted rates.

14. Documentation

Completion Documents

- I) The following documents shall also be submitted by the Contractor in triplicate as part of completion documents:
 - a) Test certificate for materials supplied by the Contractor.
 - b) Certified records of field tests on materials / equipment, as applicable.
 - c) Material reconciliation statement as required.
 - d) Six sets of construction drawings showing therein the as- built conditions of the work duly approved by the Engineer-in-Charge along with one set of reproducible on polyester film (drawings prepared by Contractor)
 - e) Other documents as mentioned in Technical Specification.
 - f) Gate records of Incoming materials.
 - g) Completion of all CTE registers.

“AS BUILT” Drawings

Upon completion of work, the Contractor shall complete all drawings to “As built” status (including all vendor / Sub – vendor’s drawings for bought out items) and provide the Owner, the following:

- a) One complete set of all original tracings/reproducible
- b) Six complete sets of prints

OTHERS

Project Scheduling and Monitoring

The following schedules / documents / reports shall be prepared and submitted by the CONTRACTOR for review / approval at various stages of the contract.

Along With Bid

Documents submitted with the bid will form a part of the Contract documents.

After placement of Purchase Order

Upon placement of Purchase Order, Contractor has to furnish a detailed bar chart and micro-schedule within 15 days of issue of LOI/PO.

Project Review Meetings

The CONTRACTOR shall present the programme and status at various review meetings as required.

I) Weekly Review Meeting

Level of	Contractor’s/HBL’s Site-in-Charge &
Participation	Contractor’s Job Engineers.

Agenda

- a) Weekly programme v/s actual achieved in the past week and programme for next week.
- b) Remedial Actions and hold up analysis.

II) Monthly Review Meeting

Level of Senior Officers of Owner & Participation: } Contractor.

Agenda: a) Progress Status/statistics

b) Completion outlook

- c) Major hold ups / slippages.
- d) Assistance required.
- e) Critical issues.
- f) Contractor query / HBL approval.
- g) Venue: As decided by HBL.

Progress Reports

I) Monthly Progress Report

This report shall be submitted in three copies on a monthly basis within Ten calendar days from cut-off date as agreed upon, covering overall scenario of the work. The report shall include but not be limited to the following :

- Brief introduction of the work.
- Activities executed / achievements during the month.
- Scheduled vs actual percentage progress and progress curves for subordering, manufacturing / fabrication / delivery, construction activities and overall quantum wise status vis-a-vis scheduled progress.
- Areas of concern / problems / hold ups, impact and action plans.
- Resource deployment status.
- Annexure giving status summary for sub-ordering items. Distribution: OWNER Two copies & One at Site.

II) Weekly Report

This report (3 copies) will be prepared and submitted by the CONTRACTOR on weekly basis and will cover following items :

- Activities programmed and completed during the week. ® Resources deployment status (manpower and machineries) ® Qty. Achieved against target in construction.
- Record of Man-days lost.
- Areas of concern
- Construction percentage progress scheduled and actual. Distribution: OWNER Two copies & One at Site.

II) Daily Report:

Daily report in duplicate as per approved proforma along with any other additional information/data/guideline/job procedure sought by Engineer-in-Charge shall be submitted without fail to HBL at site by contractor.

General Environment Requirement

The contractor has to ensure efficient use of natural resources like water, fuel oil and lubricants. The contractor should ensure proper awareness to workers to maintain a green and clean environment inside / outside the plant. The contractor must collect and dispose of all the waste and scrap materials at the designated place only as directed by Engineer – in – Charge.

GENERAL TERMS & CONDITIONS FOR WORKS CONTRACT

1. PRELIMINARY

This is a Contract for execution of job as defined in tender document at the specified location.

The terms and conditions mentioned hereunder are the terms and conditions of the Contract for the execution of the work mentioned above.

It is the clear understanding between HPCL BIOFUELS Limited and the tenderer that in case the bid of tenderer is accepted by HPCL BIOFUELS Limited and an intimation to that effect is so issued and also a Procurement Order is on the tenderer this document shall form part of the Contract between the parties and terms and conditions hereunder would govern the parties interest.

Interpretation of Contract Documents: All documents forming part of the Contract are to be taken mutually explanatory. Should there be any discrepancy, inconsistency, error or omission in the contract, the decision of the Owner/Engineer-in-Charge/Site-in-Charge shall be the final and the contractor shall abide by the decision. The decision shall not be arbitrable. Works shown upon the drawings but not mentioned in the specification or described in the specifications without being shown on the drawings shall nevertheless be deemed to be included in the same manner as if they are shown in the drawings and described in the specifications.

Special conditions of Contract : The special conditions of contract, if any provided and whenever and wherever referred to shall be read in conjunction with General Terms and Conditions of contract, specifications, drawings, and any other documents forming part of this contract wherever the context so requires. Notwithstanding the subdivision of the documents into separate sections, parts volumes, every section, part or volume shall be deemed to be supplementary or complementary to each other and shall be read in whole. In case of any misunderstanding arising the same shall be referred to decision of the Owner/ Engineer-in-Charge/Site-in-Charge and their decision shall be final and binding and the decision shall not be arbitrable.

It is the clear understanding that wherever it is mentioned that the Contractor shall do/performance a work and/or provide facilities for the performance of the work, the doing or the performance or the providing of the facilities is at the cost and expenses of the Contractor not liable to be paid or reimbursed by the Owner.

2. DEFINITIONS

In this contract unless otherwise specifically provided or defined and unless a contrary intention appears from the contract the following words and expressions are used in the following meanings;

The term "Agreement" wherever appearing in this document shall be read as "Contract".

The "Authority" for the purpose of this Contract shall be the Chairman and Managing Director or any other person so appointed or authorised.

The "Chairman and Managing Director" shall mean the Chairman and Managing Director of HPCL BIOFUELS LIMITED or any person so appointed, nominated or designated and holding the office of Chairman & Managing Director.

The "Change Order" means an order given in writing by the Engineer-in-Charge or by Owner to effect additions to or deletion from or alterations into the Work.

The "Construction Equipment" means all appliances and equipment of whatsoever nature for the use in or for the execution, completion, operation or maintenance of the work except those intended to form part of the Permanent Work.

The "Contract" between the Owner and the Contractor shall mean and include all documents like enquiry, tender submitted by the contractor and the procurement order issued by the owner and other documents connected with the issue of the procurement order and orders, instruction, drawings, change

orders, directions issued by the Owner/ Engineer-in-Charge / Site-in-Charge for the execution, completion and commissioning of the works and the period of contract mentioned in the Contract including such periods of time extensions as may be granted by the owner at the request of the contractor and such period of time for which the work is continued by the contractor for purposes of completion of the work.

"The Contractor" means the person or the persons, firm or Company whose tender has been accepted by the Owner and includes the Contractor's legal heirs, representative, successor(s) and permitted assignees.

The "Drawings" shall include maps, plans and tracings or prints thereof with any modifications approved in writing by the Engineer-in-Charge and such other drawings as may, from time to time, be furnished or approved in writing by the Engineer-in-Charge.

The "Engineer-in-Charge or Site-in-Charge" shall mean the person appointed or designated as such by the Owner and shall include those who are expressly authorized by the owner to act for and on its behalf.

"The Owner" means the HPCL BIOFUELS LIMITED incorporated in India as wholly owned subsidiary company of HPCL having its Registered office at HPCL Biofuels Limited, House No.9, Shree Sadan, 1st Floor, Patliputra Colony, Patna - 800013 and Marketing office at the address mentioned for this purpose in the tender header or their successors or assignees.

The "Permanent Work" means and includes works which form a part of the work to be handed over to the Owner by the Contractor on completion of the contract.

The "PROJECT ENGINEER" shall mean the PROJECT ENGINEER of HPCL BIOFUELS LIMITED/HPCL, or any person so appointed, nominated or designated.

The "Site" means the land on which the work is to be executed or carried out and such other place(s) for purpose of performing the Contract.

The "Specifications" shall mean the various technical and other specifications attached and referred to in the tender documents. It shall also include the latest editions, including all addenda/corrigenda or relevant Indian Standard Specifications and Bureau Of Indian Standards.

The "Sub-Contractor" means any person or firm or Company (other than the Contractor) to whom any part of the work has been entrusted by the Contractor with the prior written consent of the Owner/Engineer-in-Charge/Site-in-Charge and their legalheirs, representatives, successors and permitted assignees of such person, firm or Company.

The "Temporary Work" means and includes all such works which are a part of the contract for execution of the permanent work but does not form part of the permanent work confirming to practices, procedures applicable rules and regulations relevant in that behalf.

The "Tender" means the document submitted by a person or authority for carrying out the work and the Tenderer means a person or authority who submits the tender offering to carry out the work as per the terms and conditions.

The "Work" shall mean the works to be executed in accordance with the Contract or part thereof as the case may be and shall include extra, additional, altered or substituted works as maybe required for the purposes of completion of the work contemplated under the Contract.

3. SUBMISSION OF TENDER

Before submitting the Tender, the Tenderer shall at their own cost and expenses visit the site, examine and satisfy as to the nature of the existing roads, means of communications, the character of the soil, state of land and of the excavations, the correct dimensions of the work facilities for procuring various construction and other material and their availability, and shall obtain information on all matters and conditions as they may feel necessary for the execution of the works as intended by the Owners and shall also satisfy of the availability of suitable water for construction of civil works and

for drinking purpose and power required for fabrication work etc. Tenderer, whose tender may be accepted and with whom the Contract is entered into shall not be eligible and be able to make any claim on any of the said counts in what so ever manner for what so ever reasons at any point of time and such a claim shall not be raised as a dispute and shall not be arbitrable.

The Tenderer shall be deemed to have satisfied fully before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the Bill of quantities which rates and prices shall except as otherwise provided cover all his obligations under the contract.

It must be clearly understood that the whole of the conditions and specifications are intended to be strictly enforced and that no work will be considered as extra work and allowed and paid for unless they are clearly outside the scope, spirit, meaning of the Contract and intent of the Owner and have been so ordered in writing by Owner and/or Engineer-in-Charge/Site-in-Charge, whose decision shall be final and binding.

Before filling the Tender the Contractor will check and satisfy all drawings and materials to be procured and the Bill of quantities by obtaining clarification from the Owner on all the items as may be desired by the Tenderer. No claim for any alleged loss or compensation will be entertained on this account, after submission of Tender by the Tenderer/Contractor and such a claim shall not be arbitrable.

Unless specifically provided for in the tender documents or any Special Conditions, no escalation in the Tender rates or prices quoted will be permitted throughout the period of contract or the period of actual completion of the job whichever is later on account of any variation in prices of materials or cost of labour or due to any other reasons. Claims on account of escalation shall not be arbitrable.

The quantities indicated in the Tender are approximate. The approved Schedule of rates of the contract will be applicable for variations upto plus or minus 25% of the contract value. No revision of Schedule of rates will be permitted for such variations in the contract value, including variations of individual quantities, addition of new items, alterations, additions/deletions or substitutions of items, as mentioned above. Quantities etc. mentioned and accepted in the joint measurement sheets shall alone be final and binding on the parties.

Owner reserve their right to award the contract to any tenderer and their decision in this regard shall be final. They also reserve their right to reject either or both tenders received. No disputes could be raised by any tenderer(s) whose tender has been rejected.

The Rates quoted by the Tenderer shall include Costs and expenses on all counts viz. cost of materials, transportation of machine(s), tools, equipments, labour, power, Administration charges, price escalations, profits, etc. etc. except to the extent of the cost of material(s), if any, agreed to be supplied by Owner and mentioned specifically in that regard in condition of Contract, in which case, the cost of such material if taken for preparation of the Contractor's Bill(s) shall be deducted before making payment of the Bill(s) of the Contractor. The description given in the Bill of quantities shall unless otherwise stated be held to include wastage on materials, carriage and cartage, carrying in and return of empties, hoisting, setting, fitting and fixing in position and all other expenses necessary in and for the full and complete execution and completion of works and in accordance with good practice and recognised principles in that regard.

Employees of the State and Central Govt. and employees of the Public Sector Undertakings, including retired employees are covered under their respective service conditions/rules in regard to their submitting the tender. All such persons should ensure compliance to the respective/applicable conditions, rules etc. etc. Any person not complying with those rules etc. but submitting the tender in violation of such rules, after being so noticed shall be liable for the forfeiture of the Earnest Money Deposit made with the tender, termination of Contract and sufferance on account of forfeiture of Security Deposit and sufferance of damages arising as a result of termination of Contract.

In consideration for having a chance to be considered for entering into a contract with the Owner, the

Tenderer agrees that the Tender submitted by him shall remain valid for the period prescribed in the tender conditions, from the date of opening of the tender. The Tenderer shall not be entitled during the said validity period, to revoke or cancel the tender without the consent in writing from the Owner.

In case the tenderer revokes or cancels the tender or varies any of terms of the tender without the Consent of the Owner, in writing, the Tenderer forfeits the right to the refund of the Earnest Money paid along with the tender.

The prices quoted by the Tenderer shall be firm during the validity period of the bid and Tenderer agrees to keep the bid alive and valid during the said period. The Tenderers shall particularly take note of this factor before submitting their tender(s).

The works shall be carried out strictly as per approved specifications. Deviations, if any, shall have to be authorised by the Engineer-in-Charge/Site-in-Charge in writing prior to implementing deviations. The price benefit, if any, arising out of the accepted deviation shall be passed on to the Owner. The decision of Engineer-in-Charge shall be final in this matter.

The contractor shall make all arrangements at his own cost to transport the required materials outside and inside the working places and leaving the premises in a neat and tidy condition after completion of the job to the satisfaction of Owner. All materials except those agreed to be supplied by the Owner shall be supplied by the contractor at his own cost and the rates quoted by the Contractor should be inclusive of all royalties, rents, taxes, duties, statutory levies, if any, etc.

The Contractor shall not carry on any work other than the work under this Contract within the Owner's premises without prior permission in writing from the Engineer-in-Charge/Site-in-charge.

The Contractor shall be bound to follow and ensure compliance to all the safety and security regulations and other statutory rules applicable to the area. In the event of any damage or loss or sufference caused due to non-observance of such rules and regulations, the contractor shall be solely responsible for the same and shall keep the Owner indemnified against all such losses and claims arising from the same.

At any time after acceptance of tender, the Owner reserves the right to add, amend or delete any work item, the bill of quantities at a later date or reduce the scope of work in the overall interest of the work by prior discussion and intimation to the Contractor. The decision of Owner, with reasons recorded therefor, shall be final and binding on both the Owner and the Contractor. The Contractor shall not have right to claim compensation or damage etc. in that regard. The Owner reserves the right to split the work under this contract between two or more contractors without assigning any reasons.

Contractor shall not be entitled to sublet, sub contract or assign, the work under this Contract without the prior consent of the Owner obtained in writing.

All signatures in tender document shall be dated as well as all the pages of all sections of the tender documents shall be initialed at the lower position and signed, wherever required in the tender papers by the Tenderer or by a person holding Power of Attorney authorising him to sign on behalf of the tenderer before submission of tender.

The tender should be quoted in English, both in figures as well as in words. The rates and amounts tendered by the Tenderer in the Schedule of rates for each item and in such a way that insertion is not possible. The total tendered amount should also be indicated both in figures and words with the signature of tenderer.

If some discrepancies are found between the rates given in words and figures of the amount shown in the tender, the following procedure shall be applied:

- i. When there is a difference between the rates in figures and words, the rate which corresponds to the amount worked out by the tenderer shall be taken as correct.

- ii. When the rate quoted by the tenderer in figures and words tallies but the amount is incorrect, the rate quoted by the tenderer shall be taken as correct.
- iii. When it is not possible to ascertain the correct rate in the manner prescribed above the rate as quoted in words shall be adopted.

All corrections and alterations in the entries of tender paper will be signed in full by the tenderer with date. No erasures or over writings are permissible.

Transfer of tender document by one intending tenderer to the another one is not permissible. The tenderer on whose name the tender has been sent only can quote.

The Tender submitted by a tenderer if found to be incomplete in either or both manner is liable to be rejected. The decision of the Owner in this regard is final and binding.

4. EXECUTION OF WORK

All the works shall be executed in strict conformity with the provisions of the contract documents and with such explanatory details, drawings, specifications and instructions as may be furnished from time to time to the Contractor by the Engineer-in-Charge/ Site-in-Charge, whether mentioned in the Contract or not. The Contractor shall be responsible for ensuring that works throughout are executed in the most proper and workman- like manner with the quality of material and workmanship in strict accordance with the specifications and to the entire satisfaction of the Engineer-in- Charge/Site-in-Charge.

The completion of work may entail working in monsoon also. The contractor must maintain the necessary work force as may be required during monsoon and plan to execute the job in such a way the entire project is completed within the contracted time Schedule. No extra charges shall be payable for such work during monsoon. It shall be the responsibility of the contractor to keep the construction work site free from water during and off the monsoon period at his own cost and expenses.

For working on Sundays/Holidays, the contractor shall obtain the necessary permission from Engineer Incharge/Site Incharge in advance. The contractor shall be permitted to work beyond the normal hours with prior approval of Engineer-In-Charge/Site-In-Charge and the contractors quoted rate is inclusive of all such extended hours of working and no extra amount shall be payable by the owner on this account.

5. SETTING OUT OF WORKS AND SITE INSTRUCTIONS

The Engineer-in-Charge/Site-in-Charge shall furnish the Contractor with only the four corners of the work site and a level bench mark and the Contractor shall set out the works and shall provide an efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.

The Contractor shall provide, fix and be responsible for the maintenance of all necessary stakes, templates, level marks, profiles and other similar things and shall take all necessary precautions to prevent their removal or disturbance and shall be responsible for consequences of such removal or disturbance should the same take place and for their efficient and timely reinstatement. The Contractor shall also be responsible for the maintenance of all existing survey marks, either existing or supplied and fixed by the Contractor. The work shall be set out to the satisfaction of the Engineer-in-Charge/Site-in-Charge. The approval thereof or joining in setting out the work shall not relieve the Contractor of his responsibility.

Before beginning the works, the Contractor shall, at his own cost, provide all necessary reference and level posts, pegs, bamboos, flags ranging rods, strings and other materials for proper layout of the work in accordance with the scheme, for bearing marks acceptable to the Engineer-in-Charge/Site-

in-Charge. The Centre longitudinal or face lines and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct marks at the centre to enable theodolite to be set over it. No work shall be started until all these points are checked and approved by the Engineer-in-Charge/Site-in-Charge in writing. But such approval shall not relieve the contractor of any of his responsibilities. The Contractor shall also provide all labour, materials and other facilities, as necessary, for the proper checking of layout and inspection of the points during construction.

Pillars bearing geodetic marks located at the sites of units of works under construction should be protected and fenced by the Contractor.

On completion of works, the contractor shall submit the geodetic documents according to which the work was carried out.

The Engineer-in-Charge/Site-in-Charge shall communicate or confirm his instructions to the contractor in respect of the executions of work in a "work site order book" maintained in the office having duplicate sheet and the authorised representative of the contractor shall confirm receipt of such instructions by signing the relevant entries in the book.

All instructions issued by the Engineer-in-Charge/Site-in-Charge shall be in writing. The Contractor shall be liable to carry out the instructions without fail.

If the Contractor after receipt of written instruction from the Engineer-in-Charge/ Site-in-Charge requiring compliance within seven days fails to comply with such drawings or 'instructions' or both as the Engineer-in-Charge/Site-in-Charge may issue, owner may employ and pay other persons to execute any such work whatsoever that may be necessary to give effect to such drawings or 'instructions' and all cost and expenses incurred in connection therewith as certified by the Engineer-in-Charge/ Site-in-Charge shall be borne by the contractor or may be deducted from amounts due or that may become due to the contractor under the contract or may be recovered as a debt.

The Contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the levels and correctness of every part of the work and shall rectify effectually any errors or imperfections therein. Such rectifications shall be carried out by the Contractor, at his own cost.

In case any doubts arise in the mind of the Contractor in regard to any expressions, interpretations, statements, calculations of quantities, supply of material rates, etc. etc., the contractor shall refer the same to the Site-in-Charge/ Engineer-in-Charge for his clarification, instructions, guidance or clearing of doubts. The decision of the Engineer-in-Charge/Site-in-Charge shall be final and the contractor shall be bound by such a decision.

"The Contractor shall take adequate precautions, to ensure that his operations do not create nuisance or misuse of the work space that shall cause unnecessary disturbance or inconvenience to others at the work site".

"All fossils, coins articles of value of antiquity and structure or other remains of geological or archaeological discovered on the site of works shall be declared to be the property of the Owner and Contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such articles or thing and shall immediately inform the Owner/ Engineer-in-Charge/Site-in-Charge."

"Contractor will be entirely and exclusively responsible to provide and maintain at his expenses all lights, guards, fencing, etc. when and where even necessary or / as required by the Engineer-in-Charge/Site-in-Charge for the protection of works or safety and convenience to all the members

employed at the site or general public."

6. COMMENCEMENT OF WORK

The contractor shall after paying the requisite security deposit, commence work within 15 days from the date of receipt of the intimation of intent from the Owner informing that the contract is being awarded. The date of intimation shall be the date/day for counting the starting day/date and the ending day/date will be accordingly calculated. Penalty, if any, for the delay in execution shall be calculated accordingly.

Contractor should prepare detailed fortnightly construction program for approval by the Engineer-in-Charge within one month of receipt of Letter Of Acceptance. The work shall be executed strictly as per such time Schedule. The period of Contract includes the time required for testing, rectifications, if any, re-testing and completion of work in all respects to the entire satisfaction of the Engineer-in-Charge.

A Letter of Acceptance is an acceptance of offer by the Owner and it need not be accepted by the contractor. But the contractor should acknowledge a receipt of the purchase order within 15 days of mailing of Purchase Order and any delay in acknowledging the receipt will be a breach of contract and compensation for the loss caused by such breach will be recovered by the Owner by forfeiting earnest money deposit/bid bond.

7. SUBLETING OF WORK

No part of the contract nor any share or interest thereof shall in any manner or degree be transferred, assigned or sublet, by the Contractor, directly or indirectly to any firm or corporation whatsoever, without the prior consent in writing of the Owner.

At the commencement of every month the Contractor shall furnish to the Engineer-in-charge/Site-in-Charge list of all sub-contractors or other persons or firms engaged by the Contractor.

4.c.3 The contract agreement will specify major items of supply or services for which the Contractor proposes to engage sub-Contractor/sub-Vendor. The contractor may from time to time propose any addition or deletion from any such list and will submit the proposals in this regard to the Engineer-in-charge/Designated officer-in-charge for approval well in advance so as not to impede the progress of work. Such approval of the Engineer-in-charge/Designated officer-in-charge will not relieve the contractor from any of his obligations, duties and responsibilities under the contract.

4.c.4. Notwithstanding any sub-letting with such approval as resaid and notwithstanding that the Engineer-in-Charge shall have received copies of any sub-contract, the Contractor shall be and shall remain solely to be responsible for the quality and proper and expeditious execution of the works and the performance of all the conditions of the contract in all respects as if such subletting or sub-contracting had not taken place and as if such work had been done directly by the Contractor.

4.c.5 Prior approval in writing of the Owner shall be obtained before any change is made in the constitution of the contractor/Contracting agency otherwise contract shall be deemed to have been allotted in contravention of clause entitled "sub-letting of works" and the same action may be taken and the same consequence shall ensue as provided in the clause of "sub-letting of works".

8. EXTENSION OF TIME

1. If the Contractor anticipates that he will not be able to complete the work within the contractual delivery/ completion date (CDD), then the Contractor shall make a request for grant of time extension clearly specifying the reasons for which he seeks extension of time and demonstrating as to how these reasons were beyond the control of the contractor or attributable to the Owner. This request should be made well before one month of the expiry of the Contractual Delivery/ Completion Date (CDD).

2. If such a request for extension is received with a Bank Guarantee for the full Liquidated Damages amount calculated on the Total Contract Value, the concerned CEO of the Owner shall grant a Provisional extension of time, pending a decision on the request.
3. The concerned CEO of the Owner shall expeditiously decide upon the request for time extension and decide the levy of Liquidated Damages within a maximum period of 6 months from the CDD or date of receipt of the request, whichever is earlier.
4. Grant of any extension of time shall be by means of issuance of a Change Order.
5. In order to avoid any cash crunch to the Contractor, a Bank Guarantee could be accepted against Liquidated Damages, as stated above. Once a decision is taken, the Liquidated Damages shall be recovered from any pending bills or by encashment of the BG. Any balance sum of Contractor or the BG (if Liquidated Damages is fully recovered from the bills) shall be promptly refunded/returned to the Contractor.

9. SUSPENSION OF WORKS

Subject to the provisions of this contract, the contractor shall if ordered in writing by the Engineer-in-Charge/Site-in-Charge for reasons recorded suspend the works or any part thereof for such period and such time so ordered and shall not, after receiving such, proceed with the work therein ordered to be suspended until he shall have received a written order to re-start. The Contractor shall be entitled to claim extension of time for that period of time the work was ordered to be suspended. Neither the Owner nor the Contractor shall be entitled to claim compensation or damages on account of such an extension of time.

In case of suspension of entire work, ordered in writing by Engineer-in-Charge/Site-in-Charge, for a period of 30 days, the Owner shall have the option to terminate the Contract as provided under the clause for termination. The Contractor shall not be at liberty to remove from the site of the works any plant or materials belonging to him and the Employer shall have lien upon all such plant and materials.

The contractor shall, in case of suspension have the right to raise a dispute and have the same arbitrated but however, shall not have the right to have the work stopped from further progress and completion either by the owner or through other contractor appointed by the owner.

10. OWNER MAY DO PART OF WORK

Notwithstanding anything contained elsewhere in this contract, the owner upon failure of the Contractor to comply with any instructions given in accordance with the provisions of this contract, may instead of Contract and undertaking charge of entire work, place additional labour force, tools, equipment and materials on such parts of the work, as the Owner may decide or engage another Contractor to carry out the balance of work. In such cases, the Owner shall have the right to deduct from the amounts payable to the Contractor the difference in cost of such work and materials with ten percent overhead added to cover all departmental charges. Should the total amount thereof exceed the amount due to the contractor, the Contractor shall pay the difference to the Owner within 15 days of making demand for payment failing which the Contractor shall be liable to pay interest at 24% p.a. on such amounts till the date of payment.

11. INSPECTION OF WORKS

The Engineer-in-Charge/Site-in-Charge and Officers from Central or State Government will have full power and authority to inspect the works at any time wherever in progress, either on the site or at the Contractor's premises/workshops of any person, firm or corporation where work in connection with the contract may be in hand or where the materials are being or are to be supplied, and the Contractor shall afford or procure for the Engineer-in-Charge/Site-in-Charge every facility and assistance to carry out such inspection. The Contractor shall, at all times during the usual working hours

and at all other times at which reasonable notice of the intention of the Engineer-in- Charge/Site-in- Charge or his representative to visit the works shall have been given to the Contractor, either himself be present to receive orders and instructions, or have a responsible agent, duly accredited in writing, present for the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself. The Contractor shall give not less than seven days notice in writing to the Engineer-in-Charge/Site-in-Charge before covering up or otherwise placing beyond reach of inspection and measurement any work in order that the same may be inspected and measured. In the event of breach of above, the same shall be uncovered at Contractor's expense for carrying out such measurement and/or inspection.

No material shall be removed and despatched by the Contractor from the site without the prior approval in writing of the Engineer-in-charge. The contractor is to provide at all times during the progress of the work and the maintenance period proper means of access with ladders, gangways, etc. and the necessary attendance to move and adapt as directed for inspection or measurements of the works by the Engineer- in-Charge/Site-in-Charge.

12. SAMPLES

The contractor shall furnish to the Engineer-in-charge/Site-in-Charge for approval when requested or required adequate samples of all materials and finishes to be used in the work.

Samples shall be furnished by the Contractor sufficiently in advance and before commencement of the work so as the Owner can carry out tests and examinations thereof and approve or reject the samples for use in the works. All material samples furnished and finally used/applied in actual work shall fully be of the same quality of the approved samples.

13. TESTS FOR QUALITY OF WORK

All workmanship shall be of the respective kinds described in the contract documents and in accordance with the instructions of the Engineer-in-Charge / Site-in- Charge and shall be subjected from time to time to such tests at Contractor's cost as the Engineer-in-Charge/Site-in-Charge may direct at the place of manufacture or fabrication or on the site or at all or any such places. The Contractor shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing any workmanship as may be selected and required by the Engineer-in-Charge/Site-in-Charge.

All the tests that will be necessary in connection with the execution of the work as decided by the Engineer-in- charge/Site-in-Charge shall be carried out at the contractors cost and expenses.

If any tests are required to be carried out in connection with the work or materials or workmanship to be supplied by the owner, such tests shall be carried out by the Contractor as per instructions of Engineer-in-Charge/Site-in-Charge and expenses for such tests, if any, incurred by the contractor shall be reimbursed by the Owner. The contractor should file his claim with the owner within 15 (fifteen) days of inspection/test and any claim made beyond that period shall lapse and be not payable.

14. ALTERATIONS AND ADDITIONS TO SPECIFICATIONS, DESIGNS AND WORKS

The Engineer-in-Charge/Site-in-Charge shall have powers to make any alterations, additions and/or substitutions to the Bill of quantities, the original specifications, drawings, designs and instructions that may become necessary or advisable or during the progress of the work and the Contractor shall be bound to carryout such altered/extra/new items of work in accordance with instructions which may be given to him in writing signed by the Engineer-in-Charge/Site- in-Charge. Such alterations, omissions, additions or substitutions shall not invalidate the contract. The altered, additional or substituted work which the Contractor may be directed to carryon in the manner as part of the work shall be carried out by the Contractor on the same conditions in all respects on which he has agreed to do the work. The time for

completion of such altered added and/or substituted work may be extended for that part of the particular job. The rates for such additional altered or substituted work under this Clause shall, be worked out in accordance with the following provisions:

If the rates for the additional, altered or substituted work are specified in the contract for similar class of work, the Contractor is bound to carryout the additional, altered or substituted work at the same rates as are specified in the contract.

If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for similar class of work as are specified in the contract for the work. In the opinion of the Engineer-in- Charge/Site- in-Charge as to whether or not the rates can be reasonably so derived from the items in this contract, will be final and binding on the Contractor.

If the rates for the altered, additional or substituted work cannot be determined in the manner specified above, then the Contractor shall, within seven days of the date of receipt of order to carry out the work, inform the Engineer-in-Charge/ Site-in-Charge of the rate at which he intends to charge for such class of work, supported by analysis of the rate or rates claimed and the Engineer-In-Charge/ Site-in-Charge shall determine the rates on the basis of the prevailing market rates for both material and labour plus 10% to cover overhead and profit of labour rates and pay the Contractor accordingly. The opinion of the Engineer-in-Charge/Site-in-Charge as to current market rates of materials and the quantum of labour involved per unit of measurement will be final and binding on the contractor.

In case of any item of work for which there is no specification supplied by the Owner and is mentioned inthe tender documents, such work shall be carried out in accordance with Indian Standard Specifications and if the Indian Standard Specifications do not cover the same, the work should be carried out as per standard Engineering Practice subject to the approval of the Engineer-in-Charge/ Site-in- Charge.

15. PROVISIONAL ACCEPTANCE

Acceptance of sections of the works for purposes of equipment erection, piping, electrical work and similar usages by the Owner and payment for such work or parts of work shall not constitute a waiver of any portion of this contract and shall not be construed so as to prevent the Engineer from requiring replacement of defective work that may become apparent after the said acceptance and also shall not absolve the Contractor of the obligations under this contract. It is made clear that such an acceptance does not indicate or denote or establish to the fact of execution of that work or the Contract until the work is completed in full in accordance with the provisions of this Contract.

16. COMPLETION OF WORK AND COMPLETION CERTIFICATE

As soon as the work is completed in all respects, the contractor shall give notice of such completion to the site in charge or the Owner and within thirty days of receipt of such notice the site in charge shall inspect the work and shall furnish the contractor with a certificate of completion indicating:

- a) defects, if any, to be rectified by the contractor
- b) items, if any, for which payment shall be made in reduced rates
- c) the date of completion.

17. USE OF MATERIALS AND RETURN OF SURPLUS MATERIALS

Notwithstanding anything contained to the contrary in either or both of the clauses of this contract, where any materials for the execution of the contract are procured with the assistance of Government either by issue from Government stocks or procurement made under orders or permits or licences issued by Government, the contractor shall use the said materials economically and solely for the purpose of the contract and shall not dispose them of without the permission of the Owner.

All surplus(serviceable) or unserviceable materials that may be left over after the completion of the contract or at its termination for any reason whatsoever, the Contractor shall deliver the said product to

the Owner without any demur. The price to be paid to the Contractor, if not already paid either in full or in part, however, shall not exceed the amount mentioned in the Schedule of Rates for such material and in cases where such rates are not so mentioned, shall not exceed the CPWD Scheduled rates. In the event of breach of the foresaid condition the contractor shall become liable for contravention of the terms of the Contract.

The surplus (serviceable) and unserviceable products shall be determined by joint measurement. In case where joint measurement has failed to take place, the Owner may measure the same and determine the quantity.

It is made clear that the Owner shall not be liable to take stock and keep possession and pay for the surplus and unserviceable stocks and the Owner may direct the Contractor to take back such material brought by the Contractor and becoming surplus and which the Owner may decide to keep and not to pay for the same.

18. DEFECT LIABILITY PERIOD

The contractor shall guarantee the work executed for a period of 12 months from the date of completion of the job. Any damage or defect that may arise or lie undiscovered at the time of completion of the job shall be rectified or replaced by the contractor at his own cost. The decision of the Engineer In-charge/Site-In-charge/Owner shall be the final in deciding whether the defect has to be rectified or replaced. Equipment or spare parts replaced under warranty/guarantees shall have further warranty for a mutually agreed period from the date of acceptance.

The owner shall intimate the defects noticed in writing by a Registered A.D. letter or otherwise and the contractor within 15 days of receipt of the intimation shall start the rectification work and complete within the time specified by the owner failing which the owner will get the defects rectified by themselves or by any other contractor and the expenses incurred in getting the same done shall be paid by the Contractor under the provision of the Contract.

Thus, defect liability is applicable only in case of job/works contract (civil, mechanical, electrical, maintenance etc.) where any damage or defect may arise in future (i.e. within 12 months from the date of completion of job) or lie undiscovered at the time of completion of job. In other words, in case of service contracts (like car hire etc.) where there is no question of damage or defect arising in future, the defect liability clause is not applicable.

19. DAMAGE TO PROPERTY

Contractor shall be responsible for making good to the satisfaction of the Owner any loss of and any damage to all structures and properties belonging to the Owner or being executed or procured by the Owner or of other agencies within the premises of the work of the Owner, if such loss or damage is due to fault and/or the negligence or willful acts or omission of the Contractor, his employees, agents, representatives or sub-contractors.

The Contractors shall indemnify and keep the Owner harmless of all claims for damage to Owner's property arising under or by reason of this contract.

20. DUTIES AND RESPONSIBILITIES OF CONTRACTOR EMPLOYMENT LIABILITY TOWARDS WORKERS EMPLOYED BY THE CONTRACTOR

The Contractor shall be solely and exclusively responsible for engaging or employing persons for the execution of work. All persons engaged by the contractor shall be on Contractor's payroll and paid by Contractor. All disputes or differences between the Contractor and his/their employees shall be settled by Contractor.

Owner has absolutely no liability whatsoever concerning the employees of the Contractor. The Contractor shall indemnify Owner against any loss or damage or liability arising out of or in the course of his/ their employing persons or relation with his/their employees. The Contractor shall make regular and full payment of wages and on any complaint by any employee of the Contractor his sub-contractor regarding non-payment of wages, salaries or other dues, Owner reserves the right to make payments directly to such employees or sub-contractor of the Contractor and recover the amount in full from the bills of the Contractor and the contractor shall not claim any compensation or reimbursement thereof. The Contractor shall comply with the Minimum Wages Act applicable to the area of work site with regard to payment of wages to his employees and also to employees of his sub-contractor.

The Contractor shall advise in writing or in such appropriate way to all of his employees and employees of sub-contractors and any other person engaged by him that their appointment/employment is not by the Owner but by the Contractor and that their present appointment is only in connection with the construction contract with Owner and that therefore, such an employment/appointment would not enable or make them eligible for any employment/appointment with the Owner either temporarily or/and permanent basis.

NOTICE TO LOCAL BODIES

The contractor shall comply with and give all notices required under any Government authority, instruction, rule or order made under any act of parliament, state laws or any regulations or by-laws of any local authority relating to the works.

21. FIRST AID AND INDUSTRIAL INJURIES

Contractor shall maintain first aid facility for his employees and those of his sub- contractors.

Contractor shall make arrangements for ambulance service and for the treatment of all types of injuries. Names and telephone numbers of those providing such services shall be furnished to Owner prior to start of construction and their name board shall be prominently displayed in Contractor's field office.

All industrial injuries shall be reported promptly to owner and a copy of contractor's report covering each personal injury requiring the attention of a physician shall be furnished to the Owner.

22. SAFETY CODE

The Contractor shall at his own expenses arrange for the Safety provisions as may be necessary for the execution of the work or as required by the Engineer-in-

Charge in respect of all labours directly or indirectly employed for performance of the works and shall provide all facilities in connections therewith. In case the contractor fails to make arrangements and provide necessary facilities as aforesaid, the Owner shall be entitled to do so and recover the cost thereof from the Contractor.

From the commencement to the completion of the works, the contractor shall take full responsibility for the care thereof and of all the temporary works (defined as meaning all temporary works of every kind required in or for the execution, completion or maintenance of the works). In case damage, loss or injury shall happen to the works or to any part thereof or to temporary works or to any cause whatsoever repair at his (Contractor's) own cost and make good the same so that at the time of completion, the works shall be in good order and condition and in conformity in every respect with the requirement of the contract and Engineer-in- Charge's instructions.

In respect of all labour, directly or indirectly employed in the work for the performance of the Contractor's part of this agreement, the contractor shall at his own expense arrange for all the safety provisions as per relevant Safety Codes of C.P.W.D Bureau of Indian Standards, the Electricity Act/I.E. Rules. The Mines Act and such other Acts as applicable.

The Contractor shall observe and abide by all fire and safety regulations of the Owner. Before starting construction work, the Contractor shall consult with Owner's Safety Engineer or Engineer-in-

Charge/Site-in-Charge and must make good to the satisfaction of the Owner any loss or damage due to fire to any portion of the work done or to be done under this agreement or to any of the Owner's existing property.

The Contractor will be fully responsible for complying with all relevant provisions of the Contract Labour Act and shall pay rates of Wages and observe hours of work/conditions of employment according to the rules in force from time to time.

The Contractor will be fully responsible for complying with the provision including documentation and submission of reports on the above to the concerned authorities and shall indemnify the Corporation from any such lapse for which the Government will be taking action against them.

Owner shall on a report having been made by an inspecting Office as defined in the Contract Labour Regulations have the power to deduct from the money due to the Contractor any sum required or estimated to be required for making good the loss suffered by a worker(s) by reasons of non-fulfillment of conditions of contract for the benefit of workers no-payment of wages or of deductions made from his or their wages which are not justified by the terms of contract or non observance of the said contractor's labour Regulation.

23. INSURANCE AND LABOUR

Contractor shall at his own expense obtain and maintain an insurance policy with Nationalised Insurance Company to the satisfaction of the Owner as provided hereunder.

24. EMPLOYEES STATE INSURANCE ACT

- i. The Contractor agrees to and does hereby accept full and exclusive liability for the compliance with all obligations imposed by Employees State Insurance Act, 1948, and the Contractor further agrees to defend indemnify and hold Owner harmless from any liability or penalty which may be imposed by the Central, State or local authority by reason of any asserted violation by Contractor, or sub-contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against the Owner arising under, growing out of or by reason of the work provided for by this contract whether brought by employees of the Contractor, by third parties or by Central or State Government authority or any political sub-division thereof.
- ii. The Contractor agrees to file with the Employees State Insurance Corporation, the Declaration forms and all forms which may be required in respect of the Contractor's or sub-contractor's employee whose aggregate remuneration is within the specified limit and who are employed in the work provided or those covered by ESI Act under any amendment to the Act from time to time.

The Contractor shall deduct and secure the agreement of the sub-contractor to deduct the employee's contribution as per the first Schedule of the Employee's State Insurance Act from wages and affix the employee's contribution cards at wages payment intervals. The Contractor shall remit and secure the agreement of the sub contractor to remit to the State Bank of India, Employee's State Insurance Corporation Account, the Employee's contribution as required by the Act.
- iii. The Contractor agrees to maintain all records as required under the Act in respect of employees and payments and the Contractor shall secure the agreement of the sub contractor to maintain such records. Any expenses incurred for the contributions, making contribution or maintaining records shall be to the Contractor's or sub-contractor's account.
- iv. The Owner shall retain such sum as may be necessary from the total contract value until the Contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid.

25. WORKMAN'S COMPENSATION AND EMPLOYEE'S LIABILITY INSURANCE

Provide Insurance for all the Contractor's employees engaged in the performance of this contract. If any of the work is sublet, the Contractor shall ensure that the sub-contractor provides workmen's

compensation and Employer's Liability Insurance for the latter's employees who are not covered under the Contractor's insurance.

26. AUTOMOBILE LIABILITY INSURANCE

Contractor shall take out Insurance to cover all risks to Owner for each of his vehicles plying on works of this contract and these insurances shall be valid for the total contract period. No extra payment will be made for this insurance. Owner shall not be liable for any damage or loss not made good by the Insurance Company, should such damage or loss result from Un authorised use of the vehicle. The provisions of the Motor Vehicle Act would apply.

27. FIRE INSURANCE

Contractor shall within two weeks after award of contract insure the Works, Plant and Equipment and keep them insured until the final completion of the Contract against loss or damage by accident, fire or any other cause with an insurance company to be approved by the Employer/Consultant in the joint names of the Employer and the Contractor (name of the former being placed first in the Policy).Such Policy shall cover the property of the Employer only.

28. ANY OTHER INSURANCE REQUIRED UNDER LAW OR REGULATION OR BY OWNER

- i. Contractor shall also provide and maintain any and all other insurance which may be required under any law or regulations from time to time. He shall also carry and maintain any other insurance which may be required by the Owner.
- ii. The aforesaid insurance policy/policies shall provide that they shall not be cancelled till the Engineer-in-Charge has agreed to their cancellation.
- iii. The Contractor shall satisfy to the Engineer-in-Charge/Site-in-Charge from time to time that he has taken out all insurance policies referred to above and has paid the necessary premium for keeping the policies alive till the expiry of the defects liability period.
- iv. The contractor shall ensure that similar insurance policies are taken out by his sub-contractor (if any) and shall be responsible for any claims or losses to the Owner resulting from their failure to obtain adequate insurance protections in connection thereof. The contractor shall produce or cause to be produced by his sub-contractor (if any) as the case may be, the relevant policy or policies and premium receipts as and when required by the Engineer-in-Charge/Site-in-Charge.

29. LABOUR AND LABOUR LAWS

- i. The contractor shall at his own cost employ persons during the period of contract and the persons so appointed shall not be construed under any circumstances to be in the employment of the Owner.
- ii. All payments shall be made by the contractor to the labour employed by him in accordance with the various rules and regulations stated above. The contractor shall keep the Owner indemnified from any claims whatsoever inclusive of damages/costs or otherwise arising from injuries or alleged injuries to or death of a person employed by the contractor or damages or alleged damages to the property.
- iii. No labour below the age of eighteen years shall be employed on the work. The Contractor shall not pay less than what is provided under the provisions of the contract labour (Regulations and Abolition) Act, 1970 and the rules made thereunder and as may be amended from time to time. He shall pay the required deposit under the Act appropriate to the number of workman to be employed by him or through sub contractor and get himself registered under the Act. He shall produce the required Certificates to the Owner before commencement of the work. The Owner recognizes only the Contractor and not his sub-contractor under the provisions of the Act. The Contractor will have to submit daily a list of his workforce. He will also keep the wage register at the work site or/and produce the same to the Owner, whenever desired. A deposit may be taken by the Owner from the Contractor to be refunded only after

the Owner is satisfied that all workmen employed by the Contractor have been fully paid for the period of work in Owner's premises at rates equal to or better than wages provided for under the Minimum Wages Act. The contractor shall be responsible and liable for any complaints that may arise in this regard and the consequences thereto.

- iv. The Contractor will comply with the provisions of the Employee's Provident Fund Act and the Family Pension Act as may be applicable and as amended from time to time.
- v. The Contractor will comply with the provisions of the payment of Gratuity Act, 1972, as may be applicable and as amended from time to time.

30. IMPLEMENTATION OF APPRENTICES ACT, 1961

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

31. MODEL RULES FOR LABOUR WELFARE

The Contractor shall at his own expenses comply with or cause to be complied with Model rules for Labour Welfare as appended to those conditions or rules framed by the Government from time to time for the protection of health and for making sanitary arrangements for worker employed directly or indirectly on the works. In case the contractor fails to make arrangements as aforesaid the Engineer-in-Charge/Site-in-Charge shall be entitled to do so and recover the cost hereof from the contractor.

32. DOCUMENTS CONCERNING WORKS

All documents including drawings, blue prints, tracings, reproducible models, plans, specifications and copies, thereof furnished by the Owner as well as all drawings, tracings, reproducible models, plans, specifications design calculations etc. prepared by the contractor for the purpose of execution of works covered in or connected with this contract shall be the property of the Owner and shall not be used by the contractor for any other work but are to be delivered to the Owner at the completion or otherwise of the contract.

The Contractor shall keep and maintain secrecy of the documents, drawings etc. issued to him for the execution of this contract and restrict access to such documents, drawings etc. and further the Contractor shall execute a SECRECY agreement from each or any person employed by the Contractor having access to such documents, drawings etc. The Contractor shall not issue drawings and documents to any other agency or individual without the written approval by the Engineer-in-Charge/Site-in-Charge.

Contractor will not give any information or document etc. concerning details of the work to the press or a news disseminating agency without prior written approval from Engineer-in-charge/Site-in-Charge. Contractor shall not take any pictures on site without written approval of Engineer-in-Charge/Site-in-Charge.

33. PAYMENT OF CONTRACTOR'S BILLS

Payments will be made against Running Accounts bills certified by the Owner's Engineer-in-Charge/Site-in-Charge within 15 days from the date of receipt of the bill.

Running Account Bills and the final bill shall be submitted by the Contractor together with the duly signed measurements sheet(s) to the Engineer-in-Charge/ Site-in-Charge of the Owner in quadruplicate for certification. The Bills shall also be accompanied by quantity calculations in support of the quantities contained in the bill along with cement consumption statement, actual/theoretical, wherever applicable duly certified by the Engineer-in-Charge/ Site-in-Charge of the Owner.

All running account payments shall be regarded as on account payment(s) to be finally adjusted against the final bill payment. Payment of Running Account Bill(s) shall not determine or affect in any way the rights of the Owner under this Contract to make the final adjustments of the quantities of material, measurements of work and adjustments of amounts etc. in the final bill.

The final bill shall be submitted by the Contractor within one month of the date of completion of the work fully and completely in all respects. If the Contractor fails to submit the final bill accordingly Engineer-in-Charge/Site-in-Charge may make the measurement and determine the total amount payable for the work carried out by the Contractor and such a certification shall be final and binding on the Contractor. The Owner/Engineer-in-Charge/Site-in-Charge may take the assistance of an outside party for taking the measurement, the expenses of which shall be payable by the Contractor.

Payment of final bill shall be made within 30 days from the date of receipt of the certified bill by the Disbursement Section of the owner.

Wherever possible, payment shall be tendered to the contractor in electronic mode (e-payment) through any of the designated banks. The contractor will comply by furnishing full particulars of Bank account (mandate) to which the payments will be routed. Owner reserves the right to make payment in any alternate mode also.

34. MEASUREMENT OF WORKS

All measurements shall be in metric system. All the works will be jointly measured by the representative of the Engineer-in-Charge/Site-in-Charge and the Contractor or their authorised agent progressively. Such measurement will be recorded in the Measurement Book/Measurement Sheet by the Contractor or his authorised representative and signed in token of acceptance by the Owner or their authorised representative.

For the purpose of taking joint measurement, the Contractor/representative shall be bound to be present whenever required by the Engineer-in-Charge/Site-in-Charge. If, however, they are absent for any reasons whatsoever, the measurement will be taken by the Engineer-in-Charge/Site-in-Charge or his representative and the same would be deemed to be correct and binding on the Contractor.

In case of any dispute as to the mode of measurement for any item of work, the latest Indian Standard Specifications shall be followed. In case of any further dispute on the same the same shall be as per the certification of an outside qualified Engineer/ Consultant. Such a measurement shall be final and binding on the Owner and the Contractor.

35. BILLING OF WORKS EXECUTED

The Contractor will submit a bill in approved proforma in quadruplicate to the Engineer-in-Charge/Site-in-Charge of the work giving abstract and detailed measurement for the various items executed during a month, before the expiry of the first week of the succeeding month. The Engineer-in-Charge/ Site-in-Charge shall take or cause to be taken the requisite measurements for the purpose of having the bill verified and/or checked before forwarding the same to the disbursement office of the Owner for further action in terms of the Contract and payment thereafter. The Engineer-in-Charge/Site-in-Charge shall verify the bills within 7 days of submission of the Bill by the Contractor.

36. RETENTION MONEY

10% of the total value of the Running Account and Final Bill will be deducted and retained by the Owner as retention money on account of any damage/defect liability that may arise for the period covered under the defect liability period clause of the Contract free of interest. Any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate connected in any way with the equipment or materials supplied by contractor or in workmanship shall be rectified or replaced by the contractor at his own expense failing which the Owner shall be entitled to rectify the said damage/defect

from the retention money. Any excess of expenditure incurred by the Owner on account of damage or defect shall be payable by the Contractor. The decision of the Owner in this behalf shall not be liable to be questioned but shall be final and binding on the Contractor.

Thus, deduction towards retention money is applicable only in case of job/works contracts (civil, mechanical, electrical, maintenance etc.) where any damage or defect may arise in future (i.e. within 12 months from the date of completion of job) or lie undiscovered at the time of issue of completion certificate.

37. STATUTORY LEVIES

7. d.1. The Contractor accepts full and exclusive liability for the payment of any and all taxes, duties, cess, levies and statutory payments payable under all or any of the statutes.

Variations of taxes and duties arising out of the amendments to the Central / State enactments, in respect of sale of goods / services covered under this bid shall be to HBL's account, so long as:

- They relate to the period after the opening of the price bid, but before the contracted completion period (excluding permitted extensions due to delay on account of the contractors, if any) or the actual completion period, whichever is earlier; and
- The vendor furnishes documentary evidence of incurrence of such variations, in addition to the invoices/documents for claiming Input Tax credit, wherever applicable.

All contributions and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by Central or State Governmental authorities which are imposed with respect to or covered by the wages, salaries or other compensations paid to the persons employed by the Contractor and the Contractor shall be responsible for the compliance with all obligations and restrictions imposed by the Labour Law or any other law affecting employer-employee relationship and the Contractor further agrees to comply and to secure the compliance of all sub-contractors with all applicable Central, State, Municipal and local laws, and regulations and requirements of any Central, State or Local Government agency or authority.

Contractor further agrees to defend, indemnify and hold harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason of any violation by Contractor or sub-contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against the Owner arising under, growing out of, or by reasons of the work provided for by this contract by third parties, or by Central or State Government authority or any administrative sub-division thereof. The Contractor further agrees that in case any such demand is raised against the Owner, and Owner has no way but to pay and pays/makes payment of the same, the Owner shall have the right to deduct the same from the amounts due and payable to the Contractor. The Contractor shall not raise any demand or dispute in respect of the same but may have recourse to recover / receive from the concerned authorities on the basis of the Certificate of the Owner issued in that behalf.

7.d.2. The rates quoted should be inclusive of all taxes. However, wherever the tax is to be deducted at source, the same will be deducted from the bills of the Contractor and paid to the concerned authorities. The proof of such payments of tax will be furnished to the contractor.

The vendor shall comply with all the provisions of the GST Act/Rules/requirements like providing of tax invoices, payment of taxes to the authorities within the due dates, filing of returns within the due dates etc. to enable HBL to take Input Tax Credit. In case of imports, vendor shall provide import documents and invoice fulfilling the requirements of Customs Act and Rules Vendor will be fully responsible for complying with the Customs provisions to enable HBL to take Input Tax Credit.

In case, HBL is not able to take Input Tax Credit due to any noncompliance/default/negligence of the seller of goods/service provider, the same shall be recovered from the pending bills /dues (including security deposit, BG etc.)

Vendor shall be responsible to indemnify the Corporation for any loss, direct or implied accrued to the Corporation on account of supplier/service provider failure to discharge his statutory liabilities like paying taxes on time, filing appropriate returns within the prescribed time etc.

Income tax will be deducted at source as per rules at prevailing rates, unless certificate, if any, for deduction at lesser rate or nil deduction is submitted by the Contractor from appropriate authority.

The contractor shall provide accurate particulars of PAN number as required, under Section 206AA of Income Tax Act 1961.

The contractors having their 'tax residency status' outside India shall provide Tax Residency Certificate (TRC), issued by Government of the Country or the specified territory where the Contractor is a Resident. Rule 21AB of the Income Tax Rules, 1962 has prescribed the contents of a TRC. This would enable the Corporation to deduct tax at source by duly considering the 'treaty relief', if any, under Double Taxation Avoidance Agreement (DTAA) entered into between GOI and the respective country/specified territory in which the Contractors' 'tax residency status' is currently in force.

38. MATERIALS TO BE SUPPLIED BY CONTRACTOR

The Contractor shall procure and provide the whole of the materials required for construction including tools, tackles, construction plant and equipment for the completion and maintenance of the works except the materials viz. steel and cement which may be agreed to be supplied as provided elsewhere in the contract. The contractor shall make arrangement for procuring such materials and for the transport thereof at their own cost and expenses.

The Owner may give necessary recommendation to the respective authority if so desired by the Contractor but assumes no responsibility of any nature. The Contractor shall procure materials of ISI stamp / certification and supplied by reputed suppliers borne on DGS&D list.

All materials procured should meet the specifications given in the tender document. The Engineer-in-charge may, at his discretion, ask for samples and test certificates for any batch of any materials procured. Before procuring, the Contractor should get the approval of Engineer-in-Charge/Site-in-Charge for any materials to be used for the works.

Manufacturer's certificate shall be submitted for all materials supplied by the Contractor. If, however, in the opinion of the Engineer-in-Charge/Site-in-Charge any tests are required to be conducted on the material supplied by the Contractor, these will be arranged by the Contractor promptly at his own cost.

39. MATERIALS TO BE SUPPLIED BY THE OWNER

Steel and Cement maybe supplied by the Owner to the contractor against payment by Contractor from either godown or from the site or within work premises itself and the contractor shall arrange for all transport to actual work site at no extra cost.

The contractor shall bear all the costs including loading and unloading, carting from issue points to work spot storage, unloading, custody and handling and stacking the same and return the surplus steel and cement to the Owner's storage point after completion of job.

The contractor will be fully accountable for the steel and cement received from the Owner and contractor will give acknowledgement/receipt for quantity of steel and cement received by him each time he uplifts cement from Owner's custody.

For all computation purposes, the theoretical cement consumption shall be considered as per CPWD standards.

Steel and Cement as received from the manufacturer/ stockists will be issued to the contractor. Theoretical weight of cement in a bag will be considered as 50 Kg. Bags weighing upto 4% less shall be accepted by the contractor and considered as 50 Kg. per bag. Any shortage in the weight of any cement bag by more than 4% will be to the Owner's account only when pointed out by the Contractor and verified by Engineer-in-Charge/Site in Charge at the time of Contract or taking delivery.

The contractor will be required to maintain a stock register for receipt, issuance and consumption of steel and cement at site. Cement will be stored in a warehouse at site. Requirement of cement on any day will be taken out of the warehouse. Cement issued shall be regulated on the basis of FIRST RECEIPT to go as FIRST ISSUE.

Empty cement bag shall be the property of the Contractor. Contractor shall be penalised for any excess/under consumption of cement. The penal rate will be twice the rate of issue of cement for this work.

All the running bills as well as the final bills will be accompanied by cement consumption statements giving the detailed working of the cement used, cement received and stock- on-hand.

The Contractor will be fully responsible for safe custody of cement once it is received by him and during transport. Owner will not entertain any claims of the contractor for theft, loss or damage to cement while in their custody.

The contractor shall not remove from the site any cement bags at any time.

The Contractor shall advise Engineer-in-charge/Site-in-charge in writing atleast 21 days before exhausting the Cement stocks already held by Contractor to ensure that such delays do not lead to interruptions in the progress of work.

Cement shall not be supplied by the Owner for manufacturing of mosaic tiles, precast cement jali and any other bought out items which consume cement and for temporary works.

Cement in bags and in good usable condition left over after the completion of work shall be returned by the contractor to the Owner. The Owner shall make payment to the Contractor at the supply rate for such stocks of cement they accept and receive. Any refused stock of cement shall be removed by the Contractor from the site at his cost and expenses within 15 days of completion of the work.

40. PAYMENT OF CLAIMS AND DAMAGES

Should the Owner have to pay money in respect of claims or demands as aforesaid the amount so paid and the costs incurred by the Owner shall be charged to and paid by the Contractor and the Contractor shall not be entitled to dispute or question the right of the Owner to make such payments notwithstanding the same may have been without his consent or authority or in law or otherwise to the contrary.

In every case in which by virtue of the provisions of Workmen's Compensation Act, 1923, or other Acts, the Owner is obliged to pay Compensation to a Workman employed by the Contractor in execution of the works, the Owner will recover from the Contractor the amount of compensation so paid and without prejudice to the rights of Owner under the said Act. Owner shall be at liberty to recover such amount or any part thereof by deducting it from the security deposit or from any sum due to the Contractor whether under this contract or otherwise. The Owner shall not be bound to contest any claim made under Section 12 sub section (1) of the said Act, except on the written request of the Contractor and

upon his giving to the Owner full security for all costs for which the owner might become liable in consequence of contesting such claim.

41. ACTION AND COMPENSATION IN CASE OF BAD WORK

If it shall appear to the Engineer-in-Charge/Site-in-Charge that any work has been executed with bad, imperfect or unskilled workmanship, or with materials, or that any materials or articles provided by the Contractor for execution of the work are not of standards specified/inferior quality to that contracted for, or otherwise not in accordance with the contract, the CONTRACTOR shall on demand in writing from the Engineer-in-Charge/Site-in-Charge or his authorised representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work so specified and at his own charge and cost and expenses and in the event of failure to do so within a period of 15 days of such intimation/ information/knowledge, the Contractor shall be liable to pay compensation equivalent to the cost of reconstruction by the Owner. On expiry of 15 days period mentioned above, the Owner may by themselves or otherwise rectify or remove and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be at the risk and expenses in all respects of the Contractor. The decision of the Engineer-in-Charge/ Site-in-Charge as to any question arising under this clause shall be final and conclusive and shall not be raised as a dispute or shall be arbitrable.

42. INSPECTION AND AUDIT OF CONTRACT AND WORKS

This project is subject to inspection by various Government agencies of Government of India. The contractor shall extend full cooperation to all the Government and other agencies in the inspection of the works, audit of the Contract and the documents of Contract Bills, measurements sheets etc. etc. and examination of the records of works and make enquiries interrogation as they may deem fit, proper and necessary. Upon inspection etc. by such agencies if it is pointed out that the contract work has not been carried out according to the prescribed terms and conditions as laid down in the tender documents and if any recoveries are recommended, the same shall be recovered from the contractors running bills/final bill/from ordered/suggested Security Deposit/retention money. The Contractor shall not rise any dispute on any such account and the same shall not be arbitrable.

43. CONTRACTOR TO INDEMNIFY THE OWNER

The Contractor shall indemnify the Owner and every member, officer and employee of the Owner, also the Engineer-in-Charge/Site-in-Charge and his staff against all the actions, proceedings, claims, demands, costs, expenses, whatsoever arising out of or in connection with the works and all actions, proceedings, claims, demands, costs, expenses which may be made against the Owner for or in respect of or arising out of any failure by the Contractor in the performance of his obligations under the contract. The Contractor shall be liable for or in respect of or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor or his sub contractor and Contractor shall indemnify and keep indemnified the Owner against all such damages, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.

44. Liquidated Damages

- i) In case of any delay in completion of the work beyond the CDD, the Owner shall be entitled to be paid Liquidated Damages by the Contractor. The Liquidated Damages shall be initially at the rate of 0.5% (half percent) of the total contract value for every week of the delay subject to a maximum of 5% of the total contract value. The Liquidated Damages shall be recovered by the Owner out of the amounts payable to the Contractor or from any Bank Guarantees or Deposits furnished by the

Contractor or the Retention Money retained from the Bills of the Contractor, either under this contract or any other contract.

- ii) The Contractor shall be entitled to give an acceptable unconditional Bank Guarantee in lieu of such a deduction if Contractor desires any decision on a request for time extension.
- iii) Once a final decision is taken on the request of the Contractor or otherwise, the Liquidated Damages shall be applicable only on the basic cost of the contract and on each full completed week(s) of delay (and for part of the week, a pro-rata Liquidated Damages amount shall be applicable).
- iv) This final calculation of Liquidated Damages shall be only on the value of the unexecuted portion/quantity of work as on the CDD.
- v) Contractor agrees with the Owner, that the above represents a genuine pre- estimate of the damages which the Owner will suffer on account of delay in the performance of the work by Contractor. The Contractor further agrees that the Liquidated Damages amount is over and above any right which owner has to risk purchase under Clause 12.4 and any right to get the defects in the work rectified at the cost of the contractor.

45. DEFECTS AFTER TAKING OVER OR TERMINATION OF WORK CONTRACT BY OWNER

The Contractor shall remain responsible and liable to make good all losses or damages that may occur/appear to the work carried out under this Contract within a period of 12 months from date of issue of the Completion Certificate and/or the date of Owner taking over the work, whichever is earlier. The Contractor shall issue a Bank Guarantee to the Owner in the sum of 10% of the work entrusted in the Contract, from any Scheduled Bank (other than a Co- Operative Bank) acceptable to the Owner and if however, the Contractor fails to furnish such a Bank Guarantee the Owner shall have right to retain the Security Deposit and Retention Money to cover the 10% of the Guarantee amount under this clause and to return/refund the same after the expiry of the period of 12 months without any interest thereon. (Please refer to clause 4. Deposits)

46. TERMINATION OF CONTRACT

The owner may terminate the contract at any stage of the construction for reasons to be recorded in the letter of termination.

The Owner inter alia may terminate the Contract for either or both of the following reasons that the contractor

- has abandoned the work/Contract.
- has failed to commence the works, or has without any lawful excuse under these conditions suspended the work for 15 consecutive days.
- has failed to remove materials from the site or to pull down and replace the work within 15 days after receiving from the Engineer written notice that the said materials or work were condemned and/or rejected by the Engineer under specified conditions.
- has neglected or failed to observe and perform all or any of the terms acts, matters or things under this Contract to be observed and performed by the Contractor.
- has to the detriment of good workmanship or in defiance of the Engineer's instructions to the contrary sub-let any part of the Contract.
- has acted in any manner to the detrimental interest, reputation, dignity, name or prestige of the Owner.
- has stopped attending to work without any prior notice and prior permission for a period of 15 days.

- has become untraceable.
- has without authority acted in violation of the terms and conditions of this contract and has committed breach of terms of the contract in best judgement of the owner.
- has been declared insolvent/bankrupt.
- in the event of sudden death of the Contractor.

The owner on termination of such contract shall have the right to appropriate the Security Deposit, Retention Money and invoke the Bank Guarantee furnished by the contractor and to appropriate the same towards the amounts due and payable by the contractor as per the conditions of Contract and return to the contractor excess money, if any, left over.

In case of Termination of the contract, Owner shall have the right to carry out the unexecuted portion of the work either by themselves or through any other contractor(s) at the risk and cost of the Contractor. In view of paucity of time, Owner shall have the right to place such unexecuted portion of the work on any nominated contractor(s). However, the overall liability of the Contractor shall be restricted to 100 % of the total contract value.

The contractor within or at the time fixed by the Owner shall depute his authorised representative for taking joint final measurements of the works executed thus far and submit the final bill for the work as per joint final measurement within 15 days of the date of joint final measurement. If the contractor fails to depute their representative for joint measurement, the owner shall take the measurement with their Engineer-in-

Charge/Site-in-Charge or any other outside representatives. Such a measurement shall not be questioned by the Contractor and no dispute can be raised by the Contractor for purpose of Arbitration.

The Owner may enter upon and take possession of the works and all plant, tools, scaffoldings, sheds, machinery, power operated tools and steel, cement and other materials of the Contract at the site or around the site and use or employ the same for completion of the work or employ any other contractor or other person or persons to complete the works. The Contractor shall not in any way object or interrupt or do any act, matter or thing to prevent or hinder such actions, other Contractor or other persons employed for completing and finishing or using the materials and plant for the works. When the works shall be completed or as soon thereafter the Engineer shall give a notice in writing to the Contractor to remove surplus materials and plant, if any, and belonging to the Contractor except as provided elsewhere in the Contract and should the Contractor fail to do so within a period of 15 days after receipt thereof the Owner may sell the same by public auction and shall give credit to the contractor for the amount realised. The Owner shall thereafter ascertain and certify in writing under his hand what (if anything) shall be due or payable to or by the Owner for the value of the plant and materials so taken possession and the expense or loss which the Owner shall have been put to in procuring the works, to be so completed, and the amount if any, owing to the Contractor and the amount which shall be so certified shall thereupon be paid by the Owner to the Contractor or by the Contractor to the Owner, as the case may, and the Certificate of the Owner shall be final and conclusive between the parties.

When the contract is terminated by the Owner for all or any of the reasons mentioned above the Contractor shall not have any right to claim compensation on account of such termination.

47. FORCE MAJEURE

Any delay in or failure of the performance of either part hereto shall not constitute default hereunder or give rise to any claims for damage, if any, to the extent such delays or failure of performance is caused by occurrences such as Acts of God or an enemy, expropriation or confiscation of facilities by Government authorities, acts of war, rebellion, sabotage or fires, floods, explosions, riots, or strikes.

The Contractor shall keep records of the circumstances referred to above and bring these to the notice of the Engineer-in-Charge/Site-in-Charge in writing immediately on such occurrences. The amount of time, if any, lost on any of these counts shall not be counted for the Contract period. Once decision of the Owner arrived at after consultation with the Contractor, shall be final and binding. Such a determined period of time be extended by the Owner to enable the Contractor to complete the job within such extended period of time.

If Contractor is prevented or delayed from the performing any of its obligations under this Agreement by Force Majeure, then Contractor shall notify Owner the circumstances constituting the Force Majeure and the obligations performance of which is thereby delayed or prevented, within seven days of the occurrence of the events.

48. ARBITRATION

- a. All disputes and differences of whatsoever nature, whether existing or which shall at any time arise between the parties hereto touching or concerning the agreement, meaning, operation or effect thereof or to the rights and liabilities of the parties or arising out of or in relation thereto whether during or after completion of the contract or whether before after determination, foreclosure, termination or breach of the agreement (other than those in respect of which the decision of any person is, by the contract, expressed to be final and binding) shall, after written notice by either party to the agreement to the other of them and to the Appointing Authority hereinafter mentioned, be referred for adjudication to the Sole Arbitrator to be appointed as hereinafter provided.
- b. The appointing authority shall either himself act as the Sole Arbitrator or nominate some officer/retired officer of HPCL BIOFUELS Limited (referred to as owner or HBL) or a retired officer of any other Government Company in the Oil Sector of the rank of Ch. Manager & above or any retired officer of the Central Government not below the rank of a Director, to act as the Sole Arbitrator to adjudicate the disputes and differences between the parties. The contractor/vendor shall not be entitled to raise any objection to the appointment of such person as the Sole Arbitrator on the ground that the said person is/was an officer and/or shareholder of the owner, another Govt. Company or the Central Government or that he/she has to deal or had dealt with the matter to which the contract relates or that in the course of his/her duties, he/she has/had expressed views on all or any of the matters in dispute or difference.
- c. In the event of the Arbitrator to whom the matter is referred to, does not accept the appointment, or is unable or unwilling to act or resigns or vacates his office for any reasons whatsoever, the Appointing Authority aforesaid, shall nominate another person as aforesaid, to act as the Sole Arbitrator.
- d. Such another person nominated as the Sole Arbitrator shall be entitled to proceed with the arbitration from the stage at which it was left by his predecessor. It is expressly agreed between the parties that no person other than the Appointing Authority or a person nominated by the Appointing Authority as aforesaid, shall act as an Arbitrator. The failure on the part of the Appointing Authority to make an appointment on time shall only give rise to a right to a Contractor to get such an appointment made and not to have any other person appointed as the Sole Arbitrator.
- e. The Award of the Sole Arbitrator shall be final and binding on the parties to the Agreement.
- f. The work under the Contract shall, however, continue during the Arbitration proceedings and no payment due or payable to the concerned party shall be withheld (except to the extent disputed) on account of initiation, commencement or pendency of such proceedings.
- g. The Arbitrator may give a composite or separate Award(s) in respect of each dispute or difference referred to him and may also make interim award(s) if necessary.
- h. The fees of the Arbitrator and expenses of arbitration, if any, shall be borne equally by the parties unless the Sole Arbitrator otherwise directs in his award with reasons. The lump sum fees of the Arbitrator shall be Rs. 40,000/- per case for transportation contracts and Rs. 60,000/- for engineering contracts and

if the sole Arbitrator completes the arbitration including his award within 5 months of accepting his appointment, he shall be paid Rs. 10,000./ additionally as bonus. Reasonable actual expenses for stenographer, etc will be reimbursed. Fees shall be paid stage wise i.e. 25% on acceptance, 25% on completion of pleadings/documentation, 25% on completion of arguments and balance on receipt of award by the parties.

- i. Subject to the aforesaid, the provisions of the Arbitration and Conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made thereunder, shall apply to the Arbitration proceedings under this Clause.
- j. The Contract shall be governed by and constructed according to the laws in force in India. The parties hereby submit to the exclusive jurisdiction of the Courts situated at “location given in tender header” for all purposes. The Arbitration shall be held at “location mentioned for such purpose in Tender header” and conducted in English language.
- k. The Appointing Authority is the Functional Director of HPCL BIOFUELS Limited.

49. GENERAL

- a. Materials required for the works whether brought by the contractor or supplied by the Owner shall be stored by the contractor only at places approved by Engineer-in-Charge/Site-in-Charge. Storage and safe custody of the material shall be the responsibility of the Contractor.
- b. Owner and/or Engineer-in-Charge/Site-in-Charge connected with the contract, shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either on the site or at factory or workshop or at other place(s) manufactured or at any places where these are laying or from which these are being obtained and the contractor shall give facilities as may be required for such inspection and examination.
- c. In case of any class of work for which there is no such specification supplied by the owner as is mentioned in the tender documents, such work shall be carried out in accordance with Indian Standard Specifications and if the Indian Standard Specifications do not cover the same the work should be carried out as per standard Engineering practice subject to the approval of the Engineer-in-Charge/Site-in-Charge.
- d. Should the work be suspended by reason of rain, strike, lockouts or other cause the contractor shall take all precautions necessary for the protection of the work and at his own expense shall make good any damages arising from any of these causes.
- e. The contractor shall cover up and protect from injury from any cause all new work also for supplying all temporary doors, protection to windows and any other requisite protection for the whole of the works executed whether by himself or special tradesmen or sub- contractors and any damage caused must be made good by the contractors at his own expense.
- f. If the contractor has quoted the items under the deemed exports, then it will be the responsibility of the contractor to get all the benefits under deemed exports from the Government. The Owner’s responsibility shall only be limited to the issuance of required certificates. The quotation will be unconditional and phrases like “subject to availability of deemed exports benefit” etc. will not find place in it.
- g. Integrity Pact: Effective 1st September, 2007, all tenders and contracts shall comply with the requirements of the Integrity Pact (IP) if the value of such tenders or contracts is ‘1 crore & above. Failure to sign the Integrity Pact shall lead to outright rejection of bid.
- h. Grievances of parties participating or intend to participate in the tender shall be addressed in writing to the officer designate of the Grievance Redressal Cell where the tenders have to be submitted within the stipulated period. Detailed mechanism of Grievance Redressal is available on the HBL website
- i. The guidelines for Holiday Listing as adopted and available on HBL/HPCL website shall be applicable to all tenders floated and all Purchase Orders/Contracts placed by HBL.
- j. Please note that all the terms and conditions of this tender are required to be accepted by bidders and no

counter conditions will be entertained.

- k. Any bid that does not meet the Pre-Qualification requirement or the requirement in the Techno-commercial bid is liable for rejection without further notice.
- l. HBL reserves the right to accept/ reject any or all of the bids at their sole discretion without assigning any reason.
- m. HBL reserves the right to extend the tender due date.
- n. HBL is not responsible for any delay in submission of bids by the vendor.

50. Corrigenda/Addenda:

At any time prior to the bid due date, HBL may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify this tender Document.

The modifications, amendments, clarifications, corrigenda, addenda, time extensions, etc. to this tender will be communicated only through website of HBL. Bidders should regularly check HBL website to keep themselves updated.

All corrigenda published are deemed to have been accepted as part of tender terms and conditions irrespective of the date a bid is submitted.

Bidder shall be responsible to ensure that the bid submitted has taken into consideration all the corrigenda published as above.

51. Commencement of Work and Refusals:

The Contractor shall have to start the work within 15 days from date of issue of call up order or advice to commence the work.

If the Contractor is unable to start the work due to preoccupation of Corporation's work elsewhere and accordingly inform promptly to the EIC (Engineer In Charge) of his inability to take up the work in hand and if the Corporation is satisfied, the initial date for commencement of work can be extended by the Corporation.

If the Contractor does not start the work by the above stated period and if the Corporation is not satisfied with the reasons for not starting the work in time or if Contractor refuses to carry out the work due to any other reason, the Corporation can cancel the work order by giving a notice after the expiry of the specified period as per the order and the same work shall be carried out by any other Contractor at the entire risk and cost and consequences of the defaulting Contractor.

In the event of two such cancellations for two different works during the contract period, the initial Security Deposit shall be forfeited and the standing contract shall be cancelled forthwith.

52. Compliances

Contractor to work for extended hours during night, if necessary, in order to complete the job in time. All necessary lighting arrangements shall be made by the contractor only.

In case the site is running outlet, Contractor has to schedule his work in such a way that the operation of the outlet is not hampered.

Since the work is to be carried out in running Retail Outlets also, the work is likely to be hampered / delayed due to operational reasons. No claims on account of the above and any other reason whatsoever shall be entertained by the Corporation and work shall be completed by the contractor within the stipulated period considering the above conditions, also the Corporation shall not pay any compensation

whatsoever for idling of labor / equipment. In case the site is a running outlet, Contractor has to schedule his work in such a way that the operation of the outlet is not hampered.

In case, Diesel or Petrol is stored at Site, No hot work will be permitted at site unless permission is granted by HBL Engineer in charge in writing.

Acceptance of the facility / facilities by the Corporation does not constitute final completion of the contract. The contract shall be deemed to be executed in full and final measurement certified only when the contractor has fully discharged all his obligations in terms of all the contract documents.

53. Work Commitment

Facilities dismantled / damaged while executing the works shall be restored to its original condition without any extra cost to the Corporation.

Approved makes / brands are specified in the tender for various materials are to be used in the construction. It is the responsibility of the party to ensure that materials of best quality and genuine make are procured for use in works. Decision of HBL with regard to selection of any of the brands / makes stipulated in the tender shall be final. In case specifications/ make of any item or work is not mentioned in these tender documents or if any of the approved make as mentioned in the List of approved make are not available for any particular item then Contractor has to provide the documentary proof for the same & basis the documentary proof, HBL may approve the revised specification / make on their sole discretion

In case specification/make of any item or work is not mentioned in these tender documents, then contractor will be required to take prior approval of the specifications/ make for that particular item/work from HBL Engineer in charge carrying out the jobs.

All electrical jobs should be carried out through a licensed electrician only, having a valid electrical license issued by state electricity board or equivalent central/state authorities like Electrical Inspectors and approved by HBL designated officer in writing.

54. Water and Power:

Water and Power required for construction works and workmen shall be arranged by the Contractor at his / her own cost. Contractor to work for extended hours during night, if necessary, in order to complete the job in time. All necessary lighting arrangements shall be made by the contractor only.

55. Vendor shall not sublet, sub contract or assign the work against order placed.

56. Penalty: As mentioned in General Terms & conditions.

57. Part Order Quantity: As mentioned in General Terms & conditions

58. Quantity tolerance: Refer to the section “Technical Specifications”

59. Any quantity in excess of the ordered quantity shall be returned to supplier at supplier's expense.

60. HBL reserves the right to suspend dispatch of the material covered by the order in event of strike, accidents or other contingencies beyond HBL control.

61. Addresses of locations where plates are to be delivered and contact details of the concerned persons will be given in the Price Inquiry.

62. HBL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason.

63. HBL shall not be bound to accept the lowest tender and reserves right to accept any or more tenders in

part. Decision of HBL in this connection shall be final.

64. All correspondence shall be in English language only

65. Order of Precedence:

The Special Terms & Conditions and the Technical Specification of the tender shall always supersede the General Terms & Conditions of the tender for the related terms/clauses.

In case of contradictions between various sections of the tender document, the Work Description shall supersede Specification and Drawings and Special Terms & Conditions shall supersede instructions to tenderers, particular clauses of General Terms & Conditions or clauses stated elsewhere

HBL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason. Decision of HBL in this regard shall be final and binding on the bidder.

HBL shall follow Purchase Preference / Price Preference as per prevailing guidelines of Government of India

66. This Tender is not transferable. All enclosed tender documents along with the Annexures / Attachments will form part of the tender.

67. The prices quoted by the Tenderer shall be firm during the validity period of the bid and Tenderer agrees to keep the bid alive and valid during the said period. In case the tenderer revokes or cancels the tender or varies any of terms of the tender without the Consent of the Owner, in writing, the Tenderer forfeits the right to the refund of the Earnest Money paid along with the tender.

68. Corporation reserves the right to take action as deemed fit which is inclusive of placing the tenderer under suspension / holiday for a period as decided by the Corporation , in case of withdrawal of offer at any stage , non - acceptance of LOA / PO or non - execution of order or any other breach of tender terms and conditions.

69. In case of any dispute in the interpretation of the terms and conditions of the tender, the decision of the Corporation shall be final and binding.

70. Safety Provisions

Provisions for Safety in Construction:

A Personnel Protective Equipment (PPE)-To be used as per the job requirement.

- Safety Helmets
- Safety Shoes
- Safety Belts with life line
- Goggles
- Face Protection
- Breathing Apparatus

Contractor will be fined if any of his manpower will be caught without wearing above Personal Protective Equipment's. INR 500 & INR 1000 Per day Per Person will be fined and deducted from RA Bills if any of contractor's manpower found without Safety Helmets and Safety shoes respectively.

Safety in Excavation:

- Provision of proper barricading (1Mt. height) around pit / excavated pits
- Provision of Reflective signboards ahead of barricade / material heaps, with adequate message such as 'CAUTION - WORK IN PROGRESS'.
- Proper shoring for the excavation is to be provided to prevent cave-in for side of slope >45 Degree

- Proper precautions to be taken if the excavation is adjoining to heavy structure like building, street and roadways

Safety in Confined Space

- Work to be carried out only in presence of a supervisor when worker enters in confined space. Deploy only properly trained men with sound health for such jobs.
- Medical certificate for such men not more than a month old to be submitted to the EIC.

Electrical Safety

- Provision of first aid kit for electrical shock.
- Provision of CO2 type fire extinguisher in adequate nos. as per EIC directions.
- Provision of minimum 3 nos. of sand buckets with moisture free, dry sand.
- Contractor to engage electrician (s) having valid electrical license in line with provisions in Indian Electricity Rules and to submit the license to the EIC.

Working at Heights

- Take work permission from EIC to take up work at height above 3 metres.
- Provision of suitable platform with all scaffoldings to be made, its construction to be as per specification with toe board and railing.
- The area below working at height should be cordoned.
- BIS approved quality and good condition safety belts to be used while working at heights
- Ropes used should be in good condition and adequate strength free of defects
- Ladder to be placed at secured and levelled surface
- Scaffolding to be erected on rigid / firm / levelled surfaces only.

General

- Provision of "No Smoking" notices prominently displayed.
- Unfinished erected structures to be properly tied up with guy ropes, nuts / bolts of critical section tightened during heavy winds
- Provision of min. 2 nos. of 10 kg DCP type fire extinguisher
- Provision of 3 nos. sand buckets duly filled with dry sand.
- Training on safe practices to workers.

Contractor to watch for overhead or nearby electrical lines before commencement of erection and advise HBL well in advance if any corrective action is required. In all circumstances the responsibility of workers and machinery safety, life, health, damages, compensation etc. shall be sole responsibility of the contractor. HBL will not be responsible for any mishaps, accidents, incidents etc. and subsequent damages, compensation, legality etc.

INTEGRITY PACT

Between

HPCL Biofuels Limited (HBL) hereinafter referred to as "The Principal",

And

..... hereinafter referred to as "The Bidder/Contractor"

Preamble

The Principal intends to award, under laid down organization procedures, contract/s for The Principle values full compliance with all relevant laws and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidders/s and Contractor/s.

In order to achieve these goals, the Principal cooperates with the renowned international Non-Governmental Organization "Transparency International" (TI). Following TI's national and international experience, the Principal will appoint an external independent Monitor who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1 - Commitments of the Principal

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

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

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

The principal will exclude from the process all known prejudiced persons.

If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the relevant Anti-Corruption Laws of India, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder / Contractor

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

The Bidder / Contractor will not, directly or through any other person or firm, offer, promise or give to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material or immaterial benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

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

The Bidder / Contractor will not commit any offence under the relevant Anti-corruption Laws of India; further the Bidder / Contractor will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

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

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

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

If the Bidder, before contract award has committed a transgression through a violation of Section 2 or in any other form such as to put his reliability or credibility as Bidder into question, the Principal is entitled to disqualify the Bidder from the tender process or to terminate the contract, if already signed, for such reason.

- (1) If the Bidder/Contractor has committed a transgression through a violation of Section 2 such as to put his reliability or credibility into question, the Principal is entitled also to exclude the Bidder / Contractor from future contract award processes. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the circumstances of the case, in particular the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder and the amount of the damage. The exclusion will be imposed for a minimum of 6 months and maximum of 3 years.
- (2) A transgression is considered to have occurred if the Principal after due consideration of the available evidence, concludes that no reasonable doubt is possible.
- (3) The Bidder accepts and undertakes to respect and uphold the Principal's absolute right to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
- (4) If the Bidder / Contractor can prove that he has restored / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal may revoke the exclusion prematurely.

Section 4 - Compensation for Damages

- (1) If the Principal has disqualified the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover from the Bidder liquidated damages equivalent to Earnest Money Deposit/Bid Security.
- (2) If the Principal has terminated the contract according to Section 3, or if the Principle is entitled to terminate the contract according to Section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to Security Deposit / Performance Bank Guarantee.
- (3) The bidder agrees and undertakes to pay the said amounts without protest or demur subject only to condition that if the Bidder / Contractor can prove and establish that the exclusion of the Bidder from the tender process or the termination of the contract after the contract award has caused no damage or less damage than the amount of the liquidated damages, the Bidder / Contractor shall compensate the Principal only to the extent of the damage in the amount proved.

Section 5 - Previous Transgression

- (1) The Bidder declares that no previous transgression occurred in the last 3 years with any other Company in any country conforming to the TI approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.

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

Section 6 - Equal treatment of all Bidders / Contractors / Subcontractors

- (1) The Bidder / Contractor undertake to demand from all subcontractors a commitment in conformity with this Integrity Pact, and to submit it to the Principal before contract signing.
- (2) The Principal will enter into agreements with identical conditions as this one with all Bidders, Contractors and Subcontractors.
- (3) The Principal will disqualify from the tender process all bidders who do not sign this Pact or violate its provisions.

Section 7 - Criminal charges against violating Bidders/Contractors/Subcontractors

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

Section 8 - External Independent Monitor / Monitors

The Principal appoints competent and credible external independent Monitors for this Pact. Accordingly, the Principal (HPCL/HBL) has appointed the following Independent External Monitors (IEMs) for this pact:

Shri. _____

Shri. _____

Shri. _____

The task of the Monitors is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the Chairperson of the Board of the Principal.

The Contractors accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Contractor. The Contractor will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to this project documentation. The same is applicable to Subcontractors. The Monitor is under contractual obligation to treat the information and documents of the Bidder / Contractor / Subcontractor with confidentiality.

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

As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or heal the violation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendation. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action. However, the Independent External Monitor shall give an opportunity to the bidder / contractor to present its case before making its recommendations to the Principal.

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

Monitor shall be entitled to compensation on the same terms as being extended to / provided to Outside Expert Committee members / Chairman as prevailing with Principal.

If the Monitor has reported to the Chairperson of the Board a substantiated suspicion of an offence under relevant Anti-Corruption Laws of India, and the Chairperson has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

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

Section 9 - Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor 12 months after the last payment under the respective contract, and for all other Bidders 6 months after the contract has been awarded.

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

Section 10 - Other provisions

This agreement is subject to Indian Law. Place of performance and jurisdiction is the Registered Office of the Principal, i.e. Mumbai. The Arbitration clause provided in the main tender document / contract shall not be applicable for any issue / dispute arising under Integrity Pact.

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

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

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

For the Principal

Place.....

Date.....

For the Bidder/Contractor

Witness 1:

Witness 2:

TECHNO - COMMERCIAL BID

Eligibility:

PRE-QUALIFICATION CRITERIA FOR DESIGN, SEGREGATION & CONSTRUCTION OF EFFLUENT AND STORM WATER DRAIN AT HBL SUGAULI & LAURIYA

Bidder shall meet all the criteria given here under:

PRE-QUALIFICATION CRITERIA (PQC):

1.1 Technical Criteria:

Similar Work Criteria: Experience in successful completion of the following works during last 5 years ending 30.9.2020 shall be taken as similar works for the purpose of qualification.

- a) Three similar completed works each costing not less than the amount equal to 30% of quoted Bid value. (OR)
- b) Two similar completed works each costing not less than the amount equal to 40% of quoted Bid Value. (OR)
- c) One similar completed work costing not less than the amount equal to 50% of quoted Bid Value.

1.2 Similar Works

DEFINITION OF SIMILAR WORKS: Experience in successful completion of the following works (A1 or A2) during last 5 years ending 30/09/2020 shall be taken as "similar works" for the purpose of qualification.

A1. "RCC Buildings/ foundations/RCC Roads with or without Drain and chambers."

A2. "Bituminous Road with Drain and Chambers."

Note to Similar Works:

- a. Party should submit work orders for experience of any of the two items for consideration of qualification.
- b. In case of proof of similar work(s) submitted fulfilling the monetary limits but does not meet quantum of works mentioned above in either items A1 or A2 will not be considered as similar works.
- c. For the same project finalized against one tender, if separate orders for supplies and services or variation orders or amendment orders are issued in continuation of the original purchase/work order, then the total value of works completed against the supply & installation components of the original work orders, subsequent variation/ amendment orders put together shall be accepted as one single work completed.
- d. Ongoing contracts (i.e. not successfully completed) shall not be considered irrespective of the value of works completed up to the period mentioned in the tender.
- e. Similar works carried out by the Bidder abroad shall also be considered. For the works carried out abroad and payments received by the Bidder in foreign currency, proof of remittance shall also be required and the same will be converted to INR by the bidder based on exchange rate as per SBI TT Selling rate as on date of 30/09/2020 shall be considered for the calculation of Work order/completed value amounts.

- f. Experience of JVs/ Consortiums/ MoU Parties shall not be accepted, even if a single involved partner/ party bids for the tender.

1.3 Documents required to be submitted against proof of completion:

1. In case of Work Order from Government Bodies/ PSUs - Copies of Contract Document along with either completion certificates consisting of date of completion & executed value OR duly Certified copy of bill/Invoice required for establishing credentials.
2. In case of Work Orders from Private Parties- Certificate from CA certifying value of work done with TDS certificates (where applicable) OR certified bank statement shall be required from the concerned bank & CA in addition to the documents specified at (i) above.
3. In case of foreign currency transaction to Indian firms, proof of remittance shall also be required.
4. Any other documents as deemed required by the Tender Consideration Committee for establishing the credentials of participating bidders
5. The monetary limits towards value of completed works mentioned for Single/ Two/ three similar work order(s) indicated in the NIT shall be inclusive of all Taxes.

1.4 Financial Criteria/Turnover:

Annual Turnover during any of the last three preceding financial, ending 31st March 2020 as applicable should be at 60% of the quoted Bid Value.

- i) Definition of Turnover: Total Revenue as per Schedule III of Companies Act, 2013 (Earlier Revised Schedule VI of Companies Act, 1956).
- ii) Turnover for this purpose should be as per audited Balance Sheet of the Bidder.
- iii) However, if the Bidder is not required to get its accounts audited under Section 44AB of The Income Tax Act, 1961, certificate from a Practicing Chartered Accountant towards the turnover of the Bidder along with copies of its Income Tax Return should be submitted
- iv) Published Annual report shall also be acceptable. (The balance sheet copy MUST bear the Registration Number of the authorized Chartered Accountant and its SEAL. This is not applicable for published annual reports).
- v) For Govt /PSU firms, letter from Company Secretary certifying the annual turnover for the applicable financial years shall also be accepted. Original letter will have to be produced at the time of verification of documents.
- vi) Provisional balance sheet and P&L account statement shall not be considered for evaluation, even if the same is submitted.
- vii) The turnover as per audited P & L accounts, submitted by the Bidder shall be the basis for evaluation, wherever required. In case of non-availability of P & L accounts for FY 19-20, audited balance sheet/published account of 4th preceding financial year (i.e. for FY 16-17) shall be acceptable at all places for any bidder.

1.5 Other Miscellaneous Terms and Conditions: -

- i. Upon receipt of the bids, the documents submitted by all the parties shall be scrutinized with respect to submission of EMD, PQC, other necessary documents, acceptance to all terms & conditions as per the tender. Price bids of only those parties who satisfy the above-mentioned requirements shall be considered for opening.

- ii. Legal dispute, if any, arising during the evaluation of the tender shall be within the jurisdiction of local courts situated at Patna and after placement of LOA, the jurisdiction of local courts at Patna will be applicable.
- iii. L1 Bidder will have to present original documents for verification to the tender inviting authority, within 7 days from date of intimation.
- iv. The language of all the documents to be in the Tender shall be in English. For all documents in other than English, translated document through a Sworn/ Certified Translators shall be submitted as part of the bid documents at no extra cost to HBL/HPCL.
- v. Bidders are required to meet both the above criteria viz., Financial & Technical for qualifying. Bids not meeting any of the above criteria shall be rejected.
- vi. HBL reserves the right to reject offer from any bidder whose performance was not satisfactory in a previous Purchase Order issued by HBL/HPCL.
- vii. HPCL may not seek further details and may complete the Evaluation of submitted documents. It shall be the sole responsibility of bidder to set-off the values of items not relevant to PQC/Similar Completed Work & wherever applicable, Bidder shall furnish proof in the form of Final Bill/SAP Abstract/Service Entry Sheet to substantiate their bid.
- viii. Bidder shall submit duly notarized documents.
- ix. **Submission of the Purchase Order / Work Order** is mandatory (duly attested by Notary Public) and it should clearly mention the details of works completed by the vendor so as to enable us to identify whether the vendor meets the technical criteria stipulated above or not.
- x. The Completion Certificate, Certified bills, Proof of Payment and any other document submitted in lieu of the documents sought above should be certified by the owner/client (for whom the work order has been executed) specifically having mention of the supplies made in support of meeting the technical criteria as stipulated above. If consultants are issuing certificates, then bidders shall provide documentary evidence of appointment of consultant by the client failing which the offer shall be rejected.

1.5. Qualification and experience of key supervisory construction personnel to be deployed for this works shall be as given hereunder. CONTRACTOR shall submit bio data of key supervisory personnel meeting the requirement as given hereunder, after award, which will be reviewed and approved by Engineer-in-charge. However, deployment of qualified and experienced supervisory personnel of the CONTRACTOR shall be commensurate with the project work load and as approved by Engineer-in-Charge and / or OWNER. *Bio data of key supervisory personnel meeting the requirement as given hereunder should also be submitted with PQC which will be part of technical evaluation.*

Designation/ Category	Minimum Qualification	Minimum working experience	Discipline to which should belong
RESIDENT CONSTRUCTION MANAGER / RESIDENT ENGINEER / SITE-IN-CHARGE-2 Nos. (One at Lauriya site and One at Sugauli Site)	Degree in Engg. /Diploma with relevant experience in construction	3 Years (BE) or 5 years (Diploma)	Civil

CIVIL SUPERVISOR-Min. 2 Nos. (One at Lauriya site and One at Sugauli Site)	Diploma with relevant experience in construction	4 years (Diploma)	Civil
QUALITY ENGINEER -2 Nos for documentation (One at Lauriya site and One at Sugauli Site)	Degree in Engg. /Diploma with relevant experience in construction	2 Years (BE) or 4 years (Diploma)	Civil

RECOVERY FOR NON-DEPLOYMENT OF TECHNICAL SUPERVISORY REPRESENTATIVES	
Designation	Rate of recovery per month (in Rs.) for 1 No.
RESIDENT CONSTRUCTION/MANAGER RESIDENT ENGINEER / SITE-IN- CHARGE	Rs 55000.00
QUALITY ENGINEER	Rs.25000.00
CIVIL SUPERVISOR	Rs.15000.00

1.6 MINIMUM DEPLOYMENT OF EQUIPMENTS: CONTRACTOR SHALL MOBILIZE FOLLOWING MINIMUM LIST OF EQUIPMENT/ MACHINERY:

1. CONCRETE MIXER WITH HOPPER & WEIGH BATCHER-2 Nos. if RCC is being done at Site or Self-Loading Concrete Mixer (AJAX)- 2 Nos.
2. ALL REQUIRED FIELD-TESTING INSTRUMENTS INCLUDING CTM
3. ELECTRIC OR DIESEL BASED CONCRETE VIBRATOR FOR COMPACTION OF CONCRETE.

1.7 Information/Documents required to be submitted for PQC Evaluation:

Cl. No. of PQC	Documents to be furnished	Remarks
	1) Title, style and postal address of the firm.	
	2) Communication particulars including telephone numbers, fax numbers and e- mail address.	
1	Audited balance sheets, profit & loss statements for the last 3 financial years.	Documents shall be duly notarized.
2	1) Notarized copy or original Purchase/work Order /certified bills	In case, the Purchase/work Order
	from client/owner / project consultants along with their completion certificate and details as given below to enable HPCL to identify whether the bidder(s) meets the technical criteria stipulated above or not:	/certified bills contain other items/works
	1. The Purchase/work Order/certified bills and completion certificate should mention the details of subject work.	outside the bid qualification criteria of this bid document then, the bidder shall separate the relevant items and submit a duly notarized statement accordingly.
	2. Photographs for referred Projects shall be provided.	

	BIDDER SHALL ENSURE THAT HIS REFERRED SIMILAR WORK(S) SHALL BE IN COMPLIANCE TO PQC	
3	3. Detail of equipment's required for the project & technical supervisory team as stated above shall be furnished for evaluation.	

General

It shall be distinctly understood that notwithstanding the reviews and suggestions if any, by the Engineer-in-charge, the sole and ultimate responsibility for the stability and performance of the form work and staging and all other temporary works shall be that of the contractor.

The partners or Directors of the Contractor shall meet the officers of the HBL at the site of works or at their respective offices whenever requested to do so.

Any apparatus deemed necessary by the HBL or its consultants for proper control shall be provided by the contractor at his own cost.

HBL may ask for any tests to be performed on any construction material. Such test shall be performed at the contractor's expenses either at site, in the site laboratory or elsewhere as directed by the Site Engineer-in-charge. The opinion of the Engineer-in charge on the mode of testing and interpretation of the results thereof shall be final and binding on the contractors and shall be without appeal.

In addition to previous stipulations, the contractor shall be represented at site at all times during the tenure of the contract by responsible and qualified engineers approved by HBL. Such engineers shall form the contractor's project management and site supervisory team. They shall be in constant attendance upon all activities of the work.

Limited area will be provided within the Premises by HBL for storing materials. However, partition and temporary roof if required for ensuring proper storage shall be provided by the Contractor. Safety & Security of the materials brought by the party will be totally their own and HBL cannot be held responsible in any manner. Labor camp shall not be erected within HBL premises nor shall workmen be allowed to live at the site.

Frequency of testing of various materials shall be as per QAP/ITP. Testing of various materials should be carried out as per the relevant IS standards mentioned in the technical specifications attached to the tender. Party should submit manufacturer's certificates for the various materials and the above tests will be carried out in addition to the certificates submitted. **Cost of testing should be borne by the party.** In case of delay in testing materials, HBL reserves the right to have the same tested at party's cost.

Address of site location is as given below. The intending vendor should inspect the site at his own expense and make himself familiar with the site conditions. Non-familiarity of the site conditions will not be a reason either for extra claim or for not carrying out the work in conformity with the drawings and specifications.

CONTACT PERSON FOR TECHNICAL QUERIES AT REGIONAL OFFICE, PATNA

Mr. Abhishek Kumar Singh, Project Engineer

Email- abhishekkumar.singh2@hpcl.in

Mobile-7277705022, 7004516276

ADDRESS OF THE LOCATION WHERE JOBS ARE TO BE EXECUTED

Address of plant Sugauli: Sugauli

HPCL Biofuels Limited - Sugauli unit,
Opposite Railway Station Sugauli,
Champan East,
Pin Code - 845456.

Address of plant Lauriya: Lauriya

HPCL Biofuels Limited - Lauriya Unit,
Lauriya Bagha Road,
Champan West,
Pin Code - 845453

2.0 SCOPE OF WORK

The scope of work is defined in detail under the schedule of quantities & technical specifications. However, the scope specified below is only indicative but not exhaustive and the vendor is required to carry out any other scope as per the site requirement within the items available under this tender.

DESIGN, SEGREGATION & CONSTRUCTION OF EFFLUENT AND STORM WATER DRAIN AT HBL SUGAULI & LAURIYA.

Scope of the job of Contractor involves:

- Design & approval of drawing from HBL of the drain for segregation of effluent and storm water at HBL Sugauli & Lauriya as per SOQ/SOR. Setting out of auto level/ total station for taking initial levels before commencement of Excavation as per approved drawing and then PCC, RCC wall and Precast construction as per instruction of EIC. Job will also include RCC/ Brick chambers wherever required and water collection pits or recharge wells as per requirement and SOQ/SOR items.
- RCC works with reinforcement as per drawing and SOQ/SOR.

The bidder is required to peruse carefully all parts of tender documents and drawings and if any difference / inconsistency is noticed, the bidder shall bring to attention of HBL before submission of tender and shall get the clarification(s) required.

Contractor shall visit the site and identify a suitable area for setting up Site Office after discussions with HBL and request permission from HBL in writing for same before commencement of work.

Quoted rates to include the expenditure for above in respective items and No separate payment shall be made to the party on this account.

HBL will provide AFC (Approved for Construction) Drawings to the successful bidder.

Submission of 4 copies of all the above drawings (As built) shall be submitted along with CD containing soft copy in AutoCAD latest version after job completion at no cost to HBL and Quoted rates to include the expenditure for above in respective items and No separate payment shall be made to the party on this account.

Testing laboratory at site which is required for carrying out routine tests of workmanship as part of Quality Assurance.

Site leveling & micro-leveling after dismantling of all temporary works. Submission of all original test certificates & records of testing, all warranties, Performance guarantees in favor of HBL.

Any other works which may be necessary for completion of the associated works.

2.1 SITE VISIT

The bidder is advised to visit and examine the site of works and their surrounding and obtain for himself and on his own responsibility all information that may be necessary for preparing of the bid and entering into the contract. The cost of visiting the sites shall be at bidder's own expenses. No extra claim on account of non-familiarity of site conditions shall be entertained during execution of works.

The prospective bidders are requested to thoroughly read and comprehend the various sections of this tender document and visit the sites before quoting for the tender and offer their most competitive rates for the job.

All the works to be commenced only after having obtained necessary work permits on a daily basis & all safety precautions to be taken by the party for carrying out the above jobs as directed by Engineer in Charge.

1. SPECIAL INSTRUCTIONS TO BIDDERS

1. The tenderers are advised to visit the site and get acquainted with the site conditions. HBL will not provide any infrastructure such as water, power, internal roads for construction works.
2. The tenderers should note the site conditions before quoting. The site will be offered on **AS IS WHERE IS** condition for the execution of this job. It will be the sole responsibility of the Vendor to ensure that they abide by the various rules, regulations, bye-laws and other statutory requirements, etc. imposed by the Government / Semi-Government and / or other local authorities governing execution of this job. The tenderers should study all the documents / conditions etc. in this tender document carefully before submitting their offers. If there are any doubts, they should get clarifications from HBL, Patna through e-mail but this shall not be a justification for late submission of tenders or extension of due date of the tender.
3. As far as possible, the tenderers should endeavor not to stipulate any counter terms / conditions or modifications of tender clauses and should quote strictly as per tender conditions. This will assist in proper evaluation of each offer. However, should there be any specific comments in respect of any of the Clauses, the same may be highlighted in a separate deviation schedule in the Technical bid.
4. HBL reserves the right to reject offers not meeting its Technical requirements and commercial conditions.
5. HBL shall not be bound to accept the lowest tender and reserves right to accept any or more

tenders. Decision of HBL in this connection shall be final.

6. HBL reserves the right to accept any tender in whole or in part or reject any or all tenders without assigning any reason.
7. When the person signing the tender is not sole proprietor, the necessary **Power of Attorney** authorizing the person to act on behalf of the proprietor or Organization should be produced / attached with the tender.
8. If there is any contradiction between various sections of the tender booklet, the Schedule of Quantities/Rate shall hold over the Special Terms & Conditions, which shall hold over the Detailed Technical Specifications which shall hold over the General Terms & Conditions.



QUALITY ASSURANCE & QUALITY CONTROL

STANDARD SITE QUALITY PLAN FOR CIVIL JOBS

A: MATERIALS									
1.0 COARSE AGGREGATE									
1.1	Specific Gravity, Density, Voids	To be done once per source or once for each mix design	Laboratory Test	Weigh balance, Oven, Jar	IS:2386 Part III, IS:456, IS:383			Package Contractor	These test will be carried out while establishing design mix.
1.2	Sieve Analysis	One sample per 200 M ³ (or part thereof) or change of source whichever is earlier.	Field Laboratory Test	Sieve set & weigh balance	IS:2386 Part I, IS:383	As per requirement of design mix within the limits specified in relevant IS Codes.	L-04	-do-	Mandatory Site Test/OR RMC Manufacturer's Report for batch test is acceptable.
1.3	Deleterious Chemicals	To be done once per source	Lab Test	Balance Sieve & Container	IS:2386 Part II, IS:383 (for acceptance limits)			-do-	Test will be carried out while establishing mix design
1.4	Soundness	To be done once per source	-do-z	Sieve Scales & Drying Oven	IS:2386 Part V, IS:383 (for acceptance limits)			-do-	Test will be carried out while establishing mix design
1.5	Acid & Alkali Reactivity	To be done once per source	Lab Test	Weigh balance	IS:2386 Part VII, IS:383			-do-	Test will be carried out while establishing mix design
1.6	Flakiness	To be done once per source	-do-	-	IS:2386 Part-I, IS : 383			-do-	-do-
1.7	Bulk Density	To be done once per source or once for each mix design		Oven, Jar & Weigh balance	IS:2386			-do-	-do-

2.0 FINE AGGREGATE (TO BE USED FOR CONCRETE)									
2.1	Bulkage Moisture	One sample for pour greater than 50 m ³	Field Test	Oven, Jar and weigh balance	IS : 2386 Part-III, IS : 383			-do-	Mandatory Site Test. Volume of sand and weight of water shall be adjusted as bulkage & moisture contents.
2.2	Sieve Analysis	One sample per 200 m ³ (or part thereof) or change of source whichever is earlier.	Field Test	Sieve Set, Weigh balance	IS : 2386 Part-I, IS : 383	As per requirement of design mix within the limits specified in relevant IS Codes	L – 03	-do-	Mandatory Site Test.
2.3	Particle Size and Shape	To be done once per source and to be repeated if source is changed	Lab test	-do-	IS : 2386 Part-I, IS : 383	Particle size shall be maximum 4.75 mm. Grading shall be within the limits of grading zone – III for concrete work and for mortar and grout within the limits of grading zone III & IV.		-do-	To be carried out during mix design.
2.4	Deleterious Chemicals	-do-	-do-	Balance, sieve & Container	IS : 2386 Part-II, IS : 383			-do-	To be carried out during mix design.
2.5	Soundness	-do-	-do-	Sieve, Scales & Drying Oven	IS : 2386 Part-V, IS : 383 (for acceptance limit)		-	-do-	To be carried out during mix design.

2.6	Acid and Alkali Reactivity	To be done once per source and to be repeated if source is changed	-do-	Weigh Balance	IS : 2386 Part-VII, IS : 383		-	-do-	To be carried out during mix design.
2.7	Specific Gravity,	To be done once per source or once for	Lab test	Weigh Balance	IS : 2386 Part-III				These tests will be carried out while
	Density, Voids	each mix design	Lab test						establishing design mix.
2.8	Check Silt and Clay Content	Every 50M ³ (or part thereof)	Field test	Jar & Oven	IS : 2386 Part-II, IS : 383	Deleterious material not to exceed 5%	-		Mandatory Site Test
3.0 CEMENT									
3.1	Fineness	For each consignment of 100T (or part thereof).	Laboratory Test		IS : 4031, IS : 269, IS : 1489, IS : 456			Manufacturer/ OR Package Contract	Manufacturer's Test Certificate to be furnished for each batch of cement used at site. Certificate shall be available at site before utilizing the cement
3.2	Normal consistency	-do-	Laboratory Test	Vicat needle	IS : 4031, IS : 269, IS : 1489, IS : 456			Manufacturer/ OR Package	
3.3	Initial and Final setting	-do-	Laboratory Test	Vicat needle	IS : 4031, IS : 269, IS : 1489, IS : 456	Depending on the type of cement and as per relevant IS		Manufacturer/ OR Package	
3.4	Soundness, Specific Gravity	-do-	Laboratory Test		IS : 4031, IS : 269, IS : 1489, IS : 456			Manufacturer/ OR Package	

4.0 CONCRETE									
4.1	Workability, Slump test	Once a day for each batching/ mixing plant	Batch Mix Report / Field Test		IS : 456, IS : 1199, Client's specification	Degree of workability adopted depending on the type of structure and type of compaction equipment.		Package Contract or	Mandatory Site Test
4.2	Crushing Strength	One set of 6 cubes of 150 cm. Size per 35 Cum. of concrete or part thereof for each grade of concrete per 8	Lab/Field Test	Compression Test Machine	IS : 516, IS : 1199, IS : 456 and Client's	Shall be as per IS: 456		Package Contract or	Three specimens shall be tested at 7 days and remaining at 28 days. Mandatory Site Test.
		hours of work or portion thereof.			specification				
4.3	Water Cement Ratio	At random at the time of batching	Batch Mix report	Visual observation	As per approved design mix			Package Contract or	
5.0 WATER									
5.1	Tests for ascertaining limits of solid	Once for each source of supply	Lab test	Lab Test	IS : 3026 and Soil investigation record.			Package Contract or	During mix design stage
5.2	Test of pH value	-do-	-do-	PH meter	IS : 456	PH value shall be less than 6.	Site log book		-do-
6.0 BRICK									
6.1	Compressive Strength	<u>For designation 100.</u> Every 50,000 or part thereof. <u>For designation up to 75.</u> Every 100,000 or part thereof.	Lab / Field test	Compression Testing Machine	IS: 1077	As per brick designation.			Mandatory Site Test

6.2	Shape, Size, Colour	-do-	Lab test/Field test.		IS: 3495				Mandatory Site Test
6.3	Water absorption and efflorescence	One test for each source of manufacturer and every lot of 200,000.	Lab Test		IS: 3495	Water absorption: a) after 24 hours not less than 20% by weight b) after 6 hours not less than 10% by weight. c) moderate degree of efflorescence			Lab Test Report shall be submitted by the contractor.
7.0 REINFORCEMENT STEEL									
7.1	Tensile Strength	(A). Every 20T or every consignment purchased by Package Contractor (B). For procurement of quantity less than 20T	Lab test	Universal Testing Machine	IS : 1608 IS : 2062 IS : 1786			Manufacturer/OR Package Contractor	Manufacturer test certificate must be submitted Copy of Manufacturer's Test Certificate & Certificate No. to be mentioned in the invoice.
7.2	Bend Strength	-do-	-do-		IS: 1599			-do-	-do-
7.3	Surface cracks, Rusts etc.	Random	Visual	Visual					

8.0 BITUMEN								
					IS: 73			Lab Test Report shall be submitted.
9.0 STORAGE OF MATERIALS								
9.1	Cement Storage	100%	Visual		IS: 4082	Covered storage. ❖ Clear gap of min. 15cm from the floor. ❖ Space of min. 45cm around the exterior wall. ❖ Stacking not more than 15 bags high arranged alternately lengthwise and crosswise.		
						❖ Width of the stack shall not be more than 3 meters		
9.2	Reinforcement Storage	100%	Visual		IS: 4082	Open storage. ❖ Bars of different classification, sizes and length will be stacked separately.		

9.3	Brick Storage	100%	Visual		IS: 4082	<p>Open storage.</p> <ul style="list-style-type: none"> ❖ Bricks shall be stacked on dry firm ground. ❖ Stacks shall be 50 bricks long and 10 bricks high. ❖ Bricks shall be placed on edge. 			
9.4	Aggregates Storage	100%	Visual		IS: 4082	<ul style="list-style-type: none"> ❖ Shall be stored at site on a dry ground/ platform of planks/ old corrugated iron sheets/ floor of bricks/ thin layer of lean concrete. ❖ Stacks of fine aggregate and coarse aggregate shall kept in separate stockpiles. 			

9.5	Other Bought Out Items	100%	Visual		IS: 4082	Covered storage/ OR open yard. Materials shall be stored as per manufacturer's specification.			
1.0	ROUTINE TEST LAB EQUIPMENT	1.1 Concrete Cube mould (150x150x150) mm	Concrete Cubes	-	IS : 10086	Yes			
		1.2 Compressive strength Testing machine	Concrete Cube Test	Crushing strength of cube	IS : 2505	Yes			
		1.3 Concrete slump cone	Workability Check	Drop in cone height of concrete	IS : 7320	Yes			
		1.4 Coarse aggregate sieves	Sieve analysis	Sieving	IS : 383	Yes			
		1.5 Soil Core cutter	To test compaction of soil	Core cut out of soil and density measured	IS : 2720	Yes			
		1.6 Fine aggregate sieves	Sieve analysis	Sieving	IS : 383	Yes			
2.0	DIMENSIONAL & ALLIED MEASURING EQUIPMENT	2.1 Total Station	Levelling, distance & angular Measurement coordinates.	Measurement and recording	-	Yes			
		2.2 Levelling Instrument & staff	Levelling	Measurement and recording	-	Yes			
		2.3 Measuring Tape	Dimension	-	-	Yes			
3.0	PROCESS CONTROL ACCESSORIES	3.1 Oven	Material Drying for moisture control	Material to be kept for specific duration	-	Yes			
		3.2 Physical balance	Weighing	-	-	Yes			

1	Earth work	<ul style="list-style-type: none"> (a) Classification of Soil, for payments, if required. (b) Line & level. (c) Disposal lead, for payments, if required. (d) Levelling at Disposal Yard, for payments, if required. (e) Initial & Final level in Level Book. (f) Rolling/Tamping/Compaction of Fills, as per IS : 2720 (g) Arrangement for de-watering. (h) Shoring & Strutting. (i) Safety (side slopes, ramps, working space around foundation, dumping at safe distance beyond top edge). (j) Excess excavation depth properly filled for foundation works. (k) Foundation bed level and ensure virgin hard surface. 	
2	Concreting Works	<ul style="list-style-type: none"> (a) Check quality and size of coarse aggregate with special reference to undersize/oversize materials, disintegrated/self-materials, earth and other foreign materials beyond limit, organic impurities. (b) Silt content, bulkage, foreign materials in sand and verify test report for fineness modulus. (c) Check formwork. (d) Line, level of concrete. (e) Honeycombed surface in concrete. (f) Strength of Concrete. (g) Check Mix Boxes. (h) Mixing of concrete by hand/machine. (i) Use of Vibrator. (j) Slump of concrete 	

3	Formwork	<ul style="list-style-type: none"> a) Line, level and dimensions as per drawing. b) Cross bracing of supporting framework. c) Diagonal bracings. d) Ground support rigidity to avoid settlement. e) Plumbness of shores. f) Wedge tightening of shores. g) Thickness of shutter to withstand pressure of wet concrete. h) Leakproof-ness of shutter (IS : 457) i) Demoulding agent/Oiling of shutter. j) Facility for removal of formwork in proper sequence. k) Avoid premature removal. 	
4	Reinforced Concrete Works	<ul style="list-style-type: none"> a) Sieve analysis of coarse aggregate to check oversize, undersize, improperly graded aggregate. b) Check presence of disintegrated/soft or foreign materials in aggregates. c) Quality of sand, Silt content, Bulkage test. d) Quality of Cement and age of Cement (1st in 1st OUT system) e) Quality of water for mixing and curing. f) Slump test. g) Cube Tests. h) Cover Block thickness and integrity (cover not reduced more than 2mm or increased by more than 10mm). i) Whether reinforcement exposed on removal of forms. j) Physical verification of grade of steel reinforcement, as required. k) Gauge of binding wire and its use at all joints. l) Reinforcement placement as per drawing and top reinforcement to be supported by chairs etc. 	

	<ul style="list-style-type: none"> m) Spacing of laps and staggering and length of lap. n) Mix design record/requirements. o) Rigidity and evenness of centering & shuttering. p) Finish requirement of surface. q) Throating and moulding requirements as per drawings. r) Line and level requirements as per drawing. s) Expansion joint contraction, joint provisions. t) Fixing of inserts, conduits, bolts to proper alignment. u) Hacking of green concrete for future plastering. v) Adequate curing. w) Drainage provisions on roof surface (slope & spout) x) Gangway placement for concreting to be independent of reinforcement. y) Rigidity of reinforcement cage to avoid distortion during concreting z) Compaction requirements of concrete by needle vibrators/Form vibrator etc. aa) Provisions at construction joint - Waterbar - Nozzles etc. bb) Provision of dowel bars 12mm 300 long (400mm either side) at 250 C/C on construction joint surface. 	
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5	Brickwork	<ul style="list-style-type: none"> (a) Quality of bricks for strength, dimensional accuracy, efflorescence water absorption and evenness of backing as per QAP. (b) Sand quality for fineness modulus and Silt content. (c) Cement quality. (d) Mixing of Mortar to structural space. (e) Thickness of joint not exceeding 10mm. (f) Raking of joints in green stage by raking tool (15mm deep) (g) Filling of vertical joints properly. (h) Soaking of bricks. (i) Line and level of brickwork. (j) Plumbness. (k) Brick corners are provided with proper brick closer not by brick bat. (l) Type of scaffolding. (m) Filling of scaffolding potholes. (n) Brick coarses are in level. (o) Proper bonding of main wall with cross wall (No toothing joints) (p) Brickwork taken-up in layers not exceeding 1 Metre. (q) Proper provision of reinforcement in brick - wall. (r) Lateral bonding of brick-wall to steel/concrete columns. (s) Filling-up voids between brick - wall and door/windows shutter. (t) Adequate curing of brickwork. 	
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6	Stone Masonry Work	<ul style="list-style-type: none"> (a) Quality of stone. (b) Strength of Mortar. (c) Mix of Mortar. (d) Quality of Sand – Silt content & fineness modulus. (e) Whether joints fully filled with Mortar. (f) Whether required number of bond stones provided (Marking of bond stone during construction needed for easy identification). (g) Extent of spalls in hearting. (h) Line, Level, Thickness. (i) Joint thickness (whether excessive thick) 	
7	Flooring Work		
7.1	Cement Concrete Floor	<ul style="list-style-type: none"> (a) Aggregates, Sand – refer PCC Works. (b) Strength. (c) Thickness. (d) Hardener type and mix. (e) Panel size. (f) Curing arrangement. (g) Polishing requirement. 	

8	Painting Work	<ul style="list-style-type: none"> (a) Name of Manufacturer, Specification, Batch Number, Colour, Date of Manufacture, ISI Marking on Paint Container. (b) Cracks, voids, pores on masonry surface properly filled. (c) Steel surface preparation, sand blasting, derusting etc. as per Specification. (d) Soundness and adherence of Old Paint. (e) Paint quality (No. adulteration by thinner) and quality of Primer. (f) Application of each coat of Paint for uniformity, paint drop, dabs, brush-marks, waves and variation of colour. (g) Difficult to reach areas like edges, corners, nuts, bolts etc. are properly painted. (h) Spilled Paints on floors & walls properly cleaned. 	
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9	Drainage	<ul style="list-style-type: none"> (a) Quality of G.I. Pipe with original colour paint for class of pipe and IS Mark on surface of pipe. (b) Joining of pipe with white lead and jute yarn on threads. (c) Pipes are approachable for future maintenance. (d) Quantity of lead provided at Spigot & Socket joints of pipes. (e) Internal surface of HCI Pipes to have painting. (f) Proper quality HCI Pipes used (Dimension, Weight, Finish, ISI Marks etc.) in Sewage System (C.I. Rain-water pipes) are not used in Sewage System. (g) Hume Pipe Class, makes, dimension and test certificate. (h) Quality of Line and level of system. 	
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STANDARD SPECIFICATION FOR TESTING OF CONSTRUCTION MATERIALS

CONTENT-

- 1.0 SCOPE**
- 2.0 REFERENCE CODES**
- 3.0 WATER**
- 4.0 SAND**
- 5.0 COARSE AGGREGATE**
- 6.0 CEMENT**
- 7.0 CEMENT CONCRETE**
- 8.0 REINFORCEMENT STEEL**
- 9.0 BRICKS**
- 10.0 MURRUM**

1.0 SCOPE

This specification defines the various tests to be conducted on various construction materials as dealt in this document as guided by HBL Engineer-in-charge.

2.0 REFERENCE CODES

The latest edition of following codes to be used: -

383 – Specification for coarse and fine aggregates from natural sources for concrete.

432 – Specification for mild steel and medium tensile steel bars and hard-drawn steel wire for concrete reinforcement: Part I Mild steel and medium tensile steel bars.

456 – Plain and Reinforced Concrete - Code of Practice 1077 – Common Burnt Clay Building Bricks - Specification 1542 – Specification for sand for plaster.

1599 – Method for bend test.

1608 – Metallic Materials - Tensile Testing at Ambient Temperature.

1786 – High Strength Deformed Steel Bars and Wires for Concrete Reinforcement.

2386 (All Parts) – Methods of Test for Aggregates for Concrete.

2430 – Methods for Sampling of Aggregates for Concrete.

3495 (All Parts) – Methods of Tests of Burnt Clay Building Bricks.

5454 – Methods of sampling of clay building bricks

3.0 WATER

Suitability for construction/ concreting purposes as per IS 456 latest editions.

Periodicity of Testing

One test at the beginning of the project and once in every 3 months and/or change of source.

4.0 SAND

Tests to be conducted

- Particle size - Lab
- Silt content - Field

- Bulking of sand-Field
- Percentage of Deleterious material / Organic impurities – lab

IS code for material - IS-383 Latest edition

IS code for testing - IS-2386 (Part I) to IS-2386 (Part VIII) latest edition

Periodicity of Testing

Whenever there is a change in source of supply or as directed by the HBL Engineer-in- Charge.

Remarks

1. Silt content should not exceed 8%.
2. For sand pad foundation no need of particle size distribution only silt and bulk content to be carried out.

Sand (for plastering)

The sand for plastering shall conform to IS 1542.

The following tests to be conducted

- Particle size - Lab
- Silt content - Field
- Percentage of Deleterious /organic impurities - Lab. IS code for material - IS-1542 latest edition

Periodicity of testing

Same as above, Test shall be repeated for Minimum qty. 500 sq. m of plastering.

Remarks

1. Silt content not to exceed 8%
2. Sand to be sieved in sieve size 4.75 mm

5.0 COARSE AGGREGATE

Tests to be conducted

- Percentage of Soft deleterious materials- Field (Visual)
- Particle size distribution
- Aggregate value:
 1. Crushing - Lab
 2. Impact- Lab
- Elongation Index & Flakiness Index

IS code for material - IS-383 latest edition

IS code for testing - IS-2386 (Part I) to IS 2386 (Part VIII) latest edition

Periodicity of Testing

Minimum 45 cum. Tests to be repeated for every 45 cum of coarse aggregate or part thereof.

6.0 CEMENT

Manufacturer Batch test certificate shall be submitted to HBL prior to use. Samples shall be drawn from each lot/batch of cement supplied to Site by Contractor & All the Tests required as per BIS Specifications of respective type of cement i.e. IS 8112 latest editions for 43 grade cement to be conducted at an approved labs.

Periodicity of Testing

Test shall be conducted per lot/batch or change of supplier.

Remarks

Cement shall be tested if stored for more than 3 months.

Approved manufacturers: Ultratech, ACC, Lafarge or India Cements.

7.0 CEMENT CONCRETE

Tests to be conducted

- Slump test - Field
- Cube strength – Lab
- Core Test/Load Test- Lab / Field

Periodicity of Testing

A random sampling procedure shall be adopted to ensure that each concrete batch shall have a reasonable chance of a being tested, that is a sampling should be spread over the entire period of concreting and cover all mixing units.

The minimum Frequency of sampling of concrete for each grade shall be in accordance with the clause no. 15.2.2 of IS code 456-2000.

While core test and Load test shall be done as per 14.3 & 14.6 of IS 456-2000.

8.0 REINFORCEMENT STEEL

Tests to be conducted

- a. Free from defects - Field (Visual)
- b. Weight - Lab
- c. Size - Lab
- d. Ultimate tensile stress - Lab
- e. Yield stress - Lab
- f. Elongation percentage - Lab
- g. Bend Re-bend test – Lab
- h. Chemical analysis-Lab IS code for material: -
 - IS-432 latest edition for Mild steel
 - IS-1786 latest edition for Tor steel
 - IS 1566 latest edition for Hard drawn steel wire fabric.
 - Thermo-mechanically treated (TMT) Bars from valid licensed company.

Periodicity of Testing

As per clause 11.1 of IS 1786 – 2008 and/or change of supplier.

Remarks

Steel shall be tested if stored in open yard for more than one year. Approved manufacturers: SAIL,RINL,VIZAG,TISCO.

9.0 BRICKS

Tests to be conducted

- Compressive Test - Lab
- Water absorption - Lab
- Efflorescence - Lab

- Percentage of Deleterious material - Lab.
- Dimension test-Lab

IS code for material - IS-1077 latest edition

IS code for Testing - IS-3495 (Part I) to IS-3495 (Part III) latest edition

Periodicity of Testing

The no. of sample taken from each lot shall be as per IS 5454-1978.

10.0 MURRUM/EARTH

Tests to be conducted:

- Max. Dry density
- Plasticity index
- Optimum Moisture Content.

Periodicity of Testing

Tests for every 45 cum of filled work or part thereof and change in source.

TO BE READ IN CONJUNCTION WITH ABOVE SEC- STANDARD SPECIFICATION FOR TESTING OF CONSTRUCTION MATERIALS

TESTING OF CIVIL CONSTRUCTION MATERIALS

For particle size test, it is recommended that the set of sieves and weighing machines be arranged by the contractor at site. Necessary manpower, for conduction of the tests, shall also be arranged by the contractor.

For crushing strength of concrete, it is recommended that the contractor arrange the compression testing machine at the site along with the calibration certificate for gauge.

In case, if any of the machine goes under repairs and tests could not be carried out at the site, contractor shall arrange to transport the material to an approved NABL laboratory to carry out the tests.

TABLE FOR MATERIAL TESTING

Sl. NO.	MATERIAL	TESTS	TEST PROCEDURE	ACCEPTANCE CRITERIA	PERIODICITY
1	Water	a) Ph value b) Limits of Acidity c) Limits of Alkalinity d) Percentage of solids e) Chlorides f) Suspended matter g) Sulphates h) Inorganic solids i) Organic solids	I.S. 3025	I.S. 456	From the source at the beginning of work / change of source and in any case once every 3 months
2	Cement	(a) Fineness (b) Soundness Setting time (Initial & Final) Compressive strength (e) Consistency	I.S. 4031	I.S. 8112 / 12269	Manufacturer's test certificate and Lab test for each batch brought to site.
3	Sand For concreting	As per SEC-9.7.1	IS 2386	IS 383 Zone – II or Zone-III	Every 45 Cum or part thereof.
4.	Coarse aggregate For concreting	As per SEC-9.7.1	I.S. 2386	I.S. 383	One test for each source Every 45 cum or part thereof
5	Reinforcement steel	(a) Chemical test (b) Bend & rebend test (c) Elongation test (d) 0.2% Proof stress (e) Tensile strength (f) Nominal mass	I.S. 1608	I.S. 1786	In case entire lot for a particular diameter is brought to Site from one batch then,) 2 samples if lot is upto 100 MT) 3 samples if lot is more than 100 MT Samples to be sent to Reputed Lab In case there are multiple lots brought to Site for each diameter then sample shall be drawn for each lot or batch.
6.	Concrete	(a) Slump test	I.S. 1199	I.S. 456	15 Cum or part thereof

7	Cement concrete (For RCC)	(a) Slump test (b) Cube test (Each sample consists of 6 cubes, three cubes for 7 days strength and	I.S. 1199	I.S. 456	Every 5 cum Qty. No. of Samples
		3 cubes for 28 days strength.)			1-5 M ³ : 1 6-15 M ³ : 2 16-30 M ³ : 3 31-50 M ³ : 4 51 & above: 4 plus one additional sample for each additional 50 M ³ or part thereof.
8	Sand for filling	(a) Particle size distribution (b) Organic content (c) Silt content (d) Uniformity coefficient (D60/D10) (e) Max. Dry density (f) Optimum Moisture content	I.S. 2386 I.S. 2720	Max. organic content 3% by wt. Silt content 10% by weight Particle size max. 5mm Uniformity coefficient 2.0 to 8.0 Compaction as per PO specs.	One lab test for each source or as per direction of Engineer-in-charge Field compaction test: 1 test for 500 M2 area of each layer of 200mm thickness.

TECHNICAL SPECIFICATIONS FOR CIVIL WORKS

GROUP - 1

EARTHWORK IN ROADS AND BUILDING WORKS

1.0 SCOPE:

This specification covers the general requirements of earthwork in excavation in different materials, filling in areas as shown in drawing, back-filling around foundations and in plinths, conveyance and disposal of surplus spoils or stacking them properly as shown on the drawings & as directed by ENGINEER and all operations covered within the intent & purpose of this specification.

2.0 APPLICABLE CODES:

The following Indian Standard Codes, unless otherwise specified herein, shall be applicable. In all cases, the latest revision of the codes shall be referred to :

- a) IS - 783 - Code of Practice for laying of concrete pipe.
- b) IS -1200 -Method of Measurement of Building Works.
- c) IS - 3764 - Safety code for excavation work
- d) IS -6313 (Part II)-Pre-constructional Chemical Treatment Measures.

GENERAL:

CONTRACTOR shall furnish all tools, plants, instruments, qualified supervisory personnel, labour, materials, any temporary works, consumables, anything and everything necessary, whether or not such items are specifically stated herein, for completion of the job in accordance with specification and requirements.

CONTRACTOR shall carry out the survey of the site before commencing excavation and set properly all lines and establish levels for various works such as earthwork in excavation for foundations, plinth filling, roads, drains, cable trenches, pipelines, etc. Such survey shall be carried out by studying thoroughly the drawings for the existing plant and modus operandi shall be discussed with ENGINEER. Ground levels shall be taken and properly recorded by the CONTRACTOR and shall be checked and certified by ENGINEER. If required, grown shrubs etc., have to be cut to take levels at no additional cost.

The excavation shall be done to correct lines and levels. This shall also include, where required, proper shoring to maintain excavations and also the furnishing, erecting and maintaining of substantial barricades around excavated areas and warning lamps at night to ensure safety.

The rates quoted shall also include for dumping of excavated materials in required heaps, riprap with regular slope as directed by ENGINEER, within the lead specified and leveling the same so as to provide natural drainage. Soil excavated shall be stacked properly as directed by ENGINEER. As a rule, all softer material shall be laid along the centre of heaps, the harder and more weather resisting materials forming the casing on the sides and the top.

3.0 CLEARING:

The area to be excavated, and/or filled shall be cleared of fences, plants, bushes, vegetation, slush, etc. and other objectionable matter. The materials so removed shall be disposed off as directed by

ENGINEER. Where earth fill is intended, the area shall be stripped of all loose/soft patches, top soil containing objectionable matter/material before fill commences.

EXCAVATION:

All excavation work shall be carried out manually or by mechanical equipment, as directed by ENGINEER. Excavation for permanent work shall be taken out to such widths, lengths, depths, and profiles of P.C.C. as are shown on the drawings or such other lines and grades as may be specified by ENGINEER. Initially excavation shall be carried out to a depth 150 mm above the final level. The balance shall be excavated with special care. Soft pockets shall be removed even below the final excavation, if so instructed by ENGINEER, and shall be carried out just prior to laying the P.C.C.

CONTRACTOR may, to facilitate his work or for similar other reasons excavate and also backfill later, if so approved by ENGINEER, at his own cost, outside the lines shown on the drawings or directed by ENGINEER. Should any excavation be taken below the specified elevation, CONTRACTOR shall fill it up, with concrete of the grade specified on drawings, upto the required elevation. No extra shall be paid to CONTRACTOR on this account.

All excavations shall be done to the minimum dimensions as required for safety and working facility. However, prior approval of ENGINEER shall be obtained by CONTRACTOR in each individual case, for the method he proposes to adopt for the excavation including dimensions, side slopes, de-watering, disposal, etc. This approval, however, shall not in any way relieve CONTRACTOR of his responsibility for any consequent loss or damage. The excavation must be carried out in the most expeditious and efficient manner. Side slopes shall be as steep as will stand safely for the actual soil conditions encountered. Every precaution shall be taken to prevent slips. Should slips occur, the slipped material shall be removed and the slope dressed to a modified stable one. Removal of the slipped earth will not be paid for.

Excavation shall be carried out with such tools, tackles and equipment as described here in before.

FILL AND BACKFILLING:

GENERAL:

All fill material will be subject to ENGINEER's approval. If any material is rejected by ENGINEER, CONTRACTOR shall remove the same forthwith from the site at no extra cost to the OWNER. Surplus fill material shall be deposited / disposed off as directed by ENGINEER after the fill work is complete.

No earthfill shall commence until surface drain have been properly intercepted, or otherwise dealt with, as directed by ENGINEER.

MATERIAL:

Only selected excavated materials shall be used as backfill. Fill material shall be free from clods, salts, sulphates, organic or other foreign material. All clods of earth shall be broken or removed.

If any selected fill material is required to be borrowed, CONTRACTOR shall make arrangements for bringing such material from outside borrow pits. The material and source shall be subject to prior approval of ENGINEER. The approved borrow pits area shall be cleared of all bushes, plants, rubbish, etc. Top soil containing salts / sulphate and other foreign material shall be removed. The materials so removed shall be disposed off, as directed by ENGINEER.

FILLING IN PITS AND TRENCHES AROUND FOUNDATIONS OF STRUCTURES, WALLS ETC.:

As soon as the work in foundations has been accepted and measured, the spaces around the foundations, structures, pits, trenches, etc. shall be cleared of all debris and filled with earth in layers not exceeding 15 cm., each layer being watered, rammed and properly consolidated, before the succeeding one is laid. Each layer shall be consolidated to the satisfaction of ENGINEER. Earth shall be rammed with approved mechanical compaction machines. Usually no manual compaction shall be allowed unless ENGINEER is satisfied that in some cases manual compaction by tampers cannot be avoided. The final backfill surface shall be trimmed and levelled to proper profile, as directed by ENGINEER and/or shown on the drawings.

PLINTH FILLING:

Plinth filling shall be carried out with approved material as described herein before in layers not exceeding 15 cm, watered and compacted with mechanical compaction machines. ENGINEER may, however, permit manual compaction by hand tampers in case he is satisfied that mechanical compaction is not possible. When filling reaches the finished level, the surface shall be flooded with water, unless otherwise directed, for at least 24 hours, allowed to dry and then the surface again compacted as specified above to avoid settlements at a later stage. The finished level of the filling shall be trimmed to the level/slope specified.

SAND/ MURRUM/ EARTH FILLING AT OTHER PLACES:

At places backfilling shall be carried out with local sand / murum if directed by ENGINEER. The sand / murum used shall be clean medium grained and free from impurities. The filled- in-sand / murum shall be kept flooded with water for 24 hours to ensure maximum consolidation. Any temporary work required to contain sand / murum under flooded condition shall be to CONTRACTOR'S account. The surface of the consolidated sand / murum shall be dressed to required level or slope. Construction of floors or other structures on fill shall not be started until ENGINEER has inspected and approved the fill.

FILLING IN TRENCHES/ GROUND/ PITS:

Filling in trenches for pipes and drains shall be commenced as soon as the joints of pipes and drains have been tested and approved by ENGINEER. The back-filling material shall be properly consolidated by watering and ramming, taking due care that no damage is caused to the pipes.

Where the trenches are excavated in soil, the filling from the bottom of the trench to the level of the centreline of the pipe shall be done by hand compaction with selected approved earth in layers not exceeding 8 cm; backfilling above the level of the centre line of the pipe shall be done with selected earth by hand compaction or other approved means in layers not exceeding 15 cm.

In case of excavation for trenches, the filling upto a level 30 cm above the top of the pipe shall be done with fine materials, such as earth, sand, murum, etc. The filling upto the level of the centreline of the pipe shall be done by hand compaction in layers not exceeding 8 cm. Whereas the filling above the centre line of the pipe shall be done by hand compaction or by approved means in layers not exceeding 15 cm. The filling from a level 30 cm. above the top of the pipe to the top of the trench shall be done by hand or other approved mechanical methods, as directed by ENGINEER.

Filling of the trenches shall be carried simultaneously on both sides of the pipe to avoid unequal pressure on the pipe.

MEASUREMENT AND PAYMENT:

All excavation shall be measured net. Dimensions for the purpose of payment shall be reckoned on the horizontal area of the P.C.C. at the base for foundations of the walls, columns, footings, tanks, rafts, or

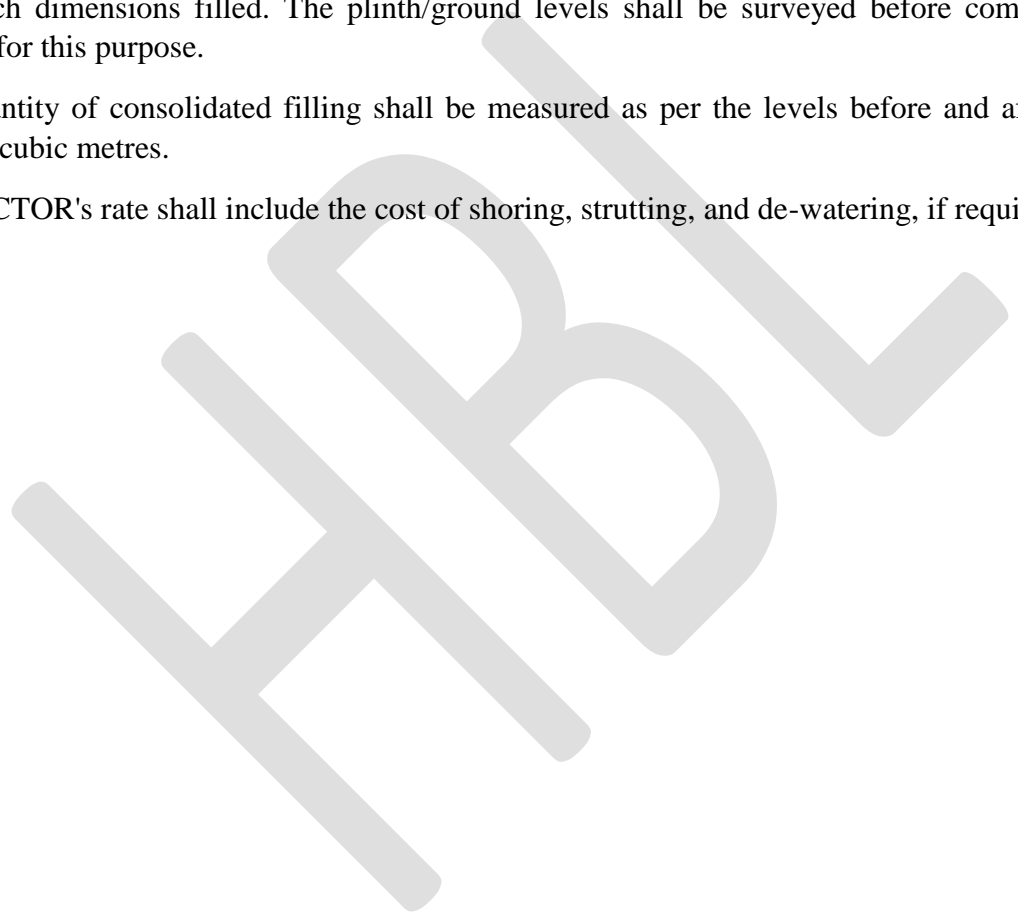
other foundations/structures to be built, multiplied by the mean depth from the surface of the ground in accordance with the drawings and duly recorded ground levels. Excavation in side slopes will not be paid for. CONTRACTOR may make such allowance in his rates to provide for excavation in side slopes keeping in mind the nature of the soil and safety of excavation for fixing shuttering etc..

Backfilling as per specifications as specified and directed for the sides of foundations of columns, footings, structures, walls, tanks, rafts, trenches, etc. with excavated material will not be paid for separately. It shall be clearly understood that rates quoted for excavation shall include stacking of excavated material, if required, within specified lead, backfilling with selected earth in layers of 150 mm, compacting, etc. and transporting the surplus excavated material outside plot limits.

Payment for fill inside trenches, plinth or similar filling with selected excavated material will be made for only compaction as specified/directed by ENGINEER. Cost of all other operations shall be deemed to have been included in the rates quoted. Payment for this work will be made based on measurement of plinth/trench dimensions filled. The plinth/ground levels shall be surveyed before commencement of earthwork for this purpose.

Actual quantity of consolidated filling shall be measured as per the levels before and after filling and paid for in cubic metres.

CONTRACTOR's rate shall include the cost of shoring, strutting, and de-watering, if required.



GROUP - 2

CEMENT CONCRETE AND ALLIED WORKS

1.0 SCOPE:

This specification covers the general requirements for concrete to be used on jobs using on-site production facilities including requirements in regard to the quality, handling, storage of ingredients, proportioning, batching, mixing & testing of concrete, and also requirements in regard to the quality, storage, bending and fixing of reinforcement. This also covers the transportation of concrete from the mixer to the place of final deposit and the placing curing, protecting, repairing and finishing of concrete.

APPLICABLE CODES AND SPECIFICATIONS: The following specification, standards and codes shall form a part of this specification. All standards, tentative specifications, codes of practice, referred to herein, shall be the latest editions including all applicable official amendments and revisions.

In case of discrepancy, if any between this specification and those referred to in the following, the latter shall govern.

APPLICABLE I.S. SPECIFICATIONS AND CODES OF PRACTICE:

S, 12269–Specification for High Strength Ordinary Portland Cement Grade

53. I.S, 8112–Specification for High Strength Ordinary Portland Cement Grade 43.

I.S. 1489-Specification for Portland Pozzolona Cement

I.S. 383 - Specification for coarse and fine aggregates from natural source for concrete.

I.S. 2386 - Method of test for aggregates (Part I to VIII) for concrete.

I.S. 516 - Method of test for strength of concrete.

I.S. 1199 - Method of sampling and analysis of concrete.

I.S. 3025 - Method of sampling and test (Physical and chemical) for water & waste water.

I.S. 432 - Specification for mild steel (Part I & II) and medium tensile steel bars and hard drawn steel wire for concrete reinforcement.

I.S. 1139 - Specification for hot rolled mild steel and medium tensile steel deformed bars for concrete reinforcement.

I.S. 1566 - Specification for hard drawn steel wire fabric for concrete reinforcement.

I.S. 1786 - Specification for TMT (thermo mechanically treated) Steel bars for concrete reinforcement.

I.S. 2645 - Specification for integral cement waterproofing compound.

I.S. 456:2000 - Code of practice for plain and reinforced concrete.

I.S. 3370 - Code of practice for concrete (Parts I-IV) structures for storage of liquids.

I.S. 2502 - Code of practice for bending and fixing of bars for concrete reinforcement.

I.S. 2571 - Code of practice for laying in situ cement concrete flooring.

I.S. 3696 - Safety code for scaffolds and (Part I & II) ladders.

I.S. 1200 - Method of measurement of building & civil engineering works.

GENERAL:

The quality of materials & method and control of manufacture and transportation of all concrete work irrespective of mix, whether reinforced or otherwise, and shall conform to the applicable portions of this specification.

ENGINEER shall have the right to inspect the source of material, the layout and operation of procurement and storage of materials, the concrete batching and mixing equipment, and the quality control system. Such an inspection shall be arranged and ENGINEER's approval obtained, prior to starting of **concrete work**.

MATERIALS FOR STANDARD CONCRETE:

The ingredients to be used in the manufacture of standard concrete shall consist solely of a standard type Portland cement, clean sand, natural coarse aggregate, clean water, and admixtures, if specially called for on drawings and/or specifications.

CEMENT:

Unless otherwise specified cement shall be OPC / PPC of approved make in 50 kg bags. The use of bulk cement will be permitted only with the approval of ENGINEER. Changing of brands or type of cement within the same structure will not be permitted.

CONTRACTOR shall make his own arrangements for the storage of adequate quantity of cement. If supplies are arranged by OWNER, cement will be issued in quantities to cover work requirements of one month or less, as deemed fit by the ENGINEER and it will be the responsibility of CONTRACTOR to ensure adequate and proper storage. Cement bags shall be stored in a dry enclosed shed (storage under tarpauline will not be permitted), well away from the outer walls and insulated from the floor to avoid contact with moisture from ground & walls, and so arranged as to provide ready access. Damaged or reclaimed or partly set cement will not be permitted to be used and shall be removed from the site. Not more than 12 bags shall be stacked in any tier. The storage arrangement shall be approved by ENGINEER. Consignment of cement shall be stored as received and shall be consumed in the order of their receipts at site. Cement will be tested as per schedule of testing given in the tender document & manufacturer's test certificate alone will not suffice.

Cement held in storage for a period of ninety (90) days or longer shall be tested. Should at any time ENGINEER have reasons to consider that any cement is defective, then irrespective of its origin, date of manufacture and/or manufacturer's test certificate, such cement shall be tested immediately at CONTRACTOR's cost at a National Test Laboratory/approved laboratory and until the results of such tests are found satisfactory, it shall not be used in any work. CONTRACTOR shall not be entitled to any claim of any nature of this account.

AGGREGATES:

"Aggregate" in general designates both fine and coarse inert materials used in the manufacture of concrete.

"Fine Aggregates" are aggregates most of which pass through 4.75 mm IS sieve.

"Coarse aggregates" are aggregate most of which retain on 4.75 mm IS sieve.

All fine and coarse aggregate proposed for use in the work shall subject to ENGINEER's approval and after specific materials have been accepted, the source of supply of such material, shall not be changed without prior approval of ENGINEER.

Aggregates shall, except as noted above, consist of natural sands, crushed stone and gravel from a source known to produce satisfactory aggregate for concrete and shall be chemically inert, strong, hard, durable against weathering, of limited porosity and free from deleterious materials that may cause corrosion of the reinforcement or may impair the strength and/or durability of concrete. The grading of aggregates shall be

such as to produce a dense concrete of specified strength & consistency that will work readily into position without segregation and shall be based on test on concrete as specified later in this group.

SAMPLING AND TESTING:

Samples of the aggregates for determination of suitability shall be taken under the supervision of ENGINEER and delivered to the laboratory well in advance of the scheduled placing of concrete. Records of tests which have been made on proposed aggregates and on concrete made from this source of aggregate shall be furnished to ENGINEER in advance of the work for use in determining the aggregate suitability. The costs of all such tests, sampling, etc. shall be borne by CONTRACTOR.

STORAGE OF AGGREGATES:

All coarse and fine aggregate shall be stacked separately in stock piles in the material yard near the work site to avoid intermixing of different aggregates. Contamination with foreign materials and earth during storage and heaping the materials shall be avoided. The aggregates must be of specified quality not only at the time of receiving at site but more so at the time of loading into the mixer. Rakers shall be used for lifting the coarse aggregates from stock piles. Coarse aggregates shall be piled in layers not exceeding 1.20 metres in height to prevent coning or segregation. Each layer shall cover the entire area of the stock pile before succeeding layers and started. Aggregates that have become segregated shall be rejected. Rejected material after remixing may be accepted, if subsequent tests demonstrate conformity with required gradation.

SPECIFIC GRAVITY:

Aggregates having specific gravity below 2.6 (saturated surface dry basis) shall not be used without special permission of ENGINEER.

FINE AGGREGATES: Fine aggregate, except as noted above, shall consist of natural or crushed sand conforming to IS: 383. The sand shall be clean, sharp, hard, strong and durable and shall be free from dust, vegetable substances, adherent coatings, clay, alkali, organic matter, mica, salt, or other deleterious substances which can be injurious to the setting qualities / strength / durability of concrete.

SCREENING AND WASHING:

Sand shall be prepared for use by such screening or washing or both, as necessary, to remove all objectionable foreign matters while separating the sand grains to the required size fraction.

FOREIGN MATERIAL LIMITATIONS:

The percentage of deleterious substances in sand delivered to the mixer shall not exceed the following:

Percent by Weight Uncrushed Crushed

- Material finer than 75 micron I.S. sieve 3.00 15.00
- Shale 1.00 –
- Coal and lignite 1.00 1.00
- Clay lumps 1.00 1.00
- Total of all above substances including items (i) to (iv) for uncrushed sand and items (iii) & (iv) for crushed sand. 5.00 2.00

GRADATION:

Unless otherwise directed or approved, the grading of sand shall be within the limits indicated hereunder:-

PERCENTAGE PASSING FOR

I.S. Sieve	Grading	Grading	Grading	Grading
Designation	Zone-I	Zone-II	Zone-III	Zone-IV
10.00 mm	100	100	100	100
4.75 mm	90-100	90-100	90-100	95-100
2.36 mm	60- 95	75-100	85-100	95-100
1.18 mm	30- 70	55- 90	75-100	90-100
600 micron	15- 34	35- 59	60- 79	80-100
300 micron	5- 20	8-30	12- 40	15- 50
150 micron	0- 10	0- 10	0-10	0- 15

Where the grading falls outside the limits, of any particular grading zone of sieves, other than 600 micron I.S. sieves, by total amount not exceeding 5 %, it shall be regarded as falling within that grading zone. This tolerance shall not be applied to percentage passing the 600 micron I.S. Sieves or to percentage passing any other sieve size on the coarser limit of Grading Zone I or conforming to Grading Zone IV shall be used.

FINENESS MODULUS:

The sand shall have a fineness modulus of not less than 2.2 nor more than 3.2. The fineness modulus is determined by adding the cumulative percentages retained on the following I.S. Sieve (4.75 mm, 2.36 mm, 1.18 mm, 600 micron, 300 micron and 150 micron) and dividing the sum by 100.

COARSE AGGREGATES:

Coarse aggregates for concrete, except as noted above, shall conform IS: 383. This shall consist of natural or crushed stone & gravel and shall be clean and free from elongated, flaky or laminated pieces, adhering coatings, clay lumps, coal residue, clinkers, slag, alkali, mica, organic matter or other deleterious matter.

SCREENING AND WASHING:

Natural gravel and crushed rock shall be screened and/or washed for the removal of dust coating, if so demanded by ENGINEER.

GRADING:

The pieces shall be angular in shape and shall have granular or crystalline surfaces. Friable, flaky and laminate pieces, mica and shale, if present, shall be only in such quantities that will not, in the opinion of ENGINEER, affect adversely the strength and/or durability of concrete. The maximum size of coarse aggregates shall be specified on relevant drawings. The maximum size of coarse aggregates shall in no case be greater than 1/4 of the minimum thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and fill the corners of the form. Plums above 150 mm and upto any reasonable size can be used in plain mass concrete work of large dimensions upto a maximum limit of 20% by volume of concrete when specifically approved by ENGINEER. For heavily reinforced concrete members, the nominal maximum size of the aggregates shall be 5 mm less than the minimum clear distance between the reinforcing main bars, or 5 mm less than the minimum cover to the reinforcement, whichever is smaller. The amount of fine particles occurring in the free state or as loose adherent shall not exceed 1% when determined by laboratory sedimentation tests as per IS: 2386. After 24

hours immersion in water, previously dried sampled shall not have gained more than 10% its oven dry weight in air, as determined by

I.S. 2386.

FOREIGN MATERIAL LIMITATIONS:

The percentages of deleterious substances in the aggregate delivered to the mixer shall not exceed the following:

Percentage by weight Uncrushed Crushed
i) Material finer than 75 micron 3.00 3.00

I.S. sieve

ii) Coal and lignite	1.00	1.00
iii) Clay lumps	1.00	1.00
iv) Soft fragments	3.00	-
v) Total of all the above substances	5.00	5.00

2.0 WATER: Water used for both mixing and curing shall be free from injurious amounts of deleterious materials. Potable waters are generally satisfactory for mixing and curing concrete.

REINFORCEMENT:

SUPPLY:

The reinforcement shall be TMT bars conforming to IS : 1786-1985

Substitution of reinforcement will not be permitted except upon written approval from ENGINEER.

STORAGE: The reinforcement shall not be kept in direct contact with the ground but stacked on top of an arrangement of timber sleepers or the like.

If the reinforcing rods/bars have to be stored for a long duration, they shall be coated with cement wash before stacking and/or be kept under cover or stored as directed by ENGINEERS. Fabricated reinforcement shall be carefully stored to prevent damage, distortion, corrosion and deterioration.

All reinforcement shall be clean, free from grease, oil, paint, dirt, loose mill scale, loose rust, dust, bituminous material or any other substances that will destroy or reduce the bond. All rods shall be thoroughly cleaned before being fabricated.

Pitted and defective rods shall not be used. All bars shall be rigidly held in position before concreting. No welding of rods to obtain continuity shall be allowed, unless approved by ENGINEERS.

LAPS :

Laps and splices for reinforcement shall be as shown on the drawings. Splices in adjacent bars shall be staggered and the locations of all splices, except those specified on the drawings, shall be approved by ENGINEER. The bars shall not be lapped unless the length required exceeds the maximum available length of bars at site.

BENDING :

Reinforcing bars, supplied bent or in coils, shall be straightened before they are cut to size. Straightening of bars shall be done in cold and without damaging the bars. This is considered as a part of reinforcement bending fabrication work and contractor's rates are deemed to include this work.

All bars shall be accurately bent according to the sizes and shapes shown on the detailed working drawings. They shall be bent gradually by machine or other approved means. Reinforcing bars shall not be straightened and rebent in a manner that will injure the material; bars containing cracks or splits shall be rejected. They shall be bent cold, except bars of over 25 mm in diameter which may be bent hot if specifically approved by ENGINEER. Bars which depend for their strength on cold working, shall not be bent hot. Bars bent hot shall not be heated beyond cherry red colour (nor exceeding 84 deg C) and after bending shall be allowed to cool slowly without quenching. Bars incorrectly bent shall be used only if the means used for straightening and rebending be such as shall not, in the opinion of ENGINEER, injure the material. No reinforcement shall be bent when in position in the work without approval, Whether or not it is partially embedded in hardened concrete. Bars having kinks or ends other than those required by designed shall not be used.

FIXING:

Reinforcement shall be accurately fixed by any approved means and maintained in the correct position shown in the drawings by the use of blocks, spacers and chairs as per IS 2502 to prevent displacement during placing and compaction of concrete. Bars intended to be in contact at crossing points shall be securely bound together at all such points with 16 gauge annealed soft iron wire. The vertical distances required between successive layers of bar in beams or similar members shall be maintained by the provisions of mild steel spacer bars at such intervals that the main bars do not perceptibly sag between adjacent spacer bars.

COVER:

Clear concrete cover for reinforcement shall be as stated on drawings.

The correct cover shall be maintained by cement mortar blocks or other approved means. Reinforcement for footings, grade beams and slabs on subgrade shall be supported on precast concrete blocks as approved by ENGINEER. The use of pebbles or stones will not be permitted.

The 28 days crushing strength of cement mortar cubes/precast cover blocks shall be at least equal to the specified strength of concrete in which these cubes/blocks are embedded.

The minimum clear distance between reinforcing bars shall be in accordance with IS 456:2000, or as shown in drawings.

INSPECTION:

Erected and secured reinforcement shall be inspected and approved by ENGINEER prior to placement of concrete.

PAYMENT:

For payment of work done under this item shall be made as per Special Terms & conditions., The unit rate for reinforcement shall include all wastage, binding wire, etc. for which no separate payment shall be made. Laps as shown on drawings or as approved by ENGINEER and minimum number of chairs and spacer bars to keep the reinforcement in place and approved by ENGINEER shall be measured and paid for.

3.0 STEEL SHAPES ENCASED IN CONCRETE:

Structural steel columns, beams, girders and bracings to be encased in concrete shall be unpainted. The encasing shall be done in concrete with 10 mm maximum size aggregate. The steel member will have a

minimum cover of 50 mm unless otherwise indicated on the drawings. Where the clean cover to steel is more than 75 mm, mild steel bar and concrete with 20 mm coarse aggregate shall be used.

4.0 MIXING:

Concrete shall be mixed in mechanical mixer (with hopper). The mixer should comply with IS 1791 and IS 12119. The mixer shall be fitted with water measuring devices. The mixing shall be continued until there is a uniform distribution of the material and the mass is uniform in colour. If there is segregation after unloading from the mixer, the concrete should be remixed. For guidance, the mixing time shall be at least 2 minutes. For concrete of grades M 20 or lower, "Nominal Mix Concrete" as specified in IS: 456:2000 is to be used. Whether reinforced or otherwise, all concrete to works to be carried out under this specification shall be divided into the following classification.

Minimum Compressive Strength Of 15 Cm Cubes At 7 And 28 Days After Mixing, Conducted In Accordance With IS: 516

Grade	Works Test Kg/sq.cm		Maximum Size aggregate in mm	Location
	at 7 days	at 28 days		
M20	135	200	20	As indicated on drawing
M15	100	150	20	- do -
M10	70	100	40 or 20	-do-

Mix Proportioning and Cement Consumption For Concrete:

Min and Max cement content will be as per IS 456: 2000.

SAMPLING AND TESTING CONCRETE IN THE FIELD:

Facilities required for sampling materials and concrete in the field, shall be provided by CONTRACTOR at no extra cost.

SAMPLING AND TESTING CONCRETE IN THE FIELD:

Test cubes of each grade of concrete shall be made as specified in IS: 456:2000. Such samples shall be drawn on each day, for each grade of concrete & during each concreting operations. Of each set of 6 cubes, three shall be tested at 7 days age and three at 28 days age. The laboratory test results shall be tabulated and furnished to ENGINEER. ENGINEER will accept the concrete according to 'Acceptance Criteria' specified in the IS:456:2000.

CONSISTENCY:

Slump tests shall be carried out as often as demanded by ENGINEER invariably from the same batch of concrete from which the test cubes are made. Slump test shall be done immediately after sampling.

WATERPROOFING COMPOUND:

Where specified and approved by ENGINEER, waterproofing compound conforming to IS: 2645, shall be added in quantities recommended by manufacturer and specified by ENGINEER.

PREPARATION PRIOR TO CONCRETE PLACEMENT, FINAL, INSPECTION AND APPROVAL.

Before the concrete is actually placed in position, the inside of the formwork shall be inspected to see that they have been cleaned and oiled. Non-staining oil shall be used as approved by ENGINEER. Temporary opening shall be provided to facilitate inspection, especially at bottom of columns and wall forms, to permit removal of say dust, wood shavings, binding wire, rubbish, dirt, etc. Openings shall be placed or holes drilled so that these materials and water can be removed easily. Such openings/holes shall be later suitably plugged.

The various trades shall be permitted ample time to install drainage and plumbing lines, floor and trench, drains, conduits, hangers, anchors, inserts, sleeves, bolts, frames and other miscellaneous embedment's to be cast in the concrete as indicated on the drawings or as is necessary for the proper execution of the work. CONTRACTOR shall co-operate fully with all such agencies and shall permit the use of scaffolding, formwork, etc. by other trades at no extra cost.

All embedded parts, inserts, etc. supplied by OWNER or CONTRACTOR shall be correctly positioned and securely held in the forms to prevent displacement during placing and vibrating of concrete.

Reinforcement and other items to be cast in concrete shall have clean surfaces that will not impair bond.

Prior to concrete placement all work shall be inspected and approved by ENGINEER and, if found unsatisfactory, concrete shall not be poured until after all defects have been rectified at CONTRACTOR's cost.

Approval by ENGINEER of any all materials and work as required herein shall not relieve CONTRACTOR from his obligation to produce finished concrete in accordance with the drawings and specifications.

RAIN OR WASH WATER:

No concrete shall be placed in wet weather or on a water covered surface. Any concrete that has been washed by heavy rains shall be entirely removed, if there is any sign of cement and sand having been washed away from the concrete placed. To guard against damage which may be caused by rains, the works shall be covered with tarpaulins immediately after the concrete has been placed and compacted before leaving the work unattended. Any water accumulated on the surface the newly placed concrete shall be removed by approved means and no further concrete shall be placed thereon until such water is removed. To avoid flow of water over/around freshly placed concrete, suitable drains and sumps shall be provided.

BONDING MORTAR:

Immediately before concrete placement begins, prepared surfaces except formwork, which will come in contact with the concrete to be placed, shall be covered with the bonding mortar.

5.0 CLEANING OF EQUIPMENT:

All equipment used for mixing, transporting and placing of concrete shall be maintained in clean condition. All pans, buckets, hoppers, chutes, pipelines & other equipment shall be thoroughly cleaned after each period of placement.

PROCEDURE FOR PLACING OF CONCRETE:

ENGINEER'S APPROVAL OF EQUIPMENT & METHOD:

Before any concrete is placed, the entire placing program consisting of equipment, layout, proposed procedures and methods shall be submitted to ENGINEER for approval, if so demanded by ENGINEER and no concrete shall be placed until ENGINEER's approval has been received. Equipment for conveying concrete shall be of such size and design as to ensure a practically continuous flow of concrete during depositing without segregation of materials, considering the size of the job and placement location.

TIME INTERVAL BETWEEN MIXING AND PLACING:

Concrete shall be placed in its final position before the cement reaches its initial set and concrete shall normally be compacted in its final position within thirty minutes of leaving the mixer, and once compacted, it shall not be disturbed.

AVOIDING SEGREGATION:

Concrete shall, in all cases, be placed as near as practicable directly in its final position, and shall not be rehandled or caused to flow in a manner which will cause segregation loss of materials, displacement of reinforcement, shuttering or embedded inserts or impair its strength. For locations where direct placement is not possible, and in narrow forms, CONTRACTOR shall provide suitable drop and "Elephant Trunks" to confine the movement of concrete. Special care shall be exercised when concrete is dropped from a height, especially if reinforcement is in the way, particularly in columns and thin members.

PLACING BY MANUAL LABOUR:

Except when otherwise approved by ENGINEER, concrete shall be placed in the shuttering by shovels or other approved equipment. It should be handled in a manner to preclude segregation. Care should be taken to avoid displacement of reinforcement or movement of form work. As a general guidance, the maximum permissible free fall of concrete may be taken as 1.5 m.

COMPACTION:

Concrete shall be compacted during placing, with approved vibrating equipment until the concrete has been consolidated to the maximum practicable density, is free of pockets of coarse aggregates and fits tightly against all form surfaces, reinforcement and embedded fixtures. Particular care shall be taken to ensure that all concrete placed against the form faces and into corners of forms or against hardened concrete at joints is free from voids or cavities. The use of vibrators shall be consistent with the concrete mix and caution exercised not to over vibrate the concrete to the point that segregation results, and water appears on the top surface.

USE OF VIBRATORS:

The exact manner of application and the most suitable machines for the purpose must be carefully considered and operated by experienced men. Immersion vibrators shall be inserted vertically at points not more than 450 mm apart and withdrawn when air bubbles cease to come to the surface. Immersion vibrators shall be withdrawn very slowly. In no case shall immersion vibrators be used to transport concrete inside the forms. Particular attention shall be paid to vibration at the top of a lift e.g. in a column or wall.

PENETRATION OF VIBRATOR:

The immersion vibrator shall penetrate the layer being placed and also penetrate the layer below while the underlayer is still plastic, to ensure good bond and homogeneity between the two layer and prevent the formation of cold joints.

6. VIBRATION AGAINST REINFORCEMENT:

Care shall be taken to prevent contact of immersion vibrator with reinforcement steel and/or embedded parts. Immersion vibrators shall not be allowed to come in contact with reinforcement steel after start of initial set. They shall also not be allowed to come in contact with forms of finished surfaces.

STONE POCKETS AND MORTAR PONDAGES:

The formation of stone pockets or mortar pondages in corners and against faces of forms shall not be permitted. Should these occur, they shall be dug out, reformed and refilled to sufficient depth and shape for thorough bonding, as directed by ENGINEER.

PLACING CONCRETE THROUGH REINFORCING STEEL:

When placing concrete through reinforcing steel, care shall be taken to prevent segregation of the coarse aggregate. Where the congestion of steel makes placing difficult, it may be necessary to temporarily move the top steel aside to get proper placement and restore reinforcing steel to design position.

BLEEDING:

Should bleeding of free water on top of concrete being placed into the form occur, the conditions causing this defect shall be corrected before further concreting is resumed.

CONSTRUCTION JOINTS AND KEYS:

Concrete shall be placed without interruption until completion of the part of the work between predetermined construction joints, as specified hereinafter. Time lapse between the pouring of adjoining units shall be as specified on the drawings or as directed by ENGINEER.

If stopping of concreting become unavoidable anywhere, a properly formed construction joint shall be made where the work is stopped. Joint shall be either vertical or horizontal unless otherwise shown on drawings. In case of an inclined or curved member, the joint shall be at the right angles to the axis of the member. Vertical joints in walls shall be kept to a minimum. Vertical joints shall be formed against a stop board; horizontal joints shall be level and wherever possible, arranged so that the joint lines coincide with the architectural features of the finished work. Battens shall be nailed to the form work to ensure a horizontal line, and if directed, shall also be used to form a grooved joint. For water storage tank walls and similar work, joints shall be formed as per IS: 3370. Concrete that is in the process of setting shall not be disturbed or shaken by traffic either on the concrete itself or upon the shuttering. Horizontal and vertical construction joints and shear keys shall be located and shall conform in detail to the requirements of plans, unless otherwise directed by ENGINEER. Where not described, the joint shall be in accordance with the following:

COLUMN JOINTS:

In a column, the joint shall be formed 75 mm below the lowest soffit of the beams including haunches, if any. In flat slab construction, the joint shall be 75 mm below the soffit of column capital. At least 2 hours shall elapse after depositing concrete in columns, piers or walls, before depositing in beams, girders or slabs supported thereon.

BEAM AND SLAB JOINTS:

Concrete in a beam/girder shall be placed throughout without a joint, however, if provision of a joint is unavoidable, the joint shall be vertical and between quarter and third points of the spans unless otherwise shown on drawings. Where a beam intersects a girder, the joint in the girder shall be offset a distance equal to twice the width of the beam and additional reinforcement provided for shear, if required. The joints shall be vertical throughout the full thickness of the concrete member. A joint in a slab shall be vertical and parallel to the principal reinforcement. Where it is unavoidable at right angles to the principal reinforcement, the joint shall be vertical and at the middle of the span.

JOINTS IN LIQUID RETAINING STRUCTURE:

Vertical construction joints in watertight construction will not be permitted unless indicated on the drawings. Where a horizontal construction joint is required to resist water pressure, special care shall be taken in all phases of its construction to ensure water-tightness.

7.0 TREATMENT OF CONSTRUCTION JOINTS ON RESUMING CONCRETING:

A stiffer mix shall be used for the top lift of horizontal pours to avoid laitance. All laitance and loose stones shall be thoroughly and carefully removed by wire brushing/hacking and surface washed. Just before concreting is resumed, the roughened joint surface shall be thoroughly cleaned and loose matter removed

and then treated with a thin layer of cement grout of proportion specified by ENGINEER and worked well into the surface. The new concrete shall be well worked against the prepared surface before the grout mortar sets. Special care shall be taken to obtain thorough compaction and to avoid segregation of the concrete along the joints / plane.

CURING, PROTECTING, REPAIRING AND FINISHING:

CURING:All concrete shall be cured by keeping it continuously damp for the period of time required for complete hydration and hardening to take place. Preference shall be given to the use of continuous sprays, or ponded water, continuously saturated covering of sacking, canvas, hessians or other absorbent materials, or approved effective curing compounds applied with spraying equipment capable of producing a smooth, even-textured coat. Extra precautions shall be exercised in curing concrete during cold and hot weather as outlined hereinafter. The quality of curing water shall be the same as that used for mixing concrete.

CURING WITH WATER:

Fresh concrete shall be kept continuously wet for a minimum period of 10 days from the date of placing of concrete, following a lapse of 12 to 14 hours after laying concrete. The curing of horizontal surface exposed to the drying winds shall however begin immediately after the concrete surface within 1 hour after concrete has set. Water shall be applied to formed surface immediately upon the removal of forms. Quantity of water applied shall be controlled so as to prevent erosion of freshly placed concrete.

CONTINUOUS SPRAYING:

Curing shall be assured by use of an ample water supply under pressure in pipes, with all necessary appliances like hose, sprinkle and spraying devices. Continuous fine mist spraying or sprinkling shall be used, unless otherwise specified or approved by ENGINEER.

CURING EQUIPMENT:

All equipment and materials required for curing shall be on hand and ready for use before concrete is placed.

PROTECTING FRESH CONCRETE:

Fresh concrete shall be protected from the element, from defacement & damage due to construction operations by leaving forms in place for an ample period as specified later in this specification. Newly placed concrete shall be protected by approved means such as tarpaulins from rain, sun & winds. Steps as approved by ENGINEER shall also taken to protect green concrete from damage by debris, excessive loading, vibration abrasion or contact with other materials, etc. that may impair the strength and/or durability of the concrete. Workmen shall be warned against and prevented from disturbing green concrete during its setting period. If it is necessary that workman enter the area of freshly placed concrete, ENGINEER may required that bridges be placed over the area.

REPAIR AND REPLACEMENT OF UNSATISFACTORY CONCRETE:

Immediately after the shuttering is removed, the surface of concrete shall be very carefully gone over and all defective areas called to the attention of ENGINEER who may permit patching of the defective areas, by CONTRACTOR, or also reject the concrete unit, either partially or in its entirety, at no additional expenses to OWNER. Holes left by form bolts, etc. shall be filled up and made good with mortar composed of one part of cement to one and half parts of sand passing 2.36 mm I.S. sieve after removing any loose stones adhering to the concrete. Mortar filling shall be struck off flush at the face of the concrete. Concrete surfaces shall be finished as described under the relevant items of work.

Superficial honeycombed surfaces and rough patches shall similarly be made good immediately after removal on shuttering, in the presence of ENGINEER and superficial water and air holes shall be filled in. The mortar shall be well worked into the surface with a wooden float. Excess water shall be well worked

into the surface with a wooden float. Excess water shall be avoided. Unless instructed otherwise by ENGINEER, the surface of the exposed concrete placed against shuttering shall be rubbed down immediately removal of shuttering to remove the fine or other irregularities, care being taken to avoid damage to the surface. Surface irregularities shall be removed by grinding.

If reinforcement is exposed or honeycombing occurs at vulnerable positions, e.g. ends of beams or columns, it may be necessary to cut out the member completely or in part and reconstruct. The decision of ENGINEER shall be final in this regard. If only patching is necessary, the defective concrete shall cut out till sound concrete is reached (or to a minimum depth of 25 mm) the edges being cut perpendicular to the affected surface or with small undercut, if possible. Anchors, tees or dovetail slots shall be provided, whenever necessary, to attach the new concrete securely in place. An area extending several centimetres beyond the edges and the surface of the repaired voids shall be saturated with water for 24 hours immediately before the patching material is placed.

USE OF EPOXY:

The use of epoxy for bonding fresh concrete used for repairs will be permitted upon written approval of ENGINEER. Epoxies shall be applied in strict accordance with the instructions of the manufacturer.

METHOD OF REPAIR:

Small size holes having surface dimensions about equal to the depth of hole, holes left after removal of form bolts, grout insert holds and slots cut for repair of cracks shall be repaired as follows. The hole to be patched shall be roughened and thoroughly soaked with clean water until absorption stops.

A 5 mm thick layer of grout of equal parts of cement and sand shall be well brushed into the surface to be patched, followed immediately by the patching concrete which shall be well consolidated with a wooden float & felt slightly protruding of the surrounding surface. The concrete shall be built up in 10 mm thick layers. After an hour or more, depending upon weather conditions, it shall be worked off flush with a wooden float and a smooth finish obtained by wiping with hessian, using a steel trowel for this purpose. The mix for patching shall be of the same materials and in the same proportion as that used in the concrete being repaired although reduction in the maximum size of the coarse aggregates may be necessary and the mix shall be kept as dry as possible, as directed by ENGINEER.

Mortar filling by air pressure (grouting) shall be used for repair of areas too large and/or too shallow for patching with mortar. Patched surfaces shall be given a final treatment to match the colour and textures of the surrounding concrete. White cement shall be substituted for ordinary cement, if so directed by ENGINEER, so match the shade of patch with the original concrete. No payment whatsoever shall be made to the CONTRACTOR on account of repair work.

CURING OF PATCHED / REPAIR WORK: The patched areas shall be covered immediately/with an approved non-staining, water saturated material such as gunny bags, etc. as stated earlier which shall be kept continuously wet and protected against sun and wind for a period of 24 hours. Thereafter the patched area shall be kept wet continuously by fine spray or sprinkling for not less than 14 days.

FORMWORK:

The formwork shall consist of shores, bracings sides of beams and column, bottom of slabs, etc. including ties, anchors, hangers, inserts, etc. complete which shall be properly designed and planned for the work. False work shall be so constructed that vertical adjustments can be made to compensate for take up and settlements. Wedges may be used at the top or bottom of timber props, but not at both ends, to facilitate vertical adjustment or dismantling of the formwork.

DESIGN OF FORMWORK:

The design and engineering of the formwork as well as its construction shall be the responsibility of CONTRACTOR. If so instructed, the drawings and/or calculations for the design of the formwork shall be submitted to ENGINEER for approval before proceeding with work, at no extra cost to OWNER. ENGINEER's approval shall not, however, absolve the CONTRACTOR of his full responsibility for the design and construction of the formwork. The design shall take into account all the loads, vertical as well as lateral that the form would be carrying, including live and vibration loadings.

TOLERANCES:

Tolerance is a specified permissible variation from lines, grades or dimensions given on drawings. No tolerances specified for horizontal or vertical building lines or footings shall be construed to permit encroachment beyond the legal boundaries. Unless otherwise specified, the following tolerance will be permitted.

Tolerance for R.C. Buildings:

Variation from the plumb:

In the lines and surfaces of columns, piers, walls and in arises 5 mm per 2.5 m or 25 mm whichever is less:

For exposed corner columns and other conspicuous lines: In any bay of 5 m maximum - 5 mm

In 10 m or more - 10 mm

Variation from the level or from the grades indicated on the drawings:

a) In slab soffits, ceilings, beam soffit, and in arises:

In 2.5 m - 5 mm

In any bay or 5 m maximum - 8 mm

In 10 m or more - 15 mm

For exposed lintels, sills, parapets, horizontal grooves and other conspicuous lines: In any bay or 5 m maximum - 5 mm

In 10 m or more - 10 mm

Variation of the linear building lines from established position in plan and related position of columns, walls and partitions.

In any bay or 5 m maximum - 10 mm In 10 m or more - 20 mm

Variation in cross-sectional dimensions of columns and beams and in the thickness of slab and walls.

Minus - 5 mm

Plus - 10 mm

Footings:

Variation in dimensions in plan

Minus - 5 mm

Plus - 50 mm

Misplacement or eccentricity:

2% of footing width in the direction of misplacement but not more than 50 mm.

Reduction in thickness

Minus - 5% of specified thickness subject to a maximum of 50 mm. Tolerances in other Concrete Structures:

a) All structures

Variation of the constructed linear outline from established position in plan. In 5 m - 10 mm

In 10 m or more - 15 mm

Variation of dimensions to individual structure features from established positions. In 20 m or more - 25 mm

In buried construction - 50 mm

Variation from level or grade indicated on drawings in slab, beams, soffits, horizontal grooves and visible arises.

In 2.5 m - 5 mm

In 7.5 m or more - 10 mm

In buried construction - Twice the above amounts.

Variation in cross-sectional dimensions of columns beams, but tresses, piers and similar members.

Minus - 5 mm; Plus - 10 mm

Variation in the thickness of slabs, walls, arch sections and similar members Minus - 5 mm; Plus - 10 mm

Footing for columns, piers, walls, buttresses and similar members Variation of dimensions in plan

Minus - 10 mm; Plus - 50 mm Misplacement or eccentricity:

2% of footing width in the direction of misplacement but not more than 50 mm. Reduction in thickness : 5% of specified thickness subject to a max. of 50 mm. Tolerances in fixing bolts shall be as follows:

Anchor bolts without sleeves Plus/Minus 1.5 mm in plan. Anchor bolts with sleeves Plus/minus 5.0 mm in elevation.

For bolts upto and including 28 mm dia plus / minus 5 mm in all directions.

For bolts 32 mm dia and above, plus / minus 3 mm in all directions. For Embedded parts plus / minus 5 mm in all directions.

TYPE OF FORMWORK:

Formwork may be of timber, plywood, metal, plastic or concrete. For special finishes the formwork may be lined with plywood, steel sheets, oil tempered hard board, etc. Sliding forms and slip forms may be used with the approval of ENGINEER.

FORMWORK REQUIREMENTS:

Forms shall conform to the shapes, lines, grades and dimensions, including camber of the concrete as called for on the drawings. Ample studs, walers, braces, ties, straps, shores, etc. shall be used to hold the Forms in proper position without any distortion whatsoever until the concrete has set sufficiently to permit the removal of forms. Forms shall be strong enough to permit the use of immersion vibrators. The shuttering shall be close boarded. Timber shall be well seasoned free from sap shakes, loose knots, worm holes, warps or other surface defects in contact with concrete. Faces coming in contact with the concrete shall be free from adhering grout, plaster, paint projecting nails, splits or other defects. Joints shall be sufficiently tight to prevent loss of water and fine material from concrete.

Plywood shall be used for Exposed Concrete surfaces, where called for Sawn and wrought timber may be used for unexposed surfaces. Inside faces of forms for concrete surfaces which are to be rubbed finished shall be planed to remove irregularities or unevenness in the face. Formwork with linings will be permitted.

All new and used material for lumber shall be maintained in a good condition with respect to shape, strength, rigidity, water tightness, smoothness and cleanliness of surfaces. Form lumber unsatisfactory in any respect shall not be used and, if rejected by ENGINEER, shall be removed from the site. Formwork, during any stage of construction showing signs of distortion or distorted to such a degree that the intended concrete work will not conform to the exact contours shown on the drawings, shall be repositioned and strengthened. Poured concrete affected by the faulty formwork, shall be removed in its entirety and the formwork corrected, as directed by ENGINEER, prior to placing new concrete.

Excessive provision of camber to compensate for shrinkage settlement, etc. that may impair the structural strength of members will not be permitted.

Forms for substructure concrete may be omitted when, in the opinion of ENGINEER, the open excavation is firm enough to act as the form. Such excavation

shall be slightly larger than that required by the drawings to compensate for irregularities in excavation and to ensure concrete cover and the design requirements.

Forms shall be so designed and constructed that their removal will not damage the concrete. Face formwork shall provide true vertical and horizontal joints, conform to the architectural features of the structure as to location of joints and be as directed by ENGINEER.

When exposed smooth or rubbed concrete finishes are required, the forms shall be constructed with special care so that the resulting concrete surfaces require a minimum finish.

BRACINGS, STRUTS AND PROPS:

Shuttering shall be braced, strutted, propped and so supported that it shall not deform under weight and pressure of the concrete and also due to the movement of men, equipment and other materials. Bamboos shall not be used as props or cross bearers.

The shuttering for beams and slabs shall be so erected that the shuttering on the sides of the beams and under the soffit of slabs can be removed without disturbing the beam bottoms. Re-propping of beams shall not be done except when props have to be reinstated to take care of construction loads anticipated to be in excess of the design load. Vertical props shall be supported on wedges or other measures shall be taken whereby the props can be gently lowered vertically while striking the shuttering. If the shuttering for a column is erected for the full height of the columns, one side shall be left open and built up in sections as placing of concrete proceeds, or windows may be left for pouring concrete from the sides to limit the drop of concrete to 1.0 m or, as directed by ENGINEER.

MOULD OIL:

Care shall be taken to see that the faces of formwork coming in contact with concrete are perfectly cleaned and two coats of mould oil or any other approved material applied before fixing reinforcement and placing concrete. (Burnt lube oil will not be allowed). Such coating shall be insoluble in water, non-staining and not injurious to the concrete. It shall not become flaky or be removed by rain or wash water. Reinforcement and/or other items to be cast in the concrete shall not be placed until coating of the forms is complete. Adjoining concrete surfaces shall also be protected against contamination from the coating material.

CHAMFERS AND FILLETS:

All corners and angles exposed in the finished structure shall be formed with mouldings to form chamfers or fillets on the finished concrete. The standard dimensions of chamfers and fillets, unless otherwise specified,

shall be 20 mm x 20 mm. Care shall be exercised to ensure accurate moulding. The diagonal face of the moulding shall be planed or surfaced to the same texture as to form to which it is attached.

VERTICAL CONSTRUCTION JOINT CHAMFERS: Vertical construction joints on faces which will be exposed at the completion of the work shall be chamfered as above except where not permitted by ENGINEER for structural or hydraulic reasons.

WALL TIES:

Wire ties passing the walls shall not be allowed. In their place bolts passing through sleeves shall be used.

REUSE OF FORMS:

Before reuse, all forms shall be thoroughly scrapped, cleaned, nails removed, holes that may leak suitably plugged and joint examined and when necessary, repaired and the inside retreated to prevent adhesion to the satisfaction of ENGINEER. Warped lumber shall be resized. CONTRACTOR shall equip himself with enough shuttering to complete the job in the stipulated time.

REMOVAL OF FORMS:

CONTRACTOR shall record on the drawing or a special register, the date upon which the concrete is placed in each part of the work and the date on which the shuttering is removed there from.

Under no circumstances shall forms be struck until the concrete reaches strength of at least twice the stress due to self weight and any construction/erection loading to which the concrete may be subjected at the time of striking formwork, as directed by ENGINEER.

In normal circumstances (generally where temperatures are above 20 deg. C), forms may be struck after expiry of the following periods, where ordinary Portland cement is used and adequate curing is done:

TYPE OF FORMWORK MIN. PERIOD BEFORE STRIKING FORMWORK

Walls columns and vertical sides of beams. 16 to 24 hours as directed by the ENGINEER.

Slabs (Props left under) 3 days

Beam soffits (Props left under) 7 days

Removal of props under slabs:

Spanning upto 4.5 m. 7 days

Spanning over 4.5 m. 14 days

Removal of props under beams:

Spanning upto 6 m. 14 days

Spanning over 6 m. 21 days

Striking shall be done slowly with utmost care so to avoid damage to rises and projections and without shock or vibration, by gently easing the wedges. If after removing the form work, it is found that timber has been embedded in the concrete, it shall be removed and made good as specified earlier.

Reinforced temporary openings shall be provided as directed by ENGINEER to facilitate removal of formwork which otherwise may be inaccessible.

Tie rods, clamps, form bolts, etc. which must be entirely removed from walls or similar structures, shall be loosened not sooner than 24 hours nor later than 48 hours after the concrete has been deposited. Tiles, except

those required to hold forms in place, may be removed at the time. Ties withdrawn from walls and grade beams shall be pulled towards the inside face. Cutting ties back from the faces of walls and grade beams shall not be permitted.

For liquid retaining structures, to sleeves for through bolts shall be used, nor shall through bolts be removed as indicated in 24.12.5. The bolts, in this case, shall be cut at 25 mm depth from the surface and then the hole shall be made good by sand cement mortar of the same proportion of the concrete, just after striking the formwork.

FOUNDATION BEDDING, BONDING AND JOINTS:

All surfaces upon or against which concrete will be placed shall be suitably prepared by thoroughly cleaning, washing and dewatering, as indicated on the plans or as directed by the ENGINEER, to meet the various situations encountered in the work.

Soft or spongy areas shall be cleaned out and backfilled with either a soil-cement

mixture, lean concrete or clean sand, till compacted to a minimum density of 90% Modified Proctor, unless otherwise mentioned in Schedule of Quantities.

PREPARATION OF EARTH STRATA OF FOUNDATIONS: All earth surfaces upon or against which concrete is to be placed, shall be well compacted and free from standing water, mud or debris. Soft, yielding soil shall be removed and replaced with suitable earth, sand or murrum well compacted as directed by ENGINEER. Wherever specified, lean concrete shall be provided on the earth stratum, for receiving concrete. The surface of absorptive soils, against which concrete is to be placed shall be moistened thoroughly so that no moisture will be drawn from the freshly placed concrete, and later shall help to cure the concrete.

PREPARATION OF CONCRETE SURFACES:

The preparation of concrete surfaces upon which additional concrete is to be placed later, shall preferably be done by scarifying and cleaning, while the concrete is between its initial and final set. This method shall be used wherever practicable and shall consist of cutting the surface with picks and stiff brooms and by use of an approved combination of air and water jet as directed by ENGINEER. Utmost care shall be exercised in performing this work to avoid removal of too much mortar and the weakening of the surface by loosening of aggregates.

When it is not practicable to follow the above method, it will be necessary to employ compressed air to remove laitance and roughen the surface.

The final required result shall be a pitted surface from which all dirt, unsound concrete, laitance and glazed mortar have been removed.

BONDING TREATMENT (MORTAR):

After rock or concrete surface upon which new concrete is to be placed have been scarified, cleaned and wetted, as specified herein, they shall receive a bonding treatment, immediately before placement of the concrete.

The bonding medium shall be a coat of cement-sand mortar. The mortar shall have the same cement-sand proportions as the concrete which shall be placed thereon. The water-cement ratio shall be determined by site conditions and as approved by ENGINEER.

Bonding mortar shall be placed in sufficient quantity to completely cover the surface about 5 mm thick for concrete surfaces. It shall be brushed or broomed over the surface and worked thoroughly into all cracks, crevices and depressions. Accumulations or puddles, if mortar shall not be allowed to settle in depressions, shall be brushed out to a satisfactory degree, as approved by ENGINEER.

Mortar shall be placed at such a rate that it can be brushed over the surface just in advance of placement of concrete. Only as much area shall be covered with mortar, as can be covered with concrete before initial set in the mortar takes place. The amount of mortar that will be permitted to be placed at any one time, or the area which it is required to cover, shall be in accordance with ENGINEER's directions.

CLEANING AND BONDING FORMED CONSTRUCTION JOINTS:

Vertical construction joints shall be cleaned as specified above or by other methods as approved by ENGINEER. In placing concrete against formed construction joints, the surfaces of the joints, where accessible, shall be coated thoroughly with the specified bed-joint bonding mortar immediately before they are covered with concrete, or by scrubbing with wire brooms dipped into the fresh concrete. Where it is impracticable to apply such a mortar coating, special precautions shall be taken to ensure that the new concrete is brought into intimate contact with the surface of the joint, by careful puddling and spading with aid of vibrators and suitable tools.

EXPANSION AND CONTRACTION JOINTS:

Provision shall be made for expansion and contraction of concrete by use of special type joints located as shown on the drawings. Construction joint surfaces shall be treated as per specifications, drawings or as directed by ENGINEER.

HOT WEATHER REQUIREMENT:

All concrete work performed in hot weather shall be in accordance with IS: 456:2000, except as herein modified.

Admixture may be used only when approved by ENGINEER.

Adequate provisions shall be made to lower concrete temperatures by cool ingredients, eliminating excessive mixing, preventing exposure of mixers and conveyors to direct sun-light, the use of reflective paint on mixers, etc. The temperature of the freshly placed concrete shall not be permitted to exceed 38 degree Celsius. Consideration shall be given to providing shade aggregate stockpiles from direct rays of the sun and spraying stockpiles with water, use of cold water when available and burying, insulating shading and/or painting white the pipe lines & water storage tanks.

In order to reduce loss of mixing water, the aggregates, wooden forms, subgrade, adjacent concrete and other moisture absorbing surfaces shall be well wetted prior to concreting. Placement and finishing shall be done as quickly as possible.

Extra precautions shall be taken for the protection and curing of concrete. Consideration shall be given to continuous water curing and protection against high temperatures and drying hot winds for a period of at least 12 days immediately after concrete has set and after which normal curing procedures may be resumed.

PRECAST CONCRETE:

Precast concrete shall comply with IS: 456:2000 and also with following:

All precast units shall be cast on a suitable bed or platform with firm foundation and free from wind. CONTRACTOR shall be responsible for the accuracy of the level or shape of the bed or platform. A suitable serial number and the date of casting shall be impressed or painted on each unit.

STRIKING FORMS:

Side shutters shall not be struck in less than 24 hours after placing concrete and no precast unit shall be lifted until the concrete reaches strength of at least twice the stress to which the concrete may be subjected to at the time of lifting, as directed by ENGINEER.

PRECAST UNITS:

The lifting and removal of precast units shall be undertaken without causing shock, vibration or undue bending stresses to or in the units, before lifting and removal takes place, CONTRACTOR shall satisfy ENGINEER or his representative that the methods he proposes to adopt for these operations will not overstress or otherwise affect the strength of the precast units. The reinforced side of the units shall be distinctly marked.

CURING: All precast work shall be protected from the direct rays of sun for at least 14 days after casting and during that period each unit shall be kept constantly watered or preferably be completely immersed in water if the size of the unit so permits. Otherwise curing practice as given earlier shall be followed.

SLOTS, OPENINGS ETC.:

Slots, openings or holes, pockets, etc., shall be provided in the concrete work in the positions indicated in the drawings or as directed by ENGINEER. Any deviation from the approved drawings shall be made good by CONTRACTOR at his own expense without damaging any other work. Sleeves, bolts, inserts, etc. shall also be provided in concrete work where so specified.

GROUTING:

STANDARD GROUT:

The proportions of grout shall be such as to produce a flowable mixture consistent with minimum water content and shrinkage. The grout proportions shall be as specified on drawings and as directed by ENGINEER.

Sand shall be such as to produce a flowable grout without any tendency to segregate.

Sand, for general grouting purposes, shall be graded within the following limits: Passings IS: 2.36 mm sieve 95 to 100%

Passing IS: 1.18 mm sieve 65 to 95%

Passing IS: 300 micron sieve 10 to 30%

Passing IS: 150 micron sieve 3 to 10%

Surface to be grouted shall be thoroughly roughened and cleaned of all foreign matter and laitance.

Prior to grouting, the hardened concrete surfaces to be grouted shall be saturated with water.

Forms around base plates shall be reasonably tight to prevent leakage of the grout. Adequate clearance shall be provided between forms and base plate to permit grout to be worked into place properly.

Grouting, once started, shall be done quickly and continuously to prevent segregation, bleeding and breakdown of initial set. Grout shall be worked from one side of one end to the other to prevent entrapment of air. To distribute the grout and to ensure more complete contact between base plate & foundation and to help release entrapped air, link chains can be used to work the grout into plate.

Grouting through holes in base plates shall be by pressure grouting, variations in grout mixes and procedures shall be permitted if approved by ENGINEER.

SPECIAL GROUT:

Special grout, where specified on the drawings, shall be provided in strict accordance with the manufacturer's instructions/specifications on the drawings.

8.0 INSPECTION: All materials, workmanship and finished construction shall be subject to the continuous inspection and approval of ENGINEER.

All materials supplied by CONTRACTOR and all work or construction performed by CONTRACTOR and rejected as not in conformity with the specifications and drawings, shall be immediately replaced at no additional expense to the OWNER, and to the entire satisfaction of the ENGINEER.

Approval of any preliminary materials or phase of work shall in no way absolve the CONTRACTOR from his responsibility of supplying concrete and/or producing finished concrete in accordance with the specifications and drawings.

All concrete shall be protected by the CONTRACTOR against damage until finally accepted by the OWNER or his representative.

9.0 CLEAN UP:

Upon the completion of concrete work, all forms, equipment, construction tools, protective coverings and any debris resulting from the work shall be removed from the premises. All the debris i.e. empty containers, scrap wood, etc, shall be removed daily, as directed by ENGINEER.

The finished concrete surfaces shall be left in a clean condition to the entire satisfaction of the ENGINEER.

PAYMENT:

The unit rate for concrete work under various categories shall be all inclusive of all related work and no claims for extra payment on account of such items as leaving holes, embedding, inserts, etc., shall be entertained. no extra claim shall also be entertained due to change in the number, position and/or dimensions of holes, slots or openings, sleeves, inserts or on account of any increased lift or scaffolding, etc. All these factors shall be taken into consideration while quoting the unit rates.

Payment of concrete will be made on the basis of unit rates quoted for the respective items in the Schedule of Quantities. No deduction in the concrete quantity will be made for reinforcements, inserts, etc. and opening less than 1/20 of a sq.m. in area where concrete is measured in sq.m. & 1/50 OF Cu.M where concrete is measured in cu.m. Similarly the unit rates for concrete work shall be inclusive or exclusive of shuttering as provided for in the Schedule of Quantities. Where formwork is paid for separately, it shall be very clearly understood that payment for formwork is inclusive of formwork, shuttering, shoring, propping, scaffolding, etc. complete.

PAYMENT for beams will be made for the quantity based on the depth being reckoned from the underside of the slabs and length measured as the clear distance between supports. Payment for columns shall be made for the quantity based on height reckoned upto the underside of slabs.

The unit rate for precast concrete members shall include formwork, mouldings, finishings, hoisting and setting in position including setting mortar, provision of lifting arrangements, etc. complete. Reinforcement shall be measured and paid for separately as per Schedule of Quantities.

CHIEF TECHNICAL EXAMENAR RECORDS

HPCL BIOFUELS LIMITED

CHECKLIST FOR EXTERNAL/INTERNAL PLASTER

NAME OF PROJECT :
PURCHASE ORDER NO. :
CLIENT :
CONTRACTOR :

Date :	Time :	Location :
Sl. No.	Description	
1.	Masonry and concrete surface are found clean free from dust, loose material, oil, grease, mortar dropping, nails, steel patti, wooden pieces, wire etc.	YES / NO
2.	Joints in masonry are recked to a depth of 10 mm.	YES / NO
3.	Surface to be plastered is made sufficiently damped.	YES / NO
4.	Unavoidable projections in masonry and concrete is chissled.	YES / NO
5.	Hacking on concrete surface is sufficiently deep and distance between hacking is not more than 25-40 mm.	YES / NO
6.	Any leakage observed before plastering.	YES / NO
7.	If yes, leakage has been rectified.	YES / NO
8.	Joint between concrete surface and masonry are properly filled with cement mortar or sealant before applying plaster	YES / NO
9.	Joints, concealing and repaired area are covered with chicken mesh of 150 mm. wide.	YES / NO
10.	Mark up are made before plaster at interval not more than the size of the bottom patti to be used.	YES / NO
11.	Grading of sand, silt and dust are within the permissible limit.	YES / NO
12.	Thickness of single coat plaster is not less than 12 mm and not more than 15 mm.	YES / NO
13.	Door frame are free from cracks, knots, etc.	YES / NO
14.	6 no. Holdfast fixed properly	YES / NO
15.	Frame are fixed in plumb.	YES / NO
16.	Silt content in sand.	
17.	% Bulkage in sand	

All above point checked and permitted to start plaster, Plaster is in line and level. The difference in plumb is not more than 2mm.

Contractor's Signature

HBL

HPCL Biofuels Limited

Sieve Analysis Report for Fine Aggregates

Project : HBL NPCB Projects

CLIENT : HPCL Biofuels Limited

Date :

Contractor :

Location / Area Of Testing :

Source :

Sample Weight - in gms

SL. No.	IS -Sieve Designation	Weight Retained - in Gms	Cum.Weight Retained -in Gms	Cum. % of Retained - in Gms	Cum. % of Passing in Gms	Permissible as per IS :383		Remarks / Zone conformed
						Zone-I	Zone - II	
1	10 mm					100	100	
2	4.75 mm					90 - 100	90 - 100	
3	2.36 mm					60 - 95	75 - 100	
4	1.18 mm					30 - 70	55 - 90	
5	600 micron					15 - 34	35 - 59	
6	300 micron					5 - 20	8 - 30	
7	150 micron					0 - 10	0 - 10	
8	Pan							

Silt Content :

	CONTRACTOR	HBL
SIGN		
NAME		
DESIGNATION		

HPCL Biofuels Limited

Sieve Analysis Report for Coarse Aggregates - 20mm

Project : HBL NPCB Projects

CLIENT : HPCL Biofuels Limited

Contractor :

Date :

Location / Area Of Testing :

Source :

Sample Weight - in gms

SL. No.	20 mm Aggregate						Remarks if any
	IS -Sieve Designation	Weight Retained - in Gms	Cum.Weight Retained -in Gms	Cum. % retained - in Gms	% of Passing	Permissible as per IS :383 - 20 mm graded size	
1	40 mm					100	
2	20 mm					85 - 100	
3	10 mm					0 -20	
4	4.75 mm					0 - 5	
5	2.36 mm					0	
6	Pan					0	
7							

Remarks :

	CONTRACTOR	HBL
SIGN		
NAME		
DESIGNATION		

HPCL Biofuels Limited

Sieve Analysis Report for Coarse Aggregates - 10mm

Project : HBL NPCB Projects

CLIENT : HPCL Biofuels Limited

Contractor:

Date:

Location / Area Of Testing :

Source :

Sample Weight - in gms

SL. No.	10 mm Aggregate						Remarks
	IS -Sieve Designation	Weight Retained - in Gms	Cum.Weight Retained -in Gms	Cum. % retained - in Gms	% of Passing	Permissible as per IS :383 - 20 mm graded size	
1						-	
2						-	
3	12.5mm					100	
4	10 mm					85 - 100	
5	4.75 mm					0 - 20	
6	2.36 mm					0 - 5	
7	Pan						-
				CONTRACTOR		HBL	
SIGN							
NAME							
DESIGNATION							

HPCL Biofuels Limited

CLIENT: HBL
 CONTRACTOR:
 DOCUMENT NO:
 BBS NO:
 NO.: Location / Type of Structure:
 Drawing No.:

NPCB PROJECTS INSPECTION REPORT FOR REINFORCEMENT BBS

REPORT

DATE

Sl.No.	Description	Bar Dia	Shape of Bar	Cut Length (m)	Total No. of Bar	Total Length (m)	Unit Weight (kg/m)	Total Weight in kg.						Remarks
								8mm	10mm	12mm	16mm	20mm	25mm	
FOR CONTRACTOR							FOR HBL							
SIGN							SIGN							
NAME							NAME							
DATE							DATE							

HPCL Biofuels Limited

CONCRETE POUR CARD

NAME OF PROJECT :
 PURCHASE ORDER NO. :
 CLIENT :
 CONTRACTOR :

Date :	Time :	Location :		Mix used :
S. No.	Description	HBL	Contractor	Remark
1	Alignment			
2	Level			
3	Plumb			
4	Shuttering			
5	Reinforcement			
6	Concrete quantity			
7	Theoretical cement consumption			
8	Availability of material at site			
	I) Cement			
	II) Sand			
	III) Metal no. 1			
	IV) Metal No. 2			
	V) Water			
9	Silt content in sand			
10	% Bulkage in sand			
11	Others			

Whether passed for construction Yes / No.

Remarks if any :

Contractor's Signature

HBL

HPCL Biofuels Limited

CUBE TESTING REGISTER

Sl. No. 1	Date of Casting	Grade of Concrete	Location where Concrete is used	Total Qty. of Concreting done during the day in Cum	Age of cube in days	Weight of cube in Kg.	1-st Test Result 7 days N/MM ²	Average of First Test Results	Final test Results 28 days	Average of Final Results	Lab. Ref.	Action Taken	Signature	
													HBL	Contractor

HPCL Biofuels Limited

CEMENT REGISTER

Date of Receipt 1	Source & Invoice Ref. 2	Qty. Received 3	Cumulative Qty. Received 4	Date of Issue 5	Qty. Issued 6	Item of work for which issued 7	Qty. Returned at the end of day 8	Total Issues (6-8) 9	Cumulative Consumption 10	Balance (4-10) 11	Contractor Sign. 12	Site Engineers Sign. 13	Remarks		
													EIC 14a	HQO -IC	

HPCL Biofuels Limited

STEEL REGISTER / CONSUMPTION STATEMENT

DATE OF RECEIPT	SOURCE & INVOICE REF	QTY. RECEIVED								QTY. CONSUMED AS PER RA BILL NO. 1								REM ARKS
		6 MM	8 MM	10 MM	12 MM	16 MM	20 MM	25MM	32MM	6 MM	8 MM	10 MM	12 MM	16 MM	20 MM	25MM	32 MM	
CARRIED FROWARD FROM																		
RA BILL NO.																		
TOTAL (MT)																		

BALANCE QTY. AS PER RA BILL NO.									
(MT)	6 MM	8 MM	10 MM	12 MM	16 MM	20 MM	25 MM	32 MM	

* Previous RA bills receipt and consumption to be recorded as carried forward

