



CEYLON PETROLEUM CORPORATION

(Established by Parliament Act Number 28 Of 1961)

BIDDING DOCUMENT

FOR

CONSTRUCTION OF TWO NOS. FUEL OIL

STORAGE TANKS NO. 73 & 74

PD/WORKS/01/2016

*Ceylon Petroleum Corporation,
Refinery Division,
Sapugaskanda,
Kelaniya,
Sri Lanka.*

Telephone : +94 11 2400427/2400684

Fax : +94 11 2400431/2400436

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1 INSTRUCTIONS TO BIDDERS

1.1 INTRODUCTION

1.1.1 Chairman, Cabinet Appointed Procurement Committee (hereinafter called CAPC) on behalf of Ceylon Petroleum Corporation, Refinery Division (CPC), hereby calls bids from firms (herein after called bidders) having experience in the construction of petroleum oil storage tanks as per API standard 650 (Latest Edition) for carrying out foundation, fabrication, erection, welding, hydro testing, calibration by a reputed third party company and commissioning with inspection by CPC, according to API Standard 650 (Latest Edition) and this Bid Document, of Two Nos. fixed roof type fuel oil storage tanks of each Diameter 24.4 m and Height 14.6 m with related facilities. The construction shall be carried out as per the attached complete set of construction drawings and the detailed terms of reference given in this Bid Document, at the Oil Refinery premises situated at Sapugaskanda, Kelaniya, Sri Lanka.

1.1.2 PRE-QUALIFICATIONS FOR BIDDING

Bidders having following qualifications will only be qualified for bidding and failure in providing proofs of following qualifications will result in the Bid being rejected.

- The local bidders shall have experience in carrying out steel oil tank construction work as per API 650 in the past 5 years and registration with Institute for Construction Training & Development (ICTAD) at Grade EM 1.
- Foreign bidders shall have prior experience in the past 10 years carrying out steel tank constructions work as per API Standard 650 and shall have successfully completed at least one steel tank construction of value not less than US\$ 2,500,000/= within past 5 years
- In case of a joint collaboration of a local registered company with a foreign company, foreign company shall fulfil the requirement of carrying out Mechanical Engineering construction of value more than US\$ 2,500,000/= within past 5 years and either party having API 650 tank construction experience.

1.1.3 The tank site is located at CPC Refinery at Sapugaskanda, Kelaniya, Sri Lanka, and 17 Km by road from Colombo, Sri Lanka.

1.2 BASIS OF CONTRACT

1.2.1 The contract will be carried out on a lump sum fixed price basis. The lump sum fixed price covers the total cost for completion of the entire job as per the terms of reference in this Bid document, NBT,VAT, all taxes including the withholding tax, employee provident fund and insurance of construction labour, supervision, transportation costs, cost of construction equipment.

1.2.2 The contractor shall enter into a contract with CPC

- 1.2.3 The contractor shall not subcontract the whole of the works. The contractor shall not subcontract any part of the works without the prior consent of CPC.

1.3 BASIS OF BID

- 1.3.1 Bidders are to submit completely furnished details given in attached "SCHEDULE B & C" Form of Bid & Schedule of Prices, giving a lump sum fixed price for the entire job as per the terms of reference in this Bidding document NBT, VAT, all taxes including withholding tax, and provident fund, insurance of construction labour, supervision, transportation costs, cost of construction equipment, etc.
The bidders who are registered for the purpose of NBT & VAT should indicate the amount of NBT & VAT claimed separately in the bid documents along with NBT & VAT registration number. If the bidder is not registered for NBT & VAT, only the net value of the bid shall be indicated.
- 1.3.2 A clear breakdown of the lump sum fixed fee as requested in SCHEDULE "C" "Schedule of Prices" shall also be submitted.
- 1.3.3 To facilitate evaluation & comparison of bids all prices quoted in foreign currency will be converted to Sri Lankan Rupees at the selling exchange rate of the Central Bank of Sri Lanka, prevailing on the date of opening of bids.
- 1.3.4 Additional services provided by the bidder not covered by this Bid document shall be clearly stated for the consideration of CAPC.
- 1.3.5 Exceptions to CPC's Bid document shall also be clearly stated by the bidder. If no exception is stated, CAPC would assume that the bidder fully conforms to the conditions in this Bid document.
- 1.3.6 All alterations & erasers in bid offer shall be initialed by the bidder.

1.4 BID DOCUMENT

- 1.4.1 The Bid Document shall be obtained from,

Deputy Refinery Manager (Maintenance & Projects)
Ceylon Petroleum Corporation
Refinery Division
Sapugaskanda, Kelaniya
Sri Lanka

Bid document and set of construction drawings will be issued up to **18/05/2017** at **15.00** hrs. A non-refundable bid deposit of Rs. 35,000/= (with all tax) will be charged at the time of collection of bid documents.

Photo copy of the bid deposit receipt shall be enclosed with the offer.

- 1.4.2 The bid document published in the web www.ceypetco.gov.lk is only for information.

- 1.4.3 Any person who act as an agent or sub-agent, representative or nominee for or on behalf of any bidder / principal supplier, shall register himself and such public contract as per Public Contracts Act, No 3 of 1987 for every public contract exceeding five million rupees (SLR) & a copy of the valid Certificate of registration issued by the Registrar of Public Contracts shall be forwarded for collection of bidding documents. All bidders should submit the registration certificate along with the bid.

Where any person is an agent, sub-agent, representative or nominee for or on behalf of a bidder / principal supplier he shall first produce a certificate of his appointment as agent, sub-agent, representative or nominee to the Registrar before he registers himself under the public contract. [Contact details of the Registrar: Department of Registrar of Companies, "Samagam Medura", No. 400, D R Wijewardena Mawatha, Colombo 10 / Tel.: +94-11-2689208 / +94-11-2689209 / Email: registrar@drc.gov.lk .(Contact details may vary from actuals & CPC does not take any responsibility in this regard)]

1.4.4 **Pre bid meeting**

Pre Bid meeting will be held on at **16/05/2017** at **09.30** hours at the Main Conference Room of CPC Refinery.

Attendance of this meeting by a technically competent authorized, representative of the bidder (with a letter of authorization) is very important.

All costs incurred in attending to this pre bid meeting will have to be borne by the bidders themselves. CPC reserves the right to change the pre bid meeting date due to any unforeseen reason and if changed, will be notified to the bidders who collected Bid Documents. For this purpose the Bidders shall inform the contact person and his telephone number when collecting the Bid Documents.

1.5 **BID SECURITY GUARANTEE**

- 1.5.1 Each bid shall be accompanied by a Bid Security Guarantee undertaking that the offer will be valid up to 120 days from the date of closing of bids and that the offer will not be withdrawn during that period. Such Bid Security Guarantee shall be in the form of a guarantee issued by a reputed commercial Bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka and should be encashable on demand and payable to CPC or bank draft issued by a reputed commercial Bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka, equivalent in value of Sri Lanka Rupees 3,500,000.00 (three point five million).
- 1.5.2 The bid security guarantee shall be valid up to 150 days from the date of closing of bids and shall be in accordance with the specimen in SCHEDULE -A, "Form of Bid Security Guarantee" by bank guarantee or bank draft.
- 1.5.3 Failure to submit the Bid Security Guarantee at the time or before the closing of the bids with a validity period 150 days from the date of closing of bids and in accordance with the above said requirements will result in the bid being rejected. Bid Security Guarantee from unsuccessful bidders will be returned to them after an award is made in accordance with the above said requirements.
- 1.5.4 The Bid Security Guarantee of the successful bidder will be returned after receipt of the Performance Guarantee.

1.6 DOCUMENTS AND DETAILS TO ACCOMPANY BID

1.6.1 Failure to furnish the following documents and details along with the Bid will result in the bid being rejected.

- 1.6.1.1 Copy of Bid deposit receipt [as per Clause: 1.4.1]
- 1.6.1.2 Copy of a registration with Public Contractors [as per Clause: 1.4.3]
- 1.6.1.3 Bid Security Guarantee [as per Clause: 1.5]
- 1.6.1.4 Bid Validity- 120 days from the closing of bid [as per Clause: 1.11]
- 1.6.1.5 Form of Bid [Schedule B]
- 1.6.1.6 Copy of a registration with Institute for Construction Training & Development (ICTAD) Sri Lanka at Grade EM 1 [only for local bidders]
- 1.6.1.7 Documentary evidence for carrying out mechanical construction work of value not less than USD 2,500,000/- within past 5 years [only for foreign bidders]
- 1.6.1.8 Documentary evidence of having prior experience [as per Clause 1.1.2]
- 1.6.1.9 Audited financial report of the company for past three years, of year 2013, 2014, 2015 and financial report for year 2016.
- 1.6.1.10 Details of a Consultant/Engineer conversant with API 650 assigned for the job. [as per clause 1.12.1]

1.6.2 Following documents and details shall also be submitted along with the bid.

- 1.6.2.1 Offer address including fax (if any) to which orders, notices and correspondence related to bid offer is to be sent. Any change of address should be notified to CPC and any such change shall be valid only when such notification has been acknowledged by CPC.
- 1.6.2.2 Background of the bidder, place of business, number of years of experience in the field of construction/ repairs of steel structures, and names and addresses of (present & former) clients other than CPC, Indication of similar jobs in hand and including their values.
- 1.6.2.3 Bidder's company profile.
- 1.6.2.4 Project Schedule/Bar chart.
- 1.6.2.5 Quality Assurance and Quality Control plan.
- 1.6.2.6 Man Power and Resource schedule.
- 1.6.2.7 Construction plan and methodology.
- 1.6.2.8 Welder/procedure qualification NDT testing facilities and places.
- 1.6.2.9 List of construction equipment to be used at the Refinery site by the contractor.
- 1.6.2.10 Organization chart for the project.
- 1.6.2.11 Daily water requirement for drinking and sanitary.

1.7 ACKNOWLEDGMENTS

Bidders shall answer by fax for any written query raised by CAPC on the proposals at the stage of evaluation of bids.

1.8 AMENDMENTS/CLARIFICATIONS

- 1.8.1 CAPC reserves the right to issue amendments to the Bid document as and when deemed necessary up to the time of pre Bid meeting given in Para 1.4.4.

Bidders if they so desire may seek request additional information or clarification on this Bid document or seek any other pertinent information from the undermentioned:

Deputy Refinery Manager (Maintenance & Projects)
Ceylon Petroleum Corporation
Refinery Division
Sapugaskanda, Kelaniya.
Sri Lanka.

Fax No.0094-11-2400431/ 2400436

All clarifications shall be made within 2 weeks, before the closing date of the bids.

Where prospective bidder has not sought any such clarification, such bidder shall be deemed to have accepted the Bid document in full.

Bidders must acquaint themselves fully with the conditions of the site and Bid document. No plea of lack of information will be entertained at any time or stage of the proposal and implementation of the project.

1.9 CLOSING DATE OF BIDS

- 1.9.1 Bids are to be furnished in accordance with all relevant information given in this Bid Document.
- 1.9.2 One original and a copy of the bid proposals are to be submitted. The figures given in the original will be binding and any deviations in the copies in the course should not be taken into account and the bid value given in will be considered as the covering price for the entire job.

Bids are to be submitted before **14.30** hours of Sri Lanka time on **06/06/2017**

To: Chairman,
Cabinet Appointed Procurement Committee,
Ceylon Petroleum Corporation
Refinery Division
Sapugaskanda, Kelaniya.
Sri Lanka.

- 1.9.3 Bid proposals may be sent to above address given in the Para 1.9.2 by registered post or delivered at the above address and deposited in the relevant tender box at Refinery Manager's Office, Ceylon Petroleum Corporation, Refinery Division, Sapugaskanda, Kelaniya. Bids sent under registered post must reach the above address before the given time and date of closing of Bid as given in Para 1.9.2.
Bids received prior to the bid closing time will be kept secure and un-opened until the time and date of opening given in Para 1.9.2. CAPC will not take any responsibility for any bid documents sent by post, which has not been received by CAPC.

Reference "**Construction of Two Nos. of Fuel Oil Storage Tanks No.73 and 74**" shall be written on the top left hand corner of all bid proposal covers and all sealed envelopes.

1.10 OPENING OF BIDS

- 1.10.1 Bids will be closed at **14.30** hours on **06/06/2017** and will be opened immediately thereafter at the,
Main Conference Room
Ceylon Petroleum Corporation
Refinery Division
Sapugaskanda, Kelaniya.
Sri Lanka.

Bidders may attend the opening of bids if they so desire, Bidders' representative must carry an authoritative letter and identity from the main bidder. Aggregate Bid price will be read out in public at the opening of the bids.

1.11 PERIOD OF VALIDITY OF BID

Bid offers should be valid for acceptance up to 120 days from the date of opening of bids. No price variation is allowed until the completion of the contract and the project/work acceptance letter is issued by CPC, except variations due to legislation and statutory changes of the Government policies/regulations.

1.12 MANPOWER AND RESOURCE SCHEDULES:

- 1.12.1 Bidder is requested to provide a complete schedule of manpower at various grades deployed at site during execution of the project. Bidder must produce documentary proof that a consultant or an engineer who is conversant with API standard 650 will be assigned for this construction work. In addition a technical competent persons with BSc engineering degree or higher qualification in Civil and Mechanical shall be available full time at site. Contractor should submit the list of man power available for this particular job by names and categories like site engineer, supervisor, welders, fitters & helpers etc, along with the bid. A Bio data resume of the technical staff intended to be employed for this job also will have to be provided along with the offer.
- 1.12.2 Bidders are requested to submit a complete list of construction equipment which will be at site of construction.
- 1.12.3 Contractor shall submit a project schedule, manpower histogram and S-Curves (preferably Microsoft Project / Primavera) along with the offer for the total work clearly indicating the various phases of contract, breakdown of manpower and equipment allocated for this contract.
- 1.12.4 Contractor shall submit an Organization Chart, clearly illustrating structure of the assigned project team, indicating Project Manager, Project Engineers, Supervisors, Technicians, Labors etc.
- 1.12.5 Contractor shall submit a complete Quality Assurance and Quality Control plan for both Mechanical and Civil works.

1.13 **BID EVALUATION & SELECTION:**

All offers received will be examined to determine the eligibility of bidder's responded and substantial responsiveness of bids received. The bids that fulfil the requirements in clause 1.6.1 will be consider for the technical evaluation.

Criteria and point system for the evaluation of Technical Proposal are as follow.

#	Evaluation Criteria	Points
1	Valid company registration	5
2	Recorded history of the firm (maximum 7 Points)	
	5-10 years	3
	More than 10 years	7
3	Similar tank construction projects carried out in the past (maximum 10 points)	
	1 similar project	4
	2-4 similar projects	6
	5 or more similar projects	10
4	Company Turnover (maximum 10 points)	
	100-500 million	6
	More than 500 million	10
5	List of present and former clients other than CPC	5
6	Complete list of construction equipment which will be at site of construction	3
7	Details of a Consultant/Engineer conversant with API 650 assigned for the job as per clause 1.12.1(maximum 10 points)	
	Education qualification (BSc in Engineering or higher)	3
	Consultancy Experience in similar projects (5-10)	5
	Consultancy Experience in similar project more than 10 years	7
8	Details of technical competent persons (BSE Eng. Or higher) in Mechanical and Civil will available full time at the site as per clause 1.12.1	5
9	Construction plan and the methodology	10
10	Project Schedule/ Bar chart	5
11	Resource histogram	5
12	Organization chart for the project [as per clause 1.12.4]	5
13	Quality assurance and Quality Control Plan Provided [as per Cause 1.12.5]	5
14	Availability of qualified Level 2 NTD inspector at the construction site	5
15	Details of arrangements for 3rd party inspection of materials as per clause 3.2.11	5
16	Arrangements for CPC engineers to witness the 3rd party inspection at material manufacturing site	5

100

The minimum Technical Score (St) required to pass is: **70 points**

The bids that earn pass marks from the Technical Evaluation will be subjected to the Financial Evaluation. The lowest evaluated Financial Proposal (Fm) will be given the maximum financial score (Sf) of 100 points. The financial scores (Sf) of the other Financial Proposals will be computed as following formula,

$S_f = 100 \times F_m / F$ in which “Sf” is the financial score, “Fm” is the lowest price and “F” is price of the proposal under consideration.

Proposals will be ranked according to their combined technical (St) and financial (Sf) scores using the weights (T = the weight given to the Technical Proposal; P = the weight given to the Financial Proposal; T= 0.6, P=0.4, T + P = 1)

$S = S_t \times T\% + S_f \times P\%$.

The firm achieving the highest combined technical and financial score will be selected for the Tender Awarding.

Domestic bidders will be given a 10% of margin of preference subjected to the conditions in Clause no.7.9.5 of the “Procurement Guidelines 2006” issued by the National Procurement Agency.

All bids will be evaluated by CAPC based on the recommendations of Technical Evaluation Committee (TEC). A responsive bid is one which accepts the terms and conditions of the Bid document.

1.14 RIGHTS OF PROCUREMENT COMMITTEE

CAPC reserves the right to accept or reject bids without assigning any reason. CAPC will accept the lowest evaluated substantially responsive bidder. CPC is not responsible for any expenses or losses whatsoever which may be incurred by a bidder in the preparation and submission of the bid or bid security guarantee.

1.15 NOTICE OF ACCEPTANCE

Acceptance of bid will be communicated by fax / E-mail and confirmed in writing by registered post to the successful bidder to the address given by him in the Form of Bid, soon after the receipt of the decision of Cabinet of Ministers. Any change of address of the bidder shall be promptly notified to the **Deputy Refinery Manager (Maintenance & Projects), Ceylon Petroleum Corporation, Refinery Division, Sapugaskanda, Kelaniya, Sri Lanka.**

**Very Important -
Bidders shall indicate the title of the bid and the tender reference number in all correspondences in respect of this tender.**

1.16 DECLARATION

Bidders should declare that they have read the conditions and that they make the offer in compliance with and subject to all the conditions thereof and agree to perform the services in accordance with the said conditions in the manner therein set out and in terms of this offer by “Form of Bid” SCHEDULE ‘B’ attached.

2 CONDITIONS OF CONTRACT

2.1 PERFORMANCE GUARANTEE

- 2.1.1 On the bid being accepted, CPC will notify such acceptance by letter of award (either by Letter of Intent) to the successful bidder whose bid has been accepted. Such notification shall require the successful bidder to furnish at his own cost and expenses, a Performance Guarantee through a reputed commercial Bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka in a sum of not less than 10% of the full contract price including NBT and VAT of the successful bidder at or before the time and date specified in such notification. The Performance Guarantee shall be strictly in the form given in schedule 'SCHEDULE D' "Form of Performance Guarantee" of this Bid document. The performance guarantee shall be valid for 28 days more than the estimated and agreed project completion date.
- 2.1.2 If the successful Bidder fails to furnish a performance security guarantee as provided therein, the Bid Security of such bidder will be forfeited at the sole discretion of the CAPC and such bidder will be placed in the list of defaulting contractors.
- 2.1.3 CAPC shall forthwith be entitled in its absolute discretion to select and offer other suitable party as it may think fit (whether another bidder or not) at the risk and expenses of the defaulting contractor and make arrangements required for the performance of the successful bidder whose bid has been accepted and shall be further entitled to recover from the defaulting contractors all loans, costs damages and expenses CPC may sustain in consequences of default by the said default contractor.

2.2 SCHEDULE OF PAYMENT

- 2.2.1 Advance payment to a maximum of 10% of the full contract price including NBT and VAT will only be paid on submission of a bank guarantee from a reputed commercial bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka. The advance payment guarantee shall be in accordance with the specimen in SCHEDULE -F, "Format of Advance Payment Guarantee".
- 2.2.2 In case of advance payment, 20% from each progress/part payment will be deducted until full amount of advance payment is recovered, starting from the first progress/part payment.
- 2.2.3 Progress/part payments will be made on the basis of 75% of the value of work completed. Due to the nature and the risk involved in this type of construction work, the balance 25% will be retained until the successful completion and handing over of the tanks to CPC and released subject to retention conditions in clause 2.2.4. Part payment will be made to contractor within one month of finalizing their submission of part payment bill by the contractor.
- 2.2.4 Five (5%) percent of the total value of the work completed will be withheld at the final payment from the retention money of progress payments mentioned in clauses 2.2.3 which will be released 12 months after successful completion and acceptance of the tank.

2.2.5 Progress payments

The lump sum fixed price will be apportioned as follows for the purpose of making progress payments, which the contractor will be entitled to claim on completion of each item subject to payment conditions in clause 2.2.

S/No.	Description	% Payment
1	Upon CPC Approval on 3 rd party certified Mill Test Certificates of tank bottom, shell and roof steel plates and receipt of original shipping documents by CPC.(see *Note.1 below this table)	20
2	Bottom, shell, roof steel plates delivered to CPC site.	4
3	Requirement of steel pipes, fittings, valves and structural steel delivered to CPC site.	1
4	After completion of tank compound and tank foundations.	9
5	After completion of tank bund walls and other related facilities.	6
6	After completion of fabrication of tank bottoms.	8
7	After completion of fabrication of tank shells.	26
8	After completion of fabrication of tank roofs.	10
9	After completion of fabrication of tank shell and roof accessories, foam lines and fire water lines up to outside bund wall.	5
10	After completion of tank hydro test, rectification of any defects found during and after hydro test.	1
11	On completion of sand blasting & painting of the Tank & other related pipelines and accessories.	5
12	After completion of fabrication, connection and testing of tank inlet and outlet product lines, API, fire water, foam & storm water drain lines up to existing lines. Completion and testing of API drain pump station.	4
13	Calibration of tanks, completion of any balance finishing work, site cleaning and handing over the tanks for commissioning,	1

*Note.1 - Item No. 1 of progress payments under clause no 2.2.5 will be released subjected to a bank guarantee provided by the contractor from commercial bank operating in Sri Lanka, approved by the Central Bank of Sri Lanka. Bank guarantee will be released upon receipt of steel plates on CPC site and subsequent approval by CPC after reviewing 3rd party inspection reports and CPC witness visit to the steel Mill.

2.3 TAX LIABILITIES

2.3.1 Contractor shall be liable to pay the relevant taxes levied by the Sri Lankan Governmental Authorities such as the Inland Revenue Dept. or Local Government Authorities on; its income and profits derived from execution and shall also be liable for all income taxes of its sub-contractor's personnel and the local agents.

Contractor shall accept liability to pay all taxes, turnover tax, NBT (Nation Building Tax), Value added tax, other taxes like import duty levies, fees, stamp duties, and the similar taxes including but not limited to any sales or withholding taxes levied by any authority in respect of the construction equipment, material supplied and any other equipment incorporated on this project.

2.4 RETENTION MONEY

As agreed and given in schedule of payment under section 2.2 of this Bid document, CPC will honor any part payment bills. Retention money will be withheld from such part payments at the rate of 25% of that part payment bill. 5% of the total contract value will be withheld from the final payment as retention money after successful for completion and acceptance of work by CPC. This retention will be released 12 months after completion and acceptance of work by CPC.

2.5 LIQUIDATED DAMAGES

The successful contractor will pay to CPC, as liquidated damages for failure to comply with contractor's obligation to complete the work in the time guaranteed, an amount for each month delayed after the said date, at the rate of 2 % of the contract price per month subject however that the maximum liability of the contractor will not exceed 10% of the contracted lump sum fixed price.

2.6 DEFAULTING CONTRACTORS

Bid offers will not be entertained from firms or persons who have been placed on the list of defaulting contractors of the government of Democratic Socialist Republic of Sri Lanka or the CPC.

2.7 PROJECT SCHEDULE

Project schedule from the date of award of contract to completion of work, site cleaning and handing over the site shall be one stretch **thirty (30)** calendar months for Tank No. 73 and 74. Both tanks to be constructed in parallel. The bidder should submit an overall project schedule showing the number of calendar days required to reach the date of completion and showing the time required for completion of various phases of work, and resource allocation such as welders, fitters, etc. Other than that the contractor should provide S-curves for the project schedule they proposed, along with the bid.

2.8 TERMINATION OF CONTRACT

CPC reserves the right to terminate the contract under the following conditions, in which event Performance Bond of the contract will be forfeited.

- (a) The Contractor stops work for 28 days when no stoppage of work is shown on the current program accepted by CPC and the stoppage has not been authorized by the CPC.
- (b) The Contractor has delayed the completion of the work by the number of days for which the maximum amount of liquidated damages has been deducted, as defined in clause 2.5 of the Bid document without CPC's prior approval.

2.9 FORCE MAJEURE:

Contractor or CPC shall not be responsible for any delay or failure hereunder resulting from causes beyond their control including but not being only restricted to acts of god, fires, explosions, flood, earthquakes, wind storms, national strikes national riots national walk-outs, national boycotts, wars, laws, regulations or acts of any government or from other cause beyond contractor's control and which by the exercise of due diligence contractor or CPC is unable to prevent.

2.10 SAFTY & REGULATIONS FOR THE PREVENTION OF FIRE

(To be observed by the contractor, his sub-contractors and his and their workers, agents and invitees)

All persons engaged in work at Ceylon Petroleum Corporation, Refinery, Sapugaskanda (hereinafter called the Refinery) shall be acquainted with the following regulations and their consent to abide by them shall be an essential condition of their permit to work at the Refinery.

1. The whole of the premises within the boundary fence is constituted a danger area with the exception of any area expressly exempted by the Refinery Manager (hereinafter called the Manager).
2. All employees, agents and invitees of the Contractor who may not be aware of the exact locality of any area expressly exempted from the danger area must assume that any part of the Refinery is a danger area and act accordingly.
3. Before work of any nature is commenced in any area by the Contractor, his employees, agents or invitees, the Contractor must obtain the Manager's authorized signatories necessary for excavation permits, safety certificates and clearance certificates and if the work involves sparks of flames, also a fire permit.
The Contractor, his employees, agents or invitees must observe all precautions stipulated in these documents. If the work cannot be completed in the period for which these documents are valid, the work shall be discontinued until the documents are renewed.
4. Persons under 18 years of age should not be employed by any contractor or by any sub-contractor for carrying out any contract work in any part of the Refinery.
5. It is a condition of the permit to work at the Refinery that all persons engaged at the Refinery shall submit to be searched by the Refinery's Security Officials. This search may take place, either at the time of entry to the Refinery or at any other place and during any time while the employees are in the Refinery, at the discretion of the Senior Security Officer, Refinery.
6. Fire, naked flame, lighters, matches, petrol or any other flammable substance and any apparatus / equipment which can cause ignition should not be taken to the danger area by any contract personnel without a written authority signed by the manager's authorized representatives. Such written permit shall be valid for the period stated therein and must be returned to the Head of Fire Fighting and Safety, Refinery.
7. No dry battery or accumulator type of electric hand-lamp or hand-torch, which is not of a flameproof safety type, approved by the Manager, may be taken to the danger area.
8. Smoking is strictly prohibited in any part of the Refinery.
9. No fires shall be lit and no matches shall be ignited in any part of the Refinery without a special fire permit being given and signed by the Manager's authorized signatory.
10. The contractor shall observe the speed limit of 30 KMPH for vehicles and 24 KMPH for motorcycles within the Refinery premises and all vehicles must be mechanically sound and have an efficient exhaust, silencer, horn, brake, filler cap and tyre of good condition. All contract drivers must possess a valid driving license.
The vehicles used by the contractor should only be driven on the recognized main roads in the Refinery and no vehicle should leave a main road and enter into an operational area without having a valid Fire and Safety Permit.
11. Mobile cranes and other lifting equipment used for the contract job must be load tested and test reports must be produced to the Fire & Safety Department.

12. If any contract work involves scaffolding, it should be erected as per Standard, Refinery Scaffolding Procedure. A copy of Standard Refinery Scaffolding Procedure should be requested when necessary.
13. All contact work should be stopped if the fire siren is sounded or in case of a Refinery Emergency.
14. (a) The Contractor shall ensure that his employees and those of any of his sub-contractors shall not make use of any equipment, material or property of any kind whatsoever belonging to the Corporation unless the written permission of the corporation has been obtained beforehand.
(b) The Contractor shall ensure that so far as is compatible with the work being carried out, the area in which his workers and /or agents are working shall be kept free of all equipment, material or property of any other kind which may constitute an accident hazard. If it is necessary in the opinion of the Contractor for such equipment, material or property to be on site, it will be the Contractor's responsibility to ensure all necessary safety precautions are observed by his own employees and those of his sub-contractors.
15. The contractor must supply all personal protective equipment necessary for the contract employees to carry out the contract work. All contract employees should follow Refinery Safety Regulations and ensure to wear personal protective equipment.
16. All accidents caused to the contractor's employees must be reported to the Fire and Safety Department immediately.
17. After completion of the contract work by the contractor the area involved with the contract work should be inspected by the Fire and Safety Department to ensure that the cleanliness and good housekeeping practices had been followed. The area involved with the contract work should be certified by the Fire and Safety Department before the final payment is made.
18. If the Contractor / Sub Contractor intend to use Electronic equipment / radioactive equipment the contractor shall inform the engineer in charge and give the complete details of such equipment and the purpose for which such equipment is used and obtain the permission from the Electrical Department before commencing the contract work.
19. Any employee, agent or invitee of a Contractor consciously or without consciousness, breaking the above Rules shall be liable to have his permit to work at the Refinery terminated immediately.
20. In addition to the above it will be contractor's responsibility to abide by the relevant clauses of Factories Ordinance of Sri Lanka in respect of all work carried out at the site and the safety of personnel engaged and equipment used at site.
Contractor shall pay special attention to the following clauses of the Factories Ordinance of Sri Lanka. However, the responsibility of the contractor will not belimited to the clauses listed below but will cover all other conditions in the whole

Factories Ordinance and its amendments:

1. Clause 27 - Hoists and lifts
 2. Clause 28 - Chains, Ropes & Lifting Tackle
 3. Clause 29 - Cranes and other Lifting Machines
 4. Clause 30 - Construction and Maintenance of floors, passages and stairs.
21. The mobile phones will not be allowed to bring Refinery premises without proper authorization / approval.

2.11 SECURITY CLEARANCES

- 2.11.1 The Refinery premises is considered a high security zone and all contractors' personnel shall abide by the security regulations, prevailing and those which might be enforced as and when necessary due to changing circumstances. Police clearance for personnel going to be engaged in this job will have to be obtained and produced to CPC security by the contractor.
- 2.11.2 All contractors' personnel and their vehicles will be required to obtain gate passes before entering into the Refinery.
- 2.11.3 Any part of the work that is to be sub contracted should be notified during the process of bidding and the name of the contractor along with the offer. If the contractor is to be changed after the award, written permission of the CPC will have to be obtained.

2.12 ARBITRATION

- 2.12.1 All the disputes arising in connection with the present contract shall be finally settled under the rules of consulation and arbitration of the International Chamber of Commerce & Arbitration Act No.11 of 1995 of Sri Lanka by one or more arbitrators appointed in accordance with the said rules, governed by Sri Lankan law.
- 2.12.2 Performance of the contract shall continue during Arbitration proceedings.
- 2.12.3 All proceedings and hearings by the Arbitrator shall be held in Sri Lanka.

3 TERMS OF REFERENCE (TOR)

3.1 SCOPE OF SUPPLY BY CPC

3.1.1 Construction Utilities

CPC will provide drinking water, water for hydro-testing and firewater only.

3.1.2 Site Fabrication Facilities

CPC will only provide sufficient space in Refinery premises for establishment of a site workshop office for fabrication. The bidder shall indicate the extent of area needed for the site shop. The contractor shall under no circumstance use these site facilities for any other purpose not involving with this job.

3.2 SCOPE OF SUPPLY BY CONTRACTOR

3.2.1 Supply of civil construction material such as rubble, sand, metal, cement, tor steel, soil, bricks, bitumen, cast iron pipes & carbon steel pipes & fittings, painting materials etc. for construction of tank foundation, bund wall, API drain system, storm water system, drain pits, trenches for power supply cables.

Supply of tank construction material such as steel plates, structural steel, pipes & pipe fittings, flanges, valves, special tank fittings etc. for fabrication and erection of steel tanks complete with fire protection and associated systems.

Supply of other equipment & material such as sump pump with motors, lighting poles, lamps, electrical cables etc. for construction of tanks and associated systems.

The specifications and standards of steel materials that shall be used for the construction are as follows. All these steel material shall be manufactured in Europe, USA or Japan only.

Steel Plates	- ASTM A 283 Gr C
Steel Pipes	- ASTM A 106, ANSI B-36.10
Structural Steel	- ASTM A 36
Steel Pipe fittings	- ASTM A 234, ANSI B-16.9
Flanges	- ASTM A 105, ANSI B-16.5
Stud Bolts	- ASTM A 193
Nuts	- ASTM A 194
Valves	- As per API 600, ANSI B-16.10 Raised face, Bolted Bonnet, Material:-Body& Bonnet- A216 WCB, Trim- 13 Cr.
Gaskets	- ANSI B-16.21

All other required material specifications are in the construction drawings.

3.2.1.1 For purchasing of steel plates, third party inspection to be carried out and Mill Test Certificates shall be certified by independent internationally recognized Third Party Inspector (either BV, SGS, Lloyds, ABS, DNV) proposed by contractor and accepted

by CPC. Third Party Certified Mill Test Certificates should be forwarded to CPC for approval before shipment. Shipment should make after receipt of this approval only.

- 3.1.1.2 In addition to the above 3rd party inspection, contractor shall allow three CPC Refinery Engineers to witness the third party inspection process and finished products at the Steel Mill for minimum of 03 consecutive days. The contractor should plan well in advance the schedule of 3rd party inspection to overlap with CPC engineers visit to witness inspection for minimum 3 consecutive days at manufacturing site.
- 3.2.1.3 The contractor shall give forty five (45) days' notice to CPC before 3rd party inspection with seven (07) days confirmation notice. All the expenses relating to the inspection visit for three engineers nominated by CPC to the contractor shall be borne by the contractor.
- 3.2.1.4 However, cost of air tickets for aforesaid engineers will be arranged and borne by CPC up to nearest international airport to the Steel Mill and the contractor shall provide proper and reasonable facilities at his own expenses for the three CPC engineers covering food, accommodation and inland travelling for examining, inspection, testing and gauging such items and shall also supply free of charge such apparatus, materials, tools, gauges, labour and assistance as may be required from time to time for the purpose of such examinations, inspection, testing and gauging.
- 3.2.1.5 The CPC shall have full authority to reject any material or workmanship which does not comply with the tender specifications and other conditions. Any inspection by CPC or CERTIFYING AUTHORITY REPRESENTATIVE(S) shall not absolve contractor from his responsibility to ensure that specification requirements are met.
- 3.2.1.6 In addition to the steel plates, Material Test Certificates should be forwarded to CPC for approval before shipment of steel pipes, pipe fittings, valves, structural steels and other critical items. Shipment should make after receipt of this approval only.
- 3.2.2 Supply of all consumables such as welding electrodes, gas for cutting, grinding discs, NDT consumables and all other consumables necessary for the proper execution of the job.
- 3.2.3 Supply of all diesel and lube oil for the power generators, welding generators, air compressors (if any), cranes, other machinery/equipment required for proper execution of the job.
- 3.2.4 Supply of all construction equipment such as power generators, welding machines, gas cutters, grinders, cranes & other rigging equipment, necessary electrical panel boards with safety equipment, illuminating lamps, tools, lifting gears, safety wear for working inside Refinery will be the responsibility of the contractor. All equipment should be maintained in good working order and tested when applicable and conform to requirements of the Factories Ordinance of Sri Lanka.
- 3.2.5 Supply of all erection material such as lugs, brackets, scaffolding, wooden planks, scaffolding and other accessories.

- 3.2.6 Contractor must obtain an insurance cover for all his man power and site equipment and forwarded to CPC before start work, so that CPC will be released from any responsibility regarding accidents, losses, the damages etc.
- 3.2.7 The contractor shall supply all required non-destructive testing (NDT) equipment & consumables as per API 650/653.
- 3.2.7.1 The contractor should get CPC inspection department prior approval for NDT consumables.
- 3.2.8 The contractor shall employ NDT level-II qualified from Atomic Energy Board – Sri Lanka personal / direct ASNT (<https://www.asnt.org/>) Level 2 qualified personnel for all NDT work. Their CV & certificate copies along with originals shall submit to CPC inspection department review for prior approval immediately after award of contract before commencement of work.
- 3.2.9 Underground piping - Jutehessian, paint to be applied prior coating. Coating materials for Under Ground Piping are Poly Ethylene Butyl Protective Tape, Hard Bitumen – 115/15.
- 3.2.10 Electrical power needed for the construction work should be supplied by the contractor.
- 3.2.10.1 The power distribution board shall be provided with suitable protection devices such as Earth leakage circuit breakers, miniature circuit breakers, isolators etc.
- 3.2.10.2 All cables used for power distribution above 48V shall be of armored type.
- 3.2.10.3 Power distribution inside the tank should comply with IEE wiring regulations for construction sites.
- 3.2.11 All Engineers, Supervisors and Laborers required to carry out the job and safety gears for the Contractor's personnel shall be supplied by the Contractor.

3.3 CONTRACTOR'S SCOPE OF WORK

All the under mentioned conditions shall be completely fulfilled by the selected bidder for the completion of the total job.

- 3.3.1 Construction of tank compound, tank bund walls, drain pits, service roads etc. as per CPC Dwg. No. 8823 SH1/SH2, 8824, 8825, 8826 & 8815.
- 3.3.2 Construction of Tank foundations as per CPC Dwg. No. 8832.
- 3.3.3 Testing of soil before filling and compaction.
All excavated surfaces should be compacted to 95% MDD before filling. Supplying of approved and tested soil from borrow pits, filling and compacting to 95-100% MDD in tank foundation, bund walls and compound and submit test reports for each and every filling layer. After construction of tank bund wall, it should be bituminized with 80-100 penetration grade bitumen and blind with river sand.
- 3.3.4 Tank Bottom
Sizing & cutting of annular and bottom plates, blast cleaning & applying paint on the underside, laying on the prepared foundation, welding in the best sequence after obtaining

the approval by CPC to minimize deformation and NDT test of welds as per API std. 650 (latest edition) and as per the CPC Dwg. No. 7402.

3.3.5 Tank Shell

Sizing & cutting of shell plates, beveling of edges, rolling to required curvature, erection, welding, radiography as per API std. 650 (latest edition), fabrication & welding of all accessories to shell. Checking of peaking & banding, plumpness & roundness and hydrostatic testing and other tests of completed shell and attachments for final acceptance as per API std. 650. (Latest edition), and as per CPC Dwg. No. 7403.

Note: Erection of a safety/dust barrier around half the perimeter of tank no. 73 to a height above the maximum height of the tank to protect the adjacent LPG storage vessels from construction sparks and hot projective. Maintenance of this barrier is the total responsibility of the contractor, until the clearance is given by the CPC Safety department to remove it.

3.3.6 Tank Roof

Fabrication of roof trusses, Sizing, cutting and laying of plates and welding of roof, fabrication and assembly of all other accessories described in detail, vacuum testing and other testing of welds as per API std. 650 (Latest edition), and as per CPC Dwg. No. 7404 & 7405 (SH.1-SH.5) etc.

3.3.7 Accessories to shell

Fabrication and installation of 3 nos. shell man ways (two nos. 24inch and a 30inch)with covers, nozzles, and other accessories & attachments such as draw off sump, level gauge, platform etc. as per CPC Dwg. No. 7415, 7418A, 7420, 3367.

3.3.8 Other accessories

Fabrication & installation of all other accessories such as circumferential handrail, radial handrail, spiral stairway with platform etc. as per CPC Dwg. No. 7409,7410,7408 (SH.1-SH.2).

3.3.9 Accessories to roof

Fabrication and installation of roof attachments & accessories such as open vent, instrument tapping, 2 nos. 24inch man ways with covers etc. as per CPC Dwg. No. 7413, 7421, 8822.

3.3.10 Clean out door

Fabrication as per CPC Dwg. No. 7419 and installation of clean out door after heat treatment carried out by CPC.

(Important: CPC will only be responsible for the carrying out of heat treatment at their workshop. All preparation work such as transportation, setting up, welding of lugs/ supports for thermos-wells, heater elements etc. shall be carried out by contractor).

3.3.11 Cooling water system

Fabrication and installation of cooling water system including valves, strainers as per CPC Dwg. No.7406, 7407, 8829, 7346 etc. up to outside bund wall. All underground piping and connections to the existing firewater lines shall be carried out by contractor.

- 3.3.12 Foam system
Fabrication and installation of foam piping system as per CPC Dwg. No.7422 (SH.1-SH.2) & 8830 up to outside bund wall.
- 3.3.13 Special fittings
Fabrication and installation of special fittings such as level indicator, gauge hatch and cover etc. as per CPC Dwg. No. 7424, 1693.
- 3.3.14 Access for Inspection
Provision of access by erection of scaffolding as per Refinery scaffolding procedure given in "Schedule G" & provision of platforms at required levels & locations using load tested wooden planks or load tested plates for inspection by CPC Inspection Dept.
- 3.3.15 Peaking and banding test
Provision of access to witness the peaking & banding test and provision of templates as per API Std. 650 at the completion of the Tank.
- 3.3.16 Final hydro testing
Hydrostatic testing will be done by CPC after successful completion of radiographic tests, roundness test, plumbness test and peaking & banding test. Any distortion observed during the hydro test should be rectified by the contractor by his own cost.
- 3.3.17 Sand Blasting & Painting
Painting of both sides of tank bottom plates, roof trusses, roof plate underside, shell and roof exterior, one meter band width of shell interior from roof and bottom, including all accessories & attachments as per clause 3.4.3, 3.4.4 and 3.4.5.
Sand blasting shall be done only after proper covering the area preventing the dust particle spreading to the surrounding.
- 3.3.18 Calibration
Calibration of completed tank using optical triangulation method or any other method and calculation and tabulation as per API 2550-ASTM 1220 by reputed third party company acceptable to CPC. Hard and soft copy of calibration chart and/or table to be submitted to CPC.
- 3.3.19 Product inlet and outlet lines of Tanks
Fabrication and installation of tank inlet/outlet product lines up to the existing pipe lines to Sapugaskanda mini Terminal, including all necessary pipe supports and valves etc. as per CPC Dwg. No. 8827, 8828. (Connections to the existing lines will be undertaken by CPC)
- 3.3.20 API sump pit, Pump House and underground piping
Construction of API sump pit, pump house including tank drains and associated underground cast iron piping work up to outside bund wall as per CPC Dwg. No. 8826, 8827, 2529A etc.
- 3.3.21 API Sump pumps and motors
Supply and Installation of 2 nos. 2- inch vertical sump pumps having capacities of 66 gallons per minute at 33 psi with motors having auto cutoff facility according to the CPC Dwg. No. 8826. Supply and installation of power cables, local control panels, switch gears, motors according to the specifications given in the Electrical Specifications -

SCHEDULE I. Cable route from existing power supply distribution point to sump pumps as per CPC Dwg. No. 8834.

3.3.22 Storm Water Pits

Construction of storm water pits and installation of carbon steel piping connection to nearest existing storm water drain network outside the bund walls as per CPC Dwg. No. 8825.

3.3.23 Electrification

Supply and Installation of plant and road lighting according to the CPC Dwg. No. 8831 and CPC Sketch No. 532, 532A. Laying of power cables from existing power supply distribution point to tank premises as per CPC Dwg. No. 8834 and tank grounding system as per CPC Dwg. No. 8833. Supply and installation of cables according to the Electrical Specifications - SCHEDULE I.

3.3.24 Commissioning

Completion of tank in all respect ready for commissioning to the satisfaction of CPC inspection Dept., and cleaning of all debris from site satisfaction to CPC.

3.4 TECHNICAL SPECIFICATIONS/CODES/STANDARDS

3.4.1 WELDING PROCEDURES AND WELDER QUALIFICATION:

3.4.1.1 The following welding electrodes shall be used for each category of joint.

- a. All fillet welds on bottom - AWS E 7018
- b. All welds on the shell for all passes - AWS E 7018
- c. All piping work
 - Root run - AWS E 6010
 - For filling and capping passes - AWS E 7018
- d. All fillet welds on roof plates and structural work - AWS E 6013

3.4.1.2 Welding procedure specifications (WPS) for all types of joints to be submitted to CPC for approval and Welding Procedure Qualification test shall be carried out in the presence of CPC inspector and test reports from a reputed third party inspection company approved by CPC, shall be submitted to CPC.

3.4.1.3 All welders to be qualified as per ASME Sec. IX in presence of CPC Inspection Engineer at CPC site and test samples for bend test with test certificates from a reputed third party inspection company approved by CPC to be submitted. Welding of any type will not be allowed without proper qualification of welders by CPC.

3.4.1.4 Pipe welders shall be qualified for all pipe joints as per ASME Sec. IX and bend test results by a reputed third party inspection company approved by CPC to be submitted

along with test pieces.

3.4.1.5 NDT Work

The contractor shall carryout all NDT work on tanks as per API 650/653, ASME Section VIII and V and, on piping as per ASME Section B31.3 and ASME Section VIII. Latest versions of said ASME and API standards to be followed throughout the project.

3.4.2 STANDARD OF MECHANICAL CONSTRUCTION:

Tanks have been designed according to API Standard 650 by CPC. All mechanical construction work, tolerances and testing has to be as per API Standard 650 (latest edition). Final acceptance will be by CPC based on the limits/tolerances and specification of this standard.

3.4.3 SPECIFICATION FOR BLAST CLEANING

3.4.3.1 Blast cleaning shall be to SA 2 1/2

3.4.3.2 All the blast cleaned surfaces shall be brushed off with clean brushes or blown off with compressed air to remove all traces of blast cleaned products before painting. CPC reserves the full authority to accept or reject a prepared surface depending on the cleanliness and/or anchor pattern specified by the specific paint manufacture, depending on the type of paint system selected.

3.4.3.3 Prior to commencement of blast cleaning a sample of abrasive material to be supplied to CPC for approval and a test sample to be performed for the qualification of the particular abrasive material and the operator.

3.4.4 PAINTING SPECIFICATIONS

3.4.4.1 All paints shall be thoroughly stirred to give uniform consistency before use.

Paints supplied as more than one component shall be mixed in the proportions laid down by the supplier and applied within the specified time after mixing (pot life). Coatings containing heavy or metallic pigments that have a tendency to settle shall be kept in suspension by a mechanical agitator or stirrer. No paints shall be used in which the vehicle has set hard and which cannot readily bere-incorporated by correct mixing. Similarly, no paint shall be used which has jellied or thickened to such an extent that too much thinner is required to bring it to brushing consistency.

3.4.4.2 Paints shall not be applied under the following conditions:-

1. When the temperature of the surfaces is less than $3C^0$ above the dew point of the surrounding air and/or the relative humidity is higher than 85%.
2. When the temperature is below $15C^0$.
3. When there is the likelihood of an unfavorable change in weather conditions within two hours after coating.

4. When there is a deposition of moisture in the form of rain, condensation, frost etc. on the surface. This is likely to occur when the relative humidity is over 80% and the temperature is below 15 °C.

3.4.4.3 Painting carried out under doubtful weather conditions is the responsibility of contractor. If any painting is found to be unacceptable the particular surfaces shall be made paint free and be re-painted at contractor's expense. The first coat of paint shall be applied as soon as possible after surface preparation is approved by CPC. Each layer of paint shall be allowed to dry for a period of time within the limits prescribed by the paint manufacturer, before the next layer is applied.

Particular attention shall be paid to the painting of corners, edges, welds etc. especially with respect to the specified minimum dry film thickness. All surfaces inaccessible after assembly shall be fully painted before assembly.

3.4.4.4 All loose sand shall be removed from the adjacent blast cleaned area prior to the painting to prevent contamination & deterioration of paint by depositing sand on the paint coating due to the wind before drying out of paint coating.

3.4.4.5 Paint thickness report shall be submitted to the Inspection Department at each painting stage.

3.4.5 PAINTING SHEDULE

1. Tank Bottom plate underside

	Paint	DFT Microns	Overcoating interval	
			Min.	Max.
Primer	Sigma Cover 280	50	*1	*1
Intermediate	Sigma Cover 300 (Brown Colour)	150	*1	*1
Finish	Sigma cover 300 (Black colour)	150	*1	*1
Thinner	Sigma thinner # 9192 / 9179			
Surface Preparation	Blast cleaning to SA 2 ½			
Paint Application	Airless spray			

*1 - Please refer notes

2. Roof, shell(internal side top 1.5m band) & roof & trusses

	Paint	DFT Microns	Overcoating interval	
			Min.	Max.
Primer	Sigma Cover 522	50	2-6 Hrs.	60-90 days
Intermediate	Sigma guard 720 (Gray colour)	150	2-6 Hrs	4-7 days
Finish	Sigma guard 720 (Green colour)	150	2-6 Hrs	4-7 days
Thinner	Sigma thinner # 9192			
Surface Preparation	Blast cleaning to SA 2 ½			
Paint Application	Airless spray			

3. Tank shell & roof external side with accessories

	Paint	DFT Microns	Overcoating interval	
			Min.	Max.
Primer	Sigma Cover 280	60	*1	*1
Intermediate	Sigma cover 435(MIO Gray colour)	100	*1	*1
Finish	Sigma cover 456 (Gray colour)	100	*1	*1
Final Finish	Sigmadur188 (Aluminium RAL 9006), Gray 5177 or white 7000)	75		
Thinner	Sigma thinner # 9192 (for prime , intermediate & finish) , use thinner # 2106 for sigmadur 188			
Surface Preparation	Blast cleaning to SA 2 ½			
Paint Application	Airless spray			

4. Tank Bottom & complete Bottom shell course (Product Side)

	Paint	DFT Microns	Over coating interval	
			Min.	Max.
Primer	International Interline 399	150	16 Hrs.	
Finish	International Interline 399	150	16 Hrs	
Thinner	International GTA 220			
Surface Preparation	Blast cleaning to SA 2 ½			
Paint Application	Airless spray			

5. Hand railings ,Platforms , foam & firewater piping

	Paint	DFT Microns	Overcoating interval	
			Min.	Max.
Primer	Zinc Phosphate or equivalent	170		
Finish	Enamel paint compatible to primer	50		
Thinner	Generic thinner			
Surface Preparation	Blast cleaning to SA 2 ½			
Paint Application	Brush / roller brush / spray			

- Note:
1. Paint manufacturers' data sheet recommendation shall be strictly applied.
 2. Paint damaged areas due to welding or due to other reasons shall be power brushed & applied with the same paint system.
 3. Paint mixing shall be done only with paint mixer.

4. All primers & overcoats shall be ordered at least in two different colours for clear identification.

3.5 INSPECTION AND TESTING:

- 3.5.1 All local fabrication and installation at site will be inspected by CPC inspector with concurrence of the contractor's own inspection.
- 3.5.2 In the event of any rejection arising out of quality of standard of fabrication/installation according to API Standard 650 (latest edition), such items shall be replaced by the contractor at no cost to CPC. In view of standard of fabrications that have to be maintained, CPC reserves the right to reject services of workers not meeting up to skills required.
- 3.5.3 CPC inspectors & project engineers will carry out inspection at all stages of construction.
- 3.5.4 Contractor shall carry out all non-destructive testing such as Radiography, Dye penetrant testing and vacuum testing etc. Wherever required by the design code API Standard 650 (Latest Edition) using contractor's own equipment & manpower at its own cost in the presence of CPC's inspectors and submit reports for CPC's approval.

3.6 GUARANTEES:

- 3.6.1 Contractor will guarantee that the construction here under shall be free from defects and shall conform to and shall perform so as to comply with tender specifications contained in Instructions to Bidders or other specifications as may be ordered or approved by CPC.
- 3.6.2 During the whole period from the commencement of construction/erection until 12months after mechanical acceptance by CPC, Contractor shall immediately after receipt of written notice from CPC, repair or replace at its own cost and expense such material or workmanship supplied which will be found to be defective.
- 3.6.3 Any cost of repair /replacement during the guarantee period of 12 months informed to the contractor and not repaired / replaced or undertaken by the contractor will be repaired/replaced by CPC and such cost will be deducted from the retention of contractor.

4 SCHEDULE – A: FORMAT OF BID SECURITY GUARANTEE

4.1 BY BANK GUARANTEE

[This bank guarantee form shall be filled in accordance with the instructions indicated in brackets]..... [Insert issuing agency’s name and address of issuing branch or office]

Beneficiary: Chairman, Ceylon Petroleum Corporation, No.609, Dr Danister Silva Mawatha, Baseline Road, Dematagoda Colombo 09, Sri Lanka.

Date : [Insert (by issuing agency) date]

Public Tender Reference : PD/WORKS/01/2016

BID GUARANTEE NO:[insert (by issuing agency) number]

We have been informed that [Insert (by issuing agency) name of the Bidder; if a joint venture, list complete legal names of partners] (Hereinafter called “the Bidder”) has submitted to you its bid dated [Insert (by issuing agency) date] (Hereinafter called “the Bid”) for execution of **Construction of Two Nos. fuel oil storage tanks No.73 and 74** under Bids No. [Insert IFG number] (The “IFB”)

Furthermore, we understand that, according to your conditions, Bids must be supported by a Bid Guarantee.

At the request of the Bidder, we [Insert name of issuing agency] hereby irrevocably undertake to pay you any sum of sums not exceeding in total an amount of [Insert amount in figures] [insert amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligations(s) under the bid conditions, because the Bidder.

- (a) has withdrawn its Bid during the period of bid validity specified; or
- (b) does not accept the correction of errors in accordance with the Bid Document (hereinafter “the Bid”) of the IFB; or
- (c) having been notified of the acceptance of its Bid by the Employer/Purchaser during the period of bid validity, (i) fails or refuses to execute the Contract Form, if required, or (ii) fails or refuses to furnish the Performance Security; in accordance with the Bid Document.

This Guarantee shall expire: (a) if the Bidder is the successful bidder, upon our receipt of copies of the Contract signed by the Bidder and of the Performance Security issued to you by the Bidder; or (b) if the Bidder is not the successful bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder that the Bidder was unsuccessful, otherwise it will remain in force up to [Insert date]

Consequently, any demand for payment under this Guarantee must be received by us at the office on or before that date

[Signature of authorized representative (s)]

4.2 BY BANK DRAFT

Chairman,
Ceylon Petroleum Corporation,
No.609, Dr. Danister Silva Mawatha,
Baseline Road, Dematagoda,
Colombo 09,
Sri Lanka.

Dear Sir,

Bid Security for Construction of Two Nos. Fuel Oil Storage Tanks No.73 and 74 (PD/WORKS/01/2016)

We hereby inform that Bank draft no..... valueIssued bybank submitted as a bid security guarantee of the above contract.

Signature of the bidder Designation

Company stamp Date

5 SCHEDULE-B: FORM OF BID

Chairman,
Cabinet Appointed Procurement Committee
Ceylon Petroleum Corporation

Dear Sir,

Bid for Construction of Two Nos. fuel oil storage tanks No.73 and 74

We hereby bid for **Construction of Two Nos. fuel oil storage tanks No.73 and 74** in conformity with the specifications as stated in the Instructions to Bidders.

Having perused the Instructions to Bidders for **Construction of Two Nos. fuel oil storage tanks No.73 and 74** and the Schedule of Prices referred to therein, I / We hereby agree to comply with the Conditions of the said Tender.

I / We undertake to conform to all the Terms & Conditions in the said Tender and the Schedule of Prices within the time specified.

I / We declare that I / We have perused the Performance Guarantee (Appendix “D”) and confirm our compliance with the said Performance Guarantee in the event of award of Tender.

Unless and until a formal agreement is engrossed and executed this Form of Tender dated together with your written acceptance thereof shall constitute a binding contract between us.

I/We am/are fully aware that the acceptance of any Tender will be at the sole discretion of the Cabinet Appointed Procurement Committee (CAPC), Ceylon Petroleum Corporation.

The Name and Address of Local Agent (if any) is given below.

.....
Signature of Bidder

Name of the bidder and designation

Company Name and stamp

Date:

Name of Local Agent (if any)
.....

Address:
.....
.....

6 SCHEDULE-C: SCHEDULE OF PRICES

S/No	Description	Rs. / Foreign Currency
1	Cost of construction management and contractor's engineering overheads of the job.	
2	Cost of field labour to be engaged for Construction of two tanks including tank compound, tank foundations, bund walls, tank bottom, shell, roof and other accessories and related facilities.	
3	Cost of all Steel Plates and structural steel for construction of two tanks and other related facilities.	
4	Cost of all other construction material such as Steel pipes & fittings, Wrought iron pipes & fittings, Hume pipes & fittings, valves, Cement, Metal, river sand, bitumen etc.	
5	Cost of lighting poles, 2 nos. vertical sump pumps with motors, switch gear, Power and instrument cables and other electrical items.	
6	Cost of tank consumables such as welding electrodes, Grinding discs, gas for cutting, and consumables for NDT work etc.	
7	Cost of construction equipment such as welding plants, cranes, air compressors, testing equipment etc that the contractor plans to mobilize on this project (plans to bring from local sources or make available from the contractor's equipment).	
8	Cost of blast cleaning and painting of the tank and other related facilities including abrasive material cost, paint/thinner cost, labor and equipment.	

Foreign Currency is applicable for Foreign Contractors only. Currency type to be indicated.

Total price without TAX - Rs/ Foreign Currency

2% NBT (if applicable) - Rs.....

Subtotal - Rs.....

15% VAT (if applicable) - Rs.....

Total price (with NBT & VAT) - Rs.....

Total price of the job in words.....

Signature of the Bidder

Name of the bidder and designation

Company Name and stamp

Company Address

Contact Telephone No

VAT & NBT Registration Numbers :.....

Date

7 SCHEDULE- D: FORMAT OF PERFORMANCE GUARANTEE

..... [Issuing Agency’s Name and Address of issuing Branch or office].....

Beneficiary : Chairman, Ceylon Petroleum Corporation, No.609, Dr Danister Silva Mawatha, Baseline Road, Dematagoda Colombo 09, Sri Lanka.

Public Tender Reference : PD/WORKS/01/2016

Date :

PERFORMANCE GUARANTEE NO:

We have been informed that [Name of Contractor] (Hereinafter called “the Contractor”) has entered into Contract No. [Reference number of the contract] dated with you, for the **Construction of two nos. fuel oil storage tanks No.73 and 74** (Hereinafter called “the Contract”)

Furthermore, we understand that, according to the conditions of the Contract, a performance guarantee is required.

At the request of the Contractor, we..... [name of Agency] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of.....[amount in figures] (.....) [amount in words], such sum being payable in the types and proportions of currencies in which the Contract Price is payable, upon receipt by us of your first demand in writing accompanied by a written statement stating that the Contractor is in breach of its obligation(s) under the Contract, without your needing to prove or to show grounds for your demand or the sum specified therein.

This guarantee shall expire, no later than the day of,20.....[insert date, 28 days beyond the scheduled contract completion date] and any demand for payment under it must be received by us at this office on or before that date.

.....
[Signature(s)]

8 SCHEDULE - " E" FORM OF AGREEMENT

This AGREEMENT made the[day] of[month] 200.....[year], between[name and address of Employer] (hereinafter called and referred to as “ the Employer ”), of the one part, and [name and address of Contractor] (hereinafter called and referred to as “ the Contractor ”), of the other part:

WHEREAS the Employer desires that the Contractor execute..... [name and identification no of Contract](hereinafter called and referred to as “ the Works ”) and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and remedying of any defects therein.

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Contract hereinafter referred to.
2. In consideration of the payments to be made by the Employer to the Contractor as indicated in this Agreement, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein conformity in all respects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execute and complete the Works and remedy any defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year aforementioned, in accordance with laws of Sri Lanka.

.....

.....

Authorized signature of Contractor

Authorized signature of Employer

COMMON SEAL

COMMON SEAL

In the presence of :

Witnesses :

1. Name and NIC No.
Signature
Address
2. Name and NIC No.
Signature
Address

9 SCHEDULE –F: FORMAT FOR ADVANCE PAYMENT GUARANTEE

**FORMAT OF ADVANCE PAYMENT
GUARANTEE**

An advance payment securities shall be issued in the format given below.

-----[Name and address of Agency, and Address of Issuing Branch or Office] --

Beneficiary: Chairman, Ceylon Petroleum Corporation, No.609, Dr Danister Silva Mawatha,
Baseline Road, Dematagoda, Colombo 09, Sri Lanka.[Name and Address of Employer].

Date : -----

ADVANCE PAYMENT GUARANTEE NO: -----

We have been informed that -----[name of Contractor/ supplier] (hereinafter Called “ the Contractor”) has entered into Contract No.----- [reference number of the contract] dated ----- with you, for the -----(insert “construction” or “supply”) Construction of two nos. fuel oil storage tanks No.73 and 74 [name of contract and brief description].(hereinafter called “the Contract”).

Furthermore, we understand that, acceding to the conditions of the Contract, an Advance payment in the sum ----- [amount in figures] (-----) [amount in words] is to be made against an advance payment guarantee.

At the request of the Contractor, we ----- [Name of the issuing agency] hereby Irrevocably undertake to pay you any sum or sums not exceeding in total an Amount of --- -----[amount of figures] (-----)[amount in words] upon receipt by us of your first demand in writing accompanied by a written statement stating That the Contractor is in breach of its obligation under the Contract.

The maximum amount of this guarantee shall be set off from the payment due to the contractor as per the mode of payment stipulated under the “Conditions of Contract”.

This guarantee shall expire, *Insert the date, 28 days beyond the expected expiration date of the Contract.*

Consequently, any demand for payment under this guarantee must be received by us at this office on or before that date.

[Signature(s)]

The Guarantor shall insert an amount representing the amount of the advance payment and denominated either in the currency(ies) of the advance payment as specified in the Contract.

10 SCHEDULE – G: CONSTRUCTION DRAWINGS LIST

DWG No.	Description
7400A	Tank General Arrangement
7402	Bottom Plate Arrangement
7403	Shell Details
7404	Roof Plates
7405 SH.1	Details of Roof trusses
7405 SH.2	Details of Purlins
7405 SH.3	Roof trusses Details of Intermediate and Tertiary Rafters
7405 SH.4	Gusset Plate for Roof trusses
7405 SH.5	Gusset Plate of Roof Purlins
7406	Additional cooling water rings for cooling water drencher system
7407	cooling water drencher system
7408 SH.1	Spiral Stairway
7408 SH.2	Details of Spiral Stairway
7409	Circumferential Hand rail
7410	Radial Hand Rail
7412	Draw off sump
7413	Dia. 24 inch Roof manhole
7415	Dia. 30 inch and 24 inch shell manhole
7418A	Inlet and outlet nozzles
7419	24inch x 24 inch Flush type Cleanout
7420	1 inch dia. thermometer
7421	12 inch open vent
7422 SH.1	Form Discharge Head
7422 SH.2	Foam generator 6 inch dia.
7422 SH.3	Foam Ring Support
7424 SH.1	Nozzle for 8 inch dia. Gauge Hatch
7424 SH.2	8 inch dia. Gauge Hatch
3367	Tank Grounding Details
8822	Nozzle Orientation
8823 SH1/SH2	Bund wall Layout & Details
8824	Location of TK73 & 74
8825	Storm water system
8826	API drain system
8827	Piping Layout
8828	Pipe supports & Sleepers
8829	Cooling water and Fire water system layout
8830	Layout of form piping
8831	Layout of road lighting system
8832	Foundation Details
1693	Level Indicator
8833	Tank grounding system for tank no.73 & 74
8834	Cable route from existing power distribution point to tank no. 73 &74
8815	Contour plan for tank no. 73 &74
2529A	Oily water sewer detail- sump pump detail
7346	6 inch strainer for the fire water line
Sketch No. 532/ 532 A	Road lighting pole/ Plant lighting pole

11. SCHEDULE- H: STANDARD SPECIFICATION FOR SCAFFOLDING

Scaffolds

A scaffold is an elevated working platform for supporting both personnel and materials. It is temporary, its main use being in construction and/or maintenance work. Scaffolds should be designed to support at least four times the anticipated weight of workers and materials which will be used for. Scaffolding is the structure that supports the working platform.

Over Head Protection

Whenever, work is being done above the personnel working on a scaffold, overhead protection should be provided on the scaffold for those personnel. This protection should be not more than 9 ft. (3m) above the working platform and should be planks or other strong suitable material.

Means of Access

A safe convenient means must be provided to gain access to the working platform level. Means of Access may be a portable ladder, fixed ladder, ramp or runway or stairway.

Suggested Scaffolding Regulations for Refinery Use Definition of Scaffold Terms

Standards (or Upright)

The vertical supports which bear the weight of the structure and its load.

Ledgers

Horizontal tubes which connect standards longitudinally and which may act as supports for transoms.

Transoms

Tubes which span ledgers transversely and may support as working platform.

Braces

Tubes fixed diagonally across the length and/or width of a scaffold through a scaffold (i.e. Plan bracing) to increase its stability.

Ties

Tubes used to maintain stability in a scaffold by connecting it to the structure or to the wedges on ground.

Right Angle Load Bearing Coupler

Scaffold fitting used to join major load bearing tubes at right angle.

Swivel Coupler

Fitting used to join tubes at any angle.

Base Plate

A steel plate approximately 6"x6" with a spigot over which a scaffold tube can be placed at right angles to the plate.

Joint Pin

Coupler for joining scaffold tubes end to end by fitting externally.

Sole Plate

Wood plank of suitable size to cover soft ground

Independent Tie Scaffolds

There are scaffolds having two rows of standards

1. All scaffolds should be erected on level and firm ground. Where level ground is not available then the ground directly below the sole plates should be leveled.
2. Excavations manholes, openings, etc. must be covered with larger timber for sole plates. Where several standards are involved a competent engineer must ensure the bridging is adequate for the loads involved.
3. Bricks, scrape pieces of timber, breeze blocks, etc. must not be used as sole plates.
4. Metal base plates must be used to support standards on grounds other than hard concrete floor.
5. Standards shall be erected vertically at spaced not more than 6 ft. (2.134 m)
6. Joints in standards must be staggered, i.e. no adjacent joints in the same lift, and should be as near as possible to the ledgers. These joints should be made with joint pins (internal couplers). Swivel joint couplers should not be used for this purpose.
7. Ledgers must be fitted horizontally and secured with 90° load bearing couplers to the inside of the standards, and spaced not more than 6 ft.
8. Joints in ledgers should be avoided as much as possible, but may be made with sleeve couplers and must be staggered (i.e. no adjacent joints in the same bay) and should not be more than 2 ft. (610 mm) from any standard.
9. Transoms should be fixed at both ends to the ledgers with right angle or swivel couplers. The distance between two adjacent transom shall be not more than 4 ft.

The two transoms at the edges of platform should be as close as possible to standard. Those two transoms may be fixed to the standards with any right angle coupler.

10. Additional transoms must be fitted to ensure that the ends of the boards or planks are supported properly.
11. Ties must be fitted at 20 ft. minimum intervals along the scaffold horizontally over 30 ft. vertically
12. All ties must be secured with right angle load bearing couplers.
13. At least 50% of all ties should be through ties and must be horizontal where possible and secured to standards or close to standards. Horizontal ties must be fastened both to the internal and external standards or ledgers.
14. Where it is not possible to make all ties through ties intermediate reveal ties may be fitted.
15. The minimum width of the scaffold platforms should be as follows:
 - (a) 24" - 2 persons only (no material) 3 boards/planks
 - (b) 32" - 3 persons and the depositing of materials not more than 25 kg. Passage of persons 4 boards/planks
 - (c) 48" - 4 persons & material up to 50 kg. 6 boards/planks must be supported by minimum of six standards
16. All scaffolding must be suitably braced.
 - (a) Diagonal bracing at right angles to the structure and at alternative pairs of standards is necessary for the full height of the scaffold.
 - (b) Longitudinal or facade bracing to the full height of the structure in the end bays and intermediate locations of 100 ft. may be used.
 - (c) Longitudinal bracing should be fastened to extended transoms by right angle couplers provided that such transoms are clamped to ledgers or standards with right angle couplers. Bracing, fastened to the standards may be secured by swivel couplers as near to the ledger as possible.
 - (d) Joints in braces should be made by sleeve or parallel couplers.
17. Scaffold boards/planks must be free of large splits, knots, should be banded at both ends, and to cut in any way.
18. Every scaffold boards/planks longer than 6 ft. should have at least three supports, but needs more supports as in clause 10.
19. No board should overhang its last support by more than 12 inches.

20. Every scaffold board should have a minimum overhang of 6 inches over its last support.
21. The space between two adjacent boards must not exceed 1 inch.
22. Scaffold platforms must be completely boarded out.
23. Every scaffold platform from which a person can fall more than 6 ft. 6 inch. must be fitted with guard rails the height of the guard rail from the platform must be between 3 ft. and 3 ft. 9 inch (1.142 m).
24. The space between the edge of the working platforms and of the equipment must be as small as possible and must never exceed 12 inches. If due to circumstances a gap of more than 12 inches is created, guardrails must be fitted as above.
25. As possibility of displacement exist, from high winds etc. boards must be fastened down at both ends with suitable clamps.
26. Where platforms become slippery due to oil etc. the boards should either be cleared off and sanded or turned over.
27. Clear access must be maintained at all times to all scaffolds and all ladders being used to give access must be sound construction.
28. The gap in the guardrail for the ladder access must be as small as possible.
29. Ladder runs must not, under any circumstances, be used to support gangways, runways, or platforms of any nature.
30. Single planks runs must not be used under any circumstances.
31. Ladder landings must be provided at every 30 ft.
32. No part of scaffold be used to support any other load or as a supporting point for a chain blocks ratchet etc.

Mobile or United Scaffolds

1. No mobile or united scaffold shall be erected to a height greater than 3 1/2 times its minimum base width.
2. The standards should be made vertical
3. All other requirements for independent tied scaffolds should be satisfied other than ties.
4. Maximum height of mobile or united scaffold is 60 ft.

Inspection of Scaffolds and Accessories

1. Every scaffolding pipe, coupler & base plate must be inspected by Inspection Engineer once in every month period.

2. The Inspection Engineer will reject the defective items such as damaged pipes, corroded couplers and base plates etc.
3. Every plank to be used for a platform should be load tested at 6 months intervals by Inspection Dept.
4. The planks should be supported at closest to its ends and tested with the rated load at the centre.

The rated loads shall be:

300 Kg. for planks 4 ft. long

200 kg. for planks 6 ft. long

150 kg. for planks 8 ft. long

100 kg. for planks 12 ft. long

5. Before load testing every 6 months, planks to be inspected
6. Every scaffolding clamp and pipe must be numbered.

12. BID NOTICE

CEYLON PETROLEUM CORPORATION REFINERY DIVISION

Construction of Two Nos. Fuel Oil Storage Tanks No.73 and 74

TENDER NO: REF- PD/WORKS/01/2016

Cabinet Appointed Procurement Committee (CAPC) hereby calls bids for Construction of Two Nos. Fuel Oil Storage Tanks No.73 and 74, at the Ceylon Petroleum Corporation- Refinery Division, Sapugaskanda, Kelaniya.

Bidders having following qualifications are invited for bidding.

- The local bidders shall have experience in carrying out steel oil tank construction work as per API 650 in the past 5 years and registration with Institute for Construction Training & Development (ICTAD) at Grade EM 1.
- Foreign bidders shall have prior experience in the past 10 years carrying out steel tank constructions work as per API Standard 650 and shall have successfully completed at least one steel tank construction of value not less than US\$ 2,500,000/= within past 5 years
- In case of a join collaboration of a local registered company with a foreign company, foreign company shall fulfill the requirement of carrying out Mechanical Engineering construction of value more than US\$ 2,500,000/= within past 5 years and either party having API 650 tank construction experience.

A non-refundable bid deposit of Rs. 35,000/= (with all taxes) shall be paid to Refinery Finance Department at the time of collection of bid documents. Final date and time of issuing of bid documents will be on **18th May 2017** at **15.00** hours and the closing date and time of receiving sealed bids will be on **06th June 2017** at **14.30** hours and bids will be opened just after the closing of bids.

All bidders or their duly authorized representatives are requested to be present at the “Pre-bid” meeting and site visit, to be held on **16th May 2017** at **09.30** hours at the Main Conference Room of CPC Refinery. All costs incurred in attending to this meeting will have to be borne by the bidders themselves.

Bid documents and other details could be obtained from Deputy Refinery Manager (Maintenance & Projects), Refinery Division, Sapugaskanda, Kelaniya.

Bid document can be read on the **www.ceypetco.gov.lk** web site.

Chairman (CAPC)
Ceylon Petroleum Corporation
Refinery Division,
Sapugaskanda,
Kelaniya.

Fax –94 11 2400431 / 2400436
Tel –94 11 2400427 / 5668542

13.SCHEDULE- I: ELECTRICAL SPECIFICATION

a. Specifications for electrical installation

1.1 Cable trenching

All cables should be laid through a excavated cable trench of size 450 mm X 500 mm . All trenches shall be free from rabbles, hard rocks before cable laying. Once the trench excavation is completed, 100 mm sand layer is to kept at the bottom of the trench and then lay the cables. After cable laying need another 100mm layer of sand and then covered with 300 mm X 450 mm X 50mm cable tiles. Finally trench shall be filled with excavated earth, compact and leveled.

1.2 Earthing

All steel structures shall be connected to the nearest earth terminal. 450mm X 450 mm earth pits with a concrete covers are to be made inside and outside the tank compound and should be interconnected to make a grid. Earth cable shall be connected through a clamp to the rod at the pit for easy disconnection for future measuring purposes. Earth resistance individual pit shall not exceed 10 ohm and shall be at least 1 ohm once connected to the grid.

1.3Lighting

Lighting shall be of two types, namely road lighting and plant lighting. For road lighting supplier shall use CPC Dwg. No. 8831 for the pole and fitting shall be of reputed brand LED type to provide standard illumination levels in roads. Plant lighting fittings will be supplied by CPC and contractor is responsible for installation work.

1.4 Cabling

All cabling is to be done by the successful contractor by using his resources under supervision of CPC engineer. It is the total responsibility of the contractor to use latest cable laying standards and practices to avoid any damages to cables. Also CPC will not accept any scale of cable damage and contractor need to replace if damaged. Cable sizes are given below and contractor need to verify the sizes given for trouble free commissioning process.

Power cables (Motor pump Unit)	- 3 x 25 mm ²
Power Cables (Road / Plant Lighting underground)	- 4 x 6 mm ²
Earth Cables	- 1 x 70mm ²

b. Specification for 600/1000V 3/4 Core XLPE Power Cable

Rated Voltage	: 400 V
No. of Cores	: 3 or 4 Core
Rated frequency	: 50 Hz
Conductor	: High purity, Suitable size stranded plain copper conductor
Insulation	: XLPE Insulation
Bedding	: PVC bedding

Armouring	: Galvanized Steel Wire Armour
Sheath	: PVC sheath with ultraviolet resistant, color Black
Marking	: Manufacturer's name, cable type, cross section, numbers of cores shall be marked on the outer sheath.
Standard	: Materials, manufacturing, testing, marking, and packing shall be in accordance with the latest relevant IEC or BS standard (Please Specify)
Application	: suitable for outdoor underground laying to supply power from transformer to main distribution panel.

Other Conditions:

Make, Country of origin and country of manufacture shall be clearly indicated in the offer.

Manufacturer shall have at least 10 years continuous manufacturing process of offered type cables

Manufacturer shall be ISO 9001 certified company for offered type cable production facilities.

Type Test certificates shall be required for offered cables.

Cable shall be supplied as one length in a suitable cable drum for easy handling when processing the cable laying.

Cable drum and packing shall be seaworthy and cable ends shall be sealed.

Printed product catalogs and technical details in English language are to be provided along with the offer for evaluation purposes.

All relevant operational, maintenance and handling manuals shall be provided along with the cables.

Company profile, experience in manufacturing, testing facilities references shall be provided along with the offer.

Details of internal & export market shall be provided along with the offer.

c. Specification for induction Motor

1. Existing Motor Details

1.1 Capacity	: Vendor to decide
1.2 speed	: Vendor to decide
1.3 Power supply	: 400V, 3 phases,
1.4 Mounting	: Vendor to decide

2. Service Conditions

2.1 Max. ambient temperature	: 40oC
2.2 Relative humidity	: 95%
2.3 Altitude	: Less than 1000 m
2.4 Location	: Outdoor, hazardous area
2.5 Duty	: Continuous
2.6 Environment	: Corrosive

- 2.7 Voltage & Frequency : 400 V, 3 phase, 50Hz
- 2.9 Starting : Motor shall be suitable for direct on line (DOL) starting with power supply 400V, 3 phase, 50Hz / 3.3 kV, 3 Phase, 50 Hz.

3. Construction Requirements

- 3.1 Protection : Ex 'nA', IIB, T3 according to IEC.
- 3.2 Enclosure : TEFC, Ex 'nA', II, T3 according to IEC.
- 3.3 Cooling method : IC 411 (According to IEC 34-6)
- 3.4 Degree of protection : IP 55
- 3.5 Insulation class : F
- 3.6 Bearings : Ball / Roller bearings with Grease lubrication.
- 3.7 Earthing : Both internal and external earthing terminals shall be provided.
- 3.8 Balancing : Motor should be dynamically balanced using a half key
- 3.9 Stator : Should be made out of cast steel / iron.
- 3.10 Cooling Fan : Shall be made out of metal or aluminum

4. Other Condition

- 4.1 Noise level : Shall not exceed 85 dB at 1 meter
- 4.2 Vibration : Within the limits specified in ISO 2372 or equivalent.
- 4.3 Terminal Box : Shall have a sufficient space to accommodate the cables.
All six terminals shall be available at the terminal plate for end user to select a proper starting method.
Cable entry plate should be mounted separately for easy disconnection of incoming cables.

5. Standards & Codes applicable

The motor shall be manufactured according to ANSI, NFPA, NEC, API, IEEE, NEMA, BS, IEC, VDE or any other equivalent International standard.

6. Test certification

The motor has to be certified and labeled to ensure that it complies with the hazardous area classification by an internationally recognized testing authority such as one of the following BASEEFA, PTB, UL, and FM standards, if applicable.

Routine tests shall be carried out according to IEC 34–2 and IEC 34 –2A. In addition supplier shall carry out any other tests to ensure the motor meets CPC specifications.

7. Drawing

Supplier shall provide exploded view with dimensions & performance curves along with the offer. Terminal details & installation details etc... shall be provided after placing the purchase order enabling CPC to proceed with installation work.