



ENERGY FIJI LIMITED

BIDDING DOCUMENT

**Design & Construct Transformer Foundation pad, Oil
Separator Pit, carry out electrical and civil works at
Cunningham Road Substation**

TENDER NO: MR 277/2019

INVITATION FOR BIDS

The ENERGY FIJI LIMITED (“The Employer”) invites sealed bids from reputable and suitable Bidders for the design & construction of transformer foundation pads, oil separator pit and carrying out electrical and civil works for the 2 x 132/33kV transformer replacement projects at EFL’s Cunningham Road Substation.

All bids for the contract shall be submitted on the appropriate forms provided and shall include the completed price schedule, technical schedule and schedules of experience etc. The bid shall be on the basis of a lump sum contract based on firm prices.

Bidders may obtain further information from, and inspect and acquire the bidding documents, at

ENERGY FIJI LIMITED
The Secretary Tender Committee
2 Marlow Street, Suva, FIJI.
Suva

The deadline for submission of bids shall be **1600hrs (local time) on Wednesday, 2nd October, 2019.**

During evaluation of bids the Authority may invite a bidder or bidders for discussions, presentations and any necessary clarification before awarding the contract price proposal.

Section 1 - Instructions to Bidders

1. Scope of Bid

The ENERGY FIJI LIMITED (hereinafter referred to as "the Employer"), wishes to receive bids for the Design & Construction of transformer foundation pads, oil separator pit and carry out electrical and civil works at Cunningham Road Substation for the 132/33k Transformer Replacement Project, as defined in these bidding documents (hereinafter referred to as "the Works").

The successful bidder will be expected to complete the Works within 5 months from the date of issue of purchase order.

2. Eligible Bidders

This Invitation to Bid is open to bidders who have sound financial background and have previous experience in handling such civil projects.

Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer as the Employer shall reasonably request.

Bidders shall not be under a declaration of ineligibility for corrupt or fraudulent.

2. Eligible Materials, Equipment and Services

The materials, equipment, and services to be supplied under the Contract shall have their origin from reputable companies from various countries and all expenditures made under the Contract will be limited to such materials, equipment, and services. At the Employer's request, bidders may be required to provide evidence of the origin of materials, equipment, and services.

3. Qualification of the Bidder

To be qualified for award of Contract, bidders shall submit proposals regarding work methods, scheduling and resourcing which shall be, provided in sufficient detail to confirm the bidder's capability to complete the works in accordance with the specifications and the time for completion.

4. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of its bid and the Employer will in no case be responsible or liable for those costs.

5. Site Visit

The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for the design-build and completion of the Works. The costs of visiting the Site shall be at the bidder's own expense. The pre-bid meeting is scheduled on **Friday 13th September, 2019 at 10.00a.m at EFL's Cunningham Road Substation Site.**

6. Sealing and Marking of Bids

The bidder shall seal the original copy of the technical proposal, the original copy of the price proposal and each copy of the technical proposal and each copy of the price proposal in separate envelopes clearly marking each one as: "ORIGINAL-PROPOSAL", and "COPY PROPOSAL", etc. as appropriate.

The bidder shall seal the original bids and each copy of the bids in an inner and an outer envelope, duly marking the envelopes as "ORIGINAL" and "COPY".

The inner and outer envelopes shall be addressed to the Employer at the following address: Tuvitu Delairewa

Tender Document - Cunningham Substation Transformer Upgrade – Civil works
General Manager Commercial
Energy Fiji Limited,
2 Marlow Street, Suva, FIJI.
Phone: 679 3224 185
Facsimile: 679 331 1882
Email: TuvituD@efl.com.fj
And

bear the following identification:

- Bid for: Design & Construction of transformer foundation pads, oil separator pit, carry out electrical and civil works at Cunningham Road Substation
- Bid Tender Number: **MR277/2019**
- DO NOT OPEN BEFORE **Wednesday, 2nd October 2019.**

**7. Deadline for
Submission of Bids**

Bids must be received by the Employer at the address specified above no later than 1600 hours (Fiji Time) **2nd October, 2019.**

The Employer may, at its discretion, extend the deadline for submission of bids by issuing an addendum, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadlines extended.

8. Late Bids

Any bid received by the Employer after the deadline for submission of bids prescribed in Clause 23 will be rejected and returned unopened to the bidder.

**9. Modification and
Withdrawal of Bids**

The bidder may modify or withdraw its bid after bid submission, provided that written notice of the modification or withdrawal is received by the Employer prior to the deadline for submission of bids.

The bidder's modification or withdrawal notice shall be prepared, sealed, marked and delivered in accordance with the provisions of Clause 22, with the outer and inner envelopes additionally marked "MODIFICATION" or "WITHDRAWAL", as appropriate. A withdrawal notice may also be sent by fax but must be followed by a signed confirmation copy.

No bid may be modified by the bidder after the deadline for submission of bids.

**10. Employer's Right to
Accept any Bid and
to Reject any or all
Bids**

Notwithstanding Clause 34, the Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

11. Notification of Award

Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder by fax, confirmed by registered letter, that its bid has been accepted. This letter (hereinafter and in the Conditions of Contract called

the "Letter of Acceptance") shall name the sum which the

Employer will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract called "the Contract Price").

The notification of award will constitute the formation of the Contract. Upon the furnishing by the successful bidder of a performance security, the Employer will promptly notify the other bidders that their bids have been unsuccessful

12. Signing of Contract Agreement

At the same time that he notifies the successful bidder that its bid has been accepted, the Employer will send the bidder the Form of Contract Agreement provided in the bidding documents, incorporating all agreements between the parties.

Within 7 days of receipt of the Form of Agreement, the successful bidder shall sign the Form and return it to the Employer.

**13. Corruptor
Fraudulent
Practices**

The Employer requires that the Contractor observe the highest standard of ethics during the procurement and execution of such contracts. In Pursuance of this policy, the Employer:

- (a) defines, for the purposes of this provision, the terms set forth below as follows:
 - (i) "corrupt practice" means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
 - (ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Employer, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition;
- (b) will reject a proposal for award if it determines that the bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;

Furthermore, bidders shall be aware of the provision stated in Sub-Clause 1.16 and Sub-Clause 15.5 of the Conditions of Contract, Part II - Conditions of Particular Application.

Section 2

Employer's Requirements

Scope of Works

Contents

1.	Scope of Works	4
1.1.	GENERAL DESCRIPTION	5
1.1.1	Section 1 – Transformer pads, oil pit, concrete cable trench, electrical works and access road	5
1.1.2	Section 2 - Boundary fence extension.....	7
1.2	ELECTRICITY, WATER, GAS AND OTHER SERVICES	7
1.3	STANDARDS.....	7
1.4	PRELIMINARY WORKS:	7
1.5	EXCAVATION:	8
1.6	CABLE CONDUITS/BENDS AND CONCRETE CABLE TRENCH:	8
1.7	FOUNDATIONS:	8
1.8	WATER DRAINAGE SYSTEM:	8
1.9	CABLE TERMINATIONS AND CABLE PULLING WORKS.....	8
1.9.1	Cable pulling works:	8
1.9.2	Carry out cable termination works as follows:	9
1.10	ROAD WORKS	9
1.11	BOUNDARY FENCE EXTENSION	10
2.	TECHNICAL SPECIFICATIONS	11
2.2.	GEOTECHNICAL STUDY.....	11
2.3.	REMOVING OF EXISTING MASONRY/CONCRETE.....	12
2.4.	EXCAVATION OF CABLE TRENCH.....	12
2.5.	DE-WATERING	12
2.6.	CONTROL & POWER CABLE CONDUIT and CABLE LADDERS.....	13
2.7.	OIL CONTAINMENT/DRAINAGE SYSTEM.....	13
2.8.	TRANSFORMER PADS	15
2.9.	PAD FOUNDATION	15
2.10.	FILLING & REINSTATEMENT	15
2.11.	STABILITY OF FILL AND EMBANKMENT.....	16
2.12.	READY MIXED CONCRETE.....	16
2.13.	BUND WALL	16
2.14.	STONE CHIPPING AND ACCESS ROAD.....	17
2.15.	CRUSH METAL.....	17

2.16.	Support Insulators with Steel Structure	17
2.16.1.	General Specification	17
2.16.2.	Service Condition:	17
2.17.	MISCELLANEOUS WORK	18
2.18.	EARTHING SYSTEMS	18
2.18.1.	GENERAL.....	18
2.18.2.	EARTHING EQUIPMENT	18
2.18.3.	JOINTING AND BONDING	19
3.	INSPECTION AND TESTS	19
4.	SITE CONDITIONS	19
5.	SETTING OUT	19
6.	MATERIALS, WORKMANSHIP AND PLANT	20
7.	OCCUPATIONAL HEALTH AND SAFETY	20
8.	GENERAL FOREMAN.....	20
9.	MAINTENANCE AND DEFECTS.....	20
10.	CLEANING UP	20
11.	Warranty on equipment supplied.....	21
12.	PROGRAM	21
13.	INSURANCE.....	22

1. Scope of Works

This section covers the civil and electrical scope of work required to be carried for preparation of the transformer bay prior to and following the installation of two new 80MVA 132/33kV Transformers at the Fiji Electricity Authority's Cunningham Substation. The proposed area for the pad works is:

Currently lies as a crush metal covered ground between the gentry structures and existing g 132/33kV transformer as shown in red in the attached concept drawings under appendix.

The civil work scopes of this tender shall be to design and construct 2 x 180tonne transformer pad in this allocated space complete with all concrete cable trench (control and HV cable) with associated oil separator pit and respective NER and auxiliary transformer pads . Construction of access road works from the main road to the transformer pads are also part of this tender. Design details of the two (2) new transformers are as listed in the table below:

One (1) TRANSFORMER ELECTRICAL SPECIFICATIONS	
RATING	80 MVA
TOTAL TRANSFORMER MASS	143,500 kg
OIL VOLUME	33,800 liter each

The electrical scope of works covers the supply and installation of 145kV support insulators with steel structures, HV cable and control cable pulling works, 132kV OH conductor jumper connection and all HV cable termination works.

1.1. GENERAL DESCRIPTION

This section covers the works required to be carried out for preparation of the transformer bay prior to installation of the new 2 x 132/33kV Transformer at Cunningham Road Substation.

1.1.1 Section 1 – Transformer pads, oil pit, concrete cable trench, electrical works and access road

1. Carry out GEO Tech study on areas where transformer pads are to be constructed and on the access road inside the switch yard.
2. Carry out complete civil design and layout works for 2 x 132kV/33kV transformer concrete pad, bund wall, 1 x common oil separator pit, 2 x auxiliary transformer pad and bund, 2 x Neutral Earthing Resistor (NER) pads, HV and LV cable concrete trench from the transformer pads to the 33kV control building. Note, when designed, a space of a 6 m pad to be allowed for future 132kV transformer circuit breaker. This location is shown in the concept drawing under appendix.
3. Design and Construct 2 x 132kV/33kV transformer concrete pads of dimension 8m x 5m suited for 175tonne load each complete with bund of 800mm high x 200mm thick wall. The transformer pads to be at a height of 0.5m from the bund floor.
4. Design and Construct 2 x 33kV/415V auxiliary transformer pad of dimension 3m x 2m x 0.5m concrete pad suited for 9 tonne with bund wall of thickness 200mm. It is bidders' responsibility to transport auxiliary transformer from EFL yard to the site
5. Design and construct 3000mm x 3000mm x 300mm concrete pad for Neutral Earthing Resistor (NER) to support weight of 3 tonne. It is bidders' responsibility to transport NER from EFL Kinoya depot to the site, install on pad and carry out electrical connection (HV cable termination works).
6. Design and construct of oil/water drainage system and common oil separator pits.
7. Earth grid design shall be carried out by reputable earth grid design engineer. Design to be carried out at 31.5kA fault level. Supply and install all earthing that would be placed under the transformer pads. All earthing of 2 x NER, 2 x Auxiliary transformer, 2 x power transformers and 6 x conductor support insulators and cable trench to be carried out by the contractor. Supply all material.
8. Supply and install 9 x support insulators with steel structure complete with concrete padding and earthing. Steel structure height shall be of minimum 2100mm. Support insulator – porcelain type shall be 145kV rated and shall be accordance to IEC60071 and IEC60273 standards. It shall have a one minute withstand voltage of 230kV and lightening impulse withstand voltage of 550kV. Pollution level should be in accordance to IEC 60815 and IEC 60273 standard. It shall have a Mechanical Load – Bending capacity of at least 16kN and Mechanical Load – Torsion capacity of at least 4kN.m.
9. Supply 50 units of Lorunser Palm lugs for 132kV rated, 95mm X 100mm x 10mm, hole center 50mmX50mm, 1600A, 31,5kA for Ursula Conductor, bidder to provide specification and drawings.
10. Supply 1000 pieces of M12 x 75 full thread bolts, stainless steel grade 316 corona free complete with bolts and washers.
11. Design and construct concrete cable trench from the transformer pads to the 33kV switch room. Trench to have cable ladders and concert cable trench covers. Additional reinforcements to be provided on road crossing. Trench to be designed as such that no water collects inside the trench.
12. Carry out all OH 132kV jumper connections works from the existing 132kV transformer isolators to the new transformers. Provide detailed drawings of these depicting the conductor elevation, sag, tension etc. Ursula conductor will be supplied by EFL on site.
13. Remove the present gantry (1 x gantry on top of the proposed location for new T1A pad) marked in the concept drawing and store neatly at Cunningham Substation. The storage area is next to the 33kV switch room. The gantry to be stored on top of crush metal of 200mm depth with weed mat. Only the area of storage to be covered with crush metal. Supply required crush metal (40mm) and weed mat.

14. It shall be contractor's responsibility to remove previous existing electrical accessories from the substation and transport and unload it in the scrap yard in Kinoya Depot. This includes 1 x the 132/33kV transformer, 2x aux transformers, 2x NER. All de- tanking o oil and disposal will be contractor responsibility.
 15. It will be contractor's responsibility to replace all contaminated crushed metal at the switchyard with proper weed mat and cover with 200mm thick screened 40mm crushed metal. During the works, entire switch yard would be subject to crush metal contamination. The contractor must reinstate all crush metal that is disturbed. This includes covering of any access road works after deliver of transformer.
 16. The contractor must ensure that a gradual fall is provided for flow of water in the switch yard. The existing fall toward the switch room must be maintained.
 17. The contractor to carry out geo tech study on access road inside the 132kV switch yard. Construct access road inside the switchyard with compaction to support load of 140 tone. Compaction with AP65. Supply all material. Provide drawings on the proposed excess road based on the concept drawings attached under appendix. Supply and install one roller gate as per concept drawing under appendix.
 18. Pull all power and control cables from control building to new transformer pad and also any cable pulling works within the switch yard.
 19. Supply 8 set of Pfisterer Connex cable connectors Size 3 (3-S) XL without voltage tap for 630mm XLPE cable. One set contains 3 connectors.
 20. Carry out all associated HV cable termination works at 2 x 33kV ABB switch gears, 2 x 132/33kV power transformers and their respective NER and Auxiliary transformers.
 21. All drawings and design to be submitted by the contractor to EFL project manager for approval before commencing any works.
 22. Upon completion of works submit a completion report containing all relevant drawings of the works and engineering certificates of all Geotech studies undertaken as well as engineering certificates for the transformer pads.
 23. Contractor must supply certificate stating concrete pad is ready for required loading and all concrete delivered to site must be tested for MPA rating and results to be supplied to EFL before pad pouring.
 24. All surplus earth material that would be removed is to be transported and off loaded at Kinoya depot.
 25. Carry out lightning protection study/design for the areas where the transformers is installed, supply and install lighting mast as per design.
 26. Construction of access road from the Cunningham road to new transformer pad. A concept drawings is provided under appendix for bidding purposes. Once awarded, the contractor to provide a detailed drawing showing the works that will be carried out in terms the access road inside the zone substation. Note: All cable trench and that will fall under the access road to be reinforced with concrete slabs. The heavy haulage contractor will be putting their own steel plates or ramps on top of the cable trenches which fall within the access road, the contractor carrying out access road works must allow for this.
-
27. The contractor shall supply the following quantity of unarmored DC cables with the following sizes from Nexans Olex (Austral or New Zealand)

Cable Description	Cable Size	No. of Cores	Voltage rating	Operational Voltage	Cable length (metres)
Unarmoured DC Cable	4.0 mm ²	2 + E	0.6/1kV	110V DC	500
	2.5 mm ²	2 + E	0.6/1kV	110V DC	500
	2.5 mm ²	4 + E	0.6/1kV	110V DC	500
	2.5 mm ²	8 + E	0.6/1kV	110V DC	500
	2.5 mm ²	12+ E	0.6/1kV	110V DC	500
	2.5 mm ²	20	0.6/1kV	110V DC	500

28. The contractor is to supply all the materials required for all civil works. EFL will supply only 33kV cables, 33kV Raychem outdoor cable termination kits, 132kV OH conductor and all cable glands.

1.1.2 Section 2 - Boundary fence extension

1. The contractor to remove the fence as per attached concept drawing and construct a new fence from Cunningham road to the switch yard. Supply all required materials. The portion of fence removed to be scrapped at Kinoya depot.
2. Install culverts on to allow for water drainage to continue from the existing drain towards Cunningham Road.
3. Carry out land scaping and construct access road of width 5m on top of this culvers to allow for vehicle access from the back of proposed transformer T2A location as per concept drawings.
4. Carry out all required design and construction works.

1.2 ELECTRICITY, WATER, GAS AND OTHER SERVICES

All electricity and water required for this works will be provided on site. Gas and other services necessary to execute and complete the works on site shall be at the expense of the contractor.

1.3 STANDARDS

All civil works shall be carried out in conformity with Fiji Building Code or the British Standard Institution. All electrical works shall be carried out in conformity to the IEC Standards in general. British or Australian standards may be applied where necessary. Any national or international standard may be used if such standards are not less exacting than corresponding standards IEC, BSI or Fiji Building Code. In all instances, a copy of the relevant standard adopted shall be forwarded to the Engineer.

1.4 PRELIMINARY WORKS:

Site Survey

Geotechnical Study - as per Section 2 Technical Specifications.

1.5 EXCAVATION:

Cutting and filling earth

- Formation levels shall be as approved by the Employer's Representative.

Surface chipping

- Area covered by earth mat.

1.6 CABLE CONDUITS/BENDS AND CONCRETE CABLE TRENCH:

2 x 132kV /33kV transformer pad: Each 132kV /33kV transformer pad to have 4 set of 150mm electrical HD bend to allow for 33kV cable entry to the transformer cable box from the pad. 1 x 150mm bend for control cables and 1 x 150mm bend for neutral cable. 2 x 50mm bend to be allowed for transformer earthing. One set is 3 conduits/bends. All control cable conduits or bend must exit at the control cable trench. All 33kV cable conduit bend to exit at the HV cable trench

2 x 33kV/415V auxiliary transformer pad - each pad shall have 150mm X 4 conduits for HV cables and 150mm x 1 conduit for LV side of the transformer. HV conduit to exit at HV cable trench and LV cable to exit at control cable trench.

2 x NER pads – each pad shall have 1 x 150mm bend.

All control cables existing any pad to be in cable trench from the pad to the existing cable trench. All HV cables to be in concrete cable trench with concrete trench covers. HV cables to be mounted on cable ladder inside the trench.

1.7 FOUNDATIONS:

Concrete Bund base and wall together with excavation, backfilling, form works, concrete works and reinforcement bars.

2 Nos.	132kV /33 kV Power Transformers (80MVA) -175 tone load support
1 No.	Oil/Water containment and drainage system. Outlet to be as per Environmental Management Plan. Pit to be able to contain minimum of 35,000L of oil in case of a spill.
2 Nos.	33kV/415V auxiliary transformer pads - 9 tone load support
2 Nos.	Neutral Earthing Resistor pads – 3 tone load support

1.8 WATER DRAINAGE SYSTEM:

Surface water drainage system:

Internal surface water drainage system shall be directed as per the Environmental Management Plan.

1.9 CABLE TERMINATIONS AND CABLE PULLING WORKS

1.9.1 Cable pulling works:

- a. Remove the existing 33kV ELPE cables from the 2 x 33kV Switch gear in the switch room and scrap at Kinoya Stores.
- b. Pull 3 set of 630mm² XLPE cables from the 33kV switch room to the 132/33kV transformer 33kV cables box. There are two transformer pads
- c. Pull 1 set of 300mm² XLPE cable from each 132/33kV transformer to the respective 33kV/415V auxiliary Transformer 33kV cable box.
- d. Pull 1 x 300mm² XLPE cable from two Auxiliary transformer to their respective NER

- e. Pull the required control cables including AC and DC supply cables from the 132kV switch room and 33kV Switch room to the 2 x 132kV transformers. Remove all unused control cables from the cable trench and transport to Kinoya Depot and scrap.

1.9.2 Carry out cable termination works as follows:

- f. The contractor will not be required to carry out any control cable, 240V AC, 415 VAC and 110VDC termination works. These terminations will be done by EFL
- g. Contractor to carry out 6 sets of Pfisterer cable termination at the ZX.20 ABB switch gear in 33kV Switch room. 1 set is 3 cable terminations.
- h. Carry out 6 sets of 630mm² outdoor cable termination at the 132kV Power transformers. 3 set per transformer.
- i. Carry out 2 set of 300mm² outdoor cable termination at the 132kV Power transformers. 1 set per transformer
- j. Carry out 3 set plus 1 single outdoor 300mm² XLPE 33kV cable termination at each auxiliary transformer. There are 2 auxiliary transformers
- k. Carry out 1 single outdoor 300mm² XLPE 33kV cable termination at each NRE. There are two NRE.
- l. Termination to be carried out by a qualified cable jointer. Qualifications and experience of cable jointer to be submitted in the bid.

All outdoor 630mm² and 300mm² Raychem cable terminations will be supplied by EFL. Pfisterer cable terminations are to be supplied by the contractor. All required CFT 5 cable glands and control cable glands will be supplied by EFL. All 33KV cable and control cable pulling works to be carried out by the contractor,

1.10 ROAD WORKS

Provide access road for transportation of transformers into the switchyard from Cunningham Road.

- 1 Levelling, crowning and trimming of the access road adequately to allow water to drain off the road surface using grader for the route given in the overview drawing till the temporary entrance to the station between fence pole 4 and 14
- 2 Provide sufficient natural earth drainage on the sides of the road wherever required.
- 3 Supply AP65 base course and compact to 98% compaction and level on the road from Cunningham Road till the temporary entrance to the station between fence pole 4 and 14 as shown in the overview diagram
- 4 Shift 1 x derelict vehicles and rubbish from the access road entrance to make way for widening of road. Widen the entrance to the access road to 13meters, supply AP65 base course and compact to 98% compaction.
- 5 Allow for relocation of water pipes as required or reinstate any water pipes that may get damaged during works. Remove any access excavated material and dispose off at Kinoya Depot.
- 6 Carry out GEO Tech Study of the Area inside the Station construct access road suitable for 140 tone load as per concept drawing under appendix. Provide detailed drawing for the access road inside the station.
- 7 Remove fence from pole marked 4 to 14 and build access road across. Allow for temporary fencing over the access road between poles 4 and 14. Temporary fence to be put up and secured so that the switch yard remains enclosed with fencing.
- 8 Reinstate the fence after completion of work.
- 9 Design and make one big 5m sliding gate with guider at the location showed in the concept drawing. Gates with Galvanised 50mm square tubing complete with three tyres welded with sheets Gothic 5mm mesh. Diagonally braced with same 50mm tubing. Allow for locking of gate via padlock

1.11 BOUNDARY FENCE EXTENSION

1. Fiji Building code applicable.
2. Fence route length 150m approx., contractor to verify the total length during site visit.
3. Remove all existing chain-link, post, and barb wire, no 8 wire completely once the new boundary has been completely done with proper landscaping to ensure the fence is fully secured always and continuous.
4. Mark all pegs to ensure a straight line. Contractor to ensure civil instrument gadgets and survey for marking with the hire of recognized Civil Engineer from the Municipal Council.
5. Seek approval of all materials on site with EFL engineers
 - a. All fence post to be class “C” Grade galvanized post
 - b. All post to be bent 45 degrees
 - c. Spiral razor barbed wire
 - d. 3.5mm galvanized chain link
 - e. 1.5mm galvanized wire
 - f. 12mm deformed rod
 - g. Standard concrete blocks.
6. Install :
 - a. Dig and lay 95mm copper earth mat 1m outside fence and make cad weld connection T 95mm² copper cable and connections 95mm lug for each post.
 - b. Dig new fence foundation to match the existing Fencing.
 - c. Design and Prepare foundation structural steel and boxing.
 - D. Each Galvanized posts to be 2.4m Apart.
 - f. Secure each post – no welding allowed
 - g. Seek EFL Civil engineer approval before pouring concrete
 - h. Concrete foundation pads using standard concrete ready mix 20MPA
 - i. Install minimum 2 rows of 6” block with 12mm steel rods, the blocked should be stepped if necessary to suit the landscaping where relevant.
 - j. Lay 40mm Electrical pipe for earth leads
 - k. New Chain link height to match existing fence height, 3.5 mm galvanized full lengths with No 8 binding wire.
 - l. All chain link binding at 10cm intervals to the No.8 binding wire using galvanized 1.5mm wire. Maximum gap between chain link and concrete not more than 10mm or 1cm.
 - m. The fence shall be pulled taut and supported by three rows of high tensile reverse twisted galvanized barbed wire with 150mm spacing.
 - n. Brace every 10 post or change of angle with brace both sides.
 - o. To make and weld earth tail 50mm by 50mm x 4mm with hole 12mm at the centre at every pole.
 - p. The contractor to put the danger sign notice as supplied by EFL on every 3 pole.
7. Upon extension of the boundary, Contractor to carry out Landscaping of the area between the old fence boundary and the New Fence therefore, place a suitable Calvert in the drain behind the Current Fence boundary and spread AP65 Crushed Metals for Safe Vehicle Access. Cover all flat area with weed mat and 150mm thick 40mm crush metal.

2. TECHNICAL SPECIFICATIONS

2.2. GEOTECHNICAL STUDY

A detailed geotechnical study is to be conducted on the identified site to determine feasibility for the construction of 4 transformer pads, their respective bund walls, fire walls, casting of HV cable trenches, laying of earth mat and access road.

- a. The study shall be undertaken by a qualified geotechnical engineer. The said engineer will be tasked with the responsibility of undertaking the geotechnical investigations and providing the necessary geotechnical design parameters that will be used for foundation design and construction.
- b. Samples shall be taken from a minimum of four (4) borings to determine soil bearing capacities. These shall be tested to determine the physical and chemical characteristics of various strata and of the ground water. A safe bearing capacity shall be determined for the purpose of foundation design.
- c. A report of the investigation and study carried out shall be submitted. This will serve to clearly inform of the current suitability of the on-site materials for construction of the new transformer yard accounting for a total designed load of 175 Tons per 132/33kV transformer. The study will clearly advise on the site's ability to hold up without fail the combined installation load on the green patch and issue recommendations on type of foundation design.
- d. The report must also serve to clearly inform the employer of any remedial works that will need to be undertaken so as to ensure the suitability of the site to hold up the transformer yard extension for the new transformers without fail for its projected 60 years' of service life. Detailed excavation work specifications and drawings for all remedial works shall be submitted together with the report.
- e. The employer's written approval is to be given prior to commencing of any remedial earth works.
- f. The safe bearing capacity of the sub-strata may be modified at the final design stage when the full site survey and investigation have been completed and the final layout, structural details etc. agreed. No variation in contract price will be made due to any variation in the bearing capacity leading to modification of foundation design at the final design stage. Special attention shall be paid to the ground water table and chemical composition of the ground water and soil in the substation area.
- g. The following shall be considered as a minimum requirement, assuming uniform conditions over the Site.
This shall be extended if significant inconsistencies arise.
 - i. Depth of boreholes shall be continued up to bedrock if it does not meet the hard stratum of N-value more than 50.

- ii. Borehole records shall describe and indicate level of all soils encountered and indicate the natural water table level. Rock core records shall specify total core recovery, solid core recovery and quality of the rock cored.
- iii. Where applicable, samples of soil shall be obtained from all soil strata or at 2 meters intervals in a single stratum and tested to determine physical and chemical properties, particularly with respect to
Substances, which would react with concrete or other materials to be used for the foundation works.
- iv. Where applicable, in situ soil tests shall be completed for all soil strata or at 2 meter intervals in a single stratum. Standard Penetration test in non-cohesive soils, field vane tests in sensitive cohesive soils.
- v. Ground water samples shall be obtained from each bore-hole and tested in accordance with approved practice.
- vi. Electrical resistivity of the soil shall be verified on four samples, in accordance with approved practice (IEEE 80-2004: IEEE Guide for Safety in AC Substation Grounding).

2.3. REMOVING OF EXISTING MASONRY/CONCRETE

Unwanted foundations shall be demolished or up-rooted. The Contractor shall clear all areas required for the work. All unwanted materials, debris, etc. shall be removed from the employer's premises.

2.4. EXCAVATION OF CABLE TRENCH

The exact location of each trench shall be agreed at the site with the Employer's Representative before the installation work begins. Permits for excavation shall be obtained from the Employer's Representative.

- 2.4.1.** Trenches shall be kept as straight and shall be excavated to approved formations and dimensions. Trenches shall have vertical sides and shall be close timbered and strutted where necessary to prevent subsidence.
- 2.4.2.** The depth of excavated trenches for the installation of HV cables and MV cables shall be according to the IEC standards for concrete trench design.
- 2.4.3.** The Contractor shall use power excavation tools for excavation within outdoor transformer yard at areas where it is safe to do so as identified by EFL representative. The contractor shall take all precautions to avoid damaging any other power cables along the cable route.
- 2.4.4.** All excavation, cable laying shall be carried out only under the direct supervision of a responsible officer and only in the presence of a representative of the Employer's

2.5. DE-WATERING

All excavation works are to be kept dry and clean to ensure work is not affected or interfered with by water entering the excavations. The Bidder is to allow in his Tender for the costs of pumping, de-watering or other methods of dealing with the water during and after excavation. No concrete, masonry, brickwork or other materials shall be placed or built until the surfaces are properly drained.

2.6. CONTROL & POWER CABLE CONDUIT and CABLE LADDERS

The Contractor is responsible for all civil works required for building in cable conduits and Trench with covers. Cable entries into buildings shall be through conduits.

- 2.6.1.** Power cable which passes under roads, hard standing areas or where they would otherwise be at risk shall be laid in approved ducts. 12 sets for each circuit shall be installed and the whole surrounded in a minimum of 150 mm C10 concrete.
- 2.6.2.** 33kV, and control cable conduits shall be encased in concrete casings with minimum thickness of 150mm and at depths of 1200mm and 600mm respectively on entry to the substation.
- 2.6.3.** Cable ducts shall be of Polyvinyl Chloride (PVC) type material approved by the Employer's Representative and obtained from an approved manufacturer.
- 2.6.4.** 2 x earthing conduits for each transformer shall be encased in concrete casings with minimum thickness of 50mm.
- 2.6.5.** Each cable conduit shall be housed with galvanized draw wires of sufficient strength and size to pull cables that shall run within the conduits. The galvanized draw wires shall run the full length of the conduits.
- 2.6.6.** Cable entries into buildings shall be sealed with approved using suitable materials ROXREC to prevent entry of any water, dust, vermin, etc. Cable entry to the control building shall be provided for future requirements.
- 2.6.7.** All cable ducts shall be laid in straight lines and regular gradients between cable pits, as directed. All ducts shall be kept clear from earth, debris and other obstructions during and after being laid.
- 2.6.8.** Conduit stubs protruding from transformer pads shall extend upwards by 50mm from the top of bund wall so as to inhibit ingress of oil/water should oil/water held in the bund fill up to maximum holding capacity.

2.7. OIL CONTAINMENT/DRAINAGE SYSTEM

The bund shall be equipped with an approved oil/water sump and an approved oil/water drainage system. These shall be designed to address three (3) main risks: 1) Catastrophic failure causing prolonged fire. 2) Catastrophic failure causing large amounts of oil spreading off site. 3) Minimize oil pollution during normal operation. This is as stipulated in the Ausgrid NS189 standard for Oil Containment for Major Substations.

The bund base of each transformer shall be designed to have a 1% slope directing all oil/water towards the designated oil/water sump. The sumps shall have an approved non-slip surface applied onto the inside walls and base.

The Ausgrid NS189 standard details two (2) drainage systems that can be installed for transformer bunds. These are the Closed Drainage PPS System and the Gravity Drainage System with Oil Containment Tank. The selection of the oil containment system that is most feasible for the transformer bunds shall be made by the Contractor as according to Ausgrid NS189 standard. The design of which shall be submitted for employer's approval prior to any construction

and installation works. As detailed in Ausgrid NS189, the selection criteria for the oil containment system shall be based on a Life Cycle Cost (LCC) analysis together with an assessment of site constraints, site risks, environmental aspects and impacts upon project schedule.

The Contractor shall ensure that the breakout of any fire will be contained within the bund and not transferrable under any circumstance to the oil/water separators or oil tanks to be installed as per the design to be submitted for approval.

The oil containment system shall allow for effective discharging of storm water in the event of heavy rainfall or spraying down of the transformers in the event of a fire.

The oil containment shall be approx. 340000L transformer oil. Detailed calculations are to be submitted by the contractor during the design review process.

2.8. TRANSFORMER PADS

The 132/33kV Transformer pads shall be designed to accept a total transformer weight of 175 ton for Cunningham Substation. This is to account for early delivery time of pad for at least 90% loading.

- The 132/33kv transformer pads shall be constructed to dimensions 8000 x 5000 mm (LxW). The transformer pad shall extend upwards from the bund base by a maximum 500mm and shall be filled with crushed metal.
- The 33kV/415V auxiliary transformer pad shall be constructed to dimensions 3000mm x 2000mm x 500mm (L x W x H) concrete pad suited for 9 tonne with bund wall of thickness 200mm. The transformer pad shall extend upwards from the bund base by a maximum 500mm and shall be filled with crushed metal.
- The NER pad shall be constructed to dimensions 3000mm x 3000mm x 300mm (L x W x H) to support weight of 3 tonne.

The Contractor shall ensure that the pad dimensions are sufficient to cover the transformer/ NER base footprint and all cable conduit stub-ups

The Contractor shall ensure that the transformer pad surface is levelled to a maximum deviation of ± 2 mm. The Contractor's engineer shall satisfy himself with the levelling of the two transformer pads.

2.9. PAD FOUNDATION

The pad foundations are to be designed to accept all normal applied dead and imposed loadings without causing any significant settlement. In addition, foundations shall be designed to accommodate any additional imposed loadings during installation and removal of the transformer. This shall be constructed with a minimum 400mm base thickness and an approved steel reinforcement layout.

2.10. FILLING & REINSTATEMENT

If it is required to fill the land, the Contractor shall get approval for the filling material and method of construction before the commencement of work.

Filling for trenches, excavations and levelling of the site shall be deposited in layers not exceeding 300 mm of uncompacted thickness, each layer watered when necessary and well rammed or otherwise compacted to within 98% of the maximum dry density obtained by the use of a Proctor Standard Compaction Test.

Any fill material used within 500 mm of concrete structures cement bound materials shall have a soluble sulphate content not exceeding 2.5g per liter when tested in accordance with BS 1377, special precautions shall be taken to protect the concrete or cement bound materials to the approval of the Employer's Representative.

Where excavations whether in rock or other material, are made to a greater depth than detailed, the Intervening space shall be brought up to the proper level in plain concrete at the Contractor's expense.

Any formation encountered in the excavations which is not sufficiently strong to carry the loads which will be imposed on it, shall be excavated to an adequate load bearing stratum and replaced with mass concrete.

Unless otherwise described, directed or permitted, imported filling shall consist of pervious naturally occurring material, free from mud, silt, clay, peat, vegetable or injurious matter and water soluble salts harmful to copper and other metals. Filling shall be imported only from approved areas.

2.11. STABILITY OF FILL AND EMBANKMENT

The Contractor shall be responsible for the stability of embankments, which formed either by cutting or filling, and precautions taken to protect the earthworks from deterioration under adverse weather conditions. Wherever applicable the recommendations contained in the following codes of practice shall be followed in calculations, detailing and performance of the earthworks and drainage. **Earthworks - British Standard Code of Practice BS 6031-1981.**

Should any slips occur in the excavations, banks or filling during the execution of the Works or during the period of maintenance from any cause whatsoever, the Contractor shall execute the necessary remedial work in such manner, and with such materials as approved by the employer's representative, at the Contractor's expense.

2.12. READY MIXED CONCRETE

30MPa Ready-mixed concrete shall be provided as defined in BS 5328, which batched off the Site, may be used only with the agreement of the Employer's Representative and comply with all requirements of the Contract.

The concrete shall be carried in purpose made agitators operating continuously, or truck mixers. The concrete shall be compacted and in its final position within 2 hours of the introduction of cement to the aggregates, unless a longer time is agreed by the Employer's Representative. The time of such introduction shall be recorded on the delivery note together with the weight of the constituents of each mix. When truck-mixed concrete is used, water shall be added under supervision, either at the Site or at the central batching plant, as agreed by the Employer's Representative but in no circumstances shall water be added in transit. Unless otherwise agreed by the Employer's Representative, truck mixer units and their mixing and discharge performance shall comply with the requirements of BS 5328 part 3.

2.13. BUND WALL

Commencement of wall construction shall be done following the installation of the transformers.

Each transformer bund base shall be surrounded by a low enclosing bund wall designed to a maximum 800mm height which shall account for 130% of the total oil storage capacity of each transformer. An approved non-slip surface shall be applied to the inside bund walls and bases by the Contractor. The Contractor shall ensure that all bunds are designed as according to AS 1940-2004. The bund walls shall be designed for all expected imposed loadings with provision for vertical extension of EI 240 (4 hours) rated fire resistance fire wall.

2.14. STONE CHIPPING AND ACCESS ROAD

Stone chipping used for substation surfacing are to be clean hard crushed stone graded to 40mm (minimum depth 300mm). The formation in areas where stone chipping are to be used shall be well compacted to the approval of the Employer's Representative, and treated with an approved total weed killer, used in accordance with the manufacturer's instructions.

The layout drawing shows the area to be compacted with stone chipping for the transformer yard access road. The said area shall be compacted to allow for all expected imposed loadings.

2.15. CRUSH METAL

The contractor must reinstate all crush metal that are to be removed for construction works or have been contaminated with soil and other material due to construction activity. 200mm of depth crushed metal (screened 40mm) to be applied on weed control mats. All materials to be supplied by contractor and to be approved by EFL Engineer before application. Attached drawings shows area of crush metal works required.

2.16. Support Insulators with Steel Structure

Supply and install 9 x support insulators with steel structure complete with concrete padding and earthing. Steel structure height shall be of minimum 2100mm. The equipment supplied to be from a reputable manufacturer.

2.16.1. General Specification

Rated Voltage:	145kV Insulator
Make	Porcelain Insulator
Color	ANSI Brown
One minute withstand voltage:	230kV
Lightening impulse withstand voltage	550kV
Mechanical Load	Torsion capacity of at least 4kN.m.
Bending capacity	least 16kN

2.16.2. Service Condition:

Daily average ambient temperature	32°C
Max. Ambient Temperature	45°C
Annual average ambient temperature	30°C
Altitude	20m
Humidity	95%
Seismic Level – open ended Richter scale	7 on the open ended Richter Scale
Average rainfall per year	2663mm
Isokeraunic Level	50

For the Steel Structure the following AS Standards are to be adopted in general. The works shall be in accordance with the following:

AS 1559	Hot - Dip galvanized steel bolts with associated nuts and washers for tower construction
AS 1252	High strength steel bolts with associated nuts and washers for structural engineering
AS 1627	Metal Finishing – preparation and treatment of surfaces
AS 1796	Certification of welders and welding supervisors
AS 2214	Certification of welding supervisors – structural steel welding
AS 2312	Guide to the protection of structural steel against atmospheric corrosion by use of protective coating
AS 4100	Steel structures
AS 4860	Hot – dipped galvanised (zinc) coatings on fabricated ferrous articles
ASTM	Standard specification for zinc (Hot-Dip Galvanizing) Coatings on iron and steel products
Welding	5mm FILLET UNO

The insulators shall have a bolted strain clamp which can hold and grip the overhead conductor placed over it.

2.17. MISCELLANEOUS WORK

Shall be carried out according to the relevant clause of this specification

2.18. EARTHING SYSTEMS

2.18.1. GENERAL

The earthing of all equipment and the provision of earthing systems, electrodes and connections shall be in accordance with the recommendations in the “Guide for safety in Substation Grounding” IEEE No. 80 and the requirements of this Chapter.

Steelworks and supporting structures shall be bonded and earthed to the substation earthing system. Earth connections shall be made approximately 250 mm above the top of the finished foundation level. Connections shall be made also to the earth terminals of each transformer.

Earthing conductors will be of soft annealed high conductivity copper stranded in accordance with Table 4 in BS.6346. Earthing conductors will normally be buried directly in the ground but where necessary they may be cleated to walls, fixed to cable racks or laid in the cable trenches as convenient.

2.18.2. EARTHING EQUIPMENT

Earthing of new 132/33 kV transformer yard shall be properly performed with copper strip 50mmX6mm and 120mm² bare copper, which enable connection to the equipment installed in and linked to main grid with more than two wires. All required cad welds to be supplied and carried out by the contractor.

2.18.3. JOINTING AND BONDING

- a. Connections to plant and equipment shall be made using the earthing terminals specified in the Contract. Where a strip has to be drilled to fit an earth terminal the hole shall not be greater than half the width of the strip.
- b. Joints in earthing strip shall employ chemical welding or high compression joints.
- c. The main EFL Grid and the Transformer Grid shall be connected in at least 4 points.

3. INSPECTION AND TESTS

- a. The Authority's Engineer representative shall have the right to inspect the works and to confirm conformity to the contract specifications.
- b. Should any inspected works fail to conform to the specifications, the Authority may reject them and the Contractor shall make all alterations necessary to meet the specification requirements.
- c. Nothing in this clause shall in any way release the Contractor from any other obligations under this contract.

4. SITE CONDITIONS

- a. The site is located at the 132/33kV Cunningham Road Substation. The Contractor shall be deemed to have visited the site of the works to satisfy him/her as to the accuracy of all information supplied to the Tenderers and to the feasibility of construction of the works.
- b. The proposed location is in a Substation equipped with therefore all necessary Safety Gear must be worn by the Contractor's Staff at all times. The site shall be properly barricaded.
- c. The Contractor may only enter the site upon provision of access by an Authorized FEA representative. The Contractor is not to execute any work without direct supervision from the FEA representative. The times for work are 8am to 4.30pm Monday to Thursday, and 8am to 4pm on Fridays.

5. SETTING OUT

- a. All tenderers shall inspect and examine the site, its surroundings, and shall satisfy himself before submitting his tender, as to the form and nature of the site, the nature and type of existing work, the quantities and natures of the work and materials necessary for the completion of the Works and the means of access to the site, the accommodation he may require, the availability, conditions and rates of pay of labor and in general shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect his tender.

- b. The Contractor shall be responsible for the correct detailed setting out of the Works as indicated in the Tender Documents and shall, at his own cost, amend any errors during the progress of the Works arising from inaccurate setting out. All tools and equipment to be stored outside of all ELF buildings on site. It is the contractor's responsibility to secure all tools, equipment, and material storage on site.
- c. If a tenderer has any doubt as to the meaning of any portion of the Works, he shall when submitting his tender, include a statement of the interpretation upon which he relies and upon which his tender has been prepared and submitted.

6. MATERIALS, WORKMANSHIP AND PLANT

- a. Materials in all trades shall be new and the best of their kinds specified and necessary complying with relevant standards (Fiji, Australia, New Zealand or USA) where applicable and subject to approval or rejection by the Engineer.
- b. The Contractor shall at all times ensure that adequate protection is provided to finished work and materials to be used in the construction of the work. Where necessary, make good any damage to property.
- c. The Contractor shall provide all workmen, both skilled and unskilled, plant, equipment and materials necessary for the expeditious completion of the work.

7. OCCUPATIONAL HEALTH AND SAFETY

- a. The Contractor shall comply with the Health and Safety at Work Act, 1996 and regulations and Amendments thereto and the Fiji Electricity Authority HSE Policy.

8. GENERAL FOREMAN

- a. The Contractor shall appoint a competent General Foreman who shall be constantly on the works during the progress of the same, to whom instructions may be given by the Engineer.
- b. The Engineer may require the Contractor to dismiss the General Foreman or other person shall he be incompetent or shall misconduct himself or for any other good reason to be assigned by the Engineer to the Contractor.

9. MAINTENANCE AND DEFECTS

- a. Period of maintenance shall be 1 year (12) calendar months after practical completion of works. All defects during this period shall be made good by the Contractor, at his cost.

10. CLEANING UP

- a. On completion, remove all surplus materials from site and leave site in a clean and tidy condition.

- b. The Contractor shall remove and cart away all rubbish and trade debris as it accumulates during the progress of the works.

11. Warranty on equipment supplied.

The supplier shall provide warranty for equipment for a Period of Forty Eight [24] months after delivery of the equipment and works. For all equipment supplied by third-parties, the contractor is to ensure that the warranties of these equipment are transferred to EFL as the beneficiary. The Contractor warrants to the Employer that all Works performed and completed in respect of the Warranted Works are in accordance with the standards and quality specified in the Contract or if not otherwise specified, the work is according to good trade practice expected in the energy industry.

12. PROGRAM

- a. Within seven (7) days of acceptance of his tender, the Contractor shall submit to the Authority, for approval a Program showing the order in which he proposes to carry out the works. The contractor shall ensure all civil and earth grid works shall be complete by the April, 2020. Construction and installation of the bund walls and other miscellaneous work as specified by the employer's representative shall take place following installation and commissioning of the two new transformers.

EFL programme of work. Note that this program will be subject to change as and when required to deliver the project on time. It is however the access road and all transformer pads and NER pads are constructed by April 30th 2020 without any delay.

Step	Scope of works	Contractor scope	Time of completion
1	Phase 1	132kV transformer pads, NER pad, Auxiliary transformer pads, cable trench, earth and lightning protection	December 2019 to April 2020
2		Pulling of cables and access road works	March 2020 to April 2020
3		The 33kV cable termination works and 132kV jumper connection works will be completed in sections. Bidder must allow for the Pfisterer cable terminations to be carried out only during the commissioned for any one transformer at a time. Thus two separate visits will be made by the jointer to the site with the exception of the visit being 4 weeks apart of each other.	July 2020 – T1A August 2020 – T2A
4		Transformer bund wall, oil pit	September - 2020
5	Phase 2	Fence boundary extension	October -2020 to November 2020

13. INSURANCE

The Contractor is to effect the following insurance policies:

- 15.1 Contractor's All Risk Insurance - \$500,000
- 15.2 Public Liability Insurance - \$500,000
- 15.3 Workmen's Compensation - \$250,000

Section 3

Price Schedule

The Schedules are intended to provide the Employer with essential supplementary information in an organized format. Examples of more commonly used Schedules are given herein. Others may be devised and added in accordance with the requirements of the Instructions to Bidders.

All the Schedules are essential for bid evaluation and some in contract execution; they should all be incorporated in the Contract, and appropriate changes introduced with the approval of the Employer or its representative.

The schedules are to be completed and submitted as part of the Technical Proposal and Price Proposal in accordance with the Instructions to Bidders Clause 13, Documents Comprising the Bid. **Bidders whose Bids do not contain the data in the required format will be treated as non-responsive.**

1 SCHEDULE OF PRICES & CONDITIONS OF PAYMENT

1.1 CONTRACT PRICE

The Contract Price is comprehensive in that, in consideration of the Contractor meeting all obligations, conditions and liabilities under the Contract, including the Contractor's allowance for the cost of supply of all labor, materials, plant, supervision required to complete the Contract Works, overheads and profit, subject only such adjustment as is provided for the Contract.

The contractor shall fill in the table below for the pricing of the below scope of work. Note That phase One will be done first followed by phase 2. Places must be given separately for the two phases.

Phase	No.	Item	Overseas Currency DDU CIF Suva port	TOTAL PRICE (VIP) (FJD)
One	1	Design		
	2	Geo Technical Studies		
	3	Backfilling and Compaction		
	4	Construct 2 x 132kV/33kV transformer Pad, 2 x 33kV /415V auxiliary Transformer Foundation Pad, 2 x NER pad complete with bud wall, 132kV support insulator installation and oil pit,		
	5	Access road works		
	6	Supply 132kV OH conductor support insulators, supply of Ursula conductor palms and associated hardware's, Supply of DC control cable		
	7	Carry out cable pulling works, HV cable termination works and 132kV OH jumper connection works		
	8	Construct procure and install lightning Mast, Earthing and Earth Grid		
	9	HV/LV Cable and Trench works		
Two	10	Extension of boundary fence		
		Total		

Section 4

Drawings and Literature

1 OTHER DOCUMENTS & DRAWINGS TO BE SUBMITTED WITH BID

As a minimum and mandatory, the following documents & drawings shall be submitted with the Bid for Evaluation.

As a Mandatory requirement to be considered for technical evaluation, the following documents & drawings shall be submitted with the Bid:

1. Typical plan and section drawings of transformer pad
2. Typical Foundation drawings of transformer pad
3. Details of all electrical plant supplied with bill of material.
4. General chart of the design and Construction schedule
5. Proposed design for the bund walls
6. Design Works for the proposed Road
7. Design Works and design to provide sufficient fall for water drainage
8. Evidence of Bidder's experience in works similar to this.
9. Evidence of Bidder's subcontractor's experience in works similar to those subcontracted.
10. List of standards the Bidder intends to follow for the electrical and Civil works.
11. Geo Technical Contractor and experience
12. Earthing design sub-contractor and experience
13. Electrical Design engineers experience
14. Structural designer and experience profile approved by Suva City Council
15. Civil designer and experience profile and approved by Suva city Council
16. Inspection engineer
17. Contractors contract organization structure
18. Professional Indemnity Insurance cover in Fiji by Designer
19. Lightning proposed design and type of pole
20. Deviation list
21. Variation rates
22. Contractors Health and Safety Plan
23. Cable trench, conduits and LV AC / DC cables

COMPLIANCE CHECKLIST

Compliance – the following documents are to be provided with the tender bid:

No.	Compliance	Check(v)
1	Valid FRCS tax compliance certificate.	
2	Valid FNPF certificate of Compliance.	
3	Previous list of similar work experience.	
4	Work procedure for working at heights and use of scaffolding.	
5	Gantt chart.	
6	Business registration details.	
7	Insurance cover details – Public Liability, Workers Compensation, Contractor's all risk	

Bidders are to ensure that the above item are included as part of their bid. Failure to provide documentation for the above will disqualify the bid.

Name of Authorized Person	
Signature of the Bidder	
Company Stamp	
Date	

Tender Submission - Instruction to bidders

Two (2) hard copies of the tender bids in sealed envelope shall be deposited in the tender box located at the Supply Chain Office at the EFL Head Office, 2 Marlow Street, Suva, Fiji.

Courier charges for delivery of Tender Document must be paid by the bidders.

This tender closes at 4:00 p.m. (16.00hrs Fiji time) on Wednesday 2nd October, 2019.

Each tender shall be sealed in an envelope with the envelope bearing only the following marking:

MR 277/2019

**Design & Construct Transformer Foundation Pad, Oil Separator Pit, Carry Out
Electrical & Civil Works at the Cunningham Road Substation**

The Secretary, Tender Committee
Energy Fiji Limited
Supply Chain Office
Private Mail Bag,
Suva

It must also indicate the name and address of the tenderer on the reverse of the envelope.

All late tenders, unmarked Envelopes and envelopes without bidder's name and address on the reverse on the envelope will be returned to the Tenderers unopened. (Bids via e-mail or fax will not be considered).

The bidders must ensure that their bid is inclusive of all Taxes payable under Fiji Income Tax Act and must have the most current Tax Compliance Certificate.

For further information or clarification please contact our Supply Chain Office on phone (+679) 3224360 or (+679) 9991587.

Bidders are requested to submit a:

- Valid Tax Compliance Certificate
- FNPf Compliance Certificat

TENDER SUBMISSION CHECK LIST

The Bidders must ensure that the details and documentation mention below must submitted as part of their tender Bid

Tender Number _____

Tender Name _____

1. Full Company Name: _____

(Attach copy of Registration Certificate)

2. Director/Owner(s): _____

3. Postal Address: _____

4. Phone Contact: _____

5. Fax Number: _____

6. Email address: _____

7. Office Location: _____

8. TIN Number: _____

(Attach copy of the VAT/TIN Registration Certificate - Local Bidders Only)

9. Company Registration Number: _____

(Attach copy of the Business License)

10. FNPF Employer Registration Number: _____

(For Local Bidders only)

11. Contact Person: _____

I declare that all the above information is

correct. Name: _____

Position: _____

Sign: _____ Date: _____

Appendix- Attached as separate sheets

Appendix 1 - Cunningham layout Model - Transformer pads and cable trench

Appendix 2 - Cunningham Substation Concept Drawing - Access road and fence boundary extension

Appendix 3 – 132kV/33kV Transformer Drawings.