



QUOTATION NO: E4357 / 2023

**“CONSTRUCTION OF SECURITY SPIKE FENCING FOR PPL ASSETS
AT THE NEW 8MW DOBEL POWER STATION, MT. HAGEN, WESTERN
HIGHLANDS PROVINCE.”**

Prepared By: Team Leader Civil

Sign:  Dated: 20/09/2023

Endorsed By: Manager Generation Projects

Sign:  Dated: 22/09/2023

Approved By: Acting General Manager Asset Development

Sign:  Dated: 25/09/23

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FRONTISPIECE

BRIEF DESCRIPTION OF WORK

Works under this contract consist of the construction of security spike fencing of PNG Power Assets at the new 8MW Power Station in Dobel, Mt. Hagen, Western Highlands Province.

Associated civil works shall include;

1. Clearing and removal of all unsuitable materials, old structures, debris, waste and all vegetation within a 10m radius all around the fence line.
2. Removal and storage of old chain mesh fence, posts, gates and barb wire.
3. Construction of reinforced concrete blockwork beam to underside of spike fence.
4. Fabrication and erection of double steel gates with gate hinges and locking mechanism and accessories for all the driveways within the boundary.
5. Construction of reinforced concrete slabs for all driveways within the boundary.



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PREFACE

INVITATION TO QUOTE

Quotations close with:

Quotation No: E4357 / 2023
PNG Power Limited,
P.O. Box 1105,
BOROKO, NCD
Papua New Guinea.

At ^{4:30pm} ~~4pm~~, on Friday 6th October, 2023.

The Quotation Submission shall consist of the original and one (1) copy of each of the following (Section 2), all duly completed;

- ❖ Form of Quotation.
- ❖ Quotation Data.
- ❖ Schedule of Rates for Variation.
- ❖ Any other information/document called for in the Specification or subsequent addenda.
- ❖ Additional information/documents offered by the Bidder to aid evaluation of the Quotation.

Enquiries during the Quotation period shall be addressed to:

PNG Power Limited,
P.O.Box 1105,
BOROKO, NCD
Papua New Guinea.

Attention:

Mr. Vincent Pilakvue
Manager Generation Projects
Asset Development Business Unit

Telephone: 324 3260
Fax: 325 0185
Email: VPilakvue@pngpower.com.pg

SECTION 1
DOCUMENTS TO BE SUBMITTED WHEN QUOTING



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(A) QUOTATION FORM

Bidders are required to complete the blank spaces in this Quotation Form and complete the Schedules included in this Document.

To: PNG Power Limited,
P.O. Box 1105,
BOROKO P.N.G.

Gentlemen;

1. Having examined the Drawings, Specification and Scope of Works for the execution of the above named Works, we, the undersigned, offer to execute, complete and remedy defects in the whole of the said Works in conformity with the said Drawings, Conditions of Contract, Specification and Schedules for the sum of (words & figures) (K.....) or such other sum as may be determined in accordance with the said conditions.
2. We undertake, if our Quotation is accepted, to complete and deliver the whole of the Works comprised in the Contract within Twelve (12) weeks subject to the said conditions.
3. If our Quotation is accepted we will, if required, obtain the guarantee of an Insurance Company or Bank or other sureties (to be approved by you) to be jointly and severally bound with us in a sum not exceeding five percent (5%) of the above-named sum for the due performance of the Contract.
4. We agree to abide by this Quotation for the period of **ninety (90)** days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before expiration of that period.
5. Unless and until a Formal Agreement is prepared and executed, this Quotation, together with your written acceptance thereof, shall constitute a binding Contract between us.

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

Signed and sealed for and on behalf of :)

.....)
 by:).....
 the:.....)
 of the said Company thereunto)
 Authorized in the presence of:).....

Address of Bidder:



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(B) QUOTATION DATA

(i) SUB-CONTRACTORS

Bidders shall list the sections of work and the names and address of sub-contractors nominated to carry out any portion of the works.

Portion of works;

Sub-Contractor's Name and Address

(ii) CONTRACT SUPERVISION

Bidders shall list their proposed supervisory staff for this Contract. (Number and designation only).

(iii) STATEMENT OF EXPERIENCE

The Bidder shall state hereunder facts in detail describing previous experience and achievements in performing similar or comparable works together with the names of authorities for whom, and the dates when, such works was carried out.

(iv) STATEMENT OF RESOURCES

The Bidder shall state hereunder facts in detail sufficient to describe his resources, including technical, financial, manufacturing and constructional where applicable to indicate his ability to carry out the Contract.

(v) BIDDER'S ORGANIZATION

a. To be filled by a Corporation or Syndicate only

- 1. Name:
- 2. Business Address:..... Phone:
- P.O. Box No: Fax:
- Email:.....
- 3. Date Organised/Registered:
- 4. Current Authorized Capital:
- 5. Current Subscribed Capital:
- 6. Current Paid-Up Capital:.....
- 7. Ownership of Company by Nationality:
- 8. Bank/Branch:

b. To be filled by a partnership only

- 1. Name:
- 2. Business Address:..... Phone:.....
- P.O. Box No: Fax:.....
- Email:
- 3. Date Organised/Registered Capital:.....
- 4. Type of Partnership:
- 5. Names and Address of Partners:
 - a.....
 - b.....
 - c.....
 - d.....
 - e.....
- 6. Current Total Capital showing contribution of individual partners:
 - Partner a:..... Partner b:
 - Partner c:..... Partner d:
 - Partner e:.....

c. To be filled by an Individual Licensed Contractor only.

1. Name: Nationality:
2. Business Address: Phone:
P.O. Box No: Fax:
..... Email:
3. Date Registered:
4. Capital:
5. Bank/Branch:

d. To be provided by all Bidders.

1. A declaration stating the proportion of National Ownership.
2. Documentation or evidence proving either NIDA Registration (or exemption) or IPA Certification of the Tender.
3. Certificate of compliance issued by the taxation office.
4. VAT Registration Number.

(vi) TECHNICAL INFORMATION

The Bidder shall provide, if considered necessary, the following information:

-
- | | |
|---------------------------|--|
| a. Clause or Schedule No. | Departures from the Requirement of this Specification with Details of Alternative Proposal |
|---------------------------|--|
-

b. Details of Specific Products when specifically called for in the Specification. (This should include Brand Names and Model Numbers

c. Method Statement: Full Details shall be given Detailing the Proposed Method of Construction of Works.



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(vii) CONSTRUCTION SCHEDULE

| ACTIVITY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|----|----|----|
| Mobilization | | | | | | | | | | | | |
| Clearing and removal of all unsuitable materials, grass, debris and vegetation. | | | | | | | | | | | | |
| Profiling of boundary and setting out | | | | | | | | | | | | |
| Fabrication of Materials | | | | | | | | | | | | |
| Erection of Spike Fencing | | | | | | | | | | | | |
| Assembling of Double Gates | | | | | | | | | | | | |
| Construct Driveways | | | | | | | | | | | | |
| Priming and Painting | | | | | | | | | | | | |
| Demobilization | | | | | | | | | | | | |

** This is only a sample. Please provide your own Project Schedule on MS Project or other based on your Work Plan*

(C) PRICE SCHEDULE

(i) LUMP SUM BREAKDOWN

| | | |
|-----------------------|--|--------|
| 1. | SITE ESTABLISHMENT Mobilization and demobilization. | K..... |
| 2. | CLEARING & EXCAVATION Includes setting out works, detail excavation of all works required, removal and disposal of all unsuitable materials, debris, all grass, trees, stumps and vegetation. | K..... |
| 3. | CONCRETE WORKS Supply and place all concrete materials for blockwork beam to underside of fence, all driveway slabs, including all fencing posts and gate posts. | K..... |
| 4. | STEEL TUBES Supply, fabrication and erection of all steel tubes for spike fencing materials inclusive of posts and stringers. | K..... |
| 5. | DOUBLE STEEL GATE Supply, fabrication and erection of all steel tubes for all double gates inclusive of posts, stringers, and all materials required for the pad locks and gate opening mechanism. | K..... |
| 6. | BARBED WIRE Supply and install barb wires with support arms and gauge wires to spike fencing and double gates. | K..... |
| 7. | CHAINMESH FENCE Removal of existing perimeter chainmesh fence including posts, gate and wires and neatly store away. | K..... |
| 8. | PAINTING Supply primer to spike fencing including double gates and apply final coat in PPL colours to entire fence line. | K..... |
| SUB-TOTAL | | K..... |
| GST | | K..... |
| TOTAL LUMP SUM | | K..... |

(ii) SCHEDULE OF RATES FOR VARIATIONS

The Bidder shall list the rates for performance of the type of work listed in the Bill of Quantities below. These rates shall be used for calculating the Lump Sum Total and the amount of any variation to the contract involving that type of work. All time related overhead costs are to be included in these rates.

| <u>Item</u> | <u>Description</u> | <u>Unit</u> | <u>Rate</u> |
|-------------|---|----------------|-------------|
| 1. | Excavation and disposal of unsuitable material. | m ³ | K..... |
| 2. | Supply and place 25Mpa concrete | m ³ | K..... |
| 3. | Supply, fabricate & erect spike fencing | m | K..... |
| 4. | Supply, fabricate & erect double steel gate | No. | K..... |
| 5. | Supply and Install barb wire with accessories | m. | K..... |
| 6. | Construct concrete blockwork to underside of spike fence. | m. | K..... |

Name of Contractor:

Signature:

Date:

Witness:

SECTION 2
JOB SPECIFICATION AND SCOPE OF WORKS

(1) SCHEDULE OF PRELIMINARIES

1.1 General

The contractor shall carry out the works as detailed in the drawings and or inferred in this specification.

This specification describes the quality standards and functions required but is not to be considered as a detailed and exhaustive specification. Therefore the requirements are not solely limited to the descriptions hereafter. Items not explicitly mentioned shall be supplied and executed to the same quality standards as for the entire works for the project.

1.2 Standards and Workmanship

All works shall be carried out to the accepted standard trade practices, building codes and local authority regulations and the relevant PNG and Australian standards. The contractor shall be wholly responsible for the setting out, the accuracy and quality of his works. Superintendent's inspection of the work shall not be deemed as acceptance of the error. Corrections relating to such defects shall be at the contractor's own expense.

1.3 Work Permits & Approvals

The Contractor is responsible for obtaining all approvals in relation to any work carried out from the appropriate authority.

The Contractor must make all arrangements and obtain all other permits that are necessary to undertake the works under the Contract. Copies of documentary pertaining to all approvals, permits or certificates must be provided prior to commencement of the works.

1.4 Nature of Contract

This work shall be carried out in the form of a "Lump Sum Contract" with any approved variations paid for at the rates listed in the schedule of rates for variations where the type of work listed is the same or similar.

1.5 Location of Site / Place of Work

The work site is located at the new 8MW Dobel Power Station Site, Mt. Hagen, Western Highlands Province.

1.6 Scope of Works

The works covered in this specification requires the contractor to construct security spike fencing along the entire boundary of the work area as indicated in the drawings. Associated works include concrete driveways and double steel gates, clearing of all debris and vegetation and removal of old chain mesh fence.

1.7 Site Inspection

Prior to lodging bids, bidders must inspect the site to fully inform themselves of the conditions.

During the site visit, the Bidder shall collect clear information so that a correct price for the works is provided, without the need for later alterations.

1.8 Safety Requirement

The Contractor shall ensure that all Work Place Safety Standards and requirements are adhered to when carrying out his works. All required safety wear to be used throughout the duration of the works. Any accidents shall be reported to the superintendent immediately. PNG Power shall bear no liability for any accidents due to contractor's negligence.

1.9 Use of Second-Hand Materials

No second-hand material shall be used in the works except where indicated in the specification or shown on the drawings, or until they have been inspected and approved by the superintendent. Any materials reused shall be finished to "as new" condition.

1.10 Boundary Limits

The Contractor shall ensure that he and all his personnel shall refrain from entering premises beyond the works area as shown on the site layout plan. PNG Power shall bear no liability for any damage or such to other properties due to the contractor's negligence.

1.11 Transport to Site

The contractor is responsible for the transport of all materials and manpower to and from site.

1.12 Site Security

The contractor shall be responsible for providing security for his work personnel and equipment/machineries on site. PNG Power shall not be held responsible for any damage or harm to any work personnel or any properties, equipment or machinery on site.

1.13 Time for Completion

All required works shall be completed within twelve (12) weeks from the Date of Possession of Site given in the Letter of Acceptance.

1.14 Terms of Payment

The terms of payment shall be specified in the Letter of Acceptance.

1.15 Possession of Site

The date of possession of Site will be stated in the Letter of Acceptance. The contractor shall be given such possession of the site as is considered necessary to carry out these works but such possession shall not be deemed to mean exclusive possession.

(2) BOUNDARY FENCING

2.1 General

The Contractor shall supply, fabricate and erect a steel spike fence together with double steel gates with all accessories as indicated in the drawings and this specification. The work area is along the perimeter boundary of all PPL assets at the newly constructed Dobel Power Station as shown on the site locality and layout plan.

2.2 Standards

The materials for the fence shall conform to AS 1725-1975 or its latest revision. Construction shall be carried out following the drawings provided.

2.3 Excavation

The contractor shall carry out all excavation work accurately to the lines, levels and dimensions as shown on the drawings. All unused excavated materials shall be disposed from site.

2.4 Existing Chain Mesh Fencing.

The existing chainmesh fencing with all accessories shall be removed and replaced with spike fencing all around the boundary as shown on the drawing. All materials including posts and wires should be neatly bundled and stored away within PPL boundary.

Consideration must be taken while removing chain mesh so as to avoid access into PPL boundary. Thus, chainmesh should be removed as the new spike fencing is installed section by section. At the end of the day, there should be no access made available into PPL boundaries by leaving an incomplete section opened to public.

2.5 Spike Fence Materials

Spikes shall be 2.4 metres high constructed from 25mm x 25mm x 3mm Galv. SHS sections. One end of the SHS shall be press flat and arrowed tipped. The spikes shall be welded to the lower and upper stringers as shown in the drawing.

Stringers shall be 50mm x 25mm x 3.0mm Galv. RHS welded to posts. Gate stringers to be 50mm x 25mm x 3.0mm Galv. RHS.

Corner post and gate posts shall be 100mm x 100mm x 3.0mm Galv. SHS. Intermediate posts shall be 3.0 metres apart and constructed from 75mm x 75mm x 3.0mm Galv. SHS.

Top of posts shall be enclosed with galvanised post caps to suit and welded. The bottom of the posts shall have two 300mm length Y12 reinforcing steel bar pieces welded to opposite ends on each side for shear.

2.6 Spike Fence Fabrication

Spikes shall be welded to stringers at 150mm centres. Welding of spikes shall be along the full length of the two vertical faces to the stringers.

The top stringer shall be located 320mm from its centre to the tip of the spikes. The bottom stringer shall be located a distance of 320mm from its centre to the bottom end of the spike tubes. Spikes to be 20mm from ground level and 50mm for gate spikes.

2.7 Double Steel Gate

The Contractor shall fabricate and install a double leaf gate at the existing gate locations for all allotments or as directed. Fabrication shall be as shown in the drawings.

Two 400x400x10mm Galv. SHS lock plate shall be welded at an appropriate height onto gate stringer and steel spikes together with 50x50mm galv. stringer supports welded onto the plates as shown on the drawings.

Lock arrangement shall be fabricated as shown on the detail drawing. Two 30dia. galv. steel pipes shall be attached to plates with enclosures and lock holder as shown on the drawing. Steel pipes should move freely in and out of their lock holders.

The Contractor shall also supply stainless steel heavy duty gate locks and install on lock plates upon completion.

2.8 Security Barb Wire

Barb wire strands shall be installed between posts throughout perimeter of the fence line except along the fence line separating the two allotments. Two 1.6mm gauge wires to span support arms for barb wire strand to be placed. Barb wire shall be facing towards the outside of the boundary as shown.

2.9 Concrete Beam to Underside of Fence

A reinforced concrete barrier (beam) 200mm wide x 400mm deep shall be constructed to the underside of the spike fencing at which the ground level shall be maintained at mid-span or 100mm minimum from the top of concrete beam.

The beam shall be reinforced with 4x Y12 bars at top and bottom and tied with L10 ligatures at every 300mm spacing. Where concrete is mixed on site, the Contractor shall use the mix proportions applicable to PNG standards.

2.10 Concrete Driveways

The contractor shall construct 200mm thick concrete driveway slabs to all entry/exit points as shown on the site plan. The driveway shall cover the entire area (~ 8m) from the main roads and 6m inside the gate. Width of driveway shall vary for each entry/exit point to a max of 8m wide.

All concrete shall be batched supplied from a reputable concrete batching firm to meet concrete strength of 28MPa. The slab shall be reinforced with SL72 mesh placed at mid-span and all formwork, visquin, expansion joints, joint sealer shall be supplied where applicable.

2.11 Painting

All fencing materials shall be protected by metallic primer paint coat including welded connections. After erection, the fence shall be painted using two coats of paint. The final paint coat shall be in PNG Power official colours.

Painting works shall be carried out by skilled workers and done according to PNG trade practices.

2.12 Workmanship

The Contractor shall employ experienced skilled welders and labour to carry out the fencing work. All work shall be of high standards.

Fence lines shall be straight between defined changes of direction.

The top of the fence shall be evenly graded avoiding sudden discontinuities and be of neat appearance. This shall also apply to sloped surfaces and any drainage locations along the fence line. The contractor shall re-align the hollow spikes to suit grading.

3.0 Cleaning Up

Upon completion, the work area shall be left clean of all unused materials, surplus excavated materials to be evenly spread and any other materials or scrap removed and disposed off from site.

**SECTION 3
DRAWINGS**



QUOTATION NO: E4357 / 2023

| <u>Drawing No.:</u> | | <u>Title</u> |
|----------------------------|----------|---|
| GPS-DPS-SF1 | Sheet 00 | Cover and Drawing Index |
| GPS-DPS-SF2 | Sheet 01 | Site Locality and Layout Plan |
| GPS-DPS-SF3 | Sheet 02 | Security Spike Fencing Plan and Details |