

52ST.305



TENDER FORM

The Chairman – Tender Opening Committee
PNG Power Ltd
P. O. Box 1105
BOROKO 111 NCD
Papua New Guinea
Phone: (675) 324 3381
Fax: (675) 3250791
Email: supplyhelpdesk@pngpower.com.pg

We (Full name of company).....
.....
.....
.....

hereby tender for the undermentioned goods and services subject to the conditions of tendering and at the prices quoted in the scheduled therein

TENDER No. 30/2019

CLOSING AT 4.00 PM FRIDAY 28TH JUNE 2019

FOR **FOR THE CONSTRUCTION OF A NEW ABLUTION
BLOCK AND GUARD HOUSE AT RAKAMANDA
POWER STATION PNG POWER Ltd - WABAG.**



TENDER NO: 30 / 2019

**CONSTRUCTION OF NEW ABLUTION BLOCK
AND GUARD HOUSE AT
RAKAMANDA POWERSTATION,
WABAG – ENGA PROVINCE**

*Property Development Team
Property Services Group
Finance & Shared Services BU
P. O. Box 1105, BOROKO 111
National Capital District*



TENDER NO: 30 / 2019

CONSTRUCTION OF NEW ABLUTION BLOCK AND GUARD HOUSE
AT RAKAMANDA POWERSTATION, WABAG - ENGA PROVINCE

Prepared By:.....
Checked By:.....
Date: 12.06.2019.....

PNG POWER LIMITED

TABLE OF CONTENTS

<u>Description</u>	<u>Page No.</u>
Frontispiece	3
SECTION 1 Documents to be submitted when tendering	
(A) Invitation to Quote	4
(B) Form of Tender	5
(C) Quotation Data/Construction Schedules	6
(D) Price Schedules	8
SECTION 2 Technical Specification	11-23
(A) Job Specification (Work Description)	
1.0 Schedule of Preliminaries	
2.0 Work Description	
2.1 Job Specification – Ablution Block	
2.2 Job Specification – Guard House	
SECTION 3 Drawings	24

FRONTISPIECE

BRIEF DESCRIPTION OF TENDER

This Tender is purposely for the Construction of New Ablution Block and a Guard House at the Rakamanda Powerstation and other associated works required under this contract.

PNG POWER LIMITED

SECTION 1

**CONSTRUCTION OF ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA POWERSTATION,
WABAG - ENGA PROVINCE.**

(A) INVITATION TO QUOTE

Quotation close with:

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

At 4:00 pm Friday 28th JUNE 2019.

The Quotation Submission shall consist of the following, all duly completed;

- Form of Tender
- Schedule of Quantities
- GST and Tax Registration Numbers
- Additional information/price offered by the Supplier to aid the evaluation of the Quotation.

Enquiries during the Tender period shall be addressed to:

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

ATTENTION: Mr. Ivan Anengo
Senior Property Development Officer
Finance and Shared Services Business Unit

Fax: 323 5239
Telephone: 324 3514
Email: ianengo@pngpower.com.pg

(B) FORM OF TENDER

CONSTRUCTION OF ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA POWERSTATION, WABAG - ENGA PROVINCE.

Companies quoting are required to complete the blank spaces in this Quotation Form and complete the Schedules included.

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

Gentlemen,

1. Having examined the Drawings, Specification and Schedules for the execution of the above named Works, we, the undersigned, offer to execute and complete the works accordingly for the sum of (words & figures)
.....
.....
.....(K.....)
2. We undertake, if our quotation is accepted, to complete and deliver the whole of the works within nine (9) weeks from the date of receiving your Official Order.
3. 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.
4. This Tender, together with the receipt of your Official Order thereof, shall constitute a binding Contract between us.
5. 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 herein)
authorised in the presence of)
Address of Company Quoting:.....

(C) **QUOTATION DATA**

**CONSTRUCTION OF ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA
POWERSTATION, WABAG - ENGA PROVINCE.**

(i) **TENDERER'S ORGANISATION**

1. Name: Nationality:
2. Business Address: Fax:
- P. O. Box No: Phone:
-

(ii) **CONTRACT SUPERVISION**

Tenderers shall list their proposed supervisory staff for this Contract. (number and designation only).

(iii) **STATEMENT OF EXPERIENCE**

The Tenderer 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.

CONSTRUCTION SCHEDULE

CONSTRUCTION OF ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA POWERSTATION, WABAG - ENGA PROVINCE.

The Bidder should indicate his proposed program for completing various stages of the work by filling in the schedule below.

ACTIVITY	TIME IN WEEKS								
	1	2	3	4	5	6	7	8	9
Mobilisation / Establishment & Set-Up									
Fencing / Drains & Road Works									
Concrete Works									
Steel & Metal Works									
Carpentry (incl. roof framing)									
Plumbing & Drainage Works									
Tiling and Glazing									
Electrical & Fire									
Painting Works									
Clean Up									

(D) **PRICE SCHEDULES**

**CONSTRUCTION OF ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA
POWERSTATION, WABAG - ENGA PROVINCE.**

(i) **LUMP SUM BREAKDOWN – ABLUTION BLOCK**

1.0	Mobilisation, Site Establishment & Set Up	K.....
2.0	Fencing, Drains & Drive Way	K.....
3.0	Concrete Works	K.....
4.0	Metal Works	K.....
5.0	Carpentry Works (incl. roofing)	K.....
6.0	Electrical, Fire and Plumbing	K.....
7.0	Tiling and Glazing	K.....
8.0	Painting	K.....
9.0	Clean-up	K.....
	Sub-total	K.....
	GST	K.....
	TOTAL	K.....

LUMP SUM BREAKDOWN – GUARD HOUSE

1.0	Mobilisation, Site Establishment & Set Up	K.....
2.0	Fencing, Drains & Drive Way	K.....
3.0	Concrete Works	K.....
4.0	Metal Works	K.....
5.0	Carpentry Works (incl. roofing)	K.....
6.0	Electrical, Fire and Plumbing	K.....
7.0	Tiling and Glazing	K.....
8.0	Painting	K.....
9.0	Clean-up	K.....
	Sub-total	K.....
	GST	K.....
	TOTAL	K.....
	TOTAL LUMP SUM (Carried to Form Quotation)	K.....

(ii) **SCHEDULE OF RATES FOR VARIATION**

The Contractor shall list the rates for performance of the type of work listed below. These rates shall be used for calculating the amount of any variation to the contract involving that type of work.

<u>Item</u>	<u>Description</u>	<u>Unit</u>	<u>Rate</u>
1.	Painting (including preparation)		m ³
2.	Etc.		

Name of Contractor:

Signature:

Date:

Witness:

SECTION 2 TECHNICAL SPECIFICATION

<u>Description</u>	<u>Page No</u>
1. Schedule of Preliminaries	11-12
1.1 General	
1.2 Standards	
1.3 Nature of Contract	
1.4 Location of Site	
1.5 Description of Work	
1.6 Site Inspection	
1.7 Possession of Site	
1.8 Site Operations	
1.8.1 Safety	
1.8.2 Site Facilities	
1.9 Construction Schedule	
1.10 Use of Second Hand Materials	
1.11 Setting Out	
1.12 Time for Completion	
1.13 Defect and Liability Period	
1.14 Variations	
1.15 Cleaning Up	
2. Work Description	
2.1 Job Specifications (Scope of Works) – Ablution Block	13-21
I. Mobilisation and Site Establishment	
II. Drains And Access	
III. Concrete Works	
IV. Block And Masonary Works	
V. Steel Works	
VI. Carpentry Works	
VII. Joinery and Hardware	
VIII. Roofing Works	
IX. Tiling Works	
X. Glazing Works	
XI. Plumbing Works	
XII. Fire And Electrical	
XIII. Painting	
2.2 Job Specifications (Scope of Works) – Guard House	22-23
XIV. Concrete Works	
XV. Metal Works	
XVI. Carpentry Works	
XVII. Electrical Works	
XVIII. Glazing Works	
XIX. Cleaning Up	

(A) JOB SPECIFICATION

1. SCHEDULE OF PRELIMINARIES

1.1 GENERAL

The Contractor shall carryout the works as detailed and/or inferred in the Technical Specification comprising of Trade Schedules and Drawings which takes precedence over the Standard Specification, Part (B).

1.2 STANDARDS

All works shall be carried out to the accepted standard trade practices, Local Authority Regulations and the relevant PNG and Australian Standards.

1.3 NATURE OF CONTRACT

The contract will be Fixed Price Lump Sum Contract. Approved variations shall be paid for at the applicable rates listed in the Schedule of Rates for Variations.

1.4 LOCATION OF SITE

The work site is located within the vicinity of the Rakamanda Powerstation, Wabag - Enga Province.

1.5 DESCRIPTION OF WORK

All works covered in this contract is as stipulated within the scope of works. It basically requires civil works, carpentry, concrete masonry works, electrical and painting.

1.6 SITE INSPECTION

The Contractor shall inspect the site prior to lodging his Tender and satisfy himself with the nature of the site which can enable him /her to provide quote accordingly.

1.7 POSSESSION OF SITE

Possession of Site shall be on the date stated in the Letter of Acceptance or the Purchase Order to the successful tenderer.

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.

1.8 SITE OPERATIONS

1.8.1 Safety

SAFETY FIRST. The Contractor shall ensure that all of his/her workers must be in full proper attire and proper safety wear before carrying out any work on site.

All matters and conditions regarding safety, health and welfare of persons working on site shall be the responsibility of the Contractor.

1.8.2 Site Facilities

The Contractor shall arrange for and meet all the costs associated with the provisions of his electricity, telephone, water ablution facilities, temporary buildings for his workmen including site security.

1.9 CONSTRUCTION SCHEDULE

The Contractor shall provide a detailed construction schedule expanding on the Tender Construction Schedule within one (1) week of acceptance of contract.

1.10 USE OF SECOND HAND MATERIALS

No second hand materials shall be used unless indicated in the specification or shown on the drawing or until they have been inspected and approved by the Superintendent. Any materials reused shall be finished to "as new" condition.

1.11 SETTING OUT

The works shall be located where indicated on the drawings, however, the accurate setting out and adherence to details of levels and squareness of the building will be the sole responsibility of the Contractor.

1.12 TIME FOR COMPLETION

The works shall be Practically Completed within Nine (9) weeks from the date of Possession of Site given in PNG Power's Letter of Acceptance.

1.13 DEFECT AND LIABILITY PERIOD

The period of 3 months will be allowed for defects and liability after completion of works. The contractor is free when 3 months is over; but if any defects appear within 3 months the contractor will be called to fix at free of charge.

1.14 VARIATIONS

Variations are not tolerated as the contractor must make an attentive assessment of the scope of works and site conditions. The contractor shall allow for the miscellaneous expenses before submitting the quotation as there may be difficulties in sourcing additional funds after the signing of the contract.

The Contractor shall notify the PNG Power Building Supervisor or Project Manager; and a joint inspection shall be scheduled before the signing of the completion certificate (COC).

1.15 CLEANING UP

Upon completion of the works, the contractor shall leave the work areas clean and clear of rubbish, excavated material and access material which is of no use to PNG Power. All rubbish shall be dumped at the local authority's official garbage dump and not at or around the work site.

2.0 WORK DESCRIPTION

2.1 JOB SPECIFICATION – ABLUTION BLOCK

I. MOBILISATION & SITE ESTABLISHMENTS

- 1) The Contractor shall organise and mobilise on site upon PNG Power Ltd's instruction or upon receiving of PNG Power Ltd's Official Purchase Order.
- 2) The contractor shall arrange for temporary services on site including site access, telephone, power and sewerage for use by its workers.
- 3) The Contractor shall arrange for storage spaces on site to store materials, tools and other plant and equipments.
- 4) The Contractor shall also arrange for Security on site to safeguard building materials, plants and equipments.

5) EXCAVATION AND DEMOLITION

- i. Locate underground services and foundations before any excavation work commences. Make good at no extra cost damages to existing services.
- ii. The ground level around the proposed perimeter of the building shall be excavated and levelled properly. Backfill any area that is low with proper soil or road base materials. The topsoil shall be compressed with the Construction Walker Packer Machine.
- iii. Demolition of existing part of buildings shall be confirmed by PNG Power inspector and carried out under this contract as agreed upon. Any obstruction (ie; stonewall, trees, stumps etc) shall also be cleared properly to make way for construction.

II. DRAINS AND ACCESS

1) DRAINS

- i. Contractor shall make good existing concrete or stone pitched drains.
- ii. All drain waste to connect to proper main drain system.

2) ACCESS

Contractor shall make good all access and footpath into the site.

III. CONCRETE WORKS

- 1) The Contractor shall supply 40kg cement bag at A-C grade. Supply fine sand washed coarse river sand CSAND/MS1.58 tonnes per/m³. Supply reinforcement bars Y10 standard size 6.0 metres long to with ties. Supply F72 Mesh wire.
- 2) All concrete mixing shall be by mechanically driven revolving drum. Hand mixing is not permitted unless approved by the Superintendent. Minimum mixing proportions shall be 3:2:1 with a maximum slump of 80mm. All concrete shall have a minimum strength of 20 MPa.
- 3) All footings, slabs, reinforcing, formwork etc. shall be inspected by the Superintendent before commencement of mixing and placing of concrete.
- 4) For all slab construction, supply and lay fortecon membrane to underside of slab, lapped 150mm and taped at joints.
- 5) Supply 75x50mm and 100x25mm timber for timber boxing frames.
- 6) Supply 300x300x150mm deep precast concrete splash pads to each downpipes.
- 7) Supply 6x 400x400x2400mm reinforced concrete plinth.

IV. BLOCK AND MASONRY WORKS

All works under this category shall be undertaken by the experienced concrete blocklayer and comply with all relevant codes of this specifications.

- 1) BLOCKS
All blocks shall be Class A blocks Monier or equal approved – with a minimum strength of 12MPa.
- 2) STANDARD 400x200 BLOCKS
Construct 200mm thick masonry block wall for the main building; and along the centre of the building, dividing the female and male toilet and the height of the wall shall be 2400mm – 2800mm high to the level underside ridge height. Mortar Joints shall be 10mm thick, mix proportion shall be 3:1 and core filled with concrete at 4 x spacing with 1 x 12mm deformed bars. Core filled 2 x end column and 2 x evenly spaced in-between the wall. Lay stretcher bond, reinforced and core filled.
- 3) BEAMS
At every second course where horizontal reinforcement is required all round, lay knock out beam blocks and core fill. Also lay and reinforce above all openings.
- 4) REINFORCEMENTS
Provide and place all bars and ties in blockwork. Horizontal bars at every second coarse all round.
- 5) CONDUITS
For electrical wiring the contractor will provide 25 dia. Conduits for embedding as instructed on site. Draw wires shall be left in the conduit runs.
- 6) LAYING
All blocks shall be laid in stretcher bond to meet acceptable standards.
- 7) COREFILL
All cores whether reinforced or not shall be core-filled.
- 8) JOINTING
Joints in blockwork shall be "iron" jointed all through-out.

- 9) CHASING
Chasing of blockwork is not permitted. Pipework, conduits etc. shall be built in and concealed in blockwalls.
- 10) NIB WALL
Provide 100mm high nib wall at front entry end.
- 11) CLEANING
Clean down all blockwork as work progresses to ensure total removal of mortar droppings and smears.

V. STEEL WORKS

Supply, fabricate and erect all aluminium, mild steel, case iron and other metal works together with fastening and fixings. Carry out work with best materials and workmanships in such time as to coordinate with other trades. Complete with all relevant codes governing this trade.

Where dissimilar metals are in contact, either in fabrications or where fixed on the site, completely separate each by complete coating, every contacting surface with bituminous paint or equal approved method.

- 1) The Contractor shall supply all welding gears and machinery.
- 2) Supply and install 2x security screen doors. Provide 100mm "D" handles on both sides of all the doors and fit 100mm barrel butts on the inside of the door for shower and toilet.
- 3) The frames shall be fixed to the window and door frames by a suitable adhesive/sealant and self tapping screws.
- 4) Supply and install 16mm dia. Ms galvanized security bars to all window frames as indicated. Bars shall be continuous lengths and have washers welded to each end to prevent bars from being pulled out.

VI. CARPENTRY

The contractor shall ensure to apply wood primer to exposed timber board surfaces prior to fixing. All timber exposed to view shall be sanded to a perfect smooth finish.

All timber shall be treated with CCA Chemical from the Hardware.

- 1) Fasteners
Supply all nails, brads, peanl pin, tacks, clouts, samples, screws, bolts, patent of expanding bolts and power driven fasteners as appropriate for the completion of work.
- 2) Barge and Fascia Board

Supply and install new fascia and barge boards. The size shall be 200x32mm and fascia boards shall be securely fixed at each end of the new jack rafters with appropriate jolt head nails. The contractor shall ensure to apply wood primer to exposed timber board surfaces prior to fixing.

3) Door Jambs and Window Frames

Supply and install door and window timber frames; and architraves. Provide 150x32mm door and window jambs for entry doors flushed from the inside and securely fastened to the walls.

Provide 4 x solid core doors with locks fitted on doors. Doors shall be fitted on the door jamb with 2x100mm brass butt hinges.

4) Flywires and Flywire Strips

- i. Supply and install fly wires including 32x15mm fly wire beadings. Apply 1 coat of wood primer and 2 coats of under prior to fixing of the fly wire beadings.
- ii. When fixing fly wires onto the window frames, the contractor shall ensure that flywires are not sagged or wrinkled and shall be firmly fixed with fly wire tacs.
- iii. Supply and install fly wires to the security screen door.

VII. JOINERY AND HARDWARE

1) Doors

All doors shall be new Solid Core Doors.

2) Door Locks

Provide new Tubular Dead bolts, 777 series with 56x100mm x 75mm "D" handle fixed on both sides of the doors of the 2 main doors.

3) Hinges and Catches

All doors shall be placed with a new 100mm butt steel hinges. Mark out for fitting of the butt steel hinges shall be 150mm from the top of the door and 200mm up from the bottom edge of the door

VIII. ROOFING WORKS

All roofing works to be carried out according to Manufacturers relevant codes and practices.

1) Roofing Sheets

Roofing shall be corrugated roofing sheet.

2) Overhangs

Overhang length shall be 600mm - 1200mm as shown on drawings.

3) Roof Fasteners

60mm long tek screws shall be used as roof fasteners and the contractor shall use three(3) number of tek screws on roof sheets and securely fastened as per roof battens.

4) Sisalation

The existing sisalation shall be replaced with new 1.2m wide double sided insulation paper and allow 150mm lap over on each joints.

5) Gutter

- i. Supply new gutterings with a new trim line gutter and shall be fixed at the full length of lower side of the roof.

ii. The contractor shall allow a fall starting from the centre of the length of the building and runs towards the two ends of the building.

iii. Gutter Brackets

An appropriate trim line gutter brackets shall be used prior to fixing of the gutter. The gutter brackets shall be fixed at 1.0meters spacings with an appropriate fixer or fasteners.

iv. Down Pipes

Down pipes shall be 100x100mm square and shall be filtered tightly where the drops are. All joints shall be neatly fitted to avoid appearing of gaps.

A 50x50mm light metal hollow section pipes shall be used for down pipes supports especially from the under side of the floor joists down to the ground level.

v. Flashings

An appropriate metal flashing shall be provided at the edges of the roofing and securely fasten with appropriate fasteners on to the Barge Board. Ensure to seal off screw heads properly with approved sealant.

IX. TILING WORKS

1) Standards and Workmanship

The tiler shall install white ceramic tiles on all floor coverings.

2) Splashback shall be formed along the back of the hand basin using 150x100mm bull-nosed edge ceramic tiles at 300mm high. Seal off gaps with appropriate sealant.

3) The ceramic tiles shall be firmly bedded on a beads of adhesive and shall be properly grouted. All excess grout shall be completely cleaned off.

4) Allow 3mm spacing for ceramic tile joints and shall be filled with appropriate grouting. Ensure also that same size ceramic tiles are fitted at the edges. For door ways, proper edging ceramic tiles shall be used.

X. GLAZING WORKS

1) Provide and install 6mm thick obscure louvres to all windows.

2) Provide and install 600x400mm mirror with 4 No. chrome plated corner clips above hand basins.

3) Mirrors shall be 6mm thick silvering quality polished plates glass with silver applied and guaranteed tropical quality. Edges shall be ground and polished.

XI. PLUMBING WORKS

1) General

All plumbing shall be carried out by competent Tradesmen who hold current Sanitary Plumbers licences issued by the authorised Public Health Authority.

Water pipes shall be from 12mm copper including necessary fittings all copper joints, bends, elbows, etc. shall be properly braized weld with oxy and tested for water leakage prior to covering of water pipes.

2) Cold Water Supply

Provide and maintain cold water supply to the following fittings:-

- shower
- hand basin
- WC cistern

3) Traps and Wastes

Supply and install 32mm dia. uPVC to hand basin. 50mm dia. to shower and floor wastes. 100mm dia. to water closet.

4) Soil Waste Vent Pipes

Supply and install 100mm uPVC vent pipes. All bends, junctions and elbows, excepting those in vent pipes shall have inspection openings. All vents shall be fitted with PVC vent cowls. Cement grout waste pipes into drains and disconnect traps.

5) Sanitary Fittings

Supply and install the following fittings and connect up to services and wastes.

i. Water Taps

Supply and install required water taps to kitchen, laundry shower and toilets.

ii. Shower/Bath Tray

Provide and construct a 900x900mm concrete shower/bath tray.

iii. Hand Basin

Provide, replace and install firmly wall mounted hand basin complete with barred waste and plug.

iv. Water Closets (WC)

Provide and install approved WC full flush toilet suite with low level cistern and standard seat. Connect to soil waste, provide bituminous felt strip between pan and floor and fix with 75mm brass screws.

v. Miscellaneous Ablution Fittings

Provide and fit to bathroom the following fittings:- Soap Holder; Toilet Roll Holder; and Caroma Bathmates toilet roll holder.

XII. FIRE AND ELECTRICAL

All electrical works to be undertaken by a Licensed Electrician according to the relevant codes and practices. All materials shall be of the best quality and workmanship shall be accordingly to the best trade practice of the workmanship in accordance with the PNG Power requirement.

1) Fire

- i. Standards and Workmanship
Comply with all relevant Fire Authority rules, codes and requirements.
- ii. Provide and install portable fire extinguisher of the types and capacities shown below. Install fixings, brackets and position indicating signs and labels for each extinguisher.
- iii. Provide extinguisher as;
Type 1 4.5kg Dry Chemical Powder (DCP)

2) Electrical

- i. Standards and Workmanship
Comply with all the relevant PNG Power Limited rules, codes and requirements.
- ii. Distribution Board
The contractor shall upgrade the existing distribution board.
- iii. Meter Box
Supply and install a new meter box 12x12x10 galvanised or pad install.

Supply and install new main switch board; new circuit breaker; and new earth wire.
- iv. Wiring
All wiring shall be concealed inside the ceiling and in conduits embedded in the walls.

Supply new 1.5m² and 2.5m² cable drums.
- v. Power Outlets
Supply and install new single and double GPOs where necessary.
- vi. Light Switch
Supply and install 10A light switches where necessary. Switches shall be mounted 1.2m – 1.4m above floor level.
- vii. Lights and Fittings
Supply and install new 18 watts and/or 36 watts fitting opal diffuser where required.
- viii. Daylight Switch
Supply and install a daylight switch; and 18-36 watts weatherproof light tube where required.

XIII. PAINTING SPECIFICATION

1) Quality of Materials

The contractor shall supply all painting materials and store them neatly in an appropriate area free from dust, moisture or anything that may have an immediate effect on painting materials.

All materials used for this painting work shall be of higher grade. No second grade materials shall be used, if the contractor shall or may want to use second graded materials, the contractor must seek Inspector's approval.

2) Brand

The contractor shall supply materials such as, undercoat, turps, final coat etc, from the same Manufacturer. Mixtures of painting materials from different brand of manufactures shall not be allowed.

3) Wash down

All painting surfaces shall be thoroughly washed down with approved detergent or sugar soap prior to commencement of any painting work. The contractor shall seek approval from PNG Power supervisor after thorough wash down all surfaces before commencing of painting work.

4) Drop Sheet

A drop sheet shall be used by the Contractor during the cause of the painting work to protect the floor of the building.

5) Under Coats

A water base Acrylic under coat or similar approved type under coat that can quickly settled and dried shall be used. The Contractor shall apply one (1) coat on old surfaces. 2 coats of under coats on new surfaces.

6) Putty

The contractor shall use sparkfilla and polyfilla or similar approved putty to fill holes, gaps or any uneven surfaces. Puttied areas shall be left for a day before any sanding is carried out. This putting work shall be carried out after painting of first coat of under coat.

7) Final Coat

After completion of the sanding work to all painting surfaces, the contractor shall carry out the painting of the final two (2) coats. Colours shall be preferred by the PNG Power Supervisor.

8) Turpentine

The Contactor shall only use turpentine to wash paintbrushes or to soften paint so that paints are flexible and easy to use. Kerosene shall not be used when carrying out the painting work.

9) Scaffolding

The Contractor's responsibility to provide necessary scaffolds and securely fixed to avoid accidents. PNG Power shall not be responsible for any accident created due to negligence.

10) Painting and Varnishing

- i. The contractor shall use Taubmans paints only when carrying painting works.
- ii. Do not apply under coat without the approval of the PNG Power Inspector.

- iii. All existing paint surface shall be cleaned and washed down properly with sugar soap or detergents prior to applying of any under coat.
- iv. Apply masonry filler under coat for all masonry surfaces prior to painting of final coats.
- v. All rusted metal surface shall be cleaned and scrape off properly before applying of metal primer.
- vi. Colours scheme shall be provided by PNG Power Inspector.
- vii. New surfaces shall have 2 coats of under before applying of 2 final coats.

2.2 JOB SPECIFICATION – GUARD HOUSE

XIV. CONCRETE WORKS

The Contractor shall supply all required materials and install as per works required in this contract as per relevant standards.

1. Concrete Slab
A 100mm thick concrete slab shall be constructed with F62 reinforced bars centrally placed, as per drawing.
2. Concrete Footing
A reinforced 650mm x 400mm x 400mm concrete footing shall be constructed below ground level to hold the 80 dia. x 4.9 CHS galvanised steel stump; with 150x90x6.0 thk ms angle bracket 200 long welded to stump, as per the drawing.

XV. METAL WORKS

1. Galvanized Mild Steel Security Bars
Supply and install security bars at window openings; shall be continuous lengths and have washers welded to each end to prevent bars from being pulled out.
2. Supply and install louvre frames to all window openings.

XVI. CARPENTRY WORKS

The Contractor shall supply all carpentry materials and store them neatly in an appropriate storage area. All timber and associated materials used for this work shall be of higher grade. No second grade timbers and other materials shall be used. If the Contractor shall or may want to use second graded materials, the Contractor must seek the PPL Inspector's approval.

1. Install door and frames.
2. Fabricate and install glass window and frames on all window openings.
3. Supply and install ceiling linings and frames.
4. Supply and install corner moulds, architraves and skirting where necessary.
5. Supply and install 150x50 hwd bearer
6. Supply and install 100x50 hwd floor joist over floor bearer.
7. Supply and install weatherboard wall cladding; over 75x50 hwd stud and 75x50 hwd noggings structured framed wall.
8. Supply and install 200x30mm hwd fascia board at both ends of overhang.
9. Supply and install corrugated roofing iron over 75x50 hwd purlin, over 100x50 hwd rafter; with mesh sisalation membrane.

XVII. ELECTRICAL WORKS

Internal:

Supply and install 36Watts light fittings such as Phillips power miser fluorescent bare tube battens with warm white tubes to locations as shown on the drawings. Supply and install single GPO at location indicated on the drawings.

All wiring shall be concealed in ceiling and walls.

XVIII. GLAZING WORKS

Provide and install 6mm thick obscure louvres to all windows.

XIX. CLEANING UP

Upon completion of the works, the contractor shall leave the work areas clean and clear of rubbish and excess material which is of no use to PNG Power Ltd.

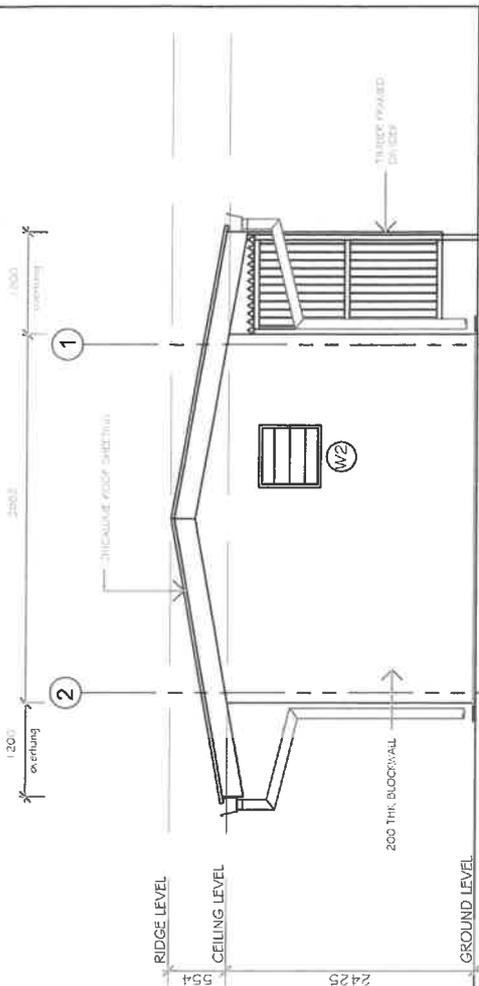
All rubbish shall be dumped at the Local Authority's official dump site and not at or around the work site.

*******END OF SCOPE*******

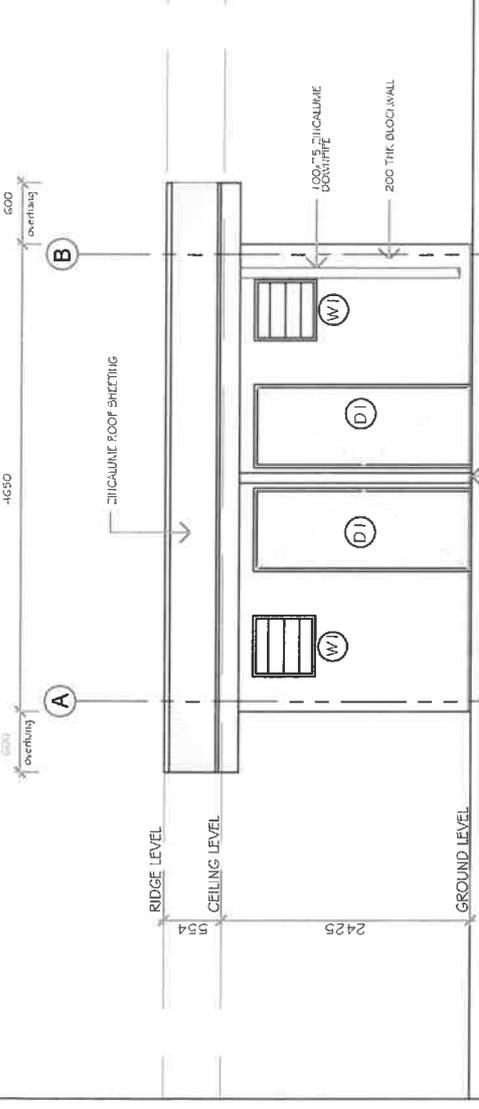
SECTION 3 LIST OF DRAWINGS

The Contractor shall undertake the works for Tender in accordance with the Drawings listed below and as appended. The drawings form part of the Contract Documents and all notes on the drawings are considered to be part of the drawings and the Contract. If the drawings conflict with any other part of the Contract Documents, the drawings will take precedence.

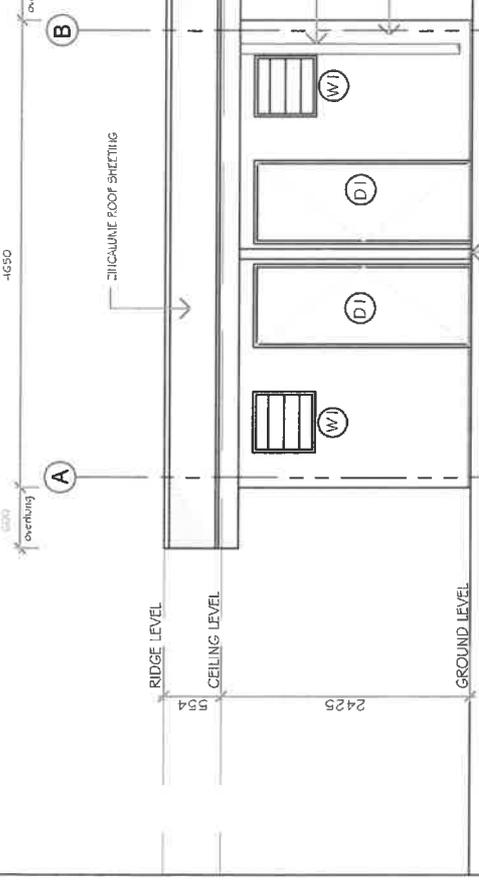
Drawing Ref. No.	Drawing Title	Date of Issue
Mxxxxx	CONSTRUCTION OF NEW ABLUTION BLOCK AND GUARD HOUSE AT RAKAMANDA POWERSTATION, WABAG - ENGA PROVINCE	Mar 2019
Sheet 00	Cover Sheet, Drawing Index	
Sheet 01 of 09	Floor Layout	
Sheet 02 of 09	Elevation 01; 02; 03 & 04	
Sheet 03 of 09	Cross Section A-A	
Sheet 04 of 09	Electrical Layout	
Sheet 05 of 09	Plumbing Layout	
Sheet 06 of 09	Footing & Truss Detail	
Sheet 07 of 09	Construction Detail	
Sheet 08 of 09	Septic Tank Detail	
Sheet 09 of 09	Guard House Detail	



ELEVATION 01
scale 1:50



ELEVATION 02
scale 1:50



ELEVATION 03
scale 1:50



ELEVATION 04
scale 1:50

Copyright: This document is and shall remain the property of PNG Power Ltd. The document shall ONLY be used for its intended purpose as commissioned by PNG Power Ltd. Any unauthorised use of this document in whatever form is rightfully prohibited.

CAD Filename: alh-rpl-enga-01.dwg
Scale: 1 : 50 / AS SHOWN

Date Plotted: 04.03.19
Time Plotted: 12:00PM

Rev.

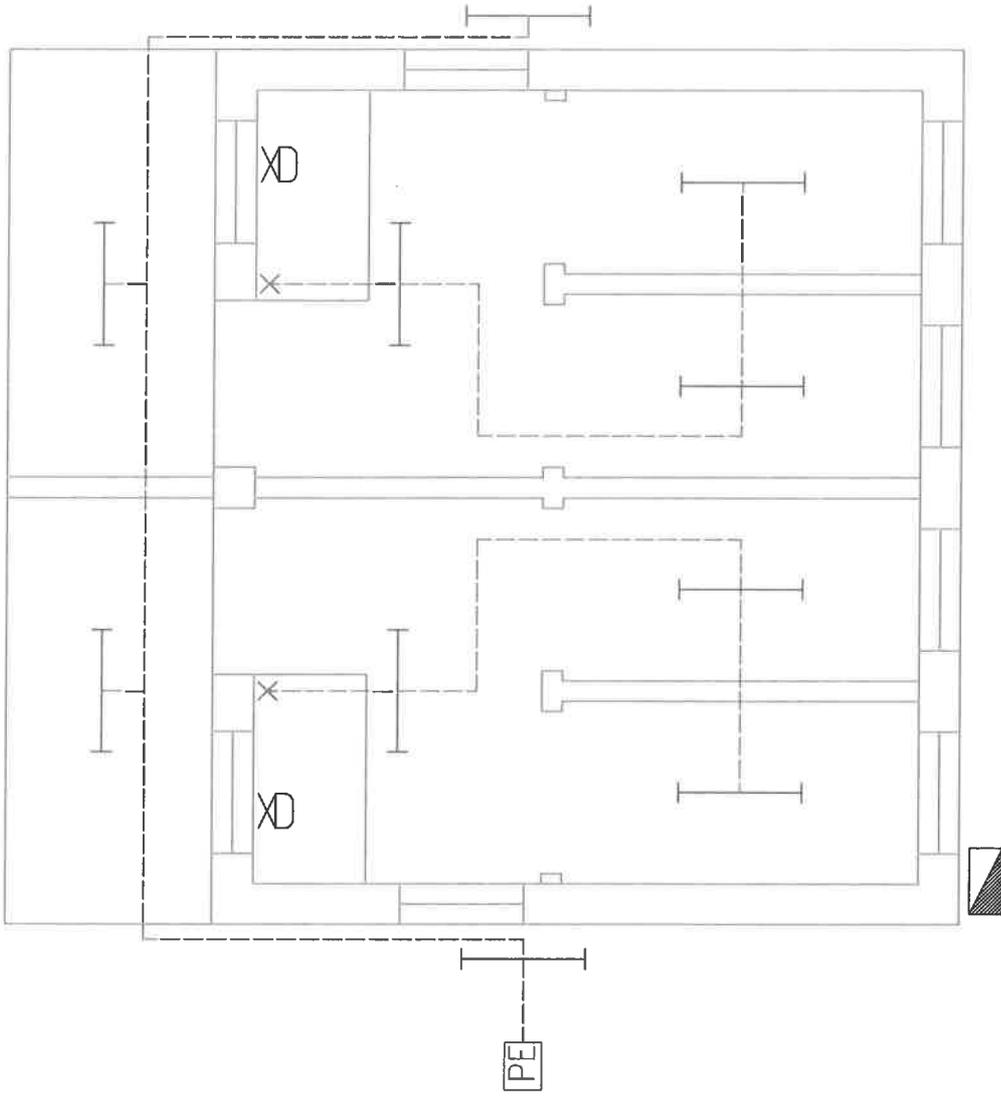
Rev.	By	Chk'd	Date



PNG POWER Ltd
P. O. Box 1105, BOROKO 111 NCD, Papua New Guinea.
Telephone: (675) 324 3200
Facsimile: (675) 325 0072
Website: www.pngpower.com.pg

Drawn	by	in	check	Location

Title	Number	Revision
RAKAMANDA POWER STATION, WABAG – ENGA PROVINCE PPL ENGA ABLUTION BLOCK ELEVATION 01; 02; 03 & 04	A3	02 OF 09

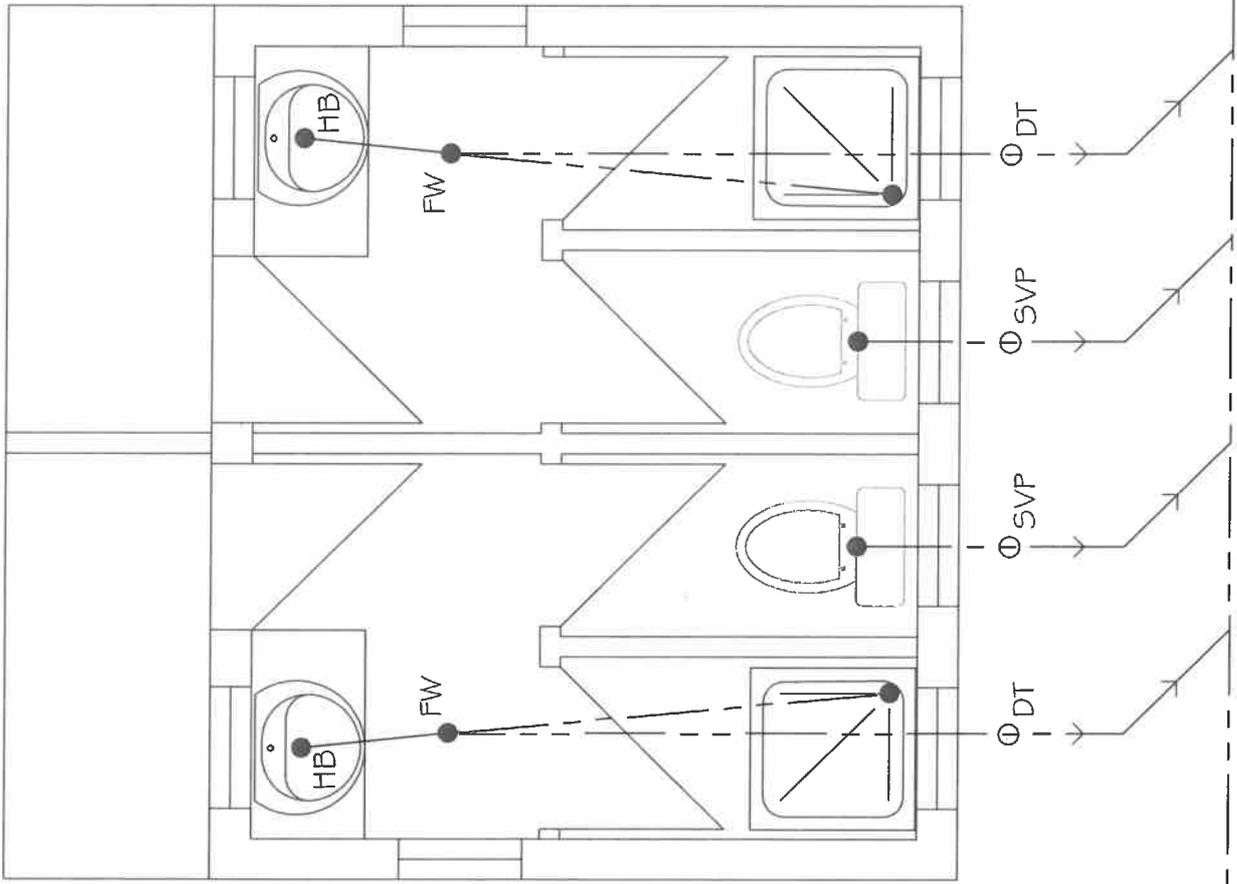


ELECTRICAL LEGEND

	DISTRIBUTION BOARD
	1/18W FLOURESCENT BARE TUBE BATTEN
	NEW SINGLE POWER OUTLET
	SWITCH - ONE WAY
	PHOTO ELECTRIC SWITCH

ELECTRICAL LAYOUT
scale 1:25

<p>Copyright: This document is and shall remain the property of PNG Power LTD. The document shall ONLY be used for it's intended purpose as commissioned by PNG Power LTD. Any unauthorised use of this document in whatever form is rightfully prohibited.</p> <p>CAD Filename: aburp1erpa-01.dwg Scales: 1 : 25 / AS SHOWN</p>		<p>Rev.:</p> <table border="1"> <tr> <th>Rev.</th> <th>Revision</th> <th>By</th> <th>Chkd</th> <th>Date</th> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table>	Rev.	Revision	By	Chkd	Date						<p>PNP POWER Ltd P. O. Box 1105, BOROKO 111. NCD, Papua New Guinea. Telephone: (675) 324 3200 Facsimile: (675) 325 0072 Website: www.pnpower.com.pg</p>	<p>Location: RAKAMANDA POWER STATION, WABAG - ENGA PROVINCE Title: PPL ENGA ABLUTION BLOCK ELECTRICAL LAYOUT Number: M11926 Revision: 04 OF 09</p>
Rev.	Revision	By	Chkd	Date										
<p>Drawn: [Signature]</p> <p>Designed: [Signature]</p> <p>Checked: [Signature]</p> <p>Enclosed: [Signature]</p> <p>Approved: [Signature]</p>	<p>DATE: MARCH 19</p> <p>TITLE: (A3)</p> <p>NUMBER: [Blank]</p> <p>REVISION: [Blank]</p>	<p>Date Plotted: 04.03.19 Time Plotted: 12:00PM</p>	<p>Sheet: 04 OF 09</p>											



DRAINAGE LEGEND

WC	WATER CLOSET
HB	HAND BASIN
SHR	SHOWER
FW	FLOOR WASTE
DT	DISCONNECTOR TRAP
SVP	SOIL VENT PIPE
IO	INSPECTION OPENING



PLUMBING LAYOUT
scale 1:25

IO TO THE MAIN SEWERAGE SYSTEM

Copyright: This document is and shall remain the property of PNG Power Ltd. The document shall ONLY be used for its intended purpose as commissioned by PNG Power Ltd. Any unauthorised use of this document in whatever form is strictly prohibited.

CAD Filename: s111-ppl-enga-01.dwg
Date Plotted: 04.02.19
Time Plotted: 12:00PM
Scale: 1 : 50 / AS SHOWN

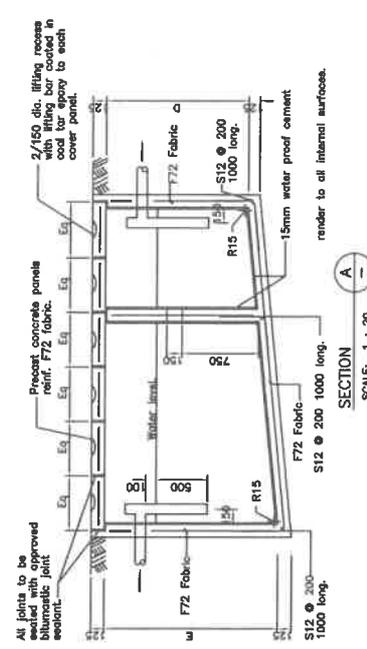
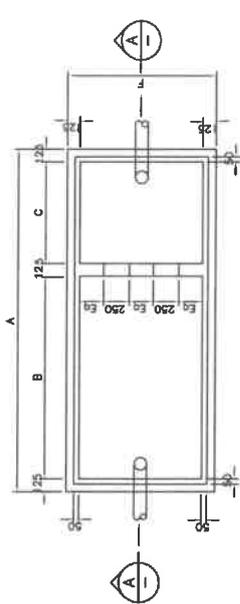
Rev.	Revision	By	Check'd	Date

PNG POWER Ltd
P. O. Box 1105, BOROKO 111, NCD, Papua New Guinea.
Telephone: (675) 324 3200
Facsimile: (675) 325 0072
Website: www.pngpower.com.pg

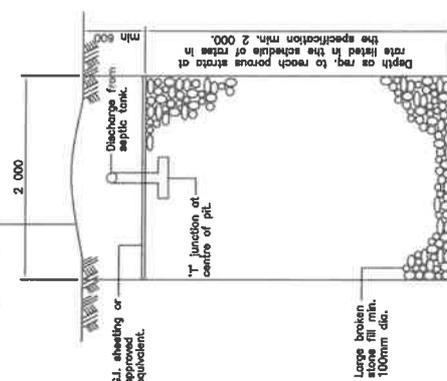
Drawn	in. exp	Location	RAKAMANDA POWER STATION, WABAG - ENGA PROVINCE
Designed	ar. exp	Title	PPL ENGA ABILUTION BLOCK
Checked		Number	PLUMBING LAYOUT
Endorsed		Number	M11926
Approved		Revision	

SEPTIC TANK DETAILS.

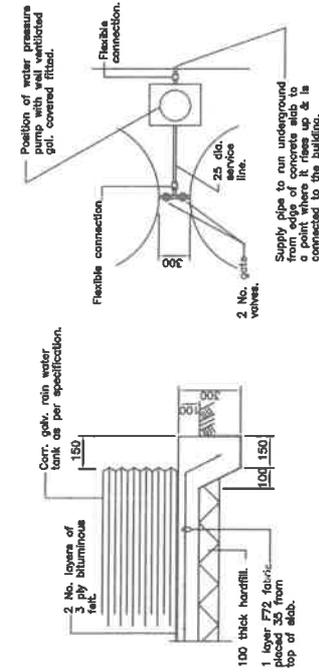
HIGH CONVENIENT HOUSES	LOW CONVENIENT HOUSES	PERSONS			W.C. ONLY.					ALL WASTES EXCLUDING LAUNDRY.					ALL WASTES INCLUDING LAUNDRY.													
		A	B	C	D	E	F	A	B	C	D	E	F	A	B	C	D	E	F									
1-2	1	1	850	-	1	500	700	250	2	175	1	200	600	1	500	700	250	2	175	1	200	600	1	500	700	450		
3	2	11-15	2	1000	-	1	500	700	250	2	625	1	500	700	250	2	625	1	500	700	250	2	625	1	500	700	450	
4-5	3	16-20	2	3500	-	1	500	700	250	2	775	1	600	800	1	500	700	250	3	375	2	000	1	500	700	450		
6	4	21-25	2	625	1	500	700	250	3	225	1	800	950	1	500	700	250	3	225	2	400	1	200	500	700	450		
7	5	26-30	2	775	1	600	800	1	500	700	250	3	825	2	000	1	500	700	250	4	575	2	800	1	400	500	700	450
8	6	31-35	3	075	1	800	900	1	500	700	250	4	125	1	500	250	1	500	700	4	575	3	200	250	500	700	450	



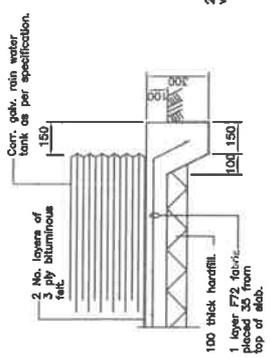
Reinforcement soil to be raised for future settlement as per specification.



TYPICAL CROSS SECTION. SCALE: 1 : 20



TYPICAL TWIN WATER TANK CONNECTION DETAIL. SCALE: 1 : 20

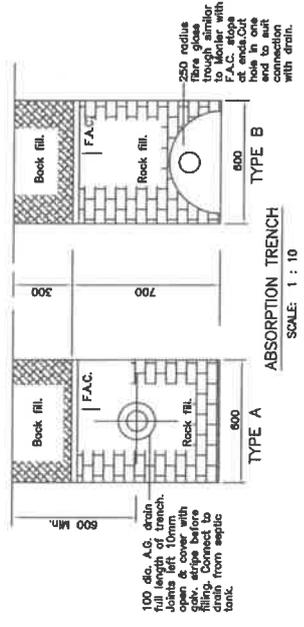


TYPICAL WATER TANK BASE DETAIL. SCALE: 1 : 10

ABSORPTION TRENCH DETAILS.

SEPTIC TANK	TRENCH LENGTH
5-10 PERSON	15m
11-15 PERSON	20m
16-20 PERSON	25m
21-25 PERSON	30m
26-30 PERSON	40m
31-35 PERSON	45m

- NOTES:
- All drainage pipes to be 100 dia. p.v.c. laid to a min. fall of 1 : 80.
 - All water tanks are to be provided with 'best-in-tank' corrosion protection treatment in accordance with manufacturers instructions.
 - Rain water tank inlets are to be raised & fitted with gauze strainers.
 - 19mm top with threaded insert fixed at tire base of each water tank.
 - 100 dia. gen. tank overflow to each tank with a 300x300 concrete splash pad directly under overflow.



ABSORPTION TRENCH. SCALE: 1 : 10

SEPTIC TANK DETAIL scale 1:20

Copyright: This document is and shall remain the property of PNG Power Ltd. The document shall ONLY be used for its intended purpose as commissioned by PNG Power Ltd. Any unauthorised use of this document in whatever forms is strictly prohibited.

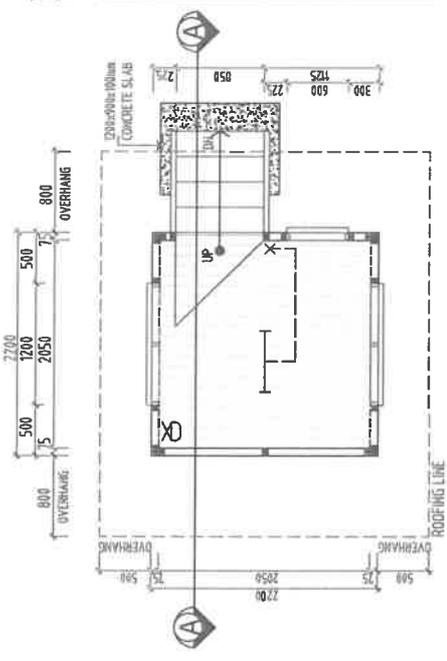
CAD Filename: ablu-p1eng-01.dwg Scales: AS SHOWN Date Plotted: 04/03/19 Time Plotted: 12:00PM

Rev.	By	Chkd	Date	Revision

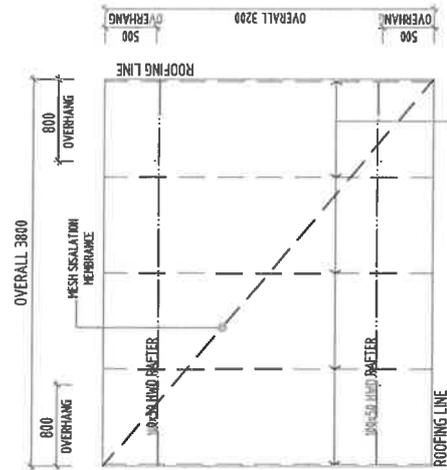
Location: RAKAMANDA POWER STATION, WABAG - ENGA PROVINCE
 Title: PPL ENGA ABLUTION BLOCK
 Number: M11926
 Revision: 08 OF 09

Drawn: WABQ/19
 Designed: M. C. Y.
 Checked: M. C. Y.
 Entered: M. C. Y.
 Approved: M. C. Y.

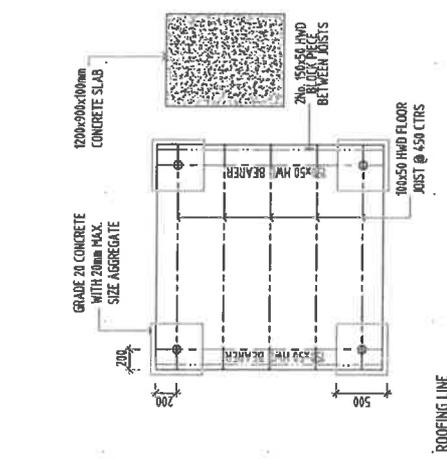
Website: www.pngpower.com.pg
 Telephone: (675) 324 3200
 Facsimile: (675) 325 0072
 P. O. Box 1105, BOKORO 111, INC. Papua New Guinea.



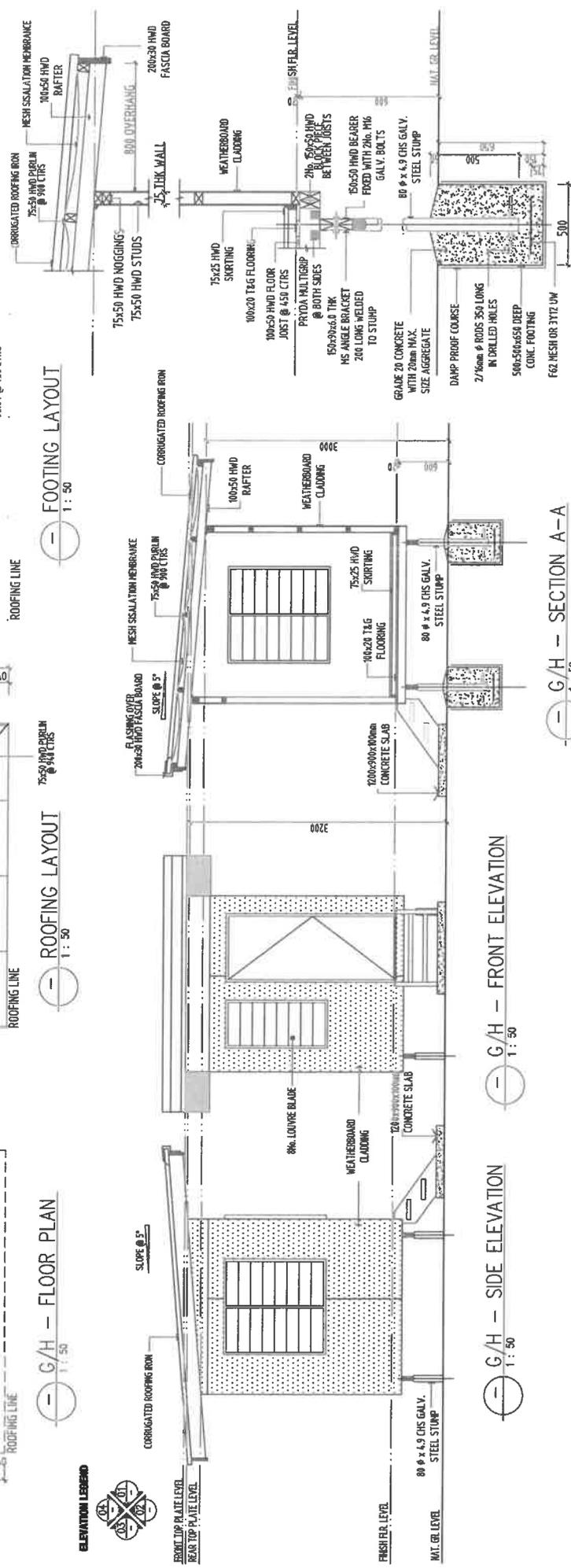
G/H - FLOOR PLAN
1:50



ROOFING LAYOUT
1:50



FOOTING LAYOUT
1:50



G/H - SIDE ELEVATION
1:50

G/H - FRONT ELEVATION
1:50

G/H - SECTION A-A
1:50

G/H - FOOTING DETAIL
1:25



G/H - SECTION A-A
1:50

G/H - FRONT ELEVATION
1:50

G/H - SECTION A-A
1:50

G/H - FOOTING DETAIL
1:25

<p>Copyright: This document is and shall remain the property of PNG Power, LTD. The document shall ONLY be used for its intended purpose as commissioned by PNG Power LTD. Any unauthorised use of this document in whatever forms is rightfully prohibited.</p>		<p>Rev. 04.02.13 Date Plotted: 12.00PM</p>	<p>AS SIKOVN</p>
<p>CAD Filename: guardhouse-pplenga-01.dwg</p>	<p>By: [Signature]</p>	<p>Checked: [Signature]</p>	<p>Approved: [Signature]</p>
<p>Revision</p>	<p>By</p>	<p>Checked</p>	<p>Date</p>
<p>Location: MARCH 19</p>	<p>Drawn: [Signature]</p>	<p>Designed: [Signature]</p>	<p>Checked: [Signature]</p>
<p>Title: PPL ENGA GUARD HOUSE PLANS, ELEVATIONS & DETAILS</p>	<p>Scale: 1:50</p>	<p>Number: M11926</p>	<p>Revision: 09 OF 09</p>
<p>Location: RAKAMANDA POWER STATION, WABAG - ENGA PROVINCE</p>	<p>Scale: 1:20</p>	<p>Number: M11926</p>	<p>Revision: 09 OF 09</p>

PNG POWER Ltd
 P. O. Box 1105, BOROKO 111, NCD, Papua New Guinea.
 Telephone: (675) 324 3200
 Facsimile: (675) 323 0072
 Website: www.pngpower.com.pg