# Request for Tender

MSAF Tender No.01/2025

for the

# FABRICATION AND SUPPLY OF 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE

| | |
|---|---|
| Date of Issue | 06 November 2025 |
| Closing Date | 01 December 2025 |
| Lodgment Address | MSAF Tender Box<br>Level 4, Kadavu House, 414 Victoria Parade<br>Suva, Fiji |

Maritime Safety Authority of Fiji
November, 2025

# REQUEST FOR TENDER

**PROJECT:**

**FABRICATION AND SUPPLY OF 4.5M ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE**

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## DEFINITIONS & INTERPRETATION

### DEFINITIONS

"***AS***" means Australian Standard;
"***BS***" means British Standard;
"***DBGA***" means Department of Buildings & Government Architect, Ministry of Public Works, Meteorological Services & Transport;
"***inclement weather***" means continuous heavy rain or storm which may impede the progress of work
"***MSAF***" means Maritime Safety Authority of Fiji;
"***NZS***" means New Zealand Standard;
"***Standard Contract***" means Fiji Standard Form of Building Contract;
"***Tenderer***" may include Contractor and/or sub-contractor;

### INTERPRETATION

Headings are for convenience only and do not affect interpretation. The following rules of interpretation apply unless the context requires otherwise:

(a) The singular includes the plural and conversely.

(b) A gender includes all genders.

(c) Where a word or phrase is defined, its other grammatical forms have a corresponding meaning.

(d) A reference to a person includes a body corporate, an unincorporated body or other entity and conversely.

# FORM OF TENDER

(To be submitted with Tender Submission)

Tender for**:** **Fabrication and Supply of 4.5 metre Aluminium Tower for Makogai Island Lighthouse**

Name of Tenderer.....

We, the undersigned, hereby offer to execute and complete the whole work as stated on the said documents for the Fixed Lump Sum of:-

(in words and numbers)

.....

.....

**Total Tender Price** **[F$..... VIP]**

The above Lump Sum must include VAT (12.5%) and with no provision for fluctuations in the cost for labour and materials.

As witnessed in our hands this.....day of.....2025.

Tenderer's Name: .....

Signature: .....

Office Stamp .....

Address .....

Witness (Name in Capitals) .....

Signature: .....

Address .....

Occupation .....

**APPENDIX 1**

**PROJECT DURATION AND COMPLETION DETAILS**

Tender for**:** **Fabrication and Supply of 4.5 metre Aluminium Tower for Makogai Island Lighthouse**

| | |
|---|---|
| Duration | 8 Calendar Weeks |
| Defects Liability Period (Clause 15, 16 & 30) | **12 Months** |
| Retention (Clause 22) | 10% (5% to be released on practical completion and 5% at the end of the Defects Liability Period) |
| Liquidated and Ascertained Damages (Clause 20) | **$200.00 per day** |
| Public Liability Insurance (Clause 19(1) a)* | $1,000,000.00 (minimum |
| Insurance for the works | Value of the contract price (minimum) |
| Contractors All Risks | Approved Contract Sum plus 10% |
| Workers Compensation Insurance | $500,000 |
| Performance Bond | 30% of the project value |

* Clauses referred to above are contained in the Fiji Standard Form of Building Contract (Without Quantities, Public Works Department Edition 1978).

**All prices to be in Fijian Dollars**.

**APPENDIX 2**

**SUMMARY OF TRADES/COSTS**

| | **Summary of Trade Description** | **Cost (VIP)** |
|---|---|---|
| A. | Preliminaries | |
| B. | Metal Works | |
| C. | Subtotal | |
| E. | VAT (12.5%) | |
| F. | **Total Cost (VIP)** | |

SIGNATURE OF SUPPLIER .....

COMPANY'S STAMP .....

DATE .....

**APPENDIX 3**

**ADDITIONAL INFORMATION REQUIRED FROM ALL TENDERERS**

Project**:** **Fabrication and Supply of 4.5 metre Aluminium Tower for Makogai Island Lighthouse**

**Contents**

……

A. Structure and Organisation

B. Financial Status

C. Resource (Personnel/Plant/Equipment)

D. Resource (Other)

E. Experience

**Notes to Tenderers**

1. *Please fill-in clearly and neatly the spaces provided below.*

2. *Additional information may be attached at the back, if necessary*

3. *Any queries regarding the filling of this form or the Form of Tender are to be directed to MSAF.*

## A STRUCTURE AND ORGANISATION

1. Name of Company:

   Certificate No.:

   Tax Identification No. (TIN):

   Contact Person:

   Telephone Number:

   Mobile: Email address:

_____

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2. Description of Company (for example, General Civil Engineering Contractor)

_____

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3. Number of years experience as a General Contractor in Fiji

_____

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4. Please present an organization chart showing the Tenderer/Company structure including the position of directors and key personnel, if relevant.

**Notes to Tenderers**

1. *Please fill-in clearly and neatly the spaces provided below.*

2. *Additional information may be attached at the back, if necessary*

3. *Any queries regarding the filling of this form or the Form of Tender are to be directed to MSAF.*

## B FINANCIAL STATUS

1. Annual value of construction work undertaken for each of the last two years.

| 2023 | 2024 |
|---|---|
| | |

2. Current commitment and value of work in hand since 2023 to date.

_____

_____

3. Attach copies of the Company's previous two (2) years audited financial accounts.

4. Name and address of Banker from whom references can be obtained. Provide Bankers Report or financial status and overdraft facilities.

## C RESOURCES: PERSONNEL/PLANT EQUIPMENT

***1. Total Number of Staff in the Company:***

| | |
|---|---|
| Technical: | Administrative: |

***2. Staff proposed to work on this Project:***

| Name: | Position : | No. of Years of experience in welding and fabrication: |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

***3. Main plant/equipment:***

Considered by the Tenderer to be necessary for executing the Project and whether the plant is owned or will be purchased or hired.

| | | | |
|---|---|---|---|
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**Notes to Tenderers**

*1. Please fill-in clearly and neatly the spaces provided below.*

*2. Additional information may be attached at the back, if necessary.*

*3. Any queries regarding the filling of the Form of Tender are to be directed to MSAF.*

## D RESOURCES: OTHER

1. State any part of the works to be undertaken by subcontractor(s), if any, and give name(s) and address of the subcontractor(s).

2. Provide details of 'off-site' fabrication available to the Tenderer.

3. Provide Tentative Work Program (Gantt Chart).

**Notes to Tenderers**

1. *Please fill-in clearly and neatly the spaces provided below.*

2. *Additional information may be attached at the back, if necessary.*

3. *Any queries regarding the filling of the Form of Tender are to be directed to MSAF.*

# SECTION 2: CONDITIONS OF TENDER

# FOR THE

# FABRICATION AND SUPPLY OF 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE

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## 1.0 GENERAL DESCRIPTION OF THE SCOPE OF WORKS

1.1 The said works will include **FABRICATION AND SUPPLY OF MATERIALS FOR 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE (the project)**.

## 2.0 TENDERER TO INFORM HIMSELF

2.1 The tenderer shall inspect and examine the project structural drawings and be familiarized with all specified details for the project and shall be satisfied before submitting the tender. The tenderer should also ensure understanding of the quantities and qualities of the work and materials necessary, the availability of conditions and rates of pay of labour and shall inform himself of all risks, contingencies and other circumstances which may affect his tender.

## 3.0 DETAILED DESCRIPTION OF THE WORK

3.1 The extent of this Contract includes fabrication, supply of all materials as per specifications and drawings.

3.2 On completion of the work, the tower materials shall be assembled at the contractor's premises for inspection by MSAF & DBGA. Upon satisfaction and approval, the materials shall be packaged properly for delivery to MSAF premises in Suva.

## 4.0 TENDERS

4.1 Tenders are to be submitted on the enclosed FORM OF TENDER fully completed. This shall be submitted in a plain sealed envelope, marked:

**Request for Tender – MSAF Tender 01/2025**
***FABRICATION AND SUPPLY OF MATERIALS FOR 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE***

and addressed to:-

**The Chairperson, Tender Committee**
**Maritime Safety Authority of Fiji**
**Level 4, 414 Victoria Parade, Kadavu House**
**Suva.**

Tenders are to be submitted no later than **Monday, 01 December 2025 at 1600 hours** (Late tenders will not be accepted.)

4.2 The lowest or any tender need not necessarily be accepted.

4.3 The Maritime Safety Authority of Fiji reserves the right to REDUCE THE SCOPE OF WORKS to suit budgetary requirements. This will be decided prior to the contract signing.

4.4 All clarifications / discrepancies on tender documents must be made and resolved before the closing of tenders either in writing or verbally to MSAF.

## 5.0 QUALIFICATION OF TENDERS

5.1 Any Tenderer not complying with any Tender condition/requirement stated in the Tender documents shall be considered non – conforming and will be disqualified.

5.2 Failure to submit the Tender form fully completed will render the tender invalid.

## 6.0 TENDER DOCUMENTS

6.1 The documents for this Tender (inclusive in the contract) shall include the following:

a) Tender Letter
b) Conditions of Tender
c) Technical Specification
d) Structural Drawings

If there are discrepancies or in divergence between two or more of the documents including a divergence between parts of any one of them or between documents of the same description the order of precedence shall be:-

a) Structural Drawings
b) Tender Conditions
c) Specification

## 7.0 PROJECT MANAGEMENT

7.1 GENERAL: The contractor shall be responsible for work, executed under the contract including the work of the Sub-Contractor nominated or otherwise. The Main Contractor shall be responsible for the proper supervision of all works for which he is responsible and shall take all necessary measures to ensure quality control and workmanship.

7.2 Foreman: A competent Supervisor / Foreman shall be appointed and shall be in charge of the work for the duration of the Contract. Instructions given to him shall be deemed to have been given to the Contractor. The Foreman must be able to fully understand the drawings and instructions he has to administer.

## 8.0 PROGRESS BAR CHARTS

8.1 The tenderer shall, within seven (7) days of the official acceptance of his tender, submit three copies of detailed work programmes and order of work for approval. The work includes ordering materials, fabrication and supply.

## 9.0 SITE MEETINGS

9.1 MSAF with DBGA shall arrange meetings with the Contractors and sub-contractors (as necessary) for local suppliers.
Overseas Bidders must supply documental evidence of approving authority for workshop compliance and video conferencing between MSAF and DBGA on drawings and progressive construction of project.

9.2 The Minutes of the meeting shall be circulated by MSAF.

9.3 Matters discussed and confirmed at site Meetings shall be deemed to become notice to contractor, and a written notice to contractor by structural engineer issued.

Give a minimum of 72 hours notice for any special inspections required on the job. Provide all relevant details and reasons for the inspection.

Arrange site meetings at times and dates to be agreed by the DBGA (minimum two week intervals). Arrange for the attendance of a senior representative of Sub-Contractors as required, together with the Contractor's general foreman and project manager. Record the proceedings of each meeting and deliver within 3 days, one copy to the DBGA and/or all relevant parties.

## 10.0 INSPECTION OF WORK

10.1 MSAF and DBGA shall at all times during fabrication have full access to all phases of the work for inspection.

## 11.0 FLUCTUATIONS

11.1 For the purpose of this Contract the tender costs is to be a Fixed Lump Sum and will not be subject to Government regulated monetary fluctuations.

## 12.0 PERFORMANCE BOND

12.1 The successful bidder shall be expected to provide a Performance Bond equivalent of 30% from a financial institution of the contract sum within seven (7) from the date of the letter of notification. The Bond shall be released upon Practical Completion. Performance Bond is to be directly paid to MSAF by the successful bidder upon signing the contract.

## 13.0 PERIOD OF FINAL INSPECTION

13.1 The period of final inspection shall be twelve (12) months from the date of issuance of practical completion certificate.

## 14.0 DELAYS / TIME EXTENSIONS

14.1 Period of delay and extension shall be allowed a maximum of one (1) month.

## 15.0 COMPLETION

15.1 At completion remove from site all plant, equipment, surplus materials and rubbish and clean up building. Make good where necessary (determined by DBGA and MSAF) and facilitate testing of all hardware and equipment to ensure all in working order.

## 16.0 LIQUIDATED AND ASCERTAINED DAMAGES

16.1 This shall be in accordance with the Standard Contract and to be **$200.00 per day**.

## 17.0 CLAIMS AND PAYMENT

17.1 Progress payment claims and certified payments are to be made on the construction progress basis and in accordance with the Contract.

## 18.0 RETENTION

17.1 Retention shall be ten percent **(10%)** of the Contract Sum. 5% shall be paid at the end of the defect liability period.

## 19.0 DEFECTS LIABILITY PERIOD

19.1 The period shall be **twelve (12) months**.

## 20.0 INSURANCE

20.1 The Contractor is specifically required to insure against injury to persons and property:

a) A policy specified related to this building contract under the Accident Compensation Act 2017;
b) A policy specified related to this building contract for its legal liability to the General Public to an amount not less than **five hundred thousand dollars ($500,000.00)**; and
c) Insurance against the works. Minimum cover – Value of the Contract sum.

## 21.0 DURATION OF WORKS

21.1 This should refer as calendar weeks with five (5) working days i.e., Monday to Friday with 45 hours of work per week. Any work beyond the aforementioned will be prerogative of the contractor.

## 22.0 MISCELLANEOUS

22.1 Tenderer to provide a Certificate of Ownership and individual shares in the company certified by a chartered accountant registered under the Fiji Institute of Accountants.

22.2 Tenderer to provide the following documents with tender submission:

a. VAT registration Certificate
b. Tax Compliance Certificate
c. Company Certificate (Registrar of Company)
d. FNPF Compliance Certificate
e. Compliance Letter (FNU Levy Payment)
f. Experience in marine structural tower fabrication
g. Latest bank statements
h. Latest financial statements

22.3 Tenderer may contact the following officer for technical queries:

Manager Safety, Compliance & Response
Maritime Safety Authority of (MSAF)
Level 4, Kadavu House
414 Victoria Parade
Suva
FIJI
Phone: +679 3315266 / 7706331
Email: ibatisaresare@msaf.com.fj

# SECTION 3: TECHNICAL SPECIFICATIONS

# FOR THE

# FABRICATION AND SUPPLY OF 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE

**** Clauses referred to in this section are contained in the Fiji Standard Form of Building Contract (Without Quantities, Public Works Department Edition 1978).***

**SECTION 1**

**1. PRELIMINARIES & GENERAL**

**DEFINITIONS**

A.B.S. shall mean 'as before specified.
'F' after timber sizes shall mean full finished size.
Mfr shall mean manufacture or manufacturing as applicable.
DBGA means Director Buildings & Government Architect.

**1.0 APPLICABLE CODES AND STANDARDS**

AS/NZS 1170.0: Structural Design Actions – General Principles
AS/NZS 1170.2: Wind Actions
AS/NZS 1664.1: Aluminium Structures – Limit State Design
AS/NZS 1665: Welding of Aluminium Structures
AS/NZS 1734 & AS/NZS 1866: Aluminium Plates and Extruded Profiles
AS/NZS 5131: Structural Fabrication and Erection – Quality Management
AS 1657: Fixed Access Systems – Ladders and Platforms
AS 3600: Concrete Structures
AS/NZS 4671: Steel Reinforcement Materials
AS/NZS ISO 9001: Quality Management Systems
AS 2312.1: Protection of Aluminium Structures Against Atmospheric Corrosion

**1.1. SCOPE CLARIFICATION**

Note: All components of the marine navigation beacon—including electronics, lighting, power supply, controller and its mounting kit—are excluded from this specification. These are to be supplied directly by MSAF. The tower shall include structural provisions (mounting bracket, platform, interface plate) to accept the beacon as advised by MSAF.

**1.2. DESIGN PARAMETERS**

Tower Height: 4.5 metres
Base Width: 1.8 metres
Function: Support 1 beacon (interface only), 4 RF antennas.
Design Wind Speed: 74 m/s (3-second gust at 10m height)
Exposure Category: C (Coastal)
Topographic Category: 1
Importance Level: 2 (Essential Public Infrastructure)

**1.3. STRUCTURAL SYSTEM AND MATERIALS**

Tower Frame – Aluminium:
Material: 6082-T6 or 6061-T6 aluminium alloy
Sections: RHS, SHS, angle, and tube per AS/NZS 1866 and AS/NZS 1734
Design: Limit state to AS/NZS 1664.1
Connections: Bolted and welded joints using aluminium-compatible hardware

## 1.4. WELDING

Standard: AS/NZS 1665
Process: MIG or TIG using ER5356 filler
Full-penetration welds required for all primary members
Visual and dye-penetrant inspections for quality assurance
Fasteners:
Material: Stainless steel 316 or aluminium-compatible
Protection: Isolators to prevent galvanic corrosion
Size: M12 minimum diameter; full nut engagement required
Anchoring: Provided via stainless or galvanized anchor bolts with sleeves

## 1.5. FOUNDATIONS

Type: Reinforced concrete pad foundation
Concrete Grade: 30 MPa minimum, with non-shrink grout at final pour
Exposure Class: B2 for coastal/marine durability (AS 3600)
Reinforcement: To AS/NZS 4671
Anchor bolts set with templates and grouted post-positioning

## 1.6. CORROSION PROTECTION

Aluminium members to remain unpainted unless otherwise specified
Optional clear anodizing or marine epoxy coating if aesthetics or location require
Dissimilar metal contact points to be isolated with nylon sleeves, washers, or membranes
Embedded items not to be coated

## 1.7. ACCESS AND ANCILLARY FEATURES

Access System: Ladder to AS 1657, fixed to tower leg
Safety: Ladder includes hoop guard or fall-arrest rail (if specified)
Platform: Aluminium or FRP grating for beacon interface (30 mm square mesh)
Cable Management: Cable feeder brackets fixed to structure

## 1.8. TOLERANCES AND FABRICATION STANDARDS

Member Length Tolerance: ±2mm (≤5m), ±3mm (>5m)
Tower Verticality: ≤ H/1500
Torsional Deviation: ≤ 1°

Diagonal Tolerance: ±2.0 mm (≤4m), ±3.0 mm (>4m)
Side Dimension Tolerance: ±1.5 mm (≤4m), ±2.5 mm (>4m)
Preassembly is required prior to final delivery
All fabricated components to be free of sharp edges, burrs, or welding spatter

## 1.9. INSPECTION AND QUALITY CONTROL

Inspection Type: Visual and dye penetrant for all welds
Documentation:

- Material Test Certificates (MTCs)
- Fabrication Inspection Reports
- Anchor Bolt Setting Records
- Trial Assembly Photos
- Standards Compliance: AS/NZS ISO 9001 & AS/NZS 5131 (applicable QA provisions)
- Defects Liability Period (DLP)

The contractor shall be responsible for defects in materials, workmanship, or fabrication for a period of 12 months from the date of practical completion.

## 1.10. MATERIALS AND WORKMANSHIP

All materials shall be new and shall be of first-grade quality unless otherwise specified and when liable to damage the materials shall be properly handled, stacked and/or stored with adequate protection. No substitute materials shall be used on the works unless approved. The Contractor shall remove at his own expense and time any substitute materials used without prior approval.

All labour and workmanship throughout shall be executed in a manner with first-class building practice according to the Fiji Standard Form of Building Contract, 1978.

Generally, all materials and workmanship shall comply with relevant Specifications and Codes as given in this present specification and drawings and with the relevant Rules and Regulations of appropriate Local Authorities have jurisdiction over the particular item of work. In the event of conflict in the above requirements, the last names shall apply.

It is the Contractors responsibility to maintain quality control, and to protect all fixed and unfixed materials from damage or disfigurement until completion and handling over the works.

## 1.11. SAMPLES

Where Specifications calls for materials and/or items to be selected and/or approved by the DBGA/MSAF, the Contractor shall furnish all samples at least (14) fourteen days prior to the date of such selection approval required by Contractor.

## 1.12. INTENT

The intent of the Contract is to complete all the works to benefit the development as a whole and as outlined in Clause 2 in its entirety. Where contraction or item work is to be obviously inferred, or is usual, proper and necessary in the class of works generalized in the Documents, the same is to be included, not withstanding that such construction or such necessary item is not specifically mentioned in this Specification or shown on the Drawings.

## 1.13. CONTRACT DRAWINGS AND DOCUMENTS

The Drawings, Specifications, Bill of quantities, and other related documents hereinafter shall form part of the Contract Document and shall be read in conjunction with each other and with the Specifications.

The Drawings shall be held to determine the general character of the work as well as the details of the same. Parts not detailed and/or specified shall be constructed in accordance with the best standard practice of work of class generalized, so as to complete logically the parts they compose. Where it is obvious that a Drawing and/or Specification reference illustrates only part of a given work or a number of items, the reminder shall be deemed repetitious be so constructed.

## 1.14. RESPONSIBILITY FOR SUB-CONTRACTORS

If a part of the Work has been sub-contracted in accordance with General Conditions of Contract, the Contractor has been held responsible for all work, materials and fittings comprised in any sub-contract, and for their care, maintenance and protection. He shall be required to take full responsibility for the proper execution of such for the full period of his legal responsibility in connection with his Contract

The Sub-Contract Appendix 3, Part D of Form of Tender shall be fully described and Completion Dates shall be incorporated in the Master Programme of Works.

The Main Contractor shall take note of Sub-Contract Conditions Clause 8 with regard to Prolongation Claims by Sub-Contractors.

## 1.15. PROGRAMME OF WORK/CRITICAL PATH/PROGRESS SCHEDULE

**Within two weeks after the acceptance of this Tender the Contractor shall submit to MSAF for approval a programme showing the order of procedure and methods in which he proposes to carry out the works with the Critical Path,** that is, those elements as being able to be affected by inclement weather, shown clearly.

The submission to and approval by MSAF of such a programme or the furnishings of such further particulars as may be required shall not relieve the Contractor of any of his duties or responsibilities, or performances to complete under the Contract.

The Contractor shall maintain and update weekly the status, and amend the Works programme as may be necessary from time to time, and issue copies to MSAF and have a current copy available on site at all times, and to provide a report and reasons why there is amendments to the programme, and for inspection by anyone concerned.
The Programme must include all Nominated Sub-Contractor's work and their requirements and shall show the date for commencement and completion of all Sections of Work included in the Contract. The progress of the Works shall regularly be recorded by the Contractor on a copy of the above-mentioned schedule, which shall be kept on the site.

The Contractor is responsible for all Nominated Sub-Contractors adhering strictly to the programme.

The Contractor and MSAF, if either requests, shall jointly prepare a schedule, subject to review from time to time in accordance with the progress of work, fixing the dates by which the various detail Drawings will be required or DBGA shall finish Drawings in accordance with such dates.

Under the conditions the schedule shall be prepared fixing the dates for submission of Shop Drawings, and for the beginning of manufacture and for fabrication of materials. The Contractor shall submit to MSAF together with the Progress Schedule, a list of items requiring selection, detailing instructions and directions, etc. by DBGA, together with the corresponding dates by which the selection details, instructions and directions, etc. required. Time extensions will not be approved for lack of selection, details, instructions and directions, etc. by MSAF unless the content of the above paragraph is observed by the Contractor.

The programme shall clearly indicate all holidays falling within the Contract Period.

## 1.16. DELAYS AND EXTENSION OF TIME

Should any delay to the progress of the work – for whatever reason – become apparent, the Contractor shall inform MSAF the nature and possible extent of the delay immediately.
Should a delay occur beyond the control of the Contractor, application must be made immediately at the time of the delay for an extension of the Contract Period. Extensions not claimed a.b.s. shall not be recognized. Claims submitted after 10 working days of the even shall not be considered.

Should it become apparent that the progress of the works is to be delayed beyond the date of Practical Completion stated in the Appendix to the Form of Contract or beyond the adjusted date for completion fixed due to granted extensions of time a.b.s. then the Contractor shall be expected to carry out overtime/weekend work at his own expense, in order to expedite completion to meet the date of Practical Completion.

## 1.17. NOMINATED SUB-CONTRACTORS AND SUPPLIERS

The Contractor is to ensure, prior to entering into Contracts with Nominated Sub-Contractors, that each nominated Sub-Contractor is able to deliver and/or fix the specified items and carry out the specified work without causing any delay to the Works of any other Sub-Contractor and/or the Contractor.

The Contractor is expected to honour all payments due to the Nominated Sub-Contractor within 14 days of receipt of payments for their works included in Payment Certificate.

## 1.18. P.C. AND PROVISIONAL SUMS

Where goods or work are specified to be supplied and fixed by others, the Contractor shall allow for any extra charges as considered necessary attendance, hoisting, use of scaffolding, plant, protection, risk of loss and damages, etc. to complete the works to meet the completion date.

## 1.19. SHOP DRAWINGS, ETC.

The Contractor shall submit to DBGA/MSAF for approval shop drawings, schedules, catalogues by and other necessary documents required for the various trades (including works carried out any Sub-Contractors) fourteen (14) days prior to the date on which approval is required so that the works may proceed without delay.

## 1.20. SOURCE OF MATERIALS

Materials for incorporation in the works and equipment imported for use on the Works: preference shall be given to items obtained from those which originate in Fiji subject to quality and standards specified and guarantees offered by manufacturers and suppliers.

## 1.21. GOVERNING LAW

The laws of the Republic of Fiji shall be the proper law of this Contract.

## 1.22. OCCUPATIONAL HEALTH AND SAFETY

The Contractor and all Subcontractors shall comply with all relevant Acts, legislation, regulations and accepted codes of practice including but not limited to the OHS Act and Regulations, work authorities' Codes of Practice and relevant Australian/New Zealand Standards.

This compliance shall apply to all people on the site and relevant others off-site. Such relevant off-site personnel may include neighbours and the contractor's employees and sub-contractors working on contracts in off-site locations.

The compliance shall include measures to be taken for securing the safety and health of all persons engaged on the works and for meeting the minimum standards of the workplace.

The contractor and all sub-contractors shall have in place a fully documented and working system that adequately covers all relevant OHS requirements.

Documentary evidence is required to show the existence and operation of such systems. All plant used on the works shall comply with the relevant legislation. Provide, erect and maintain all other barricades, guards, hoardings, fencing, temporary roadways, footpaths, signs and lighting and provide and maintain all watching and traffic flagging lawfully required by any public or other authority or necessary for the protection of the works or of other property or for the safety and convenience of the public and others, and remove the same when no longer required. Avoid obstruction or damage to roadways and footpaths, drains and watercourse and public utility and other services on or adjacent to the site which are visible, or the location of which can be ascertained from the appropriate authority or from the Contract. The Contractor shall remove any obstruction immediately and make good any damage at his own cost, in default of which the Principal may employ and pay others to execute the work and recover the costs as a debt due to the Principal from the Contractor under the Contract.

## 1.23. DIMENSIONS

On all Contract and other drawings figured dimensions shall be read in preference to scaling from same. All dimensions as indicated on the drawing shall be checked on the site. Any discrepancies shall be referred to the DBGA immediately for a decision. The Contractor is responsible for all correct setting out and dimensions on site and shall rectify all mistakes at his own cost and time.

## 1.24. CYCLONE RATING

The whole of this project shall comply with cyclone rating as per the Fiji Building Code and relevant Standards. The Contractor shall inform DBGA of any inadequate part which shall not comply with this, and allow for and recommend alternative solutions to make it comply.

The Contractor shall allow for the supply, delivery, assembly and erection of the 30m tower for inspection by MSAF and DBGA before delivery.

## 1.25. NIGHT LIGHTING

The Contractor shall be responsible for the provision of proper lighting to barricades, materials, etc. that may be stacked in any public place and all temporary lighting that may be required for night work. No portable naked lights shall be used for any work executed inside the premises.

## 1.26. EXPLOSIVE POWERED TOOLS

The use of explosives powered tools shall be governed strictly by the regulations and directions of Authorities having jurisdiction over same and the Contractor shall be strictly responsible for and shall settle at his own expense any claim for damage or injury resulting.

## 1.27. DBGA/MSAF REASONABLE SATISFACTION

No expression of the DBGA reasonable satisfaction or approval shall be deemed to be an acceptance of the defective materials or workmanship not complying with the

terms of this Contract nor as authority for any variation except where such variation is authorized as provided in this contract in writing by DBGA.

## 1.28. ORDERING MATERIALS

The contractor must order all materials – local and imported - within eight weeks of commencement of contract; and inform the manufacturer/supplier of specific date when material is required on site, at time of order. All materials affecting the Critical path of the Programme must be ordered within one week commencement to the Contract. Contractor shall inform MSAF of any delays in importation.

When ordering materials the Contractor must provide a copy of the relevant specification clauses or other part of the documents to the manufacturer/supplier. When taking delivery, the Contractor must again ensure that the goods supplied are in accordance with the specification requirements, and meets all appropriate standards.

Enquire from manufacturers and suppliers whether they provide guarantees/warranties for their materials and goods. Orders from those who provide guarantees/warranties, should meet the specification and standards, and warranty periods listed. Refer Schedule of Warranties.

## 1.29. GUARANTEES/WARRANTIES

The Contractor shall provide the Guarantees as specified under the various trades except where this is not reasonably possible and where the contractor has so notified MSAF/DBGA in writing before the work proceeds with or the item ordered.

As soon as reasonably possible after practical completion, procure all Guarantees/Warranties as called for in the Schedule of Guarantees and Warranties in the name of the proprietor.

Where guarantees are called for including under Sub-contracts, obtain a written guarantee addressed to DBGA/MSAF, from the firm supplying materials or doing the work and deliver these to DBGA/MSAF on completion of the work. Failure to provide the guarantees/warranties do not reduce liability under the terms of the warranty called for in that specified section of work.

The guarantee shall state that workmanship, materials and installation are guaranteed for a period as specified from the date of completion, and that any defects that may arise during that period shall be made good, and any work in other trades resulting from such making good shall be done at the expense of the firm doing the work, upon written notice from DBGA/MSAF to do so.

The guarantee will not be enforced if the work is damaged by structural defects in the building, in which case the responsibility for replacement will rest entirely with the

Contractor. DBGA/MSAF shall be the sole judge of what cause is responsible for defects in the work and their ruling shall be final and binding.

At the completion of the Contract, furnish guarantees for the conditions stated in the relevant trade sections of the Specification or in the case of provisional sum items, subject to selection during the course of the Contract, for the conditions stated in the applicable sub-contract.

iWarranty period – 15 years
Written warranty agreement must be submitted prior to practical completion and is a prerequisite for the certificate of practical completion.

## 1.30. AS- BUILT DRAWINGS

The Contractor shall keep 'as built' drawings as the work proceeds, giving exact dimensioned locations and inverts of all pipes, drains, service ducts, cables, etc., in and around the Works as well as deviations and offsets etc. in dimensions vertically and horizontally and all other relevant matters.
At completion the Contractor shall produce, at his own cost, 4 sets of AS- BUILT DRAWINGS and deliver same to MSAF.

Also, the Contractor, as the works proceeds, shall supervise the 'As-Built' drawings being prepared by the sub-contractors for Services and all other relevant matters pertaining to the works. Refer to Schedule of As - Built Drawings and Manuals.

## 1.31. OPERATIONS AND MAINTENANCE MANUALS

1.31.1. Provide two copies of operating and maintenance instructions and data books to the MSAF/DBGA, 10 working days prior to practical completion including:

- A complete list of sub-contractor's names, addresses and telephone numbers noting which portions of the contract each provided.
- A complete list of materials, products and equipment including serial numbers, manufacturer's names and sources of supply.
- Copies of all manufacturers' product literature containing maintenance requirements/instructions.
- Description of each system, listing and describing each major component and system.
- Operation and installation instructions for each assembly, component and system.
- Operation and installation instructions for each assembly, component and system.
- Lists of spare parts for each assembly, component and system complete with names, addresses and telephone numbers of suppliers.
- Operating curves of mechanical and electrical equipment

- Cleaning, maintenance and preserving instructions for all material, products and surfaces.
- Maintenance schedules for all mechanical and electrical equipment and appliances.
- Final reviewed shop drawings.
- Originals of all guarantees/warranties properly executed.

1.31.2. Submit in preliminary form for checking by DBGA, and in final form 2 ring hard cover with contents index, project name etc.

## 1.32. SPECIALISED FITOUT WORK

The contractor shall allow for any attendances and builders works in connection with any specialized fit out works. The contractor shall allow a percentage to this section for providing for and co-operating with this contractor to facilitate proper installation of their services.

## 1.33. COMPLETION

At completion, thoroughly clean the materials, components and fittings. Delivery of materials to MSAF should be in perfect order.

## SECTION 2
## 2. FABRICATION AND ERECTING OF ALUMINIUM

### 2.1. GENERAL

This Technical Specification applies to the fabrication and erection of structural aluminium towers and other structures.

Structural aluminium work shall be fabricated only by a fabricator which is registered and licenced under the relevant authority.

Refer to NOTES on Structural Drawings.

### 2.2. MATERIALS

**2.2.1.** All Aluminium to be Ally 6082 When specified on the engineering drawings, Material manufactured to other standards will be accepted provided the material comply with the appropriate ASTM standards.

**2.2.2.** The quality of all materials used in the execution of this contract shall comply with the requirements of the following Standard Specification:

| | |
|---|---|
| AS/NZS 1664 | Aluminium Structures limit state design |
| AS 1665 | Welding of Aluminium Structures |
| AS 1734 | Aluminium and aluminium alloys – Flat sheet, coiled Sheet and Plate |
| AS 1865 | Aluminium and aluminium alloys – Drawn wire, rod, bar and strip |
| AS 1866 | Aluminium and aluminium alloys – Extrude rod, bar, solid and hollow shapes |
| AS 1867 | Aluminium and aluminium alloys – Drawn Tubes |
| AS 2848 | Aluminium and aluminium alloys – Composition and Designations |
| ASTM B 557 | Test methods of tension testing wrought and cast aluminium – and magnesium alloy products |
| ASTM D 962 | Specification for aluminium powder and paste pigments for paints |
| ASTM E 330 | Test method for structural performance of exterior windows, curtains walls and doors by uniform static air pressure difference |

2.2.3. The Contractor shall supply to the Engineer prior to the commencement of fabrication copies of the aluminium material test certificate and showing the chemical properties.

2.2.4. The Engineer may at any time require any materials to be tested in accordance with the requirements of the listed specifications.

2.2.5. The Contractor shall, if required, promptly supply at his expense, test pieces as required by the Engineer.

## 2.3. SHOP DRAWINGS

2.3.1. Before fabrication is commenced, the Contractor shall prepare shop drawings. These drawings shall clearly show all sizes, markings and corrections and set out the positions, sizes, and lengths of all welds as necessary for the complete fabrication, assembly and erection of the tower

2.3.2. No fabrication shall be commenced for any variation or substitutions made in the shop drawings unless these have been approved in writing by the Engineer.

## 2.4. FABRICATION

2.4.1. CUTTING AND BENDING

All members, plates, brackets etc. shall be neatly and accurately sheared, sawn or profited to the required shape as shown on the drawings. After cutting, all rough edges shall be ground off.

2.4.2. PUNCHING AND BORING

All holes for bolts must be punched with holes 1.5mm larger in diameter than the bolts used. Holes for bolts in material thicker than 16mm must be drilled or sub-punched and reamed.

2.4.3. BOLTING

All bolts used shall be of such lengths that at least one full thread is exposed beyond the nut after the nut has been tightened.

Where a nut or bolt-head would bear on an inclined surface a beveled washer of the correct size shall be interposed between the two surfaces. Beveled washers shall not be allowed to get out of position during fabrication and erection for this purpose may be spotted to the steel surface.

## 2.5. WELDING CONSUMABLES

2.5.1. Welding consumables shall be compatible with the parent metal and shall be classified and identified in accordance with the provisions of AS 1665

## 2.6. ELECTRIC WELDING

2.6.1. Welding shall be carried out in accordance with the provisions of AS 1665. All manual welding shall be carried out in accordance with standard. If the Contractor is desirous of using semi or fully automatic welding equipment, he shall submit to the Engineer a

complete specification of equipment, electrodes, fluxes. In addition, details of joint preparation, welding, procedures and preheat. The Contractor shall be required to demonstrate to the Engineer his procedures and shall have his written approval before commencement of fabrication.

a. Joint preparation shall be executed in accordance with the above mentioned code and as detailed on the drawings. Preparation shall be carried out by planning or machine flame cutting the prepared surfaces shall be free from loose scale, slag, rust, grease, tears, and fins.
b. Before commencing welding, sections to be butt welded shall be aligned with 1.5mm of their gap at the roof of the weld shall not exceed 0.75mm.
c. All welds shall be of the finished sizes specified and but in such sequence as will cause the minimum distortion of the parts welded
d. Multiple run welds shall be carried out with each run closely following the previous run but allowing sufficient time for the proper removal of slag. Each run will be inspected and unsatisfactory weld must be cut out and remade to approval.
e. Welds shall on completion present a reasonably smooth and regular finish free from defects.
f. Unless otherwise shown, the minimum size of fillet shall be 6mm.
g. Not less than three working days prior to any welding commencing on any butt weld joint, the Fabricator shall notify the Engineer, the butt weld preparations are available for inspection. Welding shall not start until the Engineer has reviewed.

## 2.7. INSPECTION OF COMPLETED PRODUCT

2.7.1. Not less than three working days after the completion of the fabrication of the aluminium component, notify the engineer the product is available for inspection.

2.7.2. The Engineer shall ensure, for all aluminium fabricated product, the following inspections are undertaken:
100% of all products shall be visually examined, and

2.7.3. Any welding defects found during the inspection shall be repaired prior to the application of the protective coating.

## 2.8. ALUMINIUM BOLTS, NUTS AND WASHERS

2.8.1. Bolts used for the erection of structural aluminium must be aluminium or made from stainless steel conforming to ASTM A276 Grade316. Bolts must be copper free.

2.8.2. The bolt supplier shall supply the fabricator with a certified material test certificate outlining the chemical composition and mechanical properties of all bolts supplied. The test certificate shall be able to be traced back to the batch of bolts.

## 2.9. HANDLING AND STORAGE OF ALUMINIUM COMPONENTS

2.9.1. At all times, handle and store structural aluminium members so that the material, protective coatings and parts are kept clean and free from damage.

2.9.2. Place aluminium to be stored on supports above the ground. Place and store girders and beams upright. Prefabricated truss segments may be stored in the horizontal position. Adequately support all members and segments at points sufficiently close together to prevent damage from deflection.

2.9.3. Sort and store all small articles, such as bolts, loose splice plates etc., above ground.

2.9.4. Tools used to fabricate or assemble stainless steel components shall be dedicated tools for aluminium work. Tools previously used on carbon steel shall not be used for stainless steelwork.

2.9.5. Aluminium material shall be wrapped or otherwise protected during transport to avoid contamination. If an adhesive plastic film is used all traces of adhesive shall be removed from the steel with a suitable solvent.

2.9.6. Webbing slings shall be used in lifting aluminium components and not chains. Grinding, cutting and welding shall not be carried out over open bundles of aluminium components.

## 2.10. DELIVERY

2.10.1. Take delivery of aluminium ex-factory and transport to the DECE, Walu Bay, Suva in good condition and replace any members bent or twisted in transit.

## 2.11. ERECTION

2.11.1. All erection shall be carried out by competent and experienced men and the contractor shall take every care to safeguard the public, workmen and adjoining property.

2.11.2. All gear used shall be adequate strength and shall comply with all regulations current at the time and all steelwork shall be adequately bolted, guyed and braced to make the structure secure. The Contractor shall be held responsible for all damage caused to the structure, works or buildings during erection.

2.11.3. In making corrections, drifting of unfair holes will not be permitted and holes not matching properly shall be reamed or drilled out and a larger bolt inserted with the Engineer's approval.

2.11.4. No member or part of member which has bent or distorted shall be erected in that condition, all straightening shall be done on the ground and checked by the Engineer.

2.11.5. All bolts shall be left tight and all beveled washers and plates properly positioned.

2.11.6. Column shall be wedged to line and level on steel or cast-iron wedges and checked by the Engineer. After acceptance column bases shall be caulked to approval before wedges are removed.

2.11.7. Unless shown on the drawings, all columns shall be left truly vertical and correct to line and level.

## 2.12. MINOR PARTS

2.12.1. If neither the Specification, drawings nor schedule of quantities contains any particulars of minor parts, nor which parts are obviously necessary for the proper complement of the work, all such parts shall be supplied and executed by the Contractor without extra charge.

**2.13. PROTECTION**

2.13.1. All mill scale, rust, dirt/or other deleterious substances shall be removed by the use of chipping hammer and then wire brushing back to clean metal.

2.13.2. All surfaces shall be thoroughly dry before coating applied.

**2.14. COATING**

2.14.1. Immediately after preparation work has been completed, apply type of primer as specified in Schedule of paint. Finishes strictly to manufacturers instructions.

2.14.2. The primer shall be spray applied except where written approval is given by the Architect to substitute brushing for spraying.

2.14.3. After erection all damaged portions shall be cleaned back to the satisfaction of the Architect and made good to match original coating in thickness, texture and color.

**2.15. ASSEMBLY**

2.15.1. Give the Project Engineer notice of your intention to commence assembly of members.

2.15.2. Accurately assemble the members and/or components as shown on the Design Documentation drawings using the identification marks. Handle the material carefully so that individual parts will not be bent, twisted or damaged in any way.

2.15.3. Wherever necessary, fix adequate temporary bracing to the aluminium to ensure that the parts that have been erected are stable and will not be overstressed. Leave such temporary bracing in position until sufficient permanent bracing has been installed.

2.15.4. Inspection records to comply with AS/NZS ISO 9001 Quality Management

2.15.5. Any changes or deviations require written DBGA approval

**SECTION 3**

## 3. PAINTING

**3.1.** General

3.1.1 This part includes all coatings to be carried out other than those specially provided for in other parts.

3.1.2 In any case, finishings coats of the works covered by other parts will be executed in conjunction with painting and surface treatments provided for in this part.

3.1.3 Work shall be pre-planned and executed to meet the needs of trade and services.

### 3.2 DELIVERY AND STORAGE OF MATERIALS

3.2.1 Deliveries shall be made well in advance of application and shall be stored undercover or in sheds on timber platform.

### 3.3 WORKMANSHIP

All surfaces must be inspected by the Engineer before painting and between coats.
All other surfaces shall be free treated with anti-mould solution strictly to manufacturers instruction before painting if found to have mould.
Coating shall not be applied to any surface which is not thoroughly dry except where recommended by the manufacturer or acceptable.
All surfaces shall be inspected and where defective, made good before work proceeds.
Applications of paint or stains or clear finish will be considered as acceptance of surface conditions for reception of materials by both contractor and respective paint manufacturer.

### 3.4 CLEANING UP BEFORE PAINTING

Prior to commencement of painting, the area to be painted plus the surrounding area shall have all debris removed and then swept clean and left for a period of 4 hours after which all dust shall be removed.

### 3.5 COMMENCEMENT

3.5.1 All smooth surface of the aluminium has to be sanded with a grit paper or the wire brush

3.5.2 Generally no painting shall commence until; such time as the work of all other trades has been completed within the area to be painted.

3.5.3 All adjacent finishes shall be adequately protected and any paint splashes removed without injury to the affected area immediately.

3.5.4 All work shall be performed by skilled tradesman in a neat and workman like manner, cutting in and finished edges shall be clean and straight.

3.5.6 All materials shall be mixed and applied in strict accordance with the manufacturer's printed recommendations.

3.5.7 Surfaces shall be rubbed down before painting. Each shall be well rubbed down and/or washed down as required prior to the application of the following coat. The exception is stain coating which is not rubbed back between coats.

3.5.8 Application of paint shall not be carried out in wet and/or windy weather. The latter is to be at the discretion of the Architect.

3.5.9 Application of the paints is to be as per the manufacturer's specification.

**3.6 FINISHES**

3.6.1 The primer to be self-etching primer and to be left 6 – 8 hours before applying for the finishing coat.

3.6.2 Finishing coat to be epoxy base paint, as per the color coding given on the drawing, contractor to confirm on the color and paint type before application.

**3.7 MAKING GOOD**

Make good a.b.s. 'Preliminaries' in addition by cracks appearing in paintwork before expiration of maintenance period shall be made good and the surface on which the cracks occur, repainted to the satisfaction of the Architect.

**3.8 GUARANTEES/WARRANTY**

Warrant this work against failures, including but not limited to a warranty that work will be weather tight, structurally sound and free from distortion and deformation under load, and that materials and finishes will not crack, peel, blister, delaminate or otherwise deteriorate or corrode.

3.9 **COMPLETION**

Leave all work ready for use or in state to receive applied finish as the case may be. Remove all off-cuts, nibbling or drillings and rubbish from the site on completion. Adequately protect completed finished work until main contract is completed.

# SECTION 4:

# COMPANY PARTICULARS
# &
# TENDER EVALUATION CHECK LIST

# TENDER EVALUATION CHECKLIST

| CLAUSE | BRIEF REQUIREMENTS OF THE TENDER | Yes | No | N/A |
|---|---|---|---|---|
| 1 | Brief Background/History of Company including details of Parent Companies and subsidiaries. | | | |
| 2 | Certified Copy of Valid Company Registration Certificate (Local/Overseas). | | | |
| 3 | Local Bidders to provide quotes which include Duty, VAT and delivery-to-site on an *"as and when required"* basis. Overseas bidders to provide quote which include Cost, Freight & Insurance to the port of Suva. | | | |
| 4 | Certified Copy of Valid FRCS Compliance Letter | | | |
| 5 | Certified Copy of Valid FNPF Compliance Letter. | | | |
| 6 | Complete tender forms with relevant information and furnished with other tender documents. | | | |
| 7a | Separate Quoting for each item and not on whole lot basis. | | | |
| 7b | Price should be valid for a period of 90 days from the closing date of tender. | | | |
| 8 | Evidence of the business relationship:<br>a. List all Partner(s)/Supplier(s)/Subcontractors.<br>b. Attach letter(s) from each Partner/Supplier/Subcontractor to confirm the business relationship (for all applicable). | | | |
| 9 | The payment mode should be upon satisfactory execution of the order in compliance with the tendered prices, delivery time &full supply of quantity ordered. | | | |
| 10 | Submission of bids to be on official letterhead, clearly written or typed and signed with all relevant contact details clearly specified. | | | |
| 11(a) | Currency used: | | | |
| 11(b) | Back-up services | | | |
| 12 | Company Insurance | | | |
| 12(a) | Delivery time /availability or Completion period / plan | | | |
| 13 | Product samples and technical literatures brochures/photos to be submitted. | | | |
| 14 | Warranty period for the item / Defects Liability Period to be stated. | | | |
| 15 | Financial Statement for 3 years | | | |
| 16 | MSAF Form (Company Particulars) to be fully completed. | | | |
| 17. | Performance Bond | | | |

MARITIME SAFETY AUTHORITY OF FIJI

## Company Particulars

| | | | |
|---|---|---|---|
| **Name** | | | |
| **Date of Reg$^{n}$** | | | |
| **Registered Office** | | | |
| **Postal Address** | | | |
| **Telephone** | | **Facsimile** | |
| **Email** | | **Website** | |
| **Principal Activities** | | | |
| **Directors** | | | |
| **Share Capital**<br>Authorised<br>Issued&Paid-Up | | | |
| **Accountant** | | | |

The undersigned attest that the above information is true and correct as of the date hereby given

Name: ..... Name: .....

Signature: ..... Signature: .....

Designation: ..... Designation: .....

Date……

Company Stamp/Seal

# SECTION 5: STRUCTURAL DRAWINGS

# FOR THE

# FABRICATION AND SUPPLY OF 4.5 METRE ALUMINIUM TOWER FOR MAKOGAI ISLAND LIGHTHOUSE