

**TENDER No. MR01/2017**

**LAYING OF NEW 11kV SUBMARINE CABLE TO  
MALAKE ISLAND IN RA**

**AS PER SCHEME NUMBER**

**RA03-13**

# 1. INTRODUCTION & SCOPE

1.1 This specification covers the installation of 3 x Single Core, 35 sq. mm, 11kV submarine power cable from Malake Landing, Rakiraki (on Viti Levu) to Malake Church on Malake Island. Details of the submarine cable are given in Appendix 1 of this specification.

1.2 The Work involved in this contract is broadly classified as follows:

- i) Transportation of submarine power cable from FEA Navutu Depot, Lautoka to the site at Malake Landing.
- ii) Lay 3 sets (drums) of single-core submarine power cables between the two points mentioned above
- iii) Arranging the three lengths of single core sub-marine cables in a **trefoil** (triangular form) and secured together at distances of five-metres by cable ties and secured in the sea bed, at a minimum depth of 1 meter, as per MSAF requirements.

The estimated cable route is 3.1km, for the route shown in Figure 1.

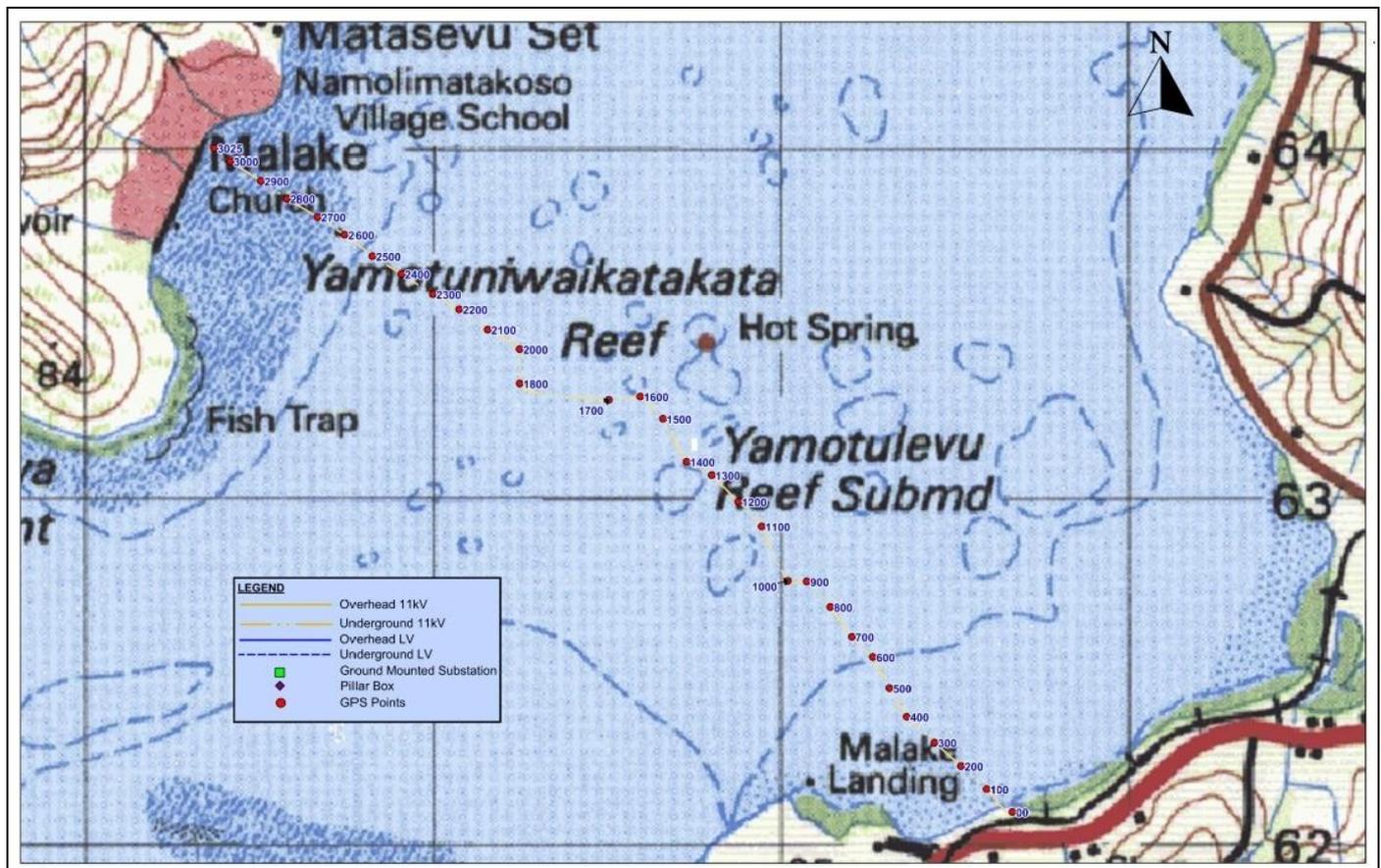


Figure 1: Submarine cable route from Malake Landing, Viti Levu to Malake Island

1.3 The Contractor shall submit a work procedure for the execution of the works including preparation of the undersea trench, method of laying of the cable, and backfilling of the undersea trench. All undersea operations shall be carried out by appropriately certified divers. A profile of the seabed is provided in Appendix 3 of this specifications.

- 1.4 This work shall be carried out under direct supervision of FEA personnel and is to be done. The nature of the project is such that works may be carried out outside the FEA normal working hours. It will be the responsibility of the Tenderer/selected Contractor to give two weeks advance notification to FEA of all activities.
- 1.5 FEA shall test and confirm the integrity of the cable core and its sheath prior to its transportation from Navutu Depot. Upon successful installation of the submarine power cable, FEA shall again test the integrity of the cable and its sheath to ensure that the cable has been transported and installed without any damage. In the event that the cable fails to pass the test, the Contractor shall be required to pay all costs associated with the location and repair of the damage/fault.
- 1.6 Interested bidders are required to meet at the Malake Landing in Rakiraki on **Thursday 12<sup>th</sup> January, 2017 at 12.00pm** for a compulsory site visit.

## **2. CONTRACTOR REQUIREMENTS**

- 2.1 **Site Visit** – Contractor shall participate in a site visit which is compulsory. Bids from tenderers who do not participate in the site visit shall be disqualified.
- 2.2 **Standards** – The submarine cable laying works shall be carried out in accordance with good and safe work practice for such installation works.
- 2.3 **HSE Compliance** – The tender bid shall include all requirements from the FEA HSE Contractor Safety Management System. These will be evaluated by the FEA's HSE Unit. Tender bids with incomplete, unacceptable, or without the HSE requirements will not be considered for award.
- 2.4 **Safety Record** – Tender bid shall include a brief report on Safety performance over the last two years. The report shall include all incidents and accidents.
- 2.5 **Sub-contracting** – Subcontracting shall not be permitted, except where this is specifically presented in the tender bid, and only upon approval by FEA. Subcontractors shall be required to fulfil all requirements as if they were the contractor.
- 2.6 **Contact** - Contractor shall have a valid postal address, Office phone/fax/e-mail contact. The Principal shall be available by mobile phone at any time.
- 2.7 **Work Program** - Contractor shall submit a work programme before starting of project. This shall be part of the contract. Work shall commence within seven (7) days after receiving an official FEA Local Purchase Order.
- 2.8 **Training** – Contractor shall ensure his employees have attended FEA Safety Manual Training at least once in the past 6 months, and records of this shall be submitted with the tender bid. In the event that the training has not been carried out, the Contractor shall ensure these training is carried **PRIOR** to induction for new project at no cost to FEA.

- 2.9 **Ground condition and cable route** – the submarine cable route shall follow the identified route.
- 2.10 **Invoicing** – Contractor shall submit details of work completed to allow prompt approval of invoice.
- 2.11 **Safety Induction** - A Safety induction must be conducted before commencement of the work, including transportation of cable from FEA Navutu Depot.
- 2.12 **Instruction to Commence Work** - Contractor shall NOT commence work on site unless an “Instruction to Commence Work” has been received from the Project Manager.
- 2.13 **Signboards** – signboards are to be erected at both cable landing stations, i.e., Malake Landing and Malake Island, as per MSAF requirements.
- 2.14 **Accident Reporting** – All accidents and incidents shall be reported immediately to FEA using approved forms available in the FEA Safety Plan Template, or equivalent.
- 2.15 **Project Updates** - Contractor shall meet with FEA Project Manager, Project Engineer and Project Supervisor on a weekly basis to discuss project progress and bottlenecks. These meetings shall be minuted for records, and circulated to the appropriate stakeholders.
- 2.16 **Tidiness** – The Contractor shall maintain the worksite in a neat and tidy condition.
- 2.17 **Transportation of Submarine Cable** – The Contractor shall transport the submarine cable from FEA Navutu Stores
- 2.18 **Security** - Contractor shall be responsible for the safekeeping of all materials at work site, and will be required to pay for damage and/or loss.
- 2.19 **Damage to property** – The Contractor shall ensure that there is no damage to roadways, footpaths, drains, water-courses, properties and other services. The Contractor shall make good to the satisfaction to the owner any damage caused by the contractor.
- 2.20 **Traffic and Pedestrian Control** – The Contractor shall ensure that there is minimum disruption to the flow of traffic and pedestrian. FEA procedures on Traffic Control and Pedestrian Control shall be diligently exercised as a minimum.
- 2.21 **Worksite protection** – protection of the worksite shall be as per MSAF requirements, and any additional FEA requirements.
- 2.22 **Barricades** - Open trench/pole-hole is to be barricaded on a full time basis by the Contractor.
- 2.23 **Jobsite Safety Assessment** - Contractor to carry out Jobsite Safety Assessment daily, and as and when required, and submit these to FEA on a weekly basis.

- 2.24 **Credit of surplus material** – The contractor shall transport and credit all unused materials to Kinoya Stores.
- 2.25 **Defects Rectification** – The contractor shall rectify all defects within seven (7) days as per contract. Any damage to the submarine cable either during transportation or installation will be repaired at the contractor’s cost.
- 2.26 **Project completion** – The contractor shall complete work on time as per contract.
- 2.27 **Project progress** – If the Contractor fails to proceed with the works with reasonable diligence or suspends the works or refuses to comply with the reasonable direction from FEA by reason of which the works are materially affected and any such default continues for a period of seven (7) days after the issue of written notice, FEA may itself call any other person to complete the works at the Contractor’s risk and expense.
- 2.28 **Safe Work Procedure Training** - Contractor must have completed Distribution Safe Work Procedure training, or equivalent for laying of submarine power cable.
- 2.29 **Insurance Requirements** – the Contractor must provide insurance certificates for the following:
  - i. Contractor’s Risk                      FJD \$500,000.00
  - ii. Public Liability                        FJD \$500,000.00
  - iii. Worker’s Compensation            FJD \$250,000.00

### 3. PROJECT TIMELINES

- 3.1 FEA requires that the successful Tenderer commence work within seven days of receipt of an official purchase order.
- 3.2 FEA requires that all works be completed by the end of May 2017.
- 3.3 The contractor shall complete and submit this project milestone table with the tender bid:

<b>Activity</b>	<b>Target Completion Date</b>
Execution of Contract and Receipt of FEA Purchase Order	28/02/2017
Transportation of Submarine Cable to Malake Landing	
Commence submarine cable laying	
Complete submarine cable laying	
FEA testing of submarine cable	
Practical completion of works	
FEA issue of taking over-certificate	
Completion of Defects Liability Period (six months from issue of taking over-certificate)	

#### **4. BID PRICE, PAYMENT TERMS AND LIQUIDATED DAMAGES**

- 3.1 The Tenderer shall submit a lump sum price (Contract sum) to carry out all the works.
- 3.2 The Contract sum shall be:
- Inclusive of all taxes, including VAT
  - Shall be payable in the components for each stage of work
- 3.3 FEA will retain the 10% of the contract sum as retention after issue of taking over certificate, and this retention sum shall be released upon completion of the defects liability period, subject to no defects being identified in the defects liability period that remain unattended or unresolved by Contractor.
- 3.4 Any invoice submitted to be paid shall be submitted with complete documentation to the Project Manager for approval.
- 3.5 FEA shall process the Contractors invoice and claims within 30 days of receipt of invoice and supporting documentation.
- 3.6 Liquidated damages shall apply at a rate of FJD\$200.00/day, upto 10% of the contract sum.

#### **5. DEFECTS LIABILITY PERIOD**

- 5.1 A six (6) month defect liability shall apply for the submarine cable laying works. This shall commence from the date of FEA issue of taking over certificate.
- 5.2 Any damage-repair or remedial works required to be completed on the submarine cable during its defect liability period shall be completed in a timely manner by the Contractor. For any repair work requiring a shutdown, the Contractor shall give FEA advance notification to arrange for such shutdowns.
- 5.3 An inspection will be required at the completion of the Defects Liability period to ensure that the cable laid is in its original location and no damage have been sustained to the cable.
- 5.4 The inspection report shall be submitted, together with records of any repair works carried out during the defects liability period and those identified during final inspection, with the final invoice for release of the retention sum.

#### **6. BID SUBMISSION REQUIREMENTS & SUBMISSION DEADLINE**

- 5.1 The Contractor shall submit two hard-copies of the tender bid.
- 5.2 The following documents are to be provided with the tender bid:
- a. Tax Compliance Certificate from FIRCA

- b. Business Registration details
  - c. FNPF Certificate
  - d. Evidence of manpower employment (e.g. payroll listing, etc.)
  - e. Project Team Composition of the team executing the works, including photo IDs, qualification of personnel
  - f. Insurance cover details – Public Liability, Workers Compensation, Contractor’s all risk
  - g. **Contractor HSE Specification** – it contains 10 clauses which contains the overall HSE requirements and the contractor needs to agree to this.
  - h. **Contractor HSE Plan** (Document HSE41C04) – The contractor shall fill in each part of the Plan.
  - i. The Contractor will list down all the plants and equipment to be used in the **Plant & Equipment Register** as well as chemicals in the **Chemical register**.
  - j. The **JSA & Risk Assessment** form will require the contractor to identify hazards which may not have been adequately addressed in FEA’s existing procedures and outline proposed controls.
  - k. All relevant documents that are required as part of this tender
- 5.3 This tender closes at **1600hrs on Wednesday 18<sup>th</sup> January 2017**. Late tenders will not be accepted.
- 5.4 Tender bids shall be submitted in the tender box located at the Supply Chain Office at the FEA Head Office, 2 Marlow Street, Suva, Fiji.
- 5.5 Each tender shall be sealed in an envelope and the envelope shall have the following marking:
- Tender MR001/2017 - Laying of New 11kV Submarine Cable to Malake Island  
in RA, Scheme No. : RA03-13  
The Secretary, Tender Committee  
Fiji Electricity Authority  
Supply Chain Office  
Private Mail Bag  
Suva
- DO NOTE OPEN BEFORE: 1600hrs on 18<sup>th</sup> JANUARY 2017.
- 5.6 It must also indicate the name and address of the tenderer on the reverse of the envelope. Unmarked Envelopes and envelopes without bidder’s name and address on the reverse of the envelope.
- 5.7 All costs associated with preparing and submission of tender shall be borne by the Tenderer, including costs associated with any site visits.
- 5.8 For further information or clarification please contact our Supply Chain Office on phone **(+679) 3224360 or (+679) 9991587**.

## **7. FEA PROVIDED INFORMATION & INPUTS**

- 7.1 FEA will be responsible for providing the Department of Lands and Department of Environment approvals for the project. Refer to Appendix 2 for details.
- 7.2 FEA's HSE Unit shall vet Safety Plan submitted by Contractor and approve after queries clarified by Contractor.
- 7.3 FEA Project Engineer shall ensure that any FEA underground mains on or near the jobsite is clearly located, marked and identified to the Contractor.
- 7.4 FEA Project Supervisor and Project Engineer shall carry out regular site inspections to ensure compliance with HSE requirements, and submit Safety Visit Reports of the visit.
- 7.5 FEA Project Supervisor and Project Engineer shall issue Non-Conformance Report if required, and follow up for verification of implementation of Action Items arising out of the Non-Conformance Report.

## **Tender Submission - Instruction to bidders**

It is mandatory for Bidders to upload a copy of their bid in the **TENDER LINK** Electronic Tender Box no later than **4:00pm, on Wednesday 18<sup>th</sup> January, 2017**.

To register your interest and tender a response, view 'Current Tenders' at:

<https://www.tenderlink.com/fea>

For further information contact The Secretary Tender Committee, by e-mail

[TDelairewa@fea.com.fj](mailto:TDelairewa@fea.com.fj)

In additional, hard copies of the tender, one original and one copy must be deposited in the tender box located at the FEA Head Office, 2 Marlow Street, Suva, Fiji no later than **4:00pm, on Wednesday 18<sup>th</sup> January, 2017** - Addressed as

**Tender – MR 01/2017 – Submarine Cable Laying**

**The Secretary Tender Committee  
Fiji Electricity Authority  
Head Office  
Suva  
Fiji**

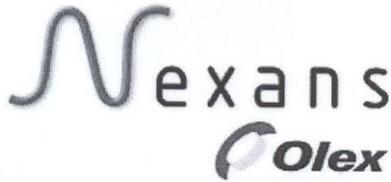
- **Hard copies of the Tender bid will also be accepted after the closing date and time provided a soft copy is uploaded in the e-Tender Box and it is dispatched before the closing date and time.**

Tenders received after **4:00pm** on the closing date of **Wednesday 18<sup>th</sup> January, 2017**.

- will not be considered.
- Lowest bid will not necessarily be accepted as successful bid.
- **It is the responsibility of the bidder to pay courier chargers and all other cost associated with the delivery of the hard copy of the Tender submission.**

# APPENDIX 1: 11KV SUBMARINE POWER CABLE SPECIFICATIONS

UNCONTROLLED DOCUMENT



**Description:** 35 mm<sup>2</sup> Compacted Al conductor, XLPE insulation (with semiconductive screens), 3.3 kA (22.21) mm<sup>2</sup> Cu wire screen (with waterblocking tape), HDPE sheath (BK (2.5 Min Pt)). 6.35/11 kV Made to AS/NZS 1429.1

**Sales/Marketing Code:** XJIA18BM001CXAA **Factory Code:**

**Components:**

Conductor	Main	35	mm <sup>2</sup>	Al
Conductor Screen	(minimum point)	0.3	mm	SCXLPE
Insulation	(minimum point)	2.96	mm	TR-XLPE
Insulation Screen	(minimum point)	0.6	mm	SCXLPE
Metallic Screen		40 x 0.85	mm	Cu Wire
Sheath		3.3	mm	HDPE

**Diameters Over:**

Conductor	(minimum)	6.93	mm
Insulation		14.6	mm
Insulation Screen		16.6	mm
Overall		26.3	mm

**Mass of cable:**

728 kg/km

**Minimum bending radii:**

Fixed	390	mm
During installation	660	mm

**Maximum pulling tensions:**

On conductors together	1.75	kN
With pulling stocking	3.16	kN

**DC resistances @ 20°C:**

Main Conductor	0.868	Ohm/km
Metallic Screen	0.797	Ohm/km

**Reactance to neutral @ 50 Hz:**

0.148 Ohm/km

**Capacitance to neutral:**

0.235 mfd/km

**Fault Ratings (1s duration):**

Main Conductor	3.31	kA/sec
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Date: 03 Feb 14

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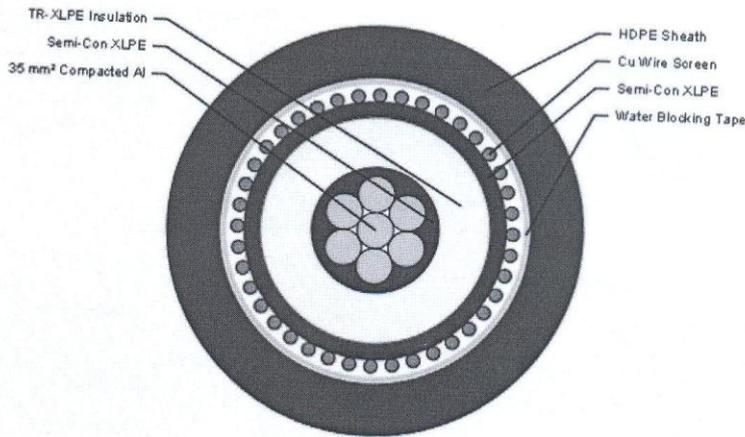
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Nominal values unless otherwise specified



Olex New Zealand Limited  
Head Office 69 Paraiti Road Bell Block New Plymouth 4373 New Zealand  
Telephone +64 6 755 9800 Facsimile + 64 6 755 9890 Website www.olex.co.nz

# Nexans Olex



**DESCRIPTION:**  
35 mm<sup>2</sup> Compacted Al conductor, XLPE insulation (with semiconductive screens), 3.3 kA (22.21) mm<sup>2</sup> Cu wire screen (with waterblocking tape), HDPE sheath (BK (2.5 Min Pt)).  
6.35/11 kV Made to AS/NZS 1429.1

Olex New Zealand Limited 69, PARAITE ROAD, BELL BLOCK, NEW PLYMOUTH - 4373	
Prepared: admin	03 Feb 14
Approved:	Scale: 2.91 x full size
CODE: XJIA18BM001CXAA	

Date: 03 Feb 14

Page 2 of 2

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## APPENDIX 2: MASF & DEPARTMENT OF LANDS APPROVALS



Our ref: MS 7/9  
Your Ref: 140/05

14<sup>th</sup> October 2014

The Chief Executive Officer  
Fiji Electricity Authority  
Head Office, 2 Marlow Street  
Private Mail Bag  
Suva

("By hand delivery")

Dear Sir

**RE: LAYING OF SUBMARINE & OVERHEAD POWER CABLES AT VIWA ISLAND, BAU, TAILEVU AND MALAKE ISLAND, RAKIRAKI, RA**

Reference is made to your letter dated 06<sup>th</sup> February 2014 and received on 13<sup>th</sup> June 2014.

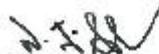
The Maritime Safety Authority of Fiji (MSAF) has no objections to FEA's intention of laying power cables at the above locations.

However, with regards to maritime safety, the following safety measures for the laying of power cables at Viwa Island & Malake Island are to be put in place:

- (i) Necessary consideration should be given for underwater cables to be buried at least one (1) meter below the seabed as small boats ply the area when members of the public engage in fishing and water activities within the sea area.
- (ii) GPS positions of the actual cable laid are to be provided to MSAF.
- (iii) Notice boards for the general public are to be placed at strategic locations and must include High voltage caution with other necessary public safety information.
- (iv) Before the laying of cables, the villagers are to be informed of safety awareness on fishing, anchoring and water activities within the said area of work.

If you require any further clarification, please do not hesitate to contact Mr. Philip Hill, Manager Port Regulatory & Emergency Response by email: [phill@msaf.com.fj](mailto:phill@msaf.com.fj) or telephone: 3315 266 Ext 1118 or mobi ce: 9906331.

Yours faithfully



**NEALE J SLACK**  
CHIEF EXECUTIVE OFFICER

**CENTRAL & EASTERN DIVISION**  
414 Victoria Parade, Kadevu Hse. Level 4  
P.O. Box 326 Suva.  
Telephone: (879) 331 5266  
Fax: (879) 330 3257 / (679) 331 3127

**NORTHERN DIVISION**  
Labasa Government Wharf  
P.O. Box 3704, Labasa  
Telephone: (679) 881 1177  
Fax: (679) 881 1177  
[www.msaf.com.fj](http://www.msaf.com.fj)

**WESTERN DIVISION**  
Queens Wharf, Raymond Building, 1st Floor,  
P.O. Box 316 Lautoka.  
Telephone: (679) 886 1229  
Fax: (679) 863 7433



Head Office  
Fijian Trust Fund Complex  
Nasece, Suva

Ministry of Lands & Mineral Resources

P O Box 2992  
Government Buildings, Suva, Fiji  
Ph: (679) 323 9708 Fax: (679) 323 9756  
Website: [www.lands.gov.fj](http://www.lands.gov.fj)



*File ref:* LD 60/2016

23<sup>rd</sup> August, 2016

The Chief Executive Officer  
Fiji Electricity Authority  
Private Mail Bag  
Suva

Dear Sir,

**Re: CONSENT TO LAY MARINE CABLE FROM MALAKE LANDING TO MALAKE ISLAND**

Your correspondence to the Director of Lands dated June 07<sup>th</sup>, 2016 refers.

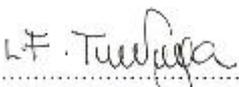
Please be advised that the Minister of Lands & Mineral Resources has consented to the laying of marine cables from Malake Landing to Malake Island for the purpose of electricity transmission.

This letter does not permit you to proceed with any foreshore activity on the site. The Approval is subject to the following conditions:

1. That a consultation is carried out with the IQoliqoli custodians to enlighten them on the aspects of the project and the extent of possible implications.
2. An Approved Environment Impact Assessment
3. An advertisement of a Public Notice outlining the project is advertised in two consecutive issues of the ordinary Gazette and twice within seven days in a local newspaper.

Please do not hesitate to contact undersigned for other clarifications that might arise on [lia.tuivuya@govnet.gov.fj](mailto:lia.tuivuya@govnet.gov.fj).

Yours faithfully,

  
.....  
Lia Tuivuya (Mrs)  
**for Director of Lands**

## Ministry of Local Government, Housing and Environment



DEPARTMENT OF ENVIRONMENT  
19 McGregor Road, Suva, Fiji

All correspondence to be addressed to:  
Director of Environment  
P. O. Box 2168  
Government Buildings, Suva, Fiji



TELEPHONE NO: (679) 3311-699

FAX NO: (679) 3312-879

Our Ref: EP: 6/6/1

3rd November 2016

The Chief Executive Officer  
Fiji Electricity Authority  
Private Mail Bag  
SUVA.

Dear Sir

**Re: Waiver of Environment Impact Assessment (EIA) Process - Malake Island Marine Cable.**

With reference to your letter dated 23<sup>rd</sup> August 2016, in which you had request the Department of Environment's waiver of the Environment Impact Assessment (EIA) process on the proposed laying of marine cable to Malake Island from Malake Landing in the province of Ra.

Upon site visit on the 29<sup>th</sup> September, 2016 and upon reviewing your EIA Screening Application, the Department of Environment offers the following opinion.

**Decision**

The Department of Environment has noted the proposal is an Initiative of the Fijian Government through the rural electrification scheme earmarked for this year 2016. As per proposal that the survey has also been completed on which the marine cable will be routed through marine cable to a distance of approximately 3.025km on an area predominantly of mud and sand composition.

In addition, that the marine cable will be weighed down to the seabed with lead in deeper waters whilst the cable along the shallow waters is buried.

Given the type of development proposed is for the benefit of the public, the requirement to

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*"Our Environment, Our Investment, Our Responsibility"*

**APPENDIX 3: SUBMARINE CABLE SEABED PROFILE**

**MALAKE ISLAND to Mainland – Cable Route**

**Seabed Profile Analysis**

**PLAN A MALAKE CHANNEL**

**MAINLAND 0m – 3025m MALAKE VILLAGE**

Chainage	Seabed Type	Notes	Depth	Date / Time	GPS		Heading
					Lat	Long	
00	ROAD		0	19.05.16	17°20.504	178°10.375	347°T
100	MUD		0.25	19.05.16	17°20.468	178°10.333	
200	MUD		0.50	19.05.16	17°20.431	178°10.292	
300	MUD		1.00	19.05.16	17°20.394	178°10.249	
400	MUD		2.00	19.05.16	17°20.355	178°10.204	
500	LOOSE CORAL		3.00	19.05.16	17°20.310	178°10.176	
550	CORAL & MUD BELOW						
600	MUD		4.00	19.05.16	17°20.261	178°10.149	
700	MUD		6.50	19.05.16	17°20.229	178°10.115	
800	MUD		7.00	19.05.16	17°20.182	178°10.080	
900	MUD		8.30	19.05.16	17°20.142	178°10.042	
1000	MUD		9.00	20.05.16	17°20.141	178°10.011	
1100	MUD		9.00	20.05.16	17°20.055	178°09.969	
1200	MUD		9.50	20.05.16	17°20.016	178°09.931	
1300	MUD		10.00	20.05.16	17°19.974	178°09.888	
1400	MUD		10.70	20.05.16	17°19.953	178°09.847	
1500	MUD		11.00	20.05.16	17°19.887	178°09.809	
1600	MUD		11.50	23.05.16	17°19.852	178°09.772	
1700	MUD		12.50	23.05.16	17°19.857	178°09.721	
1800	MUD		12.50	23.05.16	17°19.831	178°09.576	

