



ENERGY FIJI LIMITED

MR 359/2019

**Supply of AP65 Base Course for Access Roads
to 132kV Transmission Tower from Wailoa to
Taulevu**

Contents

1.0 TECHNICAL SPECIFICATIONS FOR THE CRUSHED BASE- COURSE.....	4
1.1 Source Rock.....	4
1.2 Grading.....	6
1.3 Water.....	7
1.4 Materials Supplied To Stockpile.....	8
1.5 Handling of Crushed Rock Products	8
1.6 Frequency of Testing	8
1.6.1 Production Testing of Source Material.....	8
1.6.2 On site Testing	8
1.6.3 Minimum Testing Requirements	8
1.7 Extraction	9
2.0 STANDARDS APPLICABLE FOR THIS TENDER	10
3.0 MANUFACTURER’S QUALIFICATION.....	10
4.0 EXPERIENCE EVALUATION.....	11
5.0 PRICING SCHEDULE.....	12
5.1 Unit Prices	13
6.0 TRUCKING INFORMATION.....	13
7.0 DURATION OF PRODUCTION AND DELIVERY	14
8.0 PAYMENT TERMS	14

TENDER NO: MR 359/2019: Supply of AP65 Base Course for Access Roads to 132kV Transmission Towers from Wailoa to Taulevu

Energy Fiji Limited (EFL) is requesting proposals from Interested Suppliers for supply of **52,800** cubic meter of AP65 Base course in Central Division for the upgrade of Transmission Tower Access Roads from Wailoa to Taulevu.

Eligibility/Selection Criteria of the Bidding Contractor

The Supplier shall have a sound knowledge of the subject area. The Supplier shall take all necessary precautions to prevent any damages to the EFL assets and private properties. The Supplier shall visit offloading areas and accordingly offer to execute and complete the provision and carting of Base Course to areas identified by the EFL Representative.

A **Mandatory Site Visit** will be conducted on **Wednesday 27th November, 2019** commencing at **9 am** at **EFL's Kinoya Depot**. Bidders are to contact the Transmission Engineer on 8915712 for further details if required. Bidders are required to bring in their own 4WD for the site Visit.

1.0 TECHNICAL SPECIFICATIONS FOR THE CRUSHED BASE- COURSE

Energy Fiji Limited invites sealed tenders from reputable companies with relevant experience, for the Supply of AP65 Base in compliance with the following requirements:

1.1 Source Rock

The aggregate shall consist of naturally occurring or processed material originating from crushed river gravel, ripped or crushed rock, or combinations of these, together with sand, silt and clay elements. All dirt and organic matter shall be removed. Pavement materials shall be free from vegetable matter, lumps or balls of clay or other deleterious matter. For crushed rock base and subbase the product shall be sourced from sound rock and meet the requirements of Table 1. The products shall meet the following requirements:

- (i) For natural gravel base and subbase products:
 - shall meet the properties shown in Table 3.
- (ii) For crushed rock products:
 - shall meet the properties shown in Table 4.
 - The aggregate shall have a quality index of AA, AB, AC, BA, BB or CA when tested according to NZS 4407: Test 3.11 Weathering Quality Index Test.

CBR testing shall be undertaken at optimum moisture content and 98% of maximum dry density as determined by test using Modified compactive effort, but then soaked for four days prior to the CBR test in accordance with AS1289.6.1.1.

Plasticity Index shall be determined in accordance with AS 1289.3.3.1: Methods of testing soils for engineering purposes - Soil classification tests - Calculation of the plasticity index of a soil.

Table 1 - Durability Requirements

Rock Type	Degradation Factor (min)	Secondary Mineral Content (%) (max)	Accelerated Soundness Index (min)
Igneous (Intrusive)			
Granodiorite	45		
Diorite	45		
Tonalite	45		
Monzonite	45		
Igneous (Extrusive)		25	25
Basalt			
Andesite			

Notes to Table 1

1. AS1141.25.1 Degradation factor source rock.
2. AS1141.26 Methods for sampling and testing aggregates - Secondary minerals content in Igneous rocks.

3. AS 1141.29 Methods for sampling and testing aggregates - Accelerated soundness index by reflux.

Table 2- Requirements of LA Abrasion loss for Various Rock Types

Rock Type	Loss Angles Abrasion Loss (max.)	
	Base	Subbase
Granodiorite	40	45
Diorite		
Tonalite		
Monzonite		
Basalt	30	35
Andesite		
Sedimentary - River Gravel Pebble	Not Permitted	35

If a source rock type proposed is not described in Table 301.031, the Engineer will determine whether the rock type is acceptable and will set appropriate limits. Source rock which does not comply with the specified requirements but from which crushed rock of proven satisfactory performance has been produced, may be accepted for use subject to the written approval of the Engineer.

Table 3- Requirements for Natural gravel Base and subbase

Property	Base	Subbase
Liquid Limit % max	35	35
California Bearing Ratio % (min)	50	50
Ball Mill (Sedimentary Rocks)		45

Table 4- Requirements for crushed rock base and subbase

Property	Base	Subbase
Sand Equivalent (min)	50	-
Liquid Limit (% max)	30	40
Plasticity Index (max)	2-6	2-12
California Bearing Ratio (% min)	80	80
Flakiness Index (max)	35	35

Notes to Table 4

1. Sand Equivalent test shall be undertaken in accordance with Test method for Sand Equivalent is AS 1289.3.7.1
2. As determined in accordance with AS 1141.15 Methods for sampling and testing aggregates Method 15: Flakiness index

For Remote Location Base course and Subbase the products shall comply with the properties shown in table 5

Property	Base
Crushed Aggregate	At least 70% by mass of the aggregate in the product that are retained on the 4.75mm sieve shall have two or more faces produced by crushing.
California Bearing Ratio % (min)	50
Crushing Resistance	Less than 10% under 100kN load

1.2 Grading

Where the Engineer approves alternative material for use, the Engineer shall provide a set of detailed grading limits after samples and test results are provided by the contractor. Material then supplied shall conform to these grading limits.

(a) Crushed Rock Base and Subbase

- For crushed rock base and subbase, the product grading prior to compaction shall comply with the requirements shown in, Tables 6 and 7 for the nominal mix size. . The crushed rock shall not be graded from near the coarse limit on one sieve to near the fine limit on the following sieve or vice versa. At least 75% by mass of the aggregates in the product that are retained on the 4.75 sieve shall have two or more faces produced by crushing.

Table 6 - Grading Requirements for Size 40 and 75mm Crushed Rock Subbase (Igneous Extrusive)

Grading				
Sieve Size (mm)	40mm Base		75mm Subbase	
	Target Grading	Limit of Grading % Passing	Target Grading	Limit of Grading % Passing
75	-	100-	100	90-100
37.5	100	95-100	77	64-90
26.5	85	75-95	67	50-84
19.0	77	64-90	60	42-78
9.5	60	42-78	48	30-66
4.75	46	28-64	36	20-52
2.36	35	20-50	27	12-42
0.425	17	10-23	14	4-24
0.075	9	6-12	6	2-10

Table 7- Grading Requirement for Size 40 and 75mm Crushed Rock Subbase (Igneous Intrusive)

Grading		
Sieve Size (mm)	40mm Base	75mm Subbase

	Target Grading	Limit of Grading % Passing	Target Grading	Limit of Grading % Passing
75	-	100	100	90-100
37.5	100	95-100	77	64-90
26.5	85	75-95	67	50-84
19.0	77	64-90	60	42-78
9.5	60	42-78	48	30-66
4.75	46	28-64	36	20-52
2.36	35	20-50	26	12-42
0.425	15	7-23	12	4-24
0.075	6	2-9	4	2-10

Remote Location Base Course and Subbase

For Remote Location Base course and Subbase, the product grading prior to compaction shall comply with the requirements shown in, Table 8, The crushed rock shall not be graded from near the coarse limit on one sieve to near the fine limit on the following sieve or vice versa.

Table 8 - Grading and Plasticity Index Requirements for Remote Location Base Course and Subbase.

Grading and Plasticity Index			
Sieve Size (mm)	% Passing	Sieve Sizing (mm)	% Passing
53	100	75	100
37.5	95-100		
26.5	75-95		
19.0	64-90	19.0	45-90
9.5	47-78	9.5	30-60
4.75	27-64		
2.36	20-50		
0.425	10-23		
0.075	6-12	0.075	0-10
Plasticity Index Range	5-12	Plasticity Index Range	Less than 12

1.3 Water

Water added to the material prior to delivery, such water shall be clean and substantially free from detrimental impurities such as oils, salts, alkalis, acids, and vegetables substances. Where payment is made on the basis of mass, the average moisture contents of crushed rock at the plant shall not exceed 4.0 % by mass unless the Contractor has, at the time of tendering, nominated an upper limit of average moisture content greater than 4%. In the latter case the difference between the nominated value and the specified value will be taken into account when tenders are being considered.

The average moisture content of crushed rock supplied on any one day will be determined from three samples taken at random on that day.

1.4 Materials Supplied To Stockpile

Where the Contractor supplies crushed rock to stockpile prior to delivery to the roadbed the following requirements apply:

- the product, after recovery from the stockpile, complies with this specification;
- the stockpile site is clean, adequately paved, and well drained;
- if a stockpile is constructed in more than one layer, each layer is fully contained within the area occupied by the upper surface of the preceding layer;

1.5 Handling of Crushed Rock Products

Handling of crushed rock including stockpiling and loading of trucks shall be undertaken to minimize segregation.

1.6 Frequency of Testing

The Contractor shall test at such a frequency to ensure that the supplied material consistently complies with the specified requirements.

1.6.1 Production Testing of Source Material

Material shall be tested at the source of production, from samples which are intended for use and are representative of the processing method. Initial production source testing must be carried out immediately prior to commencement of supply, and material shall not be brought to site until source tests have been submitted to, and accepted by the Engineer. Any change of source or processing method, or any noticeable change in the materials properties during the construction process will require that the full suite of tests be carried out again. Production testing shall be repeated for every 1000 t of material produced.

Representative samples of the aggregate shall be obtained by qualified and experienced technicians in accordance with:

- AS 1141.3.1 Methods for sampling and testing aggregates -Sampling - Aggregates

All tests are to be carried out in a laboratory recognized by the Engineer as fit for purpose.

1.6.2 On site Testing

Aggregate samples shall be collected for testing from the stockpiles intended for use on site and from the completed layers of pavement to ensure that the material complies with the grading requirements of this specification.

Additional tests may be instructed by the Engineer. If the results of these show non-compliant material the cost of such tests shall be borne by the Contractor. If the tests show compliance in all tests asked for by the Engineer, then the cost of such tests shall be borne by the Engineer.

1.6.3 Minimum Testing Requirements

The Contractor shall test crushed rock products at such a frequency to ensure that the supplied material consistently complies with the specified requirements.

The minimum test frequency shall not be less than that shown in Table 9.

Table 9- Minimum Test Frequency

Test	Minimum Frequency of Testing
Grading and Atterberg Limits	On each production day - One per 500 tonnes or part thereof.
Moisture Content	On each production day - One per 500 tonnes.
California Bearing Ratio	One per 1000 tonnes
Degradation Factor	One per 1000 tonnes on each production day
Los Angeles Value	One per 1000 tonnes on each production day
Sand Equivalent	One per production fortnight
Flakiness Index	One per production fortnight
Crushed Particles	One per production fortnight
Polished Stone Value	## (insert value when PSV requirement is specified.)

It is mandatory for the bidder to submit the relevant test certificates together with the bidding documents.

1.7 Extraction

The quarry or pit shall be worked in such a way as to ensure that unsuitable material is not included in the material supplied.

For production of base course crushed rock, both the primary and secondary crushers shall be provided with scalping screens to ensure that any remaining overburden is removed from material supplied.

The bidder is requested to provide all valid copies of extraction licenses from the land owners and ministry of environment or any other parties involved.

2.0 STANDARDS APPLICABLE FOR THIS TENDER

The material to be supplied shall be manufactured and tested in accordance with the requirements of the following standards.

STANDARD	TITLE
AS/NZS 4402	Methods of testing soils for civil engineering purposes.
AS/NZS 4407	Methods of sampling and testing road aggregates.
AS/NZS 3111	Methods of test for Water and aggregate for concrete.
Fiji Roads Authority - Road Works Standards and Specification	

Note: Bidders shall demonstrate/submit proof of the product's compliance of the aforementioned standards.

3.0 MANUFACTURER'S QUALIFICATION

The manufacturer shall have sufficient supply and extraction experience of AP65 Base course for at least TWO (2) years for the required work specifications.

As proof, the manufacturer shall submit a supply-list indicating the grade of base course, quantity supplied, name of client and the year of delivery. Certificates from customers with satisfactory usage may be provided with the supply record.

Only those Suppliers shall be considered, for which a minimum of 2-years extraction and successful service experience is available, without change of basic design of the plant and the material. Bidder to also state the **source of the Base Course Aggregates** and any **extraction licenses** which the bidder possesses or intends to utilize. The bidder is also requested to submit the **sample testing reports of the aggregates**

4.0 EXPERIENCE EVALUATION

For evaluation of bidder's qualifications, the bidder must submit a reference list showing supply experience for supply of Base course. In addition, if any in-service failure due to the quality of the material has been experienced, the bidder should submit the information on the failures including the cause of the failures and the counter consequences taken.

5.0 PRICING SCHEDULE

The Supplier shall submit the Lump Sum VEP price in Fijian currency to carry out the following works. The Supplier shall submit his price for the Supply of AP65 to various Sites, Including Cartage, Delivery, etc. in the following manner. The bidder is required to follow the GPS coordinates in google maps and verify the distance from his quarry to stockpile location.

#	Description	GPS Coordinates Latitude, Longitude	Quantity (m ³)	Unit Price of Base Course (FJ\$/m ³) VEP	Unit Price Cartage of Base Course (FJ\$/m ³ /Km) VEP	Approximate Distance of stockpile Site to Sawani Bridge Km	Approximate Distance from Bidders Source of Base Course to Stockpile Site	Total Price (FJ\$) VEP
1	Stockpile 1- Taulevu (Tower 61- Tower 55)	-17.83088, 178.2963	4100			39.2	Bidder to Specify	
2	Stockpile 2- Delaitoga (Tower 54 - Tower 52)	- 17.8202,178.29 525	1300			40.0	Bidder to Specify	
3	Stockpile 3- Nairukuruku (Tower 51 – Tower 44)	-17.81197, 178.2859	4450			41.6	Bidder to Specify	
4	Stockpile 4- Nuku (Tower 29- Tower 43)	-17.81623, 178.2116	23300			46.4	Bidder to Specify	
5	Stockpile 5- Nasalia Tower 10-28	-17.80432, 178.1637	17550			69.0	Bidder to Specify	
6	Udu Tower 1- Tower 9	-17.75698, 178.1262	2100			75.4	Bidder to Specify	
Total \$FJD VEP								

Please note that this will be a rate to measure contract, thus, the actual distances travelled by the suppliers truck will be considered. Therefore, an initial joint verification of distances will be done by EFL representatives and the supplier.

5.1 Unit Prices

Bidders are to submit unit prices for the supply of Base Course. This is applicable to delivery of base course on other locations if required as variation.

Item	Description	Prices (FJD VEP)
1	AP65 per Cubic Meter (\$/m ³)	
2	Cartage of AP65 (\$/m ³ /km)	

6.0 TRUCKING INFORMATION

Item	Description	Quantity	
1	Number of Trucks that will be used in the Supply		
2	Maximum base coarse Loading Capacity per Trucks. Bidders shall give a list of trucks their capacity if the truck capacity varies.	Truck Number	Capacity (m³)
		1.	Bidder to specify
		2.	Bidder to specify
		3.	Bidder to specify
		4.	Bidder to specify
		5.	Bidder to specify
		6.	Bidder to specify
		7.	Bidder to specify
		8.	Bidder to specify
		9.	Bidder to specify
		10.	Bidder to specify
		11.	Bidder to specify
3	Maximum quantity that the supplier can		

	Deliver in one day and is mandatory to be followed. (EFL Minimum requirement: 250 -300 cubic per day)	Bidder to Specify
--	--	--------------------------

Prices shall be valid for at least 180 calendar days, from the closing date of this tender.

7.0 DURATION OF PRODUCTION AND DELIVERY

EFL requires the delivery of the Base Course as and when required. Bidders shall clearly indicate the duration of production and transportation. The bidder if awarded the contract shall ensure that the Base Course is delivered within 48hours to the said EFL site whenever required.

8.0 PAYMENT TERMS

EFL's standard 30 days payment policy upon delivery of materials applies. Bidder's to explicitly note all exceptions and/or reservations to the same if any.

TENDER SUBMISSION CHECK LIST

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

Tender Number _____

Tender Name _____

Full Company / Business Name: _____

(Attach copy of Registration Certificate)

1. Director/Owner(s): _____

2. Postal Address: _____

3. Phone Contact: _____

4. Fax Number: _____

5. Email address: _____

6. Office Location: _____

7. TIN Number: _____

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

9. FNPF Employer Registration Number: _____(For Local Bidders only) (Mandatory)

10. Provide a copy of Valid FNPF Compliance Certificate (Mandatory- Local Bidders only)

11. Provide a copy of Valid FRCS (Tax) Compliance Certificate (Mandatory Local Bidders only)

12. Contact Person: _____

I declare that all the above information is correct.

Name: _____

Position: _____

Sign: _____

Date:

Submission of Tender

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

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

This tender closes at 4:00 p.m. (16.00hrs Fiji time) on **Wednesday 11th December, 2019.**

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

MR 359/2019

Supply of AP65 Base for Access Roads to 132kV Transmission Towers Course from Wailoa to Taulevu

The Secretary, Tender Committee
Energy Fiji Limited

Supply Chain Office
Private Mail Bag,
Suva

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

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

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

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

Bidders are requested to submit a:

- Valid Tax Compliance Certificate
- FNPF Compliance Certificate