

**PACIFIC AVIATION INVESTMENT PROGRAM (PAIP)**  
**TUVALU AVIATION INVESTMENT PROJECT (TvAIP)**  
**Supply and Installation Solar Street Lighting**  
**CONTRACT REF: MCT/SHPG/T-A29**

14<sup>th</sup> February 2017

**AMENDMENT NO. 2 TO THE BIDDING DOCUMENTS**

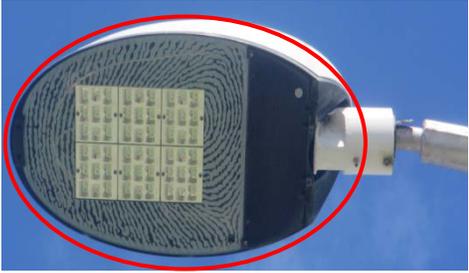
The PAIP TFSU would like to issue the following Addendum to the bidding documents of the above named tender:

| Reference  | Original Wording   | Amended wording  |
|--|--|--|
| <b>Section 3, Technical Specifications &amp; Statement of Compliance</b> | #14. Additional information: *LED-in 20100804999909480 *n.54 LED | #14. Additional information: *LED in 20100804999909480 *n.54 LED |

**CLARIFICATION NO. 1 TO THE BIDDING DOCUMENTS**

The PAIP TFSU would like to issue the following clarification in response to question asked by bidder in relation to the above named tender. The question and the answers are provided below:

| No | Questions from Suppliers  | Action to be taken / Response  |
|----|---|--|
| 1  | In the Technical Specification, Point 3, mentions "Harmonic Distortion: ≤87%" do we assume this is a misprint and is meant to say ≤13%? We ask because 87% is a very high level of harmonics.   | This is the current level of harmonics for the LED Streetlights currently used in Tuvalu.  |
| 2  | In the Technical Specification, Points 5 & 6, there is mention of "Luminaire efficiency: 90lm/w" followed by "Lamp efficiency: >80%", can you explain why the second metric of lamp efficiency? The normal metric for LED luminaire efficiency is purely luminaire lumen output divided by total circuit wattage (what the lighting industry calls the LER (Luminaire Efficiency Ratio). The attached PDF "LER Demo" shows a typical LED Street Light of ours with an LER of 108 based on the 2,915 luminaire lumen output divided by the 27w total circuit wattage i.e. 108lm/w. | In order to ensure consistency, we are using in this ITQ document the technical specifications for the LED streetlights currently in use in Tuvalu.                |
| 3  | In the Technical Specification, Point 14, there is mention of "Additional information:" without any real detail; can you please explain what is meant in the section as the quoted numbers are not recognised by us?  | This is additional information that has been provided in the technical specifications of the current LED Streetlights in Tuvalu. Please see <i>Amendment No. 1</i> |
| 4  | Is the "Lighting Frame" a post top mount to   | The lighting frame is marked in red in   |

|   |   |  |
|---|---|--|
|   | attach the LED luminaire to an existing pole?   | the photo below.<br><br>   |
| 5 | Is the "Post and Frame" a new pole with post top mount for the LED luminaire? If this is the case can you please advise more details about the required pole? For example is it a tapered pole or a simple pipe pole and also do we assume that as there mention, in the documentation, of a 4m luminaire height that that is the required height for these new poles? What sort of base is required for these poles; are they to be direct buried or will they use a rag bolt base with concrete foundation? | <ol style="list-style-type: none"> <li>1. Post and Frame. This means a new post and new top mount for the LED luminaire as you called it but we called it Frame.</li> <li>2. Requirement for the new post <ul style="list-style-type: none"> <li>&gt;Design Condition</li> <li>- Maximum sail area:0.2m2</li> <li>&gt;Standard</li> <li>- Pole design – AS4100, AS 1170</li> <li>- Material – AS 1594 or Equivalent</li> <li>- Galvanizing – AS1650</li> <li>-Height – 4800mm</li> <li>- Door – 610mm</li> <li>- Base Flange – 4 ~180</li> <li>-4 only M16 X 70 Galv, Gr. 4.6 Bolt/Nut/Washer</li> </ul> </li> </ol> |
| 6 | Could the tender document be supplied in Microsoft Word?  | Yes. This has been attached separately.  |
| 7 | Could you supply further information/specification/description for the 166 Lighting Frames? It is not clear exactly what these are.   | The 166 lighting frames are the top mount for LED but we call it frames. Please refer to the photo above.  |
| 8 | Please provide us with drawings for the required items:<br><ol style="list-style-type: none"> <li>1. Lighting Frames</li> <li>2. Posts</li> </ol>   | Please see below.  |

1. Lighting Frames





2. Post

APPLY SPEC 2400242

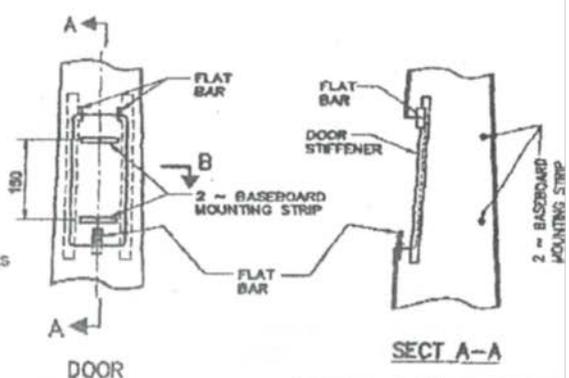
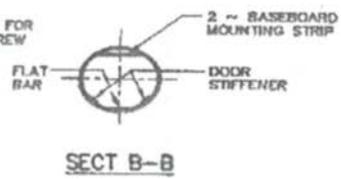
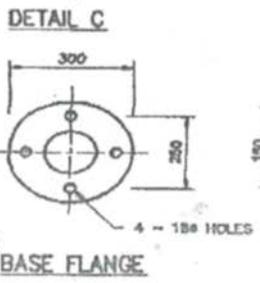
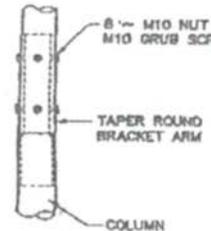
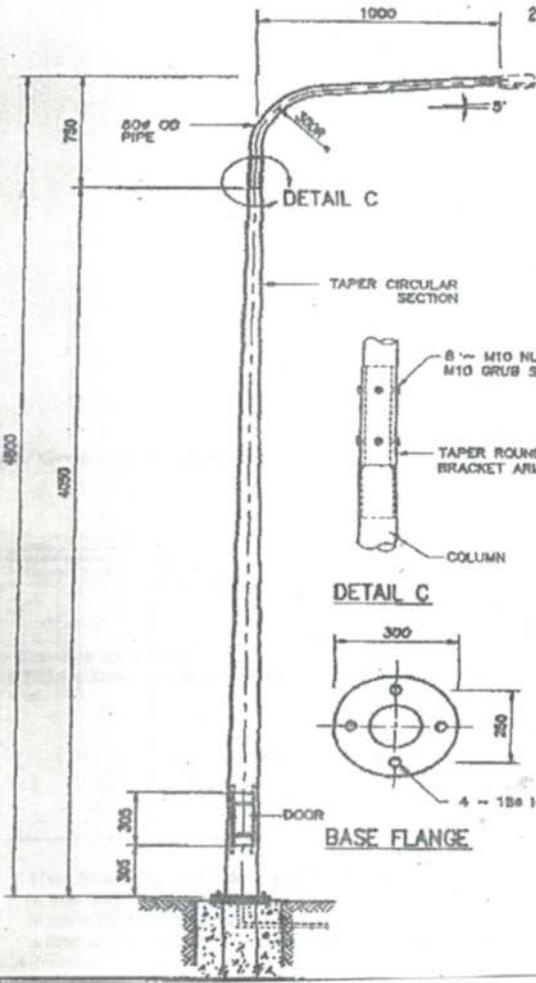
### TECHNICAL SPECIFICATION

#### 1) DESIGN CONDITIONS

1.2 MAXIMUM SAIL AREA : 0.2 m<sup>2</sup>

#### 2) STANDARDS

- 2.1 POLE DESIGN : AS 4100, AS 1170
- 2.2 MATERIAL : AS 1594 or EQUIV.
- 2.3 WELDING (ELECTRIC ARC WELDING) : AS 1554
- 2.4 GALVANIZING : AS 1650



PRELIMINARY DRAWING FOR TENDER PURPOSES ONLY