PARTICULAR SPECIFICATION

APPENDIX AO

TERMS AND CONDITIONS FOR STREET LIGHTING WORKS AT AT-GRADE ROADS AND VIADUCTS

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1 General

1.1 All proposed roads shall be installed with street lighting. The streetlights and it's lighting control box must be ready for commission before the roads are opened to the public. Streetlights shall be turn on concurrently with the opening of the roads.

1.2 The removal, relocation and installation of street lighting shall be carried out by the Authority's approved street lighting term contractor.

1.3 The Civil Contractor shall submit schedule of the street lighting installation works, two sets of scale layout plans and approved traffic plans of the proposed roads to LTA (CFSM) for street lighting design and proposed underground pipe routing.

1.4 The Civil Contractor shall arrange a joint site meeting with LTA (CFSM) / Authority's approved street lighting term contractor to confirm the final approved position of the underground pipes, street lighting lampposts and street lighting control boxes within street reserve.

1.5 The Civil Contractor shall liaise and obtain approval from respective agencies / authorities on the removal / relocation of equipment such as J-eye, communication antenna, camera mounted on existing street lighting lampposts to the new proposed street lighting lampposts.

1.6 The Civil Contractor shall co-ordinate and inform LTA (CFSM) and the Authority's approved street lighting term contractor on all matters pertaining to the installation of street lighting works at least two (2) months prior to the commencement of any road widening or traffic diversion works.

2 Technical Requirements

2.1 The installation and provision of the street lighting lampposts, flashing beacons for zebra crossing, luminaires, cabling and mounting, including commissioning of service of all streetlights, are not included in this Contract. The Civil Contractor shall provide and make available all necessary lamppost corbels / support on structure, cable conduits / pipes (inclusive of cable warning slabs) / ducts, crossings, connection points or openings for all of the above. The Civil Contractor shall co-ordinate with the Authority's approved street lighting term contractor for these installations.

2.2 The Civil Contractor shall provide and lay at least two (2) nos. 100mm diameter heavy duty UPVC pipes complying to latest edition of SS141, Class B type with pulling ropes / cables / pull wire and cable warning slabs at a depth of at least 1,200mm from the finished ground level on pavement and on turf along the new road kerb for public street lighting respectively as shown on the Drawings unless otherwise specified.

2.3 The Civil Contractor shall provide and lay at least three (3) nos. 100mm diameter heavy duty UPVC pipes complying to latest edition of SS141, Class B type with pulling ropes / cables / pull wire encased with 100mm thick cement dust all round and cable warning slabs at a depth of at least 1,000mm below the finished ground level on road and at road crossings (including road junctions, carpark entrances, etc.) for street lighting as shown on the Drawings unless otherwise specified. The UPVC pipes shall be extended to the nearest lamppost and covered with end cap at its end. The location of the road crossing pipes shall be indicated by a 50mm diameter aluminum disc with a red arrow and words “Public Lighting Cable” and it shall be secured on both road kerbs.

2.4 The laying of UPVC pipe near project boundary shall be laid such that it’s extended to the nearest existing street lighting lamppost that is not affected by the works.

2.5 The Civil Contractor shall provide all the necessary structural corbels and conceal UPVC pipes (usually 2 nos.) for the installation of street lighting in his design of the flyover / viaduct structures / vehicular bridge and drainage system. Each corbel shall include four (4) nos. of 25mm diameter; 580mm long J-bolt complete with washers and two (2) nuts of stainless steel grade SS 316 (per J-bolt). The corbel top surface shall be leveled to the satisfaction of LTA (CFSM) and the Authority’s approved street lighting term contractor. The heavy duty UPVC pipes in the parapet wall shall be of 100mm in diameter complying with the latest edition of SS141, Class B type with pulling ropes / cables / pull wire. The pipe shall be protruding at least 20mm from the parapet top.

2.6 The cable inspection chamber (below the corbel) shall be designed in such a way that the finishes to the base of the opening is smooth, gradient to one side with drainage outlet points (to external). The opening shall be covered with a top stainless steel hinged, 3mm thick stainless steel water-tight cover plate and secured with hex socket counter sunk screws as per latest SDRE requirements.

2.7 For laying of cycling path UPVC pipes, the civil contractor shall adopt the quantity as stated in item 2.2, 2.3 and 2.8 and the pipes shall be laid next to the edge of path within road reserve.

2.8 If the quantity of UPVC pipe deviate from item 2.2, 2.3 and 2.5, it shall be indicated in the approved Drawings.

2.9 For sections of roads which have wide spans of flyover / viaduct / vehicular bridge traversing across it and where the height is constrained by the structures, the affected road section shall be lighted by soffit lighting underneath the flyover / viaduct. The Civil Contractor shall provide appropriate size of GI conduits running truly vertical, horizontal or parallel with the features of the flyover / viaduct / vehicular bridge. Conduit shall run continuous exposed or concealed between outlets with no more than two right angle bends. All GI conduits shall be manufactured in accordance with the latest edition of BS 4568, Part 1 and of Class 4 type. The conduits shall be earthed in accordance with the latest edition of SS638 (formerly CP5) and SS551.

2.10 For footpath and cycling path constructed below the flyover / viaduct / vehicular bridge, the Civil Contractor shall provide UPVC pipes for the installation of footpath and cycling path lighting along the turf / near proposed or existing kerb. And where the height is constrained by the structures of flyover / viaduct / vehicular bridge, the Civil Contractor shall provide 25mm GI conduits exposed or concealed along / in the structures to allow soffit lighting to light the footpath below.

2.11 The Civil Contractor shall engage a registered Structural Professional Engineer to design and endorse on the design calculations, imposed loads and forces and dimensional drawings for all corbels, design foundations and mounting facilities required for the installation of street lighting lampposts.

2.12 After the installation of street lighting lamppost on the respective corbels, the Civil Contractor shall provide with high strength non-shrink grout of equivalent structure concrete strength to fill up the gaps between the corbel and the base plate of the lamppost to the satisfaction of LTA (CFSM).

2.13 For installation of street lighting on temporary steel decking, the Civil Contractor shall provide the necessary mounting facilities, inclusive of the four (4) nos. of 25mm diameter Jbolt complete with washers and two (2) nuts of stainless steel grade SS 316 (per J-bolt) on the temporary steel deck.

2.14 The Civil Contractor shall reinstate and / or re-connect existing street lighting UPVC pipes when affected by the works, where necessary.

3 Lighting Control Boxes

3.1 The Civil Contractor shall co-ordinate and inform LTA (CFSM) and the Authority's approved street lighting term contractor on all matters pertaining to the installation of street lighting control boxes at least four (4) months prior to the commencement of any works. The Civil Contractor shall note that under the SP Services "Offer of Transmission Services For Low Tension Connection", the Transmission Licensee shall not be obliged to meet the Target Date for Connections unless payment is made at least seven (7) weeks in advance where a control box is required.