PART C3 - SCOPE OF WORK

C3.1 GENERAL PROJECT SPECIFICATION

1.0 GENERAL

The purpose of this tender is to procure the services of suitably qualified, capable and experienced service providers (also referred to as Supplier) to provide LED streetlight luminaires in the municipal 2022/23 financial year.

The Purchaser of the material will be Hessequa Municipality.

2.0 SITE INFORMATION

All material will be delivered to the Municipal Stores in Riversdale at the Kragstasie, 1 Hospital Street, Riversdale.

3.0 NATURE OF CONTRACT

The conditions of contract will be the Government Procurement: General Conditions of Contract (July 2010) published by the National Treasury of the Republic of South Africa.

Tenderers must carefully study and understand the entire contents of this document and all annexures, and particularly the Contract Data, Part C1.2 which contains vital information peculiar to this contract.

4.0 AWARD AND LETTING OF CONTRACT

The contract will be let as a Direct Contract with Hessequa Municipality in terms of the Conditions of Contract as set out in this document.

Hessequa Municipality reserves the right to award the tender as follows:

(i) Accept the tender as set out in the document, thus accepting the "Tender Sum" as included in the Price Summary, or enter into a reduced / increased scope of works to be determined by the Client and Engineer at a later stage
(ii) The award will be based on the Original "Tender Sum" as included in the Price Summary, i.e. the original price in the tender document and not the reduced scope of works should this be considered later.

5.0 PROGRAMME AND COMPLETION

The following estimated dates are as follows:

(i) Appointment of Supplier ...../...../2023
(ii) Delivery of Material ...../...../2023

6.0 COST PRICE ADJUSTMENT

Prices shall not be subject to escalation. Tenderers must take cognisance of the completion programme and make allowance for escalation in all tendered rates.

7.0 SITE FACILITIES

The Supplier shall be responsible for negotiating with Hessequa Municipality, i.e. Mr Silent Chikamhi (083 412 7430), a date and time when the material will be delivered to the Municipal Stores.

8.0 STANDARD SPECIFICATION

This specification shall be read in conjunction with the Standard Specifications, which forms Parts C3.4 and C3.5 of this document. The Standard Specifications and the Codes referred to therein shall be regarded as the Operative Code of Practice.

Where specific reference is made in the Project Specifications to particular clauses in the Standard Specifications such reference shall in no way be construed as meaning that only those clauses specifically mentioned apply.

C3.2 HEALTH AND SAFETY

Not applicable, since the installation of plant will not be done under this project.

C3.3: PROJECT TECHNICAL SPECIFICATION

1.0 GENERAL

This part of the specification deals with the luminaire fittings which will be the Tenderer's responsibility to supply in accordance with this document.

Sufficient information is provided in this document to enable the Tenderer to accurately price the luminaire fittings.

2.0 STANDARD TECHNICAL SPECIFICATION

This section of the Specification shall be read in conjunction with the Standard Technical Specification, Part C3.5, hereof, and the luminaire fittings shall comply with the relevant clauses thereof.

All luminaire fittings supplied under this Contract shall be of a quality and class most suitable for working under the conditions specified and shall withstand the variations of temperature and atmospheric conditions that may arise without distortion, deterioration or the setting up of undue stresses in any part such as to affect the efficiency and reliability of the plant, and also without affecting the strength and suitability of the various parts for functions which they have to perform.

3.0 PROJECT DESCRIPTION

A summary of the 1354 LED luminaire fittings to be supplied, is as follows.

Item	DESCRIPTION	Qty
1.0	Streetlight Luminaires:	
1.1	**≤ 20W LED** streetlight luminaire.	1231
1.2	**≤ 55W LED** streetlight luminaire.	123

4.0 SUPPLY AUTHORITY

The Supply Authority for the area is Hessequa Municipality and the luminaire fittings shall fully comply with their requirements.

5.0 DETAILED SPECIFICATION OF EQUIPMENT AND MATERIALS

The detailed specification of the equipment required is given in tabled form hereafter. It must be noted that Schedule A of each table gives information affecting and laying down the requirements for the equipment, whilst Schedule B is to be completed by the Tenderer in order to provide guarantees, technical and other particulars of the equipment offered and for acknowledgement of certain requirements. Failure to complete Schedule B could invalidate the tender.

6.0 STREETLIGHT LUMINAIRES

General:

The schedule below indicates all the general particulars of the streetlights indicated under Clauses 7.0 and 8.0 hereafter.

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
1.0	Standard Technical Specification	Specification shall be read in conjunction with the Standard Technical Specification, Part C3.5, hereof, and the luminaire fittings shall comply with the relevant clauses thereof.	.....
2.0	Technical Details	Complete technical details, specifications and copies of test certificates of the luminaires offered shall be submitted with the tender.	YES / NO
3.0	Specification	Proposed luminaires must comply with both the minimum mechanical specification and specified photometric requirements.	.....
4.0	Delivery	All luminaires shall be delivered to Hessequa Municipality, Riversdale, for storage.	.....
5.0	Standards	The following standards, including the standards indicated under Standard Technical Specification, Part C3.5, Clause 1.0 hereof are applicable:	.....
		- ISO 4762 Hexagon socket head and cap screws.	.....
		- SANS 121 Hot dip galvanized coatings on fabricated iron and steel articles.	.....
		- SANS 1091 Natural colour standards for paints.	.....
6.0	Luminaire Markings:		
6.1	Name or trade mark	Each luminaire shall bear the name or trade mark of the manufacturer and the date of manufacturer.	.....
6.2	Rated Wattage and lamp type	Each luminaire shall be distinctly marked with black writing on a white background using 25mm high lettering on the outside of the control gear compartment. Rated wattage of luminaire and lamp type.	.....
7.0	Guarantee	All luminaires offered shall have a minimum guarantee period of five years.	.....
8.0	Defects	Any faulty power supply units or LED's shall be replaced at no additional cost during the twelve month defects liability period.	.....

7.0 20W STREETLIGHT LUMINAIRES:

Provision is made in the Bill for the supply of ≤ 20W LED luminaires to comply with the lighting design parameters for a Class B3 road, i.e. Residential streets in low density residential areas and low volume traffic.

The parameters that must be used for the configuration of the LED fitting in the simulation software package are as follows:

Design Parameter	Dimension
Spacing	45m
Pole Orientation	Single Side
Mounting height	7 m
Setback of pole	-1m
Overhang	-0.5
Outreach Angle	15°
Road Width	7,2m / 2 lanes + 2m sidewalks on both sides of road.
Maintenance Factor	0.8

With reference to SANS 10098-1, the required lighting design for the 20W (maximum) LED fittings for the Class B3 road, as mentioned above, shall as follows:

Design Parameter	Requirement
$E_{h,av}$	≥ 2.0 Lx
$E_{h,min}$	≥ 0.4 Lx

Note: Ave Lux: Minimum Average horizontal illuminance, $E_{h,av}$.
Min Lux: Minimum horizontal illuminance, $E_{h,min}$.

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
1.0	General	Shall be Class 1 of IEC 60598-1 and be of the totally enclosed type. Luminaires shall be delivered completely assembled with housing, driver, LED module, and protective lens.	.....
2.0	Power Max and minimum lumens	≤20W; ≥2500 lumens	.....
3.0	Type	Side entry streetlight luminaire	.....
4.0	Construction	3-Compartment design, i.e. optical compartment with LED engine, gear compartment and a spigot compartment. Both optical and gear compartments must be rated IP 66. The LED engine, consisting of the LED light source and the power supply must be easily replaceable or upgradeable.	.....

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
5.0	Surge Protection	Integral 10kV/10kA protection device.	.....
6.0	Material	The luminaire housing to be manufactured of marine grade cast aluminium (EN 1706 AC-44300) or LM6 with high impact polycarbonate protector / Clear toughened flat glass.	.....
7.0	Luminaire Output	Nominal flux at Ta of 35 °C	.....
8.0	Colour temperature	Neutral White (4000k)	.....
9.0	Colour rendering index (CRI)	CRI ≥ 70	.....
10.0	Operating temperature	≤ 35 °C	.....
11.0	Power Supply		
11.1	System Voltage	Power Supply shall be removable and shall be suitable for operation with the specified rating of the lamp on a 150-305V AC 50Hz single phase system (Provide test report)	.....
11.2	Power factor	≥ 0.9	.....
12.0	Lumen Maintenance	≥ L95 at 100 000 hours. (Provide LM-80 test report).	.....
13.0	IP Rating	≥ IP66 (Provide laboratory test report)	.....
14.0	IK Rating	≥ IK08 glass or IK10 polycarbonate (Provide laboratory test report)	.....
15.0	Ambient Temperature	-15 to 45 degrees Celsius. Test report shall be provided.	.....
16.0	Operating humidity	20% to 95%	.....
17.0	Connection of LED inside modules.	Series, to prevent failure of one LED causing additional LEDs to switch off. Single chip on board not permitted.	.....
18.0	Circuit board construction	Only ceramic or metal core allowed	.....
19.0	Cover	Tempered glass cover, or non discolouring polycarbonate.	.....

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
20.0	Housing	Inherently corrosion resistant material	.....
21.0	Finish	Raw unpainted marine grade cast aluminium (EN 1706 AC-44300) or LM6 aluminium.	.....
22.0	Spigot entry:		
22.1	Design	42mm dia side entry, 125mm long as per SANS 1088.	.....
22.2	Grub Screws	The luminaire shall be secured to the spigot by means of a clamping bracket or at least two stainless steel M8 grub screws into stainless steel sockets or any other methods to prevent cathodic corrosion between stainless steel and aluminium.	.....
22.3	Streetlight Bracket	Provision must be made for a typical streetlight bracket as depicted on Drawing No. 10579/E/01. The number of fittings required is depicted in the Bill.	.....
23.0	Test Reports: Info may be provided on a "stick".	Laboratory must be accredited according to ISO/IEC 17025 and recognised by ILAC/APLAC for Testing of LED products:	
23.1	IEC 60598	EN60598-2-3	.....
23.2	LM-80 LED		.....
23.3	EMC	EN55015, EN61547, 61000-3-2	.....
23.4	Photo-biological Safety	EN 62471	.....
23.5	Factory Certificates	ISO9001	.....
23.6	Certificates for Test facility	IEC17025	.....
23.8	LED Driver	EN 61347-1, -2-13 and EN 62384	.....
24.0	Are the Dialux, or similar simulation software, calculations included with the Tender?		YES / NO
24.1	Minimum Average horizontal illuminance, Eh,av.	≥ 2.0 Lx as per the abovementioned parameters.	.....
24.2	Minimum horizontal illuminance, Eh,min.	≥ 0.4 Lx as per the abovementioned parameters.	.....
25.0	Are all the above mentioned test reports included with this Tender?		YES / NO

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
26.0	Manufacturer	Name and Address	.....
27.0	Delivery Time	To site for installation from date of tender acceptance. (Delivery not to exceed 6 weeks from order.)	.....weeks

8.0 **50W LED Streetlight Luminaires (Class A4 No Med 100 Veh road)**:

Provision is made in the Bill for the supply of ≤ 50W LED luminaires to comply with the lighting design parameters for a Class A4 100 No Med Veh road, i.e. Connecting roads; local distributor roads; local residential major roads and traffic volume of 100 vehicles per hour per lane.

The parameters that must be used for the configuration of the LED fitting in the simulation software package are as follows:

Design Parameter	Dimension
Spacing	40m
Pole Orientation	Single Side
Mounting height	9 m
Setback of pole	-2m
Overhang	-0.5m
Outreach Angle	15 degrees
Road Width	12m / 2 lanes
Maintenance Factor	0.8

With reference to SANS 10098-1, the required lighting design for the 50W (maximum) LED fittings for the Class A4 road, as mentioned above, shall as follows:

Design Parameter	Requirement
L_n	≥ 0.3 cd/m²
U_o	≥ 30%
UI	≥ 50%
TI (max)	≤ 20%

Note: L_n: Average luminance, cd/m²
U_o: Overall luminance uniformity
UI: Longitudinal luminance uniformity
TI Threshold increment, %

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
1.0	General	Shall be Class 1 of IEC 60598-1 and be of the totally enclosed type. Luminaires shall be delivered completely assembled with housing, driver, LED module, and protective lens.	.....
2.0	Power Max and minimum lumens	≤50W; ≥6700 lumens	.....

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
3.0	Type	Side entry streetlight luminaire	.....
4.0	Construction	3-compartment design, i.e. optical compartment with LED engine, gear compartment and a spigot compartment. Both optical and gear compartments must be rated IP 66. The LED engine, consisting of the LED light source and the power supply must be easily replaceable or upgradeable.	.....
5.0	Surge Protection	Integral 10kV/10kA protection device.	.....
6.0	Material	The luminaire housing to be manufactured of marine grade cast aluminium (EN 1706 AC-44300) or LM6 with high impact polycarbonate protector / clear toughened flat glass.	.....
7.0	Luminaire Output	Nominal flux at Ta of 35 °C	.....
8.0	Colour temperature	Neutral White (4000k)	.....
9.0	Colour rendering index (CRI)	CRI ≥ 70	.....
10.0	Operating temperature	≤ 35 °C	.....
11.0	Power Supply		
11.1	System Voltage	Power Supply shall be removable and shall be suitable for operation with the specified rating of the lamp on a 150-305V AC 50Hz single phase system (Provide test report)	.....
11.2	Power factor	≥ 0.9	.....
12.0	Lumen Maintenance	≥ L95 at 100 000 hours. (Provide LM-80 test report).	.....
13.0	IP Rating	≥ IP66 (Provide laboratory test report)	.....
14.0	IK Rating	≥ IK08 glass or IK10 polycarbonate (Provide laboratory test report)	.....

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
15.0	Ambient Temperature	-15 to 45 degrees Celsius. Test report shall be provided.	.....
16.0	Operating humidity	20% to 95%	.....
17.0	Connection of LED inside modules.	Series, to prevent failure of one LED causing additional LEDs to switch off. Single chip on board not permitted.	.....
18.0	Circuit board construction	Only ceramic or metal core allowed	.....
19.0	Cover	Tempered glass cover, or non discolouring polycarbonate.	.....
20.0	Housing	Inherently corrosion resistant material	.....
21.0	Finish	Raw unpainted marine grade cast aluminium (EN 1706 AC-44300) or LM6 aluminium.	.....
22.0	Spigot entry:		
22.1	Design	42mm dia side entry, 125mm long as per SANS 1088.	.....
22.2	Grub Screws	The luminaire shall be secured to the spigot by means of a clamping bracket or at least two stainless steel M8 grub screws into stainless steel sockets or any other methods to prevent cathodic corrosion between stainless steel and aluminium.	.....
23.0	Test Reports: Info may be provided on a "stick".	Laboratory must be accredited according to ISO/IEC 17025 and recognised by ILAC/APLAC for Testing of LED products:	
23.1	IEC 60598	EN60598-2-3	.....
23.2	LM-80 LED		.....
23.3	EMC	EN55015, EN61547, 61000-3-2	.....
23.4	Photo-biological Safety	EN 62471	.....
23.6	Factory Certificates	ISO9001	.....
23.7	Certificates for Test facility	IEC17025	.....
23.8	LED Driver	EN 61347-1, -2-13 and EN 62384	.....
24.0	Are the Dialux, or similar simulation software, calculations included with the Tender?		YES / NO
24.1	L_n: Average luminance, cd/m²	≥ 0.3 cd/m²	.....
24.2	U_o: Overall luminance uniformity	≥ 30%	.....

ITEM	DESCRIPTION	SCHEDULE "A"	SCHEDULE "B"
24.3	UI: Longitudinal luminance uniformity	≥ 50%	.....
24.4	TI: Threshold increment	≤ 25%	.....
25.0	Are all the above mentioned test reports included with this Tender?		YES / NO
26.0	Manufacturer	Name and Address	.....
27.0	Delivery Time	To site for installation from date of tender acceptance. (Delivery not to exceed 6 weeks from order.)	.....weeks