C2.2 BILL OF QUANTITIES

BID ERW202109/TNDR-006

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER AND INSTALL HIGH MAST and STREET LIGHTS AT ERWAT WASTEWATER CARE WORKS ON 'AS AND WHEN REQUIRED' BASIS FOR A PERIOD OF THIRTY-SIX (36 NO.) MONTHS

C2.1 Pricing Schedule - Supply of High Mast And Street Lights

A. Preliminary and General

ITEM	DESCRIPTION	UOM	RATE (Incl. VAT)
1.	Measurement Verification	Sum	
2.	Development of Safety File	Sum	
3.	Health and Safety Officer	Sum	

B. Equipment – High Mast Light

ITEM	DESCRIPTION	UOM	RATE (Incl. VAT)
1.	Supply 25-Metre-High Mast Pole	Each	
2.	Erect, Install and Commission of 25-Metre-High Mast Pole	Each	
3.	Supply 25-Metre-High Mast Pole (Scissor Type)	Each	
4.	Erect, Install and Commission of 25-Metre-High Mast Pole (Scissor Type)	Each	
5.	Supply Flood Light fitting (215W LED fitting)	Each	
6.	Install Flood Light fitting (215 W LED fitting)	Each	
7.	Supply Bracket (Ring) to hold 9 flood Lights	Each	
8.	Install Bracket (Ring) to hold 9 flood Lights	Each	
9.	Supply of Hydraulic winch (Single Cylinder)	Each	
10.	Supply of Hydraulic winch (Double Cylinder)	Each	
11.	Supply Electrical panel (450 x 400mm) for high mast including the complete wiring of the high mast and photocell control	Each	
12.	Installation of Electrical panel (450 x 400mm) for high mast including the complete wiring of the high mast and photocell control	Each	
13.	Supply All earthing materials per mast, earth resistance less than 10 ohms	Each	
14.	Installation of All earthing materials per mast, earth resistance less than 10 ohms	Each	
15.	Supply and install Lighting Tele-Management System (as per scope of work)	Each	
16.	Concrete foundation for high mast complete with excavation, steel reinforcing, foundation bolts and template set, back fill and compacting etc.	Each	
17.	Soil bearing pressure test certificates	Each	
18.	Test certificates for concrete 10/30/40 days for every 25m mast foundation	Each	

19.	Electrical certificate of compliance	Each	
20.	Dismantling of obsolete steelwork including the luminaries cluster	Each	

C. Street Light

ITEM	DESCRIPTION	UOM	RATE (Incl. VAT)
1.	Supply 10.5 -Metre-High single swagged Pole	Each	
2.	Erect, Install and Commission of 9-Metre-High single swagged Pole	Each	
3.	Supply Street Light fitting (55 W LED fitting)	Each	
4.	Install Street Light fitting (55 W LED fitting)	Each	
5.	Supply 500mm Single Spigot	Each	
6.	Install 500mm Single Spigot	Each	
7.	Supply and install breaker and photocell control	Each	
8.	Supply All earthing materials per streetlight	Each	
9.	Installation of All earthing materials per streetlight	Each	
10.	Supply and install Lighting Tele-Management System (as per scope of work)	Each	
11.	Test and commissioning complete with certificate of compliance, for every 25m high mast light	Each	
12.	Removal/Dismantling of obsolete Street light including the luminaries cluster	Each	

LOW VOLTAGE CABLE INSTALLATION

ITEM	DESCRIPTION	UOM	RATE (Incl. VAT)
1.	Supply 16mm² x 3Core PVC/SWA PVC cables	m	
2.	Install 16mm² x 3C PVC/SWA PVC cables	m	
3.	Supply 35 mm², 4core PVC/SWA PVC cables	m	
4.	Install 35 mm², 4core PVC/SWA PVC cables	m	
5.	Supply 16 mm² Bare Earth Copper	m	
6.	Install 16 mm² Bare Earth Copper	m	
7.	Supply 10 mm² Bare Earth Copper	m	
8.	Install 10 mm² Bare Earth Copper	m	

EXCAVATION			
ITEM	**DESCRIPTION**	**UOM**	**RATE (Incl. VAT)**
1.	Trenching, including allowance for overcut, placing of material alongside trench and backfilling for a width of 600mm depth x 450mm wide **(Pickable ground)**	Each	
2.	Trenching, including allowance for overcut, placing of material alongside trench and backfilling for a width of 600mm depth x 450mm wide (**Clay ground**)	Each	
3.	Trenching, including allowance for overcut, placing of material alongside trench and backfilling for a width of 600mm depth x 450mm wide (**Hard ground**)	Each	
4.	Trenching for MAST foundation **(Pickable ground)**	Each	
5.	Trenching for MAST foundation (**Clay ground**)	Each	
6.	Trenching for MAST foundation (**Hard ground**)	Each	

C2.2 Delivery of High Mast and Street Lights

Delivery of High Mast and Street Lights and streetlights to the required Water Care Works.

Item	Description	UOM	Amount Excluding VAT
1	Delivery to site (Load Capacity - 1500 kg)	Rate/Km	
2	Delivery to site (Load Capacity – 3500 kg)	Rate/Km	
3	Delivery to site (Load Capacity – 4000 kg Crane Truck)	Rate/Km	

AA RATES VEHICLE CATEGORY WILL BE APPLIED AND ADJUSTED ACCORDING TO CURRENT RATES

ERWAT
EXCELLENCE IN WATER CARE

PROJECT NO:

ERW202109/TNDR-006

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER AND INSTALL HIGH MAST LIGHTS AT ERWAT WASTEWATER CARE WORKS ON 'AS AND WHEN REQUIRED' BASIS FOR A PERIOD OF THIRTY-SIX (36 NO.) MONTHS

C3 SCOPE OF WORK

APPOINTMENT OF SERVICE PROVIDER/S TO SUPPLY, DELIVER AND INSTALL HIGH MAST LIGHTS AT ERWAT WASTEWATER CARE WORKS ON 'AS AND WHEN REQUIRED' BASIS FOR A PERIOD OF THIRTY-SIX (36 NO.) MONTHS

C3.1 DESCRIPTION OF THE WORKS

C3.1.1 Employer's Objectives

The Ekurhuleni Water Care Company (ERWAT) is responsible for the treatment of wastewater from domestic and industrial sources emanating within the City of Ekurhuleni. ERWAT water care works are designed to operate continuously (24 Hours/day). This contract includes the design, supply, delivery to site, off-loading, erection, installation, commissioning, testing, and handing over in full working order a high mast lighting structure, including floodlight luminaries, at various ERWAT plants on an "as and when" basis for a period of thirty-six months. The equipment's mentioned are critical in the operation of ERWAT and therefore needs qualified and experienced service provider/s for Supply and Installation. **This tender will be dependent on the availability of a Capital Budget.**

Note should be taken that the amount that is reflected by the Contractor in the form of offer does not reflect the actual allocated work. Only tendered **rates** offered in the Bill of quantities will be used for each project allocated to the Contractor. Tenderers must allow for all items, whether specified or not, required to complete the installation.

C3.1.2 Mandatory Requirements

Scope related Information and Documentation required:	
Please ensure that the following supporting documents are attached to your Bid Document. Failure to submit the below mentioned documents will result in disqualification of your bid.	
Item	**Description of Document/Proof Sought**
PC-1	Proof of Electrical Contractors Board registration.

C3.1.3 General Requirements

i. Site induction training has to be completed before any work can be undertaken.
ii. Supplier must comply to the ERWAT Permit to Work and Safe operation procedure.
iii. All the relevant work permits, and authorization has to be obtained before any work can be undertaken.
iv. The Contractor is responsible for the development of Method Statements for all works to be accepted by the *Engineer*.
v. All work done and equipment supplied has to be in accordance with the applicable standards as listed in this document.
vi. No work shall be undertaken without an official order or written confirmation via e-mail in case of an emergency from the designated ERWAT representative.
vii. No equipment may be removed from site without written permission from the relevant plant manager and the Engineer.
viii. The installation of any equipment shall include the putting back into operation, testing, special testing (if required) and adjustments on the equipment.
ix. A project and quality control plan will be required for any installation of equipment.
x. All the required tools, consumables, testing facilities, and other requirements to perform the work as per the Contract shall be provided by the supplier.
xi. ERWAT reserves the right to hold supplier responsible for any equipment that will be damaged due to supplier's negligence or poor workmanship.

xii. This bid will be evaluated and awarded per district to a maximum of one (1) bidder in each district, however, in cases where it is not possible to award a maximum of one district to a bidder (due to the number of acceptable bidders), then a bidder may be awarded more than one district, and preference will be given to the highest scoring bidder.
xiii. The Contract is for a duration of Thirty-Six 36 (No.) Calendar Months.
xiv. Prices shall be **FIXED and FIRM** for the duration of the first 12 months of the Contract. Price increments will be based on CPI annually on the anniversary of this tender
xv. All current local content requirement from National treasurer and DTI, refer to MBD 6.2 will be applicable to this contract.
xvi. All new Equipment and newly supplied parts shall carry **a minimum** twelve (12 No.) calendar months **WARRANTY** from date of acceptance by ERWAT representative

C3.1.4 Extent of Works

The Scope of Work for this Contract is (but not limited to): The Contractor shall perform all work and furnish labour, equipment and materials, construction plant, temporary works (including site welfare and temporary supplies), equipment, auxiliaries and accessories, special tools, spare parts and performing all operations and work required for the design, engineering, material selection, manufacturing, inspection and testing, delivery at site including packing, forwarding, loading, transportation to site, transportation from Supplier's premises to construction site, erection, finishing, painting, testing commissioning, performance guarantee tests with all materials, tools.
In line with these requirements, the Contractor will be responsible for all relevant Plans, Working Methodologies and Registers, which will include, but not be limited to:

i. Design, preparation and cast of appropriate foundations.
ii. Design, supply, delivery to site, off-loading, erection, installation, commissioning, testing, and handing over in full working order a 25-meter-high mast pole complete or 25-Meter-High Mast Light (Scissor type) with Luminaries and control panel as specified.
iii. Design, supply, delivery to site, off-loading, erection, installation, commissioning, testing, and handing over in full working order 9-meter streetlight 9 LED 55W, complete with Luminaries and control panel as specified.
iv. Design and construct the reticulation system for the high mast lights. This will include the general arrangement drawings of the Distribution Board, size of the cables and cable routing design from distribution board to the High Mast Lightning System.
v. Earthing and lighting protection design for the high mast lighting system.
vi. Geotechnical studies of proposed sites and issuing of soil test results
vii. Supply the electrical connection point to the base of the pole.
viii. Test and commissioning of the high mast lighting installation.
ix. Description and/or sketches/drawings
x. Issuing of a certificate of compliance (COC) in terms of SANS 0142 Code of Practice.
xi. Quality Assurance system for all aspects of the work

C3.1.5 Technical Scope of Work

The requirements listed below will be applicable to all items to be supplied as listed in the bill of quantities and will not form part of the bid evaluation process. The latest edition, including all amendments to until the date of tender, of the following particular national and international

specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

The standards will be applicable to all equipment supplied and therefore does not form part of the evaluation criteria. All work must be carried out in strict accordance with the following standards:

SANS 10389 -1	Artificial lighting of exterior areas for work and safety.
SANS 121	Hot dip Hot dip galvanized coatings on fabricated iron and steel articles - Specifications and test methods
SANS 475	Luminaires for Interior lighting, Street lighting and Floodlighting performance requirements.
SANS 10144	Detailing of steel reinforcement for concrete.
SANS 10100 – 2	The Structure use of concrete Part 2: Materials and execution of work.
SANS 10142-1	The wiring of premises Part 1: Low-voltage installations
SANS 10144	Detailing of steel reinforcement for concrete
SANS 10225	The design and construction of lighting masts
SANS 10313	Protection against lightning – Physical damage to structures and life hazard
SANS 1091	National Colour Standard
SANS 475	Luminaires: Performance requirements
SANS 10142	Certificate of compliance.

C3.1.5.1 High Mast Lights Design Specification

i. System Electrical Details

Voltage 400V, 3 phase, 50 Hz
Fault level 5 kA at 400V

Details shall be submitted of all designs to ensure compliance with this specification and all relevant regulations. Design calculations and/or actual test results on wind-induced oscillations and the dynamic behaviour of the mast must be available for inspection by the Engineer, in addition to the complete foundation design.

ii. SMART STREET LIGHTING CONTROLLER

A. SPECIFICATIONS

StreetLight Control shall provide a management and reporting tools such as detailed lamp parameters,

real time error reporting and advanced maintenance scheduling tools.
Automatic street lighting operation (ON/OFF and dimming control)

Lamp and grid monitoring, real-time alerts, malfunctions management and triggered commands
Smartphone application support for installation and commissioning

Shall be able to integrate street lighting control hardware solutions from different suppliers.
The software application shall be capable of managing different communication technologies(PLC, GSM/GPRS)

B. GENERAL OPERATION

The luminaire controller shall be designed to perform four major tasks:

(i) Control

The luminaire controller shall receive incoming commands (group commands, manual override commands, detection events) from the segment controller or neighbouring controllers in the mesh network and act accordingly to regulate the light output of the luminaire using its integrated 1-10V/ interface (ON, OFF, 0.100% output).

(ii) Fail-safe

The controller shall in the event of a loss of communication, store the data locally on the individual luminaire controller and will be uploaded to the server as soon as another master node is selected. In the event of communication failure, the luminaire controller shall continue to operate and dim the luminaire based on the settings stored on the luminaire controller and the time stamp saved on the luminaire controller. In case of a disrupted communication, the luminaire controller shall revert to dusk/dawn switching based on ambient light conditions in real-time or based on an astro-clock.

(iii) Monitoring

The monitoring function built into the controller shall measure mains voltage, current, power factor, light source operating hours and accumulative energy consumption of the connected LED driver or ballast assembly and transmit its value on request to the segment controller.

(iv) Reporting

Based on these measurements and/or the information received through the controller determines if the luminaire/light source/LED assembly is operating within the configured threshold. Violations of these thresholds will be reported to the segment controller and an alarm shall be created. This shall also include the energy consumption measurements. Alarms and alerts shall also be set up which will only be triggered once certain conditions have been met, e.g.: 3 luminaire controllers are missing in the system. Specific personnel via SMS or email can then be contacted if required.

(v) Cable theft

The Central Management System shall be capable of detecting and reporting cable theft through an algorithm that identifies when the following conditions exist:

- A user-defined number of controllers report a loss of power
- The loss of power occurs within a user-defined time frame

C. WORKING LOADS

The mast shall carry at its top 9 x 215W LED Floodlights evenly around its circumference. Altitude of Site is 1200m. The design of the mast shall be adequate to withstand (at a temperature of –5ºC) a wind loading of 160 km/h measured at a height of 10m above ground level and acting on the projected area of the mast, luminaire areas and luminaire carriage, taking into consideration the increase in wind speed with height according to the SABS 0225 Code of Practice. A factor of safety of 2.5 is to be applied.

D. MANUFACTURING AND CONSTRUCTION DETAILS

(i) Mast Construction

The masts shall be constructed from conical sections which, when assembled, will form a tapered column of circular cross section. The masts shall have a light cluster lowering and raising mechanism that use**s** steel cables to guide the complete light cluster from the maintenance position on the ground to the in-service position, (High mast type construction). The masts shall be of lightweight construction and a base plate shall be welded to the bottom end of the lowest section suitably drilled for foundation bolts.

All welding to be subject to AWS D1.1 Welding Procedure Specification and shall only be carried out by coded welders, tested according to the AWS specification.

Proof of the relevant Welding Procedure Specification and Welding Qualification documents must be submitted on request.

Inspection and acceptance certificates shall be furnished on request. The steel used in the manufacture of the mast shall have an ultimate tensile strength of between 450 and 620 MPa and identical to SABS 1431 grade 300WA steel.

Proof shall be supplied that the manufacturer is ISO 9001:2000 accredited.

(ii) Dimensions

The masts offered shall give an overall floodlight mounting height of 30 m.

The cross-section and wall thickness of the mast is determined on the basis of the working loads.

(iii) Raising and Lowering Device

Each mast shall be equipped with a three-point hoisting mechanism, consisting of three 6mm diameter stainless steel wire ropes, running over three pairs of Aluminium pulleys on the head frame of the mast running on shafts manufactured from Stainless steel and the bearing/ housing manufactured from UV protected UHDPE. All split pins, bolts, nuts and washers shall be of stainless steel. Pulley shafts shall be positively prevented from rotating in their housings. Two rope systems shall not be considered. The luminaire carriage shall be drawn against three inverted cones to ensure level positioning of the fittings in the operating position. The hoisting ropes, which will remain under tension at all times, shall terminate inside the mast on a clevis plate, to

which the rope of the hoisting unit can be connected or to which, when in the raised position, the locking device can be attached. The locking device shall be secured to a structurally sound member of the mast base. The other ends of the hoisting ropes shall be firmly secured to the luminaire carriage.

(iv) Hoisting Unit

The winch shall be of lightweight construction and mounted on a suitable frame for easy transfer from one mast to another, thus not requiring a winch in each mast. It should also, be easily coupled, uncoupled and removable through the door opening provided at the base of the mast. This shall be a single drum worm gear type, self-sustaining at al loads and operating speeds, without the use of brakes and clutches. It shall have a gear ration of at least 50:1 and be suitable for both hand and power operation.

The winch shall be fitted with a safety device to ensure that the drum is locked positively when the cranking handle or power tool is removed from the drive shaft. The safety device shall be applied automatically. A test certificate, stating the safe working load of the winch and issued by a recognised testing authority, shall be supplied with each winch. Winches shall be fitted with a label and rating plate of a permanent nature in an easily visible position.

(v) Hydraulic power tool

A Hydraulic power tool is required to drive the single drum winch and must have the following specifications: A 1.5Kilowatt single-phase electrical motor running at 1440 rpm. A Hydraulic motor with variable speed ranging between 214 rpm and 268 rpm.

(vi) Access Opening

An access door adequately protected against the weather shall be provided in the mast, with the bottom lintel 600mm above the base plate. The door shall be adequately protected against vandalism and secured by three screws requiring a special opening tool. A doorframe shall reinforce the opening in the mast. The mounting strips welded opposite the door opening shall be drilled for the mounting of a control board. Earth terminals, as well as a support bar for the incoming supply cables, shall be provided below the door opening.

(vii) Corrosion Protection

All parts of the mast and raising and lowering device, not specified as manufactured from stainless steel, shall be hot dip galvanised in compliance with the requirements of S.A.B.S. ISO 1461 and test certificates shall be provided if required. No welding, drilling, punching, bending or removal of burrs shall be carried out after galvanising.

(viii) Electrical Connection to the Luminaires

A flexible, heavy-duty 5-core trailing cable, which runs over a separate set of Aluminium sheaves at the head frame, shall be provided. Sheaves shall be of Aluminium, running on UHDPE shafts. The shafts shall be positively secured from rotating in their housings. The Aluminium sheaves shall be adequately sized to prevent deformation of the cable.

The trailing cable shall be firmly connected to the luminaire carriage at its one end and to the clevis plate at the other end. Suitable connectors of the CEE type with a IP44 rating shall be provided.

(ix) Reinforced Concrete

- ❖ All concrete work is required to be in accordance with SANS 2001-CC1 and SANS 10100-
- ❖ The contractor is required to obtain written acceptance from the Project Manager for the use of any add-mixture or the use of ready mixed concrete, to pump concrete, or to use cement or cement blends other than Ordinary Portland Cement (OPC).
- ❖ Compaction of concrete is required to be done by means of mechanical vibrations only.
- ❖ The contractor is required to demonstrate, by means of a report from an approved Laboratory, that the aggregates do not exhibit excessive shrinking properties in accordance with SANS 1083 and is also required to demonstrate that the aggregates do not have a potential alkali silica reaction.
- ❖ The contractor is required to do slump tests on each new batch of concrete, and each time a sample is taken, the results recorded.
- ❖ All reinforcing and foundation bolts shall have a minimum of 75mm concrete cover. The 28 days cube strength of the concrete shall be 25 MPa.
- ❖ All foundations shall have a circular flat base from which a square plinth shall rise to above the surrounding ground level.
- ❖ After casting of the foundation, the slab shall be covered by earth, properly compacted. The area around the plinth shall be brought to the original level and shall be left neat and tidy.

E. REINFORCED CONCRETE

- ❖ All concrete work is required to be in accordance with SANS 2001-CC1 and SANS 10100-2.
- ❖ The contractor is required to obtain written acceptance from the Project Manager for the use of any add-mixture or the use of ready mixed concrete, to pump concrete, or to use cement or cement blends other than Ordinary Portland Cement (OPC).
- ❖ Compaction of concrete is required to be done by means of mechanical vibrations only.
- ❖ The contractor is required to demonstrate, by means of a report from an approved Laboratory, that the aggregates do not exhibit excessive shrinking properties in accordance with SANS 1083 and is also required to demonstrate that the aggregates do not have a potential alkali silica reaction.
- ❖ The contractor is required to do slump tests on each new batch of concrete, and each time a sample is taken, the results recorded.
- ❖ All reinforcing and foundation bolts shall have a minimum of 75mm concrete

cover. The 28 days cube strength of the concrete shall be 25 MPa.

- ❖ All foundations shall have a circular flat base from which a square plinth shall rise to above the surrounding ground level.
- ❖ After casting of the foundation, the slab shall be covered by earth, properly compacted. The area around the plinth shall be brought to the original level and shall be left neat and tidy.

F. EARTHING OF MAST

Sectional Poles standard system consisting of 2 x 1.2m earth spikes, installed under foundation and connected to foundation bolts via 70mm² copper conductors with brass clamps.

1) Corrosion Protection

1.1) All parts of the mast, carriages, etc. not specified as stainless shall be hot-dip galvanised to SABS 763/77.

1.2) No welding, drilling, punching, bending or removal of burrs shall occur after galvanising and stringent precautions shall be taken to protect finished surfaces from damage during assembly, transit, storage and erection.

1.3) The inside of the columns shall be painted with one layer of epoxy tar after galvanising.

1.4) The space between the top of the concrete foundation and the underside of the base flange shall be filled with a suitable compound after provision of a vermin proof drainage hole. The cable entry pipes shall not be obstructed.

G. ELECTRICAL CONSTRUCTION

1) An electrical distribution board shall be provided in an easily accessible position and fitted with a photocell/contactor to automatically switch on/off at a minimum lighting level of 7.5 lux.

2) This distribution board shall be fitted in the space provided in the bottom part of the mast, (the fixed part in the case of the mid hinge structure) and shall be totally enclosed and effectively protected from the elements and dust.

3) The photocell shall be located on the mast such that it cannot be damaged or removed by unauthorised personnel.

4) During normal operation the enclosures for all electrical equipment shall be **IP55** (to IEC144).

5) The distribution board shall be fitted with appropriate circuit breakers, earth leakage units (30 mA), an industrial (15A) socket outlet, earth and neutral bars.

6) An adequately rated, triple pole Moulded Case Circuit Breaker shall be provided as an incoming isolator to the board. Single pole moulded case circuit breakers may be used for control of the luminaires.

7) A three phase, neutral and earth socket outlet shall be provided for connection of the supply cable to the luminaires and shall be protected by the circuit breakers.

8) Each control unit on the distribution board shall be clearly labelled by means of engraved labels of an approved material. Labels shall be firmly attached to the board by means of galvanised screws and indicate the designation of each circuit controlled.

9) All cables used shall bear the SABS mark and shall be suitably rated for the contactor and luminaires. An additional core shall be made available for earthing. Cables shall be heavy duty flexible trailing cable, suitable for the bending and load carrying stresses.

10) Both ends of the cable shall in each case be fitted with an adequately rated, 3 phase, neutral and earthing plug-in connector (IP55) bearing the SABS mark. The plug-in connector shall match the socket outlet on the distribution board and the socket outlet mounted in a weatherproof, corrosion resistant terminal box on the luminaire carriage.

H. Aircraft Warning Light

An aircraft warning light, complete with its own cable, and on a separate circuit to the floodlighting system, shall be provided. The system shall in all respects comply with the regulations laid down by the Department of Civil Aviation.
Battery plugs or solar cell panels supplied with the system shall be tracked down with the carriage for maintenance purposes.

I. Lightning Protection

A means of positive protection of all equipment against lightning strikes must be quoted for as a separate item and details of the proposed system shall be provided at tender stage.
Note: Fuses shall not be permitted. All protection to be provided by means of circuit breakers.

C3.2 ENGINEERING

C3.2.1 HIGH MAST LIGHTS Datasheet: This is the minimum specifications ERWAT will consider: Failure to complete the datasheet in full will lead to disqualification

HIGH MAST LIGHTS DATA SHEET			
Item No	**Description**	**Specified: Engineer**	**Offered: Supplier**
	Mast Type	Winch	
	Manufacturer		
	Supplier		
	Communication Protocol	GPS & GSM & IpV6 Module	
	Web Management Interface	Yes	
	Cable theft detection	Yes	
MAST CONSTRUCTION			
	Mast Height	30m	
	Mast Tensile Strength	450 - 620 MPa	
	Cross Section of Mast	Circular	
	Type of Luminaires	LED	
	Aircraft Warning light	Included	

	Corrosion Protection	Hot Dip Galvanised to ISO 1461	
DUTY DESCRIPTION			
	Temperature	-5,5ºC to 40ºC	
	Humidity	95% non-condensing	
SYSTEM ELECTRICAL DETAILS			
		400 V, 3 Phase , 50 Hz	
	Fault Level	5 kA at 400 V	
WORKING LOADS			
	Lights carried by Mast	9 X 215 W LED Floodlights	
	Wind loading	160 km/h measured at 10m above ground	
	Luminaire warranty	50000 Hours (min years)	
DELIVERY PERIOD – INCLUDING INSTALLATION			
	Delivery Period (Working Weeks)		

C3.2.2 STREET LIGHT Datasheet: This is the minimum specifications ERWAT will consider: Failure to complete the datasheet in full will lead to disqualification

STREETLIGHTS DATA SHEET			
Item No	**Description**	**Specified: Engineer**	**Offered: Supplier**
	Spigot sizes for luminaire attachment	34mm diameter	
	Spigot sizes for outreach attachment	54mm diameter	
	Manufacturer	**---**	
	Supplier	**----**	
	Communication Protocol	GPS & GSM & IpV6 Module	
	Web Management Interface	Yes	
	Cable theft detection	Yes	
POLE CONSTRUCTION			
	Pole Height	10.5 m	
	Mast Tensile Strength	450 - 620 MPa	
	Cross Section of Mast	Circular	
	Type of Luminaires	LED	
	Aircraft Warning light	Included	

	Corrosion Protection	Hot Dip Galvanised to ISO 1461	
DUTY DESCRIPTION			
	Temperature	-5,5ºC to 40ºC	
	Humidity	95% non-condensing	
SYSTEM ELECTRICAL DETAILS			
		400 V, 3 Phase , 50 Hz	
	Fault Level	15 kA at 400 V	
WORKING LOADS			
	Lights	4000K (Neutral white 740)	
	Wind loading	160 km/h measured at 10m above ground	
	Luminaire warranty	50 000 Hours(min 5 years)	
DELIVERY PERIOD – INCLUDING INSTALLATION			
	Delivery Period (Working Weeks)		