REPUBLIC OF KENYA

TURKANA COUNTY GOVERNMENT

KAKUMA MUNICIPAL BOARD

KENYA URBAN SUPPORT PROGRAMME II (KUSP II)

URBAN DEVELOPMENT GRANT - WORLD BANK

STREET AND PUBLIC SPACES LIGHTING

KAKUMA MUNICIPALITY

TENDER DOCUMENT

TENDER NO: TCG/KKM / 11 / 2026-2027

Negotiation No. :2703770

November, 2026

Solar high mast lighting and CCTV monitoring, 6 No. masts - Open national competitive tender

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Section A - Invitation to tender

A.1 Invitation

The Kakuma Municipal Board of Turkana County Government invites sealed tenders from eligible tenderers for the design verification, supply, delivery, installation, testing and commissioning of 6 No. 25 metre solar powered high masts at six public space nodes in Kakuma Municipality, together with a CCTV monitoring system on those masts and a monitoring centre at the offices of the Municipal Board. This is Package 2 of two packages. The solar street lighting of the corridors is tendered separately under Package 1, GPS-KKM-TD-001, and a tenderer may bid for either package or for both.

This tender covers the high mast works only. The solar street lighting works for the Kakuma and Kalobeyei corridors are tendered separately under document GPS-KKM-TD-001. A tenderer may tender for either or for both.

Bill	Scope	Locations	Quantity
1	Solar high mast lighting	Somali Market, Hong Kong Market and Burundi Market	6 masts
2	CCTV monitoring and control centre	All twelve mast positions and the Kakuma Municipal Board offices	12 units, 1 centre

Table A.1 Scope of the works.

Each mast is 25 metres high on an anchor bolt base and carries eight 300 watt class semi integrated solar LED flood modules, each with its battery within the luminaire body, together with eight external photovoltaic modules, all mounted on a lowerable lantern carriage at the mast head. Every installation is fully solar powered and requires no grid connection.

A.2 Tender particulars

Item	Particulars
Procuring entity	Kakuma Municipal Board, Turkana County Government
Financier	World Bank, Kenya Urban Support Programme II, Urban Development Grant
Tender number	TCG/KKM/11/2026-2027
Negotiation number	2703770
Procurement method	Open national competitive tendering
Procurement regime	Public Procurement and Asset Disposal Act, 2015 and Regulations 2020
Contract type	Single contract, two Bills of Quantities, admeasurement
Bills of Quantities	GPS-KKM-BOQ-002, issued with this document
Tender security	Tender security from a reputable bank guarantee, valid for 150 days
Tender validity	120 days from the date of tender opening
Performance security	10 per cent of the contract sum, by bank guarantee
Contract period	22 weeks from the date of the order to commence
Defects liability period	12 months from the date of taking over
Retention	5 per cent of certified value, half released at taking over
Advance payment	10 per cent against an equivalent advance payment guarantee
Liquidated damages	0.05 per cent of the contract sum per day, capped at 10 per cent
Site visit	Mandatory, arranged through the Municipal Board, certificate to be submitted
Price basis	Fixed price, not subject to fluctuation

Item	Particulars
Currency	Kenya Shillings

Table A.2 Tender particulars.

A.3 obtaining the tender document

The complete tender document may be obtained from the offices of the Kakuma Municipal Board during working hours, or downloaded from the Turkana County Government website and from the Public Procurement Information Portal. Tenderers who download the document shall immediately forward their particulars to the Municipal Board so that any addendum can be issued to them.

A.4 Submission

Tenders shall be submitted in a plain sealed envelope bearing only the tender name and reference and no mark identifying the tenderer, and deposited in the tender box at the offices of the Kakuma Municipal Board on or before the date and time stated in the invitation. Tenders shall be opened immediately thereafter in the presence of tenderers or their representatives who choose to attend. Late tenders shall be rejected unopened. Every page of the submission shall be serialized.

A tenderer submitting for both this tender and the street lighting tender GPS-KKM-TD-001 shall submit two separate and complete sealed tenders. A single combined submission shall not be accepted.

A.5 Clarification and addenda

Requests for clarification shall be submitted in writing not later than seven days before the deadline for submission. Any clarification or addendum shall be issued in writing to all tenderers who obtained the document, and shall form part of it.

Section B - Instructions to tenderers

B.1 Eligibility and statutory qualification

This contract is for the design, supply, installation, testing and commissioning of solar photovoltaic lighting systems and associated civil, structural and electrical works. A tenderer shall hold, in its own name and valid at the date of tender opening, each of the following. Licenses held by an associate, a parent, a sister company or a proposed supplier do not satisfy these requirements except where expressly stated.

#	Requirement	Authority	Evidence
1	Solar photovoltaic system contractor license, Class C1 or Class C2	Energy and Petroleum Regulatory Authority, under the Energy (Solar Photovoltaic Systems) Regulations, 2012	Certified copy of the license, valid at tender opening
2	At least one Class T3 solar photovoltaic system technician in the tenderer's employment	EPRA, reg. 4(3)(c) of the said Regulations	Certified copy of the T3 license, plus a notarized consent letter and proof of employment for not less than twelve months
3	Solar photovoltaic vendor license, Class V1 or Class V2, held by the tenderer or by the vendor through whom the equipment is to be supplied or imported	EPRA, reg. 6(3)(b) and (c)	Certified copy of the license, and where held by a vendor, a signed supply undertaking naming this contract
4	Electrical contractor license, Class C1 or above	EPRA, under the Energy Act, 2019	Certified copy of the license
5	Registration as a contractor in the Electrical Works category, NCA 3 or above	National Construction Authority, under the National Construction Authority Act, 2011	Certified copy of the practicing license for the current year
6	Registration of the key electrical technicians	Kenya Engineering Technology Registration Board, under the Engineering Technology Act, 2016; the Engineers Board of Kenya where the person is a registered engineer	Certified copies of the registration certificates and the current annual practicing licenses
7	Registration of the lead design engineer as a Professional Engineer	Engineers Board of Kenya, under the Engineers Act, 2011	Certified copy of registration and current practicing license
8	Tax compliance, business registration and statutory returns	Kenya Revenue Authority; Registrar of Companies; NSSF; SHA	Valid tax compliance certificate and certificate of incorporation
9	Registration on the Integrated Financial Management Information System supplier database	The National Treasury	Supplier number and registration printout

Notes on the license classes

(a) Class T3 is the highest technician class under the Solar Photovoltaic Systems Regulations and is the only class without a system size limit. Class T1 is restricted to systems up to 100 Wp and Class T2 to systems up to 300 Wp. A single mast on this contract carries 3.20 kWp with a 28 kWh store. Neither T1 nor T2 is adequate and neither will be accepted.

(b) A Class C1 contractor license requires the holder to be, or to employ, a Class T3 technician. A tenderer offering a C1 license without an identified T3 technician has not met requirement 2 and shall be disqualified.

(c) Classes V1 and V2 are vendor classes. V1 covers the design, distribution, promotion, sale and installation of solar photovoltaic systems; V2 covers their manufacture or import. This contract imports solar modules, lithium iron phosphate batteries, 96 floodlight modules and 12 standalone solar CCTV units. Whoever imports or sells that equipment must hold the appropriate class, and the tenderer shall demonstrate at tender stage where in its supply chain that license sits.

(d) NCA 3 or above is required in Electrical Works. Registration at a higher class is acceptable. The National Construction Authority Regulations limit the value of works a contractor may undertake by class and by sub class, and a tenderer shall satisfy itself that its registration permits it to undertake works of the

value of this Contract. The registration shall be held by the tenderer in its own name and shall be current for the year of tendering.

(e) Engineers register with the Engineers Board of Kenya. Engineering technologists and technicians register with the Kenya Engineering Technology Registration Board established under the Engineering Technology Act, 2016. Evidence shall be submitted from whichever board is correct for the person concerned; a certificate from the wrong board will be treated as no certificate.

B.2 Cost of tendering

The tenderer bears all costs of preparing and submitting its tender and of attending the mandatory site visit. The Employer is not liable for those costs regardless of the conduct or outcome of the process.

B.3 Site visit

The tenderer shall visit and examine each of the six public spaces at which masts are to be erected, together with their access routes and surroundings, and shall satisfy itself as to the nature of the ground, the access available for a mobile crane and for a vehicle carrying 9 metre mast sections, the availability of labour, materials, water and power, and all other matters bearing on the execution of the works. Attendance is mandatory and the site visit certificate, signed and stamped by the Municipal Board, shall be submitted with the tender. A tender submitted without it shall be rejected.

B.4 Content of the tender

The tender shall comprise the Form of Tender, the priced Bills of Quantities GPS-KKM-BOQ-002, the tender security, the Guaranteed Technical Particulars of Section D completed in full, and every document listed in Section E.1. Documents shall be submitted in the order in which they are listed, indexed and serialized.

B.5 Pricing

The tenderer shall price every item in the Bills of Quantities. An item left unpriced shall be deemed to have been covered elsewhere in the Bills and no claim for it shall be entertained. Rates are deemed to include all labour, plant, materials, transport to site, temporary works, overheads, profit and every obligation under the Conditions of Contract. Where a unit rate and a total price differ, the unit rate prevails.

B.6 Alternatives

Alternative technical proposals are not invited. In particular, a fully integrated all in one flood luminaire, and a flood luminaire served by a ground mounted array or a ground level battery enclosure, are not acceptable and a tender offering either shall be declared non responsive.

B.7 Confidentiality

Information relating to the examination, evaluation and comparison of tenders shall not be disclosed to tenderers or to any person not officially concerned with the process until notification of award. Any attempt by a tenderer to influence the Employer in the evaluation shall result in the rejection of its tender.

B.8 Award

The contract shall be awarded to the tenderer whose tender has been determined to be the lowest evaluated responsive tender, provided that the tenderer is determined to be qualified to perform the contract satisfactorily. The Employer reserves the right to accept or reject any tender and to annul the process at any time before award without incurring liability.

Section C - Conditions of contract

C.1 General

The contract shall be executed under the conditions of contract for works contained in the standard tender document issued by the National Treasury under the Public Procurement and Asset Disposal Act, 2015, as amended by the particular conditions set out below. Where there is conflict, the particular conditions prevail.

C.2 Particular conditions

Clause	Particular condition
Language and law	English; the laws of Kenya
The Engineer	Gizaa Power Solutions, or such other person as the Employer may appoint
Site possession	Within 14 days of the order to commence
Programme	A detailed programme showing each activity for each of the two projects shall be submitted within 14 days of the order to commence and updated monthly
Sub-contracting	Not permitted without the written consent of the Employer, and in no case exceeding 20 per cent of the contract sum
Materials on site	Not certified for payment until delivered to site, inspected and secured. No lighting material shall be certified unless it was procured against an LM-79 report approved in writing by the Engineer
Interim certificates	Monthly, minimum certified value KES 5,000,000
Lifting operations	A lift plan, the crane certificate of test and the operator's certificate of competence shall be submitted and approved before any mast section is lifted
Testing	Factory acceptance testing shall be witnessed by the Engineer before shipment, and shall include a full assembly and function test of the carriage, winch and power tool. Site acceptance testing shall precede taking over
Training	Not less than 5 working days of training for the Employer's nominated staff before taking over, including operation of the raising and lowering gear
As built records	As built survey drawings, the asset register, the erection sheets recording slip joint penetration, and operation and maintenance manuals in triplicate shall be submitted before taking over
Dispute resolution	Adjudication, then arbitration under the Arbitration Act, 1995, seated in Nairobi

Table C.1 Particular conditions of contract.

C.3 Environmental and social obligations

The Contractor shall comply with the Environmental and Social Management Plan for the works and with the environmental and social standards of the financier. The Contractor shall operate a grievance redress mechanism jointly with the Employer, shall source unskilled labour locally from both the host community and the refugee population, shall report the composition of its workforce monthly, and shall comply with the labour and working conditions requirements of the programme. Because every mast stands within an active trading area, the Contractor shall agree the position of each mast and the working hours at each node with the relevant trader association before any excavation begins. Monthly environmental and social reporting is a condition of interim payment.

C.4 Community engagement and corporate social responsibility

The Contractor shall, within 28 days of the order to commence, submit for the approval of the Engineer a programme of community engagement and corporate social responsibility activity to be undertaken within the areas served by the works, developed in consultation with the Kakuma Municipal Board and with the community structures at each node.

This obligation is separate from and additional to the Contractor's obligations under the Environmental and Social Management Plan, and performance of one shall not be set against the other.

C.5 Branding and visibility

Every mast shall carry a permanent engraved aluminium plaque of not less than 300 by 200 by 3 millimetres bearing the identities of the Republic of Kenya, the Turkana County Government and the World Bank together with the project particulars, fixed at between 1.5 and 2.0 metres above ground level with tamper resistant fixings. Artwork shall be submitted for the approval of the Engineer before manufacture.

Section D - Specification

D.1 General

The works shall be executed in accordance with this Specification, drawing DWG-002, the Bills of Quantities GPS-KKM-BOQ-002 and the standards listed in the Feasibility, Master Plan and Detailed Designs Report GPS-KKM-FMP-001. Where standards conflict, the Engineer shall determine which applies. All materials shall comply with the relevant Kenya Bureau of Standards specification where one exists.

The design is complete and is issued for construction. The Contractor is responsible for verifying the photometric design by DIALux simulation using the photometric files of the products actually offered, and for producing shop drawings for the mast, the lantern carriage, the winch, the head frame and the photovoltaic mounting, before any manufacture is released.

D.2 Approval of lighting materials, LM-79 reporting

No flood module and no photovoltaic module shall be ordered, manufactured or procured until the Contractor has submitted, and the Engineer has approved in writing, an LM-79 photometric test report issued by a laboratory accredited to ISO/IEC 17025 for the exact model to be supplied. The report shall be dated within the preceding twenty four months and shall state the measured luminous flux, the measured input power, the luminous efficacy, the correlated colour temperature, the colour rendering index and the photometric distribution, and shall be accompanied by the corresponding LM-80 report for the LED package and the TM-21 projection of lumen maintenance.

The values in the LM-79 report shall not be less favourable than those entered by the Contractor in the Guaranteed Technical Particulars at Section D.3. Where a reported value is less favourable, the Engineer shall reject the material and the Contractor shall offer a compliant alternative at no additional cost and with no extension of time. The measured input power stated in the LM-79 report is the figure against which the energy design of Section D.5 shall be re verified before manufacture is released.

Lighting material delivered to site without a prior written approval issued against an LM-79 report shall be rejected and removed from site at the Contractor's expense. The Engineer may, at any time before taking over, require a sample drawn at random from the delivered population to be independently tested against the approved report, at the Contractor's cost if the sample fails.

D.3 Guaranteed Technical Particulars

The tenderer shall complete every line of the Guaranteed Technical Particulars below, entering the value offered in the response column and supporting each entry with a manufacturer's datasheet in which the relevant figure is marked. An entry that is not supported by a marked datasheet shall be treated as not offered. Only one datasheet per item of equipment shall be submitted; a submission offering more than one model for the same item shall be declared non responsive.

D.3.1 Semi integrated solar LED flood module

The flood module shall be of semi integrated construction: the LED array, the driver, the MPPT charge controller and the battery shall be housed within a single die cast aluminium luminaire body, and the photovoltaic module shall be a separate external unit connected to that body by a cable and gland. Fully integrated all in one units and units with a remote or ground mounted battery are not acceptable.

Parameter	Requirement	Offered
Manufacturer and brand	State	
Model number	State	

Parameter	Requirement	Offered
Construction	Semi integrated: battery within the luminaire body, external photovoltaic module	
Rated power	300 W class, minimum 300 W	
Measured input power at full output	State, supported by LM-79 report	
Luminous flux, minimum	30,000 lm	
Luminous efficacy, minimum	160 lm/W	
Correlated colour temperature	5,700 K, tolerance 300 K	
Colour rendering index, minimum	70	
Beam distribution	Asymmetric forward throw, 90 or 120 degree	
Ingress protection	IP68	
Impact protection	IK08 minimum	
Surge protection	20 kV	
Housing	Die cast aluminium, anti-corrosion finish	
Lens	Tempered glass, anti-ultraviolet	
Integral battery chemistry	Lithium iron phosphate	
Integral battery capacity, minimum	3,500 Wh	
Battery cycle life, minimum	5,000 cycles at 80 per cent DoD	
Battery management system	Integral, with cell balancing and thermal protection	
Charge controller	Integral MPPT with temperature compensation	
Control	Programmable burn profile, dusk to dawn, remote reprogrammable	
Autonomy on the specified burn profile, minimum	2 nights without charge	
Operating temperature range	Minus 20 to plus 60 degrees Celsius	
Rated LED life, L80	Minimum 80,000 hours	
LM-79 report reference and laboratory	State. Accredited to ISO/IEC 17025	
Bracket	Adjustable trunnion, plus or minus 90 degrees	
Overall dimensions	State	
Mass including battery	State, not exceeding 55 kg	
Frontal area	State, not exceeding 0.20 m2	
Warranty	Minimum 5 years on the complete module	
Certification	CE, RoHS, LM-79, LM-80, IEC 62133, IEC 62471	

D.3.2 External photovoltaic module

Parameter	Requirement	Offered
Manufacturer, brand and model	State	
Quantity	One module to each flood module, 8 per mast, 96 in total	

Parameter	Requirement	Offered
Cell type	Monocrystalline	
Rated power per module, minimum	400 Wp	
Module efficiency at STC, minimum	22 per cent	
Mechanical load	5,400 Pa superimposed, 2,400 Pa suction, IEC 61215	
Junction box	IP68, three bypass diodes	
Connectors and interconnecting cable	MC4, IP68, EN 50521, UV resistant	
Mounting	Hot dip galvanized rails and clamps to the lantern carriage, tilt 10 degrees	
Salt mist and ammonia resistance	IEC 61701, IEC 62716	
Dimensions and mass	State	
Product warranty	Minimum 10 years	
Performance guarantee	90 per cent at 10 years, 80 per cent at 25 years	

D.3.3 High mast, lantern carriage and raising and lowering gear

Parameter	Requirement	Offered
Manufacturer and brand	State	
Mast height	25,000 mm	
Cross section	Continuously tapered polygonal, minimum 8 sided	
Number of sections	3, joined by slip stressed fit	
Minimum overlap at each joint	1.5 times the diameter at penetration	
Base and top diameter	550 mm and 200 mm	
Plate and grade	10 mm, BS EN 10025 S355J2	
Longitudinal welds per section, maximum	2, no circumferential seam weld	
Galvanizing	ISO 1461, minimum mean 86 microns, single dipping	
Base plate	900 mm diameter x 45 mm with 8 gussets	
Anchor bolts	8 No. M42 x 1400 grade 8.8 on 750 mm PCD	
Door opening	950 x 250 mm at 350 mm, vandal resistant, double internal lock	
Lantern carriage	Two halves, bolted, PVC lined, hot dip galvanized	
Carriage capacity	8 No. flood modules and 8 No. photovoltaic modules, self-balancing, not less than 700 kg	
Winch	Self-sustaining, gear ratio 50:1, with test certificate	
Power tool	Electrically driven with torque limiter and manual override	
Wire ropes	3 No. continuous, 316 stainless, 7/19, factor of safety not less than 5	
Lowering position	1,000 mm above foundation level	

Parameter	Requirement	Offered
Lightning finial	Minimum 1,200 mm, bolted to the head frame	
Design wind speed	25 m/s, 10 minute mean, factor of safety 1.5	
Design calculations	To be submitted with the tender, signed and stamped	

D.3.4 Mast base equipment

Parameter	Requirement	Offered
DC distribution board	IP65, within the mast base compartment	
Isolators and over current protection	Rated for the full carriage load	
Surge protection	Type 2, on the carriage circuit	
Monitoring unit	GSM, reporting state of charge, load status, door opening and tamper	
Monitoring platform	Registered in the name of the Employer, credentials handed over	
Cabling to carriage	Flexible, UV and abrasion resistant, with strain relief	

D.4 Civil and structural works

Concrete shall be class C25/30 to BS EN 206 with a minimum cement content of 320 kilograms per cubic metre. Three cubes shall be cast for each foundation, cured and tested for compressive strength at the nearest Materials Testing and Research Division laboratory, and the certificates shall be submitted before the mast is erected. Reinforcement shall be high yield steel to BS 4449 grade 500B. Blinding shall be 50 millimetres of class C15.

Each mast foundation is 4.2 by 4.2 metres by 1.9 metres deep, containing 33.52 cubic metres of concrete and 850 kilograms of reinforcement in three mats of T16 at 200 millimetre centres both ways. Excavation shall be to the dimensions shown, kept free of water, and inspected by the Engineer before blinding. The anchor bolt cage shall be set on two steel templates and its level and orientation shall be checked and recorded before casting. The base plate shall be set on levelling nuts and bedded in vented non shrink grout after the mast has been plumbed.

D.4a Concrete: classes, mix proportions and control

All structural concrete shall be a designed mix to BS EN 206 and BS 8500-2, produced from a weigh-batched plant, delivered with a conformity certificate for each load and verified by cube testing. Volumetric batching by gauge box is permitted only where expressly stated below. The Contractor shall submit trial mix results for each class and each source of aggregate, for the Engineer's approval, not less than twenty-eight days before the first pour.

Concrete classes

Element	Class	Min. cement	Max. w/c	Slump	Cover
High mast foundation block and pedestal	C25/30	320 kg/m3	0.55	75 ± 25 mm	75 mm
Street lighting column base	C25/30	320 kg/m3	0.55	75 ± 25 mm	50 mm
Blinding beneath all foundations	C15/20	180 kg/m3	0.70	50 ± 25 mm	–
Bollard and plinth infill	C20/25	260 kg/m3	0.60	75 ± 25 mm	40 mm

Cement shall be CEM II/B-L 32, 5 N or CEM I 42, 5 N to KS EAS 18-1. Where the sulphate content of the ground water at any mast position exceeds class DS-2 of BS 8500-1 on test, the Engineer shall instruct a sulphate-resisting cement and the foundation concrete shall be re-classified accordingly.

Nominal mix proportions by volume

The following nominal volumetric proportions are given for the guidance of the Contractor's site staff and for use where volumetric batching is permitted. Proportions are cement : fine aggregate : coarse aggregate, measured in gauge boxes of 300 x 300 x 400 mm, one box being taken as equivalent to one 50 kg bag of cement. Coarse aggregate shall be 20 mm nominal size, clean, angular and free of shale.

Class	Nominal mix	Per 50 kg bag of cement	Cement per m3	Water
C25/30	1 : 1½ : 3	1½ boxes sand, 3 boxes ballast	8 bags (400 kg)	22 to 25 litres
C20/25	1 : 2 : 4	2 boxes sand, 4 boxes ballast	6½ bags (325 kg)	25 to 28 litres
C15/20	1 : 3 : 6	3 boxes sand, 6 boxes ballast	4½ bags (225 kg)	28 to 30 litres

Water quantities are for saturated surface-dry aggregate and shall be reduced by the free moisture carried by the sand, which in Turkana conditions is commonly between two and six per cent by weight. The water-cement ratio tabulated for the class shall not be exceeded under any circumstances, and water shall not be added at the point of placing to recover workability.

Where volumetric batching is and is not permitted

(a) Permitted without further approval for blinding of class C15/20 in any quantity, and for pours of class C20/25 or C25/30 not exceeding 5 m3 in a single operation.

(b) Not permitted for the high mast foundation blocks. Each block contains 33.52 m3 of class C25/30 placed as a single continuous pour around a pre-set anchor bolt cage, and the strength of that block is the strength of the whole structure. These pours shall be supplied from a weigh-batched plant, whether a ready-mixed supplier or a site batching plant with calibrated load cells.

(c) Where the Engineer exceptionally permits volumetric batching for a C25/30 pour exceeding 5 m3, the minimum cement content shall be raised to 8½ bags per cubic metre, cube testing shall be doubled, and the Contractor shall bear the cost of any additional testing and of any rejected work.

Testing, placing and curing

(a) Cubes shall be taken to KS EAS 139 and BS EN 12390: one set of six 150 mm cubes for every 20 m3 or part thereof of each class placed on any one day, and not less than one set per mast foundation. Three cubes shall be crushed at seven days and three at twenty-eight days.

(b) The twenty-eight day characteristic strength shall be attained before any mast or column is erected on the foundation. No erection shall proceed on seven-day results alone.

(c) Concrete shall be placed within thirty minutes of discharge, compacted by immersion vibrator in layers not exceeding 300 mm, and shall not be placed when the ambient shade temperature exceeds 35 degrees Celsius without the Engineer's written approval of hot weather concreting measures.

(d) Curing shall be continuous for not less than seven days by ponding, by hessian kept permanently wet, or by an approved curing membrane. Given the evaporation rates at Kakuma and Kalobeyei, exposed surfaces shall be protected from direct sun and wind for the first twenty-four hours in every case.

(e) Anchor bolt cages shall be set to a template, checked for level and orientation immediately before and immediately after the pour, and shall not be disturbed until the concrete has attained its seven-day strength.

D.5 Energy design verification

The energy design shall be re verified by the Contractor against the measured input power recorded in the approved LM-79 report, using a worst month resource of 5.40 peak sun hours, a system efficiency of 0.75, two nights of autonomy and a maximum depth of discharge of 0.80, on a burn profile of five hours at full output followed by six and a half hours at 40 per cent. Where the verification shows the specified minima to be insufficient, the Contractor shall increase the array or the storage at no additional cost.

D.6 Earthing and lightning protection

Each mast shall be earthed by 25 by 4 millimetre copper tape run within the shaft to two earth electrodes in inspection pits, bonded to the foundation reinforcement. No external run of copper tape is permitted. The measured resistance at each mast shall not exceed 10 ohms and shall be recorded on the test certificate. The lightning finial shall be bolted to the head frame and not to the lantern carriage.

D.7 Testing and commissioning

Factory acceptance testing shall be witnessed by the Engineer before shipment and shall cover verification of the output against the approved LM-79 report, ingress protection, storage capacity, and a full assembly and function test of the carriage, winch and power tool. Site acceptance testing shall cover insulation resistance, earth resistance, controller programming, a full raise and lower cycle of every carriage with the cycle time recorded, and a night time illuminance survey at each node verified against the design.

D.8 Submittals

Ref	Submittal	Timing
T-1	Shop drawings for mast, carriage, head frame, winch and PV mounting	Within 21 days of the order to commence
T-2	Structural design calculations for mast, carriage and wire ropes	With the tender and confirmed within 21 days
T-3	LM-79 report from an ISO/IEC 17025 accredited laboratory, with LM-80 and TM-21, for the flood module and the photovoltaic module offered	For written approval before any lighting material is ordered or procured
T-4	DIALux photometric verification for each of the six nodes	Before manufacture is released
T-5	Energy design re verification against the approved LM-79 measured input power	Before manufacture is released
T-6	Manufacturer's datasheets and test reports for every item	With the tender
T-7	Manufacturer's authorization and warranty on letterhead	With the tender
T-8	Lift plan, crane test certificate and operator competence certificate	Before any mast section is lifted
T-9	Concrete mix design and cube test certificates	Before each foundation is cast and after testing
T-10	Galvanizing certificates and coating thickness records	On delivery
T-11	Erection sheets recording slip joint penetration at each joint	On completion of each mast
T-12	Earth resistance and insulation test records	At site acceptance testing
T-13	As built survey drawings, asset register and O and M manuals	Before taking over

Table D.1 Schedule of submittals.

D.9 CCTV monitoring and the municipal control centre

Each high mast shall carry a camera, and the twelve cameras shall report to a control centre established within the Kakuma Municipal Board offices. The purpose is twofold: to deter and evidence interference with assets that the Municipality cannot afford to lose, and to give the Board a view of its own public spaces at night, which is the first time such a view will have existed. The whole of this subsystem is funded from within the contract sum and is measured in the Bills of Quantities.

The unit, one per mast

The camera shall be a standalone solar powered unit of integrated construction: the camera, the photovoltaic module, the battery and the mobile modem in one sealed body, taking no supply and no signal cable from the mast lighting system. There is to be no separate array, no separate router and no cable run between the camera and the mast base equipment.

Item	Requirement
Camera	4 MP minimum, 1/2.8 inch progressive scan CMOS, H.265+ and H.264 dual stream, infrared illumination to 30 m minimum, true day/night with mechanical IR cut filter, wide dynamic range 120 dB minimum
Analytics	On-camera human and vehicle classification, line crossing and intrusion detection, with alarm push to the control centre. Generic pixel-motion triggering alone is not acceptable
Integral supply	Monocrystalline photovoltaic module and lithium iron phosphate battery within the unit, sized for not less than five days of autonomy at the stated duty, with MPPT charging and low voltage disconnect
Mobile link	Integrated 4G LTE modem, Cat 4 minimum, with a SIM slot and an antenna within or on the unit, supporting the LTE bands in use by the mobile operators serving Turkana West
Edge storage	512 GB industrial grade microSD, minimum 30 days of continuous primary stream recording at 12 frames per second H.265+, with automatic gap filling to the control centre after any loss of the mobile link
Enclosure	IP66 minimum, corrosion category C4, operating range minus 10 to plus 60 degrees Celsius, with tamper resistant fasteners
Mounting	Hot dip galvanized assembly on the mast shaft at 6.0 m, clear of the travel of the lantern carriage, with an orientation frame setting the integral module to true north at the latitude tilt, and bonding to the mast earth

The camera shall not be mounted on the lantern carriage. The carriage is designed to be lowered to 1 m for maintenance, and a camera riding on it would be both disturbed at every maintenance visit and within reach whenever it was down. The bracket position at 6.0 m keeps the camera above the reach line, below the carriage travel, and on a part of the shaft that can be worked on from a ladder. The mounting shall be set out so that the integral module is not shaded by the mast shaft, the carriage or the bollards at any hour between 09:00 and 15:00 on the winter solstice.

Why the unit is standalone

A camera drawing power from the mast would be taking it from a store sized on the worst month with two nights of autonomy, and that reserve is committed to the luminaires. Keeping the camera wholly separate means a fault in the lighting system does not blind the camera, a fault in the camera does not darken the market, and the two subsystems can be maintained, tested and replaced without reference to each other. It also removes every cable between the camera and the mast base compartment, which is one fewer thing to cut.

The SIM and the mobile service

(a) Each unit takes one SIM card, registered in the name of the Kakuma Municipal Board. Before activation the Contractor shall carry out a signal survey at each mast position and shall place the SIM on whichever mobile network returns the stronger and steadier signal there. The survey results shall be recorded, mast by mast, and submitted with the commissioning records.

(b) The Contractor shall provide a data bundle sufficient for the first twelve months of operation at the data rates stated below, and shall hand over the account details, the PUK codes and the renewal procedure to the Board at taking over.

(c) Thereafter the cost of the mobile service falls to the Municipality and is carried in the operation and maintenance budget. A camera whose SIM has been allowed to lapse is worth nothing at the moment it is needed, and the asset register shall carry the renewal date of every SIM.

(d) A loss of the mobile link does not lose footage. The unit continues to record to its own card throughout and fills the gap at the control centre automatically when the link returns, so an outage delays viewing rather than destroying evidence. Where a particular mast proves to have an unreliable service in operation, the remedy is to move that SIM to the other network, which is a matter of minutes and needs no change to the equipment.

Backhaul, retention and the data budget

Backhaul is over the public 4G network. The full primary stream is not sent over that link and could not be: twelve cameras streaming continuously at two megabits per second would generate about 7.8 terabytes a month, which is neither affordable nor reliable on a mobile network in Turkana West. The system is therefore designed to record at the edge and transmit selectively.

(a) The full-resolution primary stream is recorded on the camera's own card and retained there for thirty days.

(b) Alarm clips generated by human or vehicle classification, with ten seconds of pre-event and thirty seconds of post-event recording, are pushed to the control centre immediately and retained there for thirty days.

(c) A low bit rate sub-stream is available on demand for live viewing, and any segment of the primary stream can be pulled from a camera on request while it remains within the thirty day window.

(d) The resulting data consumption is of the order of fifteen to twenty-five gigabytes per camera per month, which is within the allowance of the bundle the Contractor supplies under the preceding clause and is the basis of the figure carried in the operation and maintenance budget.

Control centre at the Municipal Board offices

Item	Requirement
Recorder	16 channel network video recorder, H.265+, four surveillance grade 4 TB drives in RAID 5 giving 12 TB usable, sized for thirty days of alarm clips and retrieved footage with not less than forty per cent spare
Software	Video management software licensed for sixteen channels, with named user accounts, role based permissions and an audit log of every view, export and deletion
Display	Two 32 inch monitors on a wall mount, and one operator workstation
Power	3 kVA online double conversion uninterruptible supply with not less than two hours of autonomy for the recorder, switch, router and one monitor
Network	12U wall rack, managed switch, router, patching and containment, on a network segment separate from the Board's office network
Room	Lockable door, window blind, desk and two chairs, ventilation, notices, and a fire extinguisher suited to electrical equipment

Data protection and public notice

The system records people in public places and is therefore subject to the Data Protection Act, 2019. The following are contract obligations and are not discretionary.

(a) Signage in English and Kiswahili at every monitored location, naming the Kakuma Municipal Board as the data controller and giving a contact point.

(b) A written CCTV policy, prepared by the Contractor for the Board's adoption, covering lawful basis, retention, access, disclosure to the National Police Service, subject access requests and complaints.

(c) Registration of the Kakuma Municipal Board as a data controller with the Office of the Data Protection Commissioner, with the Contractor preparing the application.

(d) Named user accounts only, with no shared passwords, and an export log recording who exported what footage, when and for what purpose.

(e) Cameras shall be aimed at public space. Any field of view that includes a private dwelling, a latrine, a washing area or the interior of a compound shall be masked in the camera configuration before commissioning, and the masks shall be demonstrated to the Engineer at handover.

(f) Footage shall be deleted automatically at the end of the retention period except where it has been lawfully requested, in which case the request and the authority for it shall be recorded.

The CCTV monitoring equipment is measured in the Bill for the masts on which it is mounted, and the municipal control centre in Bill No. 1. It shall be priced in full and shall be installed, commissioned and handed over before practical completion is certified. A tender that leaves the CCTV items unpriced, or prices them as a rate only item, shall be treated as non-responsive.

D.10 Knowledge transfer and capacity building

Lighting assets in northern Kenya rarely fail because the equipment was wrong. They fail because nobody left behind knew how to look after them, and because the people who did know had moved on within two years. This contract therefore treats knowledge transfer as a deliverable in its own right, with its own acceptance criteria, its own payment and its own retention, rather than as a day of demonstration at the end of the works.

The Contractor shall develop, submit for approval and deliver a knowledge transfer programme comprising the elements set out below. The programme is authored by the Contractor; the Employer approves it and tests it, but does not write it.

1. Training needs analysis and training plan

Within six weeks of contract signature the Contractor shall carry out a training needs analysis covering the staff the Kakuma Municipal Board will actually assign to these assets, together with any county staff and community custodians nominated by the Board. The analysis shall establish what each group already knows, what tools and transport they have, and what they do not have. On that basis the Contractor shall submit a training plan for the Engineer's approval, stating the curriculum for each group, the duration, the venue, the trainers and their qualifications, the language of delivery and the method of assessment.

2. Operation and maintenance guide

The Contractor shall prepare an illustrated operation and maintenance guide in English and Kiswahili, written for a technician with a craft certificate and not for an engineer. It shall be supplied in twenty bound hard copies, in editable source form and as a PDF, and shall include at least:

(a) A labelled diagram of the high mast with its lantern carriage, its eight flood modules and its eight photovoltaic modules, and of the standalone solar CCTV unit, naming every component in both languages;

(b) the winch lowering and raising procedure for the lantern carriage, set out step by step with the safety checks at each step, the wind speed above which lowering shall not be attempted, and the exclusion zone to be maintained;

(c) Routine maintenance schedules at monthly, quarterly and annual intervals, each as a checklist that can be signed and filed;

(d) module cleaning method and frequency, written for the dust conditions at Kakuma and Kalobeyei, including what must not be used on the glass;

(e) Battery state of health checks, the readings that indicate a cell is failing, and the safe handling and disposal route for lithium iron phosphate batteries;

(f) A fault finding chart in the form of symptom, likely cause, check, action, covering at least the twenty most probable faults;

(g) Torque values, fastener schedules, lubrication points and the galvanizing repair procedure;

(h) The CCTV subsystem: how to view, how to export, what the retention period means, and what to do when a camera stops reporting;

(i) A spares list with part numbers, indicative prices, local sources and the re-order level for each item;

(j) The asset register format and the procedure for keeping it current.

3. Filmed procedures

The Contractor shall film each maintenance procedure on site, on the actual assets, with narration in Kiswahili and subtitles in English. The winch lowering and raising sequence, the luminaire replacement, the battery replacement, the module cleaning and the earthing test shall each be filmed in full. The films shall be delivered as individual files of not more than ten minutes each, in a format that plays on an ordinary smartphone without a network connection, and shall be supplied on two USB drives as well as in the project record. The purpose is simple: the person who will need this in three years has not been hired yet.

4. Training delivery

Course	Participants	Duration	Content
Technicians	Up to 10 nominated by the Board	5 days	Full curriculum, classroom and hands on, including at least two supervised carriage lowering and raising cycles per participant and one supervised luminaire change
Custodians and ward staff	Up to 10	2 days	What the assets are, daily and weekly visual checks, how to report a fault, what not to touch, community role in protecting the assets
Monitoring officer	2 nominated by the Board	2 days	CCTV viewing, export and the data protection policy; asset register; performance reporting to the Board

Training shall be delivered at Kakuma, in the month before practical completion, on the installed assets and not on a mock-up. The Contractor shall provide all materials, personal protective equipment for participants, refreshments and participant allowances in accordance with county rates.

5. Assessment and certification

Each participant on the technicians' course shall be assessed by written test and by observed practical task. A participant who fails shall be re-trained and re-assessed once at the Contractor's cost. The Contractor shall issue a certificate of competence to each participant who passes, listing the specific procedures the holder is competent to perform, and shall provide the Board with a register of competent persons.

6. Refresher at six months

At approximately six months after practical completion, within the defects liability period, the Contractor shall return to Kakuma for a two day refresher. The refresher shall address the faults that have actually occurred in service, re-assess any procedure being performed incorrectly, train any staff who have joined since handover, and update the maintenance guide where practice has shown it to be wrong. The Contractor shall submit a short report on the state of the assets and the competence of the staff, and this report is a condition of the release of the final retention.

Acceptance and payment

(a) The knowledge transfer programme is measured as a separate item in each Bill, as that Bill's proportionate share of a single contract-wide obligation.

(b) No part of the item shall be certified until the corresponding deliverable has been accepted in writing by the Engineer.

(c) Practical completion shall not be certified until the guide, the films, the training delivery and the register of competent persons have all been accepted.

(d) Ten per cent of the knowledge transfer item shall be retained until the six month refresher has been delivered and its report accepted.

D.11 Construction programme and work plan

The high mast works shall be completed within twenty-two weeks of contract signature. The programme below is the Employer's indicative sequence. The Contractor shall submit its own programme in Gantt form within fourteen days of contract signature, showing the same milestones, and shall update it monthly.

The governing constraint

The governing constraint is not the quantity of work. It is the mobile crane. There is no crane of adequate capacity in Turkana West, and one must be brought from Eldoret, some 450 km away, over a road that is poor in its last stretch. Bringing it once costs a great deal; bringing it twice costs that again and has no justification. All twelve mast foundations must therefore have attained their twenty-eight day strength, and every mast, carriage, flood module and photovoltaic module must be on site and checked, before the crane leaves Eldoret. That single dependency sets the critical path, and it is the reason foundations begin in week six and the crane does not arrive until week fifteen.

Milestones

Week	Milestone	Condition
2	Site handover	Performance security and insurances in place; the six node sites handed over by the Board
6	Designs approved	Mast structural calculations, LM-79 reports and DIALux verification accepted by the Engineer
11	Bases poured	All twelve mast bases cast, cube results on programme
15	Crane on site	All mast foundations at 28 day strength; all mast components delivered and checked at Kakuma
19	Erection complete	Twelve masts erected, earthed, fitted and the CCTV units mounted
22	Practical completion	All installations commissioned; illuminance verified; the control centre operating; knowledge transfer delivered and accepted; as built records issued

Float and the risks that consume it

(a) There is no float on the mast foundations. A failed cube result at week eleven moves the crane and moves completion.

(b) Shipment and customs clearance of the flood modules, batteries and photovoltaic modules is the second critical dependency. The programme allows four weeks from port to the Kakuma store; the Contractor carries the risk of any longer delay.

(c) The CCTV and control centre work is not on the critical path and can absorb delay, but it must be complete before practical completion is certified.

(d) Rainfall in the April and November seasons can close the access roads for short periods. The Contractor shall allow for this in its own programme; it is a foreseeable condition and is not grounds for extension of time.

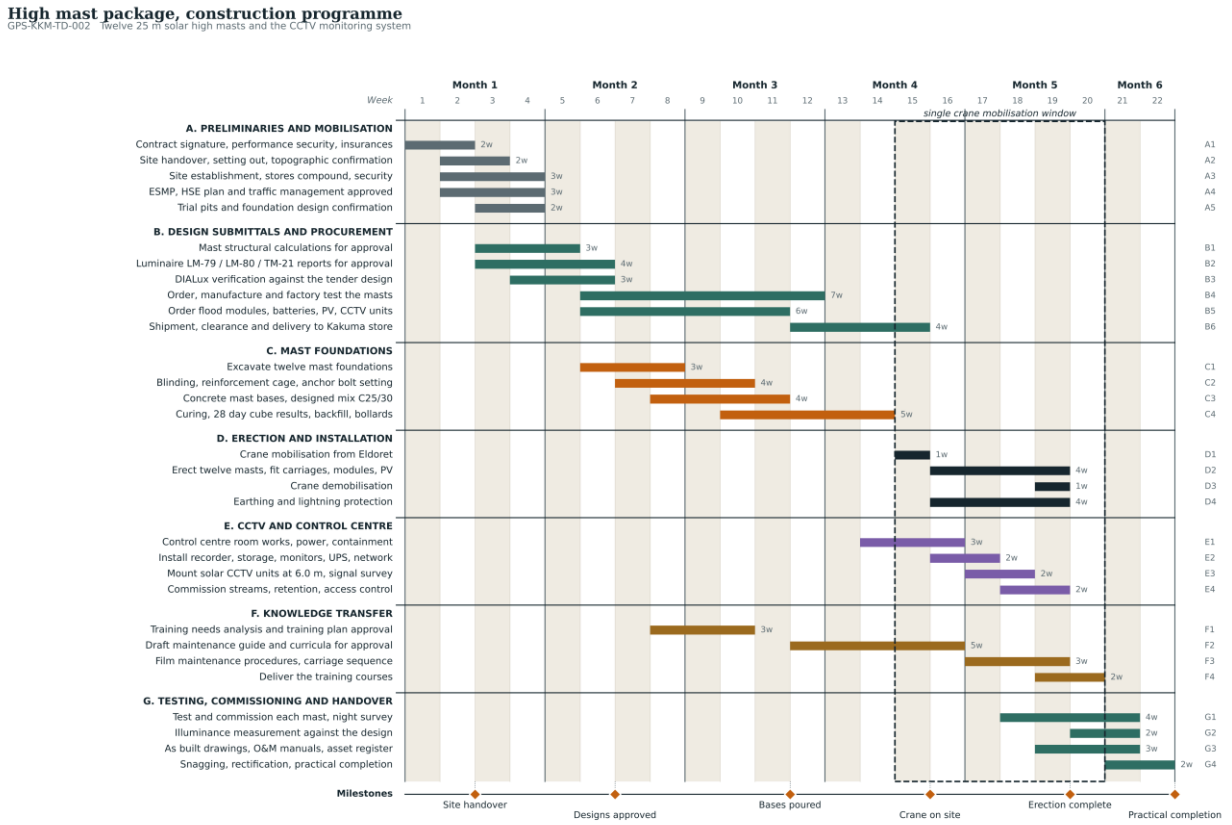


Figure 1 High mast package, construction programme, 22 weeks from contract signature.

Section E - Evaluation and qualification criteria

Evaluation proceeds in four stages: preliminary examination for completeness and responsiveness; mandatory eligibility and statutory qualification on a pass or fail basis; technical evaluation scored out of one hundred marks; and financial evaluation of those tenders attaining the technical pass mark. A tender that fails any mandatory requirement shall not proceed to technical evaluation, whatever its technical merit, and a tender scoring less than the pass mark shall not proceed to financial evaluation. Award shall be to the lowest evaluated responsive tender among those that pass the technical stage.

E.1 Preliminary evaluation, mandatory requirements

Each of the following is mandatory. Failure on any one renders the tender non responsive.

No.	Mandatory requirement
1	Duly completed, signed and stamped Form of Tender on the tenderer's letterhead, stating the tender validity period
2	Duly completed, signed and stamped Bills of Quantities GPS-KKM-BOQ-002 with every item priced
3	Valid tender security from a reputable bank guarantee at a cost of Ksh 1,100,000, valid for 150 days
4	Certificate of incorporation or registration,
5	A copy of CR12 or CR13 not more than three months old, certified
6	Valid KRA PIN certificate with VAT and income tax obligations,
7	Copy of a valid tax compliance certificate
8	Valid trade license or business permit for the county of operation
9	Power of attorney commissioned by a Commissioner for Oaths, with specimen signature of the authorized signatory
10	Certificate of independent tender determination, duly signed

No.	Mandatory requirement
11	Self-declaration that the tenderer is not debarred under the Public Procurement and Asset Disposal Act, 2015, commissioned
12	Self-declaration that the tenderer will not engage in corrupt or fraudulent practice, commissioned
13	Declaration and commitment to the code of ethics
14	Duly completed confidential business questionnaire
15	Valid EPRA solar photovoltaic system contractor license in class C1 or C2, with a class T3 technician, and a class V1 or V2 vendor license in the supply chain
16	Valid National Construction Authority registration at NCA 3 or above in Electrical Works
17	Evidence that the registered nature of business is in the renewable energy field, being geothermal, solar or wind, by the objects clause of the CR12 or the category stated on the business permit
18	Audited financial statements for the last two financial years
19	Manufacturer's authorization and warranty on manufacturer's letterhead, signed and stamped, for the mast and raising and lowering gear, the flood module and the photovoltaic module
20	Manufacturer's contact details including a verifiable corporate email address and website. Free webmail addresses are not accepted
21	LM-79 photometric test report for the flood module offered, from a laboratory accredited to ISO/IEC 17025, dated within the preceding twenty four months
22	At least three completion certificates from the owners of comparable works undertaken within the last five years
23	Evidence of business premises, workshop and service centre, owned or leased, with a valid lease where applicable
24	Written occupational health and safety policy and evidence of an established safety programme
25	Duly completed site visit certificate, signed and stamped by the Municipal Board
26	All qualification forms duly completed: tenderer information, equipment, personnel, experience and financial position

Table E.1 Mandatory requirements at preliminary evaluation.

E.2 Technical evaluation

Tenders will be evaluated in four stages: preliminary examination for completeness and responsiveness, mandatory eligibility and statutory qualification on a pass or fail basis, technical evaluation scored out of one hundred marks, and financial evaluation of those tenders attaining the technical pass mark. A tenderer failing any mandatory eligibility requirement shall not proceed to technical evaluation, whatever its technical merit.

The technical pass mark is 75 out of 100. The weighting places technical compliance with the Specification and the Guaranteed Technical Particulars above every other criterion. This is deliberate. The dominant failure mode in solar lighting procurement in this region is equipment that does not meet the stated particulars, and it is the particulars, not the methodology statement and not the turnover, that determine whether these assets are still lit in year five.

Criterion	Marks	What is assessed
Technical compliance with the Specification and the Guaranteed Technical Particulars	30	Completed GTP schedules with a bidder response against every line; LM-79, LM-80 and TM-21 reports from an accredited laboratory; IP68 and IK ratings; battery and module datasheets; structural compliance with BS EN 40 and the Eurocodes
Registered nature of business in renewable energy, with statutory licenses in force	20	EPRA solar PV contractor C1 or C2; T3 technician; V1 or V2 in the supply chain; electrical contractor license; NCA 3 or above, Electrical Works; years registered in renewable energy
Experience in similar works	13	Completed solar lighting contracts of comparable value and scope in the last five years, with completion certificates and client references; high mast experience specifically
Key personnel and their statutory registration	11	Lead design engineer registered with EBK; T3 technician; technicians registered with KETRB; site agent; HSE officer; curricula vitae and certificates

Criterion	Marks	What is assessed
Photometric design verification	8	DIALux or Relux computation reproducing the tender design, demonstrating the specified average illuminance and uniformity at the stated mounting heights and spacings
Knowledge transfer and capacity building proposal	6	Outline training plan, draft guide contents, proposed trainers and their qualifications, approach to filming and to the six month refresher
Financial capacity	6	Audited accounts for three years; average annual turnover; access to credit or liquid assets; absence of adverse litigation
Methodology and work programme	3	Construction methodology, Gantt chart consistent with the 22 week programme, crane mobilization plan, quality plan
Health, safety and environment	3	HSE policy and plan, ESMP compliance approach, working at height procedure, accident record
Total	100	

Scoring and verification

(a) Each criterion is scored on the evidence submitted with the tender. Evidence promised but not submitted scores nil; the Employer will not seek it after opening except as a clarification that does not change the substance of the tender.

(b) Marks under technical compliance are awarded line by line against the Guaranteed Technical Particulars. A blank response, a cross reference without a page number, or a datasheet that does not contain the figure claimed, scores nil for that line.

(c) Photometric test reports shall be from a laboratory accredited to ISO/IEC 17025 for the relevant test. A manufacturer's self-declaration is not a test report.

(d) The Employer reserves the right to verify any license directly with the issuing authority and to verify any completion certificate with the client named, and to disqualify a tenderer whose submission is found to be inaccurate in a material respect.

(e) The lowest evaluated responsive tender from among those attaining the technical pass mark shall be recommended for award, in accordance with section 86 of the Public Procurement and Asset Disposal Act, 2015.

E.3 Financial evaluation

Tenders scoring 75 marks or more at the technical stage shall be examined for arithmetical accuracy, corrected in accordance with the Act, and compared. Award shall be to the lowest evaluated responsive tender. Where the lowest evaluated tender exceeds the Employer's budget, the Employer may negotiate in accordance with section 131 of the Act or may annul the process.

E.4 Post qualification

Before award the Employer may verify any document submitted, may inspect the tenderer's premises, workshop and service centre, may contact the owners of the works for which completion certificates were submitted, may contact the manufacturers named in the manufacturer's authorizations, and may contact the laboratory that issued the LM-79 report to confirm its authenticity. A tenderer found to have submitted a false or misleading document shall be disqualified and referred to the Public Procurement Regulatory Authority.

Section F - Drawing

Drawing DWG-002 forms part of this tender document. It is reproduced at reduced size in this Section for the information of tenderers and is issued at full size on an A1 sheet with the tender document. The full size sheet governs.

Drawing	Title	Status
DWG-002	25 m solar high mast on anchor bolt base, general arrangement, base connection, foundation and schedules	Issued for construction

Table F.1 Schedule of drawings.

The drawing is complete and detailed design is finished. The Contractor remains responsible for the shop drawings listed at Section D.8 and for verifying the photometric and energy design before manufacture is released.

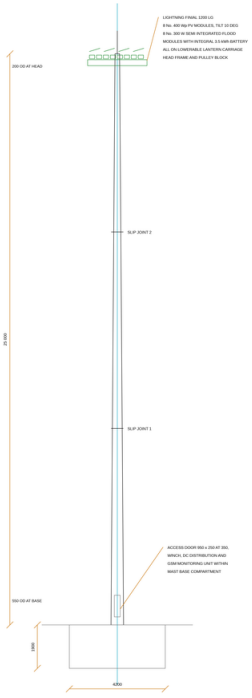
F.1 DWG-002 - 25 m solar high mast

DWG-002

25 m SOLAR HIGH MAST ON ANCHOR BOLT BASE

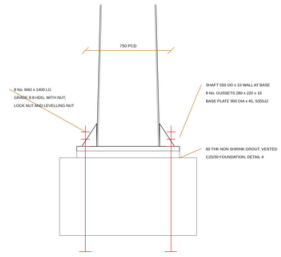
1 GENERAL ARRANGEMENT, ELEVATION

SCALE 1:100



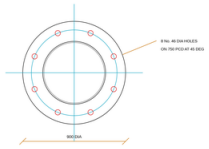
2 BASE CONNECTION, SECTION

SCALE 1:20



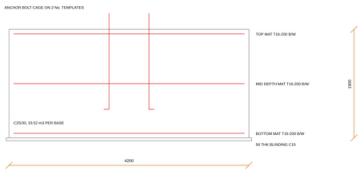
3 BASE PLATE AND BOLT CAGE, PLAN

SCALE 1:20



4 FOUNDATION, SECTION

SCALE 1:40



STEEL AND FIXING SCHEDULE

ITEM	DESCRIPTION	GRADE	No.	MASS kg
1	Lower section 550 OD x 10 wall x 9000	S355J2	1	1 196
2	Middle section 434 OD x 10 wall x 6000	S355J2	1	926
3	Upper section 319 OD x 8 wall x 6400	S355J2	1	552
4	Base plate 900 dia x 45	S355J2	1	225
5	Cusset 280 x 220 x 16	S355J2	8	62
6	Anchor bolt M42 x 1400 incl. nuts	8.8	8	124
7	Plate washer 370 x 370 x 18	S275	8	33
8	Template ring 900 OD x 560 ID x 12	S275	2	45
9	Head frame and pulley assembly	S355J2	1	159
10	Lantern carriage, two halves	S355J2	1	214
11	PV mounting rails and clamps	S275	1	96
	TOTAL MASS PER MAST			3 543

SECTION DIAMETERS

LEVEL ABOVE FOUNDATION	OUTSIDE DIA	WALL
0 mm, at base plate	550	10
3 000 mm, at anti climb level	508	10
8 600 mm, foot of middle section	429	10
17 200 mm, foot of upper section	308	8
25 000 mm, at head frame	200	8
Head frame ring	2100	-

DESIGN DATA

PARAMETER	VALUE
Mast height above foundation	25 000 mm
Flood modules	8 No. 300 W class, IP68
Head frontal area	2.90 m2
PV array, 8 No. 400 Wp, projected area	3.41 m2
Basic wind speed, KMD Ludwar	25 m/s, 10 min mean
Peak velocity pressure at head	1158 N/m2
Base moment, unfactored	381.3 kNm
Base moment, design at 1.5	572.0 kNm
Shaft stress at base	254 N/mm2
Shaft resistance, S355J2	355 N/mm2
Bolt tension at design moment	381.3 kN per bolt
Bolt tension resistance, M42 8.8	646 kN
Foundation bearing, q max	78.0 kPa
Allowable bearing, Stage 1	100 kPa
Overturning factor of safety	4.57

BAR SCHEDULE, ONE BASE

MK	TYPE	No.	LENGTH	LOCATION	SHAPE
01	T16	22	3934	Bottom mat, both ways	Straight, 124 bends
02	T16	22	3934	Mid depth, both ways	Straight, 132 bends
03	T16	22	3934	Top mat, both ways	Straight, 116 bends
04	T12	12	9220	Link around bolt cage	Closed link
		78		TOTAL 850 kg PER BASE	01-4449 grade 500B

NOTES

1. All dimensions in millimetres unless noted otherwise. Do not scale from this drawing.
2. To be read with GPS-KKM-FMP-001 Rev A and the Specification. Detailed design complete.
3. Foundation designed against an allowable bearing pressure of 100 kPa derived from the Stage 1 trial pit and dynamic cone penetrometer programme with laboratory classification. Geotechnical design to BS EN 1997-1.
4. Wind actions to BS EN 1991-1-4 at a basic wind speed of 25 m/s, 10 minute mean, 50 year return period, derived by extreme value analysis from the Kenya Meteorological Department record for Lodwar.
5. Mast is a continuously tapered polygonal tube, minimum 8 sided, in three sections joined by slip stressed fit. No site welding and no bolted joint is permitted on the shaft. Minimum overlap at each joint is 1.5 times the diameter at penetration.
6. Each slip joint shall be jacked home and the penetration recorded on the erection sheet before the carriage is rigged.
7. Bolt group designed to BS EN 1993-1-8. Base plate, gussets and shaft designed to BS EN 1993-1-1.
8. All steelwork hot dip galvanized to ISO 1461, minimum mean coating thickness 86 microns, single dipping.
9. Welds to BS EN ISO 5817 quality level C. Maximum two longitudinal seam welds per section, no circumferential seam weld.
10. Three continuous 316 stainless steel wire ropes of 7/19 construction, factor of safety not less than 5 at full carriage load. No intermediate joint or termination is permitted between the winch and the lantern carriage.
11. Carriage carries the flood modules and their photovoltaic modules together, docks at the head frame and lowers to 1000 mm above the foundation. Winch gear ratio 50:1, self sustaining, with motorised power lost, torque limiter and manual override.
12. Earthing terminal within the door opening, bonded to the foundation reinforcement and to two earth electrodes in inspection pits. Measured earth resistance shall not exceed 10 ohms.

GIZAA POWER SOLUTIONS

CLIENT	KAKUMA MUNICIPAL BOARD, TURKANA COUNTY GOVERNMENT
PROJECT	STREET AND PUBLIC SPACES LIGHTING, KAKUMA MUNICIPALITY
FINANCE	WORLD BANK, KENYA URBAN SUPPORT PROGRAMME II
RFP No.	TCG/KAKMSS/025-2026 NEGOTIATION No. 225873
STATUS	ISSUED FOR CONSTRUCTION

25 m SOLAR HIGH MAST

ANCHOR BOLT BASE
ELEVATION, BASE CONNECTION, FOUNDATION AND DETAILS

DRAWING No.	SCALES
GPS-KKM-FMP-001 / DWG-002 Rev A	AS SHOWN AT A1

Section G - Bills of Quantities

The Bills of Quantities, GPS-KKM-BOQ-002, are issued with this document and form part of it. They comprise Bill No. 1 and Bill No. 2 for the two node groups, each carrying its masts and their CCTV monitoring equipment, and Bill No. 1 carrying the municipal control centre in addition, and a Grand Summary carrying the sum of the two Bills. The tenderer shall price every item and shall carry the Grand Total to the Form of Tender.

KAKUMA MUNICIPALITY STREET AND PUBLIC SPACES LIGHTING

BILL NO. 2

Solar high mast lighting and CCTV monitoring - Somali Market, Hong Kong Market and Burundi Market, with the municipal control centre

Item	Description	Unit	Quantity	Rate (KES)	Amount (KES)
A	**PRELIMINARIES AND GENERAL REQUIREMENTS**				
2.01	Allow for the Contractor's site establishment, offices, stores, secure compound, welfare and sanitary facilities, and their removal on completion.	Item	1.00		
2.02	Allow for performance security, insurances of the Works, third party and workmen's compensation for the full Contract Period and Defects Liability Period.	Item	1.00		
2.03	Allow for setting out, survey control, as-built survey drawings and the submission of operation and maintenance manuals in triplicate.	Item	1.00		
2.04	Allow for occupational health and safety provisions, traffic management, signage, barriers and the protection of the public throughout the Works.	Item	1.00		
2.05	Allow for compliance with the Environmental and Social Management Plan, including the grievance redress mechanism and monthly reporting to the Engineer.	Item	1.00		
	Sub total - Preliminaries and general requirements				**-**
B	**SUPPLY AND DELIVERY OF PLANT AND EQUIPMENT**				
2.06	Design, manufacture, testing, hot dip galvanizing, supply and delivery to site of 25 m continuously tapered polygonal high mast, minimum 8 sided, in three sections joined by slip stressed fit, complete with base flange, gussets, access door, internal earth terminal and lightning finial, all as specified and to the approved shop drawings.	No	6.00		
2.07	Supply and deliver galvanized lantern carriage fabricated in two halves to carry 8 No. flood modules together with their photovoltaic modules and mounting rails, complete with head frame, pulley block, three continuous 316 stainless steel wire ropes, self sustaining winch of gear ratio 50:1, motorised power tool with torque limiter and manual override, docking guides and rest pads, rated for the full carriage load of not less than 700 kg.	No	6.00		
2.08	Supply and deliver 300 W class semi integrated solar LED flood module comprising a die cast aluminium luminaire body housing the LED array, the integral lithium iron phosphate battery of not less than 3.5 kWh, the MPPT charge controller and the driver, minimum 30,000 lumens, minimum 160 lm/W, 5700 K, IP68, IK08, 20 kV surge protection, complete with adjustable trunnion bracket, interconnecting cable and gland to the photovoltaic module.	No	48.00		

2.09	Supply and deliver external monocrystalline photovoltaic module of not less than 400 Wp, minimum 22 per cent efficiency, one to each flood module, complete with hot dip galvanized inclined mounting frame to the lantern carriage, rails, stainless steel fixings and MC4 pre cabling.	Wp	19,200.00		
2.10	Supply and deliver mast base equipment comprising DC distribution, isolators, surge protection devices, over current protection, remote monitoring unit with GSM communication and tamper alarm, and all cabling between the carriage and the base compartment.	No	6.00		
2.11	Supply and deliver anchor bolt assembly comprising 8 No. M42 x 1400 mm long grade 8.8 hot dip galvanized anchor bolts on 750 mm pitch circle, complete with nuts, lock nuts, plate washers and 2 No. steel setting templates.	No	6.00		
	Sub total - Supply and delivery of plant and equipment				**-**

C	**CIVIL AND STRUCTURAL WORKS**				
2.12	Excavate for mast foundation in any material, including working space, keeping the excavation free of water and disposing of surplus material off site.	m3	247.80		
2.13	50 mm thick blinding in mass concrete class C15 under foundation.	m3	5.82		
2.14	Reinforced concrete class C25/30 in mast foundation pad, 4.2 m x 4.2 m x 1.9 m deep, including formwork to exposed faces and casting in of the anchor bolt cage.	m3	201.12		
2.15	High yield steel reinforcement to BS 4449 grade 500B in foundation, including cutting, bending, tying and spacers.	kg	5,100.00		
2.16	Return, fill and compact selected excavated material around foundation in 200 mm layers.	m3	40.86		
2.17	Construct 100 mm diameter galvanized steel bollards and guard rail around mast base, including concrete footings and painting to approved standard.	Set	6.00		
	Sub total - Civil and structural works				**-**

D	**INSTALLATION, ERECTION, TESTING AND COMMISSIONING**				
2.18	Erect mast complete, including provision of mobile crane and all lifting plant, jacking home and recording the slip joints, grouting the base and rigging the carriage.	No	6.00		
2.19	Install earthing and lightning protection system comprising air termination, 25 x 4 mm copper tape down conductor, 2 No. earth electrodes, test clamps and inspection pit, and test to a resistance not exceeding 10 ohms.	No	6.00		
2.20	Supply and fix engraved aluminium branding plaque, minimum 300 x 200 x 3 mm, bearing the Republic of Kenya, Turkana County Government and World Bank identities together with the project particulars, fixed at 1.5 to 2.0 m above ground with tamper resistant fixings.	No	6.00		
2.21	Test and commission the complete installation, including photometric verification, insulation and earth testing, a full raise and lower cycle of the carriage, and training of the Employer's nominated staff.	No	6.00		
	Sub total - Installation, erection, testing and commissioning				**-**

E	**CCTV MONITORING EQUIPMENT ON THE MASTS**				

2.22	Supply and deliver standalone solar powered CCTV unit of integrated construction, comprising in one sealed body a 4 MP minimum IP66 network camera with infrared illumination to 30 m, on camera human and vehicle classification, H.265+ dual stream, its own monocrystalline photovoltaic module and lithium iron phosphate battery sized for not less than five days of autonomy, an integrated 4G LTE modem with a SIM slot, and a 512 GB industrial microSD card configured for 30 days of continuous primary stream recording. The unit shall be electrically independent of the mast lighting system and shall take no supply from it.	No	6.00		
2.23	Supply, register and activate one SIM card per unit, in the name of the Employer, on the mobile network returning the stronger signal at that mast position on a survey carried out at commissioning, and provide a data bundle sufficient for the first twelve months of operation at the data rates stated in the Specification.	No	6.00		
2.24	Install the standalone solar CCTV unit on the mast shaft at 6.0 m, clear of the travel of the lantern carriage, on a hot dip galvanized mounting assembly with an orientation frame setting the integrated module to true north at the latitude tilt, complete with stainless tamper resistant fasteners and bonding to the mast earth.	No	6.00		
2.25	Carry out the signal survey, configure, aim, mask private fields of view, test the stream and the edge recording, integrate with the municipal control centre and demonstrate to the Engineer.	No	6.00		
	Sub total - CCTV monitoring equipment on the masts				**-**

F	**KNOWLEDGE TRANSFER AND CAPACITY BUILDING**				
2.26	Allow for this Bill's one half share of the knowledge transfer and capacity building programme described in the Specification as it applies to the high mast assets, comprising the training needs analysis and approved training plan, the illustrated operation and maintenance guide in English and Kiswahili in twenty bound copies and in editable form, the filmed maintenance procedures including the lantern carriage lowering and raising sequence, the five day technicians' course, the two day custodians' course and the two day monitoring officers' course, competence assessment and certification, and the two day refresher at six months after practical completion. Ten per cent of this item is retained until the refresher report is accepted.	Item	1.00		
	Sub total - Knowledge transfer and capacity building				**-**

	GRAND TOTAL SUMMARY				
	Amount in words:				
	Name of Tenderer:				

	Signature and stamp:				
	Date:				

G.1 Summary of the design

The following is provided for the information of tenderers. It does not relieve the tenderer of the obligation to verify the design as required by Section D.1.

Parameter	25 m solar high mast
Quantity	6 No.
Luminaire	8 No. 300 W class semi integrated flood module
Installed flux per mast	240,000 lm
Design area served by each mast	2,500 m2
Average maintained illuminance	30.7 lux against a target of 30 lux
Photovoltaic array	8 No. 400 Wp on the carriage at 25 m, 3,200 Wp per mast
Storage	8 No. 3,500 Wh integral to each module, 28,000 Wh per mast
Nightly energy demand per mast	10,944 Wh
Basic wind speed	25 m/s, 10 minute mean, KMD Lodwar
Peak velocity pressure at 25 m	1,158 N/m2
Base moment, unfactored	381.3 kNm
Base moment, design at 1.5	572.0 kNm
Shaft	550 to 200 mm outside diameter, 10 mm wall, S355J2
Shaft stress at base	254 N/mm2 against 355 N/mm2
Anchor bolts	8 No. M42 grade 8.8 on 750 mm PCD
Bolt tension at design moment	381.3 kN against 645 kN
Foundation	4.2 x 4.2 x 1.9 m, 33.52 m3 of C25/30
Maximum bearing pressure	78.0 kPa against 100 kPa
Overturning factor of safety	4.57
Mast mass	3,543 kg

Table G.1 Summary of the detailed design.

Section H - Forms

The forms in this Section shall be completed in full, signed, stamped and submitted with the tender. Each form is presented on a separate page. A form left incomplete, unsigned or unstamped shall render the tender non responsive. Where a form is not applicable the tenderer shall so state and shall give the reason; a blank form shall not be treated as a statement of non-applicability.

Form	Title	Requirement
FT	Form of Tender	Mandatory
TS	Tender Security	Mandatory
CITD	Certificate of Independent Tender Determination	Mandatory
SD-1	Self-Declaration of Non Debarment	Mandatory
SD-2	Self-Declaration Against Corrupt and Fraudulent Practice	Mandatory
CE	Declaration and Commitment to the Code of Ethics	Mandatory
CBQ	Confidential Business Questionnaire	Mandatory
TIF	Tenderer Information Form	Mandatory
LIC	Schedule of Statutory Licenses and Registrations	Mandatory
RNB	Declaration of Registered Nature of Business	Mandatory, scored
EQU	Schedule of Contractor's Equipment	Mandatory
PER	Schedule of Key Personnel	Mandatory
EXP-1	General Construction Experience	Mandatory
EXP-2	Specific Experience in Comparable Works	Mandatory
FIN-1	Financial Position	Mandatory
FIN-2	Average Annual Construction Turnover	Mandatory
FIN-3	Financial Resources and Lines of Credit	Mandatory
CON-2	Historical Contract Non Performance and Pending Litigation	Mandatory
MAF	Manufacturer's Authorization Form	Mandatory
MCD	Manufacturer's Contact Details Form	Mandatory
SVC	Site Visit Certificate	Mandatory
BOD	Beneficial Ownership Disclosure Form	Mandatory
PRG	Construction Programme and Methodology	Mandatory
HSE	Health, Safety and Environmental Management Plan	Mandatory

Table H.1 Schedule of forms.

For the purposes of this tender, references in the forms to the works shall be read as references to the solar high mast works only, and the Bills of Quantities referred to be GPS-KKM-BOQ-002.

FORM OF TENDER

To: The Chief Officer, Kakuma Municipal Board, Turkana County Government, and P.O. Box Kakuma.

Tender name: Street and Public Spaces Lighting, Kakuma Municipality.

Tender No. TCG/KKM/11/2026-2027. Negotiation No. 2703770.

Having examined the tender document including addenda, and having visited and examined the sites of the works, we the undersigned offer to design, verify, supply, deliver, install, test and commission the whole of the works in conformity with the said tender document for the sum stated below, or such other sum as may be ascertained in accordance with the Conditions of Contract.

TENDER SUM (KES, inclusive of VAT)	
Tender sum in words	

We undertake, if our tender is accepted, to commence and complete the whole of the works within twenty two (22) weeks from the date of the order to commence.

We agree to abide by this tender for a period of one hundred and twenty (120) days from the date fixed for tender opening, and it shall remain binding upon us and may be accepted at any time before the expiry of that period.

We confirm that this tender is not subject to any reservation and that we have not been debarred under the Public Procurement and Asset Disposal Act, 2015.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM TS

TENDER SECURITY - BANK GUARANTEE

To be issued on the letterhead of a bank licensed by the Central Bank of Kenya.

Name and branch of issuing bank	
Guarantee reference number	
Date of issue	
Amount guaranteed (KES)	
Amount in words	
Valid until (150 days from tender opening)	

Whereas.....(The Tenderer) has submitted its tender dated..... For the Street and Public Spaces Lighting, Kakuma Municipality, under Tender No. TCG/KKM/11/2026-2027, we hereby undertake to pay to the Kakuma Municipal Board the sum stated above upon receipt of the Board's first written demand, without the Board having to substantiate its demand, provided that the demand states that the amount claimed is due by reason of the occurrence of any of the following:

(a) The Tenderer withdrew its tender during the period of tender validity;

(b) The Tenderer, having been notified of the acceptance of its tender, failed or refused to execute the Contract Agreement; or

(c) The Tenderer, having been notified of the acceptance of its tender, failed or refused to furnish the performance security.

This guarantee shall remain in force up to and including the date stated above, and any demand in respect of it shall reach us not later than that date.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized bank official	
Designation	
Signature	
Bank stamp	
Date	

FORM CITD

CERTIFICATE OF INDEPENDENT TENDER DETERMINATION

I, the undersigned, in submitting the accompanying tender for Tender No. TCG/KKM/11/2026-2027, do hereby certify on behalf of the tenderer that:

1. I have read and I understand the contents of this certificate.

2. I understand that the tender will be disqualified if this certificate is found not to be true and complete in every respect.

3. I am authorized by the tenderer to sign this certificate and to submit the accompanying tender on its behalf.

4. For the purposes of this certificate and the accompanying tender, I understand that the word 'competitor' includes any individual or organization, other than the tenderer, that has been requested to submit a tender in response to this invitation, or that could potentially submit such a tender based on its qualifications, abilities or experience.

5. The tenderer discloses that it has arrived at the accompanying tender independently, and without consultation, communication, agreement or arrangement with any competitor, save as disclosed below.

6. In particular, and without limiting the generality of paragraph 5, there has been no consultation, communication, agreement or arrangement with any competitor regarding prices, methods or factors used to calculate prices, the intention or decision to submit or not to submit a tender, or the submission of a tender which does not meet the specifications.

7. The terms of the accompanying tender have not been and will not be knowingly disclosed by the tenderer, directly or indirectly, to any competitor prior to the date and time of tender opening.

Disclosures, if any (state 'NONE' if there are none):

Name of competitor	Nature of consultation, communication, agreement or arrangement

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM SD-1

SELF DECLARATION OF NON DEBARMENT

To be commissioned before a Commissioner for Oaths.

Full name of declarant	
National identity card or passport number	
Designation in the tenderer	
Name of tenderer	
Certificate of incorporation number	
Postal and physical address	

I, the person named above, being the person duly authorized by the tenderer named above, do hereby declare that the tenderer:

(a) Is not debarred from participating in public procurement proceedings under Part IV of the Public Procurement and Asset Disposal Act, 2015;

(b) Has not been convicted of a criminal offence relating to professional conduct, the making of false statements or misrepresentation as to its qualifications, or an offence under the Anti-Corruption and Economic Crimes Act, 2003, within the preceding three years;

(C) is not insolvent, in receivership, bankrupt or in the process of being wound up; and

(D) has no director, partner or shareholder who is a member of the board or an employee of the procuring entity, or a relative of such a person, save as disclosed in the Confidential Business Questionnaire.

I make this declaration conscientiously believing the same to be true.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Signature of declarant	
Date	
Commissioner for Oaths, name	
Commissioner for Oaths, signature and stamp	
Date	

FORM SD-2

SELF DECLARATION AGAINST CORRUPT AND FRAUDULENT PRACTICE

To be commissioned before a Commissioner for Oaths.

Full name of declarant	
Designation in the tenderer	
Name of tenderer	

I, the person named above, being the person duly authorized by the tenderer named above, do hereby declare that the tenderer will not engage in any corrupt or fraudulent practice, and has not been requested to pay any inducement to any member of the board, management, staff or employees or agent of the Kakuma Municipal Board, which is the procuring entity.

The tenderer will not engage in any collusive practice with any other tenderer, and further declares that no person acting for or on its behalf has engaged or will engage in any collusive practice.

The tenderer will not accept any inducement from any person, and will not engage in any coercive practice.

The tenderer will not engage in any obstructive practice, and undertakes to permit the Public Procurement Regulatory Authority and any other lawful authority to inspect its accounts and records relating to this procurement.

I understand that this declaration forms part of the tender, and that a breach of it entitles the procuring entity to reject the tender, to terminate any resulting contract, and to refer the matter to the Public Procurement Regulatory Authority and to the Ethics and Anti-Corruption Commission.

I make this declaration conscientiously believing the same to be true.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Signature of declarant	
Date	
Commissioner for Oaths, name	
Commissioner for Oaths, signature and stamp	
Date	

FORM CE

DECLARATION AND COMMITMENT TO THE CODE OF ETHICS

We, the undersigned, declare that we have read and understood the Code of Ethics for Persons Participating in Public Procurement and Asset Disposal issued by the Public Procurement Regulatory Authority, and we commit to abide by it in all our dealings with the Kakuma Municipal Board.

In particular we commit that we shall:

(a) Conduct ourselves with integrity, impartiality and professionalism throughout the procurement process and the performance of any resulting contract;

(b) Not offer, give, solicit or accept any inducement, gift, favour or hospitality intended to influence any decision in this procurement;

(c) Declare without delay any actual, potential or perceived conflict of interest;

(d) Not misrepresent our qualifications, capacity, experience or the origin or specification of any goods offered;

(e) Maintain the confidentiality of information received in the course of this procurement; and

(f) Report to the Public Procurement Regulatory Authority any unethical conduct that comes to our knowledge.

Details of the person responsible for ethics compliance within our organization:

Name	
Designation	
Telephone	
Email address	

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM CBQ

CONFIDENTIAL BUSINESS QUESTIONNAIRE

Part 1 - General

Name of tenderer	
Postal address	
Physical address and county	
Telephone and email	
Nature of business	
Certificate of incorporation or registration number	
Date of incorporation or registration	
KRA PIN	

Part 2 - Ownership. Complete the section applicable to the tenderer.

Name of director, partner or shareholder	Nationality	Identity or passport number	Percentage shareholding

Part 3 - Conflict of interest

State whether any director, partner, shareholder or employee of the tenderer is a member of the board, an employee or an agent of the Kakuma Municipal Board or Turkana County Government, or a relative of such a person. State 'NONE' if not applicable.

Name	Relationship or position held

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM TIF

TENDERER INFORMATION FORM

Legal name of tenderer	
Trading name, if different	
Country of registration	
Year of registration	
Legal form (limited company, partnership, sole proprietorship)	
Registered office address	
Physical address of business premises	
Physical address of workshop and service centre	
Name of authorized representative	
Designation	
Telephone	
Email address	
Bank name, branch and account number	

Attached to this form:

(a) Certificate of incorporation or registration; (b) CR12 or CR13 not more than three months old; (c) KRA PIN certificate; (d) valid tax compliance certificate; (e) trade license or business permit; (f) power of attorney; (g) evidence of business premises and workshop, owned or leased.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM LIC

SCHEDULE OF STATUTORY LICENCES AND REGISTRATIONS

Attach a certified copy of each license or certificate listed. A license that has expired or that expires before the end of the tender validity period shall not be accepted.

License or registration	Class or category	Number	Issuing authority	Date of issue	Expiry date

The following are mandatory and shall be listed above:

(a) Energy and Petroleum Regulatory Authority solar photovoltaic system contractor license in class C1 or C2, and electrical contractor license in class C1 or above;

(b) Energy and Petroleum Regulatory Authority solar photovoltaic technician license at class T3, held by at least one member of the proposed team, and a class V1 or V2 vendor license held by the tenderer or by the vendor through whom the equipment is supplied or imported;

(c) National Construction Authority registration at NCA 3 or above in Electrical Works;

(d) Engineers Board of Kenya registration of the lead design engineer, and Kenya Engineering Technology Registration Board registration of each key technician;

(e) Valid trade license or business permit for the county of operation;

(f) Directorate of Occupational Safety and Health Services workplace registration.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM RNB

DECLARATION OF REGISTERED NATURE OF BUSINESS

This form is scored under Criterion 1 of the technical evaluation and carries 25 of the 100 available marks. Each attribute claimed shall be supported by the evidence stated. An attribute not evidenced shall not be scored.

Attribute claimed	Yes or No	Evidence attached and page reference

Attribute	Yes / No	Evidence attached, page reference
Registered objects expressly include the generation, supply or installation of renewable energy in geothermal, solar or wind		
EPRA solar photovoltaic system contractor license in class C1 or C2 held continuously for not less than three years		
Renewable energy works constitute the majority of turnover in each of the last two financial years		
Dedicated renewable energy technical department with not fewer than three qualified staff in continuous employment		

Statement of the tenderer's renewable energy activity

State the field or fields of renewable energy in which the tenderer is registered and active, the year in which that activity commenced, and the proportion of turnover derived from it in each of the last two financial years.

Financial year	Total turnover (KES)	Renewable energy turnover (KES)	Percentage

Renewable energy technical department

Name of staff member	Qualification	Role	Years in continuous employment

We declare that the information given above is true and complete, and we accept that a false or misleading statement shall result in disqualification and referral to the Public Procurement Regulatory Authority.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM EQU

SCHEDULE OF CONTRACTOR'S EQUIPMENT

List the equipment the tenderer proposes to deploy on the works. State for each item whether it is owned, leased or to be purchased, and attach evidence of ownership or of the leasing arrangement.

Item of equipment	Make and model	Capacity or rating	Year	Owned / leased / to be purchased	Location

The following are required as a minimum for this contract:

Mobile crane of not less than 25 tonne capacity with a working height exceeding 26 metres; concrete mixer or batching plant; poker vibrators; excavator or backhoe; dewatering pump; compaction plant; delivery vehicle capable of carrying 9 metre mast sections; insulation resistance tester; earth resistance tester; illuminance meter; torque wrenches to the specified range.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM PER

SCHEDULE OF KEY PERSONNEL

List the key personnel proposed for the works. Attach a signed curriculum vitae and certified copies of academic certificates and professional registrations for each person named.

Position	Name	Qualification	Registration or license number	Years of relevant experience

The following positions are required as a minimum:

(a) Project Supervisor: degree in electrical or mechanical engineering, registered with the Engineers Board of Kenya, not less than five years relevant experience;

(b) Two technicians: diploma in electrical or mechanical engineering, not less than two years relevant experience each;

(c) At least one team member holding a valid EPRA solar photovoltaic technician license at class T3 or above;

(d) Site safety officer with a recognized occupational safety qualification;

(e) Environmental and social officer.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM EXP-1

GENERAL CONSTRUCTION EXPERIENCE

List all contracts of a similar nature completed by the tenderer in the last five years. Attach a completion certificate issued by the owner for each contract listed.

Contract name and reference	Employer and contact	Value (KES)	Role	Start date	Completion date

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM EXP-2

SPECIFIC EXPERIENCE IN COMPARABLE WORKS

Complete a separate block for each contract relied upon under Criterion 3 of the technical evaluation. At least three contracts of value not less than KES 35 million each are required, of which at least one shall have included solar high masts of 20 metres or above and at least one shall have been executed in an arid or semi-arid county of Kenya.

Item	Particulars
Contract name and reference	
Employer, address and contact person	
Telephone and email of contact person	
Contract value (KES)	
Date of commencement	
Date of completion	
Quantity and height of solar high masts	
Quantity of CCTV units installed	
County in which executed	
Completion certificate attached, page reference	

Repeat this block for each contract. Photographs of the completed works may be attached in support.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM FIN-1

FINANCIAL POSITION

Complete from the audited financial statements for the last two financial years. Attach the audited statements, signed by a certified public accountant in good standing.

Item (KES)	Year 1	Year 2
Item (KES)	**Most recent year**	**Preceding year**
Financial year ended		
Total assets		
Total liabilities		
Net worth		
Current assets		
Current liabilities		
Working capital		
Total revenue		
Profit before tax		

Name and registration number of the auditor:

Name of audit firm	
ICPAK registration number	
Date of audit report	

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM FIN-2

AVERAGE ANNUAL CONSTRUCTION TURNOVER

State the annual turnover from construction and installation works for each of the last two financial years. The required minimum average annual turnover for this contract is KES 110 million.

Year	Amount (KES)	Exchange rate, if applicable	KES equivalent
Average annual turnover			

Breakdown of turnover by activity

This breakdown is used in the assessment of Criterion 1 of the technical evaluation. It shall be certified by the tenderer's auditor.

Activity	Most recent year (KES)	Preceding year (KES)	Percentage of total

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM FIN-3

FINANCIAL RESOURCES AND LINES OF CREDIT

State the financial resources available to the tenderer for this contract, net of commitments under other contracts. Attach bank certification not more than three months old for each source stated. The required minimum is KES 40 million.

Source of financing	Name of bank or institution	Amount (KES)	Evidence attached, page reference

Current contract commitments

Contract name	Employer	Value outstanding (KES)	Expected completion date

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM CON-2

HISTORICAL CONTRACT NON PERFORMANCE AND PENDING LITIGATION

Part 1 - Contract non performance

State whether any contract has been terminated, or performance security called, or damages levied against the tenderer in the last five years. State 'NONE' if not applicable.

Year	Contract name and employer	Value (KES)	Nature of non-performance

Part 2 - Pending litigation

State all pending litigation involving the tenderer. Pending litigation exceeding 10 per cent of net worth shall be assessed under Criterion 5. State 'NONE' if not applicable.

Year	Matter and court reference	Amount in dispute (KES)	Percentage of net worth	Status

We declare that the information given above is true and complete.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM MAF

MANUFACTURER'S AUTHORISATION FORM

To be issued on the letterhead of the manufacturer, signed by a person with authority to bind the manufacturer, and stamped. A separate form is required for the high mast, the lantern carriage and raising and lowering gear, the flood module, the external photovoltaic module, the storage and the standalone solar CCTV unit. A form issued by a distributor, agent or trading company is not acceptable unless the manufacturer confirms the authority in writing.

Name of manufacturer	
Country of manufacture	
Item authorized	
Model number offered	
Name of tenderer authorized	

We, the manufacturer named above, being an established manufacturer of the item stated, do hereby authorize the tenderer named above to submit a tender for, and subsequently to supply and install, the goods manufactured by us in connection with Tender No. TCG/KKM/11/2026-2027.

We hereby extend our full guarantee and warranty on the goods offered for the period stated in the Specification, and we confirm that we will make spare parts and technical support available to the Employer for a period of not less than ten years from the date of delivery.

We confirm that the technical particulars entered by the tenderer in Section D of the tender document in respect of our product are accurate and are supported by our published datasheets and test reports.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory of the manufacturer	
Designation	
Signature	
Manufacturer's stamp	
Date	

FORM MCD

MANUFACTURER'S CONTACT DETAILS FORM

Complete one row for each manufacturer whose product is offered. The Employer will contact each manufacturer directly during post qualification. A free webmail address, including but not limited to Gmail, Yahoo, Hotmail and Outlook, shall not be accepted; the email address given shall be on the manufacturer's own domain and shall match the website stated.

Item offered	Manufacturer	Corporate email address	Website	Telephone	Contact person

We confirm that the contact details given above are current, that the persons named are authorized to confirm our authorizati on and the technical particulars of the products offered, and that we consent to the Employer contacting them directly.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM SVC

SITE VISIT CERTIFICATE

Attendance at the site visit is mandatory. A tender submitted without this certificate, duly signed and stamped by the Kakuma Municipal Board, shall be rejected.

Name of tenderer	
Name of representative attending	
Designation	
National identity card number	
Telephone	
Date of site visit	

Sites visited

Tick	Site	Project
	Somali Market	1
	Hong Kong Market	1
	Burundi Market	1
	Slaughter House	2
	Nayanae Emeyen Village	2
	Lokitoe Ngisikiria Market	2
	Kakuma CBD to Kakuma Mission Hospital corridor	3
	A1 Road to Nayanae Emeyen Village corridor	3
	Kalobeyei Host Community corridor	4
	Kalobeyei Settlement corridor	4

This is to certify that the representative named above visited and examined the sites listed and was afforded the opportunity to examine the nature of the ground, the access and all matters bearing on the execution of the works.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of Municipal Board officer	
Designation	
Signature	
Official stamp of the Kakuma Municipal Board	
Date	

FORM BOD

BENEFICIAL OWNERSHIP DISCLOSURE FORM

Disclosure is required under section 31A of the Public Procurement and Asset Disposal Act, 2015 and the Companies (Beneficial Ownership Information) Regulations, 2020. Disclose every natural person who ultimately owns or controls the tenderer, whether directly or indirectly.

Full name	Nationality	Identity or passport number	Nature of ownership or control	Percentage held	Date acquired

Where ownership is held through another body corporate, disclose the chain of ownership until the natural persons at the end of it are identified.

Intermediate entity	Registration number	Country	Percentage held

We declare that the disclosure above is complete and accurate, and we undertake to notify the Employer of any change during the currency of any contract awarded.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM PRG

CONSTRUCTION PROGRAMME AND METHODOLOGY

Attach a bar chart programme showing every activity for each Bill separately, within the contract period stated in the Tender Particulars. Summarise the key dates below.

Activity	Project	Start week	Finish week
Mobilization and submittals	All		
Manufacture and factory testing	All		
Delivery to site	All		
Mast foundations	1 and 2		
Mast erection and rigging	1 and 2		
Column foundations, Kakuma	3		
Column erection, Kakuma	3		
Column foundations, Kalobeyei	4		
Column erection, Kalobeyei	4		
Testing and commissioning	All		
Training	All		
As built records and handover	All		

Attach a method statement addressing mobilization to Turkana West, delivery of 9 metre mast sections, lifting operations, the sequence of slip joint assembly, working at height, and the management of trading activity at the market nodes during construction.

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	

FORM HSE

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT PLAN

Summarise the tenderer's health, safety and environmental arrangements for this contract and attach the project specific plan and the tenderer's written policy.

Name of proposed site safety officer	
Qualification and registration	
Name of proposed environmental and social officer	
Qualification	
DOSHS workplace registration number	
Workmen's compensation policy number and insurer	
Public liability policy number and insurer	

ENVIRONMENTAL AND SOCIAL MANAGEMENT AND MONITORING PLAN FOR THE PROPOSED STREETLIGHTING AND HIGH MAST PROJECT

Project Phase	**Environmental/ Social Aspect**	**Potential Impact**	**Mitigation Measures**	**Monitoring Indicators**	**Responsibility**	**Estimated Cost (KES)**
Pre-Installation/ Installation	Community awareness and stakeholder Engagement/training	Lack of project understanding and public concerns	Conduct stakeholder consultations and disclose project information to affected communities and institutions	Consultation records, attendance lists, stakeholder feedback	Kakuma Municipality, Contractor Supervision consultants	
Pre-Installation/ Installation	Site selection and design	Encroachment on utilities or public infrastructure	Verify utility locations and confirm light pole positions before installation	Approved designs and site verification reports	, Contractor Supervision consultants	
Installation/ Installation	Vegetation disturbance	Minor loss of grass and roadside vegetation	Limit excavation footprint and restore disturbed areas after installation	Number of restored sites	Contractor Supervision consultants	

Construction / Installation	Dust generation	Localized air quality deterioration	Sprinkle water on excavation points where necessary and cover transported materials	Dust complaints, site inspections	Contractor Supervision consultants	
Construction / Installation	Noise generation	Temporary disturbance to nearby residents, schools and businesses	Restrict works to daytime hours and maintain equipment properly	Noise complaints received	Contractor Supervision consultants	
Construction / Installation	Excavation waste and packaging Materials	Increased solid waste generation	Collect, segregate and dispose waste at approved disposal sites; recycle where possible	Waste disposal records	Contractor Supervision consultants	
Construction / Installation	Occupational health and safety	Injuries to workers during excavation, pole erection and electrical works	Provide PPE, safety training, first aid kits and supervision of works	PPE usage, accident records	Contractor Supervision consultants	
Construction / Installation	Public safety risks	Injuries to pedestrians and motorists near work sites	Install warning signs, barriers and traffic management measures	Presence of signage and barriers	Contractor Supervision consultants	
Construction / Installation	Traffic disruption	Temporary inconvenience along the road corridor	Schedule works in sections and maintains access for pedestrians and vehicles	Traffic management records	Contractor Supervision consultants	
Construction / Installation	Labour influx and social concerns	Potential conflicts, GBV, SEA/SH risks	Prioritize local labour, enforce workers'	Number of grievances reported	Contractor, Municipality	

			code of conduct, conduct awareness programs			
Construction / Installation	Electrical installation activities	Risk of electrocution during installation	Ensure work is undertaken by qualified technicians and comply with electrical safety standards	Safety inspection reports	Contractor Supervision consultants	
C-ESMP						

Confirm by ticking that the attached plan addresses each of the following:

Tick	Requirement
	Hazard identification and risk assessment for lifting, working at height and excavation
	Personal protective equipment issue and enforcement
	Traffic management, signage and barriers at open excavations
	Dust suppression and control of excavated material
	Handling, transport and disposal of lithium iron phosphate storage under a documented chain of custody
	Grievance redress mechanism operated jointly with the Employer
	Local labour sourcing from both the host community and the refugee population, with monthly reporting
	Emergency response and first aid arrangements, including evacuation from Turkana West
	Monthly environmental and social reporting to the Engineer

SIGNED FOR AND ON BEHALF OF THE TENDERER

Name of authorized signatory	
Designation	
Signature	
Official stamp of the tenderer	
Date	