EAST AFRICAN
CRUDE OIL
PIPELINE

PROCUREMENT OPPORTUNITIES IN ABOVE THE GROUND (AGI) INSTALLATIONS & PIPELINE CONSTRUCTION

08.09.2023

CHINA PETROULEUM PIPELINE COMPANY LIMITED

CONTRACTOR INTRODUCTION

Onshore Pipeline	Offshore Pipeline	Oil & Gas Storage	Oil & Gas Field Facilities

As Of 2021

100,000 km onshore pipeline projects

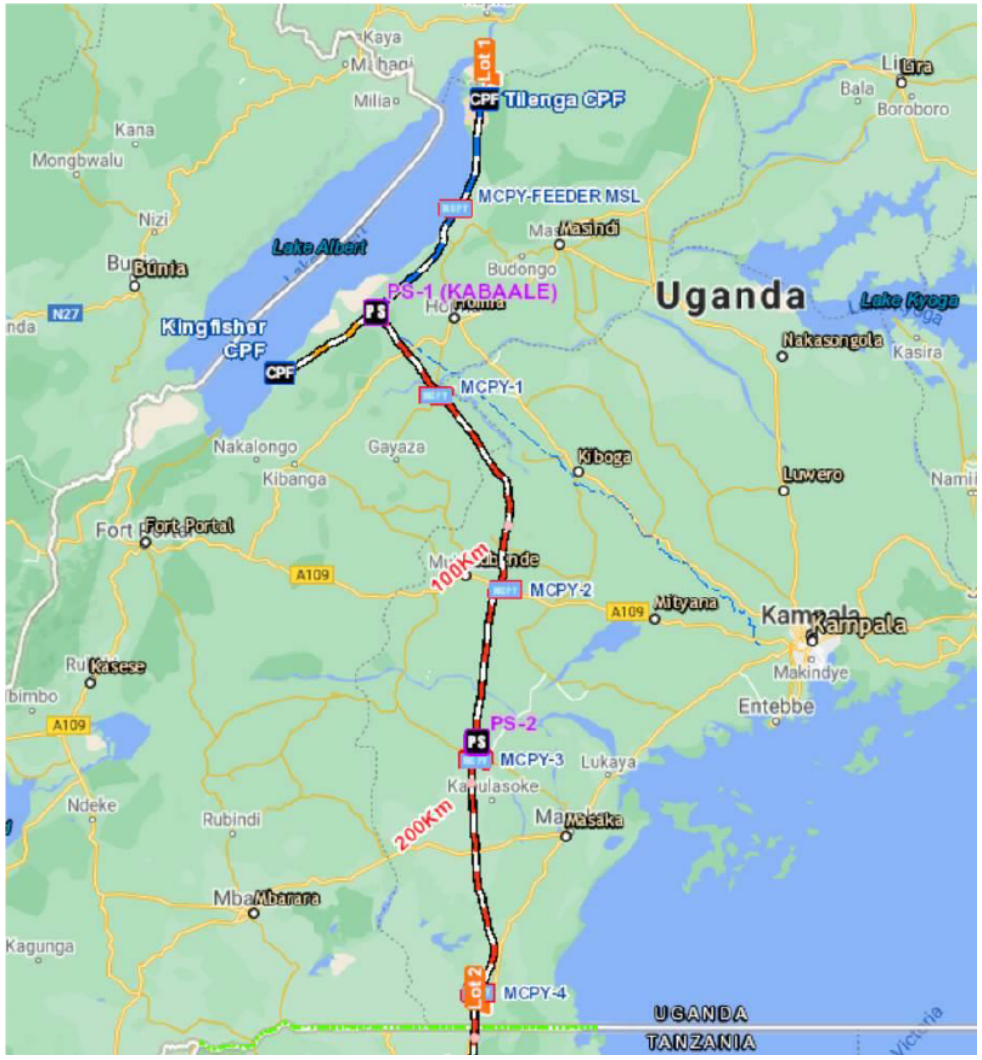
200 km offshore pipeline projects

30 million m³ oil and gas storage projects

100 sets oil & gas field surface facilities

LNG Processing & Receiving Terminals	Mini Refinery	Operation Maintenance	Tele Communication & Power

SCOPE OF WORK



Distance: Tilenga to the border (UG-TZ)

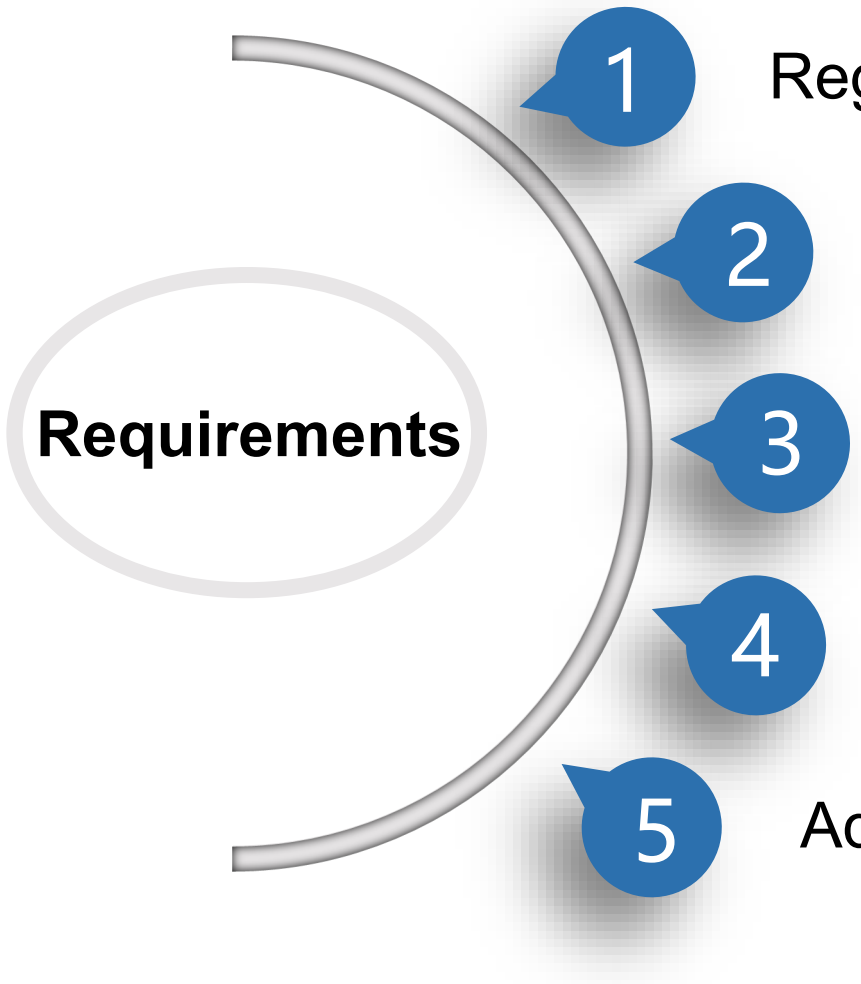
Length: 390km in UG

Diameter: 24”

Facilities: 2 Pump Stations, 4 Main Camps, and Pipe Yards, mainline block Valves, and electric heat tracing stations

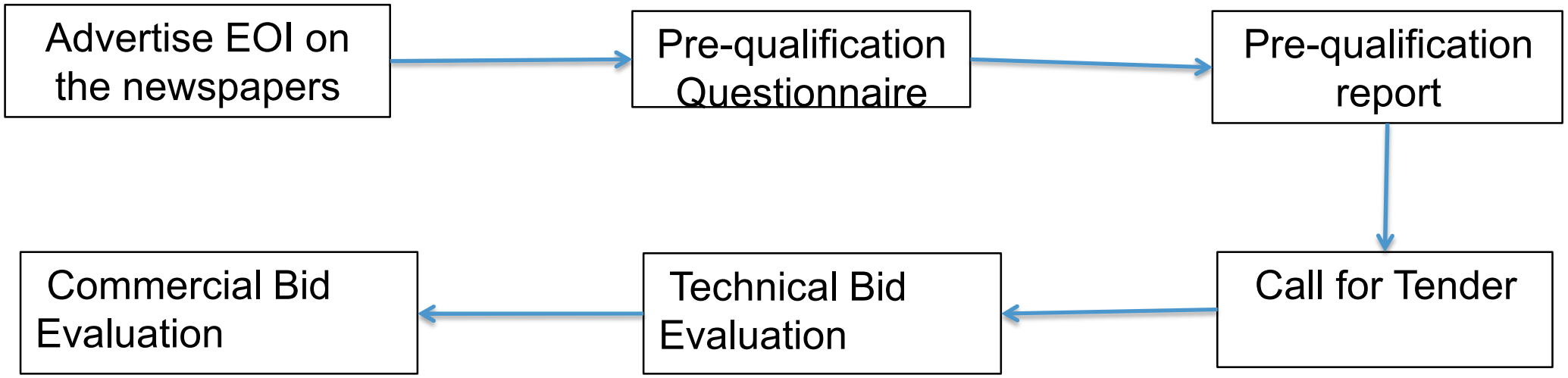
Duration: 24 months construction +3 months of commissioning support with a warranty period of 24 months

PERFORMANCE STANDARDS AND REQUIREMENTS



1. Register at PAU is mandatory
2. Comply with National Content Regulations
3. TWRAP (Temporary Worker Resource Allocation Plan) is required, where applicable
4. Submit Quarterly Procurement forecasts and reports
5. Adhere strictly to tender procedures

GUIDANCE TO PARTICIPATION IN THE PROCUREMENT PROCESS



The suppliers who want to participate the EOI must submit the minimum required documents including but not limited to Company registration certificate, National supplier database, Tax clearance certificate, finance statement, proof of design capacity and production capacity and supply capacity, QA/QC certificate, proof of bank credit/line,similar oil and gas field experience etc.

GUIDANCE OF PARTICIPATE PROCUREMENT PROCESS

During the whole construction phase of CPP EACOP Project, all the procurement packages are divided in two parts.

- Installation materials which means the materials will be used or put into the Pipeline and AGI facilities,
- the other part is the construction consumable materials.

Regarding to the project installation materials, EACOP have strict technical requirements and have provided the approved vendor list in order to ensure the Pipeline and AGI facilities will be operated and performed smoothly and steadily. So, the suppliers who are going to participate these procurement package must provide the **manufacturer authorization letter** to promise and prove that they can provide the required quality guarantee and after-sale service which are coming from the approved manufacturer. **The supplier should provide commitment to meet the supply demand timely and according to the set standards**.

GUIDANCE TO PARTICIPATION IN THE PROCUREMENT PROCESS

Vendor‘s requirements

- The supplier must provide the Manufacturer's Commitment Letter /Manufacturer's authorization(if any).
- Experience in oil and gas project (More than five years experience in oil and gas for manufacturer)
- Compliance with the Petroleum Midstream National Content Regulation # 34,2016 for Uganda.
- Copy of certificates of ISO 9001, ISO 45001, ISO 14001 or equivalent of them (For manufacturers)

Key procurement terms

- .Payment terms:
- .Payment method:TT or letter of credit(depend on contract value)
- .Advance paymen:5-10%(depend on reality)
- Unless otherwise agreed, all ducuments shall be written in English language.
- Other key terms will be discussed based on actual conditions

REQUIRED GOODS & SERVICES SEPTEMBER - OCTOBER

- Equipment rental including truck,bus(9,23,33seats),20-30T Excavator,25T,50T,200T Wheeled Crane hiring etc(The EOI has been issued and the specific requirements can be seen by the EACOP website).
- 16Ton Telehandler hiring
- 10Ton Forklift which can go inside the 40FT container
- Mobile warehouse(Tarpauline 15m X 15m)
- Lifting materials and tools(including Suspension bar 15ton*2.5meter, sling 10ton*10m, sling 5ton*12m, hook 10T/5T/4T, steel wire rope 10T*10m etc.)
- PPE
- Fire fighting extinguishers
- Temporary warehouse hiring

REQUIRED GOODS & SERVICES
OCTOBER '23- MARCH '24

- Lifting materials and tools(including Suspension bar 15ton*2.5meter, sling 10ton*10m, sling 5ton*12m, hook 10T/5T/4T, steel wire rope 10T*10m etc.)
- Steel(Angle steel,channel steel, steel plate,steel bar, steel pipe etc.)
- Electric materials(battery, LED light, socket, cable etc.)
- Office materials(printer, A4 paper, notebook, pen, marker pen, file box, white board etc.)
- Diesel/Hydraulic oil/Lubricating oil
- Sand/soil/concrete
- Catering appliance

DETAILED EQUIPMENT SPECIFICATIONS

Excavator (20-30T) , 16 Needed in January 2024.

- The operating time is less than 1000 hours ;
- Provide the Service and Maintained Record and Logbook available for the last 6 month at least(Only for second-hand equipment) ;
- EQUIPMENT has been inspected and certified by a professional Third-Party Agency,and the
- report/certificaiton keep valid(Only for the second-hand equipment);
- Provide OSHA Chief Inspection certificate(for both of new and second-hand equipment);
- Provide TBS Declaration of conformity (for both of new and second-hand equipment).

DETAILED EQUIPMENT SPECIFICATIONS, CONT'

Crane Truck12T (for the crane 4x4) , 8 Needed in November

- The running time is less than 1000 hours and the total mileage is less than 10000 kilometers ;
- Provide the Service and Maintained Record and Logbook available for the last 6 month at least(Only for second-hand equipment) ;
- Provide current SWL(Safety Working Load) Test certificate i.e., tested within the last 1 year and issued by a professional Third-Party agency(Only for second-hand equipment).
- Provide the latest 6 monthly Visual/Thorough Examination certificates/reports;
- Provide OSHA Chief Inspection certificate(for both of new and secend-hand equipment);
- Provide TBS Declaration of conformity (for both of new and second-hand equipment)

DETAILED EQUIPMENT SPECIFICATIONS , CONT'

Wheeled Crane (6) 25T, (2) 50T, (1) 200T, all Needed in May 2024

- The operating time is less than 300 hours ;
- Provide the Service and Maintained Record and Logbook available for the last 6 month at least(Only for second-hand equipment) ;
- Provide current SWL(Safety Working Load) Test certificate i.e., tested within the last 1 year and issued by a professional Third-Party agency(Only for second-hand equipment).
- Provide the latest 6 months Visual/Thorough Examination certificates/reports;
- Provide OSHA Chief Inspection certificate(for both of new and second-hand equipment);
- Provide TBS Declaration of conformity (for both of new and second-hand equipment).

DETAILED EQUIPMENT SPECIFICATIONS -

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SPECIFICATION OF ELECTRICAL BULK MATERIALS

Cables general design requirements:

- All cables shall have a design life of at least 25 years of continuous use under the conditions specified herein irrespective of whether they are in intermittent or continuous service at any load up to their maximum currentand voltage ratings.
- Asbestos or any other material deemed to be hazardous to health by the Occupational Safety and Health Administration shall not be used in any part of the cable.
- All cables shall be at least flame retardant (IEC 60332-3-22).
- All cables shall be resistant to water and oil.
- When cables risk to be subjected to jet fires, then they shall additionally be tested according to IEC
- 61892-4 annex C for a duration of 60 minutes at a minimum temperature of 1100° C

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Cables detail technical requirements:

- Single Pair / Triad Instrument Cable
- Conductors: 1.0 mm² (min.), 7 strands, concentric stranded, tinned, circular copper wire, Class 2.
- Minimum conductor size shall be verified by voltage drop calculation for all types of cable prior to
- cable selection, ensuring that sufficient voltage is available for instruments/devices.
- Primary insulation: XLPE for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cables,this insulation material shall be halogen free.
- Number of conductors per group: two for pairs or three for triad.
- Colour Code: white (+) and black (-) (plus red if triad).
- Shield/drain wire: 100% coverage. Aluminium bonded to Mylar tape shield helically applied over
- twisted pair with aluminium on inside in continuous contact with bare 0.75 mm², 7 strands, tinned
- copper drain wire.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Outer jacket: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cables.

- This insulation material shall be halogen free.
- This cable shall be rated to a voltage of 600 volts root mean square.
- Fire resistance: In compliance with IEC 60331-1 / IEC 60331-2 and IEC 60331-21, if transported
- signals are related to safety or protective applications.
- Smoke emission: Low smoke, halogen-free (LSZH) if routed indoor or partially routed indoor. Low
- Smoke Low Halogen (LSLH) if fully routed outdoors.
- Armour: Tinned Copper Wire Braid (TCWB) or Galvanized Steel Wire Braid (GSWB), or equivalent protection complying with tensile and compression strength requirements.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Multiple Pair / Triad Instrument Cable

- Conductors: 0.75 mm²(min.), 7 strands, concentric stranded, tinned, circular copper wire, Class 2.
- Minimum conductor size shall be verified by voltage drop calculation for all types of cable prior to
- cable selection, ensuring that sufficient voltage is available for instruments/devices.
- Primary insulation: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cables, this insulation material shall be halogen free.
- Number of conductors per group: two or three for triad.
- Colour Code: white (+) and black (-) (plus red if triads), Pair / Triad Nos. continuously numbered on white core in black.
- Group identification: each pair (or triad) numbered at 6-inch intervals or less.
- Pair shield/drain wire: 100% coverage. Aluminium bonded to Mylar tape shield helically applied over twisted pair with Aluminium on inside in continuous contact with bare 0.50 mm², 7 strands, tinned copper drain wire.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

- Outer jacket: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cables this insulation material shall be halogen free.
- Outer shield/drain wire: 100% coverage. Aluminium: Mylar tape shield helically applied over all pairs and communication wire. Aluminium shall be on outside and in continuous contact with bare 0.50mm², 7 strands, tinned copper cable drain wire.
- Communication wire: 0.34 mm², 7 strands, copper with PVC insulation. Colour coded different from remainder of bundle.
- Rip cord: under outer jacket.
- This cable shall be rated to a voltage of 600 volts root mean square.
- Fire resistance: In compliance with IEC 60331-1 / IEC 60331-2 and IEC 60331-21, if transported
- signals are related to safety or protective applications.
- Smoke emission: Low smoke, halogen-free (LSZH) if routed indoor or partially routed indoor. Low
- Smoke Low Halogen (LSLH) if fully routed outdoors.
- Armour: Tinned Copper Wire Braid (TCWB) or Galvanized Steel Wire Braid (GSWB), or equivalent protection complying with tensile and compression strength requirements.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Single Pair Thermocouple Extension Cable

- Conductors – 1.5 mm², solid alloy matched and calibrated per IEC 60584-3 for standard limits oferror.
- Primary insulation: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Freecables this insulation material shall be halogen free.
- Pair shield/drain wire: 100% coverage. Aluminium bonded to Mylar tape shield helically applied over twisted pair with aluminium on inside in continuous contact with bare 0.75 mm², solid, tinned copper drain wire.
- Outer jacket: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cables this insulation material shall be halogen free.

SPECIFICATION OF ELECTRICAL BULK MATERIALS (CONT')

- This cable shall be rated to a voltage of 600 volts root mean square
- Fire resistance: In compliance with IEC 60331-1 / IEC 60331-2 and IEC 60331-21, if transported
- signals are related to safety or protective applications.
- Smoke emission: Low smoke, halogen-free (LSZH) if routed indoor or partially routed indoor. Low
- Smoke Low Halogen (LSLH) if fully routed outdoors.
- Armour: Tinned Copper Wire Braid (TCWB) or Galvanized Steel Wire Braid (GSWB), or equivalent protection complying with tensile and compression strength requirements.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

RS-485 Communication Cable

- Cables shall be 2 pairs.
- Conductors: 0.25 mm², 7 strands, concentric stranded, tinned, circular copper wire, Class 2.
- Cable pairs shall be twisted two times per 305mm (12 in) minimum with individual shields.
- Pairs shall be numbered within the cables.
- The cable shall have an overall electrostatic shield giving 100 percent coverage and a tinned copperdrain wire.
- Outer jacket: 90° C, PVC for Low Smoke Low Halogen cable. For Low Smoke Halogen Free cablesthis insulation material shall be halogen free.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

- Color coded black.
- Cables shall have an overall, overlapped, synthetic polymer–backed aluminium tape shield with a
- continuous tinned copper drain wire.
- Fire resistance: In compliance with IEC 60331-1 / IEC 60331-2 and IEC 60331-23, if transported
- signals are related to safety or protective applications.
- Smoke emission: Low smoke, halogen-free (LSZH) if routed indoor or partially routed indoor. Low
- Smoke Low Halogen (LSLH) if fully routed outdoors.
- Armour: Tinned copper Wire Braid (TCWB) or Galvanized Steel Wire Braid (GSWB), or equivalent
- protection complying with tensile and compression strength requirements.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Outdoor Single-Mode Fibre Optic Cable

- The outdoor single-mode Fibre optic cables shall be suitable for:
- Directly be buried into the ground, rodent and termite proof.
- Or used in ducts
- Or fastened to trays or ladders as well as indoors, and compatible with standard MCT’ s.
- Outdoor single-mode fibre optic cables shall be OS2, compliant with ITU-T G.652 and TIA-492CAAB., and shall be supplied according to the following minimal specifications:
- Outer jacket: Low Smoke Low Halogen cable.
- Number of fibres between buildings: 24 cores.
- Number of fibres to field devices: 4 or 24 core
- Operating wavelengths: 1310 nm and 1550 nm

SPECIFICATION OF ELECTRICAL BULK MATERIALS

- Core diameter: 9.1 µm ± 0.5 µm
- Cladding diameter: 125 µm ± 1.0 µm
- Attenuation: Less than 0.35 dB/km at 1310 nm and 0.24 dB/km at 1550 nm
- Dispersion: Less than 3.5 ps/nm.km at 1310 nm and 18 ps/nm.km at 1550 nm
- Fibre identification: As per ANSI/TIA-598-D colour code
- Fibre protection: Modules of 12 fibres, filled with water blocking compound
- Water protection: Water blocking tape
- Flame retardancy: In compliance with IEC 60332-3-22 (category A)
- Smoke emission: Low smoke, halogen-free (LSZH) if partially routed indoor.
- Low smoke, low halogen (LSLH) if fully routed outdoors.
- Armour: Tinned copper Wire Braid (TCWB) or Galvanised Steel Wire Braid (GSWB), or equivalent
- protection allowing to reach tensile and compression strength requirements

SPECIFICATION OF ELECTRICAL BULK MATERIALS

- Outer sheath colour: Black or Grey (non fire-resistant), or Orange (fire-resistant)
- Outer Sheath: PE (Polyethylene) or XLPE (crossed linked Polyethylene)
- Tensile Strength: More than 1500 N during installation and 600 N during operation
- Compression Strength: More than 300 N/cm
- Typical Minimum Bending Radius: 300 mm (permanent)

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Indoor Single-Mode Fibre Optic Cable

Indoor single-mode fibre optic cables shall be OS2, compliant with ITU-T G.652 and TIA 492CAAB and designed for direct connector termination. They may be non-armoured, and shall be supplied according to the following minimal specifications:

- Being fastened to trays or ladders
- Number of fibres: 4 or 24 Cores depending on functionality
- Operating wavelengths: 1310 nm and 1550 nm
- Core diameter: 9.1 µm ± 0.5 µm
- Cladding diameter: 125 µm ± 1.0 µm
- Attenuation: Less than 0.35 dB/km at 1310 nm and 0.24 dB/km at 1550 nm
- Dispersion: Less than 3.5 ps/nm.km at 1310 nm and 18 ps/nm.km at 1550 nm
- Fibre identification: As per ANSI/TIA-598-D colour code
- Flame retardancy: In compliance with IEC 60332-3-22 (category A)
- Smoke emission: Low smoke, halogen-free (LSZH)

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Coaxial Cable

PROPERTY DESCRIPTION	CO-AXIAL CABLE TYPE					
	1/2"	7/8"	1 5/8"	RG6 (75Ω)	LMR-600-75 (HOLD 1)	RG 213
CABLE TYPE	Foam PE dielectric	Air-Dielectric, Corrugated	Air-Dielectric, Corrugated	Foam PE dielectric	Foam PE dielectric	PE dielectric
OUTER CONDUCTOR	Annular corrugated Copper	Corrugated Copper	Corrugated Copper	Aluminium foil and tinned Copper wire Braid	Aluminium tape	Plain Copper wire braid
INNER CONDUCTOR	Copper clad aluminium wire	Copper Tube	Corrugated Copper Tube	Solid bare Copper	Solid Copper clad Aluminium	Plain Copper
IMPEDANCE	50 Ω nominal	50 Ω nominal	50 Ω nominal	75 Ω nominal	75 Ω nominal	50 Ω nominal
CABLE OUTER DIAMETER (TYP.)	15.8mm nominal	28mm nominal	50.4mm nominal	7mm nominal	15mm nominal	10.3mm nominal
ATTENUATION	2.89 dB/100m (@174MHz)	1.57 dB/100m (@174MHz)	0.84 dB/100m (@174MHz)	34.85 dB/100m (@2000MHz)	13.7 dB/100m (@2500MHz)	9.5 dB/100m (@200MHz)
FLAME RETARDANCE	In compliance with IEC 60754-1	In compliance with IEC 60332-1	In compliance with IEC 60332-1	In compliance with IEC 60332-1	In compliance with IEC 60332-1	In compliance with IEC 60332-1
SMOKE EMISSION	Halogen-free	Low smoke, halogen-free (LS0H)	Low smoke, halogen-free (LS0H)	Low smoke, halogen-free (LS0H)	Low smoke, halogen-free (LS0H)	Low smoke, halogen-free (LS0H)
BENDING RADIUS (SINGLE/REPEATED)	70mm / 125mm	100mm / 250mm	180mm / 550mm	10 x overall diameter	50mm / 150mm	5 x overall diameter

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Welding Socket Outlets.

Each welding receptacle shall consist of but not limited to following items

- Type : 5 Wire (3PH+N+E)
- Enclosure : GRP for hazardous area
  Fibreglass Reinforced Polyester (FRP) for safe area
- Enclosure IP rating : IP 55
- Type of Protection : Minimum Ex ‘d’ type for hazardous area
- Gasket : Neoprene
- Terminals : Copper suitable for termination of specified cable size,
  : numbers as specified
- Cable entries : As specified at bottom

Three Phase Socket Outlets

Three Phase socket outlets shall have the following configuration:

- Current Rating : 32 A or 63 A
- Voltage : 400 V, 50 Hz
- No. of Poles : 4 Switched (3 Phases and Neutral) and Earth
- No. of Pin Entries : 5 Round
- Handle Actuator Lockable

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Outdoor / Field Sockets

Each small power receptacle for outdoor/ field installation shall be industrial type shall consist of but not limited to following items

- Type : 3 Wire (1PH+N+G)
- Enclosure : GRP for hazardous area
  Fibreglass Reinforced Polyester (FRP) for safe area
- Enclosure IP rating : IP 55
- Type of Protection : Minimum Ex ‘d’ type for hazardous area
- Gasket : Neoprene
- Terminals : Copper suitable for termination of specified cable size,
  : numbers as specified
- Cable entries : As specified at bottom

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Outdoor / Field Switches

Each switch for outdoor/ field installation shall be industrial type and shall consist of but not limited to following items

• Type	:	1 pole to 4 poles as specified
• Enclosure	:	GRP for hazardous area
		Fibreglass Reinforced Polyester (FRP) for safe area
• Enclosure IP rating	:	IP 55
• Type of Protection	:	Minimum Ex 'd' type for hazardous area
• Gasket	:	Neoprene
• Terminals	:	Copper suitable for termination of specified cable size,
	:	numbers as specified
• Cable entries	:	As specified at bottom

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Junction Boxes and Terminal Boxes

Each junction box shall consist of but not limited to following items:

- Type : 2 way to 6 way as specified
- Enclosure : GRP for hazardous area

  Fibreglass Reinforced Polyester (FRP) for safe area with mounting rail for terminals
- Enclosure IP rating : IP 55
- Type of Protection : Minimum Ex ‘e’ type for hazardous area
- Gasket : Neoprene
- Terminals : Copper suitable modular terminals with separation barriers for termination of specified cable size

  : numbers as specified
- Cable entries : As specified at sides / bottom / top depending on number of ways

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Conduits and Fittings

PVC Conduits shall be used for cable protection in safe area for stub-up from trenches and paved area. Steel conduits shall be used for hazardous area locations, conduits shall be of hot dip galvanized steel for protection. Conduits shall be provided with bushing for protection of cables for stub-up.

PVC conduits with appropriate accessories shall be provided as specified per drawings and installation details.

The internal wiring between the switching components and the terminal block shall be completed in all respects so as to ensure proper functioning of control, indication, protection, measurement, and interlocking schemes.
All conductors shall be of adequate size for their duty and minimum size shall be 2.5 mm2.
LCS shall have a suitable identification label comprising of black lettering on a white background. The label shall display the equipment identifier as detailed on the Project documents the label shall be made of non-rusting corrosion proof metal or 3-ply traffolyte or engraved PVC. Identification labels shall be fixed by stainless steel screws (not glued), in order to prevent distortion due to expansion.
LCS installed in hazardous areas shall comply with the requirements of IEC 60079 and shall be suitable for use in the hazardous areas, certified for Zone 1, classified gas group IIA/IIB, and temperature class T3 as a minimum.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Earthing Bars

Earthing bars shall be of hard drawn copper. Earth bars shall be of 50 mm width and 5 mm thickness as a minimum. A bar length of 600mm shall allow a maximum of ten (10) earthing connections. Earth bar length shall be sized to provide individual bolting points for each earth lug. Earth bar shall be bonded to the structure at each end using earthing conductors. Earth bar shall be mounted on insulated bosses.

Earth Electrode

The earth electrodes shall be copper clad rod or pipe, diameter and length shall be in accordance with Earthing Conductor Sizing Report. Earth electrodes shall be provided complete with copper bar for connection of the main earth grid conductor with necessary clamps/bolts/nuts etc.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Cable Trays and Ladders

Cable trays shall be prefabricated rigid hot dip galvanized sheet steel trays or perforated cable trays or ladder type trays as per application requirement. For highly corrosive environment GRP or Stainless steel shall be used.

- Prefabricated ladder type trays - The cable trays shall comply with the requirements specified in installation details.
- Cable trays shall be installed and supported in accordance with manufacturer's recommendation.
- Cable tray sizes for 300mm, 450mm, 600mm and 900mm shall be utilized for routing and branching of main cable routes. Cable tray fittings shall be supplied in strict accordance with purchaser's drawings and MTO
- Individual cables routed from the main cable tray to end devices shall be routed in smaller size cable tray or channel of 4-inch or 6-inch channel and shall be supported similar to main trays.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Cable Trays and Ladders

- Cable tray shall be designed and sized for 80% space loading with 20% space for future.
- Cable trays shall not be supported from, or affixed to, process pipes, or vessel. Trays on vessel/ tank/

stack shall be supported from clips provided by equipment manufacturer.

- Cable tray supports shall be designed for 100% tray loading weight.
- Cable clamps used for attaching cables to tray shall be of stainless-steel type. or tie-raps shall be black UV resistant rated minimum for 25kg.

Cable racks and trays shall be covered by removable top covers on upper most tier allowing adequate ventilation

in following cases where:

- Mechanical damage of cables is likely to occur during maintenance in the plant.
- Oil or spillage of chemicals can be expected.
- Protection from exposure to sun is required.

SPECIFICATION OF ELECTRICAL BULK MATERIALS

Cable Glands

Cable glands shall be of nickel-plated brass (metallic enclosures or armoured cables) or polyamide (Polyester enclosures and non-armoured cables) unless otherwise specified and shall be manufactured in accordance with IEC 60529 and IEC 60079-1.

The single compression type cable glands shall be used for indoor panels/equipment (e.g., substation, control room etc). The cable glands for outdoor terminations shall be whether protected, double compression type and shall have PVC shroud for additional weather protection.

Cable glands forming a part of relevant hazardous classified enclosure, shall match with same type. The size of cable glands supplied shall be appropriate to the size of cable so that flame proofness of glands is retained.

Cable glands shall meet the requirements of IP-55 (minimum) for suitable weather protection.

Entry thread of cable gland shall be compatible to the entry thread provided in the equipment. If required, suitable reducers/adopters shall be used. Cable glands shall be manufactured to provide cable sealing of inner and outer sheaths and clamping of armour by special ring.

Cable glands shall be constructed in such a way that same gland can be used for all types of armouring. Cable glands shall be provided with earth tag, lock nut and IP sealing washer. Each cable gland shall be provided with PVC shrouds. Sealing plugs/ connectors shall be provided for sealing spare cable entries. These plugs shall comply for hazardous area protection of the enclosure.

GENERAL SPECIFICATION OF PORTA CABIN

- With light steel structure design, production, installation and contracting qualifications.
- QA/QC certification: ISO9001, ISO45001/ISO18001,ISO14001
- The production technology and process meet the national standard of light steel structure
- Project host country specific design plan， providing the economical and suitable solution in reference with the local climate, social and economy conditions . Including but not limited to insulation, drainage, pest control, rodent control, etc.

DESIGN SPECIFICATION OF PORTA CABIN

- Deepen the design drawings, architecture, structure, water supply and drainage, strong electricity, general layout, etc.

- Design specifications and standards for each specialty, and provide the corresponding design list, the equipment for installation of building, doors and windows, ceiling, decoration, power supply, water supply and drainage, sanitary ware, furniture and household appliances and fire alarm system should be provided .

- The design service life is 15 years. Bidders need provide structural calculation documents, etc., to ensure the safety and durability of the house in the coastal areas where high temperature, high corrosion and high wind frequently occur.

TECHNICAL SPECIFICATION OF PORTA CABIN

- **The roof:**

The roof is double-slope, the slope is not less than 1:5, the house adopts completely detachable structure roof waterproof system, after the house is installed, the outer roof is not exposed to nails, without other waterproof treatment can achieve good waterproof performance.

- **Wall board requirements:**

Double-sided white, thickness not less than 75mm, glass fiber wool or rock wool color steel sandwich composite board, the board is filled with R > 35kg/m3 thermal insulation glass fiber wool or R > 60kg/m3 thermal insulation rock wool; plate need to be connected in the form of joint, color steel thickness not less than 0.5/0.5mm, galvanized + coating or other antirot materials with same level to achieve good corrosion resistance. The performance of the board should meet the corresponding national standards.

SPECIFICATION OF PORTA CABIN

Requirements for roof board:

White inside and red outside, thickness not less than 100mm, glass fiber wool or rock wool color steel sandwich board, the board is filled with R > 35kg/m3 thermal insulation glass fiber wool or R > 60kg/m3 thermal insulation rock wool; Color steel thickness on both sides are not less than 0.5/0.5mm, galvanized + coating or other antirot materials with same level to achieve good corrosion resistance. The performance of the board should meet the corresponding national standards.

Structure requirements:

Material should not be lower than Q235 ,hot dip galvanize（ the standard is not less than 150g/m^2）+ finishing coat or other antirot materials with same level to achieve good corrosion resistance. Safety performance provides a structural accounting statement. The performance should meet the corresponding national standards.

SPECIFICATION OF PORTA CABIN

Door：

Accommodation single/double opening steel door, steel plate thickness not less than 1.0mm, need to be equipped with door closers.

Camp office room entrance door: steel door, steel plate thickness not less than 1.0mm, need to be equipped with door closers. (See the requirements of the drawing door and window table for details)

Window: plastic steel double glass casement window, glass thickness 5+9+5mm, conch profile, with steel lining, to ensure no deformation and discoloration under high temperature, high corrosion and strong light, with window screen, with 90% shading fabric curtain.

SPECIFICATION OF PORTA CABIN

Ceiling:

Except for product building such as warehouse, workshop and substation, all the living buildings shall be equipped with the ceiling. The high-quality durable water resistant ceiling should be equipped to the rest room, bath room， kitchen and laundry， other rooms should be equipped with mineral wool acoustic panel. The performance of the ceiling should meet the corresponding national standards.

SPECIFICATION OF PORTA CABIN

Structure requirements: material should not be lower than Q235 ,hot dip galvanize（ the standard is not less than 150g/㎡） + finishing coat or other antirot materials with same level to achieve good corrosion resistance. Safety performance provides a structural accounting statement

All distribution boards incomer in buildings shall provide residual current device (RCD)

Requirements for roof board: white inside and red outside, thickness not less than 100mm, glass fiber wool or rock wool color steel sandwich board,the board is filled with R > 35kg/m3 thermal insulation glass fiber wool or R > 60kg/m3 thermal insulation rock wool.Color steel thickness on both sides are not less than 0.5/0.5mm, galvanized + coating or other antirot materials with same level to achieve good corrosion resistance.

SPECIFICATION OF WATER TREATMENT PACKAGE

Water Purification and Supply System

Purpose/Objective

Ensure that the water purification process and equipment can ensure the treated water meet the national potable water quality specifications where the camp located, and WHO 2022 Guidelines for drinking-water quality.

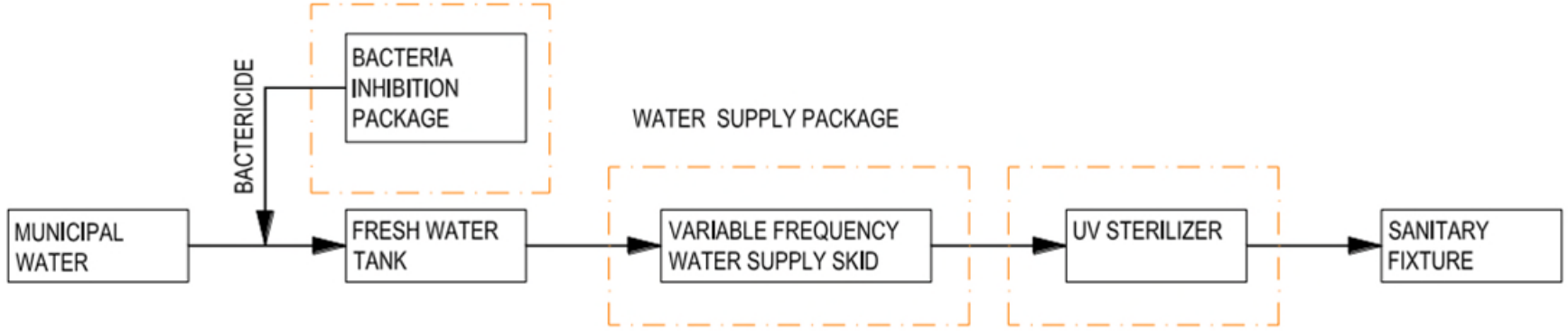
SPECIFICATION OF WATER TREATMENT PACKAGE

Water Purification and Supply System

Process for Camps Using Municipal Water

After being measured, the municipal water is stored in the fresh water tanks in the water tank and treatment area of camp. And then it is pumped and distributed to all the water consumption points by the variable frequency water supply skid and pipe network. A device shall be installed to prevent bacterial growth in the fresh water tank.

The UV sterilizers shall be provided on the pumped water manifold.



SPECIFICATION OF WATER TREATMENT PACKAGE

Water Purification and Supply System

Process for Camps Using Well Water

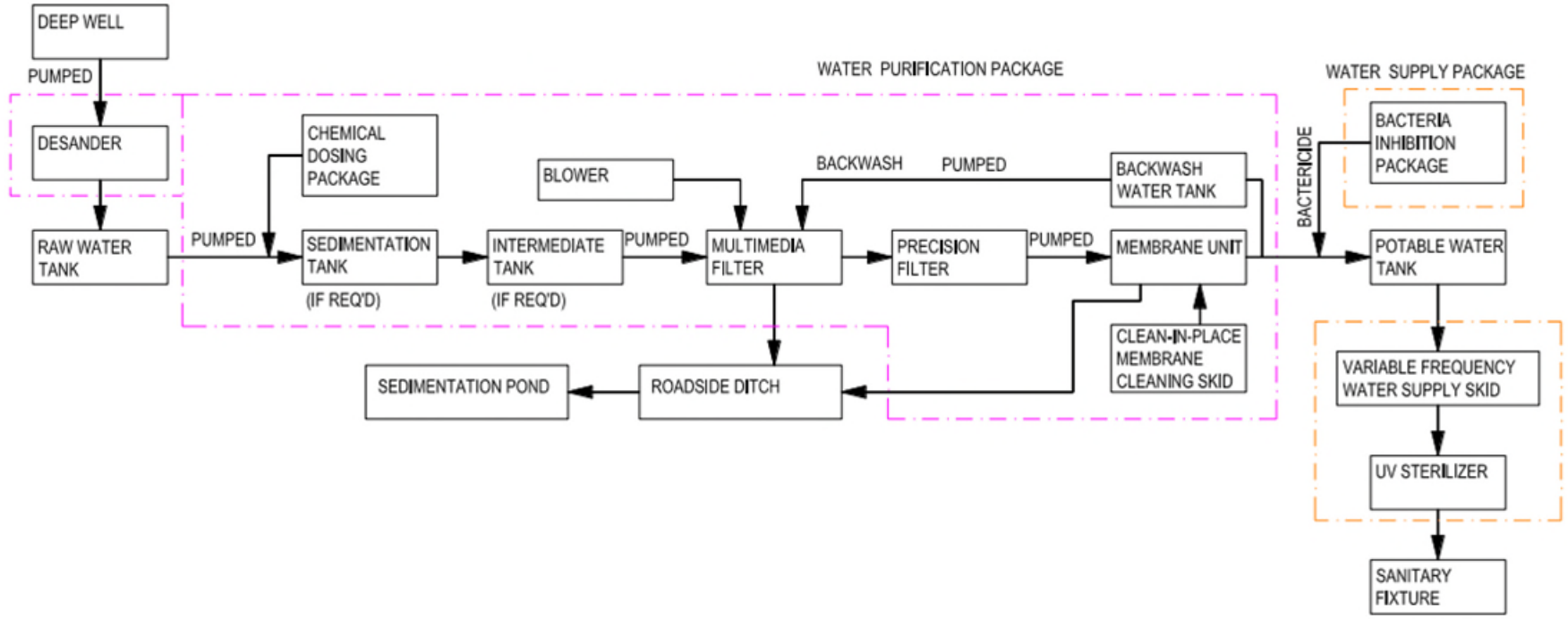
After being treated by the desander in the water tank and treatment area of camp, the deep-well water is stored in the raw water tanks. And then it is treated by a purification package and stored in the potable water tanks. Afterwards, it is pumped and distributed to all the water consumption points by the variable frequency water supply skid and pipe network. A device shall be installed to prevent bacterial growth in the fresh water tank. The UV sterilizers shall be provided on the pumped water manifold.

The water purification process shall be finalized based on the raw water quality, roughly including pre-treatment and reverse osmosis treatment

SPECIFICATION OF WATER TREATMENT PACKAGE

Process for Camps Using Well Water

In the camps using well water, the primary water purification and supply process is shown as follow:



WATER PURIFICATION AND SUPPLY SYSTEM

Material Take-off of Water Purification and Supply System for Camps Using Municipal Water

The system shall include but not limited include the following components:

- 1 set of bacteria inhibition package;
- 1 set of level switch (installed in one fresh water tank) with cables to the variable frequency water supply skid;
- 1 set of variable frequency water supply skid (including pumps, pressure tank, control cabinet with frequency converter, internal piping and valves, detection and control instruments, power supply and control cables, anchor bolts/expansion bolts etc.);
- 2 sets of UV sterilizers with expansion bolts etc.;
- Flanges and fasteners, adapters for inlet and outlet of equipment;
- Spare parts and special tools for equipment installation, commissioning, operation;
- Chemicals for commissioning;

WATER PURIFICATION AND SUPPLY SYSTEM

Material Take-off of Water Purification and Supply System for Camps Using Well Water

The system shall include but not limited include the following components:

- 1 set of cyclone desander with anchor bolts/expansion bolts etc.;
- 2 sets of level switches (installed in one raw water tank and one potable water tank respectively) and cables connecting to the water purification and supply package control cabinets etc.;
- 1 set of water purification package, including pre-treatment unit (in addition to the main facilities, it also includes chemical dosing, backwash, blowers etc. auxiliary facilities), reverse osmosis treatment unit (including high-pressure pumps, reverse osmosis membrane modules, chemical dosing package etc.), intermediate water tank (if required), control cabinet (reserve power input connection), pumps, strainers, internal piping, valves, detection and control instruments, electric power supply and control cables,anchor bolts/expansion bolts etc.;

TO BE CONTINUED

WATER PURIFICATION AND SUPPLY SYSTEM

Material Take-off of Water Purification and Supply System for Camps Using Well Water

- 1 set of bacteria inhibition package;
- 1 set of variable frequency water supply skid (including pumps, pressure tank, control cabinet with
- frequency converter, internal piping and valves, detection and control instruments, power supply and
- control cables, anchor bolts/expansion bolts etc.);
- 2 sets of UV sterilizers with expansion bolts etc.;
- Flanges and fasteners, adapters for Inlet and outlet of equipment;
- Spare parts and special tools for equipment installation, debugging, commissioning;
- Chemicals for commissioning;
- Maintenance accessories and spare parts for 2 years' operation.

DOMESTIC SEWAGE SYSTEM

Domestic Sewage System

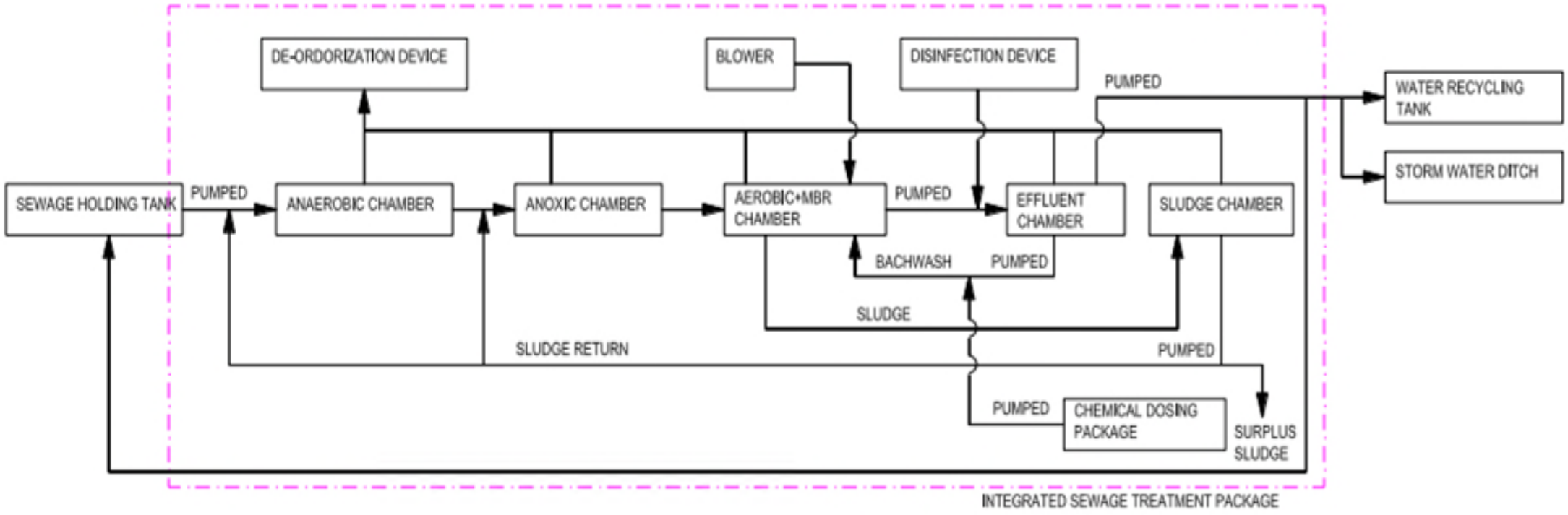
Purpose/Objective

Ensure that the sewage treatment process and equipment can ensure the effluent meet the national effluent discharge standards of Uganda and IFC EHS Guidelines.

WATER PURIFICATION AND SUPPLY SYSTEM

Process of Domestic Sewage System

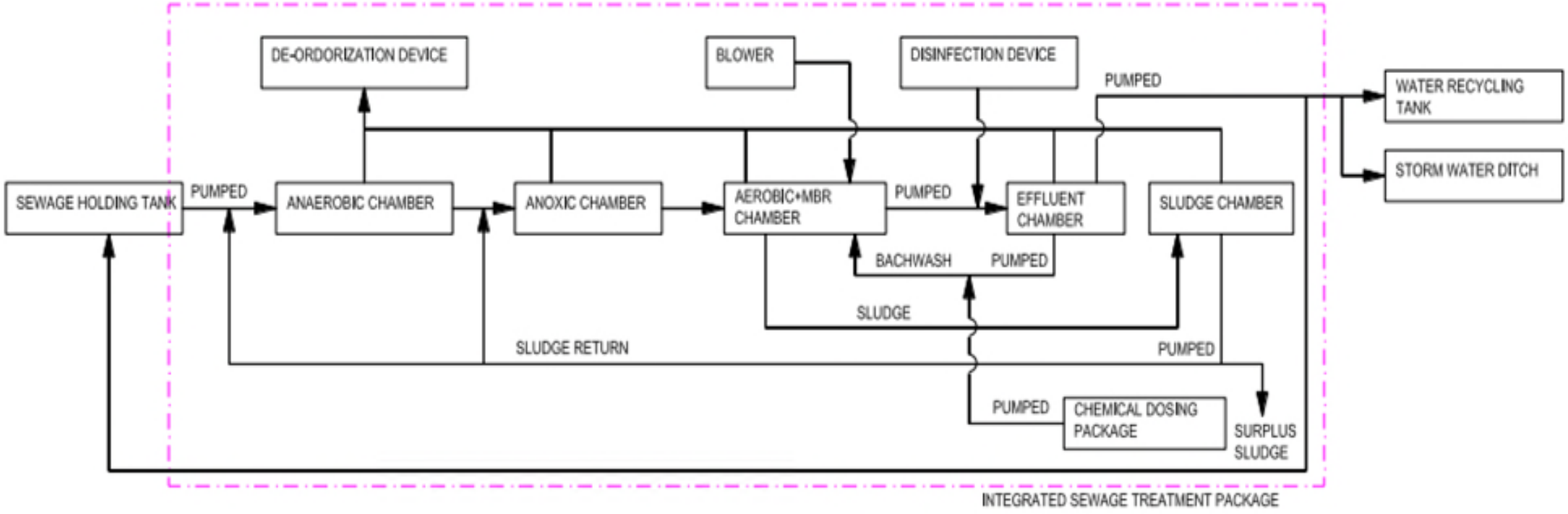
The primary sewage treatment process is shown as follow:



DOMESTIC SEWAGE SYSTEM

Process of Domestic Sewage System

The primary sewage treatment process is shown as follow:



DOMESTIC SEWAGE SYSTEM

Material/Equipment Take-off of Domestic Sewage System

VENDOR's scope of work includes but not limited to engineering, manufacture, assembly, test and inspection of the domestic sewage treatment equipment and accessories, provide technical support for installation, test, commissioning at site and other technical service required in CONTRACT.

In every camp, one set of domestic sewage treatment package. For each package, the scope of supply shall at least include the following components:

- One sewage pump (in the sewage holding tank, the sewage holding tank is not in the scope of supply) with guide rails and liquid level switch;
- One domestic sewage treatment unit, mainly includes anaerobic chamber, anoxic chamber, aerobic+membrane bioreactor chamber, effluent chamber, sludge chamber, two chemical dosing packages (for membrane on-line cleaning), one disinfection device, one deodorization device (including negative pressure blowers, piping etc.), blowers and one blower room, control panel (reserve power input connection), pumps, internal piping, valves, detection instruments, level switches, electric power and control cables, anchor bolts/expansion bolts etc.;

DOMESTIC SEWAGE SYSTEM

- Connecting pipes and fittings, valves, power and control cables and accessories between the sewage pumps and the domestic sewage treatment unit;
- Flanges and fasteners, adapters for inlet and outlet of equipment;
- Spare parts and special tools for equipment installation, debugging, commissioning;
- Chemicals for commissioning;
- Maintenance accessories and spare parts for 2 years' operation.

VENDOR shall also provide the following equipment:

- one set spare sewage pumps;
- one set of membrane offline cleaning package main including soaking tank, drain pump, liquid storage tanks, piping and valves etc.

KEY POINTS

- PROCESS FOR EOI AND CFT – Newspapers (Newvision and daily monitor) https://eacop.com/opportunities-by-main-construction-contractors/china-petroleum-pipeline-engineering-co-ltd/
- Complete documents.
- Payments period/terms
- Experience
- Manufacturer’s authorization and commitment letters
- Etc.

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