**SCOPE OF WORK FOR GALMA IRRIGATION SCHEME.**

**Construction and Rehabilitation of irrigation system and Installation solar grid for solar pumps.**

**INTRODUCTION.**

Construction of an irrigation system and installation of a solar-powered pumping system for the Galma Irrigation Scheme. The project involves the rehabilitation of the Galma 3 Irrigation Scheme as indicated in the approved layout drawings, including the reconstruction of canal infrastructure and the installation of a solar-powered pumping system to convey water into the irrigation canals for gravity distribution.

**1. General**

The Contractor shall provide all necessary labour, materials, equipment, tools, supervision, transportation, and technical services required for the construction, installation, testing, commissioning, and handover of the irrigation system in accordance with the approved drawings, technical specifications, Bill of Quantities (BOQ), and contract requirements.

**2. Detailed Scope of Services**

The works shall include, but not be limited to, the following:

1. Site inspection, verification of existing conditions, and setting out of the proposed irrigation infrastructure.
2. Site clearance, excavation, trenching, earthworks, and reinstatement of affected areas.
3. Rehabilitation and construction of approximately 4 km of irrigation canals, including main canals, secondary canals, water distribution channels, canal gates, hydraulic control structures, and associated appurtenances.
4. Supply, installation, testing, and commissioning of irrigation pumps, electric motors, flow meters, pressure gauges, control equipment, and associated accessories as specified in the drawings, BOQ, and technical specifications.
5. Construction and rehabilitation of pump-house structures, solar inverter rooms, battery rooms, and security facilities as indicated in the approved drawings.
6. Installation, testing, and commissioning of the solar photovoltaic power system, electrical distribution system, control panels, instrumentation, protection devices, earthing system, and automation components.

7. Testing of irrigation networks, pumping systems, electrical installations, solar power systems, and all irrigation components in accordance with the approved specifications and relevant standards.
8. Commissioning of the complete irrigation system and demonstration of satisfactory operational performance.
9. Preparation and submission of as-built drawings, operation and maintenance manuals, test reports, warranties, and other handover documents.
10. Training of the Employer's designated personnel in the operation, maintenance, and troubleshooting of the irrigation and solar pumping systems. The Contractor shall ensure participation of Employer representatives during testing and commissioning activities. The Contractor shall provide Operation and Maintenance (O&M) Manuals, equipment warranties, test certificates, as-built drawings, and all relevant project documentation. All procured assets and facilities shall be formally handed over to the Employer and designated beneficiaries upon project completion.
11. Rectification of defects identified during inspections, testing, commissioning, and the applicable defects liability period.
12. Solar-Powered Pumping System Operational Philosophy

    The solar pumping system shall be designed and installed to operate the irrigation pumps in accordance with the approved solar design.

    The Contractor shall clearly indicate whether the pumps are intended to operate simultaneously or sequentially and shall size all solar generation, battery storage, inverter capacity, protection systems, and controls accordingly

**3. Standards and Quality Requirements**

All materials, workmanship, installation procedures, testing activities, and commissioning works shall comply with the approved drawings, project specifications, applicable engineering standards, manufacturer's recommendations, and statutory requirements.

**4. Contractor's Responsibilities**

The Contractor shall be responsible for providing competent personnel, timely procurement of approved materials, suitable construction equipment, site supervision, quality assurance and quality control, health and safety measures, environmental protection measures, and all coordination necessary for the successful execution of the works.

## 5. Testing, Commissioning, and Acceptance

The Contractor shall prepare and implement a testing and commissioning programme subject to approval by the Contracting Authority. The completed irrigation and solar pumping system shall be inspected, tested, and demonstrated to achieve the required operational performance, capacity, and reliability before acceptance.

## 6. Completion and Handover

The Contractor shall complete the works within the contract period and submit all required completion documents, test records, as-built drawings, equipment manuals, and warranties. Final acceptance shall be subject to fulfilment of the contractual completion requirements.

## 7. Scope Boundaries

The precise limits of work, exclusions, design responsibilities, supply responsibilities, utility connections, water-source development requirements, and operation and maintenance obligations shall be governed by the tender drawings, technical specifications, BOQ, and contract conditions.