Over flow Underground Irrigation System
Scope of Work (SOW)

U.S. Embassy – Amman Jordan

2016
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Over flow Underground Irrigation System
At the U.S. Embassy, Amman

1.01 General requirements
A. The goal of this project is to Design, supply, monitor and Install new irrigation over flow systems.
B. Contractor shall perform all work necessary to produce a complete set of plans and technical specifications sufficient for the installation of the new underground over flow irrigation system described in this SOW. This shall include, but is not limited to, any architectural and engineering design and analyses, installation cost estimates, renderings, photographs and scale models described in the Statement of Work.
C. When the complete set of plans and technical specification documents get final approval by Contracting Technical Officer Representative (CTOR), the contractor shall execute all work herein specified and or required in the plans and documents.
D. Contractor shall provide all labor, materials, tools, equipment, transportation, hoisting, rigging, insurance, etc, for all work herein specified and or required to complete the project to the Contracting Technical Officer Representative (CTOR) satisfaction.
E. All work shall be accordance with International Building Code, National, Jordanian Local Codes and Department of State, OBO Standards.
F. Contractor shall pay for all permits and fees and if needed obtain all approvals from all Authorities exercising jurisdiction over the project.
G. All work under this contract shall be guaranteed for a period of one year after completion, as determined by CTOR.
H. The contractor shall submit shop drawings for the CTOR review and record drawings for all work provided under this contract for his use.

1.03 Scope of Work
The contractor will be required to prepare detailed drawings, plans, specifications, bill of quantity for installing new over flow for the irrigation system (see drawing #1, 2, 3 and 4). The service shall also include performing the actual work to supply and install the system. The contractor is to supply the submersible pump, PVC pipes, control devices, power line, valves and all needed moisture barrier.
Excavate, install, connect, test, flush, and warrant of works. The contractor is to provide all labor and material needed to add the new line and return the finishing of the driveway where the line runs under it. The replacement and all related works including trenching and backfilling shall meet all related international and local codes.
The type of work conducted and the materials used shall provide the best moisture barrier protection to prevent corrosion for long term installation.

Total pipes length is measured to be approximate

For pump line is 4”, 25 meter PVC schedule 80.

For gravity drainage is 6”, 50 meter PVC schedule 80.

1.04 Details of the work:

1- Supply and install 4”, 70 GPM submersible pump (UL or EU listed).
2- Supply and install 4” and 6 “schedule 80 PVC pipes.
3- Excavate the needed trench. Take all needed safety barriers and caution tape. Carefully excavate in order not to damage other services. Keep the road accessible for vehicle pass.
4- Supply, install, connect and program the control devices.
   Install Control devices that can be monitored by the existing building Automation System (BAS). Building Automation System (BAS) data:
   BACnet Protocol (network) – Niagara Graphic end user, MNB 1000 and MNB300 controllers
5- Supply, install and connect the required power for the main pump and control devices. (as per drawing #4)
6- In the front parking Supply and install new drain pits and 6 inch PVC pipes and connects it to the existing storm drain.(drainage system)
7- Concrete anchor and thrust blocks shall be used where there is any fitting installed.
8- Trenching and backfilling: Top of largest pipe shall be a minimum of 25” below finished grade. Provide a 3” clean sand bed, tamped in place, for piping to lie on.
9. Provide a minimum of 2” spacing between adjacent piping jackets and 6” to the sides of trench, 3” bed of sand, gravel, base course on pipes and asphalt or dirt as per existing grade, backfill over all piping in trench to finished floor level shall be not less than 10”, backfill remaining trench, evenly and continuously, with uniformed layers of suitable excavated soil, compacting in 5” layers up to finished grade. (See Drawing # 5)

10. Connect existing overflow pipes in to the storm drain, by adding new 6 inch PVC.

11. Contractor shall flush the pipes to remove all dirt inside.

12. The CTOR reserves the right to stop work at any time if the safety or security of employees is at risk.

**Under Ground Pipes Lay Out Drawing #5**

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### 1.05 Submittals:

**Submitted with Offer:**

1. Contractor shall submit time schedule showing project starting date to finish
2. Contractor shall submit manufacturer’s specifications and installations instructions and to include the material safety data sheets and other data as may be required to show compliance with the scope of work
3. Warranty document

**Submitted when tender awarded and before execution:**

1. Contractor shall prepare and submit shop drawings in accordance with the requirements, Product data and samples. After hand over, all manufacturers’ documents should be handed over to CTOR. All documents either from manufacturer or from contractor should be in English.
2. Disposition of shop drawings shall not relieve the contractor from the responsibility for deviations from drawings or specifications, unless he has submitted in writing a letter itemizing or calling attention to such deviations at time of submission and secured written approval from the Project Director, nor shall such disposition of shop drawing relieve the Contractor from responsibility for error in shop drawings or schedule.
3. Materials samples for COTR approval
Submitted in hand over:

1- As built drawings and maintenance and operation manuals.
2- Signed Warranty document (final).

1.07 Pre-Bid Survey:

It is important that the Contractor visit the site and survey the property and verify the work required length of pipe and the existing conditions. The Contractor should become acquainted with the existing conditions and takes these conditions into consideration when estimating the costs. Lack of knowledge relative to the existing site conditions will not be allowed as basis for compensation. The contractor shall immediately report any discrepancies to the CTOR and shall not begin the work until such matters are resolved.

1.08 Work environment and damage to persons or property:

The contractor shall provide and maintain work environments and procedures which will safeguard public and Embassy personnel and property exposed to Contractor operations and activities; and avoid interruptions of Embassy operations, security and delays in project completion date. For these purposes the contractor shall

1- Comply with standards and regulations of any local government authority having jurisdiction over occupational health and safety issues.
2- Contractor shall maintain a clean work site and remove any and all debris on a regular basis.
3- The Contractor shall be responsible for all damage to persons or properties that occur as a result of the contractor’s fault or negligence.

1.09 Quality assurance:

All work shall be performed by the skilled tradesmen under adequate supervision and in accordance with the scope of work, standards and/ or as directed by the CTOR. It is not intended that the specifications shall show every detail, but the contractor shall furnish and install all parts as maybe necessary to complete the project in accordance with the best trade practice and to the satisfaction of the CTOR.

1.10 GUARANTEE:

The contractor shall submit a One year guarantee against defects of materials or workmanship (including leaks). Upon notification of such defects within the guarantee period, the contractor shall make the necessary repairs and replacements at his/her costs to the satisfaction of the Facility Manager and on timely manner. Repairs should be attended and resolved in no more than 24 hours after notification. Contractor should provide email and telephone numbers to report to him/her the maintenance calls. The embassy will send the maintenance calls to the provided email only

1.11 Local Regulations

It is the Contractor’s responsibility that all aspects of the work - including disposal of metals, hazardous waste, and all debris - be in accordance with all local regulations, codes, and laws.
1.12 **Inspections**
Technical inspections of material quality and workmanship will be performed on regular basis by the CTOR. The contractor shall coordinate with the CTOR all stages of the work, which shall be performed in accordance with the above mentioned standards and scope of work. Weekly progress reports should be submitted by contractor.

1.13 **Management and equipment:**
The contractor shall provide full-time supervision, all labor, tools, materials and equipment except the following: The embassy shall ‘only’ provide the contractor with water and electricity needed for the job. The contractor shall designate a qualified supervisor who is able to communicate in both English and Arabic and shall be responsible for coordination of work and safety procedures.

1.14 **WORK SCHEDULE:**
The contractor must submit to the CTOR a detailed schedule of work including tasks and dates and samples of materials for this project for review. The samples are also to be submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed. Also, at start of work, the contractor shall submit access requests for his personnel to the CTOR. The access is subjected to approvals. If one or more staff members are not granted access, the contractor shall submit alternatives. The bidders should submit on their bids timelines and schedules for supplying and conducting the works. Also bidders shall include details on pipes insulation type.

1.15 **WORKING HOURS AT SITE:**
From 8AM to 4PM Sunday through Thursday (except local and American holidays). Other times must be coordinated with the CTOR.

1.16 **Materials**
All systems and equipment shall be American manufacture or approved equal. Systems and equipment shall be locally or readily available for Amman and shall be capable of being serviced and maintained locally in Amman.

If needed, The Embassy will issue a letter to the local authorities and upon the contractor’s official written request, a letter to exempt taxes for the pipes and insulation.

1.17 **Piping, Fittings and Joints**

1. **References**
All work shall meet or exceed the latest requirements of all national, state, Municipal Codes and other Authorities exercising jurisdiction over construction work at the project.

1916 Race Street
Philadelphia, PA 19103 USA

OSHA: Occupational Safety and Health Administration
U.S. Department of Labor
1.18 DELIVERY AND STORAGE OF MATERIALS:
Materials shall be delivered in their original, tightly sealed containers or unopened packages, all clearly labeled with the manufacturer’s name, brand name, and number, and batch number of the material where appropriate. Materials and equipment shall be stored as directed in a neat and safe manner so as not to exceed the allowable live load of the storage provided. Materials not conforming to the above specified requirements will be rejected by the CTOR and shall be removed from the site and replaced with approved materials at no additional cost to the embassy.

1.19 PERIOD OF PERFORMANCE:
The works should be completed on site within no more than (10) working days starting from receiving the Notice to Proceed letter.

1.20 FINAL ACCEPTANCE:
Upon satisfactory completion of all required works and the Facility Manager is satisfied that the scope of work has been fully performed, the CTOR shall issue to the contractor a notice of final acceptance and upon receipt of a properly executed invoice recommend “Lump Sum” payment as per contract agreement.

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