

SCOPE OF WORK

Installation of RES Automatic Voltage Regulators

EMBASSY DJIBOUTI – September 2015

1 PROJECT DESCRIPTION

- 1.1 This project work is to install nine (9) 55kVA Residential Automatic Voltage Regulators at U.S. Embassy Residences per this scope of work provided by the U.S. Embassy.
- 1.2 The project work includes:
 - 1.2.1 Form and pour an AVR pad according to this scope of work and the attached drawings.
 - 1.2.2 Install the AVR (provided by USG). Contractor will relocate the AVR from the U.S. Embassy to its final location at each Residence including all lifting and rigging necessary.
 - 1.2.3 Install the AVR per this scope of work and the attached drawings.
 - 1.2.4 Provide and install all new cabling to extend the service from the Automatic Transfer Switch (ATS) to the AVR. Connect the residence main feeder cable to the output of the AVR.
- 1.3 Area of Project:
 - 1.3.1 The area of the project for the AVR installation will be selected by the COR to insure that required panel and generator access is maintained.

2 SCOPE

2.1 PRIOR TO IMPLEMENTATION

- 2.1.1 Submit to the Contracting Officer (CO) and/or Contracting Officer's Representative (COR) within 5 days of Notice to Proceed, document submittal package that includes:
 - 2.1.1.1 A list of all employees who will be working on this project including full name (as shown on ID), ID number, and ID type (passport, Djiboutian ID, etc).
 - 2.1.1.2 A list of all major equipment (trucks, cranes, etc) to be used on this project.
- 2.1.2 Submit a schedule for performance of the work. Work at each residence will be completed within 5 days beginning the work.

2.2 IMPLEMENTATION

- 2.2.1 Location of each AVR will be determined by the COR.
- 2.2.2 Notify COR if an existing AVR pad is available. COR must inspect and approve prior to use of that pad. All pads not acceptable must be removed and replaced according to attached drawings.
- 2.2.3 Surface Preparation
 - 2.2.3.1 If the grade is unimproved:

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- 2.2.3.1.1 Remove the existing quartz aggregate and any concrete or stone foundations and dispose.
- 2.2.3.1.2 Excavate a minimum of 150mm per attached drawings and dispose of all excavation overburden.
- 2.2.3.1.3 Compact subgrade 95%.
- 2.2.3.1.4 If compaction does not reach 95%, an additional 150mm of excavation must be made and 150mm (4-6”) of crushed gravel must be installed as base for concrete.
- 2.2.3.2 If an existing pad is available or if there is a concrete drive area:
 - 2.2.3.2.1 Form a pad 1500mm x 2000mm x 100mm.
 - 2.2.3.2.2 Pad will have wire mesh or #2 rebar for structural stability in the concrete.
 - 2.2.3.2.3 Edges of the pad will be chamfered or rounded.
 - 2.2.3.2.4 Pad must be level and flat. No adjustments are available on leveling the AVR. This will require a plane finish, NOT/NOT a trowel finish.
- 2.2.4 Concrete Work
 - 2.2.4.1 Concrete work and materials shall conform to ACI-301 and ACI-318 (latest edition)
 - 2.2.4.2 Concrete shall develop 25Mpa compressive strength @ 28 days.
 - 2.2.4.3 Reinforcing steel shall be new deformed billet steel and shall conform to ASTM A-615/615M Grade 420. Details and lap splices per ACI-315 and ACI-318 (latest edition).
 - 2.2.4.4 Concrete form work shall be used and concrete shall be placed in a manner that will prevent segregation of concrete materials and the infiltration of soil and/or water into the mix.
 - 2.2.4.5 Provide 50mm minimum clear cover for rebar at the side of the pad.
 - 2.2.4.6 Top of slab will be minimum 100mm above surrounding grade.
 - 2.2.4.7 Surface will be a light broom finish.
 - 2.2.4.8 All slab edges will be chamfer corner (25mm x 25mm)
- 2.2.5 Electrical Installation:
 - 2.2.5.1 All new electrical cable will be 90degC rated and minimum cable size will be per attached schedule. Minimum size is 35mm.

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2.2.5.1.1 All new electrical cable shall match requirements in 2.2.5.1, regardless of the cable size installed.

2.2.5.1.2 Cable connections between different sized cables must be either compression lugs or a properly sized screw-lug terminal strip.

2.2.5.2 Provide and install all ground and electrical conductors per drawings.

2.2.5.2.1 The AVR chassis will be grounded via a single cable to the ATS ground bus. Cable size per U.S. National Electric Code (USNEC) table 250.66 and Section 230.40.

2.2.5.2.2 The ground will have less than 25 ohms resistance per U. S. National Electric Code (NEC) and International Electric Code (IEC).

2.2.5.2.3 The neutral will not/not be bonded to the ground in the AVR.

2.2.5.3 All current carrying conductors to be in schedule 80 PVC conduit or Liquidtite flexible conduit.

2.2.5.4 All current carrying conductors not mounted to a wall will be in conduit. No unprotected cable laid on the ground will be acceptable. All conduits must be properly anchored according to NEC.

2.2.6 Coordinate with COR to startup and test the AVR operation.

2.3 AFTER IMPLEMENTATION

2.3.1 Level and clean area around slab.

2.3.2 Provide 1 year installation warranty for cracking and spauling.

3 POINTS OF CONTACT

3.1 CONTRACTING OFFICER: The Contracting Officer (CO) shall be the Embassy General Services Officer

3.2 CONTRACTING OFFICER REPRESENTATIVE (COR) shall be the Embassy Facility Manager

4 **PROPOSAL SUBMITTAL:** proposal shall be submitted to GSO, U.S. Embassy Djibouti (DjiboutiProcurement@state.gov) .

END SOW