

**SCOPE OF WORK FOR BARRIER
REFURBISHMENT OF TWO NASATKA III-Ds
Cape Town, South Africa**

CONTRACTOR STATEMENT OF WORK

The Embassy compound Cape Town, South Africa here “after known as the Embassy compound, will retain the services of a local contractor to perform the below scope of work for both the main and service access control points. The contractor’s scope of work for this project is as follows:

1. Installation of Handhole(s) and pull boxes, and associated trenching, back filling, and concrete work
2. Installation of traffic light pole(s), and associated trenching, back filling, and concrete work
3. Installation of infrared sensor(s) stanchions and associated trenching, back filling, and concrete work
4. Trenching, back filling, and concrete work for installing new underground conduit.
5. Cutting Roadway for installation of vehicle detection loops.

The Embassy compound will handle all the contract legal requirements with the local contractor. OS/FSB/PME/VBS (hereafter referred to as VBS) will provide the design drawings, scope of work, and onsite direction as needed.

This document outlines the scope of work for the local contractor as follow:

1. General

1.1 Design drawings

VBS will provide the design package for the scope of work as defined above. It is the local contractor’s responsibility to review and understand the work involved and what is required to complete the project. If any error(s) or inconsistencies are found in the design package, the local contractor will bring these to the attention of the embassy compound and/or VBS representative.

The local contractor shall have a resident Registered/certified/licensed civil engineer or graduate architect on site or a qualified construction supervisor at all times. This person shall have at least two years of experience in similar work and shall speak and write English at a moderate or higher level. The local contractor shall submit the curriculum vitae of the resident engineer to the Embassy compound for approval.

- The contractor will perform all tasks per the VBS project schedule as outlined here.
- Excavate, Equipment Installation, and waste disposal first CAC
- Backfill, Concrete Work, Repair Work, and waste disposal first CAC
- Excavate, Equipment Installation, and waste disposal second CAC
- Backfill, Concrete Work, Repair Work, and waste disposal second CAC
- General Clean-up and removal of equipment and tools

The local contractor will provide verbal weekly work progress reports to be incorporated in the VBS written weekly progress report.

CONTRACTOR STATEMENT OF WORK

1.2 Equipment and materials

The contractor will provide all equipment required to complete this SOW (e.g. Forklift, front end loader, excavator with hoe ram and bucket attachments, handheld breaker hammer, arc welding equipment, cutting torch ground tamper, wheel barrow(s), power saw for cutting steel, steel rake(s), pick axes, shovel(s), push broom(s), water hose w/spray attachments, pressure washer, large handheld grinders with cut off wheels, masonry wheels, electrical extension cord(s), concrete vibrator(s), chain sling(s), dumpster, and portable restroom).

In addition the contractor will provide all the following materials per the requirements of this SOW

- Lumber for frame work
- Aggregate materials
- Reinforcing steel rebar
- Concrete
- Concrete expansion joints
- Materials for concrete finishing and curing
- Signage and temporary barriers to alert and restrict public access to construction areas
- Vehicle blocking barriers as required by the RSO
- Any plywood and materials required to protect surrounding areas from damage during construction

VBS will provide all other materials to include the following as a minimum:

- Handholes
- Pull boxes
- Schedule 40 PVC conduit and fittings
- Traffic light poles
- IR detector Stanchions
- Pull String

1.3 Site and safety requirements

1.3.1. Site installation oversight

An installation supervisor representing VBS will be on sight to provide design installation oversight for all work in this package.

1.3.2. Site preparation

The local contractor will be responsible for the cleaning and removing all debris from the embassy compound to the nearest authorized dump facility (authorized by the town). The areas affected by the local contractor's work must be returned back to pre-construction conditions or better after the work is completed (e.g. Grass, gravel, sidewalks,

CONTRACTOR STATEMENT OF WORK

landscaping, asphalt etc.). The local contractor shall limit the site disturbance to a maximum 6 feet (1829 mm) on each side of the trench. Excavated material will be placed next to the excavated area to be used as select backfill.

In addition, the local contractor will be responsible for the daily cleanup of the construction site and the adjacent areas.

1.3.3. Site safety

The excavation work zone must be clearly marked with warning signs and yellow plastic safety tape fixed to wood posts. Local contractor must comply with all applicable safety standards to protect the embassy compound employees, and the public. The local contractor will be held liable for injuries or accidents sustained due to the negligence by the local contractor during the course of this project.

1.3.4. Protection of the embassy and compound equipment

The local contractor shall provide vehicle blocking barrier(s) as required to ensure the embassy compound security. The blocking barriers(s) must be approved by the post RSO or PSO.

The local contractor must make sure that the Embassy compound equipment, property, and infrastructure (both above and below ground) in the work zone or surrounding areas are protected to prevent them from getting damaged during construction. Should any repair or change have to be done due to negligence by the local contractor or its workers, the local contractor will be responsible for the costs incurred for that repair. All repairs will be conducted in conjunction with the appropriate agencies local oil and gas, water and electrical companies or commissions etc.

1.3.5. The embassy compound security requirements

To be determined by post security.

2. Infrastructure Support Systems (Handholes and underground conduit system)

2.1 Trench

The local contractor will verify existing utilities and provide as-built drawing prior to excavating of trenches. If the excavation work interferes with the drain or piping, the local contractor shall inform the embassy compound and provide suitable protection for these structures prior to proceeding with the work. If the excavation cannot proceed due to existing obstacles then the embassy compound and or VBS construction supervisor will provide a new conduit route.

All trenches will be excavated to the required depth as shown on the drawings.

The local contractor must keep all debris and excavated material clear of the service network drains, covers and sumps to prevent clogs or damage.

Install warning and safety signs to alert pedestrians and vehicle traffic of construction of trench(s).

CONTRACTOR STATEMENT OF WORK

Install barricade lines to cordon off work area around trench(s).

Dispose of the excavated material that will not be used to backfill trench(s).

2.2 Handhole(s) (with drainage)

New lockable handholes will be installed by the local contractor as specified on detail drawings.

All new handhole(s) will be installed as shown on the drawings.

The base of the handhole(s) shall be placed over a base consisting of crushed non-porous rock base or gravel and sand. The gravel size shall not exceed ½ inch (13mm).

2.3 Conduit

All existing conduit should be left in place, unless otherwise specified on the drawings.

Under grass, dirt, sidewalk or asphalt, install schedule 40 PVC conduit 24 inches (610mm) below finish grade to the top of the conduit as specified on the drawings.

All underground 90 degree bends with a 12 inch (305mm) radius shall be made with pre-fabricated 90 degree sweeping bends.

All underground conduits shall be converted from schedule 40 PVC to RGS before transitioning above ground using PVC to RGS couplers.

Local contractor will install the conduit runs, to include pull string, handholes, and pull boxes, between equipment and HPU as shown on drawings.

2.4 Concrete

Local contractor will provide labor and materials to repair concrete where disturbed. Concrete color, type, finish, and thickness shall match existing.

The local contractor shall ensure the concrete is laboratory designed, machine mixed, producing a minimum of 25 MPA at 28 days via independent/certified testing lab.

The local contractor shall ensure the tested Portland cement conforms to ASTM C150, Type II only.

The local contractor shall ensure the aggregates conform to ASTM C33 & B Grade per standard specifications. Maximum size of aggregate shall be 1-1/2 inches (38mm).

The local contractor shall ensure that all reinforcing steel they provide is deformed bars conforming to ASTM A615, grade 60 (60,000 PSI or 413.7 MPA).

CONTRACTOR STATEMENT OF WORK

The local contractor shall provide spacer bars, chairs, spreaders, blocks, etc. as required to positively hold the steel in place before concrete is poured.

The contractor shall ensure that where exterior wall face requires shoring and/or forming, the forms shall be substantial and sufficiently tight to prevent leakage, and that forms shall not be removed until the concrete is seven (7) days old

Concrete may not be poured if weather conditions do not permit.

Approval from the VBS installation supervisor must be obtained 24 hours prior to pouring of concrete. The embassy compound and local contractor crew supervisor must be present during the pouring of concrete.

Concrete Placement

Comply with requirements and with recommendations in ACI 304R for measuring, mixing, transporting, and placing concrete.

Consolidate concrete by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use the equipment and procedures to consolidate concrete according to recommendations in ACI 309R.

Screed the pavement surfaces with a straightedge and strike off; commence initial floating using bull floats or darbies to form an open textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading dry-shake surface treatments.

Concrete Finishing

General: wetting of concrete surfaces during screeding, initial floating, or finishing operations is prohibited.

Float finish: begin the second floating operation when bleed-water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Fill low spots. Refloat surface immediately to uniform granular texture.

Burlap finish: drag a seamless strip of damp burlap across float-finished concrete, perpendicular to line of traffic, to provide a uniform, gritty texture

Medium-to-fine texture broom finish: draw a soft bristle broom across float-finished concrete surface perpendicular to the line of traffic to provide a uniform, fine-line texture

Medium-to-coarse texture broom finish: provide a coarse finish by striating float-finished concrete surface 1/16-inch to 1/8-inch (1.6mm) to 3mm deep with a stiff bristled broom perpendicular to line of traffic.

The local contractor shall ensure the concrete is maintained above 50°F (10°C) and in a moist condition for at least (7) days after placement. And that adequate equipment shall be provided for heating concrete materials and protecting concrete during freezing or near freezing weather.

CONTRACTOR STATEMENT OF WORK

2.5 Soil Materials

Select Backfill: ASTM D 2487 soil classification groups SW, SP, and SM, or a combination of these groups; free of rock or gravel larger than 3-inches (75mm) in any dimension, debris, waste frozen materials, vegetation, and other deleterious matter.

(Asphalt/Concrete) Base Course: naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; with at least 95 percent passing a 1-1/2-inch (40mm) sieve and not more than 8 percent passing a 1/4-inch (6.4mm) sieve.

Base Gravel: naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D 2940; except with 100 percent passing a 1-inch (25mm) sieve and not more than 8 percent passing a 1/4-inch (6.4mm) sieve.

Sand Cushion: ASTM C 33; fine aggregate, natural, or manufactured sand.

Compaction of Soil Backfills and Fills

Place backfill and fill soil materials in layers not more than 8-inches (203mm) in loose depth for material compacted by heavy compaction equipment, and not more than 4-inches (102mm) in loose depth for material compacted by hand-operated tampers.

Place backfill and fill soil materials evenly on all sides of structures to require elevations, and uniformly along the full length of each structure.

Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D 1557:

- Under structures, building slabs, steps and pavement scarify and re-compact top 11-inches (280mm) of existing sub grade and each layer of backfill or fill soil material at 95 percent
- Under walkways, scarify and re-compact top 6 inches (152mm) below sub grade and compact each layer of backfill or fill soil material at 85 percent.
- For utility trenches, compact each layer of initial and final back fill soil material 85 percent.

3. Waste disposal

The contractor shall provide all equipment, tools and manpower needed to remove and dispose of all waste materials including concrete, aggregate materials, reinforcing steel rebar(s), conduit piping and electrical wiring, replaced components, and Nasatka III-D hydraulic pumping units, along with the system hydraulic oil

The contractor shall provide for the proper disposal of all materials in accordance with all local laws and procedures.