

METHOD STATEMENT INSTALLATION OF 2.4 WELDED MESH SECURITY FENCE



Documents Attached

- 1 Method Statement
- 2 QCP/ITP
- 3 Risk Assessment

	Signature	Date
Approved by: Project Manager SA Fence & Gate		
Approved by: Project Manager Kusile Power Station		

INTRODUCTION

THE PURPOSE OF THIS DOCUMENT IS TO OUT LINE ALL THE WORK THAT SA FENCE AND GATE WILL BE DOING DURING THE KUSILE PROJECT. THIS WILL INCLUDE ALL THE WORK PROCEDURES AND INSTRUCTION THAT ARE MADE BY THE SHE AND KUSILE SPECIFICATIONS

SCOPE

THIS METHOD STATEMENT WILL APPLY TO THE INSTALATION OF THE 2.4 HIGH WELDING MESH SERCURITY FENCE AS PER DRAWING SUPPLIED BY ESKOM KUSILE.

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- 18.13 WORKING NEAR A WETLAND**

1 Site Establishment

Site Establishment was executed as per approved method statement.

2 Material Delivery

All material delivered to Kusile site will be delivered to SA Fence and Gate site lay down area. All material will be inspected and approved by client before installation as per quality control procedures.

3 DEFINITIONS, TERMS, ABBREVIATIONS

- “QA/QC” MEANS QUALITY ASSURANCE /QUALITY CONTROL OFFICER
- “PPE” MEANS PERSONAL PROTECTIVE EQUIPMENT
- “ECO” MEANS ENVIROMENTAL CONTROL OFFICER
- “CR” MEANS CONSTRUCTION REGULATION
- “EMP” MEANS ENVIROMENTAL MANAGEMENT PLAN
- “OHSA” MEANS OCCUPATIONAL HEALTH AND SAFETY ACT

4 REFERENCES

- PROJECT KUSILE POWER STATION STANDARDS ENVIROMENTAL SPECIFICATION
- ENVIROMENTAL MANAGEMENT PLAN
- CONSTRUCTION REGULATION 2003
- OCCUPATIONAL HEALTH AND SAFETY ACT, ACT NO 85 OF 1993

5 RESPONSIBILITIES, AUTHORITY, ACCOUNTABILITY

The preparation, review and approval of this procedure are the responsibility of:

- Preparation : Site Manager
- Review : Contracts Manager
- Approval : Project Manager (Eskom Kusile Power Station)
- The requirements of this Method Statement is binding on all SA FENCE AND GATE employees and contracting bodies.
- Site Agent and Foreman are responsible for ensuring this activity is carried out in accordance with this Method Statement.
- QA/QC officers are also responsible for ensuring that this activity is carried out in accordance with this Method Statement and that necessary inspection will be done.

6 STRIPPING AND STOCKPILE AREA

Stripping shall be done for the following reasons:

- Where construction vehicles will be moving
- Where temporary facilities will be placed such as toilets
- Where the fence will be erected

The contractor shall strip the topsoil which includes the top 150mm of soil (or to the depth of the bedrock where the soil is shallower than 150mm) and root

material of cleared vegetation, for subsequent use during rehabilitation. Topsoil shall be stripped from all areas of the working area where topsoil will be impacted by construction activities including areas for temporary facilities, as directed by the Engineer.

Stockpile area shall be identified by Eskom power stations EO (environmental officer) for SA Fence and Gate to comply to. Topsoil and subsoil stockpiles shall not exceed 2m in height and shall be so placed as to occupy the minimum width compatible with the natural angle of repose of the material, and shall be taken to prevent the material from spreading over too wide a surface.

7. Earthworks

Clearing areas of all grass, weeds, shrubs, debris, including grubbing up all roots and cart away all vegetation and debris to indicated spoil areas.

Once the clearing is completed the setting out will be carried out by the qualified Surveyor, according to the coordinates on the drawings prior to any excavation commences.

All excavations work will be performed in accordance with method and specification under 1200D.

The excavation material will be stockpiled at the designed areas approved by Eskom Kusile power station.

Tipper trucks will be used to transport the top soil to the area of the stock pile.

Compaction and backfill to be carried out to the specifics according to the inspection test method.

Compaction of 90 Mod AASHTO will be applicable on the backfill around fence mesh trench, fence post and G5 material and will be randomly tested by an independent laboratory.

7.1 Excavation

- All excavations shall be done by the following methods:
 - Hand excavation
 - TLB with small bucket
 - K9 Digger
 - Trencher
- All excavations shall be carried out under supervision and the excavator operator shall be trained, assessed and deemed competent to operate the excavator, by the supervisor
- The excavator shall be used according to its design and functionality
- Excavation required is for 300mm deep wire mesh installation, post foundation as per drawing (146838-OUYX-S3916A) and for earthing on outer fence as per drawing (Ref 0.54/393)
- All excavated trenches shall be barricaded to prevent any person/any excavator and other construction vehicles on site from falling into the trench or the excavation
- The site plan from the client shall be used to avoid digging and damaging underground services thereby endangering the safety and health of any personnel. Testing to be done by contractor prior to commencement of worked to locate any underground services in planned work area.
- An approval excavation permit shall be obtained from Eskom prior to any excavation activity.
- The depth of the service must be known or determined to prevent damages on services
- If any service is damaged Eskom will be notified immediately
- A pre-ignition start inspection shall be conducted prior to assume excavation

7.2 PLANT & TOOLS REQUIRED FOR THE ACTIVITY

- *Tipper truck*
- *Roller*
- *Grader*
- *Excavator*
- *TLB*
- *Generator*
- *Front End Loader*
- *Water Tank*
- *Shovels, Picks, jackhammer, Gwala , Grinder and Drill Machine*

8. Preparation of installing the fence

Once the earthwork is completed, inspected and approved the preparation of the fence will commence.

A 2.7 Welded Mesh (for the installation of 2.4m high fence) will be inspected at the lay down area then transported to site by a LDV with a trailer.

All employees will be doing the preparation by hand and full PPE will be worn at all times

9. Casting of concrete - Ready mix

- Before concrete is cast inspections will take place by a competent person.
- 25Mpa ready mix will be delivered on site with a POD that will be used by the employees.
- The casting of the concrete will be done direct from the ready mix truck by the use of the shoot; in case a wheelbarrow is needed it will be available on site. It will be inspected on a daily basis.

- Poles will be stabilized until the concrete has cured for the fence to be installed.
- A slump tests will be done on each truck and when cubes are being taken (the slump must be 90mm). Cube samples (6 cubes) will be taken at least one per day or per 50m³ of concrete.
- Test cubes will be tested by an independent laboratory. 3 at 7 days and 3 at 28 days. Results will be forwarded to Eskom for verification.

10. QUALITY CONTROL AND ASSURANCE

All quality control will be executed by SA Fence and Gate in conjunction with prescribed specifications of Eskom.

A Quality control officer of SA Fence and Gate will liaise with Eskom's quality department to ensure that all requirements are met.

11. Poles installation:

The poles will be installed as per drawing 146838-OUYX-S3916A-F and client's specification. Post installation will comprise of the following:

- Corner posts to be installed at fence corners with Two metal stays
- Straining Posts will be installed at a maximum of 40m intervals with two metal stays.
- Intermediates will be installed between all corner and straining posts at a maximum of four meter intervals.

12. Fence installation

The fence will be installed as per drawing 146838-OUYX-S3916A-F and client's specification. Fencing shall be 2.4 m in height and will comprise of the following:

- A minimum of Five equally spaced strands of high tensile wire, with the lowest strand being at ground level and the highest being at 2.4m

- The bottom 400mm of the welded mesh will be bitumen coated and buried 300mm below the ground.
- Welded mesh fencing of 2.4m in height, secured to the wire strands and posts, with binding wire.
- Topped with overhangs secured to each post and intermediate with two bolts.
- Barbed wire to be attached to overhangs.
- Trench will be backfilled and compacted after installation of welded mesh fence, using the TLB or by hand and a walk behind roller.

13. Earthing:

All earthing will be installed / executed in compliance with client specification and drawings. Earthing will be done with 10mm solid copper rod connected to 3m long 16mm earth spikes at intervals of maximum 20m. Earthing at gates and removable panels will be done at each end.

Earth rod of 10mm solid copper to be connected to earth spike with CADWELD. Earth rod of 10mm solid copper to be buried in ground as per details and connected to fence poles with 50mm x 50mm earth clamp. Earth clamp to be fixed to poles with a 16mm bolt.

- Setting out and determining earth spikes positions.
- If any earth spike positions have an impact on the environment the input of the Environmental Officer will be required and work executed to their prescribed method.
- Approval by client for earth spike positions.
- Excavations to be done by hand (shovel and pick) and / or machine (TLB).
- Excavate 1.5m x 1.5m x 1m deep hole to create workspace.
- Excavate .4m x .6m x 1m deep trench for 10mm solid copper rod.
- Earth from excavations to be reused for backfill, thus no carting away of earth.
- Excavations to be barricaded and make safe.

- Insert 16mm - 1.5m solid copper rod into ground 1m below ground level in excavated hole.
- Fit 16mm coupler and insert second 16mm - 1.5m solid copper rod into ground.
- CADWELD 10mm solid copper rod to top of earth spike.
- Lay 10mm solid copper rod into trench and connect to fence pole.
- Drill 17mm diameter hole into fence pole for earth clamp 100m from ground level.
- Connect 10mm solid copper rod to fence pole with 50 x 50mm earth clamp and fix clamp to pole with 16mm diameter bolt and nut.
- Ensure that good connection is achieved at CADWELD and Earth Clamp.
- Client to inspect connections and 10mm solid copper earth rod before closing excavations.
- Excavated material to be used as backfill. Backfill to excavations in layers of 150mm and compacted every layer.

14. Gate installation

The gates will be installed as per drawing 146838-OUYX-S3916 and client's specification. Gates shall be 2.4 m in height and will comprise of the following:

- Gates to suite the width of access as required
- Gate posts to be installed in the same manner as mentioned above, used for corner and straining posts.
- Gates to be attached to gate posts as per client specifications.(drawing 146838-OUYX-S3916)

15.Straining of wires

Lines will be strained between two poles as required by specification. Straining wire will be done by hand using a fence puller to tension the straining wire. It will then be tied to the bolt that is attached to the post, tightened by a nut.

16. Cutting of steel/Mesh wire

- Steels will be cut using a portable grinder or pliers used by somebody with experience and have been inducted
- All waste generated from grinding of Mesh wire shall be disposed of at demarcated areas as indicated by client.
- All cutting equipment compiled with OHS act in terms of safe guarding.
- Safety goggles shall be used at all times to protect employees' eyes from sparks or hazardous material entering eyes.

17. Health and Safety

This method statement will apply to the clearing, excavating, compacting and loading of material, 2.4 welded mesh fence, waste management, casting concrete, plant equipment and PPE to be worn on site when carrying out this tasks/works by SA FENCE AND GATE.

17.1 TERMS, DEFINITIONS, ABBRIVIATIONS

"QA/QC" Means Quality Assurance / Quality control Officer

"PPE" Means Personal Protective Equipment

"SO" Means Safety Officer

"OHSA" Means Occupational Health and Safety Act

"EO" Means Environmental Officer

"Excavation works" Means the making of any man made cavity, trench, pit or depression formed by cutting, digging, or scooping.

17.2 Responsibilities, Authority and Accountability SHEQ will ensure :

- All employees and contractors involved in this activity are competent to do so

- All employees and contractors are required to conduct this work undergo a SHEQ induction.
- All employees and contractors involved in this activity are trained with regards to the content of this Method Statement

17.3 Using of a ladder

- Training will be provided
- Daily toolbox talks will remind employees on how to use a ladder
- Not more than one person on a ladder
- When a person is on the ladder one person must always hold or support the ladder
- Ladder instructions must be read and practiced daily
- Don't use the top 3 rungs on the ladders.
- When you have tools that you want to use on the top of the ladder use a bucket
- Three point contact is very important
- Eyes on path at all times

17.4 Personal Protective Equipment

We shall wear the Personal protective equipment clothing listed at all times when on site. No workers shall be permitted on site without the full PPE as specified

- Hard hat
- Goggles
- Overalls with high visibility reflector vest
- Steel toe boots / gumboots in wet areas
- Dust mask
- Ear plugs (when working in a noisy area)
- All employees will be equipped with their PPE and no one shall be on site without the above required PPE
- The PPE clothing is applicable to everyone coming on site

17.5 First Aid, emergency equipment and procedure

- We will ensure that persons at work receive prompt first aid treatment in case of injuries or emergency
- We will provide first aid box or boxes at or near the work place which shall be available and accessible
- No persons is allowed to carry on with their task in case an emergency siren or alarm sound
- Report any incident/accident immediately to supervisor or safety representative on site
- Every minor injury shall be treated on site by the competent first aider as OHS act
- All person working on site will undergo induction, safety awareness training and environmental training with regarding emergency procedures, fire, or electrical shut down

17.6 Housekeeping (on daily basis)

- We shall continuously maintain and implement housekeeping on our construction site to avoid injuries to persons on site, client, visitors and or sub-contractors
- Everything in its place. No materials or hand tools will be lying on the ground when not in use.
- We shall store them safely in the toolbox on site
- All waste scrap produced on site shall be removed at appropriate intervals to enhance a healthy and safe environment for persons working on site
- No smoking or dumping on site shall be permitted unless it is a demarcated smoking area to avoid cigarette butt on the ground.

18. ENVIROMENTAL

18.1 VEGETATION CLEARING AND TOPSOIL REMOVAL

SA Fence and Gate shall ensure that the clearance of vegetation is strictly restricted to the area required for the work (such as the fence will be erected, toilets will be placed and access roads where vehicles and workers will walk).

- All cleared vegetation will either be mulched and mixed into a topsoil or disposed at an approved disposal site
- All disposal of vegetation by burying or burning is prohibited
- Topsoil will be stripped which will include the top 150mm of the soil, for subsequent use during rehabilitation and re-vegetation.

18.2 Noise

The contractor does envisaged that the project will generate excessive noise (more than 85 dB), but instances whereby the equipment such drilling machine will be used, the workers will be advised to wear ear plugs.

18.3 Dust

It will be suppressed according to the client's standard environmental specification. Eskom's Environmental officer will issue a permit to SA Fence and Gate for extraction of water to be used for dust suppression. A water tanker shall be permanently available on site for the control of dust generation, and SA Fence and Gate shall ensure that the sprays do not generate excess run off. During high wind conditions, SA Fence and Gate shall comply with the Engineer's instructions regarding dust dumping measures.

An appropriate number of water tankers shall be permanently available for the control of dust generation, and the Contractor shall ensure that the sprays do not generate excess run off. There shall be sufficient water tankers of

adequate capacity to enable the dampening of all working areas and access/haul roads. During high wind conditions, the Contractor shall comply with the Engineer's instructions regarding additional dust-dampening measures.

18.4 Emergency preparedness

Telephone numbers of emergency services, including local fire fighting services are pasted in all offices of SA Fence and Gate, and all employees are made aware on the evacuation routes, from all their workplace, in case there is an emergency of fire for them to relocate their workplace. Assemble points are noted for such cases.

18.5 Accidental leaks and spillages

In the event of a spill, the source of the spillage shall be isolated, the spillage will be contained. The area where the spillage incident has occurred shall be cordoned off and secured. SA Fence and Gate shall maintain spill kits on the site at all times and shall ensure that there is always adequate supply of absorbent material available in the spill kit.

18.6 Flora and Fauna

Poaching of animals will not be allowed on site, should animals be seen on site, they will be reported to the Environmental Officer competent to rescue such animals.

18.7 Ablution facilities

SA Fence and Gate shall provide adequate ablution facilities for workers in the construction camp. Acts of excretion and urination shall be strictly prohibited other than at the facilities provided

- I. Toilets shall be located within 100 m from any points of work but not closer than 50 meters to any watercourse or water body,
- II. Mobile toilets will be provided so that it will be moved as the process of fence erection goes on.
- III. Toilets shall be secured to the ground to prevent them from toppling due to wind or any other cause;
- IV. No spillage shall occur when the toilets are cleaned or emptied and the contents shall be properly removed from site by Sanitech,
- V. Discharge of waste from toilets into the environment and burial of waste is strictly prohibited,
- VI. Toilets shall be provided with external closing mechanism to prevent toilet paper from being blown out, and
- VII. Toilets will be emptied before long weekends and builder's holidays and shall be locked after working hours.

18.8 Solid waste management

The management of solid waste at the working area shall be strictly controlled and monitored; the quantities of waste generated shall be minimized as wheelie bins will be provided by Roshcon. Littering will be avoided, there will be no burying, dumping and burning of waste material shall occur. Bins shall never be allowed to overflow and shall be emptied twice in a week. All solid waste will be collected by Roshcon and be disposed off-site at an approved landfill site.

18.9 Accommodation of traffic

SA Fence and Gate shall ensure vehicle traffic safety at all times and shall implement safety measures. Fence and Gate shall control the movement of all the vehicles and equipment including of the suppliers so that they remain on designated routes. On gravel road on the site and within 500 m of the site, the vehicles of Fence and Gate and the suppliers shall not exceed a speed of 40 km/h.

18.10 Landscaping and Rehabilitation

Rehabilitation will be done during the process of erecting (on-going process e.g. before erecting fence on point B, the top soil that was removed from point A, will be backfilled to where it was removed.)

18.11 Prevention of fire

SA Fence and Gate shall take adequate precautions to ensure that the fire hazard on and near the site is reduced to a minimum. Smoking shall not be permitted on site, it will only be allowed in areas designated as smoking area.

18.12 Installation

Installation of all material will be done as per the client's standard environmental specification, together with the addendum from DEA.

18.13 Working near a wetland

- Before construction activity begins, silt fence shall be installed upslope of the wetland or adjacent to any drainage ways that lead to the wetland. Any damaged silt fence will immediately be repaired or replaced adjacent to a wetland and sediments collected down slope of

fence shall be removed. In addition of controlling sediment, the silt fence will serve as a construction limit to prevent damage to existing vegetation.

- Stockpiling of materials adjacent to a wetland will be avoided. Construction materials or debris will not be allowed to spread or be blown into the wetland. Vehicles and equipment will not be parked near a wetland because they will damage vegetation and increase erosion.
- Upland vegetation adjacent to the wetland serves as a buffer that slows water and filters sediment. The existing buffers of vegetation will be protected in order to preserve wetlands. If it is necessary to disturb the soil adjacent to a wetland, vegetation will be restored as quickly as possible.
- Where earthwork is being undertaken in close proximity to any watercourse, slopes shall be stabilised using sandbags or geotextile fabric to prevent sand and rock from entering the water channel.
- Appropriate rehabilitation and revegetation measures for the wetland banks shall be implemented timeously, including stabilizing the banks after construction. The various soil layers shall be removed and stockpiled separately. Following the completion of the construction activities, the soil layers shall be returned in the reverse order to which they were removed.