Eskom	Scope of Works	Arnot Power Station

Title: **Arnot Power Station Critical Structures Annual Inspections & Monitoring For A Period of 5yrs**

Document Identifier: **AEAP 0141**

Alternative Reference Number: **N/A**

Area of Applicability: **Eskom Holdings SOC Ltd**

Functional Area: **Arnot Power Station**

Revision: **0.2**

Total Pages: **24**

Next Review Date: **N/A**

Disclosure Classification: **Controlled Disclosure**

Compiled by	Supported by	Functional Responsibility	Authorized by
M Nkgapele	**N Mthethwa**	**C Mosehla**	pp **T Mokgatle**
Arnot PS: Civil Engineer	**Arnot PS: Civil Engineer**	**Arnot PS: Auxiliary Engineering Manager**	**Arnot PS: Engineering Manager**
Date: 22/01/2026	Date: 22/01/2026	Date: 22/01/2026	Date: 03/02/2026

CONTENTS

1. Executive Summary 4
2. Background 4
3. Description of the *services* 4
   3.1 Location 4
   3.2 Purpose 5
   3.3 Applicability 5
   3.4 Normative/Informative References 5
      3.4.1 Normative 5
   3.5 Interpretation and terminology 5
   3.6 Definitions 6
4. Description of the *service*s 7
   4.1 Scope 7
   4.2 Objective, Safety and Legislation 8
   4.3 Inspections general requirements 9
      4.3.1 Visual inspections 9
   4.4 Condition categories 11
   4.5 Coal Staithes 11
   4.6 Cooling towers 12
   4.7 Smoke stacks 12
   4.8 Fabric filter plant (FFP) structures 13
   4.9 Raw water clarifiers, sand filters, multi-flows and south clarifiers 13
   4.10 Sewage and storm water reticulation, including the stormwater reticulation inside the station 13
   4.11 LiDAR scanning services 13
   4.12 Ground Penetration Radar (GPR) Scanning Services 14
   4.13 Roads topographical survey, mapping and visual condition assessments 14
   4.14 Buildings 17
   4.15 Summary of deliverables (annually or as per the inspection schedule) 17
      4.15.1 FINGINGS AND RECOMMENDATIONS REPORT: Repair Works arising from Visual Inspection 18
   4.16 Qualifications and Expectations of Structural Engineers 18
   4.17 Qualifications and Expectations of Surveyors 18
5. Constraints on how the *Consultant* Provides the Services. 18
   5.1 Documentation control and retention 18
      5.1.1 Identification and communication 18
      5.1.2 Retention of documents 19
   5.2 Invoicing and payment 19
   5.3 Inclusions in the programme 20
   5.4 Quality management 20
      5.4.1 System requirements 20
   5.5 The Parties use of material provided by the *Consultant* 20
      5.5.1 *Employer*'s purpose for the material 20
      5.5.2 Transfer of rights 20
   5.6 Task Order 20
   5.7 Health and safety 20

5.7.1 *Employer*'s entry and security control, permits, and site regulations 20
5.7.2 Hours of work..... 20
5.8 Things provided by the *Employer*..... 21
6. List of drawings..... 21
6.1 Drawings issued by the *Employer*..... 21

1. Executive Summary

Construction Regulations, 2014 promulgated under the Occupational Health and Safety Act (Act no. 85 of 1993) stipulates that civil structures are to be inspected at least on an annual basis. Therefore, it is a legal requirement for the Owner of a structure to ensure that this requirement is adhered to. Any maintenance deemed required to ensure that the structure remains safe for occupancy is also the responsibility of the Owner.

Arnot Power Station comprises a vast number of civil engineering and building infrastructure. In these assets a variety of construction materials are used, and they are often combined in the same structure. These materials are subjected to severe environmental conditions in operation which may cause some structural deterioration over time. The great majority of the civil structures at Arnot Power Station are typically constructed with reinforced concrete and structural steel. These structures need to be regularly inspected to ensure that any structural defects or degradation are identified and monitored for their structural integrity determination and continued use for operation and/or production as plant structures.

Following the envisaged survey (detailed structural assessment), the condition of these civil and structural assets must be reported and recorded for continued monitoring. Remedial measures for each defect must be provided and quantified. The defined five (5) condition category ratings shall be used for condition determination, ranging from 0 (being excellent condition) to 5 (being deteriorated to the extent that the assets are unusable) for each structure or building within a plant area is as defined in the Civil and Structural Inspection Manual [1].

2. Background

Arnot Power Station' construction was completed in 1975 and is part of Eskom's oldest coal-fired Power Station across the Generation fleet. It has a capacity of 2100 MW with six (6) units generating 350MW each. The critical civil structures, specifically Cooling Towers and Chimneys, have been in service for at least 50 years (design lifetime). These structures are exposed to factors such as highly corrosive environments, operational cyclic loads, and prevalent climate conditions. These factors have resulted in the deterioration of some of the structural elements which, if unattended, could impact the structural integrity.

A preventative maintenance and monitoring program needs to be put in place to ensure the safe operation of the structures until the end of service life of Arnot Power Station.

3. Description of the *services*

3.1 Location

Arnot PS which is located roughly 40km South-East of the Middelburg town within the Mpumalanga province.

- Latitude 25°56'20.3"S
- Longitude 29°47'57.5"E

Figure 1: *Locality Plan showing Arnot Power Station*

3.2 Purpose

The purpose of the assessment is therefore to:

- evaluate the current state of the structures (detailed inspection – to establish a reference point) and followed by continued annual required inspections.
- identify remedial works to be performed (preventive and corrective maintenance and optimisation of future maintenance cost).
- prepare a preventative action plan *(monitoring program, preventative maintenance strategy)* to be implemented to operate safely for the service life of Arnot Power Station: annual visit, routine procedure, further follow-up assessments, instrumentation if required; outage inspections and
- prioritise and identify urgent defects or activities that require immediate remedial action.

3.3 Applicability

This document shall apply throughout Arnot PS and all other stakeholders responsible for the scheduled inspections.

3.4 Normative/Informative References

3.4.1 Normative

[1] 240-99527377 Inspection Manual for Civil Work at Eskom Power Stations

3.5 Interpretation and terminology

The following abbreviations are used in this scope:

Abbreviation	Description
ECSA	Engineering Council of South Africa
ERA	Execution Release Approval
LOPP	Life of Plant Plan
OHS	Occupational Health and Safety
Pr. Eng.	Professional Engineer
Pr. Tech	Professional Technologist
QCP	Quality Control Plan

3.6 Definitions

For the purposes of this document, the following definitions will apply:

Employer: Arnot Power Station and, by extension, Eskom will be referred to as the *Employer*. The *Employer* will appoint a representative to manage and ensure the *Employers* interests are protected.

System Engineer: The person designated by the *Employer* as having engineering responsibility for the affected plant or infrastructure.

Plant Engineer: Is a person designated by the *Employer* as having engineering responsibility for a specific plant.

Civil or Structural Engineering Designer: An Engineer specialising in the Civil or Structural Engineering field, having experience in the design and construction of Civil or Structural Engineering infrastructure.

Competent Person: A person who has in respect of the work or task to be performed; required knowledge, training; experience and where applicable; qualifications specific to that work or task (Construction Regulations, 2014).

Consultant: Refers to the service provider who has been appointed to provide professional services in the assessment of critical structures and roads.

Registered Person: An Engineer or Engineering Technologist registered with ECSA, specialising in, and having experience in, the design of respective civil engineering assets.

Inspector: A civil or structural Designer, Plant Engineer or Plant Foreman who have been specifically trained in how to conduct structural inspections and has experience in structural inspections.

Safety Critical item: A safety item is any asset element where the deteriorated condition constitutes an immediate risk to the safety of personnel in the plant.

The Act: The act refers to the Occupational Health and Safety Act 85 of 1993

4. Description of the *service*s

4.1 Scope

The scope of work for critical structures annual inspections and monitoring at Arnot Power Station includes the assessment of the cooling towers, smoke-stacks, coal staithes, boiler and turbine house structures, fabric filter plant concrete structures, water treatment plant (WTP) with its associated water containing structures and etc. as listed below. The *Employer* requires the *Consultant* to perform detailed structural inspections including specified non-destructive tests (NDT's) as well as providing a repair scope of work with a detailed bill of materials required. The structures to be assessed every year and/or as when inspection opportunity arise include the following structures inclusive of their steelworks, access features and handrails where applicable:

1. Six (6) Cooling towers
2. Two (2) Smoke-stacks
3. Five (5) Coal staithes
4. Six (6) Boiler structures
5. Six (6) Turbine structures
6. Two (2) Ash plant systems structures
7. Six (6) fabric filter plant (FFP) structures
8. Water Treatment Plant building and associated structures (clarifiers, sand filters, effluent sumps, sedimentation plants)
9. Sewage treatment plant and associated structures (biofilters, clarigesters, drying-beds and buildings)
10. Underground sewage reticulation (camera surveillance)
11. Underground stormwater reticulation (camera surveillance)
12. Coal trucks weighbridge complex (with associated buildings; control & security buildings)
13. Roads visual surveys
14. Buildings
    - Main Admin building
    - Finance and HR building
    - Outages, Safety, Boiler & Turbine Eng, Medical building complex
    - Security reception building
    - Stores & Procurement offices and Storage warehouse
    - Transport and fleet department building
    - CED building (Siyafunda) complex
    - Tearoom & Maintenance management building
    - Training facility
    - Plattershop
    - Maintenance workshops
    - Riggershop
    - Trunnioun workshop
    - Projects, planning, business service, fire department park-homes
    - South block park-homes
    - Pump stations (North & South CW pumphouses, Top recovery pumphouse, AWR pumphouse)

The inspections should be performed in accordance with the Inspection Manual for Civil Work at Eskom Power Stations.

Additional information

The detailed structural assessment will include photographic survey, depth of carbonation tests, surface hardness and chloride tests. For cooling towers it will also include 3D shape surveys and photos taken of the top ring beam, from the top, on the cooling towers. Evaluation of coating thicknesses and corrosion protection on identified beams and columns. The underground sewage and stormwater reticulations need to be inspected and a video taken internally for all pipes and manholes. The inspections conducted by the *Consultant's inspector* should furthermore comply with the Occupational Health and Safety Act and Regulations 85 of 1993 section 9. Structures sub-item (4) and (5). All of the data gathered need to be analysed, compiled and submitted in separate reports.

The 3D laser scan survey and model to measure the deformations, possible settlement, and loading patterns of the as-built structures and report on the deformations on the six (6) cooling towers. Excessive deformations will be highlighted for further investigation.

4.2 Objective, Safety and Legislation

By legislation, owners of structures are required to conduct inspections of all their structures during the life of the plant asset in terms of the OSHA Construction regulations.

The OHS Act in Regulation R 1010 of 18/07/2003 states the following:

> *"(4) Any owner of a structure shall ensure that inspections of that structure upon completion are carried out periodically by competent persons in order to render the structure safe for continued use:*
>
> *Provided that the inspections are carried out at least once every six months for the first two years and thereafter yearly and records of such inspections are kept and made available to an inspector upon request."*

Construction Regulations (2014) with regards to existing structures Regulation 11(2) states that "An owner of a structure must ensure that:

> *(a) inspections of that structure are carried out periodically by competent persons in order to render the structure safe for continued use;*
>
> *(b) that the inspections contemplated in sub-regulation (a) are carried out at least once every six months for the first two years and thereafter yearly;*
>
> *(c) the structure is maintained in such a manner that it remains safe for continued use;*
>
> *(d) the records of inspections and maintenance are kept and made available on request to an inspector."*

Based on this requirement, the below listed are the main objectives of the inspection/maintenance management of the critical structures at Arnot Power Station:

- To comply with the Occupational Health and Safety Act 85 of 1993 and the Construction Regulations 2014 inspections requirements.
- To proactively prevent structural failures that may result in loss of life and financial loss.
- Providing a detailed reference point or establish baseline condition to be enable to trace both the structural performance and ageing of the structure (periodical control) and warranty of their safe operability to the end of the asset life.
- From the list of recorded defects, prioritising the defects which should be repaired (remedial works) or monitored in short to medium term to plan and optimise maintenance costs.
- Based on the prioritised list of defects prepare a bill of quantities (BOQ) and cost estimates for immediate repairs deemed urgent.

4.3 Inspections general requirements

The structural engineer is expected to carry out, with reasonable diligence, inspections that assesses:

a) the condition of the structure/ reticulation system to:
   - identify the types of defects
   - identify any signs of distress and deformation
   - identify any signs of material deterioration

b) the loadings
   - to identify any deviation from intended use, misuse and abuse which can result in overloading

c) any addition or alteration works affecting the structure/ reticulation
   - to identify any addition or alteration works which can result in overloading or adverse effects

4.3.1 Visual inspections

Along with the inspections, visual inspections need to be done on all plant areas listed in the introduction (Section 2.1).

If there are no signs of any structural deterioration or defects, the visual inspection should suffice and unless the structural engineer otherwise advises, no further action needs to be taken.

If, on the other hand, signs of significant structural deterioration or defects are present, the structural engineer should make a professional assessment of the deterioration or defect and recommend appropriate actions to be taken. Such actions may involve repair works or full structural investigation to parts or whole of the building.

4.3.1.1 Limitations of Visual Inspection

4.1 There could be some difficulties in the conduct of a visual inspection as some of the main structural elements in buildings, structures and plant areas may have been covered up by architectural finishes or Access to Plant Areas may be restricted or not allowed; thus efficient and timely communications with Eskom's Representative/s is crucial to the success of these inspections.

It is therefore important that professional judgement is exercised by the structural engineer to determine which areas that are covered up should be exposed for inspection and which restricted

areas will need planning with other Eskom stakeholders. Reference to structural layout drawings where available to determine the presence of critical structural elements would be crucial under such circumstances.

4.3.1.2 Inspection schedule

The Inspection Manual For Civil Works at Eskom's Power Stations [1] stipulates that it is the responsibility of the Plant Engineer (Eskom) to ensure that the relevant engineering visual structural inspections and ordinary visual inspections are scheduled when required. In terms of the current OHS Act in Regulation R 1010 of 18/07/2003, the requirement is that all structures must be inspected by an Engineer at intervals not exceeding 12 months however the inspection frequency can vary where the condition of the plant structure is deemed deteriorated to a worse condition requiring more frequent inspection intervals. See Section 4.3.1.3 below for more details.

4.3.1.3 Frequency of Engineering Visual Inspections

The engineering visual inspections of the entire plant must be carried out as follows;

a) In accordance with the Construction Regulations, the first annual engineering visual structural inspection post plant commissioning, must be carried out.

b) Annual inspections must be carried out and dependent on the Structural Engineer's recommendations the level of inspection per structure will be determined and this is to be written into the plant maintenance schedule. Following every engineering visual structural inspection, the interval before the next engineering visual structural inspection must be specified in the Structural Engineers report. This period must be based on the condition of the structures, in accordance with information provided in Table 1.

As the condition of the plant structures deteriorates, as determined by regular visual inspections, the frequency of the engineering structural inspections must be increased. Industry guide on intervals between engineering visual structural inspections of the entire plant is defined in Table 1. Engineering visual structural inspection may continue at these intervals until such time that the condition of the plant is improved.

Table 1: Engineer visual structural inspection interval guide

Interval of Inspection	Condition category for worst 30% of the plant structures
3 years	1
2 years	2
1 year	3

1 year	4
6 months	5

4.4 Condition categories

In order to ensure consistency of reporting and common understanding of the severity of deterioration of plant structures, six condition categories are used, as defined in Table 2.

Table 2: Condition Categories

Category	Description	% Original Strength	Typical Remedial Action
0	The plant assets are in excellent condition with no deterioration evident. Safe use of the plant assets is assured.	100	None Required
1	The plant assets have slight evidence of surface deterioration, but to an extent that there is no reduction in strength.	100	None Required
2	The plant assets have some deterioration to an extent that there is slight reduction in strength. Safe use of the plant assets is assured.	95-100	Repaint, tighten bolts, other minor work
3	The plant assets show deterioration, to an extent that there is some reduction in strength. There is some compromise to safe use of the plant structure. Repair must receive attention in maintenance scheduling.	75-95	Repair, repaint, tighten bolts, other minor work
4	The plant assets show severe deterioration, to an extent that there is a major reduction in strength. Safe use of the plant is severely compromised. Urgent attention must be given to repair.	50-75	Repair or replace components
5	The plant assets show severe deterioration, to an extent that they have little useful residual strength. Safe use of the plant is impossible. Urgent attention must be given to repair.	< 50	Repair or replacement of components required urgently

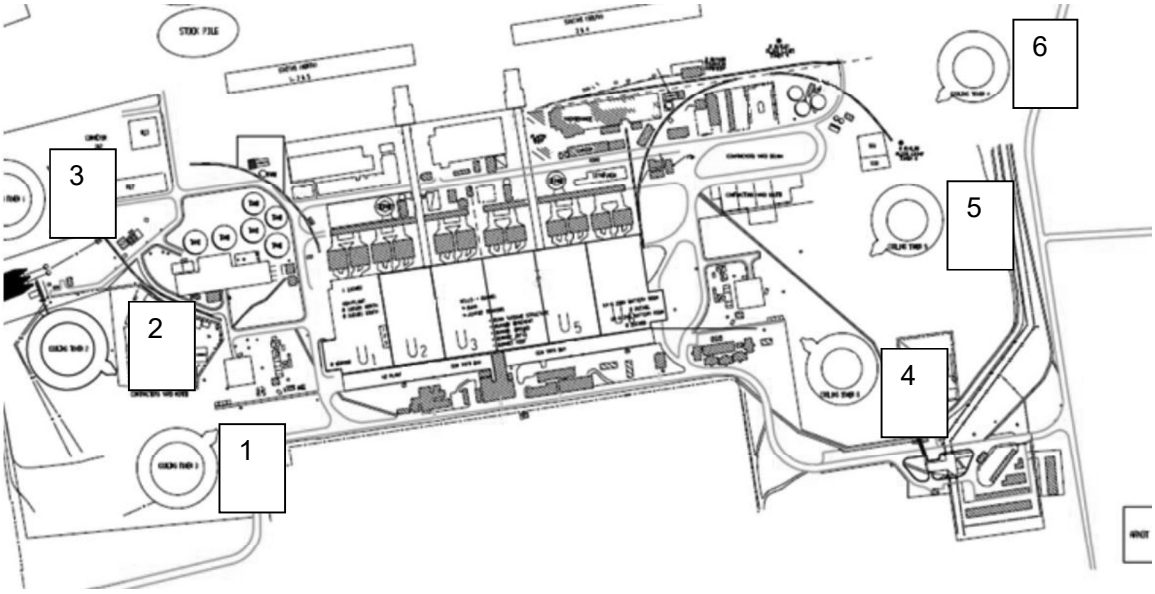
4.5 Coal Staithes

For each staith the following is required:

- 8 Surface hardness tests
- 6 Carbonation tests
- Chloride concentration vs depth graph needs to be provided. Must be determined at 8 places on each staith. The positions of the samples must be agreed upon with Eskom's Engineering.
- An internal inspection is needed on all the staiths to identify any affect that any fire could have had on the structure.
- Core drill 3 samples out of Staith 1 and send for strength analysis. This must be done where fire damage is evident due to smoldering coal above conveyor 8A and B's roof slab. Locations to be confirmed on site and shown by Eskom.

4.6 Cooling towers

Please note that the numbering of cooling towers has changes from the numbering on the drawings. The following numbering system to be used:



The following is required on each of the cooling towers:

- A shape survey and analysis comparing results to results from previous analyses.
- Identification of cracks that pose a structural risk
- 3 carbonation tests on the cooling tower shell 3 on the columns
- 3 chloride test showing chloride concentration vs depth 3 on the columns
- 3 surface hardness tests 3 on the columns
- The top ring also needs to be photographically recorded as taken from the top

4.7 Smoke stacks

The following is required on each of the smoke stacks:

- Identification of cracks that pose a structural risk

- 3 carbonation tests on the shell
- 3 chloride test showing chloride concentration vs depth
- 3 surface hardness tests
- The top ring also needs to be photographically recorded as taken from the top
- The lift structure and rail needs to be inspected as well

4.8 Fabric filter plant (FFP) structures

There are round columns at the top of the structure that needs to be included. The shell also needs to be evaluated. The following is needed per FFP:

- Identification of cracks that pose a structural risk
- Mapping of structural cracks which include lengths and thicknesses
- 3 carbonation tests on the shell and 3 on the columns
- 3 chloride test showing chloride concentration vs depth on the shell and 3 on the columns
- 3 surface hardness tests and 3 on the columns
- Identification possible roof leaks

4.9 Raw water clarifiers, sand filters, multi-flows and south clarifiers

The following is required on each of the structure and smoke stacks:

- Identification of cracks that pose a structural risk
- 3 carbonation tests on the shell
- 3 chloride test showing chloride concentration vs depth
- 3 surface hardness tests

4.10 Sewage and storm water reticulation, including the stormwater reticulation inside the station

The whole storm water and sewage reticulation needs to be filmed. Areas that need to be repaired needs to be recorded and quantified. Recommendations on repairs need to be provided.

4.11 LiDAR scanning services

To enhance the accuracy and reliability of inspection, monitoring, and assessment activities for Arnot Power Station's civil and structural assets, specialised geospatial and subsurface investigation technologies shall be incorporated as part of this scope

Perform high-resolution LiDAR surveys of key surface areas across the Power Station, focusing on:

- Stormwater drainage networks, access roads, and low-lying areas to delineate surface catchments and identify ponding zones.
- Major civil structures (cooling towers, chimneys, buildings, roads, dams) to monitor settlement, deformation, and surface grading
- Generate digital elevation models (DEM), digital surface models (DSM), and contour maps to support hydrological and stormwater management studies.
- Provide accurate georeferenced data compatible with existing Eskom GIS and CAD systems.
- Deliver processed outputs including:

- Contour maps (0.5 m or finer interval)
- Surface volume and slope analysis reports

The Consultant shall ensure that data collection and drone operations (for LiDAR) comply with SACAA regulations where applicable.

4.12 Ground Penetration Radar (GPR) Scanning Services

Arnot has been prone to sinkhole formation in recent times, hence the need to for GPR scanning. GPR scanning shall be used to detect subsurface anomalies and void formations that may indicate early sinkhole development, compromised foundations, or buried service conflicts. The scope shall include:

- Conducting routine GPR scans in high-risk areas such as the coal stockyard, turbine halls, cooling tower peripheries, roads, and stormwater trenches.
- Mapping underground utilities, culverts, and stormwater pipes to assist with maintenance planning and prevent accidental damage during excavation or rehabilitation work.
- Performing void detection and sinkhole-risk mapping to identify zones of potential ground instability
- Providing interpreted subsurface profiles with anomaly classification, depth estimations, and georeferenced drawings
- Recommending remedial or monitoring measures based on the results of the subsurface assessment.

4.13 Roads topographical survey, mapping and visual condition assessments

The Consultant is required to undertake a comprehensive a topographical survey and mapping of Arnot Power Station road network, and a annual visual condition assessment of the road network.

The frequency of the required work is as follows:

- Topographical survey and mapping: Once-off
- Annual visual condition assessment: Recurring – annually for the duration of the contract

The objective of the works is to establish a road network database to support asset management.

All works shall be carried out by suitably qualified and experienced personnel, using appropriate survey equipment and methodologies, and in accordance with relevant South African standards, guidelines, and good engineering practice.

The station road network extends for approximately 20km in total length, with 11.5km within the station perimeter and 8.5km outside.

The extent of road network is shown in the figure below.

4.13.1.1 Topographical Survey of Road Network

The Consultant shall carry out a detailed topographical survey of all internal and outside roads belonging to the Power Station including parking and loading areas directly connected to the road network.

4.13.1.2 Survey Requirements

The topographical survey shall include, as a minimum:

- Horizontal and vertical alignment of each road;
- Centreline coordinates;
- Road widths and carriageway edges;
- Crossfall/camber grades;
- All ancillary within the respective road reserves;
- Existing surface levels;
- Drainage features along the roads (e.g. side drains, culverts, mitre drains, low points)

- Survey accuracy shall be suitable for engineering design and asset management purposes.

4.13.1.3 Surfacing Type Identification

As part of the survey, the Consultant for each road segment, identify the existing surfacing type, including but not limited to:

- Asphalt/bituminous surfacing
- Concrete surfacing
- Hyson cells
- Gravel
- Block paving
- Other specialised surfacing types where applicable

4.13.1.4 Road Network Mapping

Using the survey data, the Consultant shall prepare a comprehensive road network map, presented in both digital and printable formats.

The map shall:

- Clearly identify and label each road segment;
- Indicate road extents
- Indicate the surfacing type on each road segment
- Be geo-referenced and compatible with Bentley MicroStation and CAD platforms

4.13.1.5 Annual Visual Road Inspections

The Consultant shall conduct annual visual inspections of the entire road network for the duration of the contract. Visual inspections shall be carried out in accordance with the following informative:

- 240-99527377 Inspection Manual for Civil Works at Eskom's Power Stations
- TMH9: 2016, Manual Visual Assessment of Road Pavements – Part A: General
- TMH9: 2016, Manual Visual Assessment of Road Pavements – Part B: Flexible Pavements
- TMH9: 2016, Manual Visual Assessment of Road Pavements – Part C: Concrete Pavements
- TMH9: 2016, Manual Visual Assessment of Road Pavements – Part D: Block Pavements
- TMH9: 2016, Manual Visual Assessment of Road Pavements – Part E: Unpaved Roads

- Draft TMH12: Pavement Management Systems: Standard Visual Assessment Manual for Unsealed Roads, Version 1, 2000.

The visual inspections shall include the following:

- Visual inspection of all the station roads, road ancillary, road markings and traffic signs.
- Conduct and analyse Dynamic Cone Penetrometer (DCP) test at all areas identified as critical as follows:
    - The DCP measurements shall be carried out in accordance with the standard test method to a depth of 1000mm below surface level.
    - Appropriate drilling equipment shall be utilised to penetrate asphalt, highly stabilised or cemented layers prior to proceeding with the testing.
    - Results of DCP testing shall be analysed, interpreted and presented in the visual inspection report.

4.14 Buildings

Office buildings' structural condition in the station shall be inspected and evaluated around the plant to make sure that they are in sound structural condition. The aim of the assessment to ensure that the buildings are in good condition structurally for them to remain in use.

4.15 Summary of deliverables (annually or as per the inspection schedule)

Separate reports with recommendations must be provided for the following:

- Each Staiths (5 reports) annually
- Each Cooling Tower (6 reports) annually
- Smoke Stacks - 2 reports externally annually & 2 reports internally as per opportunity
- Fabric Filter Plant (1 report with 6 sections) annually
- Water plant Each Raw water clarifiers, sand filters as a hole, the multi-flows as a whole and each of the south clarifiers (6 reports) annually
- A report on the storm water reticulation annually
- A report on the sewage reticulation annually
- Each building (16 reports) annually
- LiDAR Survey report with DEM/DSM, contour maps
- GPR Survey Report identifying subsurface anomalies, voids, and buried utilities.
- Survey and Mapping (once-off)
    - Topographical survey data in xls. Formats
    - A geo-referenced road network map in:
        - Editable Bentley/MicroStationCAD format
        - PDF format;
        - 2x A0 Aeriel view Hardcopies.
- Annual Inspection report annually for the duration of the contract

NB! for each annual inspection, the Consultant shall submit a visual inspection report including:

- Road-by-road condition assessments clearly indicating the identified defects severity and extent;
- Areas of concern;
- Photographic records;
- Recommendations of remedial actions prioritised by risk and severity;
- Attached site visual assessment sheets.

4.15.1 FINGINGS AND RECOMMENDATIONS REPORT: Repair Works arising from Visual Inspection

- Findings and recommendations must determine the overall condition and status of all structures and reticulations as per the condition categories in Section 4.4.
- Detailed classification of associated risks; micro and macro root cause analysis; effect/and consequences determination and Detail Scopes of works/Works information with Bill of Quantities resulting from Recommendations (To be accepted or rejected by Eskom Representative/s).
- The Report will be used by Eskom as a maintenance record for any follow-ups.
- If there are signs of significant structural problems, the Engineer shall make recommendations for a full structural investigation to be carried out without further delay.

4.16 Qualifications and Expectations of Structural Engineers

Eskom requires the visual inspection to be conducted by an Engineer(s) who must be registered professionally in the civil or structural engineering discipline with ECSA.

4.17 Qualifications and Expectations of Surveyors

Eskom requires that all LiDAR and GPR surveys shall be performed by competent and professionally registered personnel, with demonstrable experience in geospatial surveying, subsurface detection, and data interpretation.

5. Constraints on how the *Consultant* Provides the Services.

5.1 Documentation control and retention

5.1.1 Identification and communication

All communications from the Consultant carries the contract number and title, and is numbered sequentially on the basis of the communication source.

The Employer responds in likely manner, numbering communications.

Note: All correspondence headings include:

Arnot Power Station

The Contract or order description

The Employer's contract or order number

The correspondence subject matter

Where appropriate, the correspondence includes the Employer's reference, i.e. initials of contact person and Employer's letter reference.

5.1.2 Retention of documents

Clause 13.6 states that the Consultant retains copies of drawings, specifications, reports and other documents which record the services in the form stated in the Scope. Note the time period for which the Consultant is to retain such documents is the period for retention stated in the Contract Data.

5.2 Invoicing and payment

The following details shall be shown on or attached to each Invoice to show how the amount due has been assessed:

Eskom Holdings SOC Limited-Registration Number 2002/15527/6

Finance Department

Attention: Cariza Von Molendorf

Tel: 013 297 9046

Fax: 013 297 9090

Eskom Holdings SOC Limited-Arnot Power Station

VAT NR.:4740101508

Arnot Power Station

Private Bag X 2

RIETKUIL

1097

The *Consultant* shall address the tax invoice to Account Payable Services (**APS),** Arnot Power Station and include on it the following information:

- Name and address of the *Consultant* and the *Employer's Agent;*
- The contract number and title;
- *Consultant's* VAT registration number;
- The *Employer*'s VAT registration number 4740101508;
- Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT;
- (add other as required)

5.3 Inclusions in the programme

The *Consultant* provides a programme for specific tasks given to him as requested by the Employer.

The Contractor is required to attend interface meetings with others to establish possession and sectional Completion Dates for those items as detailed in the Task Order.

5.4 Quality management

5.4.1 System requirements

The Consultant does not need to have his/her own system.

5.5 The Parties use of material provided by the *Consultant*

5.5.1 *Employer*'s purpose for the material

Clause 70.1 states that the Employer has the right to use the material provided by the Consultant for the purpose stated in the Scope.

5.5.2 Transfer of rights

The *Employer* owns the *Consultant's* rights over material prepared for this contract by the *Consultant except* as stated otherwise in the Scope.

5.6 Task Order

The *Employer* provides to the Consultant a detailed description of the service he requires to be provided, additional specifications and procedures and any other constraints the Consultant need to comply with in

Providing the Service. The task order is issued before the Consultant Provides the Service.

5.7 Health and safety

The *Consultant* shall at all times comply with the health and safety requirements prescribed by law as they may apply to the *service*s. The SHE procedure will be available on request.

5.7.1 *Employer*'s entry and security control, permits, and site regulations

The Contractor complies with the Employer's procedure PAB20028 revision 1, 'Application of Security Access Control at Arnot Power Station.'

5.7.2 Hours of work

Monday to Thursday: 07h15 – 16h30

Friday: 07h15 – 12h15

5.8 Things provided by the *Employer*

The *Employer* provides the following facilities:

- Work station and site services
- Telephone (Site related work: Free, Private calls: Billed), Fax and photo-copying facilities
- Access to working areas
- All consumables in line with providing the service on site
- Access to a LAN point.

6. List of drawings

6.1 Drawings issued by the *Employer*

This is the list of drawings issued by the *Employer* at or before the Contract Date and which apply to this contract.

Drawing number	Revision	Title
		Arnot Power Station Sewer Pipe Mapping
		Arnot Power Station Drawing Pipe Mapping
0.41/1950		Chimney 1 Concrete Details
0.41/12738	3	Chimney 2 Foundation Details
0.41/1951	3	Chimney 1 Foundation Details
0.41/3213		Cooling tower No 3 Piles for Cooling Stack Etc. Layout and Details
0.41/3158	2	Cooling Towers General Layout and Arrangement of Main Foundation Piles
0.41/3157	2	Cooling Towers Main Foundation Piles
0.41/13810	2	Cooling Towers Columns
0.41/3346	2	Cooling Towers Shell Setting Out Detail

0.41/18237		Cooling Towers Shell Reinforcement Schedule
0.41/18235		Cooling Towers Shell Reinforcement Details Sheet 1 of 2
0.41/18236		Cooling Towers Shell Reinforcement Details Sheet 1 of 2
0.41.410		STORMWATER DETAILS OF MANHOLES
0.41.649		STATION AREA STORMWATER DRAINAGE LAYOUT
0.41.10298		STATION AREA STORMWATER DRAINAGE LAYOUT SHEET 1
0.41.10299		STATION AREA STORMWATER DRAINAGE LAYOUT SHEET 2
0.41.12890		Coal Handling Plant Coal S3&4 stormwater
0.41-503		SEWAGE DISPOSAL PLANT DETAILS OF RETICULATION MANHOLES 56-115
0.41-194		SEWAGE DISPOSAL PLANT DETAILS OF RETICULATION MANHOLE
0.41-86		SEWAGE DISPOSAL PLANT DETAILS OF RETICULATION STANDARD MANHOLES AND MAIN SEWAGE CONNECTION
0.41/5763	12	Arnot Power Station Units 4,5 & 6 Basement Floor Plant Layout
0.41/1625	16	Arnot Power Station Units 3,2 & 1 Basement Floor Plant Layout

7. Compliance To 5 Identified Life Saving Rules

RULE 1: OPEN, ISOLATE, TEST, EARTH, BOND, AND/OR INSULATE BEFORE TOUCH

(That is, any plant operating above 1 000 V)

No person may work on any electrical network unless:

- he/she is trained and authorised as competent for the task to be done;
- a pre-task risk assessment to identify all risks and hazards has been conducted prior to any work commencing;
- an equipotential zone is created for each worker on the job site by earthing, bonding, and/or insulating according to approved procedures;
- all conducting material is connected together, all staff on site wear electrical safety shoes, and insulating techniques are applied according to standards; and
- the authorised person (team leader) has certified and shown all team members that the apparatus is safe to work on.

RULE 2: HOOK UP AT HEIGHTS

Working at height is defined as any work performed above a stable work surface or where a person puts himself/herself in a position where he/she exposes himself/herself to a fall from or into.

No person may work at height where there is a risk of falling unless:

- a pre-task risk assessment to identify all risks and hazards has been conducted prior to commencing any work at height;
- he/she is appropriately trained;
- he/she is appropriately secured during ascending and descending; and
- he/she is using an approved fall arrest system where applicable.

RULE 3: BUCKLE UP

No person may drive any vehicle on Eskom business and/or on Eskom premises:

- unless the driver and all passengers are wearing seat belts.

RULE 4: BE SOBER

No person is allowed to work under the influence of drugs and alcohol.

"Under the influence" means the use of alcohol, drugs, and/or a controlled substance to the extent that:

• the individual's faculties are in any way impaired by the consumption or use of the substances; or

• the individual is unable to perform in a safe, productive manner; or

• the individual has a level of any such substance in his/her body that corresponds to or exceeds accepted medical/legal standards; or

• the individual has a level of alcohol in his/her body that is greater than 0.02% blood alcohol concentration.

This includes any level of an illegal substance in the body, irrespective of when the substance was used.

RULE 5: ENSURE THAT YOU HAVE A PERMIT TO WORK

Where an authorisation limitation exists, no person shall work without the required Permit to Work (PTW), which is governed by the Plant Safety Regulations, Operating Regulations for High Voltage Systems (ORHVS) etc.

• No plant is to be returned to service without the cancellation of all permits on that plant in accordance with procedure.

NB: in the case of live work, a "live work declaration form" is to be completed by the authorised person who is the person responsible for the safe execution of work according to relevant standards and procedures.

Please ensure that these rules are understood and communicated with the urgency that they deserve. If any of these rules are unclear or the consequences not understood, please do not hesitate to discuss it with Eskom.

We would like to continue our current partnership and therefore urge your support in the implementation and upholding of these rules.

8. Revisions

Date	Rev.	Compiler	Remarks
29 October 2025	0.1	M Nkgapele	First document issued for signatures
22 January 2026	0.2	M Nkgapele	Revised to include road surveys