

PART 3: SCOPE OF WORK

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C3.1: EMPLOYER'S WORKS INFORMATION

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1 Description of the works

1.1 Executive overview

Kendal power station ash dump facility was originally designed for 40 years of operation. The lifespan of the station was extended to 60 years and with the coal quality deteriorating. Ash Spreader belt shift have always been done via forward movement. No reverse belt shifts have ever been done. Ash spreader reverse shift was completed successfully in August 2016. The reverse shift took about a month from start to finish.

The new design and drawings for ash in the new area requires a number of parallel shift for the extendable conveyors 0ETK 13&23 to be implemented. This type of parallel shift is not often done at Kendal since the ash dump belt shifts are mainly radial in nature.

This document covers the scope of work to be executed by the contractor which entails all related activities required to construct the parallel shifts of 00ETK13&23 and extension of 00ETK14 located within the Ash Disposal Facility for ash handling plant at Eskom – Kendal Power Station. The scope of work shall cover Electrical and C&I disciplines as applicable to the construction of the parallel shifts with the intention to align the standby head station position from (SCP1 of the reverse shift) to about SCP 10 – 11 horizontal alignments continuous ash process to the new geometry configuration of the new design alignment. At SCP 10 – 11 the head station horizontal alignment will match to the new drawings for shiftable conveyor 00ETK14 for the standby.

1.2 Employer's objectives and purpose of the works

The *Employer's* objective includes:

- To construct the four parallel belts shift(s) of 00ETK13&23 extendable conveyors to suit the new design of the Kendal Continuous Ash project. As well as to extend the belt length of the shiftable conveyor 00ETK14 to ensure that Kendal does not ash beyond the exempted area before the expiry of the license. Both these activities will entail manufacture, supply and install of all Mechanical, Civil, Electrical and C&I works for the associated ash conveyors for the facility. This is to ensure that the facility has sufficient holding capacity, standard operation (Ash stacker and spreader) and that the current operations are environmentally compliant.
- To this effect the contractor is under the obligation to provide work that is fit for purpose.

1.3 Works to be executed by the contractor

1.3.1 Works Background

Kendal power station ash dump facility was originally designed for 40 years of operation. The lifespan of the station was extended to 60 years and with the coal quality deteriorating.

Ash Spreader belt shift have always been done via forward movement. No reverse belt shifts have ever been done. Ash spreader reverse shift was completed successfully in August 2016. The reverse shift took about a month from start to finish.

The new design and drawings for ash in the new area requires a number of parallel shift for the extendable conveyors 0ETK 13&23 to be implemented. This type of parallel shift is not often done at Kendal since the ash dump belt shifts are mainly radial in nature.

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1.3.2 Scope of work (See attachment for detailed SOW)

The works shall be broken into the following sections :

a) Control and Instrumentation works.

b) Electrical works

See detailed SOW on Annexure A attached to this *Work's Information*.

1.4 Interpretation and terminology

The following abbreviations are used in this Works Information:

Abbreviation	Explanation
JB	Junction Box
LV	Low Voltage
V	Volts
SOW	Scope Of Work
EMD	Electrical Maintenance Department
kW	Kilowatt
UVG	Control & Instrumentation Cables
TFFR	Transformer
DC	Direct Current
AC	Alternating Current
IP	Enclosure Protection Rating
RPM	Revolutions per Minute
HZ	Measurement of Frequency

2 Management and start up.**2.1 Management meetings**

Meetings will be held monthly between the *Project Manager* and the *Contractor*. The *Contractor* is represented at each meeting by the appropriate members of the staff.

The venue for these meetings is as determined by the *Project Manager*. The *Project Manager* writes the minutes of meetings.

Any action of the *Project Manager*, *Supervisor* and *Contractor* implied in the minutes of meetings with contractual implications is confirmed by a separate communication.

The *Contractor* reports the overall progress and as a minimum requirement, the following is addressed:

- a) *Contractor's* current activity progress and planned finish dates;
- b) *Contractor's* to report on all items listed in the NEC core clause, 31.
- c) *Contractor's* and *Project Manager's* programme agenda compared for problematic differences;

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- d) Current and projected manpower by class;
- e) Health, safety and quality Management;
- f) The progress of any other relevant activities;
- g) To discuss any technical or commercial issues;
- h) Problem areas or concerns;

Regular meetings of a general nature may be convened and chaired by the *Project Manager* as follows:

Title and purpose	Approximate time & interval	Location	Attendance by:
Risk register and compensation events	Weekly	Venue determined by the <i>Project Manager</i>	Relevant appointed members of a Risk or and Compensation event committee
Overall contract progress and feedback	Weekly	Venue determined by the <i>Project Manager</i>	<i>Employer, Contractor, Supervisor, and Others</i> as determined by the <i>Project Manager</i>
Planning Meetings (including integration meetings with Others)	Weekly	Venue determined by the <i>Project Manager</i>	<i>Employer, Contractor, Supervisor, Planners and Others</i> as determined by the <i>Project Manager</i>
SHE Meetings	Fortnightly	Venue determined by the <i>Project Manager</i>	<i>Employer, Contractor, Supervisor Safety Officers and Others</i> as determined by the <i>Project Manager</i>
Payment Assessment Meeting	Monthly	Venue determined by the <i>Project Manager</i>	<i>Employer, Contractor, Supervisor, Quantity Supervisors and Others</i> as determined by the <i>Project Manager</i>
Quality and Engineering Meeting	Monthly	Venue determined by the <i>Project Manager</i>	<i>Employer, Contractor, Supervisor Safety Officers and Others</i> as determined by the <i>Project Manager</i>

Meetings of a specialist nature may be convened as specified elsewhere in this Works Information or if not so specified by persons and at times and locations to suit the Parties, the nature and the progress of the works. Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.

All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting. Such minutes or register shall not be used for the purpose of confirming actions or instructions under the contract as these shall be done separately by the person identified in the *conditions of contract* to carry out such actions or instructions.

2.2 Documentation control

2.2.1 Document Management

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The language of all documentation shall be in English. All documentation shall be controlled and managed in accordance with Document and Records Management Procedure (32-6).

The Contractor establishes a document tracking system to record the dates for the supply and the receipt of all design drawings, calculations, requests for information and design documentation.

The Contractor submits to the Project Manager a schedule within two weeks from the starting date all documents for acceptance. The schedule provides individual titles of drawings and calculations, and their proposed submittal dates, for submittals as requested in the Works Information and as necessary for the review by the Project Manager as the proposed means of compliance by the Contractor with all aspects of the requirements of the Contract. The scheduled date of first submittal, time allowed for acceptance and expected date of issue after acceptance will be shown for each drawing or document.

2.2.1.1 Document Submission

All project documents must be submitted to the *Project Manager* with transmittal note according to Project / Plant Specific Technical Documents and Records Management Work Instruction (240-76992014). In order to portray a consistent image it is important that all documents used within the project follow the same standards of layout, style and formatting as described in the Work Instruction. The *Contractor* is required to submit documents as electronic and hard copies and both copies must be delivered to the *Project Manager* with a transmittal note.

In addition, the *Contractor* shall be provided with the following standards which must be adhered to:

- Project Plant Specific Technical Documents - Handover Works Instruction 240-124341168.
- Project Documentation Deliverable Requirement Specification 240-65459834.
- Technical Documentation Classification and Designation Standard 240-54179170.
- Project/ Plant Specific Technical Documents and Records Management Work Instruction 240-76992014.

2.2.1.2 Master Document Index

The master document index will consist of a list of all required documents and records as stipulated in the SOW.

These are documents and records required to be handed over to Eskom through various stages of the project as stipulated in the project program.

2.2.1.3 Electronic Submission (SharePoint Transmittal)

Electronic submissions could be done using the SharePoint Transmittal Site functionality and route.

2.2.1.4 Bulk Submission

For bulk document submission, the following link can be used <https://zendto.eskom.co.za/>

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2.2.1.5 Emails and other Submission Methods

Where applicable and contractually agreed, e-mail submissions can be used, as well as other submission methods employed in the relevant project e.g. Box; Norman Secure.

2.2.1.6 Engineering Change Management

Any proposed changes to the approved design for construction (Detail Design Baseline), shall follow the Employer's ECM process for approval before proposed changes may be implemented (irrespective if these changes came about during construction or commissioning). The Contractor shall be assisted by the Employer's Project Engineer or System Engineer on request when such a situation arises.

The Contractor may not commence with any work related to configuration changes to approved baselines on the plant without proof of approval of such works. This will be in the form of an "implementation authorisation" by the Site Change Control Committee (SCCC).

2.2.1.7 Plant Configuration Audit/Verification

The plant configuration audit/verification process will undertake to identify plant that does not conform to, or reflect the approved detail design baseline physically or functionally. Through plant inspections, the plant will be validated against the approved design.

During construction and commissioning, configuration verification audits will be carried out by the Employer's plant Configuration Management technician's and the System and or Project Engineer at intervals as agreed upon by the Employer's Project Manager, Project Engineer and plant Configuration Management technician. These actions will be captured as activities in the project program/schedule.

Findings will be documented in a report and reasons for plant configuration anomalies will be determined and addressed.

2.2.1.8 Draughting Requirements

- a) All drawings shall be drawn natively in Microstation V8 by the Contractor.
- b) **The Employer shall not accept any drawings from the Contractor drawn in any application other than Microstation V8 and then converted to Microstation V8.**
- c) **No drawings in TIFF, AUTOCAD or any other electronic format will be accepted**
- d) Drawings shall strictly comply with 240-86973501-Eskom Drawing Standard.
- e) The Employer drawing office will supply the Contractor with Microstation cell libraries and border sheet upon request.
- f) Numbers for new drawings must be requested from the Employer. This request must be submitted in the form of the document register as specified in "Annexure C".
- g) It is the Contractors responsibility to ensure all drawings are "As Built" before the works is commissioned.
- h) All approved "as-built" drawings shall be handed over before commissioning of the works.
- i) All final drawings shall be handed over as follows and accompanied by the updated master document register "Annexure C":
 - Electronic Microstation V8 natively drawn drawing file.
 - Signed hard copy, approved by design engineer, accepted by Project/System Engineer and authorised by the Employer (for new drawings).
 - Scanned electronic file of the signed drawings in pdf format.
 - Electronic files may be supplied on CD or DVD.
- j) The Employer drawing office personnel shall be available to assist the Contractor with any drawing related queries.

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- k) All existing Employer drawings related to the plant, as specified in the scope of work ("Annexure C"), for affected and interfacing plant shall be red-lined and updated, superseded or cancelled by the Contractor.
- l) All drawings shall be submitted to the Employer for quality check before hand-over. **It is imperative that the Contractor send a sample drawing for each drawing type to the drawing office as soon as the first drawings are generated, to ensure the correct standard is followed before creating all drawings.**

2.2.2 Document Review and Turn-around

The *Employer* has a minimum 14 calendar days to review and consolidate review comments for documentation submitted by the *Contractor*. The *Contractor* also has a minimum 14 calendar days to respond and / rectify as per the comments by the *Employer*.

2.3 Health and safety risk management

The *Contractor* shall comply with the health and safety requirements contained in Annexure B to this Works Information.

2.4 Environmental constraints and management

The *Contractor* shall comply with the environmental criteria and constraints stated in Annexure _____

2.5 Quality assurance requirements

Specify minimum requirements for the *Contractor's* Quality Plan and Work Procedures or provide the *Employer's* Quality Plan if that is to be used. Make sure witness and hold points are identified generally and describe any particular requirements for QA outside the *working areas*. Indicate how the *Contractor's* QA documentation is to be submitted for acceptance and any conditions that need to be imposed relating to acceptance. State whether ISO compliance is a condition and if so which ISO standard shall apply.

2.6 Programming constraints

2.6.1 General

The *Contractor* submits a single integrated programme that incorporates all the work to be performed including that of his Subcontractors. The interfaces between Subcontractors as well as the interfaces between Subcontractors and the *Contractor* are clearly identified. Project key dates as defined in the NEC Contract Data by the *Employer* and are to be incorporated into the programme.

2.6.2 Computerised Planning

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The *Project Manager* does not intend duplicating the *Contractor's* planning and scheduling. However, portions or high level extractions of the Accepted Programme will be used in the *Employer's* internal master project programme for project control purposes.

The *Contractor* submits updated programmes in latest version of Microsoft Projects and a PDF file on a weekly basis, or at any other time as required by the *Contractor*, or as instructed by the *Project Manager*.

2.6.3 Planning and Scheduling Levels

All planning and scheduling are done based on the Critical Path Method (CPM). The *Contractor* uses activity codes to define interfaces. The *Contractor's* programme shows the actual critical path clearly.

The schedule layout takes into account the approved WBS, reflecting the manner the *works* are to be performed as per the *Contractor's* Method Statement and how activities are to be summarised, reported and monitored.

2.6.4 Planning Programmes

The *Contractor* develops a contract programme which will include a bar chart conforming to the project master programme dates included and sufficient detail to indicate the *Contractor's* intention for executing the *works*. This programme covers major items relating to design, procurement, manufacture, delivery, erection, start-up and commissioning. The critical path is clearly shown.

Key milestones, access dates, interface dates and commissioning key dates are clearly identified in the contract programme, including access dates and release of terminal points that involve the *Employer* or Others.

The programme makes provision for site related preparation such as site establishment, safety induction and medical clearance of the entire *Contractor's* staff that will be working on site.

2.6.4.1 Commissioning Programme

During the progress of the *works*, the *Contractor* develops a detailed commissioning programme with sufficient detail to enable the work to be adequately progressed and tracked to meet the commissioning key dates.

The commissioning programme is detailed to sub-system level and is fully integrated with the Construction Programme.

2.7 Contractor's management, supervision and key people

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The *Contractor* will provide the *Employer and the Project Manager* with an organogram showing the key people and the roles and responsibilities.

The organogram provided must show clear reporting lines between individuals, including individuals from Subcontractors or joint ventures.

The *Contractor* provides the following key personnel as a minimum:

- a) Dedicated *Project Manager*
- b) Dedicated Project Planner
- c) Dedicated Site Manager
- d) Dedicated Quality Manager
- e) Dedicated Site Safety Manager
- f) Dedicated Responsible Person as per plant safety regulation's permit to work system

2.8 Invoicing and payment

Within one week of receiving a payment certificate from the *Project Manager* in terms of core clause 51.1, the *Contractor* provides the *Employer* with a tax invoice showing the amount due for payment equal to that stated in the *Project Manager's* payment certificate.

The invoices from the *Contractor* contain the following information:

- a) The registered name of the *Contractor*
- b) The VAT registration number of the *Contractor*
- c) The address of the *Contractor*
- d) The *Employer's* contract number
- e) The VAT registration number of the *Employer*
- f) The amount paid to date
- g) The value of the invoice split into payments as per the *activity schedule* as indicated in the Price Lists.
- h) Any retention monies to be deducted from the invoice
- i) Any interest payable
- j) Escalation formula used where applicable
- k) Settlement discount
- l) Proof of ownership of materials supplied

The *Contractor* shall address the tax invoice to Eskom Holdings SOC Ltd and include on each invoice the following information:

All invoices in PDF format shall be emailed straight from your system to an Eskom email address (see email addresses below):

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- Email addresses for invoice submission:
 - All invoices: **invoiceseskomlocal@eskom.co.za**
 - The *Project Manager* shall be copied when submitting invoices.
- All queries and follow up on invoice payments should be made by contacting the FSS Contact Centre:
 - Tel: 011 800 5060 or e-mail: fss@eskom.co.za
- For Foreign invoices, the *Contractor* is required to physically deliver hard copies of original documents to the *Project Manager* even though the *Contractor* has e-mailed those invoices.
- The *Contractor* ensures compliance with the tax Requirement for submitting invoices electronically.
- If there is Cost Price Adjustment (CPA) on your invoice, the *Employer* recommends that the *Contractor* issue a separate invoice for CPA so that if there are any issues on the CPA the rest of the invoice can be paid while resolving CPA issues.
- The base invoice number needs to be mentioned on the CPA invoice.
- Electronic invoicing does not guarantee payment but ensures visibility of all invoices and ensures that no invoices get lost. If the goods receipt (GR) is not done the invoice will be parked and the system will automatically send an e-mail to the *Project Manager* to do the goods receipt. This is also tracked by the *Employer* through the parked invoice report.

The *Contractor* can request a parked invoice report from the Finance Shared Services (FSS) Contact Centre which can then be followed up and corrected. You are welcome to forward the details of invoices corrected to the FSS Contact Centre

2.9 Insurance provided by the *Employer*

First read ECC3 Core Clause 87.1 and then add anything necessary for the management of insurance related issues such as a cross reference to where procedures for making claims can be found. Also provide contact details for persons capable of being able to answer any insurance related queries the *Contractor* may have, as well as to whom the information required by Marine Insurance may be addressed.

2.10 Contract change management

There are no additional requirements to the compensation event clauses in section 6 of the core clauses.

2.11 Provision of bonds and guarantees

The form in which a bond or guarantee required by the *conditions of contract* (if any) is to be provided by the *Contractor* is given in Part 1 Agreements and Contract Data, document C1.3, Sureties.

The *Employer* may withhold payment of amounts due to the *Contractor* until the bond or guarantee required in terms of this contract has been received and accepted by the person notified to the *Contractor* by the *Project Manager* to receive and accept such bond or guarantee. Such withholding of payment due to the *Contractor* does not affect the *Employer's* right to termination stated in this contract.

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2.12 Records of Defined Cost, payments & assessments of compensation events to be kept by the *Contractor*

There are no additional requirements to the compensation event clauses in section 6 of the core clauses.

2.13 Training workshops and technology transfer

Training is not applicable to this project.

3 Engineering and the *Contractor's* design

3.1 *Employer's* design

Either

Describe what the *Employer* has designed for the *works* when the *Contractor* is mainly doing construction only. Could even state who has done or is doing the design for the *Employer* as this will give the *Contractor* an idea of the standard he may expect.

Or

Provide the *Employer's* operating philosophy / user requirement specification (URS) / performance specification to which the *Contractor* is to comply when he is required to design the *works*.

3.2 Parts of the *works* which the *Contractor* is to design

The *Contractor* is responsible for the construction of all temporary works required for the safe and successful execution of his work. This includes scaffolding deemed required for the works, to ensure safe access whilst working at heights

3.3 Procedure for submission and acceptance of *Contractor's* design

N/A

3.4 Other requirements of the *Contractor's* design

N.A

3.5 Use of *Contractor's* design

N/A

3.6 Design of Equipment

N/A

3.7 Equipment required to be included in the *works*

The *Contractor* provides all necessary equipment necessary for the successful execution of the *works*

3.8 As-built drawings, operating manuals and maintenance schedules

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- a) Language: All documentation, including reports, manuals, etc. is in the English language.
- b) Manuals:

Manuals are of a good quality and cover the following as a minimum:

- a) Technical descriptions of the equipment and component parts
- b) General arrangement drawings
- c) Installation instructions with drawings or pictures
- d) Operating and maintenance instructions for all components
- e) Detailed parts lists (accompanied by exploded view type drawings clearly detailing the part and uniquely identifying it)
- f) Spare part ordering instructions

Any special instructions pertaining to storage of spare parts or their shelf life is included in the maintenance manual. All drawings requested for component location, dismantling and re-assembly for maintenance are included in the maintenance manual. All special tools required for operating and maintenance of the equipment are presented in a form of a schedule in the operating and maintenance manual, respectively. The content of the training manual is based on the content of the technical, operating and maintenance manuals.

3.8.1 Drawing Requirements

The *Contractor* supplies reproducible drawing.

The *Contractor* develops the following minimum requirements for the drawings:

3.8.1.1 Drawing Numbering System

The *Employer* supplies the proposed drawing numbering system. The *Contractor* may assign his own drawing number as required to meet his document control system requirements.

3.8.1.2 As-Built Drawings

The *Contractor* maintains a master set of red-lined as-built drawings. The *Contractor* will provide drawing mark-ups as work is completed. The *Project Manager* and the *Contractor* will ensure that all appropriate information is transferred to the field record copy of drawings. *Project Manager* and the *Contractor* will check the as-built for completeness and accuracy.

4 Procurement

4.1 People

4.1.1 Minimum requirements of people employed on the Site

The *Contractor* ensures that his workforce is trained and competent to perform their respective duties.

The *Contractor's* inspection personnel familiarise themselves with the content of the work and the *Contractor* ensures consistency in interpretation and decision making.

Any new foremen/supervisors appointed by the *Contractor* after Contract Award or during provision of the *works* are fully conversant with respect to details of the methodology and communication process existing, prior to accessing the Site.

The *Contractor* ensures that the rigger labourers are conversant with operating chain blocks and handling of other related lifting equipment. This is to ensure personnel safety productivity and prevention of plant damage.

4.1.2 BBBEE and preferencing scheme

The *Employer* requires the *Contractor* to achieve a Broad Based Black Economic Empowerment Recognition Level (B-BBEE Recognition Level) of 4 (the "Required B-BBEE Recognition Level") within six months from date of Contract Award in terms of Eskom's Directive "Implementation of Eskom's Black Economic Empowerment Strategy" and Standard "Application of the Broad Based Black Economic Empowerment Codes of Good Practice within Eskom (32-1034)".

Eskom's policy is to maximise purchases from Black or Black Empowering Enterprises (BEE's) whether Black Woman-owned, small or Large Black or Black empowering suppliers. The purpose is to promote entrepreneurship in black communities and give black business access to the mainstream of business opportunity.

4.2 Subcontracting

4.2.1 Preferred subcontractors

ECC does not make use of nominated subcontracting, but the *Employer* may list which subcontractors or suppliers the *Contractor* is required to enter into subcontracts with. This is usually only required where Plant and Materials need to be obtained from a particular supplier or group of suppliers in order to comply with operational standards.

4.2.2 Subcontract documentation, and assessment of subcontract tenders

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Specify any constraints on how the *Contractor* is to prepare subcontract documentation, whether use of the NEC system is compulsory or not (compulsory is recommended) and how subcontract tenders are to be issued, received, assessed (using a joint report?) and awarded.

4.2.3 Limitations on subcontracting

N/A

4.2.4 Attendance on subcontractors

State requirements for attendance on Subcontractors, if any

4.3 Plant and Materials**4.3.1 Quality**

All Plant and Materials will be free from defects. It will be the responsibility of the *Contractor* to ascertain the condition of any used equipment or materials, transport to site, corrosion protection, as well as any spares compatibility issues that may present itself in the future.

Only components of high reliability will be utilised, with a proven operating history, to enable the Plant to achieve required reliability and availability. Plant and Material design, engineering and manufacture will accord with the best modern practice applicable to high-grade products of the type to be furnished, so as to ensure the efficiency and reliability of the *works* and the strength and suitability of the various parts for the *works*.

Plant and Materials withstands ambient conditions and the variations of temperature arising under working conditions without distortion, deterioration or undue strains in any part.

All parts are made accurately, and where practicable, to standard gauges so as to facilitate replacement and repairs. Like parts are interchangeable.

No repair of defective Plant and/or Materials will be permitted without the *Project Manager's* approval and any such repair, if approved, will be carried out to the satisfaction of the *Employer*.

The *Contractor* ensures that co-ordinated and formally documented management system is in place for the assurance of quality as specified in ISO 9001, Quality management Systems – Requirements.

The *Project Manager* is free to specify hold and witness points during the installation and on site testing stages of the project. The *Contractor* issues preliminary notification of such hold and witness points by

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fifteen working days advance notice to the *Project Manager*, and confirms such hold and witness points at least seven days prior to the activity.

Typical holding points are listed below:

- a) Delivery to Site
- b) Erection
- c) SAT
- d) All manuals and drawings (in the specified format)
- e) Commissioning

4.3.2 Plant & Materials provided “free issue” by the *Employer*

Material and spares to be supplied are included under Bill of Materials on the attached Scope of work.

4.3.3 *Contractor's* procurement of Plant and Materials

- The *Contractor* shall supply and use suitable and sufficient construction plant, tools and equipment and materials as may be required to carry out the *works* efficiently.
- The *Contractor* at all times provides protection for all plant and materials from damage or loss due to weather, fire, theft, unexplained disappearance or similar.
- The *Contractor* at all times protects from damage, due to the *Contractors* service to provide the *works*, all plant and materials and equipment and all items on the site that are the property of the *Employer* or Others.
- The *Contractor* provides, as part of *works* everything necessary for the receiving, inspection, safe keeping and storage, issuing, handling, management and administration of all plant and materials purchased by the *Contractor*.
- The *Contractor* will ensure to provide all guarantees and warranties of the plant & materials used in the *works* to the *Project Manager* construction is completed.

4.4 Tests and inspections before delivery

It will be the responsibility of the *Contractor* to perform the required tests during construction and to coordinate documentation with the *Supervisor*. Test documentation generated during the commissioning phase will be filed as the work is completed. All tests and inspections are to comply with the quality management plans and requirements for the project as per Sections **Error! Reference source not found.** and **Error! Reference source not found.**

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Once all *Contractor* construction activities are complete, the *Contractor* will hand over to the *Supervisor* for testing and checkout. Completeness of the construction will be verified through a joint walk down between the *Supervisor* and *Contractor*. Any minor outstanding work items found during the construction walk down will be recorded as Defects.

Once the *Supervisor* has accepted a part of the *works* from construction, the responsible *Project Manager* will direct all pre-operational tests required to ready the subsystem for initial operation.

4.5 Marking Plant and Materials outside the Working Areas

Core clauses 70.1 and 71.1 require the Works Information to state how the *Contractor* is to “mark” Plant and Materials which is outside the Working Areas if they are to be paid for before delivery to the Working Areas. Specify here how the *Contractor* is to mark the Plant and Materials.

4.6 *Contractor's* Equipment (including temporary works).

In contracts which require the *Contractor* to procure sophisticated or highly specialised Equipment that could have a major influence on the progress of the works, the *Employer* may wish to exercise constraints or include witness and hold points during manufacture, assembly or delivery of such Equipment. Include these constraints here taking care not to imply that the *Employer* or the *Project Manager* take on any liability as a result. See also section 3.6 above relating to the design phase of the *Contractor's* Equipment.

4.7 Cataloguing requirements by the *Contractor*

State whether cataloguing is applicable, if it is, reference the requirements for cataloguing that need to be satisfied by the *Contractor* (consult Procurement Instruction Number 1 of 2018 – Incorporating Cataloguing into the Procurement Environment, Unique Identifier 240-1289988974).

5 Construction

5.1 Temporary works, Site services & construction constraints

5.1.1 *Employer's* Site entry and security control, permits, and Site regulations

The *Contractor* takes note that Kendal Power Station is a National Key Point and therefore, site access requirements need to be adhered to. This is inclusive but necessarily to access approval, safety induction and medical examinations. The *Contractor* abides by all National Legislation, Eskom regulations and procedures and Kendal Site procedures and instructions

5.1.2 Restrictions to access on Site, roads, walkways and barricades

In addition to the above there may be other restrictions once on the Site, plus rules relating to roads, walkways and the provision of barricades

5.1.3 People restrictions on Site; hours of work, conduct and records

Restrictions and hours of work may apply at the Power Station. The *Contractor* keeps records of his people on Site, including those of his Subcontractors which the *Project Manager* or *Supervisor* have access to at any time. These records may be required when assessing compensation events.

5.1.4 Health and safety facilities on Site

The *Contractor* provides a First Aid service and SHE representative to his employees and Subcontractors. In the case where these prove to be inadequate, like in the event of a serious injury, the *Employer's* Medical Centre and facilities will be available. Outside the *Employer's* office hours, the *Employer's* First Aid Services are only available for serious injuries and life threatening situations. The *Employer* recovers the costs incurred, in the use of the above *Employer's* facilities, from the *Contractor*.

5.1.5 Environmental controls, fauna & flora, dealing with objects of historical interest

As per the Kendal Power Station Environmental Policy (1015682)

5.1.6 Title to materials from demolition and excavation

All Materials removed from the plant remains the *Employer's* property. The *Contractor* is however responsible for transporting the Material to the correct laydown area and/or correct disposal facility

5.1.7 Cooperating with and obtaining acceptance of Others

Other *Contractors* are working in the same area as the work of this contract. In this regard, the *Contractor* co-ordinates his work with the *Project Manager* to maintain harmonious working conditions on Site.

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During the progress of the *works* the *Contractor* provides access to Others who also execute work in the same area, on an as and when required basis.

The *Contractor* makes his own assessment of the problems and difficulties which may be encountered for providing access to and interfacing with Others (this includes access difficulties experienced during construction or commissioning phase).

5.1.8 Publicity and progress photographs

The taking of photographs at the Power Station including the Project *works* is restricted and subject to the approval by the *Project Manager*.

For the purpose of the Progress Reporting Requirements, the *Project Manager* may prohibit the taking of such photographs and/or require that all such photographs be taken by an official *Employer* photographer. In the latter event, the *Contractor* is required to make arrangements directly with the photographer for the taking of the photographs required by the *Contractor* for the purpose of the Progress Reporting Requirements.

5.1.9 Contractor's Equipment

- a) The *Contractor* provides all Equipment that is required to complete the *works*.
- b) The *Contractor* shall ensure that all his construction labour and equipment remains within the fenced off allocated construction area
- c) The *Contractor* shall ensure that any staff, labour, or equipment moving outside his allocated construction site does not obstruct the normal operation of the power station. Any additional access routes required must be coordinated with the *Project Manager*
- d) The *Contractor* must keep daily records of his equipment used on Site and the Working Areas (distinguishing between owned and hired Equipment) with access to such daily records available for inspection by the *Project Manager* at all reasonable times.
- e) All Equipment used by the *Contractor* in providing the *works* shall comply with the General Machinery Regulation 4 of the Occupational Health and Safety Act (Act 85 of 1993).

5.1.10 Equipment provided by the Employer

No Equipment will be supplied by the *Employer*. The *Contractor* supplies all equipment including cranes, **scaffolding** and other earthmoving equipment for the construction of the *works*.

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5.1.11 Site services and facilities**5.1.11.1 Site Yard**

It is required, for the proper co-ordination and execution of the *works* that the *Contractor* has an office on site for the duration of the contract.

A site will be made available to the *Contractor* for his yard within the Power Station security area. The proposed site will be shown to the *Contractor* during site meeting or clarification meeting. The yard is a raw site of approximately one hectare and will be used by the *Contractor* for the establishment of his offices, *workshop* and stores.

The *Contractor's* yard is subject to periodic inspection by the *Project Manager*/delegated person.

The location of the nearest sewer manhole, power distribution point, portable water connection storm water channel and road access point is indicated by the *Employer*. The *Contractor* is responsible for connection to the closest point of supply.

5.1.11.2 Supply of Electricity

Electricity will be made available for construction purposes free of charge from power points which will be indicated by the *Project Manager*. The *Contractor* is responsible for the provision of the reticulation system from the point of supply. Both 220 (AC) Volt and 380 (AC) Volt are available on request. All points of supply requested by the *Contractor* are provided in terms of quantity and location at the discretion of the *Project Manager*.

No guarantees of power supply quality are given and power supply breaks of some duration may occur without warning. Planned outages are also a possibility. The *Contractor* makes arrangements at his own expense to improve continuity and quality of power where necessary for any reason and no claim of any nature relating to power failures is considered.

No connection is made to the permanent installation at the Power Station without the prior acceptance of the *Project Manager*.

The power supply is managed in accordance with the latest revision of the *Employer* safety regulations i.e.:

- a) 32-846, Operating Regulations for High-Voltage Systems
- b) 36-681, Generation Plant Safety Regulations
- c) COC for the site installation is required prior to power being switched on.

5.1.11.3 Lighting

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The *Contractor* at his own expense provides temporary local lighting in accordance with the requirements of the OHS Act as amended. The *Project Manager* provides no local lighting. All construction lighting is the responsibility of the *Contractor*.

5.1.11.4 Water

Water will be made available on request free of charge from water points on site. The *Contractor* supplies at his own cost all the necessary connections, fittings, piping work, temporary plumbing and pumps necessary to lead water from the *Employer's* points of supply to the various points where it is required. The *Contractor* is responsible for maintaining this equipment and for removing it at Completion of the whole of the *works*.

The *Project Manager* does not guarantee continuity of supply and the *Contractor* makes his own provision for standby supplies to maintain continuity of work. Claims of any nature relating to discontinuity of water supply are not considered.

5.1.11.5 Roads

Main access roads are surfaced and complete and may be used by the *Contractor* with the necessary care. The *Employer* maintains the Site roads, described above, to a fair condition. Any costs incurred by the *Project Manager* from damage caused to underground services, structures, etc. as a result of the *Contractor* not using the prescribed routes is recovered from the *Contractor*.

The *Contractor* provides temporary access points from the prescribed routes and roads to the points where the *Contractor* is required to perform work, having first obtained permission in writing from the *Project Manager*.

5.1.11.6 Setting-Out Beacons

The *Project Manager* provides permanent beacons marking the main setting out grid lines for the *works*, and permanent level benchmarks.

The *Contractor* takes reasonable steps to preserve beacons and benchmarks provided by the *Project Manager* who is not to be held responsible if any existing beacons are removed as long as other beacons exist.

5.1.12 Facilities provided by the *Contractor***5.1.12.1 *Contractor's* Yard, Offices, Workshops and Stores**

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It is required, for the proper co-ordination and execution of the *works* that the *Contractor* has an office on Site for the duration of the contract.

The *Contractor* includes in his establishment rates for all further treatment of the yard areas that he considers necessary for his entire operation throughout his period of occupation and under all weather conditions. The *Contractor* also includes for all security fencing, security and access arrangements. The yard will be kept clean and tidy at all times, this will include all *workshops* and storage areas under the control of the *Contractor*. Maintenance of the yard is the *Contractors* responsibility and is for the *Project Managers* acceptance.

Outfall drainage of all surface run-off drains is constructed by the *Contractor* to the acceptance of the *Project Manager* to minimise erosion and to effect control of contaminated water. The *Contractor's* plan for the layout of his yard area are accepted by the *Project Manager* prior to occupying the yard and the *Contractor* does not occupy any site area other than that allocated to him. The *Contractor's* plan states fully what measures are taken regarding removal and storage of topsoil, stabilisation of eroded areas and further loss of topsoil.

The *Contractor* complies with the environmental policy given in the Site Regulations. The *Contractor* provides, erects and maintains for his own use adequate size office accommodation and stores together with such drainage, lighting, heating, and hot and cold water services as may be required. Provision is also made for adequate parking and a turning area adjacent to all the aforesaid structures. The *Supervisor* prior to commencement of any work on Site accepts all designs and layouts for these provisions.

The *Contractor* dismantles and clears the yard of all such temporary structures and associated foundations and infrastructure at the direction of the Supervisor on Completion of the whole of the *works*. No such dismantling and clearance work is carried out without prior acceptance from the Supervisor.

5.1.12.2 Telecommunications

Neither a network point nor a telephone is available on site. Should the *Contractor* require one, he is to make his own arrangements with relevant authorities. Arrangements may also be made to use the telephones of the station if they are available. Calls from these will be charged for at prevailing GPO rates.

Should the *Contractor* wish to use radio communication equipment on site, he will make his own arrangements with the relevant authorities. In this case, he is requested to liaise with the head of security at the station to ensure that there is no interference with existing channels or equipment.

5.1.12.3 Sanitary Facilities and Refuse

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The Contractor is to supply own sanitary facilities at his Contractor's yard. A refuge control system will be established by the *Contractor*. All waste and refuse will be collected and disposed of as directed by the *Project Manager*, at the Power Station refuse disposal site.

5.1.12.4 Equipment/Appliances

Any electrical Equipment, or appliances, used by the *Contractor* conforms to the applicable OHS Act safety standards and is maintained in a safe and proper working condition. The *Project Manager* has the right to stop the *Contractor's* use of any electrical Equipment, or appliance, which, in the opinion of *Project Manager*, does not conform to the foregoing. Inspection of equipment/appliance will be done as required by OSH Act.

The *Employer* may assist the *Contractor* with the off-loading of equipment, plant and material but the responsibility for off-loading remains with the *Contractor*.

Any special tools and equipment to be used on site for the execution of the *works* is the responsibility of the *Contractor*.

5.1.13 Existing premises, inspection of adjoining properties and checking work of Others

Details under this sub-paragraph are very contract specific and may be quite extensive in some cases. State requirements for the inspection with the owners of adjacent buildings and properties and representatives of local authorities before commencing with the *works* that have the potential to damage surrounding buildings and property. State whether *Contractor* is required to inspect the work of Others to which he is required to connect and if so by when to avoid delays to his work.

5.1.14 Survey control and setting out of the *works*

The *Project Manager* designates the working area boundary limits and assigns for the *Contractor's* use access roads, parking areas, storage areas, existing facilities areas and construction areas. The *Contractor* does not trespass in or on areas not designated for his work.

The *Contractor* is responsible for keeping *Contractor's* personnel out of areas not designated for *Contractor's* use, except, in the case of isolated work located within such areas for which the *Contractor* is authorised to do so.

The control points will be established by the *Contractor*. Land surveys will be done by the *Contractor* before and after clear and grub, before and after topsoil strip and after final excavation before construction commences.

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5.1.15 Excavations and associated water control

State any particular requirements for handling deep foundations and controlling water from excavations.

5.1.16 Underground services, other existing services, cable and pipe trenches and covers

Describe known services making reference to drawings containing known services and state requirements for locating, marking and recording such services.
State requirements for the treatment of existing services i.e. their termination, diversion or continued use, either temporarily or permanently, and set out the procedures relating thereto.
State requirements, as necessary, for the use and availability of detection equipment for the location of underground services.
State responsibility for damage to services, known and unknown, and requirements for working in close proximity to services etc.
State requirements and reinstatement procedures for the notification and repair of damage to services and any penalties applicable to the damage of services.

5.1.17 Control of noise, dust, water and waste

The *Contractor* maintains a high standard of cleanliness during the conduct of his activities at the Power Station. This includes areas allocated for storage of materials, site offices etc. to the satisfaction of the *Project Manager*. The *Contractor* keeps these areas clean and free from accumulation of waste materials and refuse regardless of the source.

The *Contractor* ensures during sweeping and dusting, that a minimum amount of dust is liberated into the atmosphere. Cleaning by vacuum cleaners is preferred and the use of compressed air for cleaning is prohibited.

The *Contractor* is responsible for the prompt removal of all waste to a designated disposal area. The disposal area will be on or in the vicinity of the Power Station and be indicated by the *Project Manager*.

For the purpose hereof, "waste" any matter, whether liquid or solid or any combination thereof, which is a by-product, emission, residue or remainder of any process or activity carried out in connection with the *works* and which is not reused on the Site in the ordinary course of carrying out the *works* within seven days of production.

The *Contractor* provides an adequate number of marked bins and containers at offices, in yards, at workshops and on the Site for the temporary storage of waste. These bins and containers is subject to approval by the *Project Manager*. The *Contractor* is required to segregate certain items of waste by type as designated by the *Project Manager*.

Bins and containers is emptied and waste removed to the designated area at least once a week. All the temporary and waste removed to the designated area at least once a week. All the temporary storage

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areas for bins and containers is kept tidy and not constitute a nuisance to others. The *Contractor* takes all required steps to avoid spillage of waste alongside the bins and containers during removal and disposal thereof.

All waste that cannot be contained in either a bin or container is placed on a temporary waste site which the *Project Manager* identifies. The waste is removed as soon as possible but in any event at least once a week. No burning of waste is allowed at the Power Station.

Hazardous waste is dealt with in accordance with the safety, health and/or environmental requirements of the *works* and the *Contractor* is solely responsible for the proper disposal thereof.

5.1.18 Sequences of construction or installation

The *Contractor* is responsible for the construction and installation of the equipment according to the *Contractor's* construction and installation plans.

5.1.19 Giving notice of work to be covered up

No work will be covered up without written permission from the *Project Manager*.

5.1.20 Hook ups to existing works

The adjacent plant and equipment may not be modified without written permission from the *Project Manager*. The *Contractor* complies with *Employer* Life Saving Rules and will report any non-conformance.

5.2 Completion, testing, commissioning and correction of Defects

5.2.1 Work to be done by the Completion Date

On or before the Completion Date the *Contractor* shall have done everything required to Provide the Works except for the work listed below which may be done after the Completion Date but in any case before the dates stated. The *Project Manager* cannot certify Completion until all the work except that listed below has been done and is also free of Defects which would have, in his opinion, prevented the *Employer* from using the *works* and Others from doing their work.

5.2.2 Use of the *works* before Completion has been certified

Not application to this project.

5.2.3 Materials facilities and samples for tests and inspections

Not application to this project.

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5.2.4 Commissioning

Commissioning is defined as bringing into service all items of the *works*, and meeting the functional requirements and performance criteria.

Commissioning shall include all testing and verification of the stated performance criteria within the *Work's Information*.

Commissioning for any sub-section of plant does not start until all the pre-requisite activities for that sub-section of plant have been completed and approved as completed by the *Employer*.

Commissioning does not start until the commissioning documents has been approved by the Employer.

The *Contractor* provides sufficient personnel for the satisfactory and timely commissioning of equipment that forms part of the *works*.

The *Contractor* provides all the test equipment for the commissioning of the *works*.

The *Contractor* certifies that equipment is in a suitable and safe condition for use before it is placed in service.

5.2.5 Start-up procedures required to put the *works* into operation

The *Contractor* gives the *Project Manager* written notice that the *works* are ready for energisation. Such notice will suit the requirements of the *Employer* but will not, unless otherwise agreed, be less than 48 hours or more than fourteen (14) calendar days.

No alterations or adjustments will be made to the *works* after functional checks are done without the *Project Manager's* written permission.

At this stage the following must have been achieved:

- a) Installation and pre-commissioning completed.
- b) Testing report and the associated certificates received.
- c) Signed erection and safety clearance certificates.
- d) All Quality Control Plan (QCP) documentation received.

5.2.6 Take over procedures

Refer to the *Employer's* Procedure, Commissioning and Completion of Power Station Projects, 240-85416341.

5.2.7 Access given by the *Employer* for correction of Defects

The *Project Manager* will arrange for the *Employer* to allow the *Contractor* access to and use of a part of the *works* which has been taken over if needed to correct a Defect.

5.2.8 Performance tests after Completion

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The *Contractor* shall carry out necessary tests after completion to demonstrate that the performance system is operating in accordance with the *Employer's* Works Information requirements.

6 Plant and Materials standards and workmanship

6.1.0 Mechanical, Electrical and Control & Instrumentation works

The *Contractor* ensures that the utmost care is taken when removing existing infrastructure / equipment to prevent any structural or other damage to the machine . Special care must be taken during the execution of the *works* to ensure that other services encountered are not interfered with. The *Contractor* takes all precautions necessary to prevent any nuisance from dust and noise whilst executing his work.

The *Contractor* makes provision for a barricading system to prevent unauthorised access and to ensure controlled access to the construction site.

Materials salvaged for reuse from the refurbishment are stored in an area on site demarcated by the *Employer*.

The *Contractor* repairs or replaces any damage caused to existing infrastructure / equipment during the execution of the refurbishment work.

All internal finishes are done in accordance with drawings provided .External finishes are in accordance with the requirement set out in this document.

Materials and workmanship are to be of the highest quality. Only new and undamaged materials are to be used. Materials to be permanently installed are not to be used for any temporary purposes on site.

Work are executed for the acceptance by the *Supervisor* and executed in accordance with the relevant manufacturer's specifications and instructions where applicable.

7 List of drawings and standards

7.1 Drawings

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

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Revision	Title

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7.2 Standards

The *Contractor* complies with the most recent edition of all standards and regulations listed below during the execution of the *works*:

No	Specifications and Standards
1	SANS 2001: Construction works
2	ISO 9001 Quality Management Systems requirements
3	Occupational Health and Safety Act No. 85 of 1993 (OHS Act)
4	Construction Regulations, 2014 (regulation in the act)
5	OHS Act No. 85
6	National Key Points Act, 1980 (Act No. 102 of 1980).

No	Procedures (Eskom Documents)
1	Eskom Corporate Identity Manual
2	240-1056580000 Eskom Quality Management Specification.
3	Kendal Access Control Procedure

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8 List of drawings

8.1 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.

Note: Some drawings may contain both Works Information and Site Information.

Drawing number	Revision	Title

C3.2 *CONTRACTOR'S* WORKS INFORMATION

This section of the Works Information will always be contract specific depending on the nature of the *works*. It is most likely to be required for design and construct contracts where the tendering contractor will have proposed specifications and schedules for items of Plant and Materials and workmanship, which once accepted by the *Employer* prior to award of contract now become obligations of the *Contractor* per core clause 20.1.

Typical sub headings could be

- a) *Contractor's* design
- b) Plant and Materials specifications and schedules
- c) Other

This section could also be compiled as a separate file.
