

	<b>Works Information</b>	<b>Technology</b>
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## 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

- (1) Duvha Power Station has been declared a National Key Point (NKP) and hence needs to conform to certain requirements and recommendations as set out by the National Key Point Act (NKPA), NKP office and Eskom Corporate Security.
- (2) The works is to upgrade the existing main access control system. The scope includes but not limited to: engineering, design, supply, delivery, installing, modification, testing, decommissioning and commissioning of the main gate access control system for Duvha Power Station.
- (3) The system must conform to the Integrated Access Control (IAC) Standards and Specification.
- (4) In addition, the scope includes the civil works for equipment supports, locking mechanism for turnstiles, boom gates and repairs of x-ray machines and scanners.
- (5) The *Contractor* provides all services, plant & material, equipment and resources to fulfil the requirements of this Works Information.
- (6) The *Contractor* includes all equipment, services and plant & material, which are not specifically mentioned within this Works Information document but are deemed necessary for the completeness of the design to meet the functional intent and requirements of the works.

## 1.2 Employer's objectives and purpose of the works

### 1.2.1 Background

Duvha Power Station is a coal-fired power station located to the east of Witbank (Emalahleni) in Mpumalanga. The Duvha PS main gate access control system cover the following high-level areas:

- i. Entry and exit of individuals to site.
- ii. Registration of employees, contractors and visitors.
- iii. Pre-registration of visitors.
- iv. Termination of employees, contractors and visitors.
- v. Suspension of access
- vi. Registration of permanent and temporary carry-on asset permits

### 1.2.2 Objectives

- (1) The objective is to address the non-functionality of the main gate access control system, for the station to be able to use specific restrictions to control access to site while enhancing the station's security.

### 1.2.3 Improvements

- (1) Compliance with the National Key Point legislation.

### 1.2.4 Life Expectancy

- (1) All new access control and associated equipment shall last for a productive use of at least 12 years after commissioning.

## 1.3 Interpretation and terminology

### 1.3.1 Definitions

EBI	A modular system with capabilities to serve as a security backbone.
Security Backbone	A concept of using a single technology platform as a basis for commissioning various security related systems.
Tema Power	The battery pack and power for the temaserver.
Tema Server	A proprietary controller that EBI system uses.
Wiegand	A technology used in card readers and sensors for access control applications.

### 1.3.2 Abbreviations

The following abbreviations are used in this Works Information:

Abbreviation	Meaning given to the abbreviation
C&I	Control and Instrumentation
CoC	Certificate of Compliance
EBI	Enterprise Building Integrator
ECSA	Engineering Council of South Africa
FAT	Factory Acceptance Test
IAC	Integrated Access Control
NKP	National Key Point
NKPA	National Key Point Act
PPE	Personal Protective Equipment
PSU	Power Supply Unit
PTW	Permit To Work
QA	Quality Assurance
QCP	Quality Control Procedure
SACPCMP	South African Council for Project and Construction Management Professionals
SAN	Storage Attached Network; where multiple servers share a single storage environment.
SIT	Site Integration Test
SW	Software

## 2 Management and start up.

### 2.1 Management meetings

- (1) 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:
Kick off meeting, implementation strategy	One off 60 minutes (Time to be announced by Project Manager)	Project Managers office	<i>Project Manager, System Engineer and Contractor</i>
Risk register and compensation events	As and when required	Project Managers office	<i>Project Manager, System Engineer and Contractor</i>
Overall contract progress and feedback	Weekly on Monday at 08:30	Project Managers office	<i>Project Manager. Contractors' Manager</i>
Commissioning	Once off	Project Managers office & Site	<i>Project Manager. Contractors' Manager &amp; Supervisor</i>

- (2) 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*.
- (3) Records of these meetings shall be submitted to the *Project Manager* by the person convening the meeting within five days of the meeting.
- (4) All meetings shall be recorded using minutes or a register prepared and circulated by the person who convened the meeting.
- (5) Such minutes or register as in point (3) 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

- (1) All documents supplied by the *Contractor* shall be subject to Eskom's approval.
- (2) The language of all documentation shall be in English.

#### 2.2.2 Document Submission

- (1) All project documents must be submitted to the delegated Eskom Representative with transmittal note according to Project / Plant Specific Technical Documents and Records Management Work Instruction (240-76992014).
- (2) The Contractor is required to submit documents as electronic and hard copies and both copies must be delivered to the Eskom Representative with a transmittal note.



## 2.3 Health and safety risk management

- (1) The *Contractor's* personnel is to undergo Safety Induction Training at Duvha prior to commencement of this contract and all the relevant Documentation is to be approved by Safety Officials and the Project Manager before any activities can be started on site.
- (2) The *Contractor* complies with the requirements of the Duvha Power Station Safety, Health & Environmental Specifications SAS 0012: Duvha Power Station *Contractors* safety manual
- (3) The documents are completed by the *Contractor's* and submitted to the *Employer* before taking possession of the works.
- (4) These documents are valid for the duration of the works.
- (5) The *Contractor* and all his personnel attend a Health and Safety Induction Course prior to starting with the works.
- (6) The induction course is presented by the Safety Risk Department at Duvha Power Station.
- (7) The *Contractor* makes arrangements with Safety Risk Management at telephone number 013-690-0143.
- (8) The *Contractor* submits all the documents as indicated in the Safety, Health & Environmental Specifications relevant to the work to Safety Risk Management before the induction course.
- (9) The *Contractor* completes all appointments required and ensures that the appointee and appointees fully understand their responsibilities and are competent and trained to execute their duties.
- (10) The appointees/appointee ensures that all duties are carried out and records are kept by the Contractor for review/audit by the Employer or Inspector of Machinery.
- (11) Duvha Safety Risk Management has the right and authority to visit and inspect the *Contractor's* workplace or Site establishment.
- (12) The *Contractor* supplies and ensures that his employees wear the necessary PPE according to the risk assessments performed on the specific tasks to be carried out.
- (13) The *Contractor* ensures that everyone entering Duvha Power Station under his supervision are medically, physically and psychologically fit to enter Duvha Power Station.
- (14) The medical examination, at the *Contractors* cost, is carried out by a Registered Professional Occupational Health Practitioner and the examination shall include the following tests:
  - i. Eye Test, Blood Pressure,
  - ii. Heart Function,
  - iii. Hearing Test and
  - iv. Lung Function.
- (15) A thorough examination is done and previous physical injuries, as well as occupational diseases/complications are covered.
- (16) If at any point in time during the execution of the works, the *Contractor* has a radiation-related incident/exposure, the onus is on the *Contractor* to immediately notify the *Employer*, the Medical Station, the Risk Manager and the Safety Risk Management Department.
- (17) The onus thereafter is for the *Contractor* to immediately arrange, at his/her cost, for blood samples to be taken by a Registered Laboratory and for this sample to be sent to the Excellerator Laboratory in Cape Town for full radiation exposure tests. This test results are then to be discussed with the Duvha Occupational Health Practitioners, who will then advise the Power Station Management on the risk, if any, of the incident/exposure.
- (18) The *Contractor* takes full responsibility and accountability for all other people/staff/personnel/labour that he/she employs or utilises, whether in full-time/part-time/contract basis, in executing the works or other work whilst on the *Employers* premises.
- (19) The *Contractor* ensures that Safety Harnesses are used for all work carried out in elevated positions, as defined in the Occupational Health and Safety Act, No 85 of 1993 or any other Code of Practice or standard or the Construction Regulations.
- (20) All safety equipment or Machinery used complies with the SANS Codes of Quality and Practice or any Code as stipulated in the Occupational Health and Safety Act, No 85 of 1993, and any amendments thereto.
- (21) The *Contractor* at all times consider himself as "*Employer*" as defined in the Occupational Health and Safety Act, No 85 of 1993 and do not consider himself as under supervision or management of the *Employer* with regard to Health and Safety Requirements but only from a Commercial Contractual Condition of Contract. Under no circumstances does the *Contractor* consider himself a sub-ordinate or being given supervision.
- (22) The *Contractor* provides and maintains his own facilities as required in the Occupational Health and Safety Act, No 85 of 1993 or any other Code of Practice or standard or the Construction Regulations, if not agreed contractually or arranged by the *Employer*.

- (23) The *Contractor* has Safety Systems in place at his premises for the total contract period and these shall include the following:
- (24) Safety Management Structure and Compliance to these
- (25) Statutory Appointments
- (26) Records and documentation of all Risk and Hazard Analyses.
- (27) Planned Job Observations Records and Documents.
- (28) Employment history and records of all personnel, part-time or full-time or contract labour.
- (29) Medical History of all personnel, part-time or full-time or contract labour
- (30) Training and Competency Records with regard to Safety, Health and Environment.
- (31) Training and Competency Records with regard to the skills he uses to carry out the works or any other works in the *Employers* premises.
- (32) Compensation Commissioner records and proof of registration.
- (33) Records and documentation with regard to any sub-*Contractor* or labour-only contracts he places or uses to carry out the works or any other works in *Employers* premises.
- (34) Personal Protective Equipment and Safety Equipment Inspection, training and competency records and documentation.
- (35) Employment contracts for all sub-*Contractor* or labour-only contracts.
- (36) Compliance to a Safety System, such as NOSA or any other system that is similar in nature.
- (37) Records of all incidents or accidents, and vehicle accidents, incurred during execution of this works or any other works in the *Employers* premises.
- (38) Records of all man-hours, including sub-*Contractors* or labour-only contracts, the *Contractor* spends on the *Employers* premises.
- (39) Written Safe Work Procedures for all hazardous tasks the *Contractor* executes on the *Employers* premises.
- (40) A Fall Protection Plan for all elevated work the *Contractor* does on the *Employers* premises.
- (41) Environmental Plan and awareness training.
- (42) Induction training records of his staff by himself/herself.
- (43) Minimum wage compliance for the different skills and to which Bargaining Council compliance is made to and proof of membership, if any.
- (44) Risk Assessment of this type of works
- (45) Proof of authorisation/accreditation from Department of Labour and or other Statutory Body for this type of works, if applicable
- (46) Emergency Evacuation and Rescue Plan for the hazardous tasks related to the works.

## 2.4 Environmental constraints and management

- (2) The *Contractor* shall comply with the station work instruction for waste management procedure: 03A-ENVP0005.
- (3) The *Contractor* is responsible to keep the work area clean of any rubble.
- (4) All waste introduced and/or produced on the *Employer's* premises by the *Contractor* for this contract, is handled in accordance with the minimum requirements for the Handling and Disposal of Hazardous Waste in terms of Government Legislation as proclaimed by the Department of Water Affairs and Forestry Act 1994 Ref: ISBN0621 - 16296-5.
- (5) Refuse Disposal
- The *Employer* will provide special colour coded bins for refuse disposal.
  - The *Employer* will empty these bins.
  - The *Contractor* ensures that all workers under his control strictly adhere to the correct use of refuse bins:
    - Maroon bins: - Scrap metal only
    - White bins: - Lagging and general household rubbish
    - Yellow bins: - Ash, dust, coal dust and sand
- (6) For the full duration of the Works, the *Contractor* is responsible to keep the work area clean of any rubble, and to place all refuse into the bins provided.
- (7) Removal of scrap and waste, including concrete/ash/refractory material/guniting material, to a location within the Duvha Power Station security gates and/or the ash dams must be included in the Price Schedule or Bill of Quantities. This must be inclusive of labour and equipment i.e. forklifts, spades, shovels, transport, etc.

## 2.5 Quality assurance requirements

- (1) All work is carried out under the supervision of an experienced supervisor.
- (2) The *Contractor* complies with the *Employer's* Quality Requirements as specified in Eskom Generation Standard GGS 0462.
- (3) Annexure B to this Standard indicates the specific application thereof.
- (4) All quality control documentation (QCP) is submitted to the *Project Manager* within 7 days of Contract date.

## 2.6 Programming constraints

- (1) The *Contractor* submits a programme within 1 week of the Contract Date.
- (2) The program shall be in Microsoft Excel or Projects format (preferably 2003 version or lower)
- (3) The programme indicates
  - i. The hour duration of each activity,
  - ii. The working calendar (number of work hours per day, days per week),
  - iii. The exact quantity of people per day
  - iv. All phases and interfaces
- (4) Refer to section 5 for more supporting detail.

## 2.7 Contractor's management, supervision and key people

- (1) The *Contractor* shall provide a site Supervisor or *Project Manager* to supervise, monitor, control and coordinate all activities during the execution of the project.

## 2.8 Invoicing and payment

- (1) Within one week of receiving a payment certificate from the *Service 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 *Service Manager's* payment certificate.
- (2) The *Contractor* shall address the tax invoice to *Project Manager* and include on each invoice the following information:
  - i. Name and address of the Contractor and the *Service Manager*
  - ii. The contract number and title
  - iii. Contractor's VAT registration number
  - iv. The Employer's VAT registration number 4740101508
  - v. Description of service provided for each item invoiced based on the Price List
  - vi. Total amount invoiced excluding VAT, the VAT and the invoiced amount including VAT

## 2.9 Insurance provided by the Employer

- (1) Refer to the Contract Data Section 8 – Risks and Insurance.

## 2.10 Contract change management

- (1) The *Contractor* or the *Project Manager* notifies each other of any event which may lead to a change in agreed terms as per NEC 3.

## 2.11 Provision of bonds and guarantees

- (1) 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.
- (2) 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.

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

- (1) The *Contractor* may keep records of payment and assessments of compensation events if he deems it necessary.

## **2.13 Training workshops and technology transfer**

- (1) The *Contractor* provides training sessions and training booklets for the following functionaries that need to be trained on how to operate and maintain the plant:
  - i. System Engineers
  - ii. C & I and Electrical technicians responsible for maintenance
  - iii. Security personnel responsible for operating the system
- (2) Refer to section 5.2.6 for further detail.

## **2.14 Project Execution Methodology**

### **2.14.1 Supply, Installation, Configuration and Testing**

#### **2.14.1.1 General**

- (1) This stage consists of the supply, installation, configuration and testing of all equipment forming part of the *works*.
- (2) Erection and installation of the relevant equipment does not begin until the engineering documentation for the section of the plant concerned has been accepted by the *Project Manager*.
- (3) Quality inspections and tests are carried out by the *Contractor* after erection to prove the compliance of the installation with the Works Information and the engineering design freeze documentation.
- (4) Erection and installation is only considered complete once the quality inspections and tests for the installation concerned have been accepted by the *Project Manager*.
- (5) The *Employer* reserves the right to appoint representatives to inspect all parts during erection and to be present at any of the quality inspections and tests.
- (6) The *Project Manager* is free to specify hold and witness points during the installation and testing stages of the project.
- (7) The *Contractor* gives fifteen working days advance notice to the *Project Manager* of holds and witness points.
- (8) The *Contractor* confirms hold and witness points at least seven working days prior to the test activity.
- (9) The *Contractor* provides all test equipment for any inspections and tests.

#### **2.14.1.2 Factory Acceptance Test (FAT)**

- (1) All equipment is comprehensively factory tested prior to delivery to site.
- (2) The *Contractor* shall prepare a detailed test procedure in preparation for the FAT.
- (3) The proposed factory acceptance test procedure, together with test dates, is prepared by the *Contractor* and submitted to the *Project Manager* for review and acceptance during the detailed engineering stage.
- (4) The *Contractor* shall conduct a pre-factory acceptance test at the *Contractor's* manufacturing facilities in preparation for the FAT.
- (5) During FAT, the *Contractor* shall demonstrate that the access control system meets the requirements of this Works Information and the detailed engineering design freeze documentation.
- (6) The FAT shall be done at the *Contractor's* manufacturing facilities and all activities shall be coordinated by the *Contractor*.
- (7) The *Contractor*, the *Project Manager* and the *Employer's* representative (s) witness the FAT.
- (8) The *Contractor* shall ensure that all access control system hardware and software is available and operational in time for the individual tests.

#### 2.14.1.2.1 FAT Procedure

- (1) As a minimum, the proposed FAT procedure shall identify the following:
  - i. Major test activities
  - ii. Comprehensive list and description of the individual tests to be performed
  - iii. How the tests are to be prepared and conducted
  - iv. Test dates and durations
  - v. Checklists – how the test results will be documented
  - vi. Acceptance Criteria
  - vii. How the identified discrepancies will be processed.
  - viii. Retesting requirements.

#### 2.14.1.2.2 FAT Report & FAT Completion

- (1) Final FAT Report is prepared by the Contractor that includes the following as a minimum:
  - i. Test procedures used during FAT
  - ii. Detailed Test results
  - iii. Discrepancies identified during the tests
  - iv. Resolution of the discrepancies
  - v. Retests conducted and results thereof
  - vi. FAT certificate
- (2) The *Contractor* submits the Final FAT Report to the *Project Manager* for acceptance.
- (3) FAT Completion is achieved upon acceptance of the Final FAT Report by the *Project Manager*.

#### 2.14.1.2.3 Site Integration Test (SIT)

- (1) SIT is done to ensure the correct performance of the control systems and equipment and ensure compliance with the Works Information before commissioning of plant commences.
- (2) The proposed site integration test procedure, together with test dates, is prepared by the *Contractor* and submitted to the *Project Manager* for review and acceptance during the detailed engineering stage.
- (3) The *Contractor* provides all the test equipment for testing the individual systems. Records are to be kept of each SIT in a logbook defining the test to be undertaken, time and date of the commencement of the test, duration of the test, criteria that need to be met and results entered of the tests. These records are submitted to the *Project Manager*.
- (4) In the event of an error of any test (hardware/software) the fault is logged and analysed. The *Project Manager* determines if the item is of a minor nature, the *Contractor* is allowed to rectify the fault and the item re-tested for the full duration. Major faults such as power supply failures, system stall, bus failure, etc. terminates the SIT. The *Contractor* rectifies the fault and re-starts the SIT after proving the rectified piece of equipment by carrying out the appropriate diagnostic tests. When the test is successful, the system is classified 'ready for use'. The access control system is then deemed ready for commissioning.

#### 2.14.1.2.4 Commissioning

- (1) Commissioning is defined as bringing into service all items of the works and meeting the functional requirements and performance criteria of the Works Information.
- (2) *Contractor* shall submit the detailed commissioning test procedures to the *Project Manager* for approval.
- (3) Commissioning includes all testing and verification of the stated performance criteria with:
  - i. Works Information.
  - ii. The engineering design freeze documentation
- (4) The *Contractor* certifies that equipment is in a suitable and safe condition for use before it is placed in service.

### 3 Engineering and the *Contractor's* design

#### 3.1 *Employer's* design

- (1) The *Employer's* design requirements are specified in this Works Information.

##### 3.1.1 Main Gate Access Control Equipment

- (1) The *Employer* provides the following access control equipment:
  - i. 220VAC power points
  - ii. Existing boom gates and turnstiles
  - iii. Existing X-ray scanners and metal detectors

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

- (1) The *Contractor* designs, install, supply, test, decommissioning, assess & repairs specified equipment stipulated on the scope of work and commission the main gate access control system of Duvha Power Station. The *Contractor* to comply with the Integrated Access Control (IAC) Standards and Specification.
- (2) All design activities are executed by the *Contractor* in active co-operation with the *Project Manager*.
- (3) The *Contractor* is responsible for carrying out all engineering activities and supplying all resources required to provide the design. This includes clarification and co-ordination with plant engineers, other equipment manufacturers/suppliers and *Project Manager*.
- (4) During the design phase, the *Contractor* identifies any discrepancies that would lead to shortcomings in the design and makes the *Employer* aware of such discrepancies and provides recommendations, where applicable. The *Contractor* takes action on such discrepancies. Any discrepancies found in the design after design freeze is the responsibility of the *Contractor*.
- (5) As a minimum, the engineering activities consists of the following:
  - i. Plant investigation work – during which the *Contractor* conducts his plant investigation work.
  - ii. Scope definition – during which detailed scope definition and clarifications are performed.
  - iii. High Level Engineering Philosophies & Concepts – during which the rules, philosophies and concepts followed in the engineering and design activities are clearly defined by the *Contractor*, clarified with the *Project Manager* and accepted by the *Project Manager*.
  - iv. Detail Engineering – during which the *Contractor* conducts his detail engineering work.
- (6) The scope of the plant investigation work includes, but is not limited to:
  - i. Verification of location and suitability of hardware installation points
  - ii. Verification of location and suitability of cable routing paths
  - iii. Collection of all system data and information to enable the *Contractor's* design to be completed.

##### 3.2.1 Scope of Work: Main Entrance (Security Gate)

- (1) Employee/Visitor entrance/exit
  - i. Upgrade the existing 12x Sagem MA 500 biometric sensors
  - ii. Replace the existing wiegand interface modules
  - iii. Replace existing one drop box and add additional one for visitor's cards
  - iv. Install a new biometric sensor on the main gate security control room entrance door
- (2) Contractor's entrance/exit
  - i. Upgrade the 4 x existing Sagem MA 500 biometric readers
  - ii. Replace existing wiegand interface modules
- (3) Vehicle entrance/exit
  - i. Upgrade the two existing Sagem OMA 520 on the security main gate entrance/exit (second gate)
  - ii. Install two new biometric sensors for the security main gate entrance/exit

- iii. Install a reader pole at the main entrance that is collapsible/removable to accommodate big trucks entrance/exit
  - iv. Replace the existing wiegand interface modules
  - v. Install 1 x drop box for visitor cards
- (4) Registration/Server Room
- i. Upgrade the existing access control software
  - ii. SW licence and backup required by the *Employer*
  - iii. Upgrade the existing Tema power and servers
  - iv. Replace the existing access control network switches
  - v. Upgrade existing 2X EBI Operator Stations and as a minimum to run with windows 10
  - vi. Provide corporate cards that will be required for new registrations
- (5) X- ray scanners and metal detectors
- i. The existing X-ray scanners and metal detectors to be assessed and repaired when required in order to be fully functional

### **3.2.2 Biometric Readers and Sensors Requirements**

- (1) The *Contractor* to determine the best solution to upgrade/replace the currently installed biometric card readers and sensors based on the IAC Specifications document and standard.

### **3.2.3 Access Cards Requirements**

- (1) Access cards shall be Eskom's approved corporate identity template and be made of a durable material that can display the following:
- i. ID photocopy
  - ii. Employee number
  - iii. Company logo

### **3.2.4 Access Control Flow Requirements**

- (1) The *Contractor* needs to align to the IAC access control processes and provide the best solution for flow that takes into consideration the amount of people, readers, breathalysers and exit points.
- (2) The design will be reviewed by the *Employer* and corrections and/or suggestions made for changes where applicable.

### **3.2.5 Software Requirements**

- (1) The software must have the following capabilities as a minimum but not limited to:
- i. Blacklisting per user based on various criteria such as medical, induction, criminal record, etc.
  - ii. Anti-pass back
  - iii. User-defined reports

### **3.2.6 Network Requirements**

- (1) Refer to the IAC Specifications document.

### 3.2.7 Civil Scope of work

The *Contractor* is responsible to execute the scope of work prescribed herein;

- (1) Earthworks
  - i. No excavations are permitted without an excavation permit obtained from the *Project Manager*. The *Contractor* complies with the requirements of the Construction Regulations. Excavations are performed such that it imposes a minimum restriction on access to Site for Others. Excavation permits are only issued if the area has been scanned by the *Contractor*, to ensure that there are no underground services in the area to be excavated. Refer to 32-727, Eskom Safety, Health, Environment and Quality (SHEQ) Policy.
  - ii. The *Contractor* conducts a ground control survey of underground utilities, services, trenches and tunnels that might affect the construction of structures. The *Contractor* submits the perimeters of the survey to the *Project Manager* for acceptance.
  - iii. The *Contractor* removes the pavement on the road in the sections that requires installation of C&I equipment. Pavement to be restored in areas where construction took place.
  - iv. The *Contractor* provides structural supports for C&I equipment for both vehicle main access gate and second gate.
- (2) Boom gates entrance/exit
  - i. Replace the existing spike boom gates and spikes at the main entrance gate
  - ii. Install sectional boom gates at the main entrance to clear the roof
- (3) Concrete Works
  - i. The Contractor to assess and modify the current concrete plinth for the boom gates on both main and second gate
  - ii. New boom gate shall be mounted and supported on concrete plinths
  - iii. Cementitious binders are common cements that comply with SANS 50197-1
  - iv. The minimum concrete grade for structural concrete is 35/19MPa
  - v. Smooth finish is required for all concrete formworks
  - vi. All concrete edges to be chamfered with 25x25
- (4) Turnstiles
  - i. The Contractor to remove the current locking mechanism and replace with the new ones on the existing turnstiles
  - ii. The Contractor to assess and replace all missing hold down and connection bolts

### 3.2.8 Documentation Requirements

- (1) General Requirements
  - i. 'As Built' documentation is supplied by the *Contractor* to the *Project Manager* upon completions of works.
  - ii. Acceptance of the 'As Built' documentation is a pre-requisite for the completion of the works.
  - iii. The documents are reviewed by the *Project Manager* for correctness and conformance to the accepted design.
- (2) Equipment Schedule
  - i. The equipment schedule contains a list of all access control equipment.
  - ii. As a minimum, the following characteristics of each equipment are shown:
  - iii. Equipment AKZ
  - iv. Equipment description
  - v. Equipment characteristics (IP address, etc)
  - vi. Equipment type
  - vii. Location
  - viii. Reference to relevant panel drawing/room layout drawing



- (3) Cable Schedules
  - i. The cable schedule lists all equipment cables and power cables which form part of the works.
  - ii. The cable schedules provided is inclusive of origin, location details, revision, target, type, size, and termination details.
- (4) Termination Schedules
  - i. The termination schedules list all equipment termination points for all cabinets, panels, etc.
- (5) A Functional Specification

The functional specification fulfils the following objectives:

  - i. Define how the contractual requirements related to the system are met.
  - ii. Clearly define the specific system configuration provided.
  - iii. Clearly describe the design principles followed and design choices made.
  - iv. Clearly define the system limitations.
  - v. Provide basic technical information on the system's software and hardware components.

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

- (1) The *Contractor* submits any drawing or documentation that will fulfil the requirements of this works.

### **3.4 Other requirements of the *Contractor's* design**

- (1) The following standards and specification documents must be adhered to when performing the works:
  - i. IAC System Specifications and standard.

## 4 Procurement

- (1) The *Contractor* shall comply with Basic Condition of Employment Act and Labour Relation Act for the use of labour in executing the works to give effect to the right to fair labour practices referred to in section 23(1) of the Constitution by establishing and making provision for the regulation of basic conditions of employment; and thereby to comply with the obligations of the Republic as a member state of the International Labour Organisation; and to provide for matters connected therewith.

### 4.1 People

#### 4.1.1 Minimum requirements of people employed on the Site

- (1) The *Contractor* supplies and ensures that his employees wear the correct PPE according to the risk assessments performed on the specific tasks to be carried out.
- (2) The *Contractor* ensures that everyone entering Duvha Power Station under his supervision is medically, physically and psychologically fit to enter Duvha Power Station.
- (3) The medical examination, at the *Contractors* cost, is carried out by a Registered Professional Occupational Health Practitioner and the examination shall include the following tests:
  - i. Eye Test, Blood Pressure,
  - ii. Heart Function,
  - iii. Hearing Test and
  - iv. Lung function.

#### 4.1.2 BBBEE and preferencing scheme

- (1) The *Employer* formal Black Economic Empowerment (BEE) programme was first initiated in 1995 with the publication of its policy regarding procurement from Black Suppliers (ESKADAAT6). ESKADAAT6 has set the standard for BEE programmes within Eskom and across South Africa as a whole.
- (2) 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.
- (3) Eskom will concentrate its development efforts on black supplier's ninth manufacturing, construction and mining /extraction sector of the economy and provide

#### 4.1.3 Accelerated Shared Growth Initiative – South Africa (ASGI-SA)

- (1) The *Contractor* complies with and fulfils the *Contractor's* obligations in respect of the Accelerated and Shared Growth Initiative - South Africa in accordance with and as provided for in the *Contractor's* ASGI-SA Compliance Schedule IT 1.2 ASGI-SA requirements.
- (2) Eskom is committed to the Accelerated and Shared Growth Initiative for South Africa (Asgisa) and its prime objectives of higher growth, more jobs and less poverty.
- (3) Eskom's most significant contribution is through its core business of supplying competitively priced electricity.
- (4) The capacity expansion programme and Eskom's focus on operating efficiency are central to our effort to provide the power that will drive accelerated growth.
- (5) Asgisa is not only about economic growth, but ensuring the growth is shared. To contribute to this objective, Eskom will leverage its build programme and associated activities for optimum developmental impact.
- (6) The *Contractor* shall keep accurate records and provide the *Project Manager* with reports on the *Contractor's* actual delivery against the above stated ASGI-SA criteria.
- (7) The *Contractor's* failure to comply with his ASGI-SA obligations constitutes substantial failure on the part of the *Contractor* to comply with his obligations under this contract.

## 4.2 Subcontracting

### 4.2.1 Preferred subContractors

- (1) The *Contractor* shall make use of any supplier for sourcing of equipment, tools and material whatever that the *Contractor* will use to execute works shall comply with the SABS.

### 4.2.2 Subcontract documentation, and assessment of subcontract tenders

- (1) The *Contractor* shall submit the proposed contract data for each subcontracting for acceptance to the *Project Manager*
- (2) The *Contractor* shall prepare subcontracting document as according to NEC contract.
- (3) The *Contractor* must inform the *Employer's* representative when intending to subcontract some of the works from the contract scope.
- (4) The *Contractor* shall not subcontract a *Contractor* that has lower or higher-level accreditation than his/her according to CIDB.

### 4.2.3 Limitations on subcontracting

- (1) The *Contractor* shall not subcontract more than 25% of the contract scope

### 4.2.4 Attendance on subcontractors

- (1) The *Contractor* shall in writing inform the *Employer's* representative about the subcontractor intentions for site visit.

## 4.3 Plant and Materials

### 4.3.1 Quality

- (1) All work is carried out under the supervision of an experienced supervisor.
- (2) The *Contractor* complies with the *Employer's* Quality Requirements as specified in Eskom Generation Standard GGS 0462. The *Contractor*, when using materials that are required to comply with a standard specification
- (3) Shall, if so ordered, furnish the Engineer with certificates showing that the materials do so comply.
- (4) Where so specified, materials shall bear the official mark of the appropriate standard.
- (5) Samples ordered or specified shall be delivered to the Engineer's office on the Site.
- (6) Unless otherwise specified, all proprietary materials shall be used and placed in strict accordance with the published instructions of the relevant manufacturer.
- (7) All quality control documentation is submitted to the *Project Manager* within 7 days of Contract date.

### 4.3.2 Plant & Materials provided "free issue" by the Employer

- (1) The *Employer* will provide power supply, water and land for the storage of equipment and material.
- (2) The *Contractor* shall supplies all the necessary equipment and material required to execute the *Works*.
- (3) Should the *Contractor* require using of any of the *Employer's* Equipment, including compressed air, electricity, water supply and crane age, it must be specified in the *Works Information* supplied by the *Contractor*.
- (4) The *Employer* does not guarantee continuity of supply of any of these items required in point 3.

### 4.3.3 Contractor's procurement of Plant and Materials

- (1) The *Contractor* shall make use of SABS approved plant and material.
- (2) Test certificates shall be given to the *Project Manager* of the project.

### 4.3.4 Spares and Consumables

- (1) The *Contractor* shall not provide any spares and consumables as they are not required for this project.
- (2) The *Contractor* must supply a recommendation for spares holding based on the project requirements and the *Employer's* goals.

#### 4.4 Tests and inspections before delivery

- (1) The *Contractor* does not bring to the working area those plant and material which the works information states are to be tested or inspected before delivery until the supervisor has notified the *Contractor* that they have passed the test.

#### 4.5 Marking Plant and Materials outside the Working Areas

- (1) All plant and materials outside working areas are to be marked "for *Contractor*" until such time that they are tested and installed at the site/plant.

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

- (1) The *Contractor* shall supply lifting machine to hold the pipes during dismantling or assembly of pipe section and valves.

### 5 Construction

#### 5.1 Temporary works, Site services & construction constraints

- (1) The pipe sections and valves are approximately  $\pm 1\text{m}$  above/below ground level, provision for supporting or holding the pipe and valves to be made during dismantling/assembling.

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

- (1) The *Contractor* applies for access permits for all works exceeding four (4) weeks via the *Project Manager*, who will co-ordinate this.
- (2) The *Contractor* applies for *Contractor's* Permits for all his employees and/or sub*Contractors* at the Security gate, at least 24 hours prior to entry of the Duvha Power Station Security Area. .
- (3) The *Contractor* completes the specific form in the Duvha Power Station *Contractors* Safety Manual, listing all of the personnel that he intends using on site.
- (4) The completed list, identified with the *Contractor's* name, contains the following information:
  - i. Employee Name
  - ii. Employee ID Number
  - iii. Eskom Safety Co-ordinator signature
  - iv. Eskom Project Manager signature
  - v. Validity Date
- (5) No permits are issued to personnel who have not attended safety induction.
- (6) The *Contractor* photocopies the first page of the ID book of every one of his employees; reduced to the size 65%.
- (7) This completed list, together with the photocopies of the ID books is delivered to Protective Services for the preparation of the *Contractor's* Permits.
- (8) The *Contractor* allows at least 24 hours for the preparation of the security permits, before he collects the permits from the Protective Services offices.
- (9) The *Contractor's* personnel are required to be in possession of a *Contractor's* Permit at all times inside Duvha Power Station.
- (10) All *Contractors'* permits are submitted back to Protective Services when the workers leave the site after completion of the works. Failure to return the permits will result in a R25,00 penalty for each non returned permit.
- (11) The *Contractor* compiles detailed Tool Lists (obtainable from Protective Services) of all tools and equipment to be taken on site before arriving at the power station.
- (12) Authorised copies of these lists are retained to be used again when the tools and equipment is removed from site.
- (13) The *Contractor's* visitors and all personnel conform to the security arrangements in force at Duvha Power Station.
- (14) Application forms for visitors are filled in by the *Contractor's* Site Manager and approved by the *Project Manager* and submitted to the *Employer's* Protective Services office one day prior to the visit.
- (15) Visitors will not be allowed on site if the necessary forms are not in the possession of security staff.

- (16) The Chief Security Officer may, with valid cause, remove any of the *Contractor's* personnel from the site, either temporarily or permanently. He may deny access to the site to any person whom, in the opinion of the said Chief Security Officer, constitutes a security risk.
- (17) No unauthorised vehicles will be allowed on site. Only *Contractor's* vehicles with displayed Contract Vehicle Permits disks will be allowed on site. Contract Vehicle Applications are directed to the Project Manager for consideration and approval.
- (18) The *Contractor* is restricted to the Site. The *Contractor* is forbidden to enter any other areas and ensures that his employees abide by these regulations.
- (19) Parking inside the power station is strictly forbidden, except for loading purposes.
- (20) No recruiting of casual labour may be done on Eskom premises, including the area outside the Power Station Security Gate.
- (21) Security personnel may search any premises, property or person within the security area of Duvha Power Station
- (22) No Photographic equipment will be allowed within the security area of the Power Station without obtaining permission.
- (23) Application forms for such permission is available from the Protective Services offices.
- (24) Any person found in possession of such equipment will be prosecuted in terms of the National Key Point Act

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

- (1) Pedestrian crossing are made on the road they should be used when crossing the road
- (2) Inside the plant walkways are clear makes they should be used when walking inside the plant to keep safe on any object that might fall.
- (3) Barricades are provided where there are open trenches and around the sumps and manholes.
- (4) The *Contractor* shall occupy only such ground as is necessary to carry out the works.
- (5) All fences and other structure that have been damaged or interfered with by the *Contractor* shall be restored to be a condition at least equivalent to their original condition

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

- (1) The LAR is for the person in charge of the plant to maintain control over activities taking place on his plant that are not covered by the Plant Safety Regulation and Operating Regulations for High Voltage Systems.
- (2) Activities that are allowed to be carried out under the LAR must not require a permit and must satisfy the following criteria:
- (3) They must not involve danger to the person carrying out the activity.
- (4) No plant isolations must be required.
- (5) The activity must be performed by a skilled person and there must be no risk of a production loss
- (6) The duration of the activity must be less than 24 hours.
- (7) The Supervisor accompanies the *Contractor* during the first instances of working under a LAR on a specific plant area.
- (8) It is very important that the person who plans to do an activity on a plant under the LAR informs the person in charge of the plant (ASS on the panel or PPO at WTP) of what will be done.
- (9) This means verbally telling the person in charge of the plant what will be done and not just signing the LAR book. The LAR book is also signed.
- (10) It is also important that as soon as the activity is completed the person, who was doing the activity, notify (verbally) the person in charge of the plant that conditions are back to normal and that the LAR has been signed off. Just signing the LAR book is not sufficient.
- (11) For more information, please refer to Plant Safety Regulation C11.

#### **5.1.4 Health and safety facilities on Site**

- (1) The *Contractor* provides a First Aid service to his employees and sub-*Contractor*. 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.
- (2) Outside the *Employer's* office hours, the *Employer's* First Aid Services will only be available for serious injuries and life threatening situations. The *Employer* shall be entitled, however, to recover the costs incurred, in the use of the above *Employer's* facilities, from the *Contractor*.

- (3) The *Contractor* to ensure that qualified and competent First Aiders and Emergency Care staff is permanently on site and at actual construction site for emergency situations, as and when they arrive.
- (4) The *Contractor* or his staff shall not move the injured party from the incident position and site unless the person's/persons' life is in danger, or the person is moved by a qualified and trained Emergency Care Worker.

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

- (1) No fauna or flora will be collected or removed from any farm by any visitor without written permission of the landowner, in which case cognizance will be taken of appropriate provincial legislation pertaining to fauna and flora.
- (2) Under such cases Eskom Holding's ethical policies and guidelines will be strictly applied.

#### **5.1.6 Title to materials from demolition and excavation**

- (1) The *Contractor* has no title to an object of value or historical or other interest within the site
- (2) The *Contractor* shall notify the *Project Manager* when such an object is found, and the *Project Manager* will instruct the *Contractor* how to deal with it.
- (3) The *Contractor* does not move the object without instruction.

#### **5.1.7 Cooperating with and obtaining acceptance of Others**

- (1) The *Contractor* has no title to an object of value or historical or other interest within the site
- (2) The *Contractor* shall notify the *Project Manager* when such an object is found, and the *Project Manager* will instruct the *Contract* how to deal with it.
- (3) The *Contractor* does not move the object without instruction.

#### **5.1.8 Publicity and progress photographs**

- (1) Should publicity and progress photographs be required an application shall be made via the *Project Manager*.

#### **5.1.9 Contractor's Equipment**

- (1) The *Contractor* has no title to an object of value or historical or other interest within the site
- (2) The *Contractor* shall notify the *Project Manager* when such an object is found, and the *Project Manager* will instruct the *Contract* how to deal with it.
- (3) The *Contractor* does not move the object without instruction.

#### **5.1.10 Equipment provided by the Employer**

- (1) Should the *Contractor* require using of any of the *Employer's* Equipment, including compressed air, electricity, water supply and crane age, it must be specified in the Works Information supplied by the *Contractor*.
- (2) The *Employer* does not guarantee continuity of supply of any of items in point (1).
- (3) The *Employer* shall be entitled to withdraw use of the said Equipment, should proper maintenance and cleanliness not be ensured.
- (4) In the event of point (3), the *Contractor* shall be obliged to provide the necessary Equipment at his own cost.
- (5) The *Contractor* is responsible for the repair, replacement or correction as necessary of all pieces of tools and equipment supplied by the *Employer* which are damaged and / or lost whilst in the *Contractor's* custody and control.
- (6) The *Contractor* site manager must ensure that any one of his employees or Sub-*Contractor*, operating hoist equipment belonging to the *Employer*, is authorised by an Accredited Company and retraining is done annually.
- (7) Arrangements for training courses can be made via Duvha Power Station Maintenance Training but the *Contractor* will absorb costs.
- (8) A copy of this accredited and valid training certificate must be given to the *Employer's* Supervisor, who will then arrange access for usage.

#### **5.1.11 Site services and facilities**

- (1) Potable Water Supply:
  - i. Potable water is available at the existing points. There are no portable points for the work that is done outside the station therefore the *Contractor* to provide his/her alternative supply.
- (2) Electrical Power Supply
  - i. Power is available at the existing points.
  - ii. The *Contractor* provides his own portable 380V electrical distribution boards, and supply cables to and from the boards, for all his power supply requirements to execute the works.
  - iii. *Contractors'* Electrical Distribution Boards complies with OHSA as referred to in the Electrical Installation Regulations and the Electrical Machinery Regulations.
  - iv. Each board brought onto site has a Certificate of Compliance issued by an accredited person.
  - v. The *Contractors'* electrical distribution boards are installed at the works on a time negotiated with the Supervisor, prior to the possession date.
  - vi. The *Employer* connects distribution boards to a 380V three-phase AC power supply, only after the *Contractor* has submitted the valid Certificate of Compliance.
  - vii. All *Contractors'* Electrical Distribution Boards are earthed to the steel structure of the plant.
  - viii. There will be no supply points for work that will be done away/outside from the station therefore a *Contractor* to provide alternative supply system (e.g petrol/ diesel equipment)

#### **5.1.12 Facilities provided by the Contractor**

- (1) The *Contractor* should provide facilities they deem necessary in executing the work. This must be discussed with the *Project Manager* prior to commencement of work.

#### **5.1.13 Underground services, other existing services, cable and pipe trenches and covers**

- (1) A survey must be carried out to determine if any underground cabling and services will hinder the design and execution of the project.
- (2) If no up-to-date drawings are available for such purposes as in point (1), the onus falls on the *Contractor* to perform an on-site survey.
- (3) If during execution of the project any damage to identified or unidentified underground cabling and services occur, the cost of repair will be for the *Contractor*.

## 5.2 Completion, testing, commissioning and correction of Defects

### 5.2.1 Work to be done by the Completion Date

- (1) 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.
- (2) 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.

	Item of work	To be completed by
	As built drawings and documentation	Within 5 days after Completion
	Performance testing of the works in use as specified in section 3 & 5 of this Works Information.	See performance testing requirements.

- (3) The *Contractor* is responsible for registration of all Duvha employees and contractors onto the database.

### 5.2.2 Commissioning

- (1) The *Contractor* is responsible for submitting Commissioning documents.
- (2) The *Contractor's* installation testing needs to be done and comply with the IAC as per the test cases prior to sign off of the project to govern designs and quality of implementation.
- (3) The Commissioning documents will be reviewed and signed off.
- (4) The *Contractor* is responsible for following the signed off Commissioning documentation.

### 5.2.3 Take over procedures

- (1) During take over, the *Contractor* is responsible to demonstrate to the relevant parties the completed works.
- (2) If any concerns are raised during the demonstration, the onus falls on the *Contractor* to address and correct.
- (3) If any concern as per point (2) was part of the works, the final signoff will be postponed until such concerns have been addressed.

### 5.2.4 Access given by the Employer for correction of Defects

- (1) If the *Contractor* is required to correct any defect, it will be dependent on the system/plant accessibility and constraints.

### 5.2.5 Performance tests after Completion

- (1) The performance of the system will be verified and tested during normal production cycles. Refer to Test Plan IT00118\_DRA 1\_Test Plan Document\_Rev 1.0.
- (2) If any defect or deviation from the required performance is identified, will it be treated as a defect and applicable clauses will apply.
- (3) The *Contractor* will be responsible for first line maintenance during the defects period and such incident will be handled as system defects.
- (4) A mandatory quarterly site visit is required to assess the performance of the system and equipment.
- (5) A performance report must be issued after each visit as per point 4, detailing any failure events or warnings.
- (6) The performance criteria of the system must utilise the following method:
  - i. Availability of 99.9%.
  - ii. Incorrect or non-reading of fingerprint to be 1 in 1000.
  - iii. Process time for access verification to be less than 3 seconds.



### 5.2.6 Training and technology transfer

- (1) Security:
  - i. Before the Works can be handed over, the *Contractor* must supply training to the Security Personnel of all the shifts.
  - ii. Topics that must be included in the training that will enhance their understanding, but not limit to:
    - a. Reader and Turnstile operations
    - b. Reader and turnstile operating modes
    - c. User additions
    - d. Allowing/Restricting access
  - iii. Upon mutual agreement that the training dealt with all the new aspects, a training register must be signed by all relevant parties.
    - a. The register must show all the names of the trainees who attended together with their signature as well as the *Contractor's* representative who performed the training.
    - b. The register must be submitted to the *Project Manager* for approval and record keeping.
- (2) Electrical
  - i. Before the Works can be handed over, the *Contractor* must supply training to the Electrical Maintenance Personnel.
  - ii. Topics that must be included in the training, but not limit to
    - a. Isolation points
    - b. electrical reticulation
    - c. distribution
  - iii. Upon mutual agreement that the training dealt with all the new aspects, a training register must be signed by all relevant parties.
    - a. The register must show all the names of the trainees who attended together with their signature as well as the *Contractor's* representative who performed the training.
  - iv. The register must be submitted to the *Project Manager* for approval and record keeping
- (3) Control and Instrumentation
  - i. Before the Works can be handed over, the *Contractor* must supply training to the Control and Instrumentation Maintenance and Engineering Personnel.
  - ii. Topics that must be included in the training that will enhance their understanding and fault finding, but not limit to
    - a. Reader and Turnstile connections
    - b. Reader and Turnstile diagnostics
    - c. Reader and Turnstile components
  - iii. Upon mutual agreement that the training dealt with all the new aspects, a training register must be signed by all relevant parties.
    - a. The register must show all the names of the trainees who attended together with their signature as well as the *Contractor's* representative who performed the training.
  - iv. The register must be submitted to the *Project Manager* for approval and record keeping

## **6 Plant and Materials standards and workmanship**

### **6.1 Investigation, survey and Site clearance**

- (1) A site survey must be carried out in order to ensure the ergonomics aspect of the design is not limited by physical plant equipment or material.

### **6.2 Electrical & mechanical engineering works**

- (1) Electrical
  - i. Cabling:
    - a. New cables to require CoC before connecting
    - b. Any cabling must conform to standard GGS0386 Rev 5 – Requirements for Control and Power Cables for Power Stations
  - ii. Distribution board
    - a. Isolation must be possible using SABS approved CBs
  - iii. Uninterrupted Power Supply
    - a. All equipment must have the ability to run on UPS for a minimum period of 8 hours
    - b. UPS to alarm when incoming supply to the UPS has failed

### **6.3 Process control and IT works**

#### **6.3.1 Control & Instrumentation Requirements**

- (1) Cabling
  - i. Double steel taped armoured
  - ii. PVC Covered
  - iii. Twisted pair and unscreened
  - iv. Halogen free
  - v. Conduit and trunking to conform to standard GGS0386 REV5 – 5 Requirements for Control and Power Cables for Power Stations
- (2) Termination
  - i. All wire terminations to use appropriate lugs
  - ii. Any termination to conform to standard GGS0386 REV5 – 5 Requirements for Control and Power Cables for Power Stations.
- (3) Labelling
  - i. The following labelling standards must be used:
    - a. ETS0004 – AKZX Plant Location Labelling Specifications
    - b. ENP0008 – Drawing Control Procedure
    - c. ENS0002 – AKZX Plant Location Coding Reference Manual
    - d. Drawing 46945 - AKZX Plant Location Labelling and Coding Specification and Detail

## 7 List of drawings

### 7.1 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
240-56364545	3	Structural Design and Engineering Standard

**C3.2 CONTRACTOR’S WORKS INFORMATION**