

BID NUMBER: PT21/030

REPUBLIC OF SOUTH AFRICA

DEPARTMENT OF PUBLIC WORKS



**BID  
FOR**

**KGOSI MAMPURU II CORRECTIONAL SERVICES  
SERVICE, REPAIRS AND MAINTENANCE OF COAL & DIESEL FIRED BOILERS**

**AND**

**ALL STEAM RELATED GENERATION COMPONENTS  
FOR  
THE PERIOD OF (03) YEARS (36 MONTHS)/ DEPLETION OF ALLOCATED BUDGET  
(whichever comes first)**

*OFFICE OF THE REGIONAL MANAGER*

*DEPARTMENT OF PUBLIC WORKS*

*PRIVATE BAG X229*

*PRETORIA*

*0001*

*DATE: \_\_\_\_\_*

*CONTACT PERSON: PROJECT MANAGER*

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**NAME OF TENDERER: \_\_\_\_\_**



**DEPARTMENT OF PUBLIC WORKS  
KGOSI MAMPURU II CORRECTIONAL CENTRE: TERM CONTRACT FOR BOILER  
MAINTENANCE, REPAIRS AND SERVICING.  
TENDER NUMBER: PT21-030**

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Project Specification



public works  
& infrastructure

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Department:  
Public Works and Infrastructure  
**REPUBLIC OF SOUTH AFRICA**







## C2.3.1 STANDARD SPECIFICATIONS

Tender no: PT21-030

### STANDARD SPECIFICATIONS:

The standard specifications on which this contract is based is the **South African Bureau of Standards Application of the National Building Regulations SABS 10400: 1990 (SABS 0400)**

Although not bound in nor issued with this Document, the following list of standards shall be adhered to for the duration of the contract. Standards not mentioned below, but referenced to in the Technical, Particular and Additional specifications shall also be adhered to for the duration of the contract. Any amendments, revisions or new versions (latest specifications) shall supersede the listed documents and be applicable in all respects.

1. SANS 10400 - Application of the National Building Regulations
2. SANS 164 - Plugs, socket-outlets and couplers for industrial purposes\*
3. SANS 241 - South African Standard Specification for drinking water
4. SANS 515 - Decorative paint with a non-aqueous solvent base for interior use\*
5. SANS 558 - Cast iron surface boxes and manhole and inspection covers and frames\*
6. SANS 630 - Decorative high gloss enamel paints\*
7. SANS 631 - Decorative oil gloss paint for interior and exterior use\*
8. SANS 633 - Emulsion paints for interior decorative purposes\*
9. SANS 634 - Emulsion paints for exterior use\*
10. SANS 675 - Zinc-coated fencing wires (plain and barbed)\*
11. SANS 678 - Primers for wood for interior and exterior use\*
12. SANS 681 - Undercoats for paints\*
13. SANS 682 - Aluminium paint\*
14. SANS 683 - Roof paints (relevant sections)\*
15. SANS 723 - Wash primer (metal etch primer)\*



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16. SANS 801 - Epoxy-tar paints\*
17. SANS 887 - Varnish for interior use\*
18. SANS 926 - Two-pack zinc-rich epoxy primer\*
19. SANS 935 - Hot-dip (galvanised) zink coatings (other than on continuously zinc-coated sheet and wire)\*
20. SANS 950 - Unplasticized polyvinyl chloride rigid conduit and fittings for use in electrical Installations
21. SANS 10252-2 - Code of Practice "Water Supply and Drainage for Buildings, Part 2: Drainage Installations for Buildings", Annexure B: Septic Tank Systems\*
22. SANS 1085 - Wall outlet boxes for the enclosure of electrical accessories\*
23. SANS 1200 - Standardised Specifications for Civil Engineering Construction\*
24. SANS 1227 - Textured wall coatings, emulsion base, for interior and exterior use\*
25. SANS 1239 - Plugs, socket-outlets and couplers for industrial purposes\*
26. SANS 1250 - Capacitors for use with fluorescent and other discharge lamp ballasts\*
27. SANS 1319 - Zinc phosphate primers for steel\*
28. SANS 1373 - Chain-link fencing and its wire accessories\*
29. SANS 1411 - Materials of insulated electric cables and flexible cords\*
30. SANS 1507 - Electric cables with extruded solid dielectric insulation for fixed installations
31. SANS 1777 - Photoelectric control units for lighting (PECUs)
32. SANS 4831 - Microbiology: General guidance for the enumeration of coliforms: Most probable number technique\*
33. SANS 4833 - Microbiology: General guidance for the enumeration of coliforms: Colony count technique at 30°C\*
34. SANS 5011 - Water – pH-Value\*\
35. SANS 5217 - Water – free and saline ammonia content\*
36. SANS 6048 - Water – chemical oxygen demand\*
37. SANS 6052 - Residual chlorine content of water\*
38. SANS 6057 - Electrical conductivity of water\*
39. SANS 10064 - The preparation of steel surfaces for coating\*





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40. SANS 10114 - Interior lighting\*
41. SANS 10142 - Wiring of premises\*
42. SANS 10160 - The general procedures and loadings to be adopted in the design of buildings\*
43. SANS 10162 - The structural use of steel\*
44. SANS 10198 - The selection, handling and installation of electric power cables of rating not exceeding 33 kV
45. SANS 10298 - Indirect small to medium-sized gas chlorination systems for the disinfection of water\*
46. SANS 10299 - Development, maintenance and management of groundwater resources\*
47. SANS 10306 - The management of potable water in distribution systems\*
48. SANS 10329 - The design and construction of sectional steel tanks for storage of liquids at or above ground level\*
49. SANS 61084 - Cable trunking and ducting systems for electrical installations
50. SABS 948 - 3-phase induction motors\*
51. SABS 1222 - Enclosure for electrical equipment (classified according to the degree of protection that the enclosure provides)\*
52. SANS ISO 5667-2 -Water quality sampling, part2: Guidance on sampling techniques\*
53. OW 371 - Specification of Materials and Methods to be used. Fourth revision, October 1993 or latest version.\*\*
54. Standard Specification for the Electrical Equipment and Installation for Mechanical Services, Issue VIII December 1984\*\*
55. Standard Electrical Specifications, January 1984, GPS 24-0367\*\*
56. Department of Public Works Standard Specifications for Electrical Installations and Equipment pertaining to Mechanical Installations\*\*
57. Department of Public Works Standard Specifications for steam boilers and Equipment pertaining to Mechanical Installations\*\*
58. Department of Public Works – Standard Electrical Specifications (April 1999)\*\*
59. BS 1486: Part 2 - Heavy duty lubrication nipples
59. BS 4999 - General requirements for rotating electrical machines
60. BS 5316: Part 1 - Acceptance tests for centrifugal, mixed flow and axial pumps



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61. ISO 281/1 - Rolling bearings – Dynamic load ratings and rating life (Mobile fuel extractor)
62. Department of Water Affairs and Forestry, Department of Health and the Water Research Commission  
- Department of Quality of Domestic Water Supplies
- \* Not issued with this document, but available at the Contractor's expense from the SA Bureau of Standards, Private Bag X191, PRETORIA, 0001.
- \*\* Not issued with this document but available from the Director General, Department of Public Works, Private Bag X65, PRETORIA 0001, or any office of the Regional Representative of this Department.
- \*\*\* Copies of the Standard Department of Public Works Specifications are obtainable from the Director-General: Department of Public Works, Private Bag X229 PRETORIA 0001, or on the website: <http://www.publicworks.gov.za>



**KGOSI MAMPURU CORRECTIONAL CENTRE: TERM CONTRACT FOR BOILER MAINTENANCE, REPAIRS AND SERVICING.**

**2.3 SCOPE OF WORK**

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FB Steam Distribution Installations

FC Hot water Generating Installations

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PFA Steam Generating Installations

PFB Steam Distribution Installations

PFC Hot water Generating Installations



## **C2.3.2**

## **PROJECT SPECIFICATIONS**

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PS 5	CONSTRUCTION PROGRAMME
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## Project Specification

The Project Specification contains a general description of the works, the site and the requirements to be met. In the event of any discrepancy between a part or parts of the Standardised of Particular Specifications and the Project Specification, the Project Specification shall take precedence. In the event of a discrepancy between the specifications, (including the Project Specifications) and the drawings and / or the Bill of Quantities, the discrepancy shall be resolved by the Departmental Representative / Engineer before the execution of the work under the relevant item.

### **PS 1**                    **GENERAL DESCRIPTION**

Each installation requires work that may include any one or more of the activities as set out in clause PS2 below: decommissioning, repair, reconditioning, testing, re-commissioning and maintenance during the 36-month Contract. The work may also include compilation of operating and maintenance manuals as well as training of User Client operators and all maintenance personnel.

NOTE: Repair and maintenance work will be carried out within facilities that are occupied by User Client's personnel and associates.

### **PS 2**                    **DETAILS OF CONTRACT**

All work forming part of this Contract is divided into installations. The repair and maintenance work to be performed as part of an installation under this Contract mainly consists of the following:

The Kgosi Mampuru II Correctional Centre mechanical term project comprises the repair and maintenance of the following mechanical services

- |                                       |                  |
|---------------------------------------|------------------|
| a. Steam Generating Installations     | (see FA and PFA) |
| b. Steam Distribution Installations   | (see FB and PFB) |
| c. Hot water Generating Installations | (see FC and PFC) |

Maintenance of each of these installations will be the responsibility of the Contractor and will be evaluated on a monthly basis by the Departmental Representative / Engineer. The remuneration for maintenance work and responsibilities will be certified accordingly.

The description of the Works given above is not necessarily complete and shall not limit the work to be carried out by the Contractor under this Contract.

Approximate quantities of each type of work are given in the Bill of Quantities.

NOTE: A clear distinction will be made between the repair work to be done and the maintenance responsibilities applicable to each installation.



## Project Specification

### PS 3 CONSTRUCTION PROGRAMME

Instructions by the Departmental Representative / Engineer to expedite progress shall not be the subject of additional compensation to the Contractor unless the instruction explicitly states that the Contractor is entitled to additional compensation and cites the amount of such compensation or the basis on which it is to be determined.

The approval by the Departmental Representative / Engineer of a programme shall have no contractual significance other than that the Departmental Representative / Engineer will be satisfied if the work is carried out according to the programme. The said approval shall not limit the right of the Departmental Representative / Engineer to instruct the Contractor to vary the programme if necessary. The Contractor is also referred to Clause PS 8 and Clause PS 12 when preparing this programme.

NOTE: For reasons of limited access, it may not be possible to carry out the repair work on some of the installations in parallel with repair work on other installations. The repair work of some of the installations shall follow sequentially as indicated in the specifications.

The Contractor shall organise his work in such a manner as to cause the minimum inconvenience to the User Client's personnel and operations.

### PS 4 SITE FACILITIES AVAILABLE

#### PS 4.1 CAMPSITE AND STORE ROOM

##### (a) Repair work

An area for the campsite will be provided after consultation with the User Client area manager. Only one night watchman will be allowed in the campsite at night.

##### (b) Maintenance responsibilities

The Contractor must provide his own storeroom facilities for the duration of the maintenance phase.



#### **PS 4.2 WATER, ELECTRICITY AND SEWERAGE**

##### **(a) Water supply**

The Contractor must make his own arrangements for water supply. Water will be available at specific points not necessarily adjacent to working areas. Water will be available free of charge but wastage will not be tolerated. The Contractor must supply his own standard fittings to couple up at the points where water is available.

##### **(b) Electrical power supply**

Electrical power supply is available on the Site and will be free of charge. The Contractor must make his own arrangements for a connection to the electrical power supply. The Contractor will be responsible, at his own cost, for the distribution of electricity for construction and domestic use.

##### **(c) Sewerage connection**

Refer to Sub clause PSA 4.2 in connection with toilet requirements. Chemical toilets shall be used.

Note: The Employer shall not be held responsible for any losses or inconvenience due to a disruption in the supply of water and/or electricity.

#### **PS 4.3 PARKING FACILITIES**

Parking facilities are available on the Site.

#### **PS 5 FEATURES REQUIRING SPECIAL ATTENTION**



### **PS 5.1 INSTALLATIONS AT FACILITIES**

The installations at all facilities shall be carefully checked for damage and all damages shall be listed and discussed with the Departmental Representative / Engineer before commencement of repair and maintenance work. The Contractor shall present copies of all correspondence in this regard for discussion at the following site meeting.

### **PS 5.2 SECURITY**

#### **(a) Restrictions on movement and limited access**

The Contractor's personnel, vehicles and equipment will be restricted to areas of construction only. The Contractor shall comply with any requirements that the Departmental Representative / Engineer may have in this regard and shall take note that for security reasons the access to some areas, may be limited.

#### **(b) Prohibition on taking of photographs**

The Contractor's attention is drawn to the Defence Act, 1957 (Act No 44 of 1957) and the Correctional Services Act, 1998 (Act No 111 of 1998) which clearly state that the taking of photographs is prohibited and that even the possession of a camera on Site is an offence.

#### **(c) Security check on personnel**

The Employer may require the Contractor to have his personnel or a certain number of them security-classified, if so required by any competent authority. In the event of the Employer or any competent authority requiring the removal of a person or persons from the site for security reasons, the Contractor shall do so forthwith and the Contractor shall thereafter ensure that such person or persons are denied access to the site and/or to any documents or information relating to the work. In such circumstances the Contractor shall indemnify the Employer and the Departmental Representative / Engineer and shall hold the Employer and the Departmental Representative / Engineer harmless against any and all claims of whatever nature arising.

#### **(d) Access cards to security areas**

Should the work fall within a security area, the Contractor must obtain from the Departmental Representative / Engineer access cards for his security-cleared personnel and employees who work within such an area. The Contractor must comply with any regulations or instructions issued from





time to time, concerning the safety of persons and property, by the Department of Correctional Services or SA Police services.

### **PS 5.3 SITE TO BE KEPT CLEAN**

During progress of the work and upon completion thereof, the Site of the Works shall be kept and left in a clean and orderly condition. The Contractor shall store materials and equipment for which he is responsible in an orderly manner, and shall keep the Site free from debris and obstructions.

All redundant materials, rubbish and waste arising from the work must be removed from the Site at the Contractor's cost and the site and buildings left clean and tidy.

### **PS 5.4 FACILITIES TO OTHER CONTRACTORS**

In addition to the requirements of Clause 18 of the General Conditions of Contract the Contractor must make allowances for other Contractors on the Site. This may involve adapting his programme to accommodate the work of other contractors and ensuring access to their sites along prescribed routes over the Site of this Contract.

### **PS 5.5 SUBCONTRACTORS**

In addition to the requirements of Clause 6 of the General Conditions of Contract as amended in Part 1 of the Contract Data, the Contractor shall be responsible for work carried out by subcontractors on his behalf. The Departmental Representative / Engineer will not liaise directly with such subcontractors. Problems related to payments, programming, workmanship, etc, shall be the responsibility of the Contractor and the subcontractor, and the Departmental Representative / Engineer will not become involved.

### **PS 5.6 SANS SPECIFICATIONS AND CODES OF PRACTICE**

All reference in this document to South African Bureau of Standards specifications and codes of practice, or any other standard specifications or codes of practice, including National Building Regulations, shall be deemed to be references to the latest issues of such specifications and codes.



#### **PS 5.7 MATERIALS**

The monthly payment for materials brought onto the Site will only be applicable for repair work and not for maintenance work. Unless otherwise instructed in writing by the Departmental Representative / Engineer, all proprietary materials are to be used, mixed, applied, fixed, etc. strictly in accordance with the manufacturer's recommendations.

#### **PS 5.8 BORROW PITS**

There will be no designated borrow pits. The Contractor shall utilise the material on Site or import material from commercial sources.

#### **PS 5.9 PROTECTION OF FURNITURE AND EQUIPMENT**

Most of the work to be done inside buildings and occupied houses will be carried out in places where there is furniture and other equipment.

The Contractor shall be responsible for moving the furniture and equipment in order to provide working space for his personnel. The programme shall be drawn up in such a way as to keep the movement of furniture and equipment to the very minimum and the Contractor shall be solely responsible for any damage to furniture or equipment.

#### **PS 5.10 TESTING AND QUALITY CONTROL**

The Contractor shall engage the services of an approved independent laboratory or other institution as applicable for quality testing, to ensure that his work complies with the Specifications.

**No separate payment will be made for such testing, the cost of which will be deemed to be included in the Contractor's rates bid for the items of work that require testing in accordance with the Specifications.**

The onus to produce work that conforms in quality and accuracy of detail to the requirements of the Specifications and Drawings rests with the Contractor, and the Contractor shall, at his own expense, institute a quality-control system and provide experienced Departmental Representative / Engineers,



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foremen, surveyors, materials technicians, other technicians and technical staff, together with all transport, instruments and equipment to ensure adequate supervision and positive control of the Works at all times.

The cost of supervision and process control, including testing carried out by the Contractor, will be deemed to be included in the rates bid for the related items of work.

The Contractor's attention is drawn to the provisions of the various Specifications regarding the minimum frequency of testing required. The Contractor shall, at his own discretion, increase this frequency where necessary to ensure adequate control.

On completion and submission of every part of the work to the Departmental Representative / Engineer for examination, the Contractor shall furnish the Departmental Representative / Engineer with the results of the relevant tests to indicate compliance with the Specifications.

### **PS 6 CERTIFICATES OF PAYMENT**

The statement to be submitted by the Contractor in terms of Clause 49 of the General Conditions of Contract shall be prepared in accordance with the standard payment certificate prescribed by the Departmental Representative / Engineer and shall comprise at least two sets of A4-size paper copies.

All costs for the preparation and submission of the statements shall be borne by the Contractor.

### **PS 7 CONSTRUCTION IN RESTRICTED AREAS**

Working space in certain areas may be restricted. The construction method used in these restricted areas largely depends on the Contractor's Plant. However, the Contractor must note that measurement and payment will be according to the specified cross-sections and dimensions irrespective of the method used, and that the rates and prices submitted will be deemed to include full compensation for difficulties encountered while working in restricted areas. No extra payment nor any claim for payment due to these difficulties will be considered.



**PS 8 LEGISLATION**

**(a) Changes in legislation**

Reference in the General Conditions of Contract and in any other standard document forming part of this Contract to legislation which has been amended or superseded by other legislation since the most recent publication of such standard document, shall be deemed to be a reference to the amended or replacement legislation.

Such amended or replaced legislation shall be applicable during the Contract Period provided the amendment or replacement occurred more than 28 days before the closing date for bids in terms of Clause 46.4 of the General Conditions of Contract as amended in Part 1 of the Contract Data.

**(b) The Occupational Health and Safety Act**

The Contractor shall be required to comply with the Occupational Health and Safety Act, 1993: Construction Regulations, 2003 as promulgated in Government Gazette No 25207 and Regulation Gazette No 7721 of 18 July 2003. Non-compliance with these regulations, in any way whatsoever, will be adequate reason for suspending the Works.

The proposed type of work, materials to be used and hazards likely to be encountered on this Contract are detailed in the Scope of Work and Pricing Data. The Employers' health and safety specifications (subclause 4(1)) of the regulations will be issued separately.

The Contractor shall in terms of subclause 5(1) provide a comprehensive health and safety plan detailing his proposed compliance with the regulations, for approval by the Employer.

The Contractor shall at all times be responsible for full compliance with the approved plan as well as the Construction Regulations and no extension of time will be considered for delays due to non-compliance with the abovementioned plan or regulations.

A payment item is included in the Bill of Quantities to cover the Contractor's cost for compliance with the OHS Act and the abovementioned Construction Regulations 2003.

**PS 9 INSURANCE AMOUNTS**



The amounts for which the Contractor must insure the Works in terms of Clause 35 of Part 1 of the Contract Data are stated in the Agreement.

#### **PS 10                   TIMES FOR COMPLETION**

Times for completion of repair work to installations as well as the maintenance down-time for different types of breakdowns are given under Clause 42.1 of Part 1 of the Contract Data. The time for completion will start on the date of access to an installation.

#### **PS 11                   PRACTICAL COMPLETION**

- (a) The Contractor shall be entitled in terms of Clause 51.1 of the General Conditions of Contract to receive a Certificate of Practical Completion when the Works to be executed under the Contract have been completed to the stage where:

All materials which are required to be replaced have been replaced and installed to the satisfaction of the Departmental Representative / Engineer; and

All repair works have been completed.

- (b) The Departmental Representative / Engineer shall issue to the Contractor and the Employer a Certificate of Completion in terms of Clause 51.4 of the General Conditions of Contract except where a thirty day commissioning period, as stated in paragraph (c) below, is applicable.
- (c) Where indicated at the end of this paragraph, the issuing of a Certificate of Practical Completion for a certain installation will be followed by a thirty day commissioning period. The tasks of the Contractor during the thirty day commissioning period are described in Additional specification SC: General Decommissioning, Testing and Commissioning Procedures. After the completion of the thirty day commissioning period to the satisfaction of the Departmental Representative / Engineer, a certificate of completion will be issued to the Contractor as described in Clause 51.4 of the General Conditions of Contract.

#### **PS 12                   PENALTIES**

Penalties in terms of Clause 43.1 of the General Conditions of Contract for late completion of repair work to different installations are given under Clause 43.1 of Part 1 of the Contract Data. Payment reductions for exceeding the maintenance down-time for different types of breakdowns are given under the applicable pay items in the Bill of Quantities for Additional specifications SA: General Maintenance. Penalties will run concurrently where applicable.

- (a) **Penalty for failing to meet undertakings and/or conditions pertaining to Targeted Procurement for the award of points – Note: Not applicable to the term contract.**

If the bid adjudication points awarded to the Contractor are found to be based on incorrect or false information or the conditions pertaining to the award of points are not met and the Contractor fails to substantiate that such



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failure is due to a reason acceptable to the Employer (as being) beyond the Contractor's control, the Contractor shall be liable for and pay to the Employer, and amount determined in accordance with clause 2 and subject to clause 1 both of the Works Information, Part 2 of the Conditions of Bid.

### (b) **Payment reduction for non-performance**

If the Contractor shall fail to rectify an emergency maintenance breakdown, an ordinary maintenance breakdown and damage breakdown within the time as stipulated in Additional Specifications SA: General Maintenance, the Contractor shall be liable to the Employer for the sum/sums stated in the Bill of Quantities for Additional Specification SA as a payment reduction for every hour/day down-time counting from the hour/day the breakdown was reported to the Contractor until the day it was repaired. These payment reductions will be cumulative and will run concurrently.

Where indicated above that the money will be recovered from the Contractor by means of payment reductions, the fixed negative amounts in the rate column of the Bill of Quantities will be used to reduce payments due to the Contractor.

The imposition of such payment reductions shall not relieve the Contractor from his obligation to complete the Works or from any of his obligations and liabilities under the Contract.

### (c) **Application of penalties to be accumulative**

The imposition of all penalties in terms of this clause shall be accumulative and shall not relieve the Contractor from his obligation to complete the Works or from any of his obligations and liabilities under the Contract.

## **PS 13 NON-WORKING DAYS AND HOURS**

Whenever any special non-working days stated in Clause 1.6 and Clause 38 of Part 1 of the Contract Data fall within the days allowed or stipulated in the Contract in terms of Clause 1.6 of Part 1 of the Contract Data, such special non-working days shall also be excluded from the calculation of the number of working days concerned.

The Contractor shall not work on any statutory public holidays or on any public holidays declared by the Government to be statutory non-working days, except for work related to repair fatal and emergency breakdowns which influences the functionality of any of the installations.

Working hours might be limited and the Contractor shall work in close cooperation with the User Client and Departmental Representative / Engineer in this regard. Working hours for the different installations are indicated at the end of this clause where applicable.

The Departmental Representative / Engineer shall be entitled at any time during the Contract, to vary the normal working hours specified in the Bid documents, including increasing or decreasing the total number of hours per day during which the Contractor may execute the Works or specific portions thereof.



If any variation by the Departmental Representative / Engineer of the normal working hours specified in the Bid Documents should result in an increase or a decrease in the total number of hours per week during which the Contractor is permitted to execute the Works or any particular portions of Works, then the time allowed in the Contract for the completion of the respective part of the Works to which the varied normal working hours apply shall be adjusted proportionately in relation to:

- a) the remaining time allowed for completion of the specific part or parts of the Works; and
- b) the extent of the variation in the total normal working hours per week.

## **PS 14            TRANSPORT**

### **14.1 Scope**

Provide for certain works to be executed on the basis of Day works where specified or instructed. This item may only be utilised on the specific instruction of the Engineer. All overhead costs shall be included.

In the case of work provided for in terms of Provisional Sums the Contractor shall submit a detailed quotation prior to commencing work. The amount of the quotation shall not be exceeded without approval prior to completion of the work concerned. In the case of Transport for planned maintenance, a prior quotation is not required.

### **14.2            Measurement**

Labour : Time (hrs) including the full cost of employment such as wages, transport (excluding authorised transport), insurances, subsistence, allowances, overheads, etc. Materials mark up as a portion of proven materials cost eg 15% = 0,15.

Materials: An allowance for the cost of materials utilised in connection with work performed in terms of day works. The materials mark-up rate shall include full compensation to the Contractor for quotation profit & attendance costs. The mark-up rate shall be given as a portion of the proven cost of the materials utilised, ie 15% must be entered as 0,15.



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Transport: Authorised distance travelled measured in km, is separately quantified.

Vehicular transport measured in km between the reference location and the various sites at which services are performed will be determined on the basis of the following distance table. Transport between the contractor's head office and the reference location is not reimbursable, the costs thereof being an overhead for the contractor's own account. Where more than one service is performed on the same day in the same area transport costs will be calculated on actual distance travelled as defined in this measurement clause. The measured quantity in km is provisional, to be adjusted as utilised. The distances travelled shall be recorded in a log book with odometer readings, date, and origin & destination places. Logbook copies shall be submitted with the monthly job card claims.

The following table illustrates an example of the method of measurement which shall be adopted in order to minimise travel costs. It is the Contractor's responsibility to ensure that all consumables, tools and spares are loaded in the transport for the sites to be visited to avoid the need to make an additional return to the depot during the day before the day's scheduled site visits are completed. Any claims for such return journey shall be rejected unless fully motivated and approved prior to the event.

Reference location to site A	8km
Site A to site B	1km
Site B to site C	2km
Site C to reference location	6km
Total Distance	17km

### 14.3 Payment

Payment will be subject to the submission of a detailed claim for materials utilised and transport, together with the monthly submission of job cards for maintenance & servicing or other tasks instructed to be performed in terms of day works. Payment claims shall include full details of the work performed with supporting materials invoices, close-out reports, labour time sheets & transport details with distance travelled log.





## 15 UNPLANNED MAINTENANCE

### 15.1 Scope

The Department operates a reporting system for any plant faults or breakdowns (complaints) which may occur.

Client or tenant department staff report such plant faults or breakdowns to the DPW call centre which will log the complaint and will be transmitted to the Contractor by a DPW Representative.

The contractor shall respond to the complaint as necessary in accordance with the assigned priority level & the breakdown (complaint) shall be repaired as necessary to restore the plant to full operation in the minimum time. On completion of the complaint remedy the contractor shall complete a Job Card and submit to the Engineer with a copy to the facility concerned. The Contractor shall attach to the Job Card the following documents associated with the complaint.

- Copies of vendor tax invoices for materials used, each endorsed with the Complaint Number
- The Contractor's stamp and the Contractor's original signature.
- Travel log sheet for travel exclusively incurred in attending to the Complaint. If the Complaint was repaired during a scheduled service visit to the plant concerned, then the travel log for the complaint shall be appropriately endorsed.
- Time sheets of staff who attended to the Complaint all stamped and endorsed with the Contractor's original signature.
- Further information which may be necessary or instructed.

The Engineer will be responsible for closing the call.

Should the contractor not be able to complete the required breakdown repair work within the maximum down-time period allowed, it shall be his responsibility to obtain extension of down-time from the Engineer.

The written report shall clearly state the reasons for the extension, as well as the actual extension required.



Extension of down-time will only be granted by the Engineer if;

- (a) The maximum down-time is unreasonable in relation to the scope of the repair work required.
- (b) The delivery time of a new component/subassembly/machine or spares required for the repair of the defective component/subassembly does not enable the contractor to successfully complete the repair work within the maximum breakdown down-time allowed.

Priority Level Maximum Down-Time Allowed (MDTA) Penalties for non-performance per day

Fatal breakdown where specified 4 hours (immediate response)	R 1,500.00
Emergency breakdown 24 hours	R 750.00
Ordinary breakdown 7 days	R 1000.00
Quoted work Agreed program - failure	R 1000.00

“Maximum down time” shall mean the period of time allowed to repair a breakdown, and “actual down-time” shall mean the measured period from the instant when the breakdown was logged with the contractor until the installation has been repaired to its functional specification.

**16 Measurement & Payment**

a) Breakdown Repair work:

Materials, labour & transport elsewhere measured under Day works.

**16.1 Payment**

Payment will be subject to the submission of detailed claims for materials utilised and transport, together with the submission of unplanned maintenance Job Cards. Payment claims shall include full details of the work performed with supporting materials invoices, Job Cards, labour time sheets & transport details with distance travelled.



Technical Specification (FA)

## REPAIR & MAINTENANCE PROGRAM - MECHANICAL INSTALLATIONS

### KGOSI MAMPURU II CORRECTIONAL CENTRE

# TECHNICAL SPECIFICATION FA - STEAM GENERATING INSTALLATION

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FA 16 MAINTENANCE TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

## FA 01 SCOPE

(a) This specification covers the general repair and maintenance of steam generating installations which include the following two types of coal-fired boilers:

(i) Horizontal packaged wetback shell and fire-tube type boilers with chain grate stokers

(b) This specification also covers the repair and maintenance to the following ancillary boiler and boiler house equipment:

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".



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- (i) Coal handling equipment
- (ii) Ash handling equipment
- (iii) Grit collectors and chimneys
- (iv) Chain grate and underfeed stokers
- (v) Induced draught fan and damper controls
- (vi) Forced draught fan and damper controls
- (vii) Boiler level controls and alarms
- (viii) Feed-water pumps
- (ix) Hot well tanks
- (x) Water treatment plant and equipment
- (xi) Coal chutes and hoppers
- (xii) Boiler main steam valves, safety valves, non-return valves, blow-down and drain valves
- (xiii) Soot blower (if applicable)
- (xiv) Refractories
- (xv) Instrumentation and controls
- (xvi) Electrical control panel
- (xvii) Spares and tooling
- (xviii) Insulation and cladding
- (xix) Ladders and landings.

(c) This specification also addresses the following:

- (i) Hydraulic testing and internal and external inspections
- (ii) Training and boiler efficiencies
- (iii) Operating of boilers
- (iv) Coal quality and control.

(d) This specification shall form an integral part of the repair and maintenance contract document, and shall be read in conjunction with the additional and particular specifications compiled as part of this document.

This specification shall act as a guideline to the Particular Specification and, in the event of any discrepancies between the Technical Specification and the Particular Specification, the latter shall take precedence.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".



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The Contractor shall at all times adhere to this specification unless otherwise specified in the Particular Specification.

### FA 02            **STANDARD SPECIFICATIONS**

#### FA 02.01        **GENERAL STANDARD SPECIFICATIONS, REGULATIONS AND CODES**

The latest edition, including all amendments up to date of tender, of the following specifications, publications and codes of practice shall be read in conjunction with this specification and shall be deemed to form part thereof:

##### FA 02.01.01    SANS and other specifications and codes

- SANS 0400    -        The applications of the building regulations
- SANS 0142    -        Code of practice for the wiring of premises
- SANS 0140    -        Identification colour marking
- SANS 044     -        Parts I to IV: Welding
- SANS 460     -        Copper tubes for domestic plumbing
- SANS 0103    -        The measurement and rating of environmental noise with respect to annoyance and speech communications.

SANS Specifications listed on page 3 of the DPW specification OWG 371

- CKS 332      -        Specifications for industrial V-belts

Atmospheric Pollution Prevention Act, No 45 of 1965

BS 2790

BS 1740

BS 21

BS 1640



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### FA 02.01.02 Department of Public Works specifications

- OWG 371 - Specification of materials and methods to be used
- STD.PWD.VII - Standard Specification for steam boiler installations (Issue VII 1997)
- Standard Specification for electrical installations and equipment pertaining to mechanical installations

### FA 02.01.03 Occupational Health and Safety Act of 1993

All regulations and statutory requirements as laid down in the latest edition of the Occupational Health and Safety Act, 1993 (Act No 85 of 1993) shall be adhered to.

### FA 02.01.04 Manufacturers' specifications, codes of and practice and installation instructions

All equipment and materials shall be installed, serviced and repaired strictly in accordance with the manufacturers' specifications, instructions and codes of practice.

### FA 02.01.05 Municipal regulations, laws and by-laws

All municipal regulations, laws, by-laws and special requirements of the Local Authority shall be adhered to unless otherwise specified.

### FA 02.01.06 CSIR Publications

Technical Guide K15, CSIR 1970: A guide to water treatment in low-pressure and medium-pressure boilers

## FA 03 **VARIATIONS AND ADDITIONS TO STANDARD SPECIFICATIONS**

The following additional general specifications and requirements shall be read in conjunction with this specification and shall be adhered to unless otherwise specified in the Particular Specification.

### FA 03.01 **GENERAL REPAIR AND INSTALLATIONS REQUIREMENTS**



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- (a) All materials and equipment supplied and installed shall be of new high quality, design and manufactured to the relevant specifications, suitable for providing efficient, reliable and trouble-free service.
- (b) All work shall be executed in a first-class workman-like manner by qualified tradesmen.
- (c) All equipment, component parts, fittings and materials supplied and/or installed, shall conform in respect of quality, manufacture, test and performance to the requirements of the applicable current SANS specifications and codes, except where otherwise specified or approved by the Engineer/Departmental Representative in writing.
- (d) All materials and workmanship which, in the opinion of the Engineer/Departmental Representative, is inferior to that specified for the work will be condemned. All condemned material and workmanship shall be replaced or rectified as directed and approved by the Engineer/Departmental Representative.
- (e) The Contractor shall submit a detailed list of the equipment and material to be used to the Engineer/Departmental Representative for approval before placing orders or commencing installation.
- (f) All new equipment, materials and systems shall be installed and positioned such as to not impede on access routes, entrances and other services. The Contractor shall coordinate these items taking other services and equipment into account.
- (g) All control equipment and serviceable items shall be installed and positioned such that they will be accessible and maintainable.
- (h) The Contractor shall make sure that all safety regulations and measures are applied and enforced during the repair and construction periods to ensure the safety of the public and User Client.
- (i) Repair work shall be programmed in accordance with General Decommissioning, Testing and Commissioning Procedures, to ensure the shortest possible down-time of any service and the least inconvenience to the User Client and the public. The Contractor shall make sure that the necessary notifications and notices are timeously put into place for these activities.

**FA 04 OPERATING AND MAINTENANCE MANUALS**

The Contractor shall be responsible for the compilation of an inventory list and operating and maintenance manuals.



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This shall be done in accordance with Operating and Maintenance Manuals.

All information shall be recorded and reproduced in electronic format, as well as three sets of hard copies to be supplied to the Department.

Over and above what is specified in Operating and Maintenance Manuals, the operating and maintenance manual to be compiled shall be structured to include at least the following:

(a) System description

Complete system description and the working of the plant.

(b) Commissioning data

Complete commissioning, test and inspection data of plant.

(c) Operating data

- (i) Plant running check list and frequency of servicing required;
- (ii) Safety precautions to be implemented;
- (iii) Manual and automatic operation;
- (iv) Operator's duties (logging requirements);
- (v) Lubricating oils and service instructions;
- (vi) Pre-start checklist for each system;
- (vii) Starting and stopping procedures.

(d) Mechanical equipment

- (i) Description of all major items with the make, model number, names, addresses and telephone numbers of the suppliers, manufacturer or their agents;
- (ii) Design capacities of all equipment, including selection parameters, selection curves, capacity tables, etc;
- (iii) Manufacturers' brochures and pamphlets;





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- (iv) Schedule of spares with part numbers recommended to be held as stock.
  
- (e) Maintenance instructions
  - (i) Schedule of maintenance particulars, frequency of services and replacements;
  - (ii) Trouble-shooting guide;
  - (iii) Part number of all replacement items and spares;
  - (iv) Capacity curves of pumps, fans and compressors;
  - (v) Serial numbers of all items of equipment.
  
- (f) Electrical equipment
  - (i) Schedule of equipment, indicating manufacturer, type, model number, capacity and addresses and telephone numbers of suppliers;
  - (ii) Maintenance instructions;
  - (iii) Manufacturers' brochures and pamphlets;
  - (iv) Complete as-built circuit diagrams and diagrammatic representation of interconnections of all electrical equipment.
  
- (g) Instrumentation and control
  - (i) Description of each control system;
  - (ii) Schedule of control equipment indicating manufacturer, type, model number, capacity and addresses and telephone numbers of suppliers;
  - (iii) Maintenance instructions;
  - (iv) Manufacturer's brochures and pamphlets.
  
- (h) Drawings
  - (i) Paper prints of all as-built mechanical and electrical drawings;
  - (ii) Wiring diagrams framed behind glass shall be mounted adjacent to each relevant control panel.



## FA 05 LOGGING AND RECORDING PROCEDURES

The Contractor shall under this repair and maintenance contract institute a logging and recording system as part of his maintenance control plan as defined in General and Maintenance. This shall consist of a log and record book which shall be utilised to log and record all operations, faults, system checks, breakdowns, maintenance visits, inspections, coal delivery, chemical and salt deliveries, ash removal, readings, etc.

The logbook shall be kept in a safe place inside the boiler house and shall only be utilised by the boiler house supervisor, the Contractor and the Engineer/Departmental Representative. Copies of the monthly entries and recordings into the logbook shall be submitted by the Contractor together with his monthly report to the Engineer/Departmental Representative.

The logbook shall be structured to include at least the following:

- (a) Daily inspection and maintenance actions;
- (b) Monthly inspection and maintenance actions;
- (c) Three-monthly inspection and maintenance actions;
- (d) Six-monthly inspection and maintenance actions;
- (e) Annual inspection and maintenance actions;
- (f) Breakdown reports;
- (g) Daily boiler plant operating conditions, observations, recordings and measurements (including CO<sub>2</sub> measurement, steam consumption if available, steam pressure, water meter readings, etc);
- (h) Statutory inspection and test comments and reports;
- (i) Coal delivery report, stating the date, quality, quantity and delivery vehicle registration number;
- (j) Chemical and salt delivery reports, stating the date, quantity, description and vehicle registration number;
- (k) Ash removal report, stating the date and vehicle registration number.

The Contractor shall also institute an attendance register which shall be kept in a safe place inside the boiler house. This register shall be completed by all persons visiting the boiler house, including:

- (a) Boiler house operators, cleaning staff and supervisor
- (b) Contractor and maintenance personnel
- (c) Inspectors
- (d) Department personnel
- (e) Engineer.



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The register shall state the date, time-in, time-out, name, company and reason for visit.

A copy of the register shall be submitted by the Contractor together with his monthly report.

### **FA 06 TESTS AND INSPECTIONS ON COMPLETION OF REPAIR WORK**

Except where otherwise provided in the Contract, the Contractor shall provide all labour, materials, power, fuel, accessories and properly calibrated and certified instruments necessary for carrying out such tests. The Contractor shall make arrangements for such tests and shall give at least 72 hours written notice to the Engineer, before commencing the test.

In the event of the plant or installation not passing the test, the Department shall be at liberty to deduct from the Contract amount all reasonable expenses incurred by the Employer or the Engineer/Departmental Representative attending the repeated test.

Whenever any installation or equipment is operated for testing or adjusting as provided for above, the Contractor shall operate the entire system for as long a period as may be required to prove satisfactory performance at all times in the occupied space served by that system for up to twenty-four hours a day continuously until the system is handed over.

The Contractor shall provide all labour and supervision required for such operation and the Department may assign operating personnel as observers, but such observation time shall not be counted as instruction time.

After completing the installation or system, all equipment shall be tested, adjusted and readjusted until they operate to the satisfaction and approval of the Engineer/Departmental Representative.

The Contractor shall submit certificates of tests carried out to prove the efficiency of all equipment, as well as certificates to be obtained from all relevant authorities and statutory bodies, etc.

### **FA 07 QUALITY ASSURANCE SYSTEM**

The Contractor shall institute an approved quality assurance (QA) system which shall be submitted to the Engineer for approval. The records of this QA system shall be kept throughout the duration of the Contract and submitted to the Engineer at regular intervals as required.

### **FA 08 COMMISSIONING AND RE-COMMISSIONING OF PLANT AND INSTALLATION**



## FA 08.01      **GENERAL**

On completion of the repair work and/or the installation of new systems the plant and equipment shall be put into operation after all tests and adjustments have been carried out to the satisfaction of the Engineer/Departmental Representative. Where new plant is installed, the Contractor shall run and operate the system for a period of time as specified by the Engineer/Departmental Representative and train the staff of the User Client to operate and maintain the system.

Logging of the operation of the installations shall commence immediately upon startup.

The Contractor shall submit a full commissioning report.

## FA 08.02      **RE-COMMISSIONING OF BOILERS AND ANCILLARY EQUIPMENT**

On completion of the statutory inspections and tests or major boiler repairs the Contractor shall re-commission the boiler and its ancillary equipment. This operation shall be done strictly in accordance with the manufacturer's specification and shall be witnessed by the Engineer. This shall include but not be limited to the following:

- (a) All required pre-commissioning mechanical checks:
  - (i) Check boiler shell waterside to ensure that it is clean of all residue and foreign matter.
  - (ii) Check that all fittings, hand holes, manholes, blow-down valves, pipe connections, etc, are properly secured and installed in accordance with the manufacturer's specification.
  - (iii) Clean out feed pump strainers.
  - (iv) Check that all joint seals are replaced with new and properly installed.
  - (v) Check boiler shell gas side to ensure that it is clean of any dust, slag, ash, loose refractory waste material, etc.
  - (vi) Check and inspect all refractory work for compliance with manufacturer's specification.
  - (vii) Check that all tube holes has been brushed and free of any foreign matter.
  - (viii) Check that all moving components are free to move and that they are securely installed.
  - (ix) Check all expansion joints and seals. Reinstall all covers and doors and check that they are properly secured.
  - (x) Check that the stoker is properly installed and that all components are installed in accordance with manufacturer's specification. These checks shall include alignment, tensioning, movement of grate without obstruction, seals, movement of dampers, guillotine door, grate links, set points, secureness of all equipment and components.
  - (xi) Check for the correct installation and operation of the soot blowers.
  - (xii) Check and record that all lubrication to equipment and components have been done in accordance with manufacturer's specification.
  - (xiii) Check that the FD and ID fans have been correctly installed and reassembled in accordance with manufacturer's specification.



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- (xiv) Check and clean grit collector and ensure that grit discharge port seals are in place and seal properly
  - (xv) Check that chimneys are clean and securely supported and fixed.
  - (xvi) Check and ensure that all valves and safety valves are correctly installed and in the correct operating position, safety valves to be set in accordance with the required blow-off pressure for this installation.
  - (xvii) Check and clean out hot well tank and flush out water supply to boilers.
- (b) All required pre-commissioning electrical checks
- (i) Check all wiring connections for tightness and repair any hot connections.
  - (ii) Check that all electrical equipment have been properly reconnected in accordance with the manufacturer's specification.
  - (iii) Perform and record all required electrical insulation tests on equipment.
  - (iv) Check and test all controls with main circuits isolated.
  - (v) Check all motor-driven equipment for correct rotational directions.
  - (vi) Check and test the operation of all indication and warning lights.
  - (vii) Check, set, record and readjust all equipment control and set points in accordance with manufacturer's specification.
  - (viii) Run all motor-driven equipment for a period to ensure free movement and correct operation, feed pumps only to be operated for a short interval to check rotation.
- (c) Commissioning of the boiler

On completion of the pre-commissioning checks the Contractor shall proceed with the commissioning of the boiler. This shall be done strictly in accordance with the manufacturer's specification and shall include but not be limited to the following:

- (i) Fill boiler with feed water from the hot well tank to the prescribed level in the manner as described by the manufacturer.
- (ii) During this process all level and warning system checks shall be performed on the water level control system.
- (iii) The feed pump's operation must be tested and indication lights checked.
- (iv) Check, test and set up water softener and chemical dosing equipment to the required water quality for the boiler.
- (v) Set and adjust all stoker controls in accordance with the manufacturer's specification.
- (vi) Set and adjust ID and FD damper controls in accordance with the manufacturer's specification.



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- (vii) Set and adjust combustion controls in accordance with the manufacturers specification.
- (viii) Set and test steam pressure detector to the correct boiler operating pressure.
- (ix) Check the operation of the guillotine door and adjust to the required starting coal bed depth.
- (x) Check the coal hopper and coal level controls. Check and ensure that the coal conveying system operates and that the coal is at the correct level inside the hopper.
- (xi) Check and test the draught gauges for the correct operation.
- (xii) Proceed with lighting the fire.
- (xiii) Bring boiler up to steam, following the correct procedures as described by the manufacturer and ensuring correct combustion, coal bed depth, ignition line, etc, and that all controls are functioning properly and are set in the correct position.
- (xiv) When operating pressure has been reached the steam valve to the system has to be cracked open until full supply pressure to system is achieved, on which the valve can be fully opened.
- (xv) During the load conditions the boiler has to be readjusted and finally switched to automatic operation on completion of all automatic control functions for correct operation.

The Contractor shall visit, inspect, test and readjust the boiler over the 30-day period following the re-commissioning to ensure the correct functioning of the boiler and its associated equipment.

## FA 09 GUARANTEE OF INSTALLATION AND EQUIPMENT

The Contractor shall provide guarantees obtained from the manufacturer(s) and/or supplier(s) to the effect that each piece of new equipment, supplied and installed under the repair work, complies with the required performance and will function as part of the complete system.

All new equipment, including, the complete new installations and the systems as a whole shall be guaranteed for a period of 12 (twelve) months commencing upon day of issue of certificate of completion for repair work of the installation.

## FA 10 MAINTENANCE TOOLS AND SPARES

Each boiler house shall be equipped with the necessary maintenance tools and spares required by the specific type of boilers and installation for the daily operation and maintenance of the plant. At the start of the repair and maintenance contract the Contractor shall in the presence of the User Client make an inventory of the existing tools and spares, and any shortfall or damaged tools and spares shall be replaced with new.



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All replacement tools and spares shall be as specified by the boiler and equipment manufacturers. These tools and spares shall be kept in a lockable room or cabinet of which the boiler house supervisor and the Contractor shall carry keys. The Contractor shall on a monthly basis take stock of these items in the presence of the boiler house supervisor and record and report to the Engineer/Departmental Representative. Any shortfall shall be replaced by the Contractor as part of his responsibility under this Contract.

The tools and spares to be carried shall include but not be limited to at least the following:

### (a) Tools

Manhole spanner

Hand hole spanner

Double-ended spanners

Tube cleaning rods

Correct size tube cleaning brushes

Correct size tube de-scaling tools

Tube cleaning machine where required

CO2 analyser

Grate crank handle

Ash shovel

Grease gun

Driving drift

Shear pins

All other necessary tools for the type of installation

### (b) Spares

Manhole and hand hole joints

Replacement gauge glasses and accessories

Replacement sight glasses

Replacement belt drives

Grate links and rods

Any other spares that may be required for the specific installation and/or due to the remoteness of the installation.



## FA 11 COAL DELIVERY RECORDING AND CONTROL

As part of this repair and maintenance contract, the Contractor shall, in collaboration with the User Client and coal provider, institute a quality and delivery control plan for each boiler house. This control plan shall consist of a set of records to be completed with each coal delivery, stating the following:

- (a) Delivery note number
- (b) Date of coal delivery
- (c) Quantity of coal delivered
- (d) Type of coal delivered
- (e) Coal sample identification number
- (f) Contractor's signature on acceptance of information and coal sample
- (g) Coal deliverer's signature
- (h) Boiler house supervisor's signature
- (i) Comments by any party.

The type of coal to be accepted shall comply with the specification to be agreed between the User Client and the Engineer/Departmental Representative.

The Contractor shall be responsible for taking a sample of each batch of delivered coal and sending it to an approved laboratory for confirmation that the coal samples conform to the agreed type of coal for the specific installation. The result of the tested sample shall contain the following:

- (a) Various coal sampled mesh sizes
- (b) Calorific value
- (c) Moisture content
- (d) Ash content
- (e) Ash fusion temperature
- (f) Volatile content.

The results of these tests shall be submitted to the Engineer/Departmental Representative.

The recorded information shall also be utilised to determine the boiler efficiency, together with other relevant information to be gathered.





## Technical Specification (FA)

The Contractor shall, in collaboration with the Engineer/Departmental Representative, institute the necessary measures to ensure the safe keeping and security of the coal storage.

All the relevant recorded information shall be submitted monthly together with Contractor's maintenance schedules to the Engineer/Departmental Representative.

### FA 12 ASH REMOVAL RECORDING AND CONTROL

As part of this repair and maintenance contract, the Contractor shall, in collaboration with the User Client, ash removal company and the Engineer/Departmental Representative institute an ash removal control plan for each boiler house. This control plan shall consist of a set of records to be completed with each removal taking place and shall include the following:

- (a) Date of contact of removal company for removal of ash;
- (b) Date of actual ash removal;
- (c) Approximate quantity of ash removed;
- (d) Ash destination address, to be completed by removal company;
- (e) Random samples of ash taken and recorded by Contractor;
- (f) Contractor's signature on acceptance of information;
- (g) Removal company signature;
- (h) Boiler house supervisor's acceptance signature;
- (i) Comments by any party.

The Contractor shall at random take samples of the ash and send it to an approved laboratory for analysis in order to determine the amount of un-burnt carbon. The un-burnt carbon in the ash should normally not be more than 20 % per volume.

The Contractor shall, in collaboration with the User Client and the Engineer/Departmental Representative, also institute a control plan to ensure safe handling and storing of the ash.

All the relevant recorded information shall be submitted, together with Contractor's maintenance schedules, monthly to the Engineer/Departmental Representative.



## FA 13 WATER TREATMENT CHEMICAL DELIVERIES AND CONTROL

As part of this repair and maintenance contract, the Contractor shall, in collaboration with the User Client and chemical supplier, institute a quality and delivery control plan for each boiler house. The control plan shall consist of a set of records to be kept up to date with each delivery of chemicals, stating the following:

- (a) Delivery note number
- (b) Date of delivery
- (c) Type and quantity of salts and chemicals delivered
- (d) Make-up water volume, recorded regularly
- (e) Feed-water volume, recorded regularly
- (f) Random sampled feed-water recorded by chemical supplier
- (g) Contractor's signature on acceptance of information
- (h) Chemical supplier deliverer's signature
- (i) Boiler house supervisor's signature
- (j) Comments by any party.

The type of salts and chemicals to be accepted as in compliance with the specification shall be agreed between the User Client and the Engineer/Departmental Representative, and shall be applicable to the type of boilers employed, as well as the make-up water supplied to the feed tank.

The Contractor shall ensure, together with the chemical supplier, that at regular intervals the boiler feed-water be sampled and analysed, feed-water treatment equipment be adjusted to ensure the correct dosing percentages and treatment for the specific installation.

The Contractor shall, in collaboration with the User Client and Engineer/Departmental Representative, also institute a control plan to ensure safe handling and storing of the chemicals.

All the relevant recorded information shall be submitted, together with Contractor's maintenance schedules, monthly to the Engineer/Departmental Representative.

Where the Contractor specified in the Particular Specification and/or Schedule of Quantities shall be responsible for the supply and delivery to site of the chemicals and salts for the 36-month maintenance contract period. The Contractor shall appoint an approved chemical supplier for the delivery of these chemicals and salts. The Engineer/Departmental Representative reserves the right to send samples of these chemicals and feed water for analysis by an independent laboratory for compliance checks.



## FA 14 **BOILER EFFICIENCY CONTROL**

As part of this repair and maintenance contract, the Contractor shall, in collaboration with the boiler house supervisor, institute a boiler efficiency control plan for each boiler house. The control plan shall consist of a set of records to be completed regularly by monitoring the following:

- (a) Date and time entries recorded
- (b) Make-up water meter reading
- (c) Feed-water to boiler meter reading
- (d) Steam pressure gauge reading
- (e) CO<sub>2</sub> percentage reading of exhaust gases
- (f) Final exhaust gas temperature reading
- (g) Furnace pressure gauge reading
- (h) Steam flow meter reading if installed
- (i) Quantity of coal consumed.

The Contractor shall, in collaboration with the boiler house supervisor, ensure that these records are taken at predetermined intervals to ensure the efficient operation of the plant. Together with the boiler manufacturer's information and the above-mentioned recorded information, the Contractor shall issue a calculation indicating the approximate plant efficiency.

All the relevant recorded information shall be submitted, together with the Contractor's maintenance schedules, monthly to the Engineer. It shall be the responsibility of the Contractor to ensure that the boiler can operate at the design efficiency in all respects.

## FA 15 **REPAIR WORK TO INSTALLATIONS, SYSTEMS AND EQUIPMENT**

### FA 15.01 **GENERAL**

During the repair and maintenance contract all the systems, installations and equipment shall be repaired as specified in the Particular Specification. This repair work shall include but not be limited to the specified Particular Specification details.

All repair work shall be executed using approved materials and equipment suitable to the systems and/or installations they serve. The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, municipal laws and by-laws, manufacturer's specifications and codes of practice and all additional and particular specifications included in this document.



The repair work items are listed in tabular form in the Particular Specification with all relevant details, such as capacity, size, manufacturer, model number, etc.

All repair work shall be executed within the period specified in the Appendix to Tender. All new equipment, materials and systems shall be furnished with a written guarantee of a defects liability period of 12 months commencing on the date of issue of a certificate of completion of the repair work. These guarantees shall be furnished in favour of the Department of Public Works.

Repair work items for the steam generating installations are categorised under the following headings:

- (a) Statuary inspections and tests
  - (i) Internal and external inspection
  - (ii) Hydraulic pressure test
  
- (b) Coal-fired boiler
  - (i) Boiler shell water side
  - (ii) Boiler shell gas side
  - (iii) Integral piping
  - (iv) Boiler valves and mountings
  - (v) Refractories and brickwork
  - (vi) Soot blowers
  - (vii) Lagging and cladding
  
- (c) Feed-water equipment and controls
  - (i) Feed-water tanks
  - (ii) Feed-water pumps
  - (iii) Water level equipment and controls
  
- (d) Combustion and draught equipment



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- (i) Stoker and stoker controls
  - (ii) Fans and damper controls
  - (iii) Combustion controls
  - (iv) Chimneys
  - (v) Ducting
- (e) Coal handling and conveying equipment
- (i) Coal bunker and gratings
  - (ii) Coal conveying equipment
- (f) Ash and grit removal equipment
- (i) Grit collectors
  - (ii) Ash conveying equipment
  - (iii) Ash and grit trolleys
  - (iv) Ash storage and handling
- (g) Electrical installation, wiring and control panels
- (i) Instrumentation and controls
  - (ii) General electrical power and lighting installation
  - (iii) Electrical control panels
- (h) Water treatment equipment
- (i) Water softener
  - (ii) Chemical dosing equipment
- (i) Boiler house ancillary equipment
- (i) Blow-down sump
  - (ii) Ladders and galleries



- (iii) Painting of equipment, plant and building.

## FA 15.02 STATUTORY INSPECTIONS AND TESTS

The Contractor shall at the commencement of the repair and maintenance contract arrange for the compulsory statutory inspections and tests on each of the boilers in his contract in accordance with the Occupational Health and Safety Act, 1993. This shall include an internal and external inspection and hydraulic test of the boilers. These inspections and tests shall be performed and certified by an approved inspection authority. The Contractor shall be responsible for all the preparation work and ancillary work as specified. Only one boiler at a time shall be taken out of commission for these purposes in accordance with General Decommissioning, Testing and Commissioning Procedures.

During this period the Contractor shall inspect, service, repair, replace and overhaul all ancillary boiler equipment associated with these boilers. These actions shall be planned in such a manner as to minimise the down-time of the boiler, as well as without influencing the operation of the rest of the plant. All defective equipment shall be replaced and repair work required to the boilers shall be done.

All inspections and findings shall immediately be reported to the Engineer/Departmental Representative.

### FA 15.02.01 Hydraulic pressure testing and internal and external inspections

A hydraulic pressure test and internal and external inspection shall be performed on each boiler in accordance with the requirements of The Occupational Health and Safety Act, No 85 of 1993 as amended and shall be witnessed and certified by an approved inspection authority.

The inspections and hydraulic test shall be performed every 24 months as prescribed in the Occupational Health and Safety Act of 1993.

In accordance with the regulations the Contractor shall be responsible for providing the necessary tools, workmen, lights, equipment and apparatus which may be required by the Inspector for the purposes of the inspection and tests, and shall include the following equipment and actions:

- (a) All equipment, tools, rigging and other facilities necessary for conducting the test and inspections shall be provided.
- (b) The boiler test pump and gauges calibration certificates shall be made available prior to commencing the hydraulic testing.



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- (c) The hydraulic test medium shall be clean cold water. The required test pressure shall be as stipulated in the Occupational Health and Safety Act, No 85 of 1993, as amended.
- (d) The maximum rating of any hand-held light source shall be 50 volt.
- (e) The hydraulic test date shall be confirmed/negotiated with the approved inspection authority.
- (f) All notices as required by the regulations shall be provided and put into place.
- (g) The up to date boiler log book and Government boiler register shall be made available to the Inspector.

FA 15.02.02 Boiler preparation for statutory inspection and testing

The following preparation work shall be carried out, prior to the external and internal inspection and hydraulic test, by the Contractor:

- a) All electrical supplies and controls to the boiler shall be isolated prior to starting of testing and inspection procedures.
- b) The boiler shall be emptied and cleaned. All scale deposits are to be removed from internal shell, tubes and water spaces. Methods to be used shall be approved by the Engineer/Departmental Representative and shall carry the approval of the boiler manufacturer.
- c) Dismantle and remove boiler lagging and cladding where necessary and where directed by the Engineer/Departmental Representative.
- d) Remove stoker from boiler
- e) Remove required refractory brickwork from boiler before inspection.
- f) All boiler fittings shall be stripped down, de-scaled, machined, re-seated, overhauled and tested to manufacturer's specification by approved engineering works. These are to be certified as complying with the manufacturer's specification. Each boiler fitting shall be hydraulically tested and witnessed as such by the Engineer/Departmental Representative.
- g) Any boiler fittings found to be beyond repair shall be replaced with new on approval of the Engineer/Departmental Representative.
- h) Remove all manholes, hand hole covers, mud holes and wash-out plugs.
- i) Remove boiler fusible plug and replace with new.
- j) Clean out and wire brush stacks, smoke boxes, flues and plates.
- k) Smoke boxes, stack uptake and domes to be painted in accordance with manufacturer's specification.
- l) Tubes to be cleaned, inspected and replaced if necessary.



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- m) Open and clean out all blow-down and other trenches and replace damaged and leaking pipework.
- n) Chemical cleaning of the tubes shall not be allowed without the consent of the Engineer/Departmental Representative.
- o) Internal parts of the boiler shall only be painted on completion of the successful boiler inspection by the Inspector.

FA 15.02.03 Internal and external inspection

On completion of all the required preparation work the Contractor shall notify the Engineer/Departmental Representative and shall arrange for the external and internal inspection of the boiler to take place by the approved inspection authority. The inspection shall be certified with relevant comments by the inspection authority.

FA 15.02.04 The hydraulic pressure test

On completion of the necessary preparation work and internal and external inspection and relevant repair work, the Contractor shall prepare for the hydraulic test to be executed, which shall include the following:

- (a) Replace all manholes, hand hole covers, mud holes and wash-out plugs. All joints are to be renewed.
- (b) Replace boiler refractory brickwork and refractories prior to hydraulic pressure.
- (c) Properly clean and expose all boiler seams, stayheads and mountings.
- (d) All safety valves, steam valves and other connections to the boiler shall be blanked off prior to starting of testing procedures.
- (e) Ensure that all water gauge cocks are in the off-position and that all gauge glass protectors are in place.
- (f) The boiler shall be filled with clean water up to the highest opening of the boiler shell.
- (g) The system shall be put under the specified hydraulic pressure, with the boiler test pump, at least 15 minutes prior to the witnessing of the hydraulic test pressure.
- (h) The pressure shall be maintained for a minimum period as specified by the Inspector.
- (i) On completion of the hydraulic test, all boiler controls shall be tested.
- (j) Any leaks resulting from the hydraulic test shall be repaired and witnessed by the Engineer/Departmental Representative. Any repair work shall lead to a new hydraulic test to be witnessed by the Inspector.
- (k) The witnessed hydraulic test shall be signed off by the approved inspection authority.





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- (l) After repair of defects and reinstallation of all equipment, components, lagging, fittings, etc, and approval and certification of all inspections and tests the Contractor shall put the boiler back into operation.

The re-commissioning shall be done strictly in accordance with the boiler manufacturer's specification and shall be witnessed by the Engineer/Departmental Representative.

## FA 15.03 BOILER PLANT EQUIPMENT AND INSTALLATION

Any repair work which may be required on the boiler plant installation shall be executed with approved materials, equipment, methods and tooling suitable for the specific application. The said repair work shall be executed in accordance with the relevant codes of practice, standards, regulations, statutory regulations, manufacturers' specifications and codes of practice and as specified in all additional and particular specifications included in this document. During the statutory inspections and tests the following items are to be repaired and serviced as required by the Inspection Authority, boiler manufacturer and this specification.

### FA 15.03.01 Coal-fired boilers

#### (a) Boiler shell water side

Check and inspect boiler shell for any signs of corrosion, leaks, damages and ensure that the inside is clear of all foreign matter. All scale deposits are to be removed by means of approved method of the boiler manufacturer. If any signs of damage and/or corrosion are observed, the Contractor shall notify the Engineer. Together with the Inspection Authority a decision shall be taken on the approved type of repairs to be implemented, if repair work is possible. All repair work to the boiler shell shall be done in accordance with the boiler manufacturer's specification, by qualified personnel, and shall be approved and witnessed as complying by the Inspection Authority. Check and inspect all internal pipe connections for correct fitting and soundness, ensure that all openings are clear of any foreign matter. Replace all hand hole, manhole and mud hole covers using new joint seals and rings. All existing paint work to boiler shell shall be properly prepared and repainted in accordance with the manufacturer's specification.

#### (b) Boiler shell gas side

Remove all smoke box covers and doors. Clear and clean out all dust, slag, ash and any foreign matter. Brush and clean out furnace tubes ensuring that no foreign matter



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is left behind. Boiler furnace tubes are to be inspected by the Inspection Authority. If any tubes are found in need of replacement these shall be done in accordance with the boiler manufacturer's specification, by qualified personnel, and shall be approved and witnessed by the Inspection Authority. All existing paintwork to boiler shell shall be properly prepared and repainted in accordance with the manufacturer's specification. Replace all smoke box covers and doors and ensure that they are all properly secured.

### (c) Integral pipe work

All integral pipe work to the boiler to be inspected, cleaned and checked. The Contractor shall ensure that any defective piping, fittings, etc, be replaced and/or repaired in accordance with the manufacturer's specification.

### (d) Boiler valves and mountings

All boiler valves including safety, blow-down, steam stop, air release, feed-water check, sequencing, drain valves, etc, are to be stripped, de-scaled, inspected, and overhauled. Where valves are found to be beyond repair these shall be replaced with new ones on approval of the Engineer/Departmental Representative.

Overhauling of valves shall include repacking of gland packing's, machining and reseating of valve seats and valves. All boiler valves and fittings shall be inspected by the Inspection Authority prior to reassembling. All valves shall be hydraulically pressure tested, prior to refitting, and witnessed by the Inspection Authority.

The Contractor shall ensure that certificates of compliance to the manufacturer's specification are obtained and issued to the Engineer/Departmental Representative, on all overhauled and refurbished valves, prior to refitting to boilers.

All overhauling and refurbishing work to boiler valves shall be done in accordance with the manufacturer's specification.

All boiler valve mountings on removed boiler valves are to be inspected and replaced with approved new mountings in accordance with the manufacturer's specification, which shall include washers, bolts, nuts, studs, etc.

Safety valves are to be adjusted and tested to the correct blow-off pressure.



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(e) Refractories and brickwork

All removed refractories and brickwork during the internal and external inspection are to be replaced with new in accordance with the manufacturer's specification. All other refractories and brickwork not removed shall be inspected and repaired where necessary.

All recasting and replacement brickwork and refractories shall be done with approved materials, tooling, moulds, etc, in accordance with the manufacturer's specification.

On completion of the above work the Inspection Authority shall inspect and certify the work.

(f) Soot blowers

All soot blowers are to be removed, inspected, cleaned, overhauled and refurbished in accordance with the manufacturer's specification. On completion prior to refitting the soot blowers shall be tested in the presence of the Inspection Authority.

(g) Lagging and cladding

Boiler lagging and cladding are to be inspected, repaired and/or replaced where necessary.

On completion of statutory inspections and testing the removed lagging and cladding are to be replaced in an approved manner, replacing damaged sections of cladding and lagging, fixing screws to be properly secured and missing screws replaced. On completion cladding has to be repainted if necessary.

Where lagging and cladding are damaged beyond repair it shall be replaced with approved type as supplied by the manufacturer of the boiler.

FA 15.03.02 Feed-water equipment and controls

(a) Feed-water tanks



The feed-water tank has to be emptied, inspected, cleaned, repaired and refilled and put back into operation. Where only a single feed-water tank exists, this operation shall be carefully planned, as a complete plant shut-down will have to be arranged. This shall be done in close collaboration with the User Client and Engineer, ensuring the minimum shut-down period. Where dual feed-water tanks are present, only one tank at a time shall be taken out of operation for the necessary repair and service work.

The repair work to these tanks shall include at least the following:

- (i) Inspect and test the feed-water tank and associated equipment and pipework for any leakages.
  - (ii) Isolate supply water, condensate inlets and feed-water outlet to tank.
  - (iii) Empty tank by means of draining it through the drain valves.
  - (iv) Remove and clean tank of all mud, sediment, scale deposits and foreign matter by means of approved methods.
  - (v) Carry out all necessary repair work to the tanks and associated equipment and pipework.
  - (vi) Inspect tank lining for any defects and corrosion and if necessary carry out any required repair actions.
  - (vii) Inspect, test, repair and replace if necessary the filling mechanism.
  - (viii) Inspect tank stand for any defects and damages, and carry out the necessary repair work if any.
  - (ix) Inspect lagging and cladding to feed-water tanks and carry out the necessary repair or/and replacement work.
  - (x) Refill feed-water tank with clean water and open feed-water supplies to boilers.
  - (xi) Inspect painting to tank and tank stand and if necessary prepare and repaint.
- (b) Feed-water pumps

The feed-water pumps to the boilers are to be inspected, tested, serviced, repaired together with their associated equipment and pipe work. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the feed-water pumps and equipment shall include at least the following:

- (i) Inspect and test the feed-water pumps for correct operation.
- (ii) Replace gland packings, seals and gaskets.



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- (iii) Inspect and test for any bearing noise and replace if necessary.
- (iv) Clean out pump strainers, check non-return valves, valves, etc.
- (v) Test pump motor windings for balance phases, insulation test and check wiring.
- (vi) Inspect pump mountings and repair if necessary.

(c) Water level equipment and controls

The boiler water level and feed pump controls are to be inspected, tested, adjusted, serviced and repaired in accordance with the manufacturer's specification. This shall include at least the following:

- (i) Float type water level controls are to be dismantled, stripped, de-scaled, cleaned, serviced, repaired and where necessary replaced.
- (ii) All water level controls are to be reassembled, refitted, tested and adjusted in accordance with the manufacturer's specification. The adjustments shall be in accordance with the manufacturer's specification for starting and stopping the pumps.
- (iii) Low water level alarms shall be tested, inspected and adjusted to the correct level ensuring that the alarms are sound and indicated.
- (iv) Where modulating valves are fitted these shall be inspected, tested, serviced and repaired in accordance with the manufacturer's specification. The pressure relief valve on pump discharge shall be cleaned, serviced, overhauled and readjusted to the correct blow-off level.
- (v) Replace water level gauge glasses and gaskets.

FA 15.03.03 Combustion and water treatment

(a) Stoker and stoker controls

The stoker and stoker controls are to be inspected, tested, serviced, repaired together with their associated equipment. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

- (i) The repair work to the stoker, stoker controls and equipment shall include at least the following:
- (ii) Remove stoker from boiler furnace during the statutory inspections.
- (iii) Inspect and replace burnt or/and damaged chain grate links and rods where necessary.
- (iv) Replace chain grate bearings.



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- (v) Inspect sprockets and replace if required.
- (vi) Inspect shafts, rear roller and re-machine or replace if necessary.
- (vii) Inspect stoker chassis for straightness, alignment and possible damages, and repair if necessary.
- (viii) Inspect undergrate damper guide vanes and ensure that they are clean of any dust, slag and foreign matter.
- (ix) Renew and recast all refractories and brickwork in accordance with the manufacturer's specification.
- (x) Inspect main worm wheel for any defects and replace if necessary.
- (xi) Replace all joint seals with new.
- (xii) Reassemble stoker and stoker components.
- (xiii) Replace guillotine door support cables.
- (xiv) Inspect, service and overhaul stoker drive and gearbox in accordance with the manufacturer's specification.
- (xv) Replace shearpin.
- (xvi) Adjust and readjust grate tension.
- (xvii) Check and adjust fuel bed depth indicator.
- (xviii) Lubricate all required lubrication points as directed by the manufacturer.
- (xix) Mount FD fan and controls onto stoker.
- (xx) Reinstall stoker into boiler furnace in accordance with manufacturer's specification.

(b) Fans and damper controls

The FD and ID fans and associated dampers and damper controls are to be dismantled, stripped, inspected, serviced, repaired and, where necessary, components have to be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the FD and ID Fans, dampers and damper controls shall include at least the following:

- (i) Dismantle and strip down above equipment during the statutory inspections.
- (ii) Inspect fan impeller blades, clearances, etc, for correct curvature and clearance adjustment.
- (iii) Replace V-belts.



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- (iv) Replace FD and ID fan bearings with new.
- (v) Inspect fan casings and repair if required.
- (vi) Clean casing and repaint.
- (vii) Inspect damper controls and dampers for free movement, fan impeller clearance adjustment, linkage adjustments, control movements and settings. Repair, service and replace any defective equipment.
- (viii) Test fans and pulling motor windings for balance phases, insulation test and check wiring.
- (xi) Lubricate all required lubrication points and replace oils as directed by the manufacturer.
- (x) Inspect fan mountings and repair if necessary.
- (xi) Reassemble and refit fans, damper controls and dampers.

(c) Combustion controls

The combustion control equipment shall be dismantled, stripped, inspected, serviced, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the combustion control equipment shall include at least the following:

- (i) Dismantle and strip down above equipment during the statutory inspections.
- (ii) Inspect, service, adjust and repair combustion control equipment.
- (iii) Inspect, service, repair and adjust chain drives and linkages.
- (iv) Test motor windings for balance phases, insulation and check wiring.
- (v) Lubricate all required lubrication points and replace oils as directed by the manufacturer.
- (vi) Inspect mountings and repair if necessary.

(d) Chimneys

The chimney stacks shall be inspected and repaired where required. This shall include at least the following:



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For self-supporting stacks check torque tension of holding-down bolts, check access door and reseal, inspect chimney stack for any defects and repair if required, clean out the base of the stack, check and repair lagging and cladding if fitted, prepare and repaint where required.

For guyed type chimneys inspect and replace, if necessary, guy cables and securing points, re-tension guy cables, check and repair lagging and cladding if fitted, prepare and repaint where required.

### (e) Ducting

The gas ducting shall be inspected and repaired where necessary. This shall include replacing all joint and expansion seals, cleaning out of ducting of all foreign matter, repairing and/or replacing any defective ducting, prepare and repaint ducting.

## FA 15.03.04 Coal handling and conveying equipment

### (a) Coal bunker

The coal bunkers or coal storage shall be inspected, cleaned out, and damaged structural elements and brickwork be repaired.

For coal bunkers the coal gratings and supports shall be inspected and all defective and/or damaged sections be repaired and/or replaced as might be necessary. Clear the coal storage area of any foreign objects.

### (b) Coal conveying equipment

The coal conveying equipment shall be inspected, serviced, tested, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the coal conveying equipment shall include at least the following:

- (i) Test all equipment for correct functioning.
- (ii) For en masse conveyors open covers, inspect links, chains and travelling ducting for any defects and/or damages, repair and/or replace components where necessary.





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- (iii) For screw elevators inspect bushes, screw, casing, etc, for any defects and/or damages, repair and/or replace components where necessary.
- (iv) Inspect, service, lubricate and where necessary repair gear boxes and drives.
- (v) Test conveying equipment motor windings for balance phases, insulation and check wiring. Where necessary motors shall be reconditioned.
- (vi) Inspect, test, service, adjust and where necessary repair and/or replace hopper coal level equipment.
- (vii) Inspect, test, service and repair coal conveying electrical control panel ensuring that all controls function properly in accordance with the design.

FA 15.03.05 Ash and grit removal equipment

(a) Grit collectors

The grit collector shall be inspected, serviced, tested, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the grit collector shall include at least the following:

- (i) Inspect grit collector supports and mountings for sturdiness, and repair and/or replace where necessary.
- (ii) Clear out grit collector of all grit, dust and foreign matter.
- (iii) Inspect all discharge port and other access opening seals and replace with new ones, ensure that grit trolley seals seat tightly onto grit trolley. Check flap operation.
- (iv) Prepare and repaint grit collector casing and supports.

(b) Ash conveying equipment

If ash conveying equipment are installed these equipment shall be inspected, serviced, tested, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the ash conveying equipment shall include at least the following:

- (i) Test all equipment for correct functioning.



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- (ii) For submerged belt ash conveyors drain sump, clean out, inspect belt, roller bearings, frame, etc, any defects and/or damages, repair and/or replace components where necessary.
- (iii) For screw ash elevators inspect bushes, screw, casing, etc, for any defects and/or damages, repair and/or replace components where necessary.
- (iv) Inspect, service, lubricate and where necessary repair gear boxes and drives.
- (v) Test ash conveying equipment motor windings for balance phases, insulation test and check wiring. Where necessary motors shall be reconditioned.
- (vi) Inspect, test, service, adjust and where necessary repair and/or replace control equipment.
- (vii) Inspect, test, service and repair ash conveying electrical control panel ensuring that all controls function properly in accordance with the design.

(c) Ash and grit trolleys

All ash and grit trolleys are to be inspected, serviced and repaired where necessary.

FA 15.03.06 Electrical installation, wiring and control panels

(a) Instrumentation and controls

All instrumentation and control equipment shall be inspected, tested, repaired, adjusted and where necessary replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the instrumentation and control equipment shall include at least the following:

- (i) Test all equipment for correct operation.
- (ii) Inspect, test, service, adjust setting and if necessary repair and/or replace steam detector.
- (iii) Inspect, recalibrate and if beyond repair replace steam pressure gauge.

(b) General electrical power and lighting installation



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The Contractor shall be responsible for the repair and maintenance work of the general power and lighting installation inside the boiler house. All repair work to this installation shall be done in accordance with the Standard Specification for Electrical Installations and Equipment pertaining to Mechanical Services of the Department of Public Works. This work shall include all repair work to the existing power sockets, cabling, wiring, lighting, and distribution boards.

### (c) Electrical control panels

All electrical control panels shall be inspected, tested, and repaired, including all equipment inside the control panel. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the electrical control panels shall at least include the following:

- (i) Test all control equipment for correct operation.
- (ii) Check and test all MCBs, isolators, contactors, overloads, other type of motor drives, pilot lights, control switches, etc, and readjust all set points; where equipment is found to be faulty these shall be replaced with new approved equipment.
- (iii) Check all wiring and connections for proper conducting and replace where hot connections are found.
- (iv) Clean out panel interior and exterior, inspect panel body, fascias, doors, paintwork, etc, and repair where necessary.

### FA 15.03.07 Water treatment equipment

#### (a) Water softener

The water softener shall be inspected, tested, repaired, adjusted and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the water softener shall at least include the following:

- (i) Test all equipment for correct operation.



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- (ii) Sample of feed-water shall be taken and analyzed to ensure that water softener is adjusted to the correct percentage. The hardness of the water shall be within the boiler manufacturer's specification.
- (iii) Check control and mixing equipment and salt container.

(b) Chemical dosing equipment

The chemical dosing units and containers shall be inspected, tested, repaired, adjusted and where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the chemical dosing units and containers shall include at least the following:

- (i) Test all equipment for correct operation.
- (ii) Sample of feed-water shall be taken and analysed to ensure that the chemical dosing rate and chemicals conform to the requirements of the boiler manufacturer.
- (iii) Check, inspect, service and repair control and dosing pump equipment.
- (iv) The above work shall be done in collaboration with the water treatment supplier company.

FA 15.03.08 Boiler house ancillary equipment

(a) Blow-down sump

The blow-down sump shall be emptied, cleaned out, inspected and any repair work to the structure, manhole covers and frames, vent pipes, sparge pipes, etc, to be carried out.

(b) Ladders and galleries

The ladders and galleries inside the plant room shall be inspected and any defects and/or damages repaired. Ladders and galleries shall be prepared and repainted. All mountings and fixing points shall be inspected and repaired if necessary.

(c) Painting of equipment, plant and building



The Contractor shall on completion of the repair work clean and repaint the complete plant room and equipment as specified in accordance with the Department's Specification.

## FA 16 MAINTENANCE TO INSTALLATIONS, SYSTEMS AND EQUIPMENT

### FA 16.01 GENERAL

Monthly maintenance responsibilities for each installation including all units and components as specified, shall commence with access to the site. A difference shall be made in payment for the maintenance prior to and after practical completion of repair work.

Maintenance responsibilities of the completed installation shall commence upon the issue of a certificate of practical completion for repair work, and shall continue for the remainder of the 36-month contract period.

This part of the Contract shall include:

- (a) Routine preventative maintenance;
- (b) Corrective maintenance, and
- (c) Breakdown maintenance,

as defined in General Maintenance, for the specified installations described under FA 01 of this specification.

The maintenance work to be performed and executed shall be done strictly in accordance with Additional Specification SA: General Maintenance, and as specified in Particular Specification PFA and this specification.

The said maintenance work shall be executed in accordance with the relevant codes of practice, statutory regulations, standards, regulations, municipal laws and by-laws and the manufacturers' specifications and codes of practice.

The maintenance schedules and frequency shall be developed under the maintenance control plan to be instituted by the Contractor, as specified in General Maintenance.



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All new equipment, components and materials supplied and installed under the maintenance contract shall be furnished with a prescribed manufacturer's guarantee.

The maintenance work and items are to be categorised for each maintenance activity under the following headings:

- (a) Coal-fired boiler/ Diesel fired boiler
- (b) Combustion equipment
- (c) Coal handling equipment
- (d) Ash handling equipment
- (e) Grit collection and draught equipment
- (f) Water treatment and feed-water tanks
- (g) Steam and condensate installation
- (h) Electrical installation and controls.

The Contractor shall be remunerated monthly, based on his performance, for maintaining the complete installation in a perfect functional condition.

**FA 16.02 ROUTINE PREVENTATIVE MAINTENANCE**

This routine maintenance of the installations, systems and equipment shall be done in accordance with General Maintenance and the Particular Specification related to this work.

The routine maintenance work to be performed and executed shall include, but not be limited to the items listed in tables FA 16.02/1, FA 16.02/2, FA 16.02/3, FA 16.02/4, FA 16.02/5 and FA 16.02/6 below under the respective headings.

These actions and findings shall be logged and reported on the relevant approved schedules and reports.

**TABLE FA 16.02/1: DAILY ACTIONS AND MAINTENANCE**

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1	Measure CO2 content of exhaust with CO2 analyser.	Boiler house supervisor	Check/Record



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2	Blow-down gauge glasses.	Boiler house supervisor	Check/Record
3	Test level controls for correct functioning.	Boiler house supervisor	Check/Record
4	Inspect boiler valves for leakages.	Boiler house supervisor	Check/Record
5	Inspect boiler feed-water pumps for leakages, correct functioning and bearing noises.	Boiler house supervisor	Check/Record
6	Clean exterior of boiler and keep boiler plant room clean. Check stoker grate tension and report to Contractor if need to be adjusted. to adjust tension in accordance with manufacturer's specification, if reported.	Boiler house supervisor Boiler house supervisor and Contractor	Check/Record Check/Record
8	Check stoker grate links and rods for any damages. All damages to be reported to Contractor who shall replace any damaged links or/and rods.	Boiler house supervisor and Contractor	Check/Record/Repair
9	Complete log book actions as specified in FA 06, FA 12, FA 13, FA 14 and FA 15. Boiler house supervisor	Boiler house supervisor	Check/Record

TABLE FA 16.02/2: WEEKLY ACTIONS AND MAINTENANCE

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1	All as listed under table FA 16.02/1	Boiler house supervisor and Contractor	Check/Record/Adjust/Repair
2	Test safety valves as described by the boiler manufacturer.	Contractor	Test/Record
3	Check the furnace draught gauge for correct operation in accordance with the manufacturer's specification.	Contractor	Check/Record
4	Inspect stoker brickwork and refractories and if found to be damaged it must be repaired.	Contractor	Check/Record
5	Lubricate all required lubrication points, including soot blowers, stoker drive shaft bearings, guillotine door and check stoker drive oil level.	Boiler house supervisor and Contractor	Check/Service/Record
6	Visual inspection of all boiler house equipment and installations for any pending defects, faults, etc.	Boiler house supervisor and Contractor	Check/Record
7	Inspect and test all control functions and		



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readjust if necessary.

Contractor

Test/Record/Adjust

TABLE FA 16.02/3: MONTHLY ACTIONS AND MAINTENANCE

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1	All as listed under tables FA 16.02/1 and FA 16.02/2	Boiler house supervisor and Contractor	Check/Record Adjust/Repair
2	Clean out al strainers. Contractor		Check/Service/Record
3	Inspect and test soot blowers for correct operation.	Contractor	Check/Record
4	Inspect all V-Belts and replace if necessary.	Contractor	Check/Record/Replace
5	Inspect all brickwork and refractories and repair and/or replace where necessary.	Contractor	Check/Record Repair
6	Inspect all seals and joints for leakages and replace if necessary.	Contractor	Check/Record Replace
7	All grease nipples to be greased with specified grease in accordance with equipment manufacturer's specification.	Contractor	Check/Service/Record
8	Test and analyse water quality, adjust and repair water treatment equipment if necessary and where specified, supply and deliver chemicals and salts.	Contractor and chemical supplier	Test/Record Adjust/Repair
9	Sample and analyse coal quality.	Boiler house supervisor, coal supplier and Contractor	Check/Record/Test
10	Check ash removal implementation and report.	Boiler house supervisor, ash removal company and Contractor	Check/Record
11	Test and record boiler efficiency.	Boiler house supervisor and Contractor	Test/Record
12	Check coal conveying equipment for correct functioning and check for any visual faults or defects and repair if necessary.	Contractor Contractor	Check/Record/Repair Check/Record
13	Inspect, service, repair and replace where required all electrical equipment and installations.	Contractor	Test/Record Adjust/Repair
14	Inspect, service all steam and condensate piping and	Contractor	Test/Record Adjust/Repair equipment.

TABLE FA 16.02/4: THREE-MONTHLY ACTIONS AND MAINTENANCE

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1.0	All as listed under tables FA 16.02/1, FA 16.02/2 and FA 16.02/3	Boiler house supervisor and Contractor	Check/Record/Adjust/Repair

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".





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2.00	Lubricate ID and FD damper control units.	Contractor	Check/ Record Service
3.00	Replace ID and FD fan bearing grease.	Contractor	Check/ Record Service
4.00	Brush and clean fire tubes and clean flue, back plate, combustion chamber and remove all grit and soot deposits. Inspect and repair where necessary.	Contractor	Check/Record/Service/Repair
5.00	Check boiler water side for scale deposits and clean and de-scale.	Contractor	Check/Record/Service/Repair
6.00	Replace stoker gear box and drive oils.	Contractor	Check/Record Service/Repair
7.00	Check, inspect, service all coal conveying equipment and repair where necessary.	Contractor	Check/Record Service/Repair
8.00	Check, inspect, service and repair if necessary grit collectors and chimney stacks.	Contractor	Check/Record Service/Repair
9.00	Inspect, repair and replace where necessary all lagging and cladding.	Contractor	Check/Record Service/Repair

**TABLE FA 16.02/5: SIX-MONTHLY ACTIONS AND MAINTENANCE**

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1	All as listed under tables FA 16.02/1, FA 16.02/2 and FA 16.02/3	Boiler house supervisor and Contractor	Check/Record/Adjust/Repair
2	Inspect stoker chassis, repair and replace as required.	Contractor	Check/Record/Service/Repair
3	Fully test, inspect, service, adjust, repair and replace as required ID and FD dampers.	Contractor	Check/Record/Service/Repair
4	Inspect, descale, clean out, repair and replace as required feed-water tanks.	Contractor	Check/Record/Service/Repair

**TABLE FA 16.02/6: ANNUAL ACTIONS AND MAINTENANCE**

ITEM	MAINTENANCE DESCRIPTION	ACTION RESPONSIBILITY	ACTION
1	All as listed under tables FA 16.02/1, FA 16.02/2, FA 16.02/3 and FA 16.02/4	Boiler house supervisor and Contractor	Check/Record/Adjust/Repair
2	Annual survey by Occupational, Health and Safety Inspector.	Contractor, Department and Inspector	Inspect/Test/Service/Repair
3	Inspect and repaint all equipment and building	Contractor	Inspect/Test/Service/Repair



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elements where required.

4	Inspect, clean, repair blow-down sump.	Contractor	Inspect/Test/Service/Repair
5	Remove, strip, service, repair, adjust and repair level controls, alarms and safety equipment.	Contractor	Inspect/Test/Service/Repair

### FA 16.03      **CORRECTIVE MAINTENANCE**

This corrective maintenance of the installations, systems and equipment shall be done in accordance with General Maintenance and the Particular Specification related to this work.

The Contractor shall inspect and check all equipment, materials, systems and installation for any pending breakdowns, maladjustments or anomalies of equipment.

The Contractor shall report and take actions to correct such shortfall.

### FA 16.04      **BREAKDOWN MAINTENANCE**

Breakdown maintenance of the installations, systems and equipment shall be done in accordance with General Maintenance.

All breakdown problems experienced shall be acted upon within the time limitations allowed in the General Maintenance specifications.

All breakdown maintenance shall be done in accordance with the relevant specifications, standards, regulations and codes.

The Contractor shall have access to the necessary spares, equipment and tools for any possible breakdowns.



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## DEPARTMENT OF PUBLIC WORKS

### KGOSI MAMPURU II PRISON (DCS)

#### REPAIR & MAINTENANCE PROGRAM - MECHANICAL INSTALLATIONS

## PARTICULAR SPECIFICATION PFA - STEAM GENERATING INSTALLATION

### CONTENTS

PFA 01	SCOPE
PFA 02	GENERAL DESCRIPTION OF INSTALLATION
PFA 03	TECHNICAL DETAILS OF EXISTING INSTALLATION
PFA 04	STATUS OF EXISTING INSTALLATION
PFA 05	DETAILS OF REPAIR WORK
PFA 06	DETAILS OF MAINTENANCE WORK

### PFA 01 SCOPE

- (a) This specification covers the particulars of the repair and maintenance work to the steam generating installation at the Kgosi Mampuru II prison. This Particular Specification shall be read in conjunction with the Technical Specification FA: Steam Generating Installation; and all additional and technical specifications compiled as part of this document.

The intended repair and maintenance work to this installation will restore the existing installation to a safe, efficiently functional system that complies with all statutory regulations and applicable standards, in the process repairing all defects and shortfalls. Monthly maintenance responsibilities for each installation shall commence with access to the site. A difference shall be made in payment for maintenance prior to and after practical completion of repair work. On completion of the repair work, the completed installation shall be maintained and serviced by the Contractor for the remainder of the 36-month Contract period.

- (b) The installations to be maintained under this Contract includes the following:



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- (i) Two coal fired horizontal boilers;
- (ii) Three diesel boilers;
- (iii) Coal storage and handling equipment;
- (iv) Feed-water storage and control equipment;
- (v) Water-treatment equipment;
- (vi) Steam and condensate piping and equipment inside the boiler house;
- (vii) Electrical control equipment wiring, cabling, panels and general electrical installation inside the boiler house.

### PFA 02

#### **GENERAL DESCRIPTION OF INSTALLATION**

This installation generates steam by means of three coal fired boilers, which is distributed via a steam and condensate reticulation network to all steam consumption equipment at this prison.

### PFA 03

#### **TECHNICAL DETAILS OF EXISTING BOILERS**

At the time of compilation of this document the existing installation consisted of the equipment and plant listed below with their relevant technical details.

##### **PFA 03.01 TECHNICAL DETAILS: COAL-FIRED BOILER NO 1**

1	Manufacturer	John Thompson
2	Model no	A.50
3	Boiler Serial no	71676
4	Registration certificate number	Not available
5	Boiler type	Horizontal coal fired multi-tubular
6	Design code	BS2790-1956
7	Factory no	TBA
8	Manufacturing date	1976



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9	Maximum continuous rating	TBA
10	Design pressure rating	1035 kPa
11	Authorised working gauge pressure	1035 kPa
12	Normal operating pressure	1293 kPa
13	Safety blow-off pressure	1293 kPa
14	Stoker make & type	JTA – chain grate type
15	Stoker motor capacity	TBA
16	Feed pumps	2
17	Feed pump power capacity	ca 11 kW 400 volt three-phase 50 Hz per pump
18	Chimney stack type	Guyed 350 mm dia. supported from boiler
19	Boiler control panel	Standard - mounted against boiler
20	Level controls	Single and dual switch float operated level switches (Mobrey)

**PFA 03.02 TECHNICAL DETAILS: COAL-FIRED BOILER NO 2**

1	Manufacturer	John Thompson
2	Model no	A.50
3	Boiler Serial no	71677
4	Registration certificate number	Not available
5	Boiler type	Horizontal coal fired multi-tubular
6	Design code	TBA
7	Factory no	TBA
8	Manufacturing date	1976
9	Maximum continuous rating	TBA
10	Design pressure rating	1035 kPa
11	Authorised working gauge pressure	1035 kPa
12	Normal operating pressure	1900 kPa
13	Safety blow-off pressure	1900 kPa
14	Stoker make & type	JTA – chain grate type
15	Stoker motor capacity	TBA
16	Feed pumps	2
17	Feed pump power capacity	ca 11 kW 400 volt three-phase 50 Hz per pump



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18	Chimney stack type	Guyed 350 mm dia. supported from boiler
19	Boiler control panel	Standard - mounted against boiler
20	Level controls	Single and dual switch float operated level switches (Mobrey)

**PFA 03.03 TECHNICAL DETAILS: DIESEL BOILER NO 3**

1	Manufacturer	SA GALVANIZED WORKS (FURY)
2	Model no	PB163
3	Boiler Serial no	EB 5870
4	Registration certificate number	Not available
5	Boiler type	Horizontal diesel boiler
6	Design code	BS 2790.56 CLASS 1
7	Factory no	TBA
8	Manufacturing date	1971
9	Maximum continuous rating	TBA
10	Design pressure rating	155 kPa
11	Authorised working gauge pressure	155 kPa
12	Normal operating pressure	233 kPa
13	Safety blow-off pressure	233 kPa
14	Feed pumps	2
15	Feed pump power capacity	ca 11 kW 400 volt three-phase 50 Hz per pump
16	Chimney stack type	Guyed 350 mm dia. supported from boiler
17	Boiler control panel	Standard - mounted against boiler
18	Level controls	Single and dual switch float operated level switches (Mobrey)
19.	Burner	

**PFA 03.04 TECHNICAL DETAILS: DIESEL BOILER NO 4**

1	Manufacturer	SA GALVANIZED WORKS (FURY)
2	Model no	PB164
3	Boiler Serial no	EB 5871



Particular Specification (PFA)

4	Registration certificate number	Not available
5	Boiler type	Horizontal diesel boiler
6	Design code	BS 2790.56 CLASS 1
7	Factory no	TBA
8	Manufacturing date	1971
9	Maximum continuous rating	TBA
10	Design pressure rating	155 kPa
11	Authorised working gauge pressure	155 kPa
12	Normal operating pressure	233 kPa
13	Safety blow-off pressure	233 kPa
14	Burner	TBC
15	Feed pumps	2
16	Feed pump power capacity	ca 11 kW 400 volt three-phase 50 Hz per pump
17	Chimney stack type	Guyed 350 mm dia. supported from boiler
18	Boiler control panel	Standard - mounted against boiler
19	Level controls	Single and dual switch float operated level switches (Mobrey)

**PFA 03.05 TECHNICAL DETAILS: DIESEL BOILER NO 5**

1	Manufacturer	John Thompson
2	Model no	TC 500
3	Boiler Serial no	73537
4	Registration certificate number	Not available
5	Boiler type	DIESEL
6	Design code	BS 2790.1992 CLASS 1
7	Factory no	TBA
8	Manufacturing date	2000
9	Maximum continuous rating	TBA
10	Design pressure rating	1100 kPa
11	Authorised working gauge pressure	1100 kPa
12	Normal operating pressure	1375 kPa
13	Safety blow-off pressure	1375 kPa



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14	Burner	TBA
15	Feed pumps	2
16	Feed pump power capacity	ca 11 kW 400 volt three-phase 50 Hz per pump
17	Chimney stack type	Guyed 350 mm dia. supported from boiler
18	Boiler control panel	Standard - mounted against boiler
19	Level controls	Single and dual switch float operated level switches (Mobrey)

**FEED-WATER TANK**

**WATER SOFTENER PLANT**

**CHEMICAL TREATMENT EQUIPMENT**

**OPERATOR TOOLS AND SPARES (refer to FA 10)**

**ELECTRICAL SUPPLY AND EQUIPMENT**

**PFA 04 STATUS OF EXISTING INSTALLATION**

At the time of compilation of this document the status of the equipment and installation was briefly as follows:

**PFA 04.01 COAL-FIRED BOILERS**

(a) Boiler no 1

(i) Boiler is approximately 45 years old, has been maintained and is in reasonable condition.

(b) Boiler no 2

(i) Boiler is approximately 45 years old, has been maintained and is in reasonable condition.

**PFA 04.02 DIESEL BOILERS**

(c) Boiler no 3

(i) Boiler is approximately 50 years old, has been maintained and is in reasonable





Particular Specification (PFA)

Condition.

(d) Boiler no 4

(i) Boiler is approximately 49 years old, has been maintained and is in reasonable Condition.

(e) Boiler no 5

(i) Boiler is approximately 21 years old, has been maintained and is in reasonable Condition.

(d) General

(i) Feed-water tank and pumps are in reasonable condition

(ii) Pumps are in good condition

(iii) Chemical dosing equipment and water softener are in reasonable condition

These equipment were serviced and maintained in terms of a previous repair and maintenance contract.

PFA 05

**DETAILS OF REPAIR WORK REQUIRED**

The following work shall form part of the repair work to the coal-fired boiler plant room installation. This work shall be done in accordance with the relevant regulations, codes, specifications and Technical Specification FA: Steam Generating Installation, as set out in this document. The work to be included is set out in PFA 05.01, PFA 05.02 and PFA 05.03 below:

The repair work shall be carried out in the following sequence in accordance with the requirements of General Decommissioning, Testing and Commissioning Procedures (SC 02 - Phased repairs and upgrading of the installation):

1. Decommission, test and re-commission coal-fired boiler no 1.
2. Decommission, test and re-commission coal-fired boiler no 2.
3. Decommission, test and re-commission coal-fired boiler no 3.
4. Decommission, test and re-commission coal-fired boiler no 4.



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5. Decommission, test and re-commission coal-fired boiler no 5.

No work shall be done to decommission any boiler unless the previous boiler in the sequence has been tested and commissioned. A minimum of one boiler shall always be in full operation at any one time.

**PFA 05.01 GENERAL DESCRIPTION OF REPAIR WORK**

The repair work to this installation shall at least include, but not be limited to the work listed below. Any items, components, installations and systems not detailed in particular shall be repaired and/or replaced if found to be defective and/or inoperative.

- (a) Statutory internal and external inspections and hydraulic pressure tests on both boilers at the commencement of the contract.
- (b) Testing and re-commissioning of all equipment and installations as may be required and directed by the Departmental representative/Engineer /Departmental Representative.
- (c) Implementation of control plans for fuel delivery, water treatment and boiler efficiency by the Contractor.
- (d) Supply and compilation of maintenance manuals. (Should it be required)

**PFA 05.02 STATUTORY INSPECTIONS AND TESTS**

The Contractor shall at the start of the Maintenance portion of the Contract perform the required statutory internal/external inspection and hydraulic pressure test in accordance with the Occupational Health and Safety Act, no 85 of 1993 (as amended) and as specified in Technical Specification FA: Steam generating installation, on each of the boilers inside the plant room. During this period all boiler ancillary equipment and components shall be repaired as may be required, serviced, adjusted and tested.

**PFA 05.02.01 Internal and external inspection**

This work shall be performed in accordance with FA 16.02 of the Technical Specification FA: Steam Generating Installation, the manufacturer's specification and the requirements of the Occupational Health and Safety Act of 1993 and shall include:



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- (a) Decommissioning of boilers and electrical isolation;
- (b) All required preparation work for the internal and external inspection to the two boilers including all items listed under item PFA 05.03;
- (c) Repairs of all defects, replacement of defective equipment/components and servicing of all equipment/components;
- (d) Rendering all the necessary assistance, providing the required equipment and tools for the inspection by the approved Inspection Authority;
- (e) Providing and making sure that all record books and inspection reports and certificates are completed in full and submitted to the Departmental representative/Engineer /Departmental Representative;
- (f) Reassembling, recasting, refitting and adjustment of all boiler equipment components and ancillary equipment in accordance with the manufacturer's specification and Technical Specification FA: Steam Generating Installation.

PFA 05.02.02 Hydraulic pressure tests

This work shall be performed in accordance with FA 16.02 of Technical Specification FA: Steam installation, the manufacturer's specification and the requirements of the Occupational Health and Safety Act of 1993 and shall include:

- (a) All preparation work required for the hydraulic pressure test to the boilers;
- (b) Rendering all the necessary assistance, providing the required equipment and tools for the test by the approved Inspection Authority;
- (c) Putting the boilers under the required pressure for witnessing by the Inspection Authority;
- (d) Providing and making sure that all record books and inspection reports and certificates are completed in full and submitted to the Departmental representative/Engineer /Departmental Representative;
- (e) Reassembling, recasting, refitting and adjustment of all boiler equipment, components and ancillary equipment in accordance with the manufacturer's specification and Technical Specification FA: Steam generating installation.

**PFA 05.03 REPAIR WORK TO BOILERS AND ANCILLARY EQUIPMENT**

The following refers to work required in preparing boilers for statutory inspections

PFA 05.03.01 Coal-fired boilers



Particular Specification (PFA)

- (a) Boiler shell water side - Refer to Standard Specification FA clause FA 16.03.01(a)
- (i) Clean out and descale boiler.
  - (ii) Inspect boiler water side and integral pipework.
  - (iii) Replace all manhole, handhole and mudhole cover seals and joint rings.
  - (iv) Replace fusible plug with new.
  - (v) Execute any required repair work to boiler as directed by the Inspection Authority or the Departmental representative/Engineer.
- (b) Boiler shell gas side - Refer to Standard Specification FA clause FA 16.03.01(b)
- (i) Clear and clean out all dust, slag, ash, grit and foreign matter.
  - (ii) Brush and clean out all fire tubes.
  - (iii) Inspect boiler gas side.
  - (iv) Allow for any replacement of tubes and required repairs as result of the inspection as directed by the Inspection Authority or the Departmental representative/Engineer.
  - (v) Replace all smoke box covers and door joint seals and insulation with new approved joint seals and insulation.
- (c) Integral pipework - Refer to Standard Specification FA clause FA 16.03.01(c)
- (i) Clear and clean out all integral pipework and fittings.
  - (ii) Inspect boiler gas side.
  - (iii) Allow for any required repairs as result of the inspection as directed by the Inspection Authority or the Departmental representative/Engineer.
- (d) Boiler valves and mountings - Refer to Standard Specification FA clause FA 16.03.01(d)
- (i) Dismantle, remove and strip down all boiler valves.
  - (ii) De-scale and clean all boiler valves and mountings.
  - (iii) Inspect boiler valves and mountings.
  - (iv) Overhauling all boiler valves by approved



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Departmental Representative/Engineer.

- (v) Hydraulic testing, setting, adjustment and reassembling of all boiler valves.
  - (vi) Certification of boiler valves in accordance with manufacturer's specification.
  - (vii) Replace boiler mountings.
  - (viii) Test and adjust safety valves.
  - (ix) Refitting, installing, testing and adjustment of all boiler valves and mountings.
- (e) Refractories and brickwork - Refer to Standard Specification FA clause FA 16.03.01(e)
- (i) Remove and break down all refractories and brickwork.
  - (ii) Recast and install new brick work on completion of inspection.
- (f) Lagging and cladding - Refer to Standard Specification FA clause FA 16.03.01(g)
- (i) Replace lagging and cladding to oil-fired boilers on completion of statutory inspections and tests with new stainless steel cladding as specified by the manufacturer.

PFA 05.03.02 Feed-water equipment and controls

- (a) Feed-water tank - Refer to Standard Specification FA clause FA 16.03.02(a)
- (i) Isolate, empty, clean out, de-scale and inspect feed-water tank.
  - (ii) Check make-up water ball float valve and adjust to correct level.
  - (iii) Internally line tank with anti-corrosion coating suitable for 110°C operating temperature.
  - (iii) Refill tank with treated make-up water.
  - (iv) Prepare and repaint tank stand and exposed steel parts.
  - (v) Allow for temporary feed-water tank during repairs to feed-water tank including all temporary pipes and fittings.
- (b) Feed-water pumps - Refer to Standard Specification FA clause FA 16.03.02(b)
- (i) Isolate, strip, dismantle, de-scale and clean out feed-water pumps.



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- (ii) Inspect, and report on condition of pump and motor components.
  - (iii) Replace packings, seals, bearings and gaskets.
  - (iv) Replace any worn-out or/and damaged parts and components on report back as directed by the Departmental representative/Engineer.
  - (v) Clean out pump strainers.
  - (vi) Inspect and repair pump mountings.
  - (vii) Refit, install and test feed-water pumps.
- (c) Water level equipment and controls - Refer to Standard Specification FA clause FA 16.03.02(c)
- (i) Dismantle, strip, de-scale and clean dual and single switch float operated controls (Mobrey type).
  - (ii) Dismantle, strip, descale and clean water level gauge glasses and replace gauge glasses and gaskets. Refit to boiler.
  - (iii) Dual and single level controls to be overhauled, inspected, tested, adjusted and refitted.
  - (iv) Test alarm levels and operation.
  - (v) Test blow-down valves and operation.

PFA 05.03.03 Combustion and draught equipment

- (a) Stoker and stoker controls - Refer to Standard Specification FA clause FA 16.03.03(a)
- (i) Remove stoker from boiler furnace during the statutory inspections.
  - (ii) Inspect and replace burnt or/and damaged chain grate links and rods where necessary.
  - (iii) Replace chain grate bearings.
  - (iv) Inspect sprockets and replace if required.
  - (v) Inspect shafts, rear roller and re-machine or replace if necessary.
  - (vi) Inspect stoker chassis for straightness, alignment and possible damages, and repair if necessary.
  - (vii) Inspect under grate damper guide vanes and ensure that they are clean of any dust, slag and foreign matter.
  - (viii) Renew and recast all refractories and brickwork in accordance with the manufacturer's specification.



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- (ix) Inspect main worm wheel for any defects and replace if necessary.
  - (x) Replace all joint seals with new.
  - (xi) Reassemble stoker and stoker components.
  - (xii) Replace guillotine door support cables.
  - (xiii) Inspect, service and overhaul stoker drive and gearbox in accordance with the manufacturer's specification.
  - (xiv) Replace shear pin.
  - (xv) Adjust and readjust grate tension.
  - (xvi) Check and adjust fuel bed depth indicator.
  - (xvii) Lubricate all required lubrication points as directed by the manufacturer.
  - (xviii) Mount FD (Forced Draft) fan and controls onto stoker.
  - (xix) Reinstall stoker into boiler furnace in accordance with manufacturer's specification.
- (b) Fan and damper controls - Refer to Standard Specification FA clause FA 16.03.03(b)
- (i) Dismantle, strip down FD (Force Draft) and ID induction fan and damper control equipment during the statutory inspections.
  - (ii) Inspect fan impeller blades, clearances, etc, for correct curvature and clearance adjustment. Replace damaged parts and components.
  - (iii) Replace FD and ID fan bearings with new if required
  - (iv) Inspect fan casings and repair if required.
  - (v) Clean casings, prepare and repaint.
  - (vi) Inspect damper controls and dampers for free movement, fan impeller clearance adjustment, control movements and settings. Repair, service and replace any defective equipment.
  - (vii) Test fan motor windings for balanced phases, insulation test and check wiring.
  - (viii) Lubricate all required lubrication points as directed by the manufacturer.
  - (ix) Inspect fan mountings and repair if necessary.
  - (x) Reassemble and refit fans, damper controls and dampers.
- (c) Combustion controls - Refer to Standard Specification FA clause FA 16.03.03(c)



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- (i) Inspect, service, adjust and repair where necessary combustion control equipment.
  - (ii) Lubricate all required lubrication points and replace oils as directed by the manufacturer.
  - (iii) Inspect mountings and repair if necessary.
- (d) Chimneys - Refer to Standard Specification FA clause FA 16.03.03(d)
- (i) Inspect and clean chimney stacks.
  - (ii) Inspect guyed cables securing points, repair if necessary and re-tension and secure fixing points.
  - (iii) Repair flashing and seal chimney stack roof penetrations.
  - (vi) Prepare and repaint chimney stacks.

PFA 05.03.04 Coal Handling and Conveying Equipment

Refer to clause FA 16.03.04

(a) Coal Bunkers

The coal bunkers or coal storage shall be inspected, cleaned out, and damaged structural elements and brickwork be repaired.

(b) Coal Conveying Equipment

The coal conveying equipment shall be inspected, serviced, tested, and repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the coal conveying equipment shall include at least all items listed in clause FA 16.03.04(b)

PFA 05.03.05 Ash and Grit Removal Equipment





Particular Specification (PFA)

Refer to clause FA 16.03.05

(a) Grit Collectors

The grit collector shall be inspected, serviced, tested, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the grit collector shall include at least all items listed in clause FA 16.03.05(a)

(b) Ash Conveying Equipment

If ash conveying equipment are installed these equipment shall be inspected, serviced, tested, repaired and, where necessary, components be replaced. All repair and service work shall be done strictly in accordance with the manufacturer's specification.

The repair work to the ash conveying equipment shall include at least all items listed in clause FA 16.03.05(b)

(c) Ash and Grit Trolleys

All ash and grit trolleys are to be inspected, serviced and repaired where necessary.

PFA 05.03.06 Electrical installation, wiring and control panels

(a) Instrumentation and controls - Refer to Standard Specification FA clause FA 16.03.06(a)

- (i) Inspect, test, service and clean all instrumentation and control equipment.
- (ii) Inspect, test, service, recalibrate and adjust steam pressure detector and pressure gauge.
- (iii) Inspect all access ports and discharge ports and replace all joint seals and gaskets with new.



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- (iv) Repair and/or replace any defective parts or/and components.
  
- (b) General electrical power and lighting installation - Refer to Standard Specification FA clause FA 16.03.06(b)
  - (i) Inspect, test, service and clean the complete general electrical power installation, including distribution boards, lighting, power points, etc.
  - (ii) Repair and/or replace any defective parts or/and components, including replacing light fitting globes.
  
- (c) Electrical control panels - Refer to Standard Specification FA clause FA 16.03.06(c)
  - (i) Inspect, test, service and clean all the electrical control panels.
  - (ii) Inspect and test the operation and condition of all MCBs, motor starters, overloads, indication lights, control equipment, selector switches, etc, and replace where necessary.
  - (iii) Check and repair/replace all primary and secondary control panel wiring for proper conducting and replace where required.
  - (iv) Clean out control panels interior and exterior, inspect penal body, fascias, doors, paintwork, etc, and repair where necessary.
  
- (d) Extract fans
  - (i) Clean, check and repair

PFA 05.03.07 Water treatment equipment

- (a) Water softener - Refer to Standard Specification FA clause FA 16.03.07(a)
  - (i) Inspect, test, descale, service and clean the water softener equipment.
  - (ii) Sample and analyze feed-water, and adjust water softener to the correct water hardness as specified by boiler manufacturer.
  - (iii) Check and clean out salt container and recharge with salt.



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- (b) Chemical dosing equipment - Refer to Standard Specification FA clause FA 16.03.07(b)
  - (i) Inspect, test, service, clean and re-commission the chemical dosing equipment and re-connect to the feed-water supplies.
  - (ii) Sample and analyze feed-water, and adjust chemical dosing equipment to the correct water quality as specified by boiler manufacturer.
  - (iii) Ensure that each chemical container is filled with the correct chemicals for this application.

PFA 05.03.08 Boiler house ancillary equipment

- (a) Blow-down sump - Refer to Standard Specification FA clause FA 16.03.08(a)
  - (i) Empty, clean out, de-sludge and inspect blow-down sump, manhole covers and frames, sparge pipe, vent and other piping for any defects and damages.
  - (ii) Repair/replace all defects and damages.
  - (iii) Put blow-down sump back into operation.
- (b) Ladders and galleries - Refer to Standard Specification FA clause FA 16.03.08(b)
  - (i) Clean and inspect ladders and galleries for any defects, corrosion, mountings and supports.
  - (ii) Repair/replace all defects and damage.
  - (iii) Prepare and repaint ladders and galleries.
- (c) Painting of equipment, plant and building - Refer to Standard Specification FA clause FA 16.03.08(c)
  - (i) Clean, prepare and repaint boiler house interior walls, structure, doors, frames, inside roof, etc, in accordance with Specification OWG 371: Specification of Materials and Methods to be used (Fourth edition, October 1993 or latest version).

PFA 05.03.09 Piped installations



Particular Specification (PFA)

- (a) Steam and condensate installation - Refer to Technical Specification FB: Steam Distribution Installations.
- (i) Clean, test, inspect, service and repair all steam and condensate pipe fittings, accessories, components and equipment inside the boiler house.
  - (ii) Supply, deliver, install, test, commission, and hand over a water meter on the feed water line to each boiler inside the boiler house. This shall include all cutting into existing pipework, fixing, bracketing, fittings, testing and putting back into operation of the feed water line. This water flow meter shall be of Kent or equal and approved manufacture. This equipment shall be installed and commissioned as directed by the manufacturer complete with all ancillary equipment and components.
  - (iii) Repair/replace all defective and damaged equipment and components.
  - (iv) Fit a steam flow and pressure recorder. The recorder shall be capable of graphically showing steam pressure in kilo-Pascals and flow in kg/hr on a monthly basis. In addition the recording system shall be capable of printing out the average steam pressure for the month as well as the total quantity of steam supplied either in kilograms or tonnes. The unit shall be complete with orifice plate and electronic data capturing equipment and all electrical connections and equipment required to enable it to function reliably under the conditions of high temperature imposed on it. It shall be a continuously rated device. Provision shall be made for easy and quick replacement of any component should it be required. A calibration certificate from a recognized testing authority competent to check the accuracy of the unit shall be supplied with it.
- (b) Blow-down pipe installation - Refer to Technical Specification FB: Steam Distribution Installations.
- (i) Clean out blow-down pipe channel and replace all blow-down and drain pipework and accessories.
  - (ii) All blow-down and drain pipework shall be done with steam schedule 40 piping and welded fittings.
  - (iii) Check that the drainage point to the channel is open and functioning properly.
  - (iv) Test and hand over pipe system.

PFA 06

**DETAILS OF MAINTENANCE WORK**

PFA 06.01 **GENERAL**



## Particular Specification (PFA)

The Contractor shall be responsible for the complete maintenance of all the equipment, components, installations and systems forming part of this repair and maintenance contract for Steam Boiler Plant from the commencement of the contract until final completion. The Contractor shall strictly adhere to Technical Specification FA: Steam Generating Installations, with regard to the maintenance period, obligations, responsibilities, actions and activities, etc, which shall also include the following maintenance actions:

- (a) Routine preventative maintenance: A guideline to the required actions is provided in Specification FA. The actions will not be limited to these guidelines, but shall include all additional actions, work, materials, etc., necessary to maintain this installation at an acceptable level.
- (b) Corrective maintenance as described and defined in General Maintenance.
- (c) Breakdown maintenance as described and defined in General Maintenance.

For this particular installation fatal breakdown shall be defined as both boilers being unable to provide steam to the system.

Emergency breakdown shall be defined as any other equipment, components, and systems preventing the provision of steam at the required pressure and flow to the system.

### PFA 06.02 **ADDITIONAL MATERIALS**

For this particular installation the contractor shall be responsible for providing the required quality and quantity of chemicals and salts to operate and maintain the boilers for a period of 36 months. The Contractor shall ensure that the boiler feed water supply to the boiler conforms to the following by providing the required water treatment.

(i)	Total dissolved solids	350 mg/litre (max)
(ii)	Total alkalinity	350 to 700
(iii)	Caustic alkalinity	350 mg litre (max) 150 mg/litre (min)
(iv)	Phosphate residual	30 to 60 mg/litre
(v)	Sulphate residual	30 to 50 mg/litre
(vii)	Calcium hardness	Zero
(viii)	pH	10.5 to 11.4



## Particular Specification (PFA)

Sampling and analysis of feed water shall form part of the Contractor's routine preventative maintenance responsibilities. The chemicals and water treatment system shall comply in all respects with the specification FA 14 and the boiler manufacturer's requirements.

### PFA 06.04 OPERATION OF THE BOILERS

#### a) Introduction

It is required in terms of this contract that the successful contractor, in addition to the functions described before, take over the day-to-day operation of the complete boiler house at the prison site.

#### b) Occupational Health and Safety Act

It is required that the boilers be operated at all times strictly in accordance with the regulations and requirements of the Occupational Health and Safety Act (as amended). This covers the following:

- (i) The boiler operators shall be qualified to operate the boilers in terms of the Act.
- (ii) The minimum number of operators required in terms of the regulations shall be adhered to at all times.
- (iii) Gauge glasses shall be blown down on a shift basis.
- (iv) The boilers shall be blown down on a regular basis as dictated by chemical water treatment requirements.
- (v) A comprehensive log book shall be kept of all operations carried out on the boilers.
- (vi) All statutory tests and requirements shall be met and recorded.

#### c) Steam Quality and Availability

It is required that steam be produced and be available immediately upstream of all pressure reducing valves and steam using appliances that operate at boiler pressure at a pressure in the range 600 - 750 kPa gauge at all times. It is estimated that the steam draw-off will amount to approximately 2300 kg's per hour at the Kgosi Mampuru II, boilers are however only rated to 1800 kg's per hour.



Particular Specification (PFA)

The current prison regime requires that steam be available for cooking purposes, laundry operation and domestic hot water production at least between the hours of 6h00 to 14h00 and 22h00 to 06h00 daily. Firing of the boilers will thus have to commence sufficiently in advance of this time to ensure sufficient steam supply to the kitchen for the morning meals to be prepared. To this end it is recommended (but not an absolute requirement) that a timer be fitted and wired into the boiler control panels to enable the boiler(s) on line to be “banked” overnight and to maintain pressure and temperature ready for the early morning steaming requirements.

d) **Change-over of Boilers**

It will be required that the boilers in use be changed on a minimum of a monthly basis in order that the steaming load be spread evenly between the two boilers and to provide adequate time for routine maintenance, cleaning and repair (as may be required from time to time). Maintenance and repair of the boilers shall be carried out as specified elsewhere in this document.

e) **Coal/Diesel Supply**

It will be the **Department of Correctional Services**' responsibility to purchase an appropriate grade of coal/diesel suitable for firing in these boilers.

The **Department of Correctional Services** will be required to ensure that fuel/coal is ordered in good time so as to ensure continuity of operation of the boiler plant.

f) **Method of Payment**

Once approved a recording steam pressure/flow meter shall be installed in the boiler house to sense the steam pressure and flow in the main steam delivery line immediately outside the boiler house. The meter shall be capable of graphically recording the steam pressure over a monthly period together with the steam flow in tonnes per hour. In addition a facility shall be included to print out the average steam pressure for the period in question together with the total quantity of steam supplied during that period. It is recommended that the contractor have a spare or standby recorder available in case of breakdown of the steam flow recorder as payment will be dependent on these recordings.

Copies of these print-outs together with the graphical recordings shall be attached to claims for payment. Payment will thus be on the basis of a tendered rate per tonne of steam supplied. This rate shall include for the cost of boiler operators, supervisory staff, overheads and profit.



Particular Specification (PFA)

g) **Penalties**

Penalties for non-performance, lack of steam, etc will be levied as follows:

- (i) Steam leaks from piping, valves and fittings left unattended and not repaired for more than five days from the date of such leak being reported and noted - 5% of the tendered monthly operating rate or R 500-00 per day in excess of the five day period, whichever is the greater.

To this end it will be required that an incident book be kept in the boiler house and which shall be accessible for Department of Correctional Services personnel or the Departmental representative/Engineer /Department Representative to note the date and time of steam leaks being observed and reported to the contractor for repair. Penalties will only be levied in respect of leaks entered in the book and signed in acknowledgement by the contractor.

- (ii) Failure of steam supply – R 2 000-00 per day or part thereof should the lack be due to ineffective or inefficient boiler operation.

It is recognised that a lack of sufficient steam in, say, the kitchen could be due to damaged steam lines with the cause being beyond the boiler operators' control. The Departmental representative/Engineer /Department Representative will be required to take all relevant factors into consideration in determining whether penalties and in what amount are to be applied. In this respect the Departmental representative/Engineer 's/Department Representative's decision will be final.





## Kgosi Mampuru II Correctional Centre

### REPAIR & MAINTENANCE PROGRAM - MECHANICAL INSTALLATIONS

## PARTICULAR SPECIFICATION PFB - STEAM DISTRIBUTION INSTALLATION CONTENTS

PFB 01	SCOPE
PFB 02	GENERAL DESCRIPTION OF INSTALLATION
PFB 03	TECHNICAL DETAILS OF EXISTING INSTALLATION
PFB 04	STATUS OF EXISTING INSTALLATION
PFB 05	DETAILS OF REPAIR WORK
PFB 06	DETAILS OF MAINTENANCE WORK

### PFB 01 SCOPE

- (a) This specification covers the particulars of the repair and maintenance work to the steam distribution installation at Kgosi Mampuru II Correctional Centre. This Particular Specification shall be read in conjunction with the Technical Specification FB: Steam Distribution Installations, and all additional and technical specifications compiled as part of this document, in particular the following Additional Specifications:

- SA: General Maintenance
- SB: Operating and Maintenance Manuals
- SC: General Decommissioning, Testing and Commissioning Procedures

The intended repair and maintenance work to this installation will restore the existing installation to a safe, efficiently functional system that complies with all statutory regulations and applicable standards, in the process repairing all defects and shortfalls. Maintenance responsibilities for each installation shall commence with access to the site. A difference shall be made in payment for maintenance prior to and after completion of repair work. On completion of the repair work, the completed installation shall be maintained and serviced by the Contractor for the remainder of the 36-month Contract period.

- (b) The installations to be maintained under this Contract includes the following:

- (i) Steam and condensate distribution network on site;



Particular Specification (PFC)

- (ii) Condensate pump systems;
- (iii) Steam and condensate secondary piping systems to the following installations:
  - Laundry
  - Prison kitchens
  - Hot-water storage calorifier installations in boiler house.
  - Boiler plant room.
- (iv) Hot-water calorifier installations form part of Installation B. The maintenance responsibilities of hot-water calorifier installations shall form part of this installation. Reference must be made to Technical Specification FC.

PFB 02

**GENERAL DESCRIPTION OF INSTALLATION**

PFB 02.01 **EXISTING INSTALLATION**

The existing steam distribution network on site is reticulated by means of an overhead pipe system from the Central Boiler House, situated adjacent to the main kitchen, to the various steam consumer installations listed as follows.

- (a) Laundry (should it be required)
- (b) Kitchen (should it be required)
- (c) Hot-water calorifier installations in the boiler house

PFB 02.02 **CONDENSATE RETURN**

From these installations and all the steam trap arrangements, a condensate return gravity installation is installed along the same route as the steam distribution network, leading both to the boiler feeder tank inside the boiler house.

PFB 02.03 **ROUTING OF PIPEWORK**

The routing of this steam distribution network is as follows:

- (a) From the boiler house to the prison kitchen supported from wall/pole brackets  $\pm$  25 metres;
- (b) From the boiler house to the central laundry supported from wall/pole brackets  $\pm$  30 metres;



## PFB 03 TECHNICAL DETAILS OF EXISTING INSTALLATION

At the time of compilation of this document the existing installation consisted of the equipment and plant as listed below with their relevant technical details.

### PFB 03.01 STEAM DISTRIBUTION PIPING

- 1 Pipe material: Schedule 40 seamless steam piping
- 2 Lagging and cladding: Fibreglass pre-formed sections with galvanised sheet metal muffers  
Pipe route distance:  $\pm 1100$  metres
- 3
- 4 Supports: Galvanised post type pole supports and wall brackets with chain hangers.

### PFB 03.02 CONDENSATE DISTRIBUTION PIPING

- 1 Pipe material: Steel welded/flanged and Copper to SANS 460 with capillary solder fittings
- 2 Lagging and cladding: Fibreglass pre-formed sections with galvanise muffers
- 3 Pipe route distance:  $\pm 1100$  metres
- 4 Supports: From steam support posts and hangers from steam lines

### PFB 03.03 STEAM TRAP ARRANGEMENTS

- 1 Manufacturers: TBC
- 2 Type: Inverted bucket & float thermostatic
- 3 Model no: Various
- 4 Size: 15 & 20mm
- 5 Total number installed:  $\pm 55$



Particular Specification (PFC)

**PFB 03.04 PRESSURE-REDUCING VALVES**

- 1 Manufacturer: TBC
- 2 Type: External Pilot operated PRV
- 3 Model no: Not available
- 4 Size: 40 mm dia
- 5 Quantity:  $\pm 6$
- 6 Down steam pressure: 100 kPa

**PFB 03.05 CONDENSATE PUMP SYSTEMS**

1. Prison Kitchen
  - 1.1 Type: Electrically driven pumps with condensate tank
  - 1.2 Pump Model no: TBA
  - 1.3 Pump manufacturer: TBC
  - 1.4 Pump motor: 0,75 kW 3-phase 230 V 50 Hz
  - 1.5 Condensate tank size:TBA litre
  - 1.6 Number of tanks: 1
  - 1.7 Number of pumps: 2
  - 1.8 Electrical control panel:1

**PFB 04 STATUS OF EXISTING INSTALLATION**

At the time of compilation of this document the status of the existing installation has been noted as follows:

- (a) Some steam leaks exist on the distribution network.
- (b) The steam and condensate reticulation is generally in a poor condition.
- (c) Some line trap sets on the distribution network discharge directly into the atmosphere.



The following work shall form part of the repair work to the steam distribution installation. This work shall be done in accordance with the relevant regulations, codes, specifications and Technical Specification FB: Steam Distribution Installations, as set out in this document. The following work shall be included:

**PFB 05.01 GENERAL**

The Contractor shall at the start of the Repair and Maintenance Contract inspect the following items, systems, equipment, components and installations. This inspection shall include the establishing of any defects, leaks, conditions, damages, short falls, structural soundness, repairs required, details of existing equipment, suitability of equipment for the purpose it serves, etc. The Contractor shall report back to the Engineer/Departmental Representative in writing on all of the above and the following items. No repair work shall commence prior to approval by the Engineer/Departmental Representative:

- (a) Main and secondary steam and condensate pipe distribution network including all steam valves, expansion joints, pipe fittings, piping, air release valves, dirt pockets, etc;
- (b) Steam trap arrangements including steam traps, sight glasses, non-return valves, test valves, pipe connections, piping, etc;
- (c) Support and bracketing system to all steam and condensate pipe work;
- (d) Lagging and cladding of steam and condensate pipe work;
- (e) Pressure reducing valve installations;
- (f) Condensate pump installations.

The general scope of work at the time of going on tender is defined as follows:

- (a) Repair of all steam leaks;
- (b) The installation of blow-down valves and piping dirt pockets not equipped with blow-down valves.
- (c) Check, clean and repair condensate pump systems as required.
- (d) The servicing of all equipment including steam trap arrangements, PRV stations, valves, strainers, check-valves, pressure gauges, sight glasses, condensate pump system, control valves, safety valves, etc;
- (e) Flushing out of complete pipe system followed by a pressure test;
- (f) The Contractor shall allow for all required inspections and tests by an approved Inspection Authority on repair work where required by the Occupational Health and Safety Act as amended.



Particular Specification (PFC)

- (g) Preparation and painting of all exposed piping and equipment in accordance with the Department's painting specification;
- (h) The introduction of a maintenance control plan, including logging, recording and control procedures;
- (i) Handing over of complete system to the satisfaction of the Engineer on completion of the repair work on which the maintenance period of this contract shall commence.

**PFB 05.02 DETAIL WORK**

PFB 05.02.01 Steam and condensate pipe reticulation network - Refer to Standard Specification FB clause FB 12

- (a) Repair and replace damaged and missing sections of lagging and cladding to the steam and condensate pipe system as directed by the Engineer/Departmental representative. This shall include new fibre glass pre-formed sections and sheet metal muffers for short runs of piping and fittings. Rates will be as entered in the Schedule of Quantities.
- (b) Clean and blow out all dirt pockets.
- (c) Install 15 mm diameter steam globe valves with plugged end as required to existing plugged dirt pockets on the steam distribution installation. This shall include reducing bush nipples, valves and plugs. Quantities will be as specified in the Schedule of Quantities.
- (d) Clean, service, repair and replace sight glasses to all sight glass units. This shall include gaskets and new glasses.
- (e) Service all steam traps and replace all gaskets, O-rings, seals, strainer elements, buckets, thermostatic elements, valve assemblies, etc, as specified necessary for a full service on the specific steam traps. Quantities will be as specified in the Schedule of Quantities.
- (f) Replace damaged and defective steam traps beyond repair. Quantities will be as specified in the Schedule of Quantities.
- (g) Service, all steam and condensate valves and replace seals, gaskets, and gland packings. Quantities as specified in the Schedule of Quantities.
- (h) Repair steam leaks to steam piping. This shall include cutting, preparing, welding, cleaning, testing and all required fittings and making good of lagging and cladding.
- (i) Blow down all dirt pockets.

PFB 05.02.02 Steam and condensate pipe installation to the calorifier plant installation in the boiler house - Refer to Standard Specification FB clause FB 12



Particular Specification (PFC)

- (a) Decommission, disconnect and dismantle existing steam and condensate pipes to each calorifier in turn, check and repair steam trap sets to each calorifier as required and check for correct operation.
- (b) Service and repair steam and condensate valves and fittings
- (c) Clean, service and repair condensate sight glasses
- (d) Test, commission and hand over the complete steam and condensate steam installation.
- (e) Repair all steam leaks
- (f) Blow down and clean all dirt pockets/drain points
- (g) Repair all damaged lagging and cladding
- (h) Put systems back on line

PFB 05.02.03 Steam and condensate installation to the calorifier plant installations at the single quarters - Refer to Standard Specification FB clause FB 12

- (a) Decommission, disconnect and dismantle existing steam and condensate pipes to each calorifier in turn, check and repair steam trap sets to each calorifier as required and check for correct operation.
- (b) Service and repair steam and condensate valves and fittings
- (c) Clean, service and repair condensate sight glasses
- (d) Test, commission and hand over the complete steam and condensate steam installation.
- (e) Repair all steam leaks
- (f) Blow down and clean all dirt pockets/drain points
- (g) Repair all damaged lagging and cladding
- (h) Put systems back on line

PFB 05.02.04 Steam and condensate installation to laundry - Refer to Standard Specification FB clause FB 12

- (a) Service and repair all steam traps.
- (b) Service and repair safety valve to existing PRV installation.
- (c) Service and repair pressure reducing valves
- (d) Repair and service all steam and condensate valves.



Particular Specification (PFC)

- (e) Service, repair and clean condensate sight glasses
- (f) Blow down all dirt pockets.
- (g) Re-commission and put system back on line.

PFB 05.02.05 Steam and condensate installation to kitchen - Refer to Standard Specification  
FB clause FB 12

- (a) Service and repair pilot operated PRVs.
- (b) Service and repair all steam traps.
- (c) Service and repair all steam and condensate valves.
- (d) Service, repair and overhaul steam pop-up safety valve.
- (e) Clean out, service, repair sight glasses including replacement of glasses and gaskets.
- (f) Blow down all dirt pockets.
- (g) Re-commission and put system both into operation.

PFB 05.02.06 Condensate pump installations - Refer to Standard Specification FB clause FB  
12

- (a) Inspect and report back to the Engineer/Departmental Representative in writing on the condition and status of all the condensate pump installations and their associated equipment.
- (b) Drain, empty, clean out and inspect all condensate tanks for any defects or damages, and report to the Engineer/Department Representative. The Engineer/Department Representative shall inspect these tanks prior to any further work or/and put back into operation.
- (c) Inspect, service, tests and report on the condition and functionality of all level controls.
- (d) Inspect, service and report on electrical condensate pumps including the following as described in FB 12.09.02.
- (e) Inspect, service, test and repair electrical control panels as described in FB 12.11.02.

**PFB 05.03 PAINTING**

The Contractor shall prepare, clean and paint all steel surfaces and equipment where directed by the Engineer in accordance with Specification OWG 371: Specification of Materials and Methods to be used (Fourth edition, October 1993 or latest edition).





**PFB 05.04 NEW EQUIPMENT**

**PFB 05.04.01 Condensate Pumps and Motors**

**(a) Condensate Pumps**

Centrifugal pumps suitable for pumping hot, corrosive water are required for pumping condensate.

The required pump flow capacities and heads for each pump is 1,5 litres/sec at a head of approximately 20 - 25 metres.

It is essential that the following items of information be permanently marked on each pump:

- (i) flow capacity (l/sec);
- (ii) pump head (metres water gauge);
- (iii) impeller size;
- (iv) pump speed;
- (v) required motor power;
- (vi) make of pump;
- (vii) model;
- (viii) date of purchase.

Close coupled pumps/motors are not acceptable.

It is preferred that separate pumps and motors be supplied, mounted on a common rigid steel or cast iron frame.

Pumps must have shrouded impellers and replaceable wear rings. Impellers must be made of bronze or stainless steel and pump shafts must be of type 410 or 415 stainless steel.



Particular Specification (PFC)

Pump glands must be fully accessible without having to remove the motor. Gland packing must be PTFE and be readily replaceable.

Pump bearings, if not of the permanently lubricated type must be lubricated from an oil reservoir with sufficient capacity for at least six months operation.

The pump drive and coupling must be protected by a sturdy drive guard.

Pumps must be selected to operate at maximum efficiency. Pump speeds must not exceed 1450 rpm. and the installation must be quiet in operation.

Pumps must be mounted on drip trays neatly piped to the nearest drain point.

Pressure gauges must be fitted to pump discharge pipes. The normal operating pressure must be clearly marked on the dial face.

(b) **Motors**

Electric motors for condensate pump sets must be suitable for duty at ambient temperatures up to 60°C. Motors must be of the totally enclosed, drip proof, fan cooled type with life-time sealed bearings. Furthermore they must comply with the relevant BSI and SANS specifications. (SANS 948) (latest amendments.)

Motor control will be by means of the float/level switch specified in section 6.3 which will activate a direct-on-line starter.

Unless otherwise specified a suitably rated electrical supply will be brought into close proximity of the pump motor by others. The steam Contractor will be required to supply a switchboard containing a suitably rated isolator, circuit breaker, the necessary direct-on-line starter, etc. The steam Contractor will be required to terminate the cable brought in by others in the isolator and make the necessary connections to the motor.

It is essential that the board contain a low voltage release that will isolate the pump on voltage drop below 90% of the rated voltage. A timer is required to delay re-starting of the pump for 2 - 3 minutes after full power is restored. Similarly phase failure protection is required, again with the motor only



## Particular Specification (PFC)

restarting 2 - 3 minutes after restoration of full power. In both instances the motor must restart automatically.

A manual-auto switch is required on the board in order that the float switch can be over-ridden and the pump checked for maintenance purposes.

All electrical wiring must be done in accordance with the requirements of SANS 10142 (latest edition & amendments).

## PFB 06

### DETAILS OF MAINTENANCE WORK

#### PFB 06.01 GENERAL

The Contractor shall be responsible for the complete maintenance of all the equipment, components, installations and systems forming part of this repair and maintenance contract for Installation B. The Contractor shall strictly adhere to General Maintenance, and Technical Specification FB: Steam Distribution Installations, with regard to the maintenance period, obligations, responsibilities, actions and activities, etc, which shall also include the following maintenance actions:

- (a) Routine preventative maintenance: A guideline to the required actions is provided in specification FB. The actions will not be limited to these guidelines, but shall include all additional actions, work, materials, etc, necessary to maintain this installation at an acceptable level.
- (b) Corrective maintenance as described in General Maintenance.
- (c) Breakdown maintenance as described in General Maintenance.

For this particular installation fatal breakdown shall be defined as no steam being available at all due to a failure of this system as a whole.

Emergency breakdown shall be defined as any other equipment, components, and systems preventing the provision of steam to the consumer points due to a failure of part of this system at the particular point of incident.

## KGOSI MAMPURU CORRECTIONAL CENTRE

### REPAIR & MAINTENANCE PROGRAM: MECHANICAL INSTALLATIONS



## PARTICULAR SPECIFICATION PFC - HOT-WATER GENERATING INSTALLATION

### CONTENTS

PFC 01	SCOPE
PFC 02	GENERAL DESCRIPTION OF INSTALLATION
PFC 03	TECHNICAL DETAILS OF EXISTING INSTALLATION
PFC 04	STATUS OF EXISTING INSTALLATION
PFC 05	DETAILS OF REPAIR WORK
PFC 06	DETAILS OF MAINTENANCE WORK

#### PFC 01 SCOPE

- (a) This specification covers the particulars of the repair and maintenance work to the hot-water generating installation at the St Albans Prison. This Particular Specification shall be read in conjunction with the Technical Specification FC: Hot-water Generating Installations, and all additional and technical specifications compiled as part of this document, in particular the following Additional Specifications:

- SA: General Maintenance
- SB: Operating and Maintenance Manuals
- SC: General Decommissioning, Testing and Commissioning Procedures

The intended repair and maintenance work to this installation will restore the existing installation to a safe, efficiently functional system that complies with all statutory regulations and applicable standards, in the process repairing all defects and shortfalls. Monthly maintenance responsibilities for each installation shall commence with access to the site. A difference shall be made in payment for maintenance prior to and after practical completion of repair work. On completion of the repair work, the completed installation shall be maintained and serviced by the Contractor for the remainder of the 36-month Contract period.

- (b) The installations to be maintained under this Contract includes the following:
- (i) Storage calorifier installation in the Boiler House and various other installations;
  - (ii) All domestic water installations and equipment in the plant rooms;



#### Particular Specification (PFC)

- (iii) All hot-water circulating pump sets;
- (iv) Steam and condensate piping and equipment in the plant rooms;
- (v) Electrical control equipment, wiring, cabling, panels and instrumentation associated with each installation.

#### PFC 02                      **GENERAL DESCRIPTION OF EXISTING INSTALLATION**

The existing hot-water generating installations are situated in various plant rooms at the various prisons. These installations currently consist of storage calorifiers with steam heater batteries and a pipes distribution network from and to the storage calorifiers. These installations are equipped with in-line hot-water circulating pump sets. Steam is provided to the steam heater batteries by means of the steam distribution network on site.

These systems provide hot water for ablution facilities, consisting of wash-hand basins, wash troughs and showers to the following:

Boiler house also provides hot water to the central laundry and kitchen.

The technical details of these installations are provided in section PFC 03.

#### PFC 03                      **TECHNICAL DETAILS OF EXISTING INSTALLATION**

At the time of compilation of this document the existing installation consisted of the equipment and plant listed below with their relevant technical details.

#### PFC 04                      **STATUS OF EXISTING INSTALLATION**

At the time of compilation of this document the status of the existing installations was noted as follows:

- (a) Boiler house installation:
  - (i) Generally in good condition
  - (ii) No condensate leaks
  - (iii) No water leaks from calorifiers



Particular Specification (PFC)

- (iv) Circulating pump operational
- (v) Lagging and cladding in good condition

**PFC 05                      DETAILS OF REPAIR WORK**

The following work shall form part of the intended repair work to the hot-water generating installations. This work shall be done in accordance with the relevant regulations, codes, specifications and Technical Specification FC: Hot-water Generating Installations, as set out in this document. The following work shall be included:

**PFC 05.01            GENERAL**

The Contractor shall at the start of the contract inspect the items, systems, equipment, components and installations listed below. This inspection shall include the establishing of any defects, leaks, conditions, damages, shortfalls, structural soundness, repairs required, details of existing equipment, suitability of equipment for the purpose they serve, etc. The Contractor shall report to the Departmental Representative/Engineer in writing on all the above and the following items. No repair work shall commence prior to approval by the Departmental Representative/Departmental Representative/Engineer:

- a) Hot-water storage calorifiers, including lagging and cladding and steam heater batteries;
- b) Steam and condensate installation, including fittings, piping, valves, steam traps, lagging and cladding, etc;
- c) Bracketing system;
- d) Heating control equipment and instrumentation;
- e) Hot-water circulating pump sets;
- f) Electrical control panel and wiring.

The general scope of work at the time of going to tender is defined as follows:

- a) The servicing of all hot-water storage calorifiers
- b) Preparation and painting of all exposed piping and equipment in accordance with the manufacturer's specification;
- c) The servicing, repair and where necessary replacing of existing hot-water circulating pumps to all the storage calorifier installations, including all related electrical work;
- d) Handing over of complete systems, to the satisfaction of the Departmental Representative/Engineer, on completion of the repair work on which the maintenance period shall commence;
- e) The supply and compilation of operating and maintenance manuals;
- f) The testing, adjusting and commissioning of all systems;
- g) The introduction of a maintenance control plan, including logging, recording and control procedures.

**PFC 05.02            DETAIL WORK**



### PFC 05.02.01 **Standby Hot Water Circulating Pumps**

Additional hot water circulating pumps complete with inlet and outlet valves, strainers and non-return valves are required. They shall have flow rates adjustable up to 5 cubic metres/hour at heads up to 6 metres wg and be of Salmson or equal and approved manufacture.

The additional pumps are required as standby units to the existing pumps and allowance must be made for cutting into the existing hot water return piping supplying and installing the necessary piping, fittings, valves, etc required to return the systems to full working condition.

## PFC 06 **DETAILS OF MAINTENANCE WORK**

### PFC 06.01 **GENERAL**

The Contractor shall be responsible for the complete maintenance of all the equipment, components, installations and systems forming part of this repair and maintenance contract for Installation C. The Contractor shall strictly adhere to General Maintenance, and Technical Specification FC: Hot-water Generating Installations, with regard to the maintenance period, obligations, responsibilities, actions and activities, etc, which shall also include the following maintenance actions:

- (a) Routine Preventative Maintenance. A guideline to the required actions is provided in specification FC. The actions will not be limited to these guidelines, but shall include all additional actions, work, materials, etc, necessary to maintain this installation at an acceptable level.
- (b) Corrective Maintenance as described and defined in General Maintenance.
- (c) Breakdown Maintenance as described and defined in General Maintenance.
- (d) For this particular installation no fatal breakdown is applicable.
- (e) Emergency breakdown shall be defined as no provision of hot water to the consumer points due to a failure of equipment, components and systems of this particular installation.



## Section 1 OCCUPATIONAL HEALTH AND SAFETY

Definition : The “Principal Contractor” as defined in the Construction Regulations and used in this section of the specification shall mean the “Contractor” as defined in clause 1.1.8 of General Conditions of Contract 2004.

### CONTENTS

1. Applicable legislation and regulations
2. Scope of work
3. The principle contractor’s general duties
4. The principle contractor’s specific duties
5. The principle contractor’s specific duties with regard to Hazardous work activities

### 1. APPLICABLE LEGISLATION AND REGULATIONS

This document was prepared to guide the Agent in the compilation of a Health and Safety Specification in terms of Sub-regulation 4(1)a of the Construction Regulation as published under Government Notice R.2003 of 18 July 2003. The content of this document or the fact it was made available for the use of the Agent will not relieve the Agent of any of his obligations in terms of the act.

The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) together with its applicable Regulations (“the Act”) forms part of this Health and Safety Specification. Any word or expression to which a meaning has been assigned in the Act shall have the meaning so assigned to it unless the context otherwise indicates

### SCOPE OF WORK

All work forming part of this Contract is divided into various sites. The repair work to be performed as well as any installation work under this Contract mainly consists of the works described in the project specification C2.1.

### THE PRINCIPAL CONTRACTOR’S GENERAL DUTIES

The Principal Contractor’s general duties in terms of this Health and Safety Specification are, but not limited to, the following:

1. Every Principal Contractor shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees and other contractors.
2. Without derogating from the generality of a Principal Contractor’s duties under subsection (1), the matters to which those duties refer include in particular -
  - a. the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;
  - b. taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees and other contractors, before resorting to personal protective equipment;
  - c. making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;
  - d. establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed,





Particular Specification (PFC)

used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures should be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;

- e. providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees and other contractors;
- f. not permitting any employee or contractor to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;
- g. taking all necessary measures to ensure that the requirements of this Health and Safety Specification are complied with by every person in his employment or on premises under his control where plant or machinery is used;
- h. enforcing such measures as may be necessary in the interest of health and safety;
- i. ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and
- j. causing all employees and other contractors to be informed regarding the scope of their authority as contemplated in section 37(1)(b) of the Act.

**THE PRINCIPAL CONTRACTOR’S SPECIFIC DUTIES**

Principal Contractor’s specific duties in terms of this Health and Safety Specification are specified in the Construction Regulation as published under Government Notice R. 2003 of 18 July 2003. (Hereinafter referred to as “Construction Regulation, 2003”).

The Principal Contractor is specifically referred to the following sub regulations of the Construction Regulation, 2003:

	<b>Applicable subregulation of the Construction Regulation, 2003.</b>
	1
Scope of application	2
Notification of construction work	3
Principal Contractor and Contractor	5
Supervision of construction work	6
Risk assessment	7
Approved inspection authorities	29
Offences and penalties	30
Withdrawal of regulations	31

Principal Contractor will acquaint himself with these duties and will make provision in his Contract price for the implementation and supervision of these duties.



## THE PRINCIPAL CONTRACTOR'S SPECIFIC DUTIES WITH REGARD TO HAZARDOUS WORK OR ACTIVITIES

The following work or activities are defined as hazardous in terms of the Construction Regulations, 2003 and it is the duty of the Principal Contractor to ensure that the said work and activities are performed or carried out in terms of the relevant sub regulations of the Construction Regulation, 2003 and other applicable Regulations.

Hazardous work or activity	Applicable subregulation of the Construction Regulation, 2003.	Other applicable Regulations
Fall protection	8	
Structures	9	
Formwork and support work	10	
Excavation	11	Precautionary measure as stipulated for confined spaces under the General Safety Regulations published under Government Notice R.1031 of 30 May 1986, as amended.
Demolition work	12	Asbestos related work will be conducted in accordance with the Asbestos Regulations published under Government Notice R. 155 of 10 February 2002 as amended. Lead related work will be conducted in accordance with the Lead Regulations published under Government Notice R. 236 of 28 February 2002 as amended.
Tunnelling	13	Any tunnelling activities will comply with the Tunnelling Regulations published under the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) as amended.
Scaffolding	14	Section 44 of the Act.
Suspended scaffolds	15	Section 44 of the Act.
Boatswains chairs	16	
Material hoists	17	



## Particular Specification (PFC)

Hazardous work or activity	Applicable subregulation of the Construction Regulation, 2003.	Other applicable Regulations
Batch plants	18	<p>Precautionary measure as stipulated for confined spaces under the General Safety Regulations published under Government Notice R.1031 of 30 May 1986, as amended.</p> <p>The Principal Contractor will ensure that all lifting machines and lifting tackle used in the operation of batch plant complies with the requirements of the Driven Machinery Regulations as published under Government Notice R.295 of 26 February 1988, as amended.</p> <p>The Principal Contractor will ensure that all precautionary measures are adhered to regarding the usage of electrical equipment in explosive atmospheres when entering a silo, as stipulated in the Electrical Installation Regulations as published under Government Notice R.2271 of 11 October 1995, as amended.</p>
Explosive powered tools	19	
Cranes	20	Applicable provisions of the Driven Machinery Regulations as published under Government Notice R.533 of 16 March 1990, as amended.
Construction vehicles	21	
Electrical installations and machinery on construction sites.	22	Applicable provisions in the Electrical Installation Regulations published under Government notice R.2920 of 23 October 1992 and the Electrical Machinery Regulations published under Government Notice R.1953 of 12 August 1988 respectively as amended.
Use and temporary storage of flammable liquids on construction sites.	23	Applicable provisions as stipulated in the General Safety Regulations published under Government Notice R.1031 of 30 May 1986, as amended.
Water environments	24	



Particular Specification (PFC)

<b>Hazardous work or activity</b>	<b>Applicable subregulation of the Construction Regulation, 2003.</b>	<b>Other applicable Regulations</b>
Housekeeping on construction sites.	25	Applicable provisions as stipulated in the Environmental Regulations for Workplaces published under Government Notice R.2281 of 16 October 1987, as amended.
Stacking and storage on construction sites.	26	Applicable provisions as stipulated in the General Safety Regulations published under Government Notice R.1031 of 30 May 1986, as amended.
Fire precautions on construction sites.	27	Applicable provisions as stipulated in the Environmental Regulations for Workplaces published under Government Notice R.2281 of 16 October 1987, as amended.
Construction Welfare facilities	28	Applicable provisions as stipulated in the Facilities Regulations under Government Notice R.1593 of 12 August 1988, as amended.



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Item No	Schedule for repairs	*Qty	Item Price Year 1 A	Item Price Year 2 B	Item Price Year 3 C			TOTAL AMOUNT (A+B+C) R	
7	<b>Worm screw conveyor</b>		Supply and installed						
7.1	160mm x 18m pipe worm screw conveyor (two pieces)	03	R	R	R			R	
7.2	160mm x 5m Cross worm screw conveyor	03	R	R	R			R	
7.3	Complete motor 5.5 kw with gear box for (160mmx18m) worm screw	01	R	R	R			R	
7.4	Complete motor 2.5 kw with gear box for (160mmx5m) Cross worm screw	01	R	R	R			R	
8	<b>Refectory work</b>		Supply and installed						
8.1	Secondary arch	01	R	R	R			R	
8.2	Ignition arch	01	R	R	R			R	
8.3	Bridge wall	01	R	R	R			R	
8.4	Recast rear access door	01	R	R	R			R	
								<b>SUB TOTAL</b>	
								R	

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Item No	Schedule for repairs	*Qty	Item Price Year 1 A	Item Price Year 2 B	Item Price Year 3 C			TOTAL AMOUNT (A+B+C) R	
<b>9</b>	<b>Valve approved By DPW specification</b>		Supply and installed						
9.1	Blow down 50 mm	01	R	R				R	
9.2	Angel crown 150 mm	01	R	R	R			R	
9.3	Screw down non return 150 mm	01	R	R	R			R	
9.4	Angle feed check 50 mm	01	R	R	R			R	
9.5	Safety double spring loaded 100mm	01	R	R	R			R	
9.6	Mobrey switch	01	R	R	R			R	
9.7	Main valve 300mm	01	R	R	R			R	
9.8	Sequencing 25mm	01	R	R	R			R	
9.9	Stop valve 40 mm	01	R	R	R			R	
<b>10</b>	<b>Ball valve steam</b>		Supply and installed						
10.1	Ball valve 20mm	01	R	R	R			R	
10.2	Ball valve 25-50mm	01	R	R	R			R	
<b>11</b>	<b>Check valve</b>		Supply and installed						
11.1	Check valve 20mm	01	R	R	R			R	
11.2	Check valve 32mm	01	R	R	R			R	
			<b>SUB TOTAL</b>						R



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Item No	Schedule for repairs	*Qty	Item Price Year 1 A	Item Price Year 2 B	Item Price Year 3 C	TOTAL AMOUNT (A+B+C) R
<b>15</b>	<b>Bends 90° steam</b>	Supply and installed				
15.2	Bends 15-32mm	01	R	R	R	R
15.3	Bends 40-80mm	01	R	R	R	R
15.4	Bends W/O 100-150mm	01	R	R	R	R
<b>16</b>	<b>Nipples steam fitting (w/o)</b>	Supply and installed				
16.1	Nipples 6-10mm	01	R	R	R	R
16.2	Nipples 15-32mm	01	R	R	R	R
16.3	Nipples 40-80mm	01	R	R	R	R
<b>17</b>	<b>Unions fitting</b>					
17.1	Union 12 mm	01	R	R	R	R
17.2	Union 15-32 mm	01	R	R	R	R
17.3	Union 40-80 mm	01	R	R	R	R
<b>18</b>	<b>Reducing socket steam</b>					
18.1	Socket 8x12 – 8x25 mm	01	R	R	R	R
18.2	Socket 32x15 –32x25 mm	01	R	R	R	R
<b>SUB TOTAL</b>						R



















Steam Generation (FA)

<b>Schedule 4- FA - Steam generation - Repair</b>					
<b>Item</b>	<b>Description</b>	<b>Unit</b>	<b>QTY</b>	<b>Rate</b>	<b>Amount</b>
	<b>GENERAL</b>				
<b>34</b>	<b>STATUTORY INSPECTIONS AND TESTS</b>				
34.1	Decommission and isolate coal-fired boilers for preparation for statutory inspections and tests	boilers	2		
34.2	Preparation of coal-fired boilers for internal/external inspection, as required by the Occupational Health and Safety Act, No 85 of 1993, by approved Inspection Authority including removal of insulation and cladding	boilers	2		
34.3	Allow for the cost of Inspection Authority to perform all required inspections and tests related to the internal/external inspection as required by the Occupational Health and Safety Act, No 85 of 1993, including all reports and completion of the necessary record books	sum	-	-	
34.4	Allow for all the required assistance, notices, tools, equipment, etc, for the Inspection authority's inspection and tests	sum	-	-	
34.5	Preparation of coal-fired boilers for hydraulic pressure tests, as required by the Occupational Health and Safety Act, No 85 of 1993, including all required equipment and tools necessary and putting the boilers under pressure for the inspection Authority's witnessing and certification of test	boilers	2		
34.6	Allow for the cost of inspection authority to perform all required inspections and tests, related to the hydraulic pressure test, as required by the Occupational Health and Safety Act, No 85 of 1993, including all reports and completion of the necessary record books	boilers	2		
				Balance Carried Down	



Steam Generation (FA)

					Balance Brought Down	
35.	<b>REPAIR WORK TO BOILERS DURING STATUTORY INSPECTIONS</b>					
	<b>Boiler shell water side:</b>					
35.1	Clean out and de-scale boiler (acid pickle)	boilers	5			
35.2	Inspection of boiler water side and integral pipework and of tube plates toe welds	boilers	5			
35.3	Replace all manhole, hand-hole and mud-hole cover seals and joint rings	boilers	5			
35.4	Replace fusible plug with new	boilers	5			
35.6	Additional tests to the boiler shell water side as directed by Inspection Authority, Department and/or Engineer	sum	-	-		
35.7	Prepare and repaint boiler	boilers	5			
35.8	Drain and refill boiler with treated water as specified by the boiler manufacturer	boilers	5			
	<b>Boiler shell gas side:</b>					
35.9	Clear and clean out all dust, slag, ash, grit and foreign matter	boilers	5			
35.10	Brush and clean out all water tubes (shot blast to remove carbon residue)	boilers	5			
35.11	Inspect boiler gas side, document condition and observations and deliver report to engineer	boilers	5			
35.12	Replacement of a gas or stay tube and required repairs as result of the inspection as directed by the Inspection Authority, Department and/or Engineer including removal and re-welding of rear end access tube and manhole	sum	-	-		
35.13	Replacement of all gas and stay tubes and required repairs as result of the inspection as directed by the Inspection Authority, Department and/or Engineer including removal and re-welding of rear end access tube and manhole	sum	-	-		
35.14	Prepare and repaint boiler	boilers	5			
	<b>Integral pipework:</b>					
35.15	Clear and clean out all integral pipe, and fittings	boilers	5			
35.16	Inspect boiler gas side	boilers	5			
					Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
35.17	Additional test to the integral pipe work as result of the inspection as directed by the Inspection Authority, Department and/or Engineer Replace all smoke box covers and door joint seals and insulation with new approved joint seals and insulation	sum	-	-	
35.18	Prepare and repaint pipework	boilers	5		
	<b>Boiler valves and mountings:</b>				
35.19	Dismantle, remove and strip down all boiler valves	boilers	5		
35.20	De-scale and clean all boiler valves and mountings	boilers	5		
35.21	Inspection of boiler valves and mountings	boilers	5		
35.22	Overhauling all boiler valves by approved engineering works	boilers	5		
35.23	Hydraulic testing, setting, adjustment and reassembling of all boiler valves	boilers	5		
35.24	Certification of boiler valves in accordance with manufacturer's specification	boilers	5		
35.25	Replacement of boiler mountings	boilers	5		
35.26	Test and adjust safety valves	boilers	5		
35.27	Refitting, installing, testing and adjustment of all boiler valves and mountings	boilers			
	<b>Refractories and brickwork:</b>				
35.28	Remove and break down all refractories and brickwork	boilers	5		
35.29	Recast and install all brick work with new on completion of inspection	boilers	5		
35.30	Recast and install flue arch brick work with new on completion of inspection	boilers	5		
35.31	Recast and install ignition arch brick work with new on completion of inspection	boilers	5		
	<b>Soot blowers</b>				
35.32	Dismantle, remove and strip down soot blowers	boilers	5		
35.33	Clean all soot blower components	boilers	5		
35.34	Inspection of soot blowers	boilers	5		
35.35	Overhauling all soot blowers by approved engineering works	boilers	5		
				Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
35.36	Testing of soot blowers	boilers	5		
35.37	Lubrication of soot blowers where required	boilers	5		
35.38	Refitting, installing, testing and adjustment of all soot blowers	boilers	5		
	<b>Chain grate</b>				
35.39	Remove and replace chain grate	boilers	2		
35.40	Replace chain grate drive motor	boilers	2		
35.41	Replace chain grate drive gearbox	boilers	2		
35.42	Replace chain grate rear roller	boilers	2		
35.43	Replace chain grate front roller	boilers	2		
35.44	Replace chain grate side seals	boilers	2		
	<b>Burner (DIESEL BOILERS)</b>				
35.D1	Strip & clean entire block, inspect, report & assemble valve with new gasket	boilers	3		
35.D2	Strip & clean entire block, inspect, report and assemble cup supply and return regulating valves	boilers	3		
35.D3	Strip & clean entire block, inspect,, report and assemble balance piston	boilers	3		
35.D4	Strip, clean and lubricate burner hinge bearings and grease	boilers	3		
35.D5	Install new wire mesh on wind box suction side	boilers	3		
35.D6	Remove and clean nozzle head, and replace shaft assembly	boilers	3		
35.D7	Replace solenoid valve	boilers	3		
35.D8	Replace burner control pressure stat	boilers	3		
35.D9	Replace gas arch and ionisation probes	boilers	3		
	<b>Lagging and cladding</b>				
35.45	Reinstall lagging and cladding on completion of statutory inspections and testing	boilers	5		
35.46	Replace lagging and damaged sections of cladding	boilers	5		
35.47	Prepare and repaint boiler shell	boilers	5		
	<b>Other</b>				
35.48	Install new IBT trap set at main drip leg including welding new socket to drip leg	boilers	1		
35.49	Install vacuum breaker valve, tee and fit plug to air vent valve	boilers	1		
				Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
36	<b>FEED-WATER EQUIPMENT AND CONTROLS</b>				
	<b>Feed-water tank:</b>				
36.1	Adjust make-up water ball float valve to correct level	sum	-	-	
36.2	Check and adjust tank temperature control system c/w all valves and sparge pipe	sum	-	-	
36.3	Refill tank with treated make-up water	sum	-	-	
	<b>Feed-water pumps:</b>				
36.4	Isolate, strip, dismantle, de-scale and clean out feed water-pumps	set	5		
36.5	Inspect and report on condition of pump and motor components	pumps	2		
36.6	Replace packings, seals, pump and pump motor bearings and gaskets	pumps	2		
36.7	Clean out pump strainers	set	5		
36.8	Inspect and repair pump mountings	set	5		
36.9	Remove insulation and cladding from feed water suction line and delivery line and set cladding aside for reuse. Replace insulation with rock wool insulation, refit cladding and paint over	m	45		
36.10	Overhaul existing feed water check valves and test for correct operation	number	5		
36.11	Refit, install and test feed-water pumps	set	4		
	<b>Water-level equipment and controls:</b>				
36.12	Dismantle, strip, de-scale and clean dual and single switch float operated controls (Mobrey type)	set	5		
36.13	Supply and install new switch float operated controls (Mobrey type)	number	5		
36.14	Dismantle, strip, de-scale and clean water-level gauge glasses. Replace gaskets and refit to boiler	set	5		
36.15	Supply and install new gauge glass and gaskets. Refit to boiler	number	5		
36.16	Dual and single level controls to be overhauled, inspected, tested, adjusted and refitted	set	5		
36.17	Test alarm levels and operation	set	5		
36.18	Test blow-down valves and operation	set	5		
				Balance Carried Down	





Steam Generation (FA)

				Balance Brought Down	
	<b>Chimneys:</b>				
36.19	Inspect and clean chimney stacks	boilers	3		
36.20	Inspect guyed cables securing points, and re-tension and secure fixing points	boilers	10		
36.21	Re-flash and seal chimney stack roof penetrations	boilers	3		
	<b>Ducting:</b>				
36.22	Inspect and clean all gas ducting	number	2		
36.23	Replace all joint seals and gaskets with new	number	2		
36.24	Prepare and repaint gas ducting	number	2		
36.25	Weld socket on gas ducting and install dial type gas thermometer	number	3		
				Balance Carried Down	



Steam Generation (FA)

					Balance Brought Down	
37	<b>COAL HANDLING AND CONVEYING EQUIPMENT</b>					
	<b>Coal bunker:</b>					
37.1	Inspect and clean out coal bunkers	sum	-	-		
37.2	Remove, clean and repair coal bunker gratings	sum	-	-		
37.3	Repair and replace defective components and parts roller shutter doors	sum	-	-		
37.4	Supply, deliver, construct install, test, commission and handing-over of a new permanent submersible pump installation inside coal conveying equipment chamber below coal bunkers	sum	-	-		
	<b>Coal conveying equipment:</b>					
37.5	Replace and install high level vertical screw with equivalent new unit	number	1			
37.6	Dismantle, strip down, clean and inspect en masse coal elevator and horizontal travelling equipment	sum	-	-		
37.7	Inspect service and repair chains, links and travelling ducting	sum	-	-		
37.8	Test, inspect, service and repair motor drives and gear boxes, including testing windings for balance phases, insulation test and check wiring	sum	-	-		
37.9	Lubricate all required lubrication points and replace oils as directed by the manufacturer	sum	-	-		
37.8	Inspect mountings and repair if necessary	sum	-	-		
37.9	Inspect, test, service and repair coal hopper and level controls	sum	-	-		
37.10	Inspect, test, service and repair electrical control panel and controls. All faulty equipment to be replaced	sum	-	-		
37.11	Clean casings, prepare and repaint	sum	-	-		
	<b>COAL TESTING</b>					
	<b>NOTE: COAL SUPPLIED BY DCS</b>					
37.12	Test coal and report back to engineer on conformance/non-conformance of coal to that specified by the boiler manufacturer	sample	1			
					Balance Carried Down	



Steam Generation (FA)

					Balance Brought Down	
	<b>ASH AND GRIT REMOVAL EQUIPMENT</b>					
	<b>NOTE: ASH DISPOSAL DONE BY DPWI</b>					
	-					
	<b>Grit collectors:</b>					
37.13	Inspect, clean out all grit, dust and foreign matter, including inspection of grit collector supports and casing material	boiler	5			
37.14	Inspect all access ports and discharge ports, and replace all joint seals and gaskets with new	number	5			
	<b>Ash and grit trolleys:</b>					
37.15	Inspect, clean out, service and repair all grit and ash trolleys. This installation is equipped with four grit trolleys and four ash trolleys	number	10	-		
38	<b>ELECTRICAL INSTALLATION, WIRING AND CONTROL PANELS</b>					
	-					
	<b>Boiler room Distribution board</b>					
38.1	All wiring to be tidied up, neatly bundled and fixed to backing plates	sum	-	-		
38.2	Cover plate to be fixed and installed correctly	sum	-	-		
38.3	Refurbish as per PFA01	sum	-	-		
38.4	Replace boiler room distribution board	sum	-	-		
38.5	Inspect, test, service and clean all instrumentation and control equipment	sum	-	-		
38.6	Inspect, test, service, recalibrate and adjust steam pressure detector and pressure gauge	number	5			
38.7	Inspect all access ports and discharge ports and replace all joint seals and gaskets with new	number	5			
38.8	Inspect repair, reconditioning and/or replace any defective parts or/and components for high/low water level controls and alarms	sum	-	-		
	<b>Electrical control panels:</b>					
38.9	Inspect, test, service and clean all the electrical control panels	sum	-	-		
38.10	Inspect and test the operation and condition of all MCBs, motor starters, overloads, indication lights, control equipment, selector switches, etc, and replace where necessary	sum	-	-		
38.11	Check and repair/replace all primary and secondary control panel wiring for proper conducting and replace where required	sum	-	-		
					Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
38.12	Clean out control panels interior and exterior, inspect panel body, fascias, doors, paintwork, etc, and repair where necessary	sum	-	-	
38.13	Any additional tests which may be required by the Engineer resulting from the above inspections	sum	-	-	
39	<b><u>WATER TREATMENT EQUIPMENT</u></b>				
	<b>General</b>				
39.1	Install automatic boiler blow down / TDS control system, complete with TDS display unit	number	2		
39.2	Supply and install boiler water / condensate sampling pot	number	2		
39.3	Provide feed water, raw water and soft water sampling points	number	2		
39.4	Service raw water supply pressurisation system	number	2		
	<b>Water softener:</b>				
39.5	Inspect, test, de-scale service and clean the water softener equipment	sum	-	-	
39.6	Sample and analyse feed water, and adjust water softener to the correct water hardness as specified by boiler manufacturer	sum	-	-	
39.7	Check and clean out salt container and recharge with salt (salt provided by others)	sum	-	-	
39.8	Install new automatic duplex water softener system with regenerating resin bed. Capacity of 82 m <sup>3</sup> of softened water between regenerations, on a make-up hardness of 100mg/litre as CaCO <sub>3</sub> .	number	1		
				Balance Carried Down	



Steam Generation (FA)

					Balance Brought Down	
	<b>Chemical dosing equipment:</b>					
39.9	Inspect, test, service and clean the chemical dosing equipment	number	1			
39.10	Sample and analyse feed water, and adjust chemical dosing equipment to the correct water quality as specified by boiler manufacturer	number	1			
39.11	Ensure that each chemical container is filled with the correct chemicals for this application	number	1			
39.12	Install new proportional dosing system System to include a 25mm impulse water meter, chemical dosing pump, electronic controller, 200 litre chemical tank and all necessary fittings	number	1			
40	<b><u>BOILER HOUSE ANCILLARY EQUIPMENT</u></b>					
	<b>Blow-down sump:</b>					
40.1	Clean blow down sump drain into existing sewage system	sum	-	-		
40.2	Put blow-down sump back into operation	sum	-	-		
40.3	Repair existing boiler house blow down trench where concrete is cracked and unstable	sum	-	-		
40.4	Replace existing boiler house blow down trench covering with equivalent. Repair fixing points for covering. Protect covering from corrosion with etch coat primer, paint and make secure and safe.	sum	-	-		
	<b>Ladders and galleries:</b>					
40.5	Clean and inspect ladders and galleries for any defects, corrosion, mountings and supports	sum	-	-		
40.6	Repair ladder steps, side rails, gallery floors and hand rails	sum	-	-		
41	<b><u>PIPED INSTALLATIONS</u></b>					
	<b>Steam and condensate installation:</b>					
41.1	Clean, test, inspect, service and repair all steam and condensate pipe, fittings, accessories, components and equipment inside the boiler house	sum	-	-		
41.2	Repair and recondition existing steam traps sets including steam and water side valves	number	5			
					Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
	<b>Blow-down pipe installation:</b>				
41.3	Clean out blow-down pipe channel and replace all blow-down and drain pipework and accessories	sum	-	-	
41.4	All blow-down and drains pipework shall be done with steam schedule 40 piping and welded fittings	sum	-	-	
41.5	Check that the drainage point is piped into the channel and functioning properly	sum	-	-	
41.6	Test and hand over pipe system	sum	-	-	
<b>42</b>	<b>NEW PIPING</b>				
	-				
	Installation of new steam pipe sections. This shall include cutting, preparing, welding, cleaning, testing and all required fittings and making new rock wool lagging and cladding for the following pipe sizes:				
42.1	15 NB	m	10		
42.2	20 NB	m	10		
42.3	25 NB	m	10		
42.4	32 NB	m	10		
	-				
	Installation of new copper condensate pipe sections. This shall include cutting, preparing, welding, cleaning, testing and all required fittings and making new rock wool lagging and cladding for the following pipe sizes:				
42.5	22 mm dia.	m	10		
42.6	28 mm dia.	m	10		
42.7	35 mm dia.	m	10		
42.8	Supply and installation of new steam quality stainless steel braided flexible connectors 1,5 m long from steam trap water side valve to condensate main				
42.9	20 NB	number	10		
42.10	25 NB	number	10		
				Balance Carried Down	



Steam Generation (FA)

				Balance Brought Down	
	<b>Commissioning</b>				
42.11	Commissioning and testing of parts of the installation				
42.12	Boiler no 1	sum	-	-	
42.13	Boiler no 2	sum	-	-	
42.14	Boiler no 3	sum	-	-	
42.15	Boiler no 4	sum	-	-	
42.16	Boiler no 5	sum	-	-	
	Commissioning and testing of the installation				
42.17	Steam Generating Installation	sum	-	-	
	<b>Waste removal, recycling and disposal</b>				
42.18	All waste materials and liquids to be removed from site in a timely fashion such that accumulation of waste does not inconvenience the customer. Wherever possible waste material will be recycled.	sum	-	-	
	<b>Provision of Personal Protective Equipment (PPE)</b>				
42.19	Where required, contractors shall provide employees with suitable PPE, such as safety shoes, protective gloves and ear and eye protection	sum	-	-	
				Total carried to final summary	



Steam Distribution Repair (FB)

**Schedule 5- FB - Steam Distribution -  
Repair**

Item	Description	Unit	QTY	Rate	Amount
	<b>Complete steam distribution installation, see PFB.01 for further information</b>				
43	<b>Inspection and report of the following items:</b>				
43.1	Main and secondary steam and condensate pipe distribution network including all steam valves, expansion joints, pipe fittings, piping, air release valves, dirt pockets, etc.	sum	-	-	
43.2	Steam trap arrangements including steam traps, sight glasses, non-return valves, test valves, pipe connections, piping, etc.	sum	-	-	
43.3	Support and bracketing system to all steam and condensate pipe installations	sum	-	-	
43.4	Lagging and cladding of steam and condensate pipe installation	sum	-	-	
43.5	Pressure testing and flushing out of complete steam and condensate installation	sum	-	-	
43.6	Quality assurance system as per Technical Specification FB.07	sum	-	-	
	Installation of new steam pipe sections. This shall include cutting, preparing, welding, cleaning, testing and all required fittings and making new lagging and cladding for the following pipe sizes:				
43.7	15 NB. steam pipe	m	10		
43.8	20 NB dia. steam pipe	m	10		
43.9	25 NB dia. steam pipe	m	10		
43.10	32 NB dia. steam pipe	m	10		
43.11	40 NB dia. steam pipe	m	10		
43.12	50 NB dia. steam pipe	m	10		
				Balance Carried Down	





Steam Distribution Repair (FB)

				Balance Brought Down	
43.13	65 NB dia. steam pipe	m	10		
43.14	80 NB dia. steam pipe	m	10		
43.15	100 NB dia. steam pipe	m	10		
43.16	150 NB. steam pipe	m	25		
	<b>Condensate pipework, see PFB.01 for further information</b>				
43.17	Repair where leaking as per Technical Specification FB11.03(x10 locations)	number	10		
43.18	Replacement for PIPE diameter 15 -25 mm as per Technical Specification FB11.03	m	5		
43.19	Replacement for PIPE diameter 32 -50 mm as per Technical Specification FB11.03	m	5		
43.20	Replacement for PIPE diameter 65 -150 mm as per Technical Specification FB11.03	m	5		
	Installation of new copper condensate pipe sections. This shall include cutting, preparing, welding, cleaning, testing and all required fittings and making new lagging and cladding for the following pipe sizes:				
43.21	22 mm dia. condensate pipe	m	10		
43.22	28 mm dia. condensate pipe	m	10		
43.23	35 mm dia. condensate pipe	m	10		
43.24	42 mm dia. condensate pipe	m	10		
43.25	54 mm dia. condensate pipe	m	10		
				Balance Carried Down	



Steam Distribution Repair (FB)

				Balance Brought Down	
	<b>Valves, see PFB.01 for further information</b>				
43.26	Replace with equivalent with reference to Technical Specification FB 11.07	number	10		
43.27	Service valves as per Technical Specification FB 11.07	number	10		
	Repair, service, all steam valves including reseating, replacing of seals, gaskets, and gland packings for the following valve sizes (globe valves):				
43.28	15 NB dia.	number	20		
43.29	20 NB dia.	number	20		
43.30	25 NB dia.	number	20		
43.31	32 NB dia.	number	5		
43.32	50 NB dia.	number	5		
43.33	65 NB dia.	number	5		
43.34	80 NB dia.	number	5		
43.35	Install 15 mm dia. steam globe valves with plugged end to all existing plugged dirt pockets on steam distribution installation. This shall include reducing bush nipples, valves and plugs.	number	5		
	Repair, service, all condensate valves including reseating, replacing of seals, gaskets, and gland packings for the following valve sizes (gate valves):				
43.36	15 mm dia.	number	20		
43.37	22 mm dia.	number	20		
43.38	28 mm dia.	number	20		
				Balance Carried Down	



Steam Distribution Repair (FB)

				Balance Brought Down	
43.39	35 mm dia.	number	5		
43.40	42 mm dia.	number	5		
43.41	54 mm dia.	number	5		
	<b>Condensate transfer tank, see PFB.01 for further information</b>				
43.42	Service tank and pumps as per Technical Specification FB11.09.02	number	2		
43.43	Service valves as per Technical Specification FB 11.07	number	4		
43.44	Inspect and report on condensate pumps installation, condition and status	sum	-	-	
43.45	Drain, clean out and inspect condensate tanks for any defects or damages	number	2		
43.46	Test, service and inspect level controls	number	2		
43.47	Inspect, service and repair electrical condensate pumps including the following:				
43.48	Inspect and test the pumps for correct operation	set	3		
43.49	Replace gland packings, seals and gaskets	set	3		
43.50	Inspect and test for any bearing noise and replace if necessary	set	3		
43.51	Clean out pump strainers, check non-return valves, valves, etc.	set	3		
43.52	Test pump motor windings for balance phases, insulation test and check wiring	set	3		
43.53	Inspect pump mountings and repair if necessary	set	3		
43.54	Inspect, service, repair and test electrical control panels	number	5		
				Balance Carried Down	



Steam Distribution Repair (FB)

43.55	Supply and install additional condensate pumps including modification to suction and delivery piping and installation of isolating valves and check valves	number	2		
43.56	Modify controls and wiring for twin pump installation including supply of additional high level control	number	2		
43.57	Supply and install rock wool insulation and cladding for existing condensate collection tanks	number	2		
43.58	Supply and installation of new condensate pump sets- electric pumps including provision of power supply to the control panel, tank etc.	number	2		
43.59	Servicing and adjustment of new condensate pump sets- steam pumps including the steam supply to the pump set	number	2		
	<b>Steam traps, see PFB.01 for further information</b>				
43.60	Remove and service as per Technical Specification FB11.06 (x30)	number	30		
	Replace steam traps, including removal of existing trap, all required work and fittings for installation of new steam trap for the following sizes and traps:				
	Inverted bucket				
43.61	20 NB dia	number	2		
	Float and thermostatic				
43.62	25 NB dia.	number	2		
	Type 8 adjustable thermostatic				
43.63	15 NB dia.	number	2		
	<b>Stainless steel lagging including insulation with reference to FB11.04</b>				
43.64	Remove lagging and cladding from steam lines set cladding aside for re-use and prime steam piping replace lagging and refit cladding	m	25		
43.65	Replacement for PIPE diameter 15 -25 mm	m	5		
				Balance Carried Down	



Steam Distribution Repair (FB)

				Balance Brought Down	
43.66	Replacement for PIPE diameter 32 -50 mm	m	5		
43.67	Replacement for PIPE diameter 65 -150 mm	m	5		
	<b>Galvanised steel lagging including insulation with reference to FB11.04</b>				
43.68	Remove lagging and cladding from steam lines set cladding aside for re-use and prime steam piping replace lagging and refit cladding	m	25		
43.69	Replacement for PIPE diameter 15 -25 mm	m	5		
43.70	Replacement for PIPE diameter 32 -50 mm	m	5		
43.71	Replacement for PIPE diameter 65 -150 mm	m	5		
	<b>Pressure reducing valves</b>				
43.72	Repair, service, all pressure reducing valves including replacing of springs, diaphragm, seals gaskets, and gland packings	number	4		
43.73	Repair, service, safety valve including replacing of spring, seals and gaskets	number	3		
43.74	Supply and install steam PRV station including pressure reducing valve, upstream and downstream valves, upstream and downstream pressure gauges and safety valve	number	3		
43.75	Clean service and adjust all pressure reducing valves excluding replacing of springs, diaphragm, seals, gaskets, and gland packings	number	3		
43.76	Replace, safety valve	number	1		
43.77	<b>Clean and blow out all dirt pockets</b>	number	1		
	<b>Bracketing</b>				
	Repair bracketing to existing steam and condensate piping. This shall include removal of existing bracket, replacing with new bracket including fixing and hangers and all required fittings and making good of lagging and cladding for the following pipe sizes:				
43.78	15 to 50 mm dia. piping	number	10		
43.79	Replace eye bolts on existing pole supports	number	75		
				Balance Carried Forward	



Steam Distribution Repair (FB)

				Balance Brought Forward	
43.80	New wall type brackets	number	25		
	<b>Ancillary Equipment</b>				
	Steam quality stainless steel braided flexible connectors 10 bar rating 1,5 m long				
43.81	15 NB dia.	number	5		
43.82	20 NB dia.	number	5		
43.83	25 NB dia.	number	5		
	<b>Additional items</b>				
43.84	Adjust fall of all 20 NB, 25 NB and 32 NB gravity drained condensate to 1: 250	sum	-	-	
43.85	Remove cladding and adjust skew cladding seams on 150 NB steam main	m	150		
43.86	Remove and replace cladding with skew seams on 150 NB steam main	m	10		
43.87	Waterproof pipe bracket penetrations through insulation cladding	number	10		
43.88	Replace pipe support chain on condensate lines	number	10		
43.89	Reposition 32 NB gravity drained condensate line under steam main	sum	-	-	
43.90	Additional pipe clip supports for 32 NB gravity drained condensate line	number	10		
43.91	Remove existing insulation and replace with lobster back elbows on 150 NB main	number	10		
43.92	Reroute kitchen condensate line where routed overhead to condensate tank installation, chase into floor slab and cover with galvanised floor drainage gridding, seal and paint.	m	5		
43.93	Guarantee of installation as per Technical Specification FB.09	sum	-	-	
				Balance Carried Down	



Steam Distribution Repair (FB)

				Balance Brought Down	
43.94	Provision of maintenance tools and spares as per Technical Specification FB.10	sum	-	-	
43.95	Recommision installation on completion of repair work as per Technical Specification FB 09, and Additional Specification SC 11	sum	-	-	
				Total carried to final summary	



## Hot Water Generation Repair (FC)

## Schedule 6

## FC - Hot water generation

## - Repair

Item	Description	Unit	QTY	Rate	Amount
	<b>Complete hot water generation installation, see PFC.01 for further information</b>				
44	<b><u>DETAIL REPAIR WORK</u></b>				
	-				
	<b><u>STORAGE CALORIFIER INSTALLATION</u></b>				
44.11	Isolation, removal, stripping, sand blasting, acid etching/washing of storage calorifier (insulation not to be removed or damaged)	sum	-	-	
44.2	Isolation of existing storage calorifier, cleaning and internal inspection	sum	-	-	
44.3	Isolation, removal and stripping of existing storage calorifier and setting aside of all valves and components for re-use	sum	-	-	
44.4	Application of internal coating	sum	-	-	
44.5	Touch up of internal coating	sum	-	-	
	Supply and installation of hot and cold water isolating valves				
44.6	15 mm dia.	number	1		
44.7	22 mm dia.	number	1		
44.8	28 mm dia.	number	1		
44.9	35 mm dia.	number	2		
				Balance Carried Down	





Hot Water Generation Repair (FC)

				Balance Brought Down	
	Supply and installation of cold water inlet strainer				
44.10	35 mm dia.	number	1		
	Supply and installation of non return valve				
44.11	35 mm dia.	number	1		
44.12	Supply and installation of cold water inlet expansion relief valve	number	2		
44.13	Supply and installation of combination air release and vacuum breaker valve	number	2		
44.14	Supply and installation of temperature and pressure operated safety valve	number	2		
44.15	Supply and installation of rock wool insulation and cladding	sum	-	-	
44.16	Supply and installation of hot water circulating pump - split casing type separate drive 1450 rpm bronze impeller	number	1		
45.	<b>NEW AND ADDITIONAL PIPE WORK</b>				
	Installation of new CL 2 copper pipe sections. This shall include cutting, preparing, welding, cleaning, testing and all required fittings for the following pipe sizes:				
45.1	15 mm dia. Pipe	m	10		
45.2	22 mm dia. pipe	m	10		
45.3	28 mm dia. pipe	m	10		
45.4	35 mm dia. pipe	m	10		
45.5	42 mm dia. pipe	m	10		
				Balance Carried Down	



Hot Water Generation Repair (FC)

					Balance Brought Down	
45.6	54 mm dia. pipe	m	10			
46	<b><u>THERMOMETRES AND PRESSURE GAUGES</u></b>					
46.1	Supply and install dial type thermometer c/w brass pocket	number	6			
46.2	Supply and install calorifier water side glycerine filled pressure gauge c/w stop and blow off cock and copper pig tail	number	6			
47	<b><u>SACRIFICIAL ANODES</u></b>					
47.1	Supply and install 32 dia x 500 long magnesium sacrificial anodes with stainless steel core	number	6			
47.2	Decommissioning and Testing prior to repair work as per Technical Specification FC02 & FC08	sum	-	-		
48	<b><u>REPLACE CALORIFIER</u></b>					
	<b>Replacing Calorifier</b>					
48.1	Replace with equivalent as per Technical Specification(TBA) FC11.04.02	number	1			
49	<b><u>REPAIR AND SERVICE CALORIFIER</u></b>					
49.1	Repair leaking flange and service as per Technical Specification FC11.04.01	number	1			
	<b>Connecting flanges</b>					
49.2	Replace with equivalent (x10) as per Technical Specification FC11.04.02	number	25			
	<b>Feedwater tank</b>					
49.3	Replace with equivalent pump with reference to Technical Specification FC 11.10	number	1			
					Balance Carried Down	



Hot Water Generation Repair (FC)

				Balance Brought Down	
	<b>Additional items</b>				
	Supply pressure test certificates for each calorifer				
49.4	Shell	number	6		
49.5	Heating coil	number	6		
	Perform pressure test on existing calorifiers and provide updated test certificate for each calorifer (certificate to be endorsed by an authorised independent inspection authority)				
49.6	Shell	number	6		
49.7	Heating coil	number	6		
	Supply and install new heating coil for calorifiers 1,5 hrs recovery to 50 deg C				
49.8	2500 litres	number	1		
49.9	2000 litres	number	1		
49.10	1200 litres	number	1		
49.11	900 litres	number	1		
50	<b><u>STERILISATION OF WATER INSIDE AN INSTALLATION</u></b>				
	Wherever new potentially contaminated (chemically or other) components are assembled to the system, the affected installations shall be sterilised as per FC11.08 to protect and ensure the safety of the end users.	litres	5 000		
50.1	Guarantee of installation as per Technical Specification FC.09	sum	-	-	
50.2	Provision of maintenance tools and spares as per Technical Specification FC.10	sum	-	-	
				Balance Carried Down	



Hot Water Generation Repair (FC)

				Balance Brought Down	
50.3	Recommision installation on completion of repair work as per Technical Specification FC 08	sum	-	-	
				Total carried to final summary	

[Type here]

SCHEDULE – 7 SCHEDULE RATES FOR LABOUR AND TRANSPORT.

3.	Labour- for all boiler operations and repairs		Year 1 (Total)	Year 2(Total)	Year 3 (Total)	Total amount (Year1+2+3)
	Rate	Unit				
3.1.						
	Working hours					
3.1.1.	Skilled Artisan(Technician)	R /hour	R	R	R	R
3.1.2.	Semi-skilled worker	R /hour	R	R	R	R
3.1.3.	Travelling	1 km R /km	R	R	R	R
3.2	<b>Non- schedule materials</b>		R 1,000,000.00	R1,000,000.00	R1,000,000.00	R3,000,000.00
	Allow for the amount of R3, 000,000.00 for the provisional cost of non-scheduled material that may be used. The above labour rates will apply.					
	20 Percentage mark- up on non schedule materials that may be used. {Percentage (%)}	20%	R	R	R	R
	Subtotals labour cost carried to summary page				SUB TOTAL R	

NOTE:\*The rates for labour will be deemed to include for statutory minimum labour rates, contribution to bonus, holiday, pension, medical funds etc, for normal working hours, as well as for transport costs including travelling time, but excluding VAT

## SUMMARY PAGE

### **BID FOR BAVIAANSPOORT CORRECTIONAL SERVICES. SERVICE, REPAIR AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS FOR THE PERIOD OF 36 MONTHS**

The total tender price for this service must include all labour and material required for the proper execution of the work and shall be carried over to the Tender Form which must be returned together with this document.

1. Amount for Schedule 1 R \_\_\_\_\_

2. Amount for Schedule 2 R \_\_\_\_\_

3.Amount for Schedule 3 R \_\_\_\_\_

4.Amount for Schedules 4 R \_\_\_\_\_

5.Amount for Schedule 5 R \_\_\_\_\_

6.Amount for Schedule 6 R \_\_\_\_\_

7.Amount for Schedule 7 R \_\_\_\_\_

Sub-total R \_\_\_\_\_

Value-added Tax (VAT) R \_\_\_\_\_

Total carried forward to DPW Tender R \_\_\_\_\_

TENDERER'S SIGNATURE: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

DATE \_\_\_\_\_

## ANNEXURE A

## PREVENTATIVE MAINTENANCE SERVICE

### SCHEDULE AND CHECK LIST

#### FOR

### **BID FOR BAVIAANSPOORT CORRECTIONAL: SERVICE AND, REPAIR MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS FOR THE PERIOD OF 36 MONTHS**

1. Check pump, electrical control motor and bearings for wear and noise [    ]
2. Check all leaks, gladding, and dirt on the boiler [    ]
3. Check all electrical connection [    ]
4. Check FD & ID fans with V-belts and adjust to correct tension [    ]
5. Check water level on the gage glass column [    ]
6. Check the condition of chain grate stocker /coal screw [    ]
7. Check for the steam leakages from steam pipes [    ]
8. Check all safety valves for 100% operation [    ]
9. Check the mobrey valve float is 100% operation [    ]
10. Check block fired tubes [    ]
11. Check pressure release valve whether it still locks and open at the required pressure
12. Check coal soot blower-whether dirty or clean [    ]
13. Check the rate at which the CO2 is exhausted [    ]

[Type here]

14. Check the condition of the boiler drain valve [ ]

15. All defective equipment shall be recorded and reported to the client [ ]

16. Check the control panel [ ]

17. Check all loose connection. [ ]

18. Check the hourly log book (record book) [ ]

19. Check the condition of the gearbox which controls the stoker. [ ]

20. Check the chain grate stoker/coal screw speed. [ ]

21. Check the condition of the exhausted through the chimney. [ ]

22. Check the type of coal used. [ ]

22. Check the rate at which the coal is delivered into the boiler. [ ]

REMARKS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**NOTE:**

All minor and incidental repairs such as the replacement of nuts, bolts, washers, self tapping screws, pop rivets etc. shall form part of the service. The Contractor shall allow for such repairs, (material and labour cost), in his price for servicing.

\_\_\_\_\_  
CONTRACTORS SIGNATURE

DATE: \_\_\_\_\_

\_\_\_\_\_  
CLIENT DEPARTMENT SIGNATURE

DATE: \_\_\_\_\_

STAMP  
\_\_\_\_\_  
\_\_\_\_\_



## ANNEXURE B

## PREVENTATIVE MAINTENANCE SERVICE

### SCHEDULE AND CHECK LIST

#### FOR

### **BID FOR BAVIAANSPOORT CORRECTIONAL SERVICES: SERVICE, REPAIR AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS FOR THE PERIOD OF 36 MONTHS**

- |   |     |
|---|-----|
| 1. Check dirt and cladding.                             | [ ] |
| 2. Check the delivery pressure (hot or warm water)      | [ ] |
| 3. Check the steam pressure to the calorifier           | [ ] |
| 4. Check the warm water temperature from the calorifier | [ ] |
| 5. Check the pressure release valve                     | [ ] |
| 6. Check the water feed pump                            | [ ] |
| 7. Check the hot water circulation pump                 | [ ] |
| 8. Check steam and water pipes leaking                  | [ ] |
| 9. Check bracket and the lagging on the pipes           | [ ] |
| 10. Check the steam trap.                               | [ ] |
| 11. Check sight glass                                   | [ ] |
| 12. Check steam valve                                   | [ ] |

[Type here]

13. Check the non return valve

[ ]

14. Check the strainers

[ ]

REMARKS \_\_\_\_\_  
\_\_\_\_\_

**NOTE:**

All minor and incidental repairs such as the replacement of nuts, bolts, washers, self tapping screws, pop rivets etc. shall form part of the service. The Contractor shall allow for such repairs, (material and labour cost), in his price for servicing.

\_\_\_\_\_  
CONTRACTORS SIGNATURE

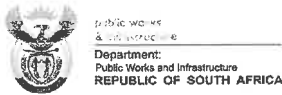
DATE: \_\_\_\_\_

\_\_\_\_\_  
CLIENT DEPARTMENT SIGNATURE

DATE: \_\_\_\_\_

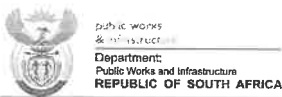
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## PART A INVITATION TO BID

<b>YOU ARE HEREBY INVITED TO BID FOR REQUIREMENTS OF THE (NAME OF DEPARTMENT/ PUBLIC ENTITY)</b>					
BID NUMBER:	PT21/030	CLOSING DATE:	20/01/2022	CLOSING TIME:	11H00
DESCRIPTION	SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)				
THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FILL IN AND SIGN A WRITTEN CONTRACT FORM (DPW04.1 GS or DPW04.2 GS). BID RESPONSE DOCUMENTS MAY BE DEPOSITED IN THE BID BOX SITUATED AT (STREET ADDRESS)					
<b>OR POSTED TO:</b>					
<b>SUPPLIER INFORMATION</b>					
NAME OF BIDDER					
POSTAL ADDRESS					
STREET ADDRESS					
TELEPHONE NUMBER	CODE		NUMBER		
CELLPHONE NUMBER					
FACSIMILE NUMBER	CODE		NUMBER		
E-MAIL ADDRESS					
VAT REGISTRATION NUMBER					
B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE [TICK APPLICABLE BOX]		TCS PIN:		OR	CSD No:
IF YES, WHO WAS THE CERTIFICATE ISSUED BY?		<input type="checkbox"/> Yes		B-BBEE STATUS LEVEL SWORN AFFIDAVIT	<input type="checkbox"/> Yes
		<input type="checkbox"/> No			<input type="checkbox"/> No
AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA) AND NAME THE APPLICABLE IN THE TICK BOX		<input type="checkbox"/>	AN ACCOUNTING OFFICER AS CONTEMPLATED IN THE CLOSE CORPORATION ACT (CCA)		
		<input type="checkbox"/>	A VERIFICATION AGENCY ACCREDITED BY THE SOUTH AFRICAN ACCREDITATION SYSTEM (SANAS)		
		<input type="checkbox"/>	A REGISTERED AUDITOR		
		NAME: _____			
<b>[A B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE/SWORN AFFIDAVIT (FOR EMEs &amp; QSEs) MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE]</b>					
ARE YOU THE ACCREDITED REPRESENTATIVE IN SOUTH AFRICA FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	ARE YOU A FOREIGN BASED SUPPLIER FOR THE GOODS /SERVICES /WORKS OFFERED?	<input type="checkbox"/> Yes	<input type="checkbox"/> No
	[IF YES ENCLOSE PROOF]			[IF YES ANSWER PART B:3 BELOW]	
SIGNATURE OF BIDDER			DATE		
CAPACITY UNDER WHICH THIS BID IS SIGNED (Attach proof of authority to sign this bid; e.g. resolution of directors, etc.)					
TOTAL NUMBER OF ITEMS OFFERED		TOTAL BID PRICE (ALL APPLICABLE TAXES)			
BIDDING PROCEDURE ENQUIRIES MAY BE DIRECTED TO:			TECHNICAL INFORMATION MAY BE DIRECTED TO:		
DEPARTMENT/ PUBLIC ENTITY			CONTACT PERSON		



CONTACT PERSON		TELEPHONE NUMBER	
TELEPHONE NUMBER		FACSIMILE NUMBER	
FACSIMILE NUMBER		E-MAIL ADDRESS	
E-MAIL ADDRESS			

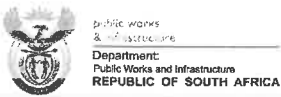
## PART B TERMS AND CONDITIONS FOR BIDDING

<b>1.</b>	<b>BID SUBMISSION:</b>	
1.1.	BIDS MUST BE DELIVERED BY THE STIPULATED TIME TO THE CORRECT ADDRESS. LATE BIDS WILL NOT BE ACCEPTED FOR CONSIDERATION.	
1.2.	ALL BIDS MUST BE SUBMITTED ON THE OFFICIAL FORMS PROVIDED-(NOT TO BE RE-TYPED) OR ONLINE	
1.3.	BIDDERS MUST REGISTER ON THE CENTRAL SUPPLIER DATABASE (CSD) TO UPLOAD MANDATORY INFORMATION NAMELY: ( BUSINESS REGISTRATION/ DIRECTORSHIP/ MEMBERSHIP/IDENTITY NUMBERS; TAX COMPLIANCE STATUS; AND BANKING INFORMATION FOR VERIFICATION PURPOSES). B-BBEE CERTIFICATE OR SWORN AFFIDAVIT FOR B-BBEE MUST BE SUBMITTED TO BIDDING INSTITUTION.	
1.4.	WHERE A BIDDER IS NOT REGISTERED ON THE CSD, MANDATORY INFORMATION NAMELY: (BUSINESS REGISTRATION/ DIRECTORSHIP/ MEMBERSHIP/IDENTITY NUMBERS; TAX COMPLIANCE STATUS MAY NOT BE SUBMITTED WITH THE BID DOCUMENTATION. B-BBEE CERTIFICATE OR SWORN AFFIDAVIT FOR B-BBEE MUST BE SUBMITTED TO BIDDING INSTITUTION.	
1.5.	THIS BID IS SUBJECT TO THE PREFERENTIAL PROCUREMENT POLICY FRAMEWORK ACT 2000 AND THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017, THE GENERAL CONDITIONS OF CONTRACT (GCC) AND, IF APPLICABLE, ANY OTHER LEGISLATION OR SPECIAL CONDITIONS OF CONTRACT.	
<b>2.</b>	<b>TAX COMPLIANCE REQUIREMENTS</b>	
2.1	BIDDERS MUST ENSURE COMPLIANCE WITH THEIR TAX OBLIGATIONS.	
2.2	BIDDERS ARE REQUIRED TO SUBMIT THEIR UNIQUE PERSONAL IDENTIFICATION NUMBER (PIN) ISSUED BY SARS TO ENABLE THE ORGAN OF STATE TO VIEW THE TAXPAYER'S PROFILE AND TAX STATUS.	
2.3	APPLICATION FOR TAX COMPLIANCE STATUS (TCS) OR PIN MAY ALSO BE MADE VIA E-FILING. IN ORDER TO USE THIS PROVISION, TAXPAYERS WILL NEED TO REGISTER WITH SARS AS E-FILERS THROUGH THE WEBSITE WWW.SARS.GOV.ZA.	
2.4	BIDDERS MAY ALSO SUBMIT A PRINTED TCS TOGETHER WITH THE BID.	
2.5	IN BIDS WHERE CONSORTIA / JOINT VENTURES / SUB-CONTRACTORS ARE INVOLVED, EACH PARTY MUST SUBMIT A SEPARATE PROOF OF TCS / PIN / CSD NUMBER.	
2.6	WHERE NO TCS IS AVAILABLE BUT THE BIDDER IS REGISTERED ON THE CENTRAL SUPPLIER DATABASE (CSD), A CSD NUMBER MUST BE PROVIDED.	
<b>3.</b>	<b>QUESTIONNAIRE TO BIDDING FOREIGN SUPPLIERS</b>	
3.1.	IS THE BIDDER A RESIDENT OF THE REPUBLIC OF SOUTH AFRICA (RSA)?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3.2.	DOES THE BIDDER HAVE A BRANCH IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3.3.	DOES THE BIDDER HAVE A PERMANENT ESTABLISHMENT IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
3.4.	DOES THE BIDDER HAVE ANY SOURCE OF INCOME IN THE RSA?	<input type="checkbox"/> YES <input type="checkbox"/> NO
<b>IF THE ANSWER IS "NO" TO ALL OF THE ABOVE, THEN, IT IS NOT A REQUIREMENT TO OBTAIN A TAX COMPLIANCE STATUS / TAX COMPLIANCE SYSTEM PIN CODE FROM THE SOUTH AFRICAN REVENUE SERVICE (SARS) AND IF NOT REGISTER AS PER 2.3 ABOVE.</b>		

**NB:** FAILURE TO PROVIDE ANY OF THE ABOVE PARTICULARS MAY RENDER THE BID INVALID. AN ORIGINAL OR CERTIFIED COPY OF THE B-BBEE STATUS LEVEL VERIFICATION CERTIFICATE MUST BE SUBMITTED IN ORDER TO QUALIFY FOR PREFERENCE POINTS FOR B-BBEE.

**Note Well:**

- a) In respect of non VAT vendors the bidders may not increase the bid price under Section 67(1) of the Value Added Tax Act of 1991 where the relevant transaction would become subject to VAT by reason of the turnover threshold being exceeded and the bidder becomes liable for VAT.
- b) **All delivery costs must be included in the bid price, for delivery at the prescribed destination.**
- c) The price that appears on this form is the one that will be considered for acceptance as ***a firm and final offer.***
- d) The grand total in the pricing schedule(s), inclusive of VAT, attached to the bid offer must correlate and be transferred to this form (PA32).
- e) Where there are inconsistencies between the grand total price offer in the pricing schedule(s) and the PA32 price offer, the price offer on



the PA32 shall prevail and deemed to be firm and final. No further correspondence shall be entered into in this regard.

<sup>1</sup> All applicable taxes” includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies

## DPW-07 (EC): FORM OF OFFER AND ACCEPTANCE

<b>Project title:</b>	<b>SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)</b>		
<b>Tender no:</b>	PT21/030	<b>Reference no:</b>	

### OFFER

The Employer, identified in the acceptance signature block, has solicited offers to enter into a contract for the procurement of:

**SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)**

The Tenderer, identified in the offer signature block, has examined the documents listed in the tender data and addenda thereto as listed in the returnable schedules, and by submitting this offer has accepted the conditions of tender.

By the representative of the Tenderer, deemed to be duly authorized, signing this part of this form of offer and acceptance, the Tenderer offers to perform all of the obligations and liabilities of the Contractor under the contract including compliance with all its terms and conditions according to their true intent and meaning for an amount to be determined in accordance with the conditions of contract identified in the contract data.

**THE TOTAL OFFER INCLUSIVE OF ALL APPLICABLE TAXES (All applicable taxes" includes value- added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies ) IS :**

<b>Rand (in words):</b>	
<b>Rand in figures:</b>	<b>R</b>

The award of the tender may be subjected to further price negotiation with the preferred tenderer(s). The negotiated and agreed price will be considered for acceptance as **a firm and final offer**.

This offer may be accepted by the Employer by signing the acceptance part of this form of offer and acceptance and returning one copy of this document to the Tenderer before the end of the period of validity stated in the tender data, whereupon the Tenderer becomes the party named as the Contractor in the conditions of contract identified in the contract data.

**THIS OFFER IS MADE BY THE FOLLOWING LEGAL ENTITY: (cross out block which is not applicable)**

Company or Close Corporation: ..... ..... And: Whose Registration Number is: ..... And: Whose Income Tax Reference Number is: ..... CSD supplier number:.....	<b>OR</b>	Natural Person or Partnership: ..... ..... Whose Identity Number(s) is/are: ..... Whose Income Tax Reference Number is/are: ..... CSD supplier number:.....
--	-----------	--

**AND WHO IS (if applicable):**

Trading under the name and style of: .....

\*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

\*\*Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"

**AND WHO IS:**

Represented herein, and who is duly authorised to do so, by:  Mr/Mrs/Ms: ..... In his/her capacity as: .....	<b>Note:</b> A Resolution / Power of Attorney, signed by all the Directors / Members / Partners of the Legal Entity must accompany this Offer, authorising the Representative to make this offer.
---	--

**Tender no:**

**SIGNED FOR THE TENDERER:**

Name of representative	Signature	Date

**WITNESSED BY:**

Name of witness	Signature	Date

This Offer is in respect of: (Please indicate with an "X" in the appropriate block)

- The official documents .....
- The official alternative .....
- Own alternative (only if documentation makes provision therefore) ..

(N.B.: Separate Offer and Acceptance forms are to be completed for the main and for each alternative offer)

**SECURITY OFFERED:**

- (a) the Tenderer accepts that in respect of contracts up to R1 million, a payment reduction\*\* of 5% of the contact value (excluding VAT) will be applicable and will be deducted by the Employer in terms of the applicable conditions of contract
- (b) in respect of contracts above R1 million, the Tenderer offers to provide security as indicated below:
- (1) cash deposit of 10 % of the Contract Sum (excluding VAT) Yes  No
  - (2) variable construction guarantee of 10 % of the Contract Sum (excluding VAT) Yes  No   
*select*
  - (3) payment reduction of 10% of the value certified in the payment certificate (excluding VAT) Yes  No
  - (4) cash deposit of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) Yes  No
  - (5) fixed construction guarantee of 5% of the Contract Sum (excluding VAT) and a payment reduction of 5% of the value certified in the payment certificate (excluding VAT) Yes  No   
*select*

NB. Guarantees submitted must be issued by either an insurance company duly registered in terms of the Short-Term Insurance Act, 1998 (Act 35 of 1998) or by a bank duly registered in terms of the Banks Act, 1990 (Act 94 of 1990) on the pro-forma referred to above. No alterations or amendments of the wording of the pro-forma will be accepted.

The Tenderer elects as its *domicilium citandi et executandi* in the Republic of South Africa, where any and all legal notices may be served, as (physical address):

.....

**Other Contact Details of the Tenderer are:**

Telephone No..... Cellular Phone No. ....

\*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

\*\*Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"



Fax No .....  
 Postal address .....  
 Banker ..... Branch.....  
 Registration No of Tenderer at Department of Labour .....  
 CIDB Registration Number: .....

**Tender no:**

**ACCEPTANCE**

By signing this part of this form of offer and acceptance, the Employer identified below accepts the Tenderer's offer. In consideration thereof, the Employer shall pay the Contractor the amount due in accordance with the conditions of contract identified in the contract data. Acceptance of the Tenderer's offer shall form an agreement between the Employer and the Tenderer upon the terms and conditions contained in this agreement and in the contract that is the subject of this agreement.

**The terms of the contract are contained in:**

- Part 1 Agreement and contract data, (which includes this agreement)
- Part 2 Pricing data
- Part 3 Scope of work
- Part 4 Site information

and drawings and documents or parts thereof, which may be incorporated by reference into Parts 1 to 4 above.

Deviations from and amendments to the documents listed in the tender data and any addenda thereto as listed in the tender schedules as well as any changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance, are contained in the schedule of deviations attached to and forming part of this agreement. No amendments to or deviations from said documents are valid unless contained in this schedule.

The Tenderer shall within two weeks after receiving a completed copy of this agreement, including the schedule of deviations (if any), contact the Employer's agent (whose details are given in the contract data) to arrange the delivery of any securities, bonds, guarantees, proof of insurance and any other documentation to be provided in terms of the conditions of contract identified in the contract data. Failure to fulfil any of these obligations in accordance with those terms shall constitute a repudiation of this agreement.

Notwithstanding anything contained herein, this agreement comes into effect on the date when the tenderer receives one fully completed original copy of this document, including the schedule of deviations (if any). Unless the tenderer (now contractor) within five (5) working days of the date of such receipt notifies the employer in writing of any reason why he/she cannot accept the contents of this agreement, this agreement shall constitute a binding contract between the parties.

**For the Employer:**

Name of signatory	Signature	Date

<b>Name of Organisation:</b>	Department of Public Works and Infrastructure
<b>Address of Organisation:</b>	

\*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

\*\*Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"  
 For Internal & External Use

**WITNESSED BY:**

Name of witness	Signature	Date

**Tender no:**

**Schedule of Deviations**

<b>1.1.1. Subject:</b>	
<b>Detail:</b>	
<b>1.1.2. Subject:</b>	
<b>Detail:</b>	
<b>1.1.3. Subject:</b>	
<b>Detail:</b>	
<b>1.1.4. Subject:</b>	
<b>Detail:</b>	
<b>1.1.5. Subject:</b>	
<b>Detail:</b>	
<b>1.1.6. Subject:</b>	
<b>Detail:</b>	

By the duly authorised representatives signing this agreement, the Employer and the Tenderer agree to and accept the foregoing schedule of deviations as the only deviations from and amendments to the documents listed in the tender data and addenda thereto as listed in the tender schedules, as well as any confirmation, clarification or changes to the terms of the offer agreed by the Tenderer and the Employer during this process of offer and acceptance.

It is expressly agreed that no other matter whether in writing, oral communication or implied during the period between the issue of the tender documents and the receipt by the Tenderer of a completed signed copy of this Agreement shall have any meaning or effect in the contract between the parties arising from this agreement.

\*Any reference to words "Bid" or "Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

\*\*Any reference to the words "payment reduction" herein shall be construed to have the same meaning as the word "retention"  
For Internal & External Use

## PA-09 (EC): LIST OF RETURNABLE DOCUMENTS

<b>Project title:</b>	<b>SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)</b>		
<b>Tender / Quote no:</b>	PT21/030	<b>Reference no:</b>	
<b>Receipt Number:</b>			

### 1. RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES

**Note:** Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Form of Offer and Acceptance (DPW-07 EC)	4 Pages	Yes
Declaration of Interest and Tenderer's Past Supply Chain Management Practices (PA-11)	4 Pages	Yes
Resolution of Board of Directors (PA-15.1) (if applicable)	1 Page	Yes
Resolution of Board of Directors to enter into Consortia or JV's (PA-15.2) (if applicable)	2 Pages	Yes
Special Resolution of Consortia or JV's (PA-15.3) (if applicable)	3 Pages	Yes
Preference points claim form in terms of the Preferential Procurement Regulations 2017 (PA – 16)	5 Pages	Yes
Certificate of independent Bid Determination (PA - 29)	4 Pages	Yes
Declaration Certificate for Local Production and Content for designated sectors (PA – 36 and Annexure/s C)		Yes
Fully completed Declaration of Designated Groups for Preferential Procurement (PA 40)	2 Pages	Yes
Registration on National Treasury's Central Supplier Database (CSD).	-	Yes
Particulars of Tenderer's Projects (DPW-09 EC)	2 Pages	Yes
Site Inspection Meeting Certificate (DPW-16 EC) (if applicable).	1 Page	n/a
Record of attending compulsory virtual bid clarification / site inspection meeting (if applicable).	1 Page	n/a
Record of Addenda to tender documents (DPW-21 EC)	1 Page	Yes
Site Inspection Meeting Certificate (DPW-16 EC) (if applicable)	1 Page	n/a
Proof of 30% Subcontracting participation and related documents in terms of the Preferential Procurement Regulations 2017 (if applicable).	n/a	n/a
In case of joint Venture, the bidder/s must submit with the separate PA-11.	4 Pages	Yes
In case of joint venture the bidder/s must submit with the bid consolidated valid, original or original certified B-BBEE certificate accredited by SANAS or DTI.	1Page	Yes
n case where the bidder/s submit B-BBEE Sworn affidavit with the bid , the affidavit must be valid, original and attested by commissioner of oath.	1Page	Yes
CIDB required grade 6 ME or higher. In case of a Joint Venture the bidder/s must submit with the bid active consolidated CIDB certificate	1 Page	Yes

\* In compliance with the requirements of the CIDB SFU Annexure G

Tender no: **PT21/030**

**2. ADDITIONAL RETURNABLE DOCUMENTS REQUIRED FOR TENDER EVALUATION PURPOSES**

**Note:** Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Any <u>additional</u> information required to complete a risk assessment ( <i>if applicable</i> )	-	Yes

**3. RETURNABLE DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT**

**Note:** Failure to submit the applicable documents will result in the Tenderer having to submit same upon request within a stipulated time and if not complied with, will result in the tender offer being disqualified from further consideration. [See also C.2.18 of the Standard Conditions of Tender]

Tender document name	Number of pages issued	Returnable document
Schedule of proposed sub-contractors (DPW-15 EC) ( <i>if applicable</i> )	1 Page	Yes
Particulars of Electrical Contractor (DPW-22 EC) ( <i>if applicable</i> )	1 Page	Yes
Mechanical / Electrical / Security Work material and equipment schedules ( <i>if applicable</i> )	Pages	Yes
Schedule for Imported Materials and Equipment (DPW-23 EC) ( <i>if applicable</i> )	1 Page	Yes

**4. OTHER DOCUMENTS THAT WILL BE INCORPORATED INTO THE CONTRACT**

(Insert a tick in the "Returnable document" column to indicate which documents must be returned with the tender)

**Note:** Failure to submit the applicable documents will result in the tender offer being disqualified from further consideration.

Tender document name	Number of pages issued	Returnable document
Priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts)	Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Fully priced and completed sectional summary- and final summary pages with the tender.	Pages	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No

	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No
	Pages	<input type="checkbox"/> Yes <input type="checkbox"/> No

Tender no: *PT21/030*

**5. ADDITIONAL INFORMATION THAT MAY BE REQUIRED FOR TENDER EVALUATION PURPOSES**

Legal Status of Tendering Entity: If the Tendering Entity is:	Documentation to be submitted with the tender, or which may be required during the tender evaluation:
a. A close corporation, incorporated prior to 1 May 2011 under the Close Corporations Act, 1984 (Act 69 of 1984, as amended)	Copies of the Founding Statement – CK1
b. A profit company duly registered as a private company.  [including a profit company that meets the criteria for a private company, whose Memorandum of Incorporation states that the company is a personal liability company in terms of Section 8(2)(c) of the Companies Act, 2008 (Act 71 of 2008, as amended)].	Copies of: i. Certificate of Incorporation – CM1; ii. Shareholding Certificates of all Shareholders of the company, plus a signed statement of the company's Auditor, certifying each Shareholder's ownership / shareholding percentage relative to the total; and/or iii. Memorandum of Incorporation in the case of a personal liability company.
c. A profit company duly registered as a private company in which any, or all, shares are held by one or more other close corporation(s) or company(ies) duly registered as profit or non-profit company(ies).	Copies of documents referred to in a. and/or b. above in respect of all such close corporation(s) and/or company(ies).
d. A profit company duly registered as a public company.	Copy of Certificate of Incorporation – CM1, and a signed statement of the company's Secretary or Auditor confirming that the company is a public company.
e. A non-profit company, incorporated in terms of Section 10 and Schedule 1 of the Companies Act, 2008 (Act 71 of 2008, as amended).	Copies of: i the Founding Statement – CK1; and ii the Memorandum of Incorporation setting out the object of the company, indicating the public benefit, cultural or social activity, or communal or group interest.
f. A natural person, sole proprietor or a Partnership	Copy(ies) of the Identity Document(s) of: i. such natural person/ sole proprietor, or each of the Partners to the Partnership.
g. A Trust	Deed of Trust duly indicating names of the Trustee(s) and Beneficiary (ies) as well as the purpose of the Trust and the mandate of the Trustees.

**Signed by the Tenderer:**

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Name of representative	Signature	Date
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# PA-04 (EC): NOTICE AND INVITATION TO TENDER

THE DEPARTMENT OF PUBLIC WORKS AND INFRASTRUCTURE INVITES TENDERS FOR:

<b>Project title:</b>	SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGODHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)
<b>Reference no:</b>	

<b>Tender no:</b>	PT21/030		
<b>Advertising date:</b>	18/11/2021	<b>Closing date:</b>	20/01/2022
<b>Closing time:</b>	11H00	<b>Validity period:</b>	12 Weeks (84 calendar days)

It is estimated that tenderers should have a CIDB contractor grading designation of **6ME** or **6ME\*** or higher.

*\* Delete "or select tender value range select class of construction works" where only one class of construction works is applicable*

It is estimated that potentially emerging enterprises should have a CIDB contractor grading designation of **select tender value rangeselect class of construction worksPE** or **select tender value rangeselect class of construction worksPE\*** or higher.

*\* Delete "or select tender value range select class of construction works PE" where only one class of construction works is applicable*

Only tenderers who are responsive to the following responsiveness criteria are eligible to submit tenders. Failure to comply with the criteria stated hereunder shall result in the tender offer being disqualified from further consideration:

<input checked="" type="checkbox"/>	Only those tenderers who satisfy the eligibility criteria stated in the Tender Data may submit tenders.
<input checked="" type="checkbox"/>	Tender offer must be properly received on the tender closing date and time specified on the invitation, fully completed either electronically (if issued in electronic format), or by writing legibly in non-erasable ink. (All as per Standard Conditions of Tender).
<input checked="" type="checkbox"/>	All parts of tender documents submitted must be <b>fully completed in ink and signed where required</b> . Use of correction fluid is prohibited. Corrections to be crossed out and initialled by the person authorised to sign the tender documentation as per PA 15.1 or PA 15.2 resolution of board/s of directors / or PA15.3 Special Resolution of Consortia or JV's .
<input checked="" type="checkbox"/>	Submission of (DPW-07 EC): Form of Offer and Acceptance.
<input checked="" type="checkbox"/>	Submission of applicable (PA-15.1, PA-15.2, PA-15.3): Resolution by the legal entity, or consortium / joint venture, authorising a dedicated person(s) to sign documents on behalf of the firm / consortium / joint venture.
<input checked="" type="checkbox"/>	Submission of (PA-11): Declaration of Interest and Tenderer's Past Supply Chain Management Practices.
<input checked="" type="checkbox"/>	Submission of (PA-16): Preference points claim form in terms of the Preferential Procurement Regulations 2017.
<input checked="" type="checkbox"/>	Submission of (PA-29): Certificate of Independent Bid Determination.
<input checked="" type="checkbox"/>	Submission of (PA – 36 and Annexure/s C): Declaration Certificate for Local Production and Content for designated sectors.
<input type="checkbox"/>	Submission of (PA 40): Declaration of Designated Groups for Preferential Procurement.
<input checked="" type="checkbox"/>	Submission of proof of Registration on National Treasury's Central Supplier Database (CSD).
<input checked="" type="checkbox"/>	Submission of (DPW-09EC): Particulars of Tenderer's Projects.
<input type="checkbox"/>	Submission of (DPW-21 EC): Record of Addenda to tender documents
<input type="checkbox"/>	Submission of (DPW-16 EC): Site Inspection Meeting Certificate
<input type="checkbox"/>	Submission of record of attending compulsory virtual bid clarification / site inspection meeting.

Any reference to words "Bid" or Bidder" herein and/or in any other documentation shall be construed to have the same meaning as the words "Tender" or "Tenderer".

Tender no: PT21/031

<input checked="" type="checkbox"/>	The tenderer will be required to submit his fully priced Bills of Quantities / Lump Sum Document (complete document inclusive of all parts) together with his tender.
<input type="checkbox"/>	The tenderer will be required to submit his fully priced and completed sectional summary- and final summary pages with the tender.
<input type="checkbox"/>	Submission of Proof of 30% Subcontracting participation and related documents in terms of the Preferential Procurement Regulations 2017.
<input checked="" type="checkbox"/>	use of correction fluid is prohibited.
<input checked="" type="checkbox"/>	In case of joint Venture,the bidder/s must submit with the separate PA-11.
<input checked="" type="checkbox"/>	In case of joint venture the bidder/s must submit with the bid consolidated valid, original or original certified B-BBEE certificate accredited by SANAS or DTI.
<input checked="" type="checkbox"/>	In case where the bidder/s submit B-BBEE Sworn affidavit with the bid , the affidavit must be valid, original and attested by commissioner of oath.
<input checked="" type="checkbox"/>	CIDB required grade 6 ME or higher.In case of a Joint Venture the bidder/s must submit with the bid active consolidated CIDB certificate

**Tenderer must comply with the Pre-qualification criteria for Preferential Procurement listed below**

<input checked="" type="checkbox"/>	A tenderer having stipulated minimum B-BBEE status level of contributor: <input checked="" type="checkbox"/> Level 1 or <input checked="" type="checkbox"/> Level 2 or <input checked="" type="checkbox"/> Level 3
<input checked="" type="checkbox"/>	An EME or QSE
<input type="checkbox"/>	A tenderer subcontracting a minimum of 30% to: <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people who are youth <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people who are women <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people with disabilities <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people living in rural or underdeveloped areas or townships <input type="checkbox"/> A co-operative which is at least 51% owned by black people <input type="checkbox"/> An EME or QSE which is at least 51% owned by black people who are Military veterans <input type="checkbox"/> An EME or QSE;

This bid will be evaluated according to the preferential procurement model in the PPPFA: *(Tick applicable preference point scoring system)*

<input checked="" type="checkbox"/> 80/20 Preference points scoring system	<input type="checkbox"/> 90/10 Preference points scoring system	<input type="checkbox"/> Either 80/20 or 90/10 Preference points scoring system
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In case where below/above R 50 000 000 is selected, the lowest acceptable tender will be used to determine the applicable preference point system. (To be used in instances where the estimate cannot be reasonably determined or when one is unsure as to what the market price may be).

**Note:** Functionality will be applied as a prequalification criterion. Such criteria are used to establish minimum requirements where after bids will be evaluated solely on the basis of price and preference.

<b>Minimum functionality score to qualify for further evaluation:</b>	
<b>Functionality criteria:</b>	<b>Weighting factor:</b>



<p>. Entity Bidding Experience:</p> <p>Entity bidding experience in boilers and steam reticulation related projects (please attach copy of appointment letter and corresponding completion certificate on clients letterhead)</p> <p>1.1 Five previous relevant completed projects in the last 10 years with a value of R 5 200 000.00 for each project= 05 points</p> <p>1.2 Four previous relevant completed projects in the last 10 years with a value of R 5 200 000.00 for each project =04 points</p> <p>1.3 Three previous relevant completed projects in the last 10 years with a value of R 5 200 000.00 for each project =03 points</p> <p>1.4 Two previous relevant completed projects in the last 10 years with a value of R 5 200 000.00 for each project =02 points</p> <p>1.5 One previous relevant completed projects in the last 10 years with a value of R5 200 000.00 =01 point</p> <p>1.6 No previous relevant completed projects in the last 10 years= 0 point</p>	<p>30</p>
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## 2. Key personnel

Assigned personnel in relation to the scope of operation and maintenance of boilers and steam reticulation. Attach CV's showing number of years of experience, certified copies of qualifications, certificates and ID copies, certification must not be older than six months when bid closes.

(i) Contract/ project manager with national diploma/degree or higher in engineering or construction,

(ii) Electro mechanical/ mechanical engineering technician with national diploma/degree or higher in electro mechanical or mechanical engineering,

(iii) Health and safety representative with professional registration in SACPMCP

(iv) Artisan with trade test certificate as fitter, turner or electrician.

### 2.1

- Project/ contract manager with national diploma, degree or higher in engineering or construction)

- Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering

- Health and safety representative with professional registration (SACPMCP),

- 3 x artisan with trade test as fitter, turner or electrician + 5 years or more relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 05 points.

### 2.2

- Project/ contract manager with national diploma, degree or higher in engineering or construction)

- Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering

- Health and safety representative with professional registration (SACPMCP),

- 3 x artisan with trade test as fitter, turner or electrician + 4 years relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 04 points.

### 2.3

- Project/ contract manager with national diploma, degree or higher in engineering or construction)

- Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering

- Health and safety representative with professional registration (SACPMCP),

- 3 x artisan with trade test as fitter, turner or electrician + 3 years relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 03 points.

### 2.4

- Project/ contract manager with national diploma, degree or higher in engineering or construction)

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<ul style="list-style-type: none"> <li>•Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering</li> <li>•Health and safety representative with professional registration (SACPMCP),</li> <li>•3 x artisan with trade test as fitter, turner or electrician + 2 years relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 02 points.</li> </ul> <p>2.5</p> <ul style="list-style-type: none"> <li>•Project/ contract manager with national diploma, degree or higher in engineering or construction)</li> <li>•Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering</li> <li>•Health and safety representative with professional registration (SACPMCP),</li> <li>•3 x artisan with trade test as fitter, turner or electrician + 1 year relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 01 point.</li> </ul> <p>2.6</p> <ul style="list-style-type: none"> <li>•Project/ contract manager with national diploma, degree or higher in engineering or construction)</li> <li>•Electro mechanical/mechanical engineering technician with national diploma, degree or higher in electro mechanical or mechanical engineering</li> <li>•Health and safety representative with professional registration (SACPMCP),</li> <li>•3 x artisan with trade test as fitter, turner or electrician + 0 year relevant experience for all key staff in the operation and maintenance of boilers and steam reticulation = 0 point.</li> </ul> <p>Note: The team must include Contract Manager/Project Manager health and safety representative, electro mechanical/mechanical engineering technician and artisans. The team will be deemed incomplete if not all key staff are included. Therefore the service provider will forfeit points.</p>	
<p>3 Bank Rating</p> <p>The bidder must submit an original bank stamped rating letter or certified copy of such a letter which is not older than 6 months on the closing day of the tender.</p> <p>3.1 Bank rating of A.....5 points</p> <p>3.2 Bank rating of B.....4 points</p> <p>3.3 Bank rating of C.....3 points</p> <p>3.4 Bank rating of D.....2 points</p> <p>3.5 Bank rating of E.....1 point</p>	<p>25</p>

<p>4. Project Execution Plan.</p> <p>4.1 the bidder must attach a specific PEP based on the contract duration in the contract data reflecting the following:</p> <ul style="list-style-type: none"> <li>•Duration of the activity within the project period of 36 months.</li> <li>•Scope of work for the projects as per bill of quantity( BOQ)</li> <li>•Time for site establishment must be one month.</li> <li>•Key milestone of the project.</li> </ul> <p>Note: The bidder will score 05 points for complying with all the items listed above, Failure to comply with all items listed above the bidder will score zero point.</p>	<p>15</p>
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**Tender no:** PT21/031

<b>Total</b>	<b>100 Points</b>

**Collection of tender documents**

- Bid documents are available for free download on e-Tender portal [www.etenders.gov.za](http://www.etenders.gov.za)
- Alternatively; Bid documents may be collected during working hours at the following address **251 Nana Sita Street,Avn Building**. A non-refundable bid deposit of R 200.00*t* is payable (cash only) on collection of the bid documents.

**Site inspection meeting**

A pre-tender site inspection meeting will **not be** held in respect of this tender.  
Attendance of said pre- tender site inspection meeting is **select**

The particulars for said pre- tender site inspection meeting or virtual bid clarification / site inspection meeting. are:

Venue: "N/A")  
Zoom Link: "N/A")  
Date: "N/A")  
Starting time: "N/A")

**Enquiries related to tender documents may be addressed to:**

<b>DPWI Project Manager:</b>	Lesiba Mabitsela	<b>Telephone no:</b>	012 310 5972
<b>Cell no:</b>		<b>Fax no:</b>	
<b>E-mail:</b>	lesiba.mabitsela@dpw.gov.za		

**Deposit / return of tender documents**

Telegraphic, telephonic, telex, facsimile, electronic and / or late tenders will not be accepted.

Requirements for sealing, addressing, delivery, opening and assessment of tenders are stated in the Tender Data.

All tenders must be completed in non-erasable ink and submitted on the official forms – (forms not to be re-typed).



## DPW-09 (EC): PARTICULARS OF TENDERER'S PROJECTS

<b>Project title:</b>	<b>SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERSAND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)</b>		
<b>Tender / quotation no:</b>	PT21/030	<b>Closing date:</b>	20/01/2022
<b>Advertising date:</b>	18/11/2021	<b>Validity period:</b>	days

### 1. PARTICULARS OF THE TENDERER'S CURRENT AND PREVIOUS COMMITMENTS

#### 1.1. Current projects

Projects currently engaged in	Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commencement date	Contractual completion date	Current percentage progress
1						
2						
3						
4						
5						
6						
7						
8						



**1.2. Completed projects**

Projects completed in the previous 5 (five) years	Name of Employer or Representative of Employer	Contact tel. no.	Contract sum	Contractual commencement date	Contractual completion date	Date of Certificate of Practical Completion
1						
2						
3						
4						
5						
6						
7						
8						
9						

Name of Tenderer	Signature	Date
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**FACILITIES MANAGEMENT**

**CONDITIONS OF CONTRACT (DPW)**

**SEPT. 2005 VERSION 1**



## PA-10 (FM): CONDITIONS OF CONTRACT

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## 1. DEFINITIONS

- 1.1. The following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires:
- 1.1.1. "Additional Services" are increases in the quantity of the routine Services detailed in the Scope of Works.
- 1.1.2. "Bill of Quantities" means the document so designated in the Pricing Data that describes the Services and indicates the quantities and rates associated with each item which the Employer agrees to pay the Service Provider for the Services completed;
- 1.1.3. "Certificate of Completion" means the certificate issued by the Service Manager signifying that the Contract has expired;
- 1.1.4. "Commencement Date" means the date on when the Service Provider is notified of the Employer's acceptance of its offer;
- 1.1.5. "Contract" means the Contract signed by the Parties and of which these Conditions of Contract form part of, and such amendments and additions to the Contract as may be agreed in writing between the Parties;
- 1.1.6. "Contract Data" means the specific data, which together with these Conditions of Contract, Scope of Works and Pricing Data collectively describe the risks, liabilities and obligations of the contracting Parties and the procedures for the administration of the Contract;
- 1.1.7. "Contract Period" is from Commencement Date for the period stated in the Contract Data;
- 1.1.8. "Contract Price" means the price to be paid for the Services in accordance with the Pricing Data, subject to such additions thereto or deductions there from as may be made from time to time under the provisions of the Contract;
- 1.1.9. "Contract Sum" refers to the amount stated by the Service Provider in the Form of Offer and Acceptance;
- 1.1.10. "CPAP" means contract price adjustment provisions used for the adjustment of fluctuations in the cost of labour, plant and materials and goods as stated in the Contract Data;
- 1.1.11. "Day" means a calendar day;
- 1.1.12. "Drawings" means all drawings, calculations and technical information which are made available to the Service Provider for inspection at a venue and time to be announced by the Service Manager and any modifications thereof or additions thereto from time to time approved in writing by the Employer or delivered to the Service Provider by the Employer;
- 1.1.13. "Employer" means the contracting Party named in the Contract Data who appoints the Service Provider;
- 1.1.14. "Equipment" includes all appliances, tools implements, machinery, articles and things of whatsoever nature required in or for the rendering, completion or defects correction of the Services but does not include materials;
- 1.1.15. "Facilities" means the land and buildings, detailed in the Scope of Works, and any additions, or omission thereto, made available by the Employer for the purposes of the Contract, on, under, over, in or through which the Services are to be rendered or carried out;
- 1.1.16. "Form of Offer and Acceptance" means the written communication by the Employer to the Service Provider recording the acceptance of the Service Provider's offer;
- 1.1.17. "Identified Projects" means any projects, other than routine Services, identified and agreed to by the Parties during the Contract period or any extensions thereto, to be completed in terms of the Contract.

- 1.1.18. "Materials" includes all materials, commodities, articles and things required to be furnished under the Contract for the execution of the Services;
- 1.1.19. "Month" refers to the period commencing on a certain day of a month to the day preceding the corresponding day of the next month;
- 1.1.20. "Parties" means the Employer and the Service Provider;
- 1.1.21. "Pricing Data" means the document that contains the Bill of Quantities and provides the criteria and assumptions, which it will be assumed in the Contract were taken into account by the Service Provider when developing his prices;
- 1.1.22. "Services" means all the work to be performed by the Service Provider during the Contract Period in accordance with the Contract, as more fully set out in the Scope of Works, as amended from time to time by written agreement between the Parties;
- 1.1.23. "Service Provider" means the Tenderer, as named in the Contract Data, whose offer has been accepted by or on behalf of the Employer and, where applicable, includes the Service Provider's heirs, executors, administrators, trustees, judicial managers or liquidators, as the case may be, but not, except with the written consent of the Employer, any assignee of the Service Provider;
- 1.1.24. "Service Manager" means the representative of the Employer named as the Service Manager in the Contract Data. The Employer reserves the right to replace the said Service Manager, by written notice to the Service Provider, without the need to furnish reasons therefor;
- 1.1.25. "Scope of Work" refers to the document which defines the Employer's objectives and requirements and specifications and any other requirements and constraints relating to the manner in which the Services must, or may, be provided or performed;
- 1.1.26. "Service Period" refers to the period indicated in the Contract Data during which the Service Provider shall render the Services required in terms of the Contract;
- 1.1.27. "Transitional Stage" refers to the period indicated in the Contract Data, which commences immediately on the expiry of the Service Period, and during which the Services to be provided by the Service Provider shall include, inter alia, the provision and transfer to the incoming service provider of managerial support and information, as detailed in the Scope of Works.

## 2. INTERPRETATION

- 2.1. In this Contract, except where the context otherwise requires:
- 2.1.1 The masculine includes the feminine and the neuter, vice versa;
- 2.1.2 The singular includes the plural; and vice versa
- 2.1.3 Any reference to a natural person includes a body corporate, firm, association or consortium/joint venture/partnership, vice versa.
- 2.2. The headings to the clauses of this Contract are included for reference purposes only and shall not affect the interpretation of the provisions to which they relate.
- 2.3. Words and phrases defined in any clause shall bear the meanings assigned thereto.
- 2.4. The various parts of the Contract are severable and may be interpreted as such.
- 2.5. The expressions listed in clause 1 bear the meanings as assigned thereto and cognate expressions bear corresponding meanings.
- 2.6. If any provision in a definition clause is a substantive provision conferring rights or imposing obligations on any Party, effect shall be given to it as if it were a substantive clause in the body of the Contract, notwithstanding that it is only contained in the interpretation clause.

### 3. DURATION

- 3.1. The rights and obligations of the Parties to this Contract shall commence on the Commencement Date.
- 3.2. Subject to the terms of clauses 33 and 34 relating to breach and termination respectively, the Contract will commence on the Commencement Date and terminate on the expiry of the Contract Period, unless it is extended in terms of clause 3.3.
- 3.3. The terms or duration of the Contract may be extended as a result of bona fide negotiations between the Parties. No extension of term or duration of the Contract shall however be valid unless the terms and conditions of such extension has been reduced to writing and signed by the authorised representatives of both Parties.

### 4. RIGHTS AND OBLIGATIONS OF THE EMPLOYER

- 4.1. The Employer shall give access to or supply the Service Provider with:
  - 4.1.1 All relevant, available data and information required and requested by the Service Provider for the proper execution of the Services; and
  - 4.1.2 Such assistance as shall reasonably be required by the Service Provider for the execution of its duties under the Contract.

### 5. RIGHTS AND OBLIGATIONS OF THE SERVICE PROVIDER

- 5.1. The Service Provider shall, in executing his obligations, comply with the Service Manager's written instructions on any matter relating to the Services.
- 5.2. The Service Provider shall take instructions only from the Service Manager or other persons authorised by the Service Manager in terms of Clause 6.
- 5.3. The Service Provider shall not have the power of attorney or authority to enter into any contract or to otherwise bind or incur liability on behalf of the Employer, save where prior written authorisation has been obtained.
- 5.4. The Service Provider shall ensure that it, its employees, agents and representatives have the relevant experience and capacity necessary for rendering of the Services with the reasonable degree of skill, care and diligence that may be expected of professionals providing services similar to the Services.
- 5.5. Should any member of the Service Provider's team, in the opinion of the Service Manager or occupants of the Facilities, misconduct himself or is incompetent or negligent in the delivery of the Services, or whose presence on the Facilities is otherwise considered by the Service Manager, or occupants of the Facilities, on reasonable grounds, to be undesirable, the Employer may, in writing and together with reasons therefor, request that such person be removed. Such person shall not again be employed on the Services without the prior written consent of the Employer.
- 5.6. The Service Provider undertakes to effect such removal, as referred to in 5.5 above, within a day of receipt of the Employer's written request.
- 5.7. The Service Provider shall ensure that reasonable levels of care and responsibility are exercised when using items belonging to the Employer in the delivery of the Services.
- 5.8. During the ongoing provision of the Services the Service Provider shall at all times keep the Facilities clean and in a safe condition.
- 5.9. Notwithstanding anything herein contained to the contrary, it is specifically agreed that the appointment of the Service Provider shall not create an employment contract or relationship between the Parties and the Service Provider or his employees shall therefore not be entitled to any benefits to which the employees of the Employer may be entitled.

## 6. SERVICE MANAGER

- 6.1. The Service Manager shall administer the Contract on behalf of the Employer in accordance with the provisions of the Contract.
- 6.2. The Service Manager may delegate any of his powers and authority and may cancel such delegation, on the prior written notification thereof to the Service Provider.
- 6.3. Such delegation shall continue in force until the Service Manager notifies the Service Provider in writing that the delegation is terminated.
- 6.4. The Service Provider may at any time, prior to giving effect thereto, refer any written order or instruction of the Service Manager's delegatee to the Service Manager who shall confirm, reverse or vary such order or instruction.

## 7. SECURITY

- 7.1. The Service Provider shall provide to the Employer security in the amount and in the form set out in the Contract Data and any expenditure incurred in doing so shall be borne by the Service Provider.
- 7.2. Should the Service Provider fail to select the security to be provided or should the Service Provider fail to provide the Employer with the selected security within 21 days from Commencement Date, it shall be deemed that the Service Provider has selected a security in the form of a retention of 2.5 % of the Contract Sum (excl. VAT).

## 8. SECURITY CLEARANCE

- 8.1. In the event of security clearance becoming necessary, the Service Provider, any subcontractors and all human resources utilized by the Service Provider undertake to undergo security clearance, for which purpose the necessary forms will be made available to the Service Provider at the relevant time by the Employer. The Service Provider accepts that if he or any of his human resources refuses to undergo the required security clearance, they will not be allowed on the Facilities to render the Services.
- 8.2. It is required that all persons engaged in the rendering of the Services shall be easily identifiable and where required, security cleared.

## 9. CONFIDENTIALITY

- 9.1. The Service Provider undertakes to keep any and all information, of whatever nature, relating to the Contract or which he becomes privy to due to his presence at the Facilities, strictly confidential and such shall not be sold, traded, published or otherwise disclosed to anyone in any manner whatsoever, including by means of photocopy or other reproduction, without the Employer's prior written consent. As disclosure or improper use of the confidential information, without the Employer's prior written consent, will cause the Employer harm:
  - 9.1.1 the Service Provider shall be liable for any loss or damages suffered by the Employer and shall indemnify the Employer against any claims by third parties as a result of such unauthorised disclosure or use thereof , either in whole or in part; and/or
  - 9.2.1 the Employer shall be entitled to cancel the Contract
- 9.2. The Service Provider shall be entitled to disclose such confidential information to the following persons, who have a clear need to know interest, in order to assist with the rendering of the Services on the Contract:
  - 9.2.1 employees, officers and directors of the Service Provider; and
  - 9.2.2 any professional consultant or agent retained by the Service Provider for the purpose of rendering the Services, provided that the identity of such consultant or agent is made known to the Employer in writing and the Employer acknowledges in writing that the confidential information may be disclosed to such person.

- 9.3. The Service Provider shall be responsible for ensuring that all persons to whom the confidential information is disclosed under this Contract shall keep such information confidential and shall not disclose or divulge the same to any unauthorised person.
- 9.4. The confidential information shall remain the property of the Employer and the Employer may demand the return or destruction thereof, at the cost of the Service Provider, at any time upon giving written notice to the Service Provider. Within ten (10) days of receipt of such notice, the Service Provider shall return all of the original confidential information and shall destroy all copies and reproductions (both written and electronic) in its possession or in the possession of persons to whom it was disclosed and furnish a certificate to the Employer stating as much.

## 10. **AMBIGUITY IN DOCUMENTS**

- 10.1. The several documents forming the Contract are to be taken as mutually explanatory of one another and any ambiguity in or discrepancy between them shall be explained and, if necessary, rectified by the Service Manager who shall thereupon issue to the Service Provider a written explanation giving details of the adjustments, if any, and a written instruction directing what Service, if any, is to be delivered.

## 11. **INSURANCES**

- 11.1. It is the responsibility of the Service Provider to assess his risks on this project and to ensure that he obtains and maintains the adequate insurances to cover such risks.

## 12. **ACCESS TO THE FACILITIES AND COMMENCEMENT OF THE SERVICES**

- 12.1. The Service Provider shall provide the Employer, within 21 days of the Commencement Date, with an acceptable health and safety plan and such other information required in terms of the Occupational Health and Safety Act (85 of 1993).
- 12.2. The Service Period shall commence 30 days from Commencement date, or on such other date as maybe specified in the Contract Data
- 12.3. Notwithstanding the provision of 12.2, the Service Provider shall be given access to the Facilities or portions thereof, only after the provision by the Service Provider of an acceptable health and safety plan and of security clearance being obtained in terms of Clauses 12.1 and 8.1 respectively.
- 12.4. The Service Provider shall be given access to the Facilities or portions thereof and shall render the Services in accordance with its programme, referred to in clause 13 or after the receipt by him of a written instruction to this effect.
- 12.5. If the Employer fails to give the Service Provider access to the facility or any portion thereof for any reason other than default by the Service Provider and the Service Provider suffers additional costs as a result thereof, the Service Provider shall be entitled to make a claim therefor provided that the Service Provider is able to prove his claim and that he has taken all reasonable steps to mitigate the additional costs.

## 13. **PROGRAMME**

- 13.1. The Service Provider shall deliver to the Service Manager within 14 days from Commencement Date, a realistic programme and a cash flow for the delivery of the Services. The programme shall describe and detail the order in which the Services are to be rendered and shall be subject to the approval of the Service Manager, which written approval shall not be unreasonably withheld.
- 13.2. The Service Provider shall, on receipt of a written request from the Service Manager, furnish the Employer with any documents or information, of whatever nature, in support of the programme and/or in relation to the manner in which the Services are to be rendered and/or the resources to be supplied and used in the rendering of the Services and/or progress of the various parts of the Contract; and/or a detailed cash flow forecast.
- 13.3. A programme and the cash flow forecast will be submitted in terms of 13.1 and reviewed quarterly or as circumstances may require.

13.4. Agreement to the programme by the Service Manager or any adjustment thereto will not alter the responsibilities of the Service Provider in terms of this Contract.

#### 14. SUBCONTRACTING

14.1. The Service Provider may subcontract any part of the Services at its discretion. The subcontracts shall incorporate the applicable terms, conditions and requirements of this Contract.

14.2. Subcontracting by the Service Provider shall not be construed as relieving the Service Provider from any obligations under the Contract or imposing any liability on the Employer.

#### 15. INTELLECTUAL PROPERTY RIGHTS INDEMNITY

15.1. The Service Provider undertakes to obtain the necessary consent from the proprietors or their licensees should the Service Provider make use of the intellectual property of any other person.

15.2. The Service Provider further indemnifies the Employer against any claim or action (including costs on an attorney and client scale) caused by or arising from the failure to obtain such consent.

#### 16. COMPLIANCE WITH LEGISLATION

16.1. This clause applies to legislation emanating from national and provincial government as well as that of any local authorities in whose area of jurisdiction the Facilities fall and which have a bearing on the delivery of the Services and Facilities under this Contract.

16.2. All the applicable legislation, which does not specifically allow discretion in respect of compliance by the Employer, shall be followed exactly as intended by such legislation regardless of any instructions, verbal or in writing, to the contrary.

16.3. Should any applicable legislation allow discretion in respect of compliance by the Employer it shall be followed exactly as intended by the relevant legislation as if no discretion is allowed until such time as specific instructions in writing are issued to the Service Provider by the Service Manager.

16.4. The Service Provider shall in the provision of the Services comply with the provisions of, and give all notices and pay all fees, taxes, levies and other charges required to be given or paid in terms of any legislation or imposed by any other body or person. The Service Provider hereby indemnifies the Employer against any liability for any breach of the provision of this clause.

16.5. It is the responsibility of the Service Provider to obtain the consents, permissions and/or permits, referred to in Clause 16.4, in the provision of the Services.

16.6. The Service Provider shall not have a claim against the Employer, and the Employer shall not be liable to refund the Service Provider for any of the fees, taxes, levies and other charges referred to Clause 16.4.

#### 17. REPORTING OF INCIDENTS

17.1. In addition to the above, the Service Provider shall, as soon as possible, notify the Employer in writing of any incidents at the Facilities, which resulted or could have resulted in damage to property or injury or death to persons.

17.2. The Service Provider shall verbally notify the Service Manager of any of the incidents referred to in 17.1 immediately after the occurrence thereof.

17.3. The Service Provider shall follow up the verbal notification referred to in 17.2 with a detailed written report on such incidents to the Service Manager within the time frame indicated by the Service Manager, but in any event within 48 hours of the incident.

17.4. The written report referred to in 17.3 shall provide for all incidents, which resulted in injury, death or damage to property.

17.5. The Service Provider shall notify the Employer immediately, on becoming aware of the Contract requiring him to undertake anything that is illegal or impossible

## 18. NUISANCE

18.1. The Service Provider shall deliver the Services in a manner that shall not cause unnecessary noise, nuisance, or hinder the normal activities in the Facilities.

18.2. The Service Provider hereby indemnifies the Employer against any liability arising out of the Service Provider's non-compliance with his obligations in terms of Clause 18.1.

## 19. MATERIALS, WORKMANSHIP AND EQUIPMENT

19.1. All Services delivered, and materials and workmanship shall comply with the requirements of this Contract, the manufacturer's specification; good industry practice and the Service Manager's written instructions and shall be suitable for the purpose intended.

19.2. The Service Provider shall, in accordance with the Scope of Works or if instructed by the Service Manager, carry out tests demonstrating the acceptability of the relevant Services provided, or the suitability of materials or equipment to be used.

19.3. The Service Provider shall provide all necessary assistance, labour, materials, testing equipment and instruments for the purpose of such tests to be performed by himself or, if so instructed by the Service Manager, for the purposes of tests to be performed by any other person.

19.4. All costs for tests carried out shall be deemed to be included in the Service Provider's prices

19.5. Copies of the reports on the tests referred to in Clause 19.2 shall be forwarded by the Service Provider to the Employer within 10 days of the tests being completed.

## 20. URGENT WORK

20.1. The Employer may, by itself or through another service provider, effect any remedial or other repair work which becomes necessary due to no act or omission on the part of the Service Provider.

20.2. If the remedial or repair work became necessary due to an act or omission on the part of the Service Provider, its employees, agents or representatives, the Service Provider shall effect such remedial or repair work at its own cost.

20.3. If the remedial or repair work is urgently necessary due to an act or omission on the part of the Service Provider, its employees, agents or representatives and the Service Provider refuses to or is not available or able to effect such remedial or repair work, the Employer may effect such remedial or repair work either by itself or through another service provider.

20.4. If the Employer effects the remedial or repair work in terms of 20.3, then the Employer may recover such costs, losses or damages from the Service Provider or by deducting the same from any amount still due under this Contract or under any other contract presently or hereafter existing between the Employer and the Service Provider and for this purpose all these contracts shall be considered one indivisible whole.

## 21. INDEMNIFICATIONS

21.1. The Service Provider shall be liable for and hereby indemnifies the Employer against any liability, claim, demand, loss, cost, damage, action, suits or legal proceedings whether arising in common law or by statute consequent upon:

21.1.1 personal injuries to or the death of any person arising out of, related to, occasioned by, attributed to, or in the cause of or caused by the rendering of the Services;

21.1.2 loss of or damage to any movable or immovable or personal property or property contiguous to the Facilities whether belonging to or under the control of the Employer or any other body or person arising out of, related to, occasioned by, attributed to, or in the cause of or caused by reason of the rendering of the Services;



21.1.3 any liens, attachments, charges or other encumbrances or claims upon or in respect of any materials parts, work-in-process or finished work furnished to, or in respect of which any payment has been made by the Employer.

21.2. The Employer accepts liability for all acts or omissions of its employees, agents or representatives.

## 22. VARIATIONS

22.1. The Employer may at any time during the Contract Period, vary the Services by way of additions, omissions, or substitutions.

22.2. No variation by the Employer of whatever nature shall vitiate the Contract.

22.3. Any Services required by the Employer outside of the Services as referred to in the Scope of Works will be regarded as being Identified Projects and shall be dealt with under clause 23 and shall be executed as a variation order.

22.4. The Service Provider shall inform the Employer of any instructions that are deemed to be Additional Services prior to such instructions being executed.

22.5. Additional Services will only be executed by the Service Provider after receipt by him of a written instruction from the Service Manager.

22.6. If no prior written authorisation, as required in 22.5 above, has been obtained, the Employer shall not reimburse the Service Provider for the Additional Services so executed, and the Service Provider agrees that it shall not have a claim for payment for such Additional Services.

22.7. The Additional Services will be valued at the rates in the Pricing Data.

## 23. IDENTIFIED PROJECTS

23.1. The Service Provider shall inform the Employer of any instructions that are deemed to be Identified Projects prior to such instructions being executed.

23.2. The Employer is not obliged to engage the services of the Service Provider on Identified Projects. The Employer may, by itself, through another service provider or through the Service Provider effect the services/works under Identified Projects.

23.3. Identified Projects will only be executed by the Service Provider after receipt by him of a written instruction from the Service Manager.

23.4. If no prior written authorisation, as required in 23.3 above, has been obtained, the Employer shall not reimburse the Service Provider for the Identified Projects so executed, and the Service Provider agrees that it shall not have a claim for payment for such Identified Projects.

23.5. In respect of the Identified Projects, the written instruction referred to in 23.3 shall:

- (a) describe the services/works required to be executed by the Service Provider under the Identified Project;
- (b) state the due commencement and completion dates of the relevant Identified Project;
- (c) state the total cost of the relevant Identified Project as agreed to between the Parties; and
- (d) any additional requirements, conditions of contract and/or restrictions, other than those already stated in the Contract, that will be applicable.

23.6. Within 14 days of receipt of the written instruction referred to in 23.5, the Service Provider shall furnish the Employer with a realistic programme and a cash flow for the relevant Identified Project as required in 13.

- 23.7 Where an Identified Project comprises services/works that are of the same or similar character executed under the same or similar conditions as those to which the rates in the Pricing Data apply, it shall be valued at such rates.
- 23.8 Where an Identified Project comprises services/works that are not of the same or similar character executed under the same or similar conditions as those to which the rates in the Pricing Data apply, it shall be valued at market related rates to be agreed to in writing between the Employer and the Service Provider and in advance of executing the Identified Project. Failing agreement, the rates applicable shall be as determined by the Employer.
- 23.9 If the Service Provider fails to complete the Identified Project by the completion date specified in the written instruction referred to in 23.3, then the Service Provider will be liable for a penalty, at the rate stated in the Contract Data, for every day that lapses from the due completion date of the relevant Identified Project to the date of the actual completion of such Identified Project.
- 23.10 If the Identified Projects are delayed by variations, omissions, additions, substitutions or organised work stoppages by any workman not due to any action on the part of the Service Provider, exceptionally inclement weather, any substantial increase in provisional quantities or any other cause beyond the Service Provider's control, including delays caused by the Employer, then the Service Provider shall be entitled to apply in writing within 21 days of the cause of delay arising to the Service Manager for extension of the due completion date of the relevant Identified Project stating the cause of delay and period of extension applied for.
- 23.11 If during the period for completion of the Identified Project or any extension thereof abnormal rainfall or wet conditions occur, the formula below shall be used to calculate separately the delay for each calendar month or part thereof. It shall be calculated each month during the period referred to herein above, or until the issue date of the certificate of completion for the relevant Identified Project, whichever is the shorter period. The delay calculated for a given month shall be used to determine the interim extension of time granted for the month. At the end of the applicable period referred to above, the aggregate of the monthly delays will be taken into account for the final determination of the total extension of time for the Contract:

$$V = \frac{(Nw - Nn) + (Rw - Rn)}{X}$$

- V = Delays due to rain in calendar days in respect of the calendar month under consideration.
- Nw = Actual number of days during the calendar month on which a rainfall of Y mm or more per day has been recorded
- Rw = Actual rainfall in mm for the calendar month under consideration.
- Nn = Average number of days in the relevant calendar month (as derived from existing rainfall records provided in the project specifications) on which a rainfall of Y mm or more per day has been recorded.
- Rn = Average rainfall in mm for the calendar month, as derived from the rainfall records supplied in the project specifications.
- X = 20, unless otherwise provided in the project specifications.
- Y = 10, unless otherwise provided in the project specifications.

The total delay that will be taken into account for the determination of the total extension of time for the Contract shall be the algebraic sum of the monthly totals for the period under consideration. But if the grand total is negative, the time for completion shall not be reduced on account of abnormal rainfall. The total extension of time for any calendar month shall not exceed (Nc - Nn) calendar days, where Nc = number of days calendar days in the month under consideration

The factor (Nw - Nn) shall be considered to represent a fair allowance for variations from the average number of days during which rainfall equals or exceeds Y mm per day.

The factor  $(Rw - Rn) \div X$  shall be considered to represent a fair allowance for variations from the average for the number of days during which rainfall does not equal or exceed Y mm per day, but when wet conditions prevent or disrupt work.

This formula does not take into account any flood damage, which could cause further or concurrent delays and which should be treated separately in so far as extension of time is concerned.

Accurate rain gaugings shall be taken at a suitable point on the site daily at 08:00 unless otherwise agreed to by the Service Manager, and the Contractor shall, at his own expense, take all necessary precautions to ensure that the rain gauges cannot be interfered with by unauthorized persons.

Information regarding existing rainfall records, if available from a suitable rainfall station near the site, will be supplied in the project specifications, together with calculations of rain delays for previous years in accordance with the above formula. The average of these delays will be regarded as normal rain delays which the Contractor shall accommodate in his programme, and for which no extension of time will be considered.

- 23.12 Upon receipt of such written application, referred to in 23.10, the Employer may in writing extend the due completion date of the relevant Identified Project by a period to be determined by the Employer or may refuse to extend the due completion date of the relevant Identified Project. The due completion date of an Identified Project may not be extended beyond the end of the Contract Period stated in the Contract Data.
- 23.13 Any decision given by the Employer, in terms of 23.12, shall be final and binding on the Parties.
- 23.14 Should the Service Provider fail to apply in writing for an extension of the due completion date of the relevant Identified Projects within the 21 days referred to in 23.10, or should the Employer not grant an extension of the due completion date then the due completion date stipulated in the relevant written instruction referred to in 23.5 shall not be extended nor the Service Provider exonerated from liability to pay the penalty stipulated in 23.9 or from specific performance of the service/works within the period in the relevant written instruction.

## 24. SUSPENSION OF THE SERVICES

- 24.1 The Service Provider shall, on the written order of the Service Manager, suspend the provision of the Services or any part thereof for such time or times and in such manner as the Service Manager shall order and shall, during such suspension, properly protect the Services so far as is necessary.
- 24.2 If the Service Provider is instructed in writing by the Service Manager to suspend any or all of the Services, the Service Provider shall re-schedule the relevant Services. For the duration of such suspension all penalties applicable to that Service will be waived. Should the Service Provider suffer any additional costs resulting from such suspension, the Service Provider shall be entitled to make a claim therefor provided that the Service Provider shall prove his claim and that he has taken all reasonable steps to mitigate the additional costs.
- 24.3 If the Service Provider is unable to render any of the Services for any reason other than an instruction by the Employer to suspend the Services in terms of clause 24.1, the Employer shall not be liable for any claim of whatever nature, including a claim for costs, by the Service Provider.

## 25. PENALTY FOR NON-PERFORMANCE

- 25.1 The Service Provider shall be liable for a performance deduction, if the Service Provider in rendering any of the Services required under the Scope of Works, as amended from time to time,
- 25.1.1 delays in performing any of the Services;
- 25.1.2 fails to perform any of the Services;
- 25.1.3 fails to perform any of the Services to the standard required in the Scope of Works, as amended from time to time.
- 25.2 The performance deduction shall be calculated in accordance with the formula detailed in the Scope of Works.

- 25.3 The Service Provider shall not be liable for a performance deduction, if the Service Provider is unable to perform due to no fault of his own, his employees, agents or representatives.
- 26. PAYMENTS**
- 26.1 The Service Manager will evaluate the Service Provider's performance on a monthly basis.
- 26.2 The Service Provider shall submit a monthly certificate taking into account the following:
- 26.2.1 the assessment of the Services rendered during the assessment month, including routine services, management fees, and services using call down rates;
  - 26.2.2 adjustments in terms of the pricing data;
  - 26.2.3 additional work rendered by the Service Provider;
  - 26.2.4 CPAP adjustment where stated in the Contract Data; and
  - 26.2.5 VAT. Vat will be indicated separately in all documents.
- 26.3 If the Service Provider elects a security of 2,5% retention, or a 1,25% cash and 1,25% retention, then 5% of all moneys (excl. VAT) in the monthly certificate assessed by the Service Manager as being due to the Service Provider will be retained until such time as the amount retained equals 2.5% or 1,25%, whichever is applicable, of the Contract Sum (excl. VAT)
- 26.4 The monthly certificate shall be supported by a detailed report substantiating the Services rendered at each Facility during the month under assessment.
- 26.5 The monthly certificate shall be assessed by the Service Manager. If the Service Manager agrees with the certificate, he will issue a statement within 14 days of the receipt of the certificate, taking into account inter alia the following:
- (1) deductions for penalties;
  - (2) deductions for overpayments;
  - (3) deductions for retention
  - (4) deductions for damages.
- 26.6 The Service Provider shall, on receipt of the statement referred to in 26.5, issue to the Employer a tax invoice in the amount reflected in the statement. The Employer shall effect payment to the Service Provider within 16 days of receipt of the tax invoice.
- 26.7 If the Service Manager does not agree with the certificate issued by the Service Provider in terms of Clause 26.2, the Service Manager shall within 14 days of receipt of the certificate, issue a statement in the amount to which the Service Manager agrees and shall give reasons for rejecting the balance of the claim indicated in the statement.
- 26.8 The Service Provider shall furnish the Employer with a tax invoice in the amount indicated in the statement referred to in Clause 26.7.
- 26.9 With regards to the claim in dispute, the Service Provider may, within 14 days of the Service Manager issuing the statement referred to in 26.7, submit a revised certificate or a justification for his claim or declare a dispute in terms of 34.
- 26.10 If it is later resolved that the amount in dispute or any part thereof is owing to the Service Provider, the Employer shall be liable for interest thereon from 30 days after the issue of the relevant monthly certificate referred to in 26.2 until the date of payment at the interest rate determined from time to time, by the Minister of Finance in terms of section 80 (1)(b) of the Public Finance Management Act, 1999 (Act 1 of 1999), as amended.
- 26.11 All the work shall be evaluated in accordance with the provisions of the Pricing Data.

26.12 In assessing the quality of the work presented by the Service Provider, the Employer may enlist the assistance of third persons. In assessing the work the third person shall act reasonably. The selection of such third persons shall be in the absolute discretion of the Employer and the Service Provider shall abide by such selection.

26.13 Any and all extra costs incurred by the Service Provider, resulting from the Service Provider having to address and/or rectify queries arising from a claim submitted in respect of work done, shall be for the account of the Service Provider.

## 27. RELEASE OF SECURITY

27.1 If the Service Provider has furnished a security by way of a variable guarantee of 2.5% of the Contract Sum (excl. VAT), the security will be reduced and be released in accordance with the provisions of such variable guarantee.

27.2 If the Service Provider elects to furnish a security by way of a cash deposit of 2.5% of the Contract Sum (excl. VAT), then the security will be released as follows:

27.2.1 annually in equal portions, subject to 27.2.2 and 27.2.3;

27.2.2 95% of the last annual portion of retention shall be released within 30 days of the expiry of the Service Period;

27.2.3 the remaining retention shall be released within 30 days of the issue of the Certificate of Completion.

27.3 If the form of security selected is:

(a) a retention of 2.5% of the Contract Sum (excl. VAT); or

(b) a 1,25% cash deposit and a 1,25% retention of the Contract Sum (excl. VAT),

then security will only be released after the 2,5% or 1,25% retention respectively has been accumulated, as follows:

27.3.1 annually in equal portions, subject to 27.3.2 and 27.3.3;

27.3.2 95% of the last annual portion of retention shall be released within 30 days of the expiry of the Service Period;

27.3.3 the remaining retention shall be released within 30 days of the issue of the Certificate of Completion.

## 28. OVERPAYMENTS

28.1 If any overpayment of whatever nature is made to the Service Provider, the Service Provider shall be obliged to repay such amount to the Employer and the Employer shall be entitled to deduct such over payment from any amount due to the Service Provider, in respect of this Contract or any other contract, which the Employer may have with the Service Provider. The Employer shall be entitled to claim interest on any and all overpayments made to the Service Provider at the rate prescribed, from time to time, by the Minister of Finance in terms of section 80 (1)(b) of the Public Finance Management Act, 1999 (Act 1 of 1999), as amended.

## 29. COMPLETION

28.1 At the expiry of the Service Period the Service Manager shall furnish the Service Provider with a written list of Employer's Assets and Data handed over at commencement of the Contract and accumulated during the Contract Period.

29.2 At the expiry of the Contract Period, the Service Manager shall issue to the Service Provider a Certificate of Completion.

29.3 Upon the issue of a Certificate of Completion, unless otherwise provided in the Contract:

29.3.1 The Guarantee shall be returned, if applicable.

29.3.2 The final cash deposit or retention, whichever is applicable, shall be reduced to zero.

### 30. ASSIGNMENT

30.1 The rights and obligations of the Parties in terms of this Contract shall not be ceded, assigned, delegated, or otherwise transferred, by either Party to any person outside of the Service Provider and the Employer, save with the prior written consent of the other Party.

30.2 Each Party warrants that he is acting as a principal and not as an agent of an undisclosed principal.

### 31. INDULGENCES

31.2 No extension of time, latitude or other indulgences which may be given or allowed by either Party to the other shall constitute a waiver or alteration of this Contract, or affect such Party's rights, or prevent such Party from strictly enforcing due compliance with each and every provision of this Contract.

### 32. OWNERSHIP AND PUBLICATION OF DOCUMENTS

32.1 The Employer will become the owner of the information, documents, advice, recommendations and reports collected, furnished and/or compiled by the Service Provider during the course of, and for the purposes of executing this Contract, all of which will be handed over to the Employer, unless otherwise stipulated in the Contract, within ten (10) days of request therefor, but in any event on the termination and/or cancellation of this Contract for whatever reason. The Service Provider relinquishes its retention or any other rights to which it may be entitled.

32.2 The copyright of all documents, recommendations and reports compiled by the Service Provider during the course of and for the purposes of finalising Services, and the Contract as a whole, will vest in the Employer, and may not be reproduced or distributed or made available to any person outside the Employer's service, or to any institution in any way, without the prior written consent of the Employer. The Employer shall have the right to use such material for any other purpose without the approval of, notification to or payment to the Service Provider.

32.3 The copyright of all electronic aids, software programmes etc. prepared or developed in terms of this Contract shall be vested in the Employer, who shall have the right to use such material for any other purpose without the approval of, information or payment to the Service Provider.

32.4 In case of the Service Provider providing documents or material to the Employer, the development of which has not been at the expense of the Employer, copyright shall not be vested in the Employer. The Service Provider shall be required to indicate to which documents and/or materials this provision applies.

32.5 The Service Provider hereby indemnifies the Employer against any action or claim that may be instituted against the Employer and for any damages suffered or legal costs (including costs on an attorney and client scale) incurred on the grounds of an alleged infringement of any copyright or any other intellectual property right in connection with the work outlined in this Contract.

32.6 All information, documents, recommendations, programmes and reports collected or compiled must be regarded as confidential and may not be communicated or made available to any person outside the Employer's service and may not be published either during the currency of this Contract or after termination thereof without the prior written consent of the Employer.

### 33. BREACH OF CONTRACT

33.1 In the event of a breach by the Service Provider of any of the terms and conditions of this Contract, the Employer shall issue a notice of non-compliance requiring compliance within 10 (ten) days. In the event that the Service Provider fails to remedy such breach on expiry of the notice period, then the Employer shall without prejudice to any other rights that it may have, be entitled to exercise any or all of the following rights:

33.1.1 Enforce strict compliance with the terms and conditions of the Contract;

- 33.1.2 To terminate this Contract without prejudice to any other rights it may have;
- 33.1.3 To suspend further payments to the Service Provider;
- 33.1.4 To appoint other service providers to complete the execution of the Services, in which event the Service Provider shall be held liable for costs incurred in connection with and arising from the appointment of such a service provider as well as damages suffered.
- 33.2 The Service Provider agrees to, within ten (10) days of written request from the Employer, give access to and to make available all information, documents, programmes, advice, recommendations and reports collected, furnished and/or compiled by them to enable the Employer to assume responsibility for and the benefit of the project as a whole.
- 33.3 In the event of breach by the Employer of the terms and conditions of this Contract, and in the event of the Employer remaining in breach after ten (10) days' written notice calling for rectification of the breach, the Service Provider shall be entitled to:
  - 33.3.1 enforce strict compliance with the terms and conditions of the Contract; or
  - 33.3.2 terminate the Contract by delivering written notice to the Employer to that effect to the extent that such breach is of a material term of this Contract.
- 34. STOPPAGE AND/OR TERMINATION OF CONTRACT**
- 34.1 The Employer reserves the right to terminate this Contract or temporarily stop the Services, or any part thereof, at any stage of completion.
- 34.2 The Employer shall have the right to terminate this Contract without prejudice to any of its rights upon the occurrence of any of the following acts:
  - 34.2.1 on breach of this Contract by the Service Provider as stipulated in Clause 33;
  - 34.2.2 on commencement of any action for the dissolution and/or liquidation of the Service Provider, except for purposes of an amalgamation or restructuring approved in advance by the Employer in writing;
  - 34.2.3 if the Service Provider receives a court order to be placed under judicial management or to commence liquidation proceedings that is not withdrawn or struck out within five (5) days;
  - 34.2.4 if the Service Provider informs the Employer that it intends to cease performing its obligations in terms of this Contract;
  - 34.2.5 if the Service Provider informs the Employer that it is incapable of completing the Services as described; or
  - 34.2.6 if in the opinion of the Employer the Service Provider acted dishonestly;
- 34.3 The Employer reserves the right to, even in the absence of breach or the events referred to in 34, terminate this Contract at any time, by giving one (1) calendar month written notice to the Service Provider.
- 34.4 Further, the Contract shall be considered as having been terminated:
  - 34.4.1 where the Employer stops the Contract and/or the Project and instructions to resume or reinstate the Services are not issued within twelve (12) months of the instruction; or
  - 34.4.2 if instructions, necessary for the Service Provider to continue with the Services after a stoppage instruction, are not received from the Employer within three (3) months after such instructions were requested by the Service Provider.
- 34.5 Should the Contract between the Employer and the Service Provider, or any part thereof, be terminated by either of the Parties due to reasons not attributed to the Service Provider:

- 34.5.1 The Service Provider will be remunerated for the appropriate portion of the Services satisfactorily completed, calculated in accordance with the agreed rates.
- 34.5.2 Invoices for work done shall be submitted to the Employer within three (3) months after the termination of the Contract, failing which the Employer will not be obliged to pay same.
- 34.5.3 The Service Provider shall not be entitled to advance a right of retention or any similar right if this Contract is terminated and specifically agrees to, within ten (10) days of written request from the Employer, give access to and to make available all information, documents, programmes, advice, recommendations and reports collected, furnished and/or compiled by them to enable the Employer to assume responsibility for and the benefit of the Contract as a whole.

## **35. DISPUTE RESOLUTION**

- 35.1 In the event of a dispute, the Parties shall endeavour to resolve such dispute through negotiation, in good faith.
- 35.2 If the Parties fail to resolve a dispute through negotiation as mentioned in 35.1, within 14 days of a dispute being declared, the Parties may by written agreement refer the matter to mediation.
- 35.3 The mediator shall be a person agreed to by the Parties, failing agreement, the President: South African Facilities Management Institute shall nominate the mediator.
- 35.4 Whether or not mediation resolves the dispute and irrespective of the outcome of thereof, the Parties shall bear their own costs arising from the mediation and shall equally share the costs of the mediator and related costs. The mediator and the Parties shall, before the commencement of the mediation, agree on a scale of fees on which the mediator's fees will be based.
- 35.5 The Parties shall appoint the mediator within 21 days of agreeing to mediate.
- 35.6 On appointment of the mediator, the Parties shall jointly with the mediator decide on the procedure to be followed, representation, dates and venue for the mediation.
- 35.7 If the dispute or any part thereof is settled, the agreement shall be recorded by the mediator and signed by both Parties. The agreement shall be binding on the Parties to the extent that it correctly records the issues agreed upon between the Parties.
- 35.8 If the dispute or any part thereof remains unresolved, it may be resolved by litigation proceedings.
- 35.9 If the mediator or any Party, at any time during the mediation process, is of the opinion that the mediation will not resolve the dispute, then he may in writing stop the mediation process. The dispute may then be dealt with in terms of 35.8.
- 35.10 Notwithstanding anything else herein contained to the contrary, it is agreed that irrespective of the fact that the dispute is referred to negotiation, mediation or litigation in court, the decision of the Employer on the dispute involved will immediately be given effect to by the Service Provider and the Service Provider shall proceed with the Services with all diligence unless the Parties agree otherwise in writing.

## **36. GENERAL**

- 36.1 This is the entire Contract between the Parties and may only be amended if reduced to writing and signed by the duly authorised representatives of both Parties, whereafter such amendments will take effect.
- 36.2 The Contract shall be governed by, construed and interpreted according to the law of the Republic of South Africa.

## **37. DOMICILIUM CITANDI ET EXECUTANDI**



- 37.1 The domicilium citandi et executandi of the Parties for all purposes arising from this Contract for the service of notices and legal process shall be as specified by the Parties in the Contract Data.
- 37.2 Each of the Parties shall be entitled at any time by way of written notice to the other Party, to change its domicilium citandi et executandi to another physical address.
- 37.3 Any notice in terms of the conditions of the Agreement must either be:
- 37.3.1 delivered by hand during normal business hours of the recipient; or
  - 37.3.2 sent by prepaid registered post to the address chosen by the addressee.
- 37.4 A notice in terms of the provisions of this Agreement shall be considered to be duly received:
- 37.4.1 if hand-delivered on the date of delivery;
  - 37.4.2 if sent by registered post as indicated in clause 37.3.2 above, ten (10) days after the date it was posted, unless the contrary is proved.
- 37.5 Notwithstanding anything to the contrary contained or implied in this Agreement, the written notice or communication actually received by one of the Parties from the other, including by way of facsimile transmission, shall be adequate written notice or communication to such Party.
- 37.6 Any notice, request, consent, or other communication made between the Parties pursuant to the Contract shall be in writing and shall be deemed to have been made when delivered in person to an authorized representative of the Party to whom the communication is addressed, or one day after being sent by facsimile to such Party at the number specified in the Contract Data or one week after being sent by registered post to the addressee specified in the Contract Data.



3.6.1 The names of all directors / trustees / shareholders / members, their individual identity numbers, tax reference numbers and, if applicable, employee / persal numbers must be indicated in paragraph 3 below.

<sup>1</sup> "State" means –

- (a) any national or provincial department, national or provincial public entity or constitutional institution within the meaning of the Public Finance Management Act, 1999 (Act No. 1 of 1999);
- (b) any municipality or municipal entity;
- (c) provincial legislature;
- (d) national Assembly or the national Council of provinces; or
- (e) Parliament.

<sup>2</sup> "Shareholder" means –

- (a) a person who owns shares in the company and is actively involved in the management of the enterprise or business and exercise control over the enterprise

3.7 Are you or any person connected with the bidder presently employed by the state?  YES  NO

3.7.1 If so, furnish the following particulars:

Name of person / director /trustees/shareholder/ member:.....

Name of state institution at which you or the person is connected to the bidder is employed .....

Position occupied in the state institution:.....

Any other particulars:  
.....  
.....

3.8 Did you or your spouse, or any of the company's directors / trustees/shareholders / members or their spouses conduct business with the state in the previous twelve months?  YES  NO

3.8.1 If so, furnish particulars:.....  
.....

3.9 Do you, or any person connected with the bidder, have any relationship (family, friend, other) with a person employed by the state and who may be involved with the evaluation and or adjudication of this bid?  YES  NO

3.9.1 If so, furnish particulars.  
.....  
.....

3.10 Are you, or any person connected with the bidder, aware of any relationship (family, friend, other between the bidder and any person employed by the state who may be involved with the evaluation and or adjudication of this bid?  YES  NO

3.10.1 If so, furnish particulars.

.....  
.....

3.11 Do you or any of the directors /trustees/shareholders/ members of the company have any interest in any other related companies whether or not they are bidding for this contract?  YES  NO

3.11.1 If so, furnish particulars:

.....  
.....

**4. Full details of directors / trustees / members / shareholders.**

Full Name	Identity Number	Personal Tax Reference Number	State Employee Number / Persal Number

**5. DECLARATION OF TENDERER / BIDDER'S PAST SUPPLY CHAIN MANAGEMENT PRACTICES**

5.1	<i>Is the tenderer / bidder or any of its directors listed on the National Treasury's database as companies or persons prohibited from doing business with the public sector?</i> <b>(Companies or persons who are listed on this database were</b>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
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	<b>informed in writing of this restriction by the National Treasury after the audi alteram partem rule was applied).</b>		
5.2	<i>If so, furnish particulars:</i>		
5.3	<p><i>Is the tenderer / bidder or any of its directors listed on the Register for Tender Defaulters in terms of section 29 of the Prevention and Combating of Corrupt Activities Act (No 12 of 2004)?</i></p> <p><b>To access this Register enter the National Treasury's website, <a href="http://www.treasury.gov.za">www.treasury.gov.za</a>, click on the icon "Register for Tender Defaulters" or submit your written request for a hard copy of the Register to facsimile number (012) 3265445.</b></p>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5.4	<i>If so, furnish particulars:</i>		
5.5	<i>Was the tenderer / bidder or any of its directors convicted by a court of law (including a court outside of the Republic of South Africa) for fraud or corruption during the past five years?</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5.6	<i>If so, furnish particulars:</i>		
5.7	<i>Was any contract between the tenderer / bidder and any organ of state terminated during the past five years on account of failure to perform on or comply with the contract?</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No
5.8	<i>If so, furnish particulars:</i>		

## 6. CERTIFICATION

I the undersigned (full name) \_\_\_\_\_ certify that the information furnished on this declaration form is true and correct.

I accept that, in addition to cancellation of a contract, action may be taken against me should this declaration prove to be false.

Name of Tenderer / bidder	Signature	Date	Position

This form has been aligned with SBD4 and SBD 8

## DPW-15 (EC): SCHEDULE OF PROPOSED SUBCONTRACTORS

<b>Project title:</b>	<b><i>SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)</i></b>		
<b>Tender no:</b>	PT21/030	<b>Reference no:</b>	

We notify you that it is our intention to employ the following Subcontractors for work in this contract.

We confirm that all subcontractors who are contracted to construct a house are registered as home builders with the National Home Builders Registration Council.

	<b>Name and address of proposed Subcontractor</b>	<b>Nature and extent of work</b>	<b>Previous experience with Subcontractor</b>
1			
2			
3			
4			
5			

<b>Name of representative</b>	<b>Signature</b>	<b>Capacity</b>	<b>Date</b>

<b>Name of organisation:</b>	
------------------------------	--

## PA-15.1: RESOLUTION OF BOARD OF DIRECTORS

**RESOLUTION** of a meeting of the Board of \*Directors / Members / Partners of:

\_\_\_\_\_ (Legally correct full name and registration number, if applicable, of the Enterprise)

Held at \_\_\_\_\_ (place)

on \_\_\_\_\_ (date)

### RESOLVED that:

- The Enterprise submits a Bid / Tender to the Department of Public Works in respect of the following project:

\_\_\_\_\_ (Project description as per Bid / Tender Document)

Bid / Tender Number: \_\_\_\_\_ (Bid / Tender Number as per Bid / Tender Document)

- \*Mr/Mrs/Ms: \_\_\_\_\_

in \*his/her Capacity as: \_\_\_\_\_ (Position in the Enterprise)

and who will sign as follows: \_\_\_\_\_

be, and is hereby, authorised to sign the Bid / Tender, and any and all other documents and/or correspondence in connection with and relating to the Bid / Tender, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid / Tender to the Enterprise mentioned above.

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			

17			
18			
19			
20			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed.

**Note:**

1. \* Delete which is not applicable.
2. **NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.
3. In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).
4. Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).
5. Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

**ENTERPRISE STAMP**



## PA-15.2: RESOLUTION OF BOARD OF DIRECTORS TO ENTER INTO CONSORTIA OR JOINT VENTURES

RESOLUTION of a meeting of the Board of \*Directors / Members / Partners of:

---

---

(Legally correct full name and registration number, if applicable, of the Enterprise)

Held at \_\_\_\_\_ (place)

on \_\_\_\_\_ (date)

### RESOLVED that:

1. The Enterprise submits a Bid /Tender, in consortium/Joint Venture with the following Enterprises:

---

---

(List all the legally correct full names and registration numbers, if applicable, of the Enterprises forming the Consortium/Joint Venture)

to the Department of Public Works in respect of the following project:

---

---

(Project description as per Bid /Tender Document)

Bid / Tender Number: \_\_\_\_\_ (Bid / Tender Number as per Bid / Tender Document)

2. \*Mr/Mrs/Ms: \_\_\_\_\_

in \*his/her Capacity as: \_\_\_\_\_ (Position in the Enterprise)

and who will sign as follows: \_\_\_\_\_

be, and is hereby, authorised to sign a consortium/joint venture agreement with the parties listed under item 1 above, and any and all other documents and/or correspondence in connection with and relating to the consortium/joint venture, in respect of the project described under item 1 above.

3. The Enterprise accepts joint and several liability with the parties listed under item 1 above for the due fulfilment of the obligations of the joint venture deriving from, and in any way connected with, the Contract to be entered into with the Department in respect of the project described under item 1 above.
4. The Enterprise chooses as its *domicilium citandi et executandi* for all purposes arising from this joint venture agreement and the Contract with the Department in respect of the project under item 1 above:

Physical address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (code)

Postal Address: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_ (code)

Telephone number: \_\_\_\_\_

Fax number: \_\_\_\_\_

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
8			
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11			
12			
13			
14			
15			

The bidding enterprise hereby absolves the Department of Public Works from any liability whatsoever that may arise as a result of this document being signed

**Note:**

- \* Delete which is not applicable.
- NB:** This resolution must, where possible, be signed by all the Directors / Members / Partners of the Bidding Enterprise.
- In the event that paragraph 2 cannot be complied with, the resolution must be signed by Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (attach proof of shareholding / ownership hereto).
- Directors / Members / Partners of the Bidding Enterprise may alternatively appoint a person to sign this document on behalf of the Bidding Enterprise, which person must be so authorized by way of a duly completed power of attorney, signed by the Directors / Members / Partners holding a majority of the shares / ownership of the Bidding Enterprise (proof of shareholding / ownership and power of attorney are to be attached hereto).
- Should the number of Directors / Members / Partners exceed the space available above, additional names and signatures must be supplied on a separate page.

**ENTERPRISE STAMP**

## PA-15.3: SPECIAL RESOLUTION OF CONSORTIA OR JOINT VENTURES

**RESOLUTION** of a meeting of the duly authorised representatives of the following legal entities who have entered into a consortium/joint venture to jointly bid for the project mentioned below: *(legally correct full names and registration numbers, if applicable, of the Enterprises forming a Consortium/Joint Venture)*

1. \_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_
4. \_\_\_\_\_  
\_\_\_\_\_
5. \_\_\_\_\_  
\_\_\_\_\_
6. \_\_\_\_\_  
\_\_\_\_\_
7. \_\_\_\_\_  
\_\_\_\_\_
8. \_\_\_\_\_  
\_\_\_\_\_

Held at \_\_\_\_\_ *(place)*

on \_\_\_\_\_ *(date)*

### **RESOLVED that:**

#### **RESOLVED that:**

- A. The above-mentioned Enterprises submit a Bid in Consortium/Joint Venture to the Department of Public Works in respect of the following project:

\_\_\_\_\_  
\_\_\_\_\_

*(Project description as per Bid /Tender Document)*

Bid / Tender Number: \_\_\_\_\_ *(Bid / Tender Number as per Bid /Tender Document)*

PA-15.3: Special Resolution of Consortia or Joint Ventures

B. \*Mr/Mrs/Ms: \_\_\_\_\_

in \*his/her Capacity as: \_\_\_\_\_ (Position in the Enterprise)

and who will sign as follows: \_\_\_\_\_

be, and is hereby, authorised to sign the Bid, and any and all other documents and/or correspondence in connection with and relating to the Bid, as well as to sign any Contract, and any and all documentation, resulting from the award of the Bid to the Enterprises in Consortium/Joint Venture mentioned above.

C. The Enterprises constituting the Consortium/Joint Venture, notwithstanding its composition, shall conduct all business under the name and style of:

\_\_\_\_\_

D. The Enterprises to the Consortium/Joint Venture accept joint and several liability for the due fulfilment of the obligations of the Consortium/Joint Venture deriving from, and in any way connected with, the Contract entered into with the Department in respect of the project described under item A above.

E. Any of the Enterprises to the Consortium/Joint Venture intending to terminate the consortium/joint venture agreement, for whatever reason, shall give the Department 30 days written notice of such intention. Notwithstanding such decision to terminate, the Enterprises shall remain jointly and severally liable to the Department for the due fulfilment of the obligations of the Consortium/Joint Venture as mentioned under item D above.

F. No Enterprise to the Consortium/Joint Venture shall, without the prior written consent of the other Enterprises to the Consortium/Joint Venture and of the Department, cede any of its rights or assign any of its obligations under the consortium/joint venture agreement in relation to the Contract with the Department referred to herein.

G. The Enterprises choose as the *domicilium citandi et executandi* of the Consortium/Joint Venture for all purposes arising from the consortium/joint venture agreement and the Contract with the Department in respect of the project under item A above:

Physical address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (Postal code)

Postal Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ (Postal code)

Telephone number: \_\_\_\_\_

Fax number: \_\_\_\_\_

PA-15.3: Special Resolution of Consortia or Joint Ventures

	Name	Capacity	Signature
1			
2			
3			
4			
5			
6			
7			
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14			
15			

The bidding enterprise hereby absolves the Department of Public Works & Infrastructure from any liability whatsoever that may arise as a result of this document being signed.

**Note:**

1. \* Delete which is not applicable.
2. **NB:** This resolution must be signed by all the Duly Authorised Representatives of the Legal Entities to the consortium/joint venture submitting this tender, as named in item 2 of Resolution PA-15.2.
3. Should the number of the Duly Authorised Representatives of the Legal Entities joining forces in this tender exceed the space available above, additional names, capacity and signatures must be supplied on a separate page.
4. Resolution PA-15.2, duly completed and signed, from the separate Enterprises who participate in this consortium/joint venture, must be attached to this Special Resolution (PA-15.3).



## PA16: PREFERENCE POINTS CLAIM FORM IN TERMS OF THE PREFERENTIAL PROCUREMENT REGULATIONS 2017

This preference form must form part of all bids invited. It contains general information and serves as a claim form for preference points for Broad-Based Black Economic Empowerment (B-BBEE) Status Level of Contribution

**NB: BEFORE COMPLETING THIS FORM, BIDDERS MUST STUDY THE GENERAL CONDITIONS, DEFINITIONS AND DIRECTIVES APPLICABLE IN RESPECT OF B-BBEE, AS PRESCRIBED IN THE PREFERENTIAL PROCUREMENT REGULATIONS, 2017 AND THE AMENDED B-BBEE CODES.**

### 1. GENERAL CONDITIONS

1.1. The following preference point systems are applicable to all bids:

- the 80/20 system for requirements with a Rand value of up to R50 000 000 (all applicable taxes included); and
- the 90/10 system for requirements with a Rand value above R50 000 000 (all applicable taxes included).

1.2. The value of this bid is estimated to **Not Exceed** R50 000 000 (all applicable taxes included) and therefore the...**80/20**.....system shall be applicable.

1.3. Preference points for this bid shall be awarded for:

- (a) Price; and
- (b) B-BBEE Status Level of Contribution.

1.3.1 The maximum points for this bid are allocated as follows:

	POINTS
<b>1.3.1.1 PRICE</b>	<b>80</b>
<b>1.3.1.2 B-BBEE STATUS LEVEL OF CONTRIBUTION</b>	<b>20</b>
<b>Total points for Price and B-BBEE must not exceed</b>	<b>100</b>

1.4. Failure on the part of a bidder to fill in and/or to sign this form and submit a B-BBEE Verification Certificate from a Verification Agency accredited by the South African Accreditation System (SANAS) or an Accounting Officer as contemplated in the Close Corporation Act (CCA) together with the bid, will be interpreted to mean that preference points for B-BBEE status level of contribution are not claimed.

1.5. An Exempted Micro Enterprise (EME) is only required to obtain a sworn affidavit or a certificate issued by Companies and intellectual property Commission (CIPC) confirming their annual turnover of R10 Million or less and level of black ownership to claim points.

1.6. Qualifying Small Enterprise (QSE) is only required to obtain a sworn affidavit or a certificate issued by Companies and intellectual property Commission (CIPC) confirming their annual turnover of R10 Million or less and level of black ownership to claim points.



- 1.7 The purchaser reserves the right to require of a bidder, either before a bid is adjudicated or at any time subsequently, to substantiate any claim in regard to preferences, in any manner required by the purchaser.
- 1.8 CERTIFICATES ISSUED BY IRBA AND ACCOUNTING OFFICER HAVE BEEN DISCONTINUED; HOWEVER VALID CERTIFICATES ALREADY ISSUED BEFORE 01 JANUARY 2017 MAY BE USED UNTIL THEY PHASE OUT COMPLETELY BY DECEMBER 2017

## 2. DEFINITIONS

- (a) **“all applicable taxes”** includes value-added tax, pay as you earn, income tax, unemployment insurance fund contributions and skills development levies;
- (b) **“B-BBEE”** means broad-based black economic empowerment as defined in section 1 of the Broad-Based Black Economic Empowerment Act;
- (c) **“B-BBEE status level of contributor”** means the B-BBEE status received by a measured entity based on its overall performance using the relevant scorecard contained in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act;
- (d) **“bid”** means a written offer in a prescribed or stipulated form in response to an invitation by an organ of state for the provision of services, works or goods, through price quotations, advertised competitive bidding processes or proposals;
- (e) **“Broad-Based Black Economic Empowerment Act”** means the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (f) **“comparative price”** means the price after the factors of a non-firm price and all unconditional discounts that can be utilized have been taken into consideration;
- (g) **“consortium or joint venture”** means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract;
- (h) **“contract”** means the agreement that results from the acceptance of a bid by an organ of state;
- (i) **“EME”** means an Exempted Micro Enterprise as defines by Codes of Good Practice under section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003);
- (j) **“Firm price”** means the price that is only subject to adjustments in accordance with the actual increase or decrease resulting from the change, imposition, or abolition of customs or excise duty and any other duty, levy, or tax, which, in terms of the law or regulation, is binding on the contractor and demonstrably has an influence on the price of any supplies, or the rendering costs of any service, for the execution of the contract;
- (k) **“functionality”** means the measurement according to predetermined norms, as set out in the bid documents, of a service or commodity that is designed to be practical and useful, working or operating, taking into account, among other factors, the quality, reliability, viability and durability of a service and the technical capacity and ability of a bidder;
- (l) **“non-firm prices”** means all prices other than “firm” prices;
- (m) **“person”** includes a juristic person;
- (n) **“QSE”** means a Qualifying Small Enterprise as defines by Codes of Good Practice under



section 9 (1) of the Broad-Based Black Economic Empowerment Act, 2003 ( Act No. 53 of 2003);

- (o) **“rand value”** means the total estimated value of a contract in South African currency, calculated at the time of bid invitations, and includes all applicable taxes and excise duties;
- (p) **“sub-contract”** means the primary contractor’s assigning, leasing, making out work to, or employing, another person to support such primary contractor in the execution of part of a project in terms of the contract;
- (q) **“total revenue”** bears the same meaning assigned to this expression in the Codes of Good Practice on Black Economic Empowerment, issued in terms of section 9(1) of the Broad-Based Black Economic Empowerment Act and promulgated in the *Government Gazette* on 9 February 2007;
- (r) **“trust”** means the arrangement through which the property of one person is made over or bequeathed to a trustee to administer such property for the benefit of another person; and
- (s) **“trustee”** means any person, including the founder of a trust, to whom property is bequeathed in order for such property to be administered for the benefit of another person.

### 3. ADJUDICATION USING A POINT SYSTEM

- 3.1 The bidder obtaining the highest number of total points will be awarded the contract.
- 3.2 Preference points shall be calculated after prices have been brought to a comparative basis taking into account all factors of non-firm prices and all unconditional discounts;.
- 3.3 Points scored must be rounded off to the nearest 2 decimal places.
- 3.4 In the event that two or more bids have scored equal total points, the successful bid must be the one scoring the highest number of preference points for B-BBEE.
- 3.5 However, when functionality is part of the evaluation process and two or more bids have scored equal points including equal preference points for B-BBEE, the successful bid must be the one scoring the highest score for functionality.
- 3.6 Should two or more bids be equal in all respects, the award shall be decided by the drawing of lots.

### 4. POINTS AWARDED FOR PRICE

#### 4.1 THE 80/20 OR 90/10 PREFERENCE POINT SYSTEMS

A maximum of 80 or 90 points is allocated for price on the following basis:

**80/20**                      **or**                      **90/10**

$$P_s = 80 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right) \quad \text{or} \quad P_s = 90 \left( 1 - \frac{P_t - P_{\min}}{P_{\min}} \right)$$

Where

$P_s$  = Points scored for comparative price of bid under consideration

$P_t$  = Comparative price of bid under consideration

Any reference to words “Bid” or Bidder” herein and/or in any other documentation shall be construed to have the same meaning as the words “Tender” or “Tenderer”.



Pmin = Comparative price of lowest acceptable bid

## 5. Points awarded for B-BBEE Status Level of Contribution

- 5.1 In terms of Regulation 6(2) and /or 7(2), of the Preferential Procurement Regulations, preference points must be awarded to a bidder for attaining the B-BBEE status level of contribution in accordance with the table below:

<b>B-BBEE Status Level of Contributor</b>	<b>Number of points (90/10 system)</b>	<b>Number of points (80/20 system)</b>
1	10	20
2	9	18
3	6	14
4	5	12
5	4	8
6	3	6
7	2	4
8	1	2
Non-compliant contributor	0	0

- 5.2 A trust, consortium or joint venture, will qualify for points for their B-BBEE status level as a legal entity, provided that the entity submits their B-BBEE status level certificate.
- 5.3 A trust, consortium or joint venture will qualify for points for their B-BBEE status level as an unincorporated entity, provided that the entity submits their consolidated B-BBEE scorecard as if they were a group structure and that such a consolidated B-BBEE scorecard is prepared for every separate bid.
- 5.4 Tertiary institutions and public entities will be required to submit their B-BBEE status level certificates in terms of the specialized scorecard contained in the B-BBEE Codes of Good Practice.
- 5.5 A person awarded a contract may not sub-contract more than 25% of the value of the contract to any other enterprise that does not have an equal or higher B-BBEE status level than the person concerned, unless the contract is sub-contracted to an EME that has the capability and ability to execute the sub-contract.

## 6. BID DECLARATION

- 6.1 Bidders who claim points in respect of B-BBEE Status Level of Contribution must complete the following:

**7. B-BBEE STATUS LEVEL OF CONTRIBUTION CLAIMED IN TERMS OF PARAGRAPHS 1.3.1.2 AND 5.1**

7.1 B-BBEE Status Level of Contribution: ..... = .....(maximum of 10 or 20 points)

(Points claimed in respect of paragraph 7.1 must be in accordance with the table reflected in paragraph 5.1 and must be substantiated by means of a B-BBEE certificate issued by a Verification Agency accredited by SANAS or Sworn Affidavit for EME's and QSE's.

**8 SUB-CONTRACTING (relates to 5.5)**

8.1 Will any portion of the contract be sub-contracted? YES / NO (delete which is not applicable)

8.1.1 If yes, indicate:

(i) what percentage of the contract will be subcontracted? .....%

(ii) the name of the sub-contractor? .....

(iii) the B-BBEE status level of the sub-contractor? .....

(iv) whether the sub-contractor is an EME/ a QSE YES / NO (delete which is not applicable)

<b>Designated Group: An EME or QSE which is at last 51% owned by:</b>	<b>EME</b> √	<b>QSE</b> √
Black people		
Black people who are youth		
Black people who are women		
Black people with disabilities		
Black people living in rural or underdeveloped areas or townships		
Cooperative owned by black people		
Black people who are military veterans		
<b>OR</b>		
Any EME		
Any QSE		

**9 DECLARATION WITH REGARD TO COMPANY/FIRM**

9.1 Name of company/firm .....

9.2 VAT registration number .....

9.3 Company registration number .....

9.4 TYPE OF COMPANY/ FIRM  
Partnership/Joint Venture / Consortium  
One person business/sole propriety  
Close corporation  
Company  
(Pty) Limited

[TICK APPLICABLE BOX]

9.5 DESCRIBE PRINCIPAL BUSINESS ACTIVITIES

.....

.....

.....

9.6 COMPANY CLASSIFICATION

- Manufacturer
- Supplier
- Professional service provider
- Other service providers, e.g. transporter, etc.

[TICK APPLICABLE BOX]

9.7 Total number of years the company/firm has been in business? .....

9.8 I/we, the undersigned, who is / are duly authorised to do so on behalf of the company/firm, certify that the points claimed, based on the B-BBE status level of contribution indicated in paragraph 7 of the foregoing certificate/ Sworn Affidavit, qualifies the company/ firm for the preference(s) shown and I / we acknowledge that:

- (i) The information furnished is true and correct;
- (ii) The preference points claimed are in accordance with the General Conditions as indicated in paragraph 1 of this form.
- (iii) In the event of a contract being awarded as a result of points claimed as shown in paragraph 7, the contractor may be required to furnish documentary proof to the satisfaction of the purchaser that the claims are correct;
- (iv) If the B-BBEE status level of contribution has been claimed or obtained on a fraudulent basis or any of the conditions of contract have not been fulfilled, the purchaser may, in addition to any other remedy it may have –
  - (a) Disqualify the person from the bidding process;
  - (b) Recover costs, losses or damages it has incurred or suffered as a result of that person's conduct;
  - (c) Cancel the contract and claim any damages which it has suffered as a result of having to make less favourable arrangements due to such cancellation;
  - (d) restrict the bidder or contractor, its shareholders and directors, or only the shareholders and directors who acted on a fraudulent basis, from obtaining business from any organ of state for a period not exceeding 10 years, after the audi alteram partem (hear the other side) rule has been applied; and
  - (e) forward the matter for criminal prosecution

**WITNESSES:**

- 1. ....
- 2. ....

.....

**SIGNATURE(S) OF BIDDER(S)**

DATE:..... ADDRESS:.....

.....

## PA- 29: CERTIFICATION OF INDEPENDENT BID DETERMINATION

<b>Project title:</b>	SERVICE, REPAIRS AND MAINTENANCE OF COAL FIRED BOILERS AND ALL STEAM RELATED GENERATION COMPONENTS AT KGOSHI MAMPURU III CORRECTIONAL SERVICES FOR A PERIOD OF 36 MONTHS/ DEPLETION OF ALLOCATED BUDGET (whichever period comes first)		
<b>Bid no:</b>	PT21/030	<b>Reference no:</b>	

### INTRODUCTION

1. This PA-29 [Certificate of Independent Bid Determination] must form part of all bids<sup>1</sup> invited.
2. Section 4 (1) (b) (iii) of the Competition Act No. 89 of 1998, as amended, prohibits an agreement between, or concerted practice by, firms, or a decision by an association of firms, if it is between parties in a horizontal relationship and if it involves collusive bidding (or bid rigging).<sup>2</sup> Collusive bidding is a *per se* prohibition meaning that it cannot be justified under any grounds.
3. Treasury Regulation 16A9 prescribes that accounting officers and accounting authorities must take all reasonable steps to prevent abuse of the supply chain management system and authorizes accounting officers and accounting authorities to:
  - a. disregard the bid of any bidder if that bidder, or any of its directors have abused the institution's supply chain management system and or committed fraud or any other improper conduct in relation to such system.
  - b. cancel a contract awarded to a supplier of goods and services if the supplier committed any corrupt or fraudulent act during the bidding process or the execution of that contract.
4. This form (PA-29) serves as a certificate of declaration that would be used by institutions to ensure that, when bids are considered, reasonable steps are taken to prevent any form of bid-rigging.
5. In order to give effect to the above, the attached Certificate of Bid Determination (PA-29) must be completed and submitted with the bid:

---

<sup>1</sup> Includes price quotations, advertised competitive bids, limited bids and proposals.

<sup>2</sup> Bid rigging (or collusive bidding) occurs when businesses, that would otherwise be expected to compete, secretly conspire to raise prices or lower the quality of goods and / or services for purchasers who wish to acquire goods and / or services through a bidding process. Bid rigging is, therefore, an agreement between competitors not to compete.

## CERTIFICATE OF INDEPENDENT BID DETERMINATION

I, the undersigned, in submitting the accompanying bid:

---

**(Bid Number and Description)**

in response to the invitation for the bid made by:

---

**(Name of Institution)**

do hereby make the following statements that I certify to be true and complete in every respect:

I certify, on behalf of: \_\_\_\_\_ that:

**(Name of Bidder)**

1. I have read and I understand the contents of this Certificate.
2. I understand that the accompanying bid will be disqualified if this Certificate is found not to be true and complete in every respect.
3. I am authorized by the bidder to sign this Certificate, and to submit the accompanying bid, on behalf of the bidder.
4. Each person whose signature appears on the accompanying bid has been authorized by the bidder to determine the terms of, and to sign the bid, on behalf of the bidder.
5. For the purposes of this Certificate and the accompanying bid, I understand that the word "competitor" shall include any individual or organization, other than the bidder, whether or not affiliated with the bidder, who:
  - (a) has been requested to submit a bid in response to this bid invitation;
  - (b) could potentially submit a bid in response to this bid invitation, based on their qualifications, abilities or experience; and
  - (c) provides the same goods and services as the bidder and/or is in the same line of business as the bidder.

6. The bidder has arrived at the accompanying bid independently from, and without consultation, communication, agreement or arrangement with any competitor. However communication between partners in a joint venture or consortium<sup>3</sup> will not be construed as collusive bidding.
7. In particular, without limiting the generality of paragraphs 6 above, there has been no consultation, communication, agreement or arrangement with any competitor regarding:
  - (a) prices;
  - (b) geographical area where product or service will be rendered (market allocation)
  - (c) methods, factors or formulas used to calculate prices;
  - (d) the intention or decision to submit or not to submit, a bid;
  - (e) the submission of a bid which does not meet the specifications and conditions of the bid; or
  - (f) bidding with the intention not to win the bid.
8. In addition, there have been no consultations, communications, agreements or arrangements with any competitor regarding the quality, quantity, specifications and conditions or delivery particulars of the products or services to which this bid invitation relates.
9. The terms of the accompanying bid have not been, and will not be, disclosed by the bidder, directly or indirectly, to any competitor, prior to the date and time of the official bid opening or of the awarding of the contract.

I am aware that, in addition and without prejudice to any other remedy provided to combat any restrictive practices related to bids and contracts, bids that are suspicious will be reported to the Competition Commission for investigation and possible imposition of administrative penalties in terms of section 59 of the Competition Act No 89 of 1998 and or may be reported to the National Prosecuting Authority (NPA) for criminal investigation and or may be restricted from conducting business with the public sector for a period not exceeding ten (10) years in terms of the Prevention and Combating of Corrupt Activities Act No 12 of 2004 or any other applicable legislation.

Name of Bidder	Signature	Date	Position

<sup>3</sup> Joint venture or Consortium means an association of persons for the purpose of combining their expertise, property, capital, efforts, skill and knowledge in an activity for the execution of a contract.

# PA- 40: DECLARATION OF DESIGNATED GROUPS FOR PREFERENTIAL PROCUREMENT

Tender no: PT21/030

Name of Tenderer .....

EME<sup>1</sup>  QSE<sup>2</sup>  Non EME/QSE (tick applicable box)

1. LIST ALL PROPRIETORS, MEMBERS OR SHAREHOLDERS BY NAME, IDENTITY NUMBER, CITIZENSHIP AND DESIGNATED GROUPS.

Name and Surname #	Identity/ Passport number and Citizenship##	Percentage owned	Black	Indicate if youth	Indicate if woman	Indicate if person with disability	Indicate if living in Rural (R) / Under Developed Area (UD) / Township (T) / Urban (U).	Indicate if military veteran
1.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
8.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
9.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
10.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
11.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No
12.		%	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> R <input type="checkbox"/> UD <input type="checkbox"/> T <input type="checkbox"/> U	<input type="checkbox"/> Yes <input type="checkbox"/> No

# Where Owners are themselves a Company, Close Corporation, Partnership etc, identify the ownership of the Holding Company, together with Registration number  
## State date of South African citizenship obtained (not applicable to persons born in South Africa)

<sup>1</sup> EME: Exempted Micro Enterprise

<sup>2</sup> QSE: Qualifying Small Business Enterprise





# PA- 40: DECLARATION OF DESIGNATED GROUPS FOR PREFERENTIAL PROCUREMENT

Tender no:

## 2. DECLARATION:

The undersigned, who warrants that he/she is duly authorized to do so on behalf of the Tenderer, hereby confirms that:

- 1 The information and particulars contained in this Affidavit are true and correct in all respects;
- 2 The Broad-based Black Economic Empowerment Act, 2003 (Act 53 of 2003), Preferential Procurement Policy Framework Act, 2000 (Act 5 of 2000), the Preferential Procurement Regulations, 2017, National Small Business Act 102 of 1996 as amended and all documents pertaining to this Tender were studied and understood and that the above form was completed according to the definitions and information contained in said documents;
- 3 The Tenderer understands that any intentional misrepresentation or fraudulent information provided herein shall disqualify the Tenderer's offer herein, as well as any other tender offer(s) of the Tenderer simultaneously being evaluated, or will entitle the Employer to cancel any Contract resulting from the Tenderer's offer herein;
- 4 The Tenderer accepts that the Employer may exercise any other remedy it may have in law and in the Contract, including a claim for damages for having to accept a less favourable tender as a result of any such disqualification due to misrepresentation or fraudulent information provided herein;
- 5 Any further documentary proof required by the Employer regarding the information provided herein, will be submitted to the Employer within the time period as may be set by the latter;

**Signed by the Tenderer**

<b>Name of representative</b>	<b>Signature</b>	<b>Date</b>