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|  | <b>Scope of Work</b><br><b>Upgrading and extension of emergency ash offloading facility</b> | Doc no             |
|   |   | Rev 1 0            |
|   |   | Total pages 1 of 6 |
| Matimba Power Station   |   | Reference Document |

| COMPILED          | DESIGNATION                   | SIGNATURE  | Date       |
|-------------------|-------------------------------|--|------------|
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### Emergency Ash Offloading Area

#### 1.1 EXECUTIVE SUMMARY

Emergency ash offloading is an integral part of the ash management system at Matimba Power Station. It offers the station to temporarily dispose of the ash whilst the ash conveyors systems, that dispose the ash at the Ash Disposal Facility, are maintained. It is essential that the emergency ash offloading area is capacitated to adequately handle the amount of ash stored and for proper management of any surface runoff water.

#### 1.2 PLANT DESCRIPTION



*Figure 1: Emergency Ash Offloading Locality Plan*

The emergency ash offloading area is located within the perimeter boundary and to the western side of Matimba Power Station. It is situated adjacent to the transfer house between the Cross and Overland conveyors. Currently, the emergency ash offloading area is a 30m X 30m reinforced concrete slab.

The function of the area is to offload ash in instances where the Overland Conveyor is unable to transport the ash to the Ash Disposal Facility due to breakdown or maintenance activities.

#### 1.3 OPERATIONAL PHILOSOPHY

##### Ash Offloading

Ash is offloaded at the emergency area by allowing the Cross Conveyor belt to bypass discharging onto the Overland Conveyor and to offload on the existing concrete slab. Front-end Loaders are used to spread the ash around the concrete slab and also to in-load the ash onto the Overland Conveyor once it is in operational to transport it to the Ash Disposal Facility.

## EMERGENCY ASH OFFLOADING FACILITY

In cases where the Cross and Transverse Conveyors are also unavailable and cannot be used to offload at the emergency area, the ash is offloaded at the Coarse Ash Conveyors, at the units, and collected by means of trucks and taken to the emergency ash offloading area

### **Storm water management**

The surface runoff water from the emergency ash offloading area is collected by a storm water channel that is adjacent to the concrete slab. The channel transports the ash contaminated water into a silt-trap where the suspended ash solids are allowed to settle and the water to overflow into a collection storm water canal. The water from the collecting storm water canal is transported to Evaporation Ponds.

There are boreholes nearby the emergency ash offloading area to monitor the quality and the impact the area has on the groundwater. The monitoring is conducted on a quarterly basis by an appointed environmental consultant.

The storm water management of the area may need to be upgraded to comply with the GN 704 regulations as the current (silt trap).

### **1.4 CONSIDERED SOLUTION**

Due to the insufficient capacity of the existing concrete slab to contain the amount of ash being offloaded, it is necessary to increase the capacity of the emergency ash offloading area.

### **Increase the current concrete slab**

The preferred option to mitigate the concern is to increase the size of the existing concrete slab to adequate capacity to meet the demand of emergency ash offloading. The advantage of this preferred option is that it also caters for heavy machinery that operates in the area for moving the ash around and for in-loading. A concrete slab is more durable to withstand the impact of heavy machines as compared to a HDPE liner system.

The concrete slab also serves as a good impermeable layer to prevent ash contaminated water to infiltrate into the ground to pollute the groundwater. The expanded area will have reinforced concrete bund walls on the edges to prevent ash from spilling over onto the natural ground which will cause ground pollution.

The expanded concrete lined emergency ash offloading area will be surrounded by a retaining wall to contain all the ash in the lined area and the slab will have a slope of 3% from the west to the eastern side.

The scope of work entails the following

- 1 Design work
- 2

Please take note All drawings shall be done according to Eskom Engineering Drawing Standard – Common Requirements (240-86973501). All designs shall be according to Eskom's Structural Design and Engineering Standard (240-56364545).

## EMERGENCY ASH OFFLOADING FACILITY

- Design a reinforced concrete slab of 35 MPa that will cover an area of 4680 m<sup>2</sup>
  - Preparation of construction and as-built drawings will be required
  - Assess the capability of the existing silt-trap to handle the additional storm water run-off
3. Construction work
- Site clearance
  - Remove unsuitable materials to a depth of 300mm and dispose
  - Rip, grade, mix and compact in situ to 95% MOD AASHTO
  - Import suitable materials for base layer of the concrete slab
  - Erect shutters for the concrete work
  - Supply and install reinforcement
  - Ensure the interfacing of the newly cast slab and the existing slab is solid (steel dowels may be drilled on the sides of the existing slab)
  - Construct a 35MPa reinforced concrete slab of 4680 m<sup>2</sup> (see coordinates on figure 4)
- Construct a reinforced concrete retaining wall around the slab as per drawing 0.58/10224 (should be as per the design specification of the design drawings for units ash offloading retaining walls the only change will be on the dimensions/size)
  - Check the adequacy of silt trap to convey additional storm water run-off ( investigate the impact of the additional storm water run-off will have on the existing silt trap)
  - Provide As-built drawings after completion of construction

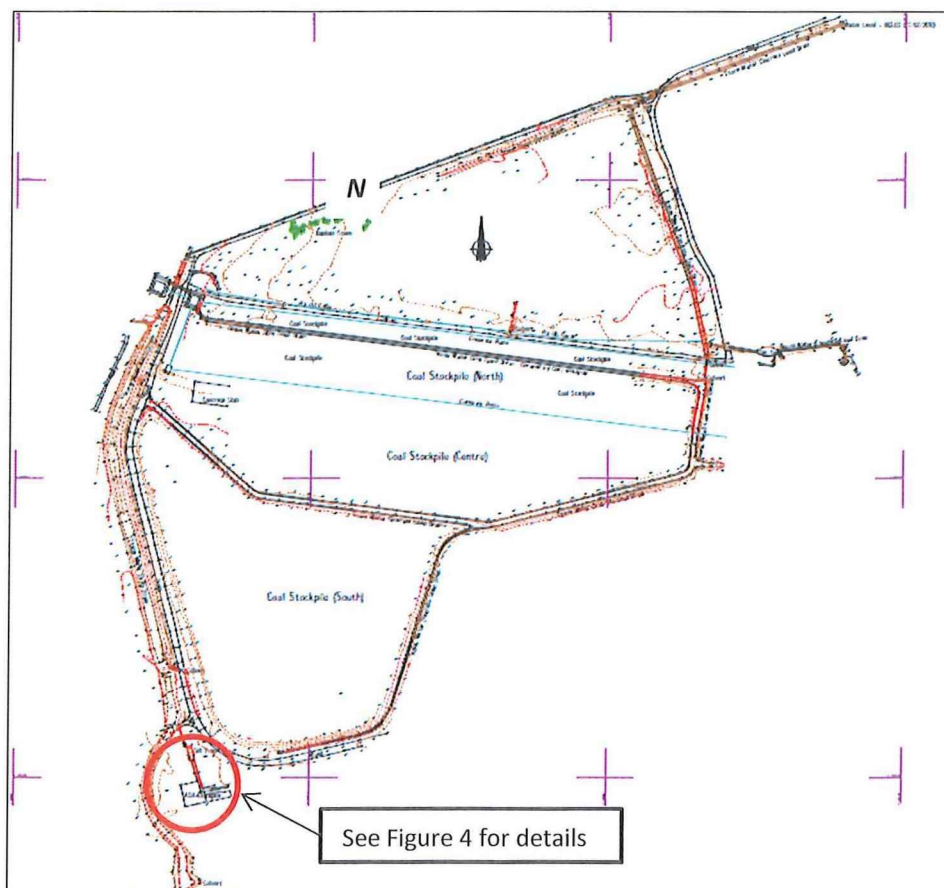


Figure 2: Layout of emergency ash offloading area, collecting storm water canal and coal stockyard



# EMERGENCY ASH OFFLOADING FACILITY

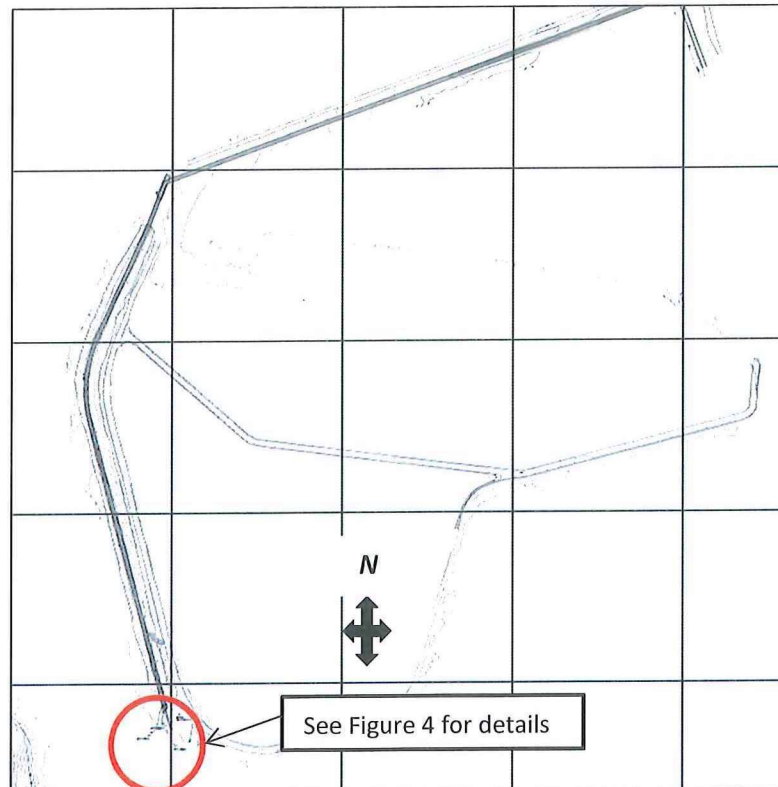


Figure 3: Proposed concrete lining of the collecting storm water canal

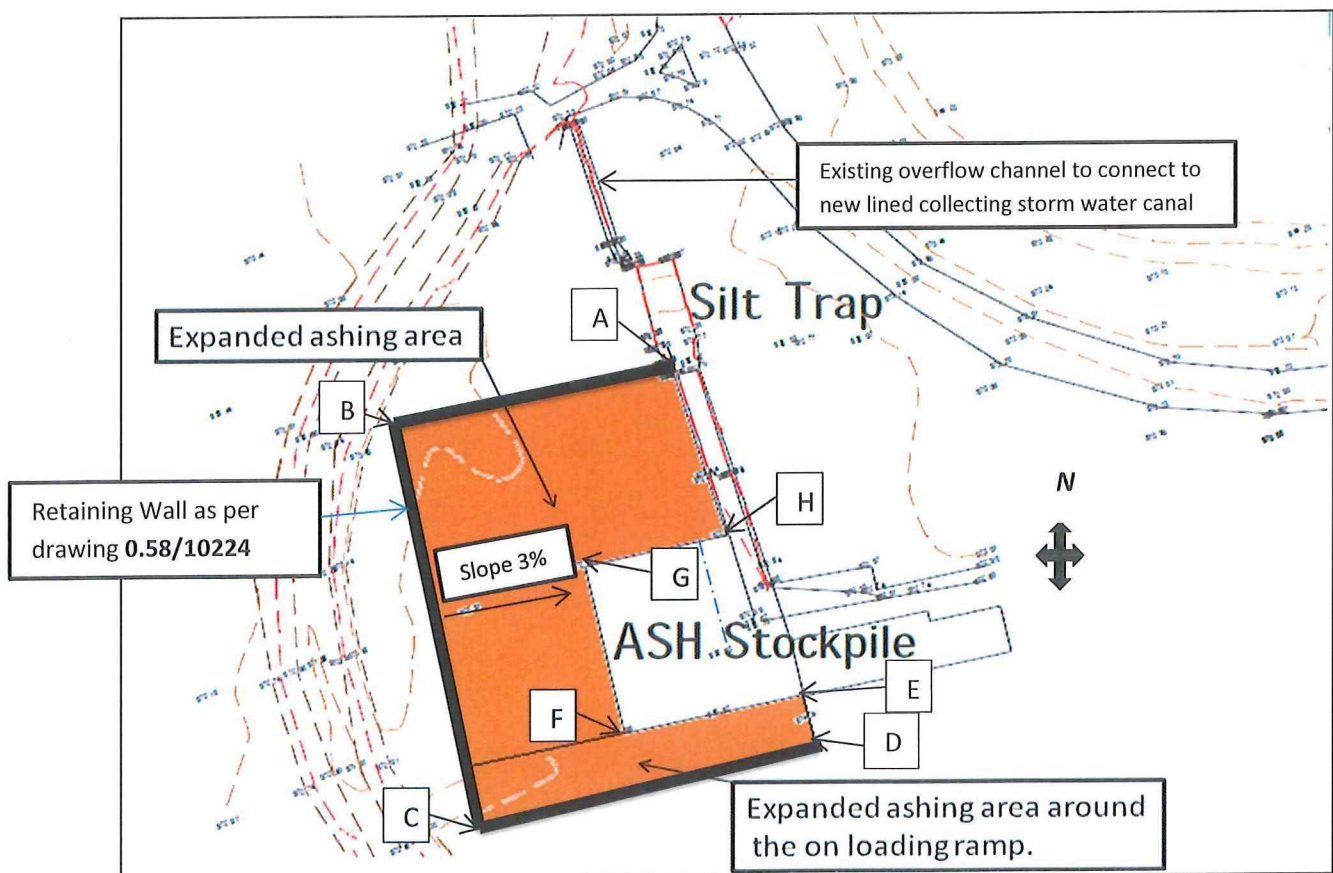


Figure 4: Proposed expansion of the existing concrete slab

## EMERGENCY ASH OFFLOADING FACILITY

*Table 1 Coordinates of new slab*

| Corner | Coordinates |          |
|--------|-------------|----------|
|        | S           | E        |
| A      | -23 66824   | 27 60000 |
| B      | -23 66835   | 27 59956 |
| C      | -23 66896   | 27 59963 |
| D      | -23 66883   | 27 60026 |
| E      | -23 66883   | 27 60024 |
| F      | -23 66873   | 27 59991 |
| G      | -23 66856   | 27 59987 |
| H      | -23 66853   | 27 60011 |