

Annexure C3.2

SCOPE OF WORK

DESCRIPTION OF THE WORKS

Objectives

The objective of the works is to provide a solution to the flooding that occurs on the road to the main entrance, at the Zuikerbosch Pumping Station (Fig1). The successful contractor will be required to upgrade the existing stormwater system.



Figure 1: Zuikerbosch Property Entrance Road

The works shall entail the following:

- A) Remove the existing steel pipe (260m) and replace it with a concrete pipe of 150mm diameter, to a length of 190m.
- B) Demolish (5) existing masonry manholes.
 - 1 Type A Mahole
 - 4 Type B Manholes
- C) Rebuild (5) masonry manholes.
 - 1 Type A Mahole
 - 2 Type B Manholes
- D) Build 1 masonry outlet structure at the end of the newly installed pipe.
- E) Demolish and Rebuild 1 masonry inlet structure.
- F) Construction of a trapezoidal channel (120m) beginning at the outlet structure mentioned above.

- G) Construct concrete slabs of (18mx17mx250mm) & (13mx25mx250mm), with thickening beams of (0.25x0.25x18m) & (0.25x0.25x13m) respectively. These slabs will be used as the 'Truck Exit' and 'Truck Entry'.
- The slabs shall be reinforced with Ref 888 reinforcing mesh and shall have expansion joints.
- H) Rip & recompact the truck waiting area to a depth of 300mm, (total area: 36m x 65m).
- I) Rehabilitate the existing 337m long earth channel by grading the surface and making sure to keep to the existing slope.
- J) Construct a masonry drainage manhole and install a 100mm PVC drainage pipe (10m) which must cross the road and join an existing Manhole. The Manhole must be 1mx1m with a 200mm concrete cover slab and a grid inlet (Table 8 gully grate – SANS 50124 EN125 Class C250).

The top of the Manhole must be at the same level as the surrounding paved area, and the asphalt & layer works must be reinstated after the pipe is laid.

ADDITIONAL NOTES

- The Preliminary and General costs of the works must be incorporated into pricing schedule line items, the P&Gs will not be paid separately.
- The contractor must create a space for the trucks to stop/park at during the construction of the truck driveway. The truck driveway is utilised daily.
- All material and equipment to carry out the works shall be supplied by the contractor.

SPECIFICATIONS

The following specifications shall be used for the works:

- a) SANS 1200

Construction

Demolishing/Removing existing structures

The existing stormwater pipes and masonry manholes shall be removed and disposed of (off site). The contractor shall make his own arrangements for the provision of a suitable disposal area.

Excavations

Trenches shall be excavated in approved lengths, and to widths that provide the appropriate side allowance.

All excavations shall be carried out to the required depths. The sides of the trench shall be as vertical as possible, and the excavation surfaces shall be cleaned of all loose material and compacted to 93% Mod AASHTO.

Bedding

No bedding shall be laid until the client has approved the trench and authorized the pipelaying to proceed. Granular material shall be used for the bedding and compacted to 93% Mod AASHTO. The

contractor shall supply the material and provide the compaction test results. All field density tests shall be done in the presence of a Rand Water representative.

Pipe Laying

Pipes shall be laid and bedded to the depth specified on the drawings. The pipes shall be laid at the same level as the existing steel pipes, they shall be laid hard up against each other longitudinally to obtain tight joints and they shall be supported evenly throughout the barrel length. Pipes shall be laid centrally in the trench in such a manner that the side allowances are available as working space.

Each pipe shall be cleaned out and examined for possible damage before laying. The onus of detecting the damage shall rest on the contractor. Should any damaged pipe be laid, it shall be removed and replaced at the contractor's expense, and to the satisfaction of the client. The pipes shall be jointed according to the manufacture's instruction.

Manholes

Masonry manholes built with Blue-barley brick, comprising of a concrete base and steel grid cover which will be provided by Rand Water.

Brick work shall be bonded in a 1:3 (cement: sand) mortar stretcher bond. All joints shall be filled solid with mortar and not exceed a thickness of 10mm. Where pipes enter brickwork, they shall be thoroughly caulked into the wall and rendered with mortar.

Five manholes to be erected and walls to protrude the ground by at least three brick courses. The last brick course to be a roller course and brick force to be installed on every third course. Reflective barrier boards to be mounted on bricks on the roadside.

Backfilling

Backfilling of pipe trenches shall commence after the pipe has been laid and firmly bedded. Backfilling shall be carried out over the full extent of the trench excavation and to the specified depth. Selected material to be used for backfilling shall be sand, gravel or other approved material containing no more silt or clay than necessary to provide a dense and stable material.

Where backfilling is to be placed against or around a structure, such backfilling shall be placed and compacted on both sides of the structure to minimise unequal loading.

All trenches and excavations outside structures shall be carefully refilled with approved material in layers of thickness not exceeding 150 mm after compaction. Each layer shall be completed before the next is added.

Surface Drainage Channels

Concrete lined channel

The total length of surface drainage is 120m and will tie-in to the existing outlet structure. The surface drainage shall be cast in alternate sections with 25MPa concrete. Each panel shall have expansion joints of 12 mm thickness between each panel.

The concrete slabs to accommodate trucks, shall be cast with 30MPa concrete with a depth of 250 mm and must be reinforced.

Grass lined channel

The existing grass-lined channel of approximately 337m long shall be graded and allow flow to the direction of the existing irrigation channel.