

Annexure C3.2

SCOPE OF WORK

Important to note – the successful supplier must submit a safety file and attend induction before the work commences.

DESCRIPTION OF THE WORKS

Objectives

The objective of the works is to provide a solution to the flooding of some road sections at the Zuikerbosch Pumping Station, by rehabilitating the existing stormwater infrastructure. The works shall entail the following:

Section 1: Zuikerbosch Property entrance

- A) Remove the existing steel pipe (260m) and replace it with a concrete pipe of 300mm diameter.
 - Concrete pipe to be provided by Rand Water and is located 5.2 Km from the work site.
- B) Demolish 5 existing masonry manholes.
- C) Build 5 masonry manholes as per the drawings provided.
 - 1 Type A Manhole
 - 4 Type B Manholes
- D) Construction of a v-drain channel (42m)
- E) Construct concrete slabs (truck entry way) of (38mx16 mx300mm) & (15mx16mx300mm)
 - The slabs shall be reinforced with mesh (Ref617) and shall have construction joints.
- F) Rip & recompact the truck driveway to a depth of 150mm. (Drive way: 39m x 65m)
- G) Rehabilitate the existing 337m long earth channel keeping with the existing slope.

Section 2: PAC Plant to R-systems

- A) Unblock the 211m long Sludge Line, the pipeline has varying diameters, i.e 160mm, 300mm, and 900mm.
 - The sludge in some sections of the pipeline is beginning to solidify, and the appropriate unblocking method and machinery is to be used.

ADDITIONAL NOTES

Rand Water will provide the concrete pipes **only**, the contractor must make arrangements for collecting/transporting the pipes to the work site. The contractor shall provide all other material required for the works (e.g.: concrete, bricks, building sand, etc.)

The Preliminary and General cost should be factored into the works line items. It will not be paid separately and is not to have it's own line item.

Location of the Works

The works are located at Rand Water, Zuikerbosch Purification Plant and Pumping Station
(-26.684544658979437, 28.022789301562874)

Section 1: Zuikerbosch Property entrance



Section 2: PAC Plant to R-systems



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 must make his own arrangements for the provision of a suitable disposal area.

Excavations

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

All excavations must 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 (G7) is to 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 will be done in the presence of a Rand Water representative.

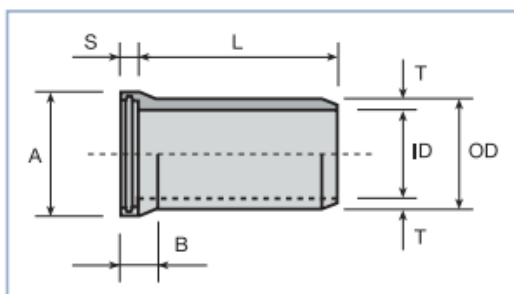
Pipe Laying

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 must be cleaned out and examined for possible damage immediately before laying. The onus of detecting the damage shall rest on the contractor. Should any damaged pipe be laid, it will be removed and replaced at the contractor's expense, and to the satisfaction of the engineer. The pipes are to be jointed according to the manufacturer's specifications.

The specification of the concrete pipe is as follows:

Pipe Class	Nominal Diameter (ND)	Inside Diameter (ID)	Outside Diameter (OD)	Wall Thickness (T)	Nominal length (L)	Outside Diameter (A)	Outside Socket (B)	Inside Socket (S)	Approx. Mass per Pipe
	mm	mm	mm	mm	m	mm	mm	mm	Kg/pipe
100D	300	272	368	48	2,44	464	225	114	331



Manholes

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

Brickwork 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 are to be erected and the walls are to protrude from the ground by at least three brick courses. The last brick course is to be a roller course and brick force is to be installed on every third course. Reflective barrier boards are 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 42m 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 300 mm and reinforced with mesh sheets (Ref. 617 mesh).

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.

SITE INFORMATION

Non Compulsory Site Briefing 28.09.2023 @ 09:00

We will meet at Rand Water Zuikerbosch, Risk Control Parking Area –

Vischgat Road, Three Rivers East, Vereeniging

S26 41 520 E28 00 061

Please bring along your ID for access purposes and wear safety shoes. You will not be allowed to enter the plant without safety shoes

