CEDERBERG

MUNISIPALITEIT
MUNICIPALITY
UMASIPALA

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U Verwysing / Your Reference : Bulk services

KANTOOR VAN DIE MUNISIPALE BESTUURDER/ OFFICE OF THE MUNICIAL MANAGER

16 February 2023

WESTERN CAPE DEPARTMENT OF HUMAN SETTLEMENTS
27 Wale Street
CAPE TOWN
8000

ATTENTION: Mr. T Khan (Taufeeq.Khan@westerncape.gov.za)

Dear Sir;

RE: CEDERBERG MUNICIPALITY: CLANWILLIAM – BULK SERVICES FOR FUTURE HOUSING PROJECTS

Herewith please find the information relating to the planned bulk engineering services for the following housing projects:

- **IRDP** – 722 residential erven (North of Block E)
- **UISP** – 436 residential erven (Block E)

Attached hereto please find the following documentation (**Annexure A**):

- GLS Report - Bulk water and sewer services - Feasibility report - Clanwilliam housing site(Rev 3)
- Figure 1 - Portion of Erf 279 - Clanwilliam
- Figure 2 - Portion of Erf 279 - Clanwilliam
- Figure 3 - Portion of Erf 279 - Clanwilliam
- Proposed Clanwilliam Layout_14 September 2021.pdf **(Annexure B)**

1. **ACCESS ROADS AND TRANSPORTATION**

The proposed developments will connect to various existing streets within the town of Clanwilliam.

The planning of the proposed roads will be integrated and aligned with the land development and the land use planning process. During the design process a focus will be placed towards improving access and mobility for all, regardless of the mode of transport used.

3.2 Water Storage

The existing Cederville reservoir (1,0 Mℓ) has insufficient reservoir storage volume available to accommodate the proposed housing developments.

A 3.5 Mℓ reservoir will have to construct as per Item CCIW.B1 as per Figure 1. The planned reservoir will be connected to the existing Cederville reservoir.

The estimated cost (2022/2023 FY) for this reservoir, escalated from the GLS Report done in June 2018, is **R 26 198 427.62,** inclusive of VAT.

A funding application will be submitted to the DOHS for construction in the 2024/2025 Financial Year. As per the Water Masterplan this reservoir will supply water directly to the new housing projects.

3.2 Network upgrade

The following master plan items, as per Figure 1, will be required to ensure adequate water provision through the water network to the new developments.

- CCIW2.1 - 220 m x 315mm Ø new supply pipe
- CCIW2.2 - 315 m x 315mm Ø new supply pipe
- CCIW2.3 - 170 m x 250mm Ø new supply pipe
- CCIW2.9 - 550 m x 160mm Ø new supply pipe
- CCIW2.10 - 300 m x 200mm Ø new supply pipe

The estimated cost for the above items is calculated as **R 6 182 664.31**, inclusive of VAT. Funding applications for this infrastructure will be submitted partially to both the DOHS and the MiG program for the 2024/2025 financial year.

4. SEWERAGE NETWORK AND TREATMENT

The proposed developments will create additional demand for the existing sanitation and wastewater system in Clanwilliam.

Existing sanitation infrastructure is accessible, but the capacity of the existing services is not sufficient to accommodate the proposed development and will require an upgrade to service the proposed developments.

The proposed upgrades, with an estimated cost, are listed below.

4.1 Sewer Network

The proposed development lies to the east of the existing Clanwilliam sewer system and a new drainage area (the proposed Future PS Cl2 drainage area - Figure 3) is proposed in the sewer master plan for Clanwilliam to accommodate the development.

A new sewer pumping station and accompanying rising main are proposed to service the proposed development area and pump the sewage directly to the existing Clanwilliam WWTP.

The following network items will be required to upgrade the network to accommodate the additional sewerage effluent:

- CCIS4.2 - New Pump station PS CL2
- CCIS4.3 - New Rising main: 810m x 160mm Ø

The estimated cost for the above 2 items is calculated as **R 5 647 682.58**, inclusive of VAT.

In the GLS report is indicated that master plan items CCIS6.1 & CCIS6.3 are not required to be upgraded to accommodate the proposed housing development, but that it is calculated that these pipes are running at capacity.

During the design of the engineering services (IRDP site), it became clear that a section of the Northern part of the development will however drain towards the Milner Street pump station and these two items will have to be upgraded due to the additional hydraulic load on the infrastructure.

- CCIS6.1 - 380m x 450mm Ø
- CCIS6.3 - 475m x 525mm Ø

The estimated cost for the above 2 items is calculated as **R 7 873 833.66**, inclusive of VAT.

4.2 Treatment works

The Clanwilliam WWTP is currently equipped with two treatment modules, each comprising an oxidation ditch and a clarifier. The plant has a rated design capacity of 2400m^3/day according to the information available.

High level capacity calculations indicate that the plant can cope with a flow of 2400m^3/day, but at a limited organic load, with COD concentrations not exceeding 580mg/ℓ. At a flow of 2100m^3/day, an organic concentration of 650mg/ℓ could be managed.

Currently, the plant is receiving in the order of 2200m^3/day (94% of rated maximum) with a very high organic concentration of **978mg/ℓ COD**. The plant is **not able** to deal with this organic load for a variety of reasons, and this is reflected in the very poor final effluent analysis results. In the previous 15 months, the plant effluent did not comply with the General Limit values on even a single occasion.

The new developments will contribute an estimated additional 579m^3/day to the current flow to Clanwilliam WWTP. Given the current condition of the Clanwilliam WWTP, and the high strength sewage being received, the additional flow will not be able to be accommodated, unless funding is made available to repair and upgrade the existing works, to enable it to perform optimally.

Technical Reports have been submitted as motivation to obtain financial assistance to firstly address the repairs, and then upgrade the Clanwilliam Wastewater Treatment Plant to a new rated treatment capacity of 3 600m^3/day.

This project addresses the upgrade of both the future treatment capacity and the refurbishment of the existing mechanical and electrical equipment which have deteriorated over time due to age and normal wear and tear.

Table 1 indicates the estimated project cost as well as the budgets applied for under the MiG and WSIG funding programs.

- Estimated total project cost - **R 59 530 036.60**
- MiG funding portion applied - **R 10 460 524.53**
- WSIG funding portion applied - **R 49 069 512.07**

		MIG		WSIG		Totals
Item	Description	Amount	Totals	Amount	Totals	
1	DIRECT COST & TRAINING		R 8,067,561.98		R 37,844,309.70	R 45,911,871.68
1.1	Preliminary & General	R 975,729.99		R 4,577,073.97		
1.2	Refurbishment of Inlet Works and new flow meters	R 986,749.10		R -		
1.3	Repair and refurbishment of existing mechanical works	R 3,473,148.00		R -		
1.4	Construction of Temporary Works for short-term capacity, pumps	R 1,075,250.00		R -		
1.5	Construction of 1.5 Ml/day Activated Sludge Plant	R -		R 26,852,779.58		
1.6	Miscellaneous Items	R -		R 425,626.00		
1.7	Telemetry system	R 195,000.00		R -		
1.8	Accredited Training: Process Controllers & WWTW Staff	R 85,000.00		R -		
1.9	Sub-Total	R 6,790,877.09		R 31,855,479.55		
1.10	Add 10% Contingencies	R 679,087.71		R 3,185,547.95		
1.11	Sub-Total	R 7,469,964.80		R 35,041,027.50		
1.12	Add 8% CPA	R 597,597.18		R 2,803,282.20		
1.13	Sub-Total: Direct Cost	R 8,067,561.98		R 37,844,309.70		
2	INDIRECT COST		R 1,028,546.31		R 4,824,831.23	R 5,853,377.54
2.1	Professional Fee (ECSA 2021 Including 10% Discount)	R 871,260.74		R 4,087,016.80		
2.2	Supervision & Travelling	R 126,517.27		R 593,482.73		
2.3	Health and Safety/ECO	R 19,346.60		R 90,753.40		
2.4	Disbursements	R 11,421.70		R 53,578.30		
2.5	Sub-Total: Indirect Cost	R 1,028,546.31		R 4,824,831.23		
	PROJECT SUB-TOTAL		R 9,096,108.29		R 42,669,140.93	R 51,765,249.22
	ADD 15% VAT		R 1,364,416.24		R 6,400,371.14	R 7,764,787.38
	ESTIMATED TOTAL PROJECT COST		R 10,460,524.53		R 49,069,512.07	R 59,530,036.60

Table 1

Cederberg Municipality received confirmation that the WSIG application has been conditionally approved and awaits further information from DWS.

Approval of the MiG application is expected in the first quarter of 2023.

5. STORMWATER MANAGEMENT

The design of the stormwater conveyance system will be in terms of the Sustainable Drainage System design approach for the applicable rainfall intensity and recurrence interval of flood events. This is an approach to manage stormwater runoff to reduce downstream flooding, allow infiltration into the ground, minimise pollution, improve the quality of stormwater and reduce pollution in water bodies.

Rather than merely collecting and discarding stormwater through a system of pipes and culverts, this approach recognises that stormwater could be a resource to be used. Stormwater will be conveyed from the developments in and easterly direction towards the Jan Dissels River.

The design approach uses methods such as permeable pavements, soakaways, swales, infiltration trenches and detention ponds. These interventions will form a natural part of open spaces in a settlement and contribute to the quality of the environment and the character of the area.

These systems will be designed, and submitted for the required approval, during the detail design phase of the proposed projects.

6. SOLID WASTE DISPOSAL

Solid waste will be collected by Cederberg Municipality and taken to the Clanwilliam waste disposal site. The proposed integrated waste management plan was approved by Council in early December 2022 to undergo the required process of public participation.

7. CONCLUSION

The proposed funding application matrix is attached hereto as **Annexure C** summarising the estimated funding required and indicating the proposed funding streams to finance the proposed infrastructure.

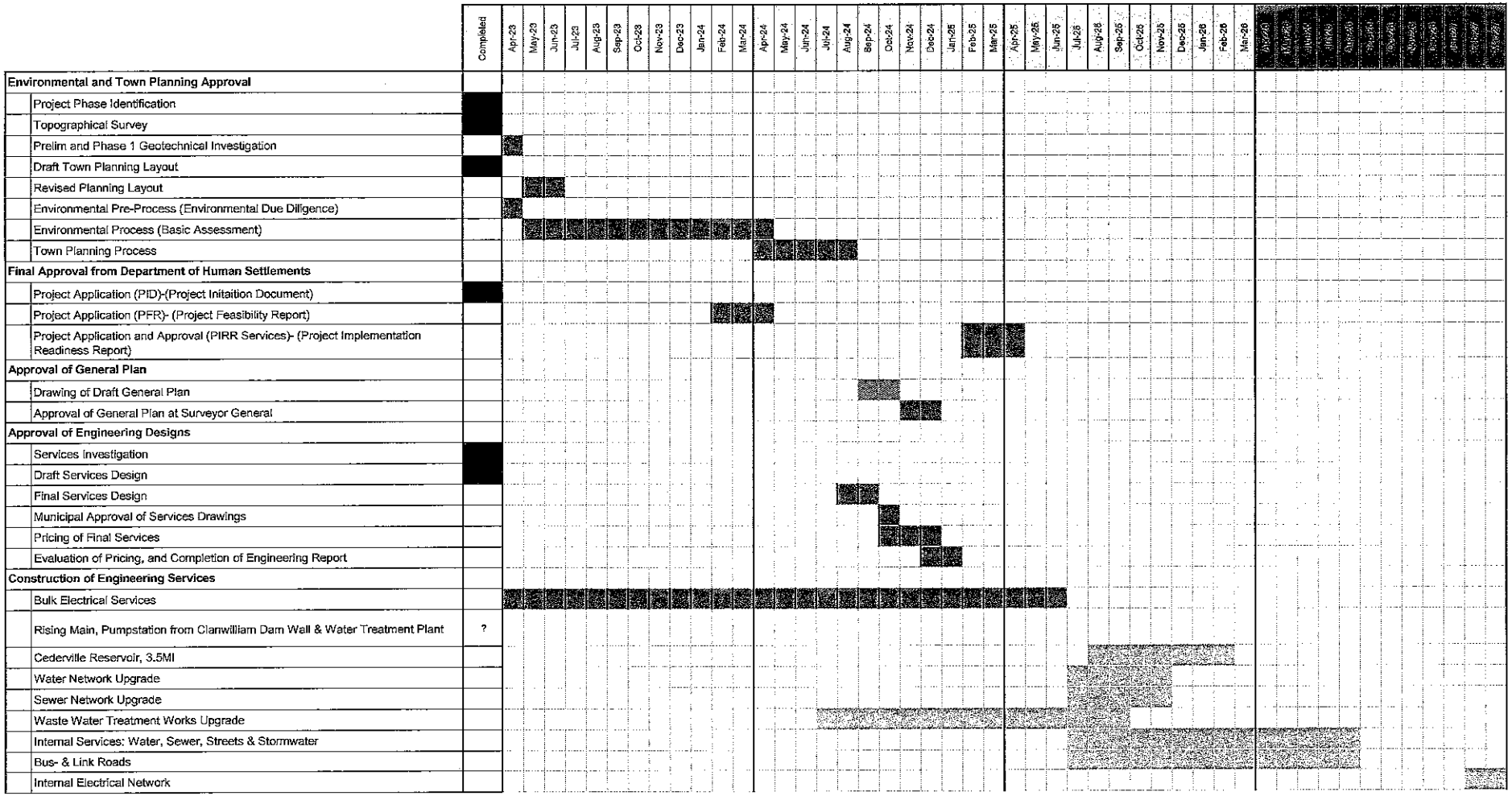
Please contact the undersigned should you have any queries or require more information.

Yours Faithfully

Mr. A Titus
Acting Municipal Manager
CEDERBERG MUNICIPALITY

DRAFT - CLANWILLIAM IRDP & UISP: PRELIMINARY PLANNING AND IMPLEMENTATION PROGRAM

MONTHS



ANNEXURE C - PROPOSED FUNDING MATRIX

	Proposed Bulk Services Required for housingpipeline in	GLS Report (Annexure B) GLS Figures	Estimated Value (inclusive of VAT)	Proposed Funding Sources					Proposed Financial Year of Implementation			
				MIG	WSIG	DOHS	RBIG	MUNICIPAL	23/24	24/25	26/27	27/28
1	Rising Main, Pumpstation from Clanwilliam Dam Wall & Water Treatment Plant	GLS Fig. 2 (Rev 1): Item: CCIW.B8 - New 95 l/s @ 90 m bulk Pump Station Item: CCIW.B9 - 945 m x 315 mm Ø new bulk supply pipe	R 14 761 558,17				x	x		RBIG application submitted. Municipal Contribution to be confirmed. Pumpstation to be moved in order for new dam wall to be constructed.		
2	Cederville Reservoir, 3,5Ml	GLS Fig. 2 (Rev 1): Item: CCIW.B1 - Additional 3,5 ML reservoir at Cederville reservoir site (position to be determined)	R 25 198 427,62			x					DOHS to be approached for funding of reservoir as reservoir is required only for proposed new housing developments.	
3	Water Network Upgrade	GLS Fig. 1: Item: CCIW2.1 - 220 m x 315 mm Ø new supply pipe Item: CCIW2.2 - 315 m x 315 mm Ø new supply pipe Item: CCIW2.3 - 170 m x 250 mm Ø new supply pipe Item: CCIW2.9 - 550 m x 160 mm Ø new supply pipe Item: CCIW2.10 - 300 m x 200 mm Ø new supply pipe	R 6 152 664,31	x				x			Mig Business Plan to be submitted for funding.	
4	Water Network Upgrade	GLS Fig. 2 (Rev 1): Item CCIW.B3 - 80 m x 200 mm Ø upgrade feeder main to Jan Rissik St	R 182 019,21	x				x			Mig Business Plan to be submitted for funding.	
5	New Sewer Pumpstation	GLS Fig. 3: Item CCIS4.2 - New Arture Pump Station CI2 Item CCIS4.3 - 810 m x 160 mm Ø new rising main	R 5 647 682,58	x								DOHS to be approached for funding of PS as it is required only for proposed new housing developments.
6	Sewer Network Upgrade	GLS Fig. 3: Item CCIS6.1 - 380 m x 450 mm Ø upgrade existing outfall sewer Item CCIS6.3 - 475 m x 525 mm Ø upgrade existing outfall sewer	R 7 873 833,65	x								Mig Business Plan to be submitted for funding.
7	Waste Water Treatment Works Upgrade (Estimated Total of all 3 Phases)	N/A	R 59 330 036,60									
7,1	Phase 1 - Refurbish existing works to accommodate UISP Project (Business Plan submitted to MIG, approval expected in first	R10 460 524,53		x					Business Plan submitted, approval expected in Q1/2023			
7,2	Phase 2 - First Phase of additional capacity (Business Plan submitted to WSIG, approval expected in first	R20 000 000,00			x					PH 1 Business plan submitted, approval expected in Q1 2023		
7,3	Phase 3 - Second Phase of additional capacity	R29 069 512,07			x						WSIG application to be submitted for PH2	
8	Bus- & Link Roads, inclusive of storm water systems.	N/A	To be confirmed after completion of planning process	x		x						Internal roads to be funded by DOHS. Extra over for additional width (4.5m vs. 6.4m) for internal bus route, to be funded from MIG. Link roads to be funded from Mig and possibly DOHS if approved.