

VUTHELA LED PROGRAMME



Vuthela

ILEMBE LED PROGRAMME

Project VILP/I/041

For

COMPREHENSIVE WATER & SEWER INFRASTRUCTURE INFORMATION UPDATE AND GAP ANALYSIS FOR
SELECTED AREAS AND PROCESS DOCUMENTATION ON INFRASTRUCTURE INFORMATION MANAGEMENT FOR
THE ILEMBE DISTRICT MUNICIPALITY

GAP Analysis

31 May 2023

 **esri** South Africa



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1. Background

Esri South Africa (*Esri*) was appointed as the service provider for contract VILP/I/041 titled **COMPREHENSIVE WATER & SEWER INFRASTRUCTURE INFORMATION UPDATE AND GAP ANALYSIS FOR SELECTED AREAS AND PROCESS DOCUMENTATION ON INFRASTRUCTURE INFORMATION MANAGEMENT FOR THE ILEMBE DISTRICT MUNICIPALITY** (*the Project*), under the Vuthela iLembe LED programme. The programme comprises five components. This appointment falls under the Municipal Infrastructure Component.

The purpose of the Project is to perform a comprehensive Water and Sewer infrastructure information update and gap analysis for selected areas within the iLembe District Municipality (*IDM*). A desktop study was undertaken to collect, clean, structure and store all data associated with Water and Sewer infrastructure within the Project Areas of Interest (*AOI*) as set out in the tender document. These areas are:

1. Groutville
2. Darnall
3. Padianager, Bondis Drift & Tugela SP from the Census Sub-places
4. Sundumbili
5. Mandeni
6. Isithebe Industrial
7. KwaDukuza urban proper

To avoid unnecessary Geographic gaps in the AOI's, Esri added two additional AOI's at their own accord. The project study areas are depicted in Figure 1 with the Added AOI's labelled accordingly. This document will focus on the GAP analysis that was performed within the study area and the added AOI's.

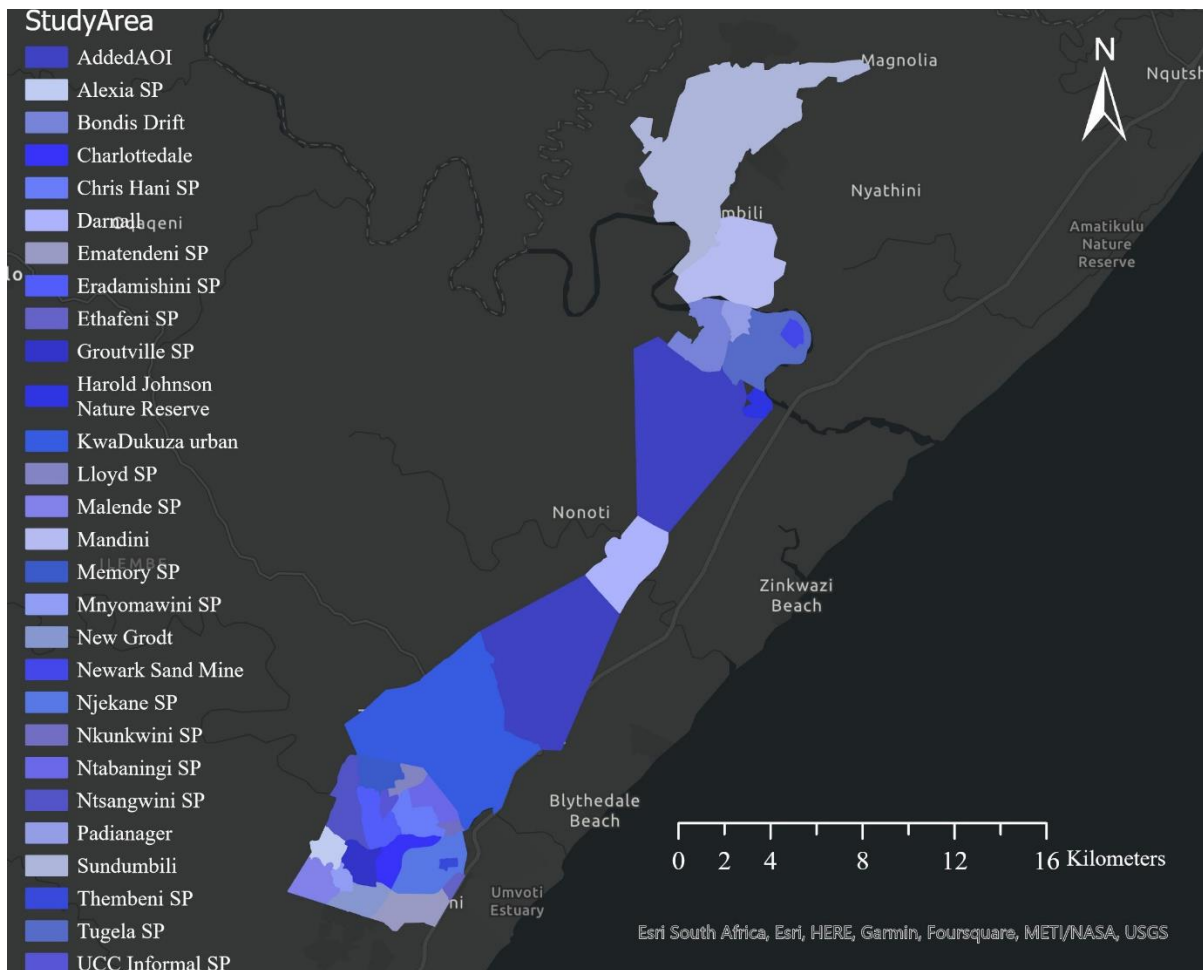


Figure 1: Project Study Areas

2. Objectives

A GAP analysis was performed to identify asset information that is present in the Fixed Asset Register (FAR) but not replicated in the GIS, and vice versa. Furthermore, the objective included to identify gaps in the GIS data that still needs to be sourced through data capturing and sourcing means, especially by physical surveys. Data available from IDM's hard copy and electronic drawing or GIS files were incorporated as far as possible.

The identified GAP will guide the IDM in updating both the FAR and GIS datasets to ensure one version of the truth is maintained. Further guidance will be provided on how to reconcile data between the GIS and the FAR.

3. GAP Analysis - Water

Table 1 shows the data gaps that were identified for Water Infrastructure Information between the FAR and GIS. As stated under section 1, the gaps only refer to the project study areas.

Table 1: Water Feature Class GAP

Water Feature Classes	FAR	GIS
Abstraction Works	✓	✓
Borehole	✓	✓
Break Pressure Tank	<i>New Feature Class for future capture of data</i>	
Bulk Meter	<i>New Feature Class for future capture of data</i>	
Bulk Water Pipeline	✓	✓
Consumer Connection	<i>New Feature Class for future capture of data</i>	
Dam	<i>No features identified within the study area</i>	
Plastic Tank	✓	✓
Reservoir	✓	✓
Spring	<i>No features identified within the study area</i>	
Standpipes	X	✓
Valve Chamber	<i>No features identified within the study area</i>	
Water Canal	<i>No features identified within the study area</i>	
Water Monitoring Point	<i>New Feature Class for future capture of data</i>	
Water Pump Station	✓	✓
Water Reticulation	✓	✓
Water Treatment Works	✓	✓
Weir	<i>No features identified within the study area</i>	

In total, 9 empty Water Feature Classes are present in the geodatabase, with no corresponding records that exist in the FAR. This GAP exists due to the reason that these features were either identified by the team as being assets that need to be captured in the future, or there were no existing features present in the study area. Those that possibly already exist on the ground have never been captured or capitalised prior to this project. It is recommended that these assets be identified within the Water Network, added to the geodatabase and the FAR, and capitalised.

With regards to the Standpipes Feature Class, there are spatial features in the geodatabase, but no corresponding asset information in the FAR.

For data in the FAR, a more granular analysis was performed to identify individual Facilities and Pipe Segments with no matching records in GIS. The section below provides further details on the data GAP that exists within the Study Area and added AOI's. Appendix A contains the names and unique esri_ids of Facilities and Pipe Segments extracted from the FAR for the GAP analysis that can be used in guiding subsequent data cleaning exercises (not part of this project). The tables below can be accessed through the excel file "GAP_Analysis_Vuthela 2023-02-14.xls" that forms part of this deliverable.

Table 2: Gap Analysis within the AOI (Water)

Dataset	Feature Class	Total	Present in GIS	Present in FAR	To be added to GIS	To be added to FAR
Water	Abstraction Works	5	4	1	1	4
Water	Borehole	30	0	30	30	0
Water	Plastic Tank	194	36	158	158	36
Water	Reservoir	103	59	82	44	21
Water	Pump Station	62	29	37	33	25
Water	Water Treatment Works	100	7	99	93	1
Water	Bulk Water Pipeline	41	4	41	37	0
Water	Water Reticulation	159	1	159	158	0

4. GAP Analysis – Sewer

Table 3 shows the data GAP that was identified for Sewer Infrastructure Information.

Table 3: Sewer Feature Class GAP

Sewer Feature Classes	FAR	GIS
Bulk Sewer Line	X	✓
Bulk Sewer Line Screen	<i>New Feature Class for future capture of data</i>	
Discharge Point	<i>New Feature Class for future capture of data</i>	
Manhole	X	✓
Monitoring Point	<i>New Feature Class for future capture of data</i>	
Outfall Sewer	✓	
Reticulation Sewer Line	X	✓
Sewer Pump Station	✓	✓
VIP's	X	✓
Wastewater Treatment Works	✓	✓

In total, 3 empty Sewer Feature Classes are present in the geodatabase, with no corresponding records that exist in the FAR. This GAP exists due to the reason that these features were either identified by the team as being assets that need to be captured in the future, or there were no existing features present in the study area. Those that possibly already exist on the ground have never been captured or capitalised prior to this project. It is recommended that these assets be identified within the Water Network, added to the geodatabase and the FAR, and capitalised.

With regards to the Manholes, Bulk Sewer Lines, Reticulation Sewer Lines and VIP's Feature Classes, there are spatial features in the geodatabase, but no corresponding asset information in the FAR.

For data in the FAR, a more granular analysis was performed to identify individual Facilities and Pipe Segments with no matching records in GIS. The succeeding paragraphs provide further details on the data GAP that exists within the Study Area and AOI's. Appendix A contains the names and unique esri_ids of Facilities and Pipe Segments extracted from the FAR for the GAP analysis.

Table 4 provides a summary of the GAP that exists.

Table 4: Gap Analysis within the AOI (Sewer)

Dataset	Feature Class	Total	Present in GIS	Present in FAR	To be added to GIS	To be added to FAR
Sewer	Outfall Sewer	10	0	10	10	0
Sewer	Pump Stations	39	27	31	12	8
Sewer	Wastewater Treatment Works	12	8	7	4	1

5. Appendix A

The below-mentioned tables can be accessed through excel under the following file names:

FAR as at 11 July 2022_Sewer_RC01_Sewer_Outfall.xls
FAR as at 11 July 2022_Sewer_RC02_Sewer_PumpStations.xls
FAR as at 11 July 2022_Sewer_RC03_Sewer_WWTW.xls
FAR as at 11 July 2022_Water_RC01_Water_AbstractionWorks.xls
FAR as at 11 July 2022_Water_RC02_Water_Borehole.xls
FAR as at 11 July 2022_Water_RC03_Water_BulkMains.xls
FAR as at 11 July 2022_Water_RC04_Water_PlasticTanks.xls
FAR as at 11 July 2022_Water_RC05_Water_Reservoirs.xls
FAR as at 11 July 2022_Water_RC06_Water_PumpStations.xls
FAR as at 11 July 2022_Water_RC07_Water_Reticulation.xls
FAR as at 11 July 2022_Water_RC08_Water_WTW.xls

5.1 Abstraction Works

Table 5: Abstraction Works FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
c9f655a9-53a9-4e7c-a367-4db87eb8d857	Run-off river abstraction Point Mvoti	Yes	No
11aebd42-e1b3-4b2b-8c87-d83254f0987b	Darnall Abstraction Point	Yes	No
8a9ea0dc-9532-47cc-813c-bc8606838f87	Sundumbili River Abstraction	Yes	No
5b25ff4b-1263-4e99-a32d-09b3b10c65ba	Sappi Abstraction	Yes	No
	Umvoti Water Abstraction Works	No	Yes

5.2 Borehole

Table 6: Borehole FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
	Balum Borehole	No	Yes
	Chili Shangase Borehole 1	No	Yes
	Chilie Changase Borehole 2	No	Yes
	Darnall (Sahamkhanya)	No	Yes
	Darnall Borehole 2 (Supermarket) Borehole	No	Yes
	Deda 1 Ward 5 Borehole	No	Yes
	Deda Nkivane Ward 5 Borehole	No	Yes
	Kaunda Borehole	No	Yes
	Kishore Borehole	No	Yes
	Kranskop 1 Borehole (Ntunjambili Community Borehole Mbileni Borehole)	No	Yes
	Kranskop 1 Borehole (Ntunjambili Embileni Bh)	No	Yes
	Kranskop 3 Borehole (Ntunjambili Community Borehole Gumtree Borehole)	No	Yes
	Kranskop 3 Borehole (Ntunjambili Gumtree Bh)	No	Yes

	Kranskop 3 Borehole (Ntunjambili -Gumtree Bh)	No	Yes
	Magwaza Borehole Pump	No	Yes
	Mandalay (Iida) Borehole	No	Yes
	Mnyeletele Borehole	No	Yes
	Mokano Borehole	No	Yes
	New Guelderland Borehole	No	Yes
	Ngcongcongca 2	No	Yes
	Ngcongcongca Borehole	No	Yes
	Nhlangakazi Borehole	No	Yes
	Nonoti Mouth Borehole	No	Yes
	Ntunjambili Borehole No.4 Kwam	No	Yes
	Ntunjambili Carwash Borehole	No	Yes
	Nyembeni Borehole	No	Yes
	Saddleridge Borehole	No	Yes
	Soweto Borehole	No	Yes
	Ts/11/2006 Nsuze Gcwensa Standpipe	No	Yes
	Wewe Borehole	No	Yes

5.3 Plastic Tank

Table 7: Plastic Tank FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
	Isithebe Jojo Tank	No	Yes
9fc33a9e-aca1-41b0-a1d5-7d4f37ecf40c	thokoza ward 7	Yes	No
a584f7a6-4ebd-40c5-91eb-cdb153878b8a	thokoza ward 7b	Yes	No
ea15a9e8-43ea-420d-a61d-d8fe6c0880d7	mathonsi kwasibiya ward 12	Yes	No
e746b364-79e8-4116-a540-972b4a8500b7	mathonsi gumede ward 12	Yes	No
9d74f643-2edc-451d-83bb-589ccf393be5	sithebe okhovothi ward 12	Yes	No
89e12afb-e10e-4506-b125-2402bfd25ae4	okhovothi mathonsi 1 ward 12	Yes	No
bdf2846a-070c-4708-a607-ee070ebfd064	okhovothi mlambo ward 12	Yes	No
79e60c58-d9cf-4aaa-8a34-0074b3624aa8	okhovothi ndimande ward 12	Yes	No
61722ea4-8faa-4de0-ad6e-34ca44e7ae83	masomongco mthembu ward 10	Yes	No
70027e73-6341-42b3-8db7-025af0c7ab67	masomonco kwasibiya ward 10	Yes	No
7650a13d-6cda-4bc6-8487-f33600d1fca1	masomonco nxumalo ward 10	Yes	No
b72ebaa8-52e2-41a9-b80b-58e6ed7fa9dd	eskhaleni tshangase ward 11	Yes	No
abf11e58-fa1d-407e-a90c-12e706345760	mambana ngema ward 11	Yes	No
18544bea-b933-4d8b-8449-e406fe8e346e	isithebe ngema ward 17	Yes	No
c0b29c17-2df4-44cb-bb77-aa1258b890a1	isithebe echibini ward 17	Yes	No
b1efa5cd-aedf-4f07-8a4f-174940ba679b	isithebe ndlovu ward 17	Yes	No
44483a28-9cea-4a8a-92ee-2277660bbce4	isithebe zulu ward 16	Yes	No

6187f116-43b1-4d57-833d-fe2e56a400f1	isithebe mathonsi ward 16	Yes	No
d86b6918-4ba1-4a30-bf36-93c935c03214	isithebe angola ward 16	Yes	No
9a02590d-e7ef-4f64-8240-cbc62e6070ad	isithebe angola2 ward 16	Yes	No
6dde29eb-d171-4182-bb4a-acacfb5f738b	isithebe ndlovu ward 16	Yes	No
70870d5e-8af8-4e24-b320-cc1fdad11b38	isithebe nene ward 16	Yes	No
3e71b523-c012-4de6-a17f-1bacd2edd379	isithebe cele ward 16	Yes	No
0e53957c-b9e8-437f-979e-4d5af139c8c0	isithebe gumede ward 16	Yes	No
874be379-c1e9-4a2b-adf4-969b7e366ae5	othini hlatshwayo ward 16	Yes	No
40471bc3-f10e-42e5-a580-4f2f88c4de43	emanzamnyama ngcabashe ward 16	Yes	No
a8e06c98-96af-4be1-be58-60897bbdafa6	manzamnyama mathe ward 16	Yes	No
5d156048-52f5-4e49-adcc-331440fc4de3	novasfarm masosha ward 4	Yes	No
a41f45a3-b346-4b8d-90a6-547ece12f7ad	novasfarm sugen ward 4	Yes	No
e97003b0-f14b-4ae4-a9c0-28209036f1b0	mandafarm ntombela ward 7	Yes	No
28f2deef-0fcb-44d1-b555-085a90fa794a	mandafarm makhoba ward 7	Yes	No
657583bf-b974-4f50-b08b-8a7e516ef908	mandafarm mabeshe ward 7	Yes	No
ec2904b5-4ec9-43f4-a2ed-277ea6bcb7a3	mandafarm gazu ward 7	Yes	No
d209e032-caa0-46bf-8c5c-2b6363501250	mandafarm ngema ward 7	Yes	No
967827f9-0c6f-4f96-a8bd-d8b6851b5656	mbizimbele ntuli - ward 1	Yes	No
bb35f5a4-f696-4670-96ff-da1b5f1be82d	Jojo Tanks - Balcom	Yes	No
	Nodwengu Jojo Tank # 3	No	Yes
	Mandeni Ward 10 Mantiyane	No	Yes
	Mandeni Ward 11 Thabethe	No	Yes
	Mandeni Ward 11 Qedumona Store	No	Yes
	Mandeni Ward 16 Mambane	No	Yes
	Mandeni Ward 17 Zulu Estolo	No	Yes
	Mandeni Ward 7 Manda Farm Ehlenzeni	No	Yes
	Mandeni Ward 8 Mhlongo Eplazini	No	Yes
	Mandeni Ward 2 Magwaza	No	Yes
	Mandeni Ward 3 Sibiya	No	Yes
	Mandeni Ward 4 Novas Farm	No	Yes
	Mandeni Ward 6 Nxele	No	Yes
	Mandeni Ward 6 Khumalo	No	Yes
	Ndwedwe Lm Ward 6 (Newspaper)	No	Yes
	Ndwedwe Lm Ward 6 (Ngcongcongga)	No	Yes
	Ndwedwe Lm Ward 7 (Ntola)	No	Yes
	Ndwedwe Lm Ward 7 (Zakheni)	No	Yes
	Ndwedwe Lm Ward 8 (Sdumbini)	No	Yes
	Ndwedwe Lm Ward 8 (Maqongwane)	No	Yes
	Ndwedwe Lm Ward 8 (Sdumbini Maqongwane)	No	Yes
	Ndwedwe Lm Ward 9 (Nondabula)	No	Yes
	Ndwedwe Lm Ward 9 (Montobello)	No	Yes
	Ndwedwe Lm Ward 10 (Ezigudeni)	No	Yes
	Ndwedwe Lm Ward 10 (Magongolo)	No	Yes

	Ndwedwe Lm Ward 10 (Nkombanyuswa)	No	Yes
	Ndwedwe Lm Ward 10 (Dikwayo)	No	Yes
	Ndwedwe Lm Ward 10 (Ntabaskop)	No	Yes
	Ndwedwe Lm Ward 10 (Ezigudeni)	No	Yes
	Ndwedwe Lm Ward 11 (Manqondo E)	No	Yes
	Ndwedwe Lm Ward 11 (Manqondo)	No	Yes
	Ndwedwe Lm Ward 11 (Estulweni)	No	Yes
	Ndwedwe Lm Ward 11 (Gospel)	No	Yes
	Ndwedwe Lm Ward 11 (Mashiyamahle)	No	Yes
	Ndwedwe Lm Ward 11 (Mlandeleni)	No	Yes
	Ndwedwe Lm Ward 11 (Mayika)	No	Yes
	Ndwedwe Lm Ward 11 (Ntathakusa)	No	Yes
	Ndwedwe Lm Ward 12 (Hloniphani)	No	Yes
	Ndwedwe Lm Ward 12 (Khohlwa)	No	Yes
	Ndwedwe Lm Ward 12 (Gedleni)	No	Yes
	Ndwedwe Lm Ward 13 (Oqalweni)	No	Yes
	Ndwedwe Lm Ward 13 (Mona)	No	Yes
	Ndwedwe Lm Ward 14 (Ndodembi)	No	Yes
	Ndwedwe Lm Ward 14 (Nompande)	No	Yes
	Ndwedwe Lm Ward 15 (Kophewa)	No	Yes
	Mandeni Ward 8 Mthembu Lambothi	No	Yes
	Mandeni Ward 7 Ngakwa Mhlanga	No	Yes
	Mandeni Ward 7 Makhathini	No	Yes
	Mandeni Ward 7 Mthimkhulu Inyanga	No	Yes
	Mandeni Ward 2 Nkwanyana Olwandle	No	Yes
	Mandeni Ward 2 Khanyile	No	Yes
	Maphumulo Lm	No	Yes
	Mandeni Ward 3 Msweli	No	Yes
	Mandeni Ward 2 Ntuli Induna	No	Yes
	Mandeni Ward 2 Mzimela	No	Yes
	Mandeni Ward 2 Bhengu Mhlubulweni	No	Yes
	Mandeni Ward 2 Shandu Nkabiziyenqena	No	Yes
	Mandeni Ward 2 Ntombela Manyandwini	No	Yes
	Mandeni Ward 2 Shandu Phesheya Kwenyoni	No	Yes
	Mandeni Ward 12 Ndimande	No	Yes
	Mangethe Spring Protection	No	Yes
	Mhlubulweni Spring Protection	No	Yes
	Ndwedwe Lm Ward 16 (Egweni)	No	Yes
	Ndwedwe Lm Ward 16 (Wosiyane)	No	Yes
	Ndwedwe Lm Ward 16 (Cibane)	No	Yes
	Ndwedwe Lm Ward 17 Engonweni)	No	Yes

	Ndwedwe Lm Ward 18 (Shangase)	No	Yes
	Ndwedwe Lm Ward 18 (Khulani Creche)	No	Yes
	Ndwedwe Lm Ward 19 (Mahedeni)	No	Yes
	Ndwedwe Lm Ward 19 (Mantingwan)	No	Yes
	Kwadukuza Lm Ward 5	No	Yes
	Kwadukuza Lm Ward 21 (Driefontein)	No	Yes
	Kwadukuza Lm Ward 25	No	Yes
	Kwadukuza Lm Ward 26	No	Yes
	Kwadukuza Lm Ward 27 (Ensikeni)	No	Yes
	Kwadukuza Lm Ward 27 (Ensikeni)	No	Yes
	Kwadukuza Lm Ward 28	No	Yes
	Kwadukuza Lm	No	Yes
	New Guelderland Jojo Tank	No	Yes
	Kwadukuza Lm-Schools	No	Yes
	Mandeni Ward 2 Bhodoza	No	Yes
	Mandeni Ward 2 Mthaleni Vd	No	Yes
	Mandeni Ward 3 Mayise	No	Yes
	Mandeni Ward 16 Lindayiphi Vd - Swidi Near Mcineka	No	Yes
	Mandeni Ward 18 Emakhempini Hall Ndovela.	No	Yes
	Mandeni Ward 2 Mthembu	No	Yes
	Mandeni Ward 2 Ntuli	No	Yes
	Mandeni Ward 17 Ezansi Kwe Clinic	No	Yes
	Mandeni Ward 17 Angola	No	Yes
	Mandeni Ward 16 Zulu Echibini	No	Yes
	Ndwedwe Lm	No	Yes
	Mandeni Ward 1 Bhuyeni	No	Yes
	Mandeni Ward 1 - Masuku	No	Yes
	Mandeni Ward 1 Nxumalo	No	Yes
	Mandeni Ward 1 Ngema	No	Yes
	Mandeni Ward 1 Shandu Ethafeni	No	Yes
	Mandeni Ward 1 Dube Enqutshini	No	Yes
	Mandeni Ward 12 Mathonsi E Zone Area	No	Yes
	Mandeni Ward 12 Eskhaleni Kwa Thoko	No	Yes
	Ndwedwe Lm Ward 5 (Nambi Town)	No	Yes
	Ndwedwe Lm Ward 3 (Petezi)	No	Yes
	Ndwedwe Lm Ward 3 (Sani)	No	Yes
	Ndwedwe Lm Ward 4 (Ngcongcongga)	No	Yes
	Ndwedwe Lm Ward 4 (Eziketshini)	No	Yes
	Ndwedwe Lm Ward 5 (Sogidi)	No	Yes
	Ndwedwe Lm Ward 1 (Ntontonto)	No	Yes
	Ndwedwe Lm Ward 1 (Ko 40)	No	Yes

	Ndwedwe Lm Ward 2 (Wewe Gcwensa Hall)	No	Yes
	Ndwedwe Lm Ward 3 (Bhidakhona)	No	Yes
	Maphumulo Lm Ward 10 (Nzikinziki Ntombehlulanina)	No	Yes
	Maphumulo Lm Ward 11 (Mnyameni Nothweni)	No	Yes
	Ndwedwe Lm Ward 1 (Ofanteni)	No	Yes
	Ndwedwe Lm Ward 1 (Emseni)	No	Yes
	Maphumulo Lm Ward 9 (Phakade)	No	Yes
	Maphumulo Lm Ward 9 (Khulambedu)	No	Yes
	Maphumulo Lm Ward 9 (Sayizi)	No	Yes
	Maphumulo Lm Ward 8 (Hlonono Mambedu)	No	Yes
	Maphumulo Lm Ward 7 (Wome)	No	Yes
	Maphumulo Lm Ward 7 (Fundani)	No	Yes
	Maphumulo Lm Ward 7 (Qomintaba)	No	Yes
	Maphumulo Lm Ward 6 (Mashayinyani Mabomvini)	No	Yes
	Maphumulo Lm Ward 5 (Thafamasi Kwamxhosa)	No	Yes
	Maphumulo Lm Ward 4 (Mshukangubo Mvumase)	No	Yes
	Maphumulo Lm Ward 3 (Mbusweni Mqokolweni)	No	Yes
	Maphumulo Lm Ward 1 (Wosi Egroundini)	No	Yes
	Maphumulo Lm Ward 2 (Oshikishini Sondokhulu)	No	Yes
	Mandeni Lm Ward 18 (Shandu Creche Vd-Welcome Store)	No	Yes
	Mandeni Lm Ward 18 (Shandu Creche Vd - Welcome Store)	No	Yes
	Mandeni Lm Ward 17 (Isithebe Vd-Welcome)	No	Yes
	Mandeni Lm Ward 17 (Nongoma Vd-Xulu)	No	Yes
	Mandeni Lm Ward 16 (Hlanganani Vd-Mkhize)	No	Yes
	Mandeni Lm Ward 16 (Hlanganani Vd - Masuku Mathe)	No	Yes
	Mandeni Lm Ward 12 (Mandeni School Vd-Dlamini)	No	Yes
	Mandeni Lm Ward 11 (Magundanenvd-Shezi)	No	Yes
	Mandeni Lm Ward 11 (Magundaneni Vd-Magwaza)	No	Yes
	Mandeni Lm Ward 11 (Magundaneni Vd-Ngcobo)	No	Yes
	Mandeni Lm Ward 10 (Mathonsi Vd-Sithebe Khenani)	No	Yes
	Mandeni Lm Ward 9 (St Patricks-Mzimela)	No	Yes

	Mandeni Lm Ward 9 (Ndondandakuvd-Ngiba)	No	Yes
	Mandeni Lm Ward 9 (Bambinkunzivd-Zamukwenza)	No	Yes
	Mandeni Lm Ward 8 (Vonono Vd - Ngcobo)	No	Yes
	Mandeni Lm Ward 8 (Vonono Vd - Sibiya)	No	Yes
	Mandeni Lm Ward 8 (Lambothi Vd-Selepe)	No	Yes
	Mandeni Lm Ward 6 (Evutha Vd-Mnyandu)	No	Yes
	Mandeni Lm Ward 6 (Evutha Vd-Mhlongo)	No	Yes
	Mandeni Lm Ward 6 (Evutha Vd - Mtshali)	No	Yes
	Mandeni Lm Ward 6 (Sikhonyanavd-Khuzwayo)	No	Yes
	Mandeni Lm Ward 3 (Lomo Vd)	No	Yes
	Mandeni Lm Ward 1 (Mhlubulwenivd-Ntuli)	No	Yes
	Mandeni Lm Ward 1 (Ngulule Vd-Mzimela)	No	Yes
	Mandeni Lm Ward 1 (Dokodweni Vd-Mthembu)	No	Yes
	Mandeni Lm Ward 1 (Nqutshini Vd-Ntuli)	No	Yes
	Mandeni Lm Ward 1 (Nqutshini Vd-Dube)	No	Yes
	Mandeni Ward 9 Mkhize Mhlubulweni	No	Yes
	Mandeni Ward 9 Emakhwanini	No	Yes
	Mandeni Ward 8 Dlula Ebar Thengela	No	Yes
	Mandeni Ward 8 Jika Evonono Bar	No	Yes
	Mandeni Ward 6 Oqaqeni	No	Yes

5.4 Reservoir

Table 8: Reservoir FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
01a1015d-1ae5-48b6-b8ac-f5c4cd51c047	Stanger Saunder Street Reservoirs	Yes	Yes
0cb155ad-ea3d-4a92-8c28-8f67e39d945e	Sappi Clear Water Reservoir	Yes	No
11979c96-dff8-44d8-8476-692d7e642559	Loyds Reservoir - Priority 1	Yes	Yes
1ac81502-4ed4-4d27-8590-1be09577e278	Saddle Ridge Reservoir & Booster Pump Station	Yes	Yes
1c344b19-cbdf-48da-9f2c-24f112b5b789	Soweto Reservoir	Yes	Yes
1cbc7c96-ce9f-4cd7-b3b4-1a6b0afbbabf	Blythedale Feeder Reservoir	Yes	Yes

1d211184-f80f-404b-b809-bc769d0b2fc1	Stanger Town View Reservoir	Yes	Yes
2098a77f-2f5d-4de2-b312-7d76c14d8100	Stanger Gledhow South Reservoir	Yes	Yes
36214b80-1a27-471f-b4ee-45c76653ac1b	Stanger Manor Reservoirs	Yes	Yes
37372f86-330b-44a7-b84e-7b67f366eed5	Clear Water Storage	Yes	No
3746a9b9-862d-4a16-a7c4-7a98ef788ec6	Masomonco Reservoir	Yes	Yes
39109e23-df5b-4cf8-8513-1412d16dc904	Darnall Reservoir	Yes	No
3d4d8077-bb09-4af2-acfa-05a4a41a4138	Stanger Warrenton Reservoirs	Yes	Yes
405c6aea-3761-4188-aaa0-59195f7c0aef	Impunzi Reservoir	Yes	No
43f5bfa6-54c7-44ea-836e-8760c2903d6b	Sappi Settle Water Tank	Yes	No
4b1dc65c-1eb1-409d-af2c-b091c3e9a8ae	Apphantshana Reservoir	Yes	Yes
4de41d3a-7cdf-47ff-82c6-6edff44111de	Machibini/Dunga School Reservoir	Yes	Yes
5171feeb-80b5-47ae-bde4-3a48cfb58c3f	Stanger Ext 46 Lindelani Reservoir	Yes	Yes
6ecc1a00-58d1-4b39-b879-3eb2a148f465	Stanger High Ridge Reservoir	Yes	Yes
71c5ca7d-0a66-4082-900b-acd39ef02711	Sundumbili Reservoir B	Yes	Yes
74b27cc0-f5e1-42c0-8g1e-d2220h5e95fc	Lower Thukela South Reservoir	Yes	No
74b57cc0-f5e8-42c0-8d1e-d2220f5e98fc	Darnal Sugar Mill Reservoir	Yes	No
75957a0c-ca0a-4700-8dba-7a9ce5967560	Lot 16 Elevated Steel Reservoir	Yes	Yes
7da3413b-cfa5-4c27-9e7a-4f6263f38db6	Reservoir B	Yes	No
7dc4773f-3a6b-4f72-9737-7b2405ddba5f	Sappi Reservoir	Yes	No
7f0e7e7e-7d7b-4ce4-aaaf-f3c47ce26594	Blythedale Intermediary Reservoir	Yes	Yes
87c6dce9-b10f-4f01-8825-4004ecb01dbb	Sundumbili Reservoir A	Yes	Yes
8c76dcd2-1970-4e52-ba40-cc16d20925be	Amanda Reservoir	Yes	Yes
8d19f96d-85ea-4ddd-924a-375c887f099c	Palm Lakes Reservoirs	Yes	Yes
8d19f96d-85ea-4ddd-924a-375c887f099c	Palm Lakes Concrete Reservoir	Yes	Yes
9ad97d21-8e57-4a70-a085-96b5302c6140	Sithole Reservoir	Yes	No
a340d7d2-f5b7-494f-b41c-2c6ff9e33bad	Rocky Ridge Reservoir	Yes	Yes
a418947c-e574-4d14-9aaf-bb98c93dcd92	Dube Village Reservoir	Yes	Yes
aa7c35dc-5160-498b-b759-17f2aa1aad7	Stanger Shakaville Reservoir	Yes	Yes
ac877c68-3735-4bb1-a6be-96cedd7d0eed	Stanger Kearsney Reservoirs	Yes	Yes
afa19483-f71f-42f6-9af0-7316df35e1bf	Stanger Gledhow North Reservoirs	Yes	Yes

afb40ec9-23cd-42a7-b618-3fb6a2444e17	Springbok Tower Reservoir	Yes	Yes
b20153b4-270f-4d4e-93f0-9cab88c9d414	Isithebe Pump Station - Reservoir C	Yes	Yes
b20153b4-270f-4d4e-93f0-9cab88c9d414	Isithebe Reservoir C	Yes	Yes
b9228edf-6c2d-4c5c-8043-2eba5eb1ff51	Blythedale Reservoir	Yes	No
c57115c5-630b-4883-803d-7c81c311aae9	Stanger Tanks Reservoir	Yes	No
c849c053-b0ab-4e1b-8ef5-abf281fc8829	Warrenton Reservoir	Yes	No
cdd9850a-cbf2-4ef0-a444-b7740c979fd9	Lushaba Reservoir	Yes	Yes
cde9850a-ccf2-4ef0-a344-b7740c979fd1	Malende Elevated Steel Reservoir	Yes	Yes
cde9850a-ccg2-4ef0-b344-c7710c979fd1	Supply Area 1 Reservoir	Yes	Yes
d9ae0700-a2c0-4959-8623-78b04a6f898b	Reservoir A	Yes	No
e322213d-8135-4b9b-a3f5-7ea8fee0a36b	Reservoir	Yes	No
eg369fcb-b02c-4b87-95a5-bcgd4e551f7f	Hangoes Elevated Tank	Yes	Yes
f0b23a22-997b-459e-9c6e-49048424962d	Mvoti Balancing Reservoir	Yes	Yes
f0b23a22-997b-459e-9c6e-49048424962d	Umvoti Balancing Reservoirs	Yes	Yes
f1b56087-2a2c-4d12-9d50-637af86f21f8	Enembe Reservoir	Yes	Yes
f2cdc3dd-f887-43be-95e9-5ac3cfa51cdc	Nyoni Reservoir	Yes	Yes
f0b23a11-997b-443e-9c6e-49044524964e	Padianagar Reservoirs	Yes	Yes
	Nkwambase Reservoir # 7	No	Yes
	Wosiyane Mqewu 1 Res/Ps	No	Yes
	Dvuba Reservoir	No	Yes
	Kwamxhosa Reservoir	No	Yes
	Deda Reservoir	No	Yes
	Wosiyane Chamane Reservoir & Pump Station	No	Yes
	Nsikeneni Borehole	No	Yes
	Bhidakhona Reservoir	No	Yes
	Ngcongcongong Reservoir 0.2 MI	No	Yes
	Gogovuma/Luthuli 1 Reservoir	No	Yes
	Khenana Reservoir	No	Yes
	Ts 36 Reservoir	No	Yes
	Bell Farm Reservoir & Ps	No	Yes

	Phambela Reservoir	No	Yes
	Nomqongqotho Reservoir 1 (Name Changed From Nomqongqotho Reservoir)	No	Yes
	Osabeni Reservoir	No	Yes
	Wosiyane Mathabatha Reservoir	No	Yes
	Sangweni Reservoir	No	Yes
	Mphise Kwahlongwa High Level Reservoir	No	Yes
	Engididi Reservoir	No	Yes
	Kwashelembe Reservoir And Booster Pumpstation	No	Yes
	Ohwebede/Mazitapele Reservoir	No	Yes
	Nombokojwane Reservoir A And Pump Station	No	Yes
	Ngcongcongca 2	No	Yes
	Nomqongqotho Reservoir 2 (Name Changed From Msomi 2)	No	Yes
	Madungelwa Raw Water Reservoir	No	Yes
	Ndulinde 2 Reservoir	No	Yes
	Nsimbini Reservoir	No	Yes
	Robert Farm Reservoir	No	Yes
	Nonoti Bulk Pipeline	No	Yes
	Ocheni Reticulation	No	Yes
	Pipeline (Bulk) From Embonisweni Reservoir To Mgigimbe Ts/132/2015 Reservoir	No	Yes
	Pipeline From Ts/38/2011 To Ts/39/2011 & Ts/110/2012/Driefontein	No	Yes
	Pipeline From Umgeni Pipe To Ts/63/2012/Lushaba/Embonisweni Reservoir	No	Yes
	Pipeline From Bell Farm Rests/38/2011 To Robert Farm Rests/39/2011 & Driefonten Ts/110/2012	No	Yes

	5MI Reservoir At Sauns Souci	No	Yes
	Kwanombokojwane 50KI Concete Reservoir A2	No	Yes
	Nondabula Steel Elevated Tank	No	Yes
	Inyoni Housing Development. Canan Res 1	No	Yes
	Inyoni Housing Development. Canan Res 2	No	Yes
	Esidumbini 1MI Steel Prefabricated Reservoir	No	Yes
	2.4MI Prefabricated Steel Reservoir At Umgeni Res3	No	Yes
	2.4MI Prefabricated Steel Reservoir At Umgeni Res4	No	Yes
	Addington Farm Reservoir (Ward	No	Yes

5.5 Water Pump Station

Table 9: Water Pump Station FAR and GIS GAP

esri_id	Facility ID Modified	GIS	FAR
0352d86c-072e-4468-adc4-58b3e88674e3	Darnall	Yes	No
844314c4-0904-47c0-957f-0ec6ab358500	Gledhow Water Tower Substation	Yes	No
8951facb-745e-4bed-a7d1-01bb55f22a4c	Honolulu-Mvoti Pump Station	Yes	No
cc21c42d-a38f-4c4d-a2d6-f7d52d9dc7d6	Impunzi Rd Pump Station	Yes	No
7b2c070a-171a-4d4c-9aa0-a50701345738	Rain Water Intake	Yes	No
35f69f61-d792-43c7-9522-1778cc41f25f	Reservoir A	Yes	No
99ee1b32-c005-4277-82ed-73ddedd0ad04	Reservoir B	Yes	No
1032c2f9-1eec-49c4-868d-668d18c9a997	Saunders Street Pump Station No. 1	Yes	No
3ce9f122-b176-42b1-9d46-4f0e47663b3e	Saunders Street Pump Station No. 2	Yes	No
0129ebc7-c0e4-4a38-ac9c-0d8bb10029d2	Saunders Street Pump Station No. 3	Yes	No
27d48bd3-5fb7-4974-bfa5-2bd25d2cd9ab	Saunders Street Pump Station No. 4	Yes	No
34921047-205b-4f6f-acdc-54ea57818962	Stanger Manor Pumpstation	Yes	Yes
d63e9002-0fd9-4de0-97ae-6a33296fcee8	Stanger Tanks Pump Station	Yes	No
f0b23a22-997b-459e-9c6e-49048424962d	Umvoti Balancing Reservoirs/Memorial	Yes	Yes
86e6c7c0-2385-40d9-92cd-8b8e628bfd09	Warrenton Pump Station	Yes	Yes

98cbd3b5-1de6-1114-9efb-284842bfd329	High View Park Pump Station	Yes	Yes
	Malende Booster Pump Station No 2	No	Yes
	Malende Booster Pump Station No 1	No	Yes
	Mpunzi Pump Station	No	Yes
	Mandeni Water Treatment Plant Pump Station	No	Yes
	Masomonco Reservoir New Pumpstation	No	Yes
	Nomqongotho Reservoir 2 (Name Changed From Msomi 2)	No	Yes
	Kwashelembe Reservoir And Booster Pumpstation	No	Yes
	Gogovuma/Luthuli 1 Reservoir	No	Yes
	Kwadukuza (Ward: 5) Lindelani Pumpstation No1	No	Yes
	Lindelani (Ward 5) Pump Station No 1	No	Yes
	Nonoti Pump Station No: 02	No	Yes
	Kwadukuza (Ward: 5) Nonoti Pump Station No2	No	Yes
	Nondabula Pump Station	No	Yes
	Inyoni Housing Development Canan Pumpstation	No	Yes
	Kearsney Pump Station	No	Yes
	Montebello Abstraction	No	Yes
	Stanger Kearsney Reservoirs/ Kearsney Pump Station Ts/165	No	Yes
	Aldinville Booster Pump Station	No	Yes
	Ts25 Pump Station	No	Yes
	Esidumbini/Gugu(Cinic) Pumpstation	No	Yes
	Super Grey Booster Ps	No	Yes
	Gogovuma/Luthuli 2 Booster Pump	No	Yes
	Sakhamkhanya Pump Station	No	Yes
	Nkwambase Pump Station (Ward 1	No	Yes
	Ngcamu/Sonkombo Pump Station (No	Yes
	Montobello Raw Water Abstracti	No	Yes
	Montobello Raw Water Booster P	No	Yes
	Bell Farm Reservoir & Ps	No	Yes
	Mkhovini Booster Pump Station	No	Yes

	Stanger Kearsney Reservoirs/ K	No	Yes
	Madungela Abstraction Pump	No	Yes
	Mayelisweni Abstraction	No	Yes
	Ezikoshini Phambela Phase 2	No	Yes

5.6 Water Treatment Works

Table 10: Water Treatment Works FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
1cb6e719-8080-4c41-a7e4-8a22620377c7	Tugela Water Treatment Plant	Yes	Yes
7bdd0c8c-e0d3-42bb-a374-32802d32371b	Sundumbili Water Treatment Plant	Yes	Yes
554ee7b2-df3e-4731-9560-7a71a6c4c5c5	Mandeni Water Treatment Plant	Yes	Yes
829d97b4-b9fd-43g0-9df2-1280470z4c11	Lamela Package Plant	Yes	Yes
318b97d3-b1fd-11h2-9df2-01230481z4c11	Mandeni Water Treatment Plant Pump Station	Yes	Yes
819d97b4-b9ed-43b0-9df2-1280470f4c16	SAPPI Works	Yes	No
f9e8258b-df30-4310-a0c6-87c277964003	Umvoti Water Treatment Works	Yes	Yes

5.7 Bulk Water Pipeline

Table 11: Bulk Water Pipeline FAR and GIS GAP

esri_id	Facility ID	GIS	FAR
9921ef00-1067-4022-84d0-4d8e1140bb6e	Gravity Mains 450Mm-250Mm From Rocky Ridge To Owhebede/Mazitapele	Yes	Yes
	Embonisweni Lushaba Reservoir To Myundunini Groutville Kdm	No	Yes
	Pipeline From Embonisweni Reservoir To Nyundini Village	No	Yes
	315M Pvc Bulk Pipeline From Reservoir B To Amanda Reservoir	No	Yes
428dbb5a-8ff9-4f76-882e-accfbb54926c	355Mm Dia Pipeline From Umgeni Pipeline To Nyathikazi Reservoir To Christopher Reservoir/Sakhamkhany	Yes	Yes
	500Mm Dia Pipeline From Umgeni Pipeline To Nyathikazi Reservoir To Christopher Reservoir/Sakhamkhany	No	Yes
	Mpvc Andhdpe Pipelines - Kwadukuza - Cbd-Newtown	No	Yes
	Pipeline From Highridge Reservoir To Falwys Ts/166/2016	No	Yes
	Pipeline From Sundumbili Reservoir A To Mandeni Water Treatment Works/Plant	No	Yes
51b0a087-3ec0-4f7b-b744-621547711f53	Pipeline From Offtake 6 Umgeni Pipeline To Sithole Reservoir Near Soweto Reservoir	No	Yes

	Sithole Reservoir Near Soweto Reservoir Ts/171/2016	No	Yes
	Chilli Shangase Pump Station	No	Yes
	710 Od Hdpe Pipeline 2100M Long From Mandeni Wtw To Sundumbili Reservoir A Phase 2 (Ward 5;7;12&3)	No	Yes
	Kwanombokojwane Ward 6 Reticulation	No	Yes
6607f706-3464-46b1-99aa-fefedc2ee4e3	Kwadukuza R102 Offtake To Lindelani Pump Station Bulk Pipeline 200Mm Dia	Yes	Yes
	Kwadukuza R102 Offtake To Lindelani Pump Station Pipeline 355Mm Dia	No	Yes
	Fawsley Park To High Ridge Reservoir Bulk Water Pipeline	No	Yes
	Nondabula Water Supply Scheme	No	Yes
	Inyoni Housing Development	No	Yes
	Pipeline From Hlimbithwa 1 To Sindi Area	No	Yes
	Bulwer Farm Scheme	No	Yes
	Mandeni Wtw To Tugela P.S. 300 Od Opvc Pumping Main	No	Yes
	Rising Main Mandeni Water Treatment Works To Rocky Ridge Reservoir	No	Yes
	Nsuze Wtw To Dalibo Res Pipeline	No	Yes
	Pumping Main Ts25 Res To Sogidi Res	No	Yes
	Esidumbini Pipelines	No	Yes
	Matholamnyama P.S. To Matholamnyama Reservoir Pumping Main	No	Yes
	Matholamnyama Scheme And Luthuli	No	Yes
	Bulk Pipeline From Stanger High Ridge Reservoir To Warrenton Reservoirs To Shakaville Reservoirs	No	Yes
	Bulk Pipeline From Umgeni Cham	No	Yes
	Sakhamkhanya Pump Station	No	Yes
	Bulk Gravity Mains Zone Fl & M	No	Yes
	Bulk Mains Zone Ao Nkoluvuzane	No	Yes
	1Km X 160Mm Diameter Upvc Bulk Gravity Main From Umgeni Reservoir 3 To Nkwambase Pump Stat	No	Yes
	1.75Km X 150Mm Dia Steel Bulk Pumping Main From Nkwambase Pump Station To Ngcamu Reservoir	No	Yes

	3.7Km X 150Mm Dia Steel And 4.5Km X 160Mm Dia Upvc Bulk Pumping Main From Ngcamu Pump Stat	No	Yes
	Raw Water Pipeline Upgrade: 0.9Km Of Nd150Mm Steel Pipeline From Montobello Raw Water Abst	No	Yes
	Macambini Bulk Pipeline	No	Yes
	Tie In Chamber Near Total Garage	No	Yes
	Mandini Wtw Bulk Waterpipeline In Mandeni Urban	No	Yes
	Sundumbili Wtwbulk Waterpipeline In Mandeni Urban	No	Yes

5.8 Water Reticulation

Table 12: Water Reticulation FAR and GIS GAP

esri_id	Pipe Segment ID	GIS	FAR
498c991f-7efa-4957-80b9-d013e3131130	Kwanombokojwane Ward 6 Reticulation	Yes	Yes
	Ndwedwe - Montebello Reticulation	No	Yes
	Ilembe District Municipality	No	Yes
	Wosiyane River Abstraction To Wosiyane Mqewu 1 Reservoir & Ps	No	Yes
	Magwaza Borehole Pump To Magwaza Steel Elevated Tank	No	Yes
	Ntshawini Bulk Pipeline	No	Yes
	Malende 1 Water	No	Yes
	High Ridge	No	Yes
	Stanger - Ohlange Reticulation	No	Yes
	Maphumulo - Emabomvini Reticulation	No	Yes
	Sancouci	No	Yes
	Ndwedwe - Ezikotshini Reticulation	No	Yes
	Ndwedwe Ward 18 Kwashangase Reticulation	No	Yes
	Ndwedwe - Madundube Reticulation	No	Yes
	Ntshawini Township	No	Yes
	Sancouci Water Treatment	No	Yes
	Mqeko 01	No	Yes

	Ndwedwe - Waterfall Reticulation	No	Yes
	Ndwedwe - Ntabaskop Reticulation	No	Yes
	Ndwedwe - Ntabaskop Bulk Pipeline	No	Yes
	Ndwedwe - Toti	No	Yes
	Ndwedwe - Toti Reticulation	No	Yes
	Stanger - Sokesimbone Reticulation	No	Yes
	New Guelderland Borehole	No	Yes
	Borehole G2 To Reservoir G (Oqaqeni Near Clinic)	No	Yes
	Mthandeni River Pump	No	Yes
	Stanger Industrial	No	Yes
	Hangosi Reservoir & Ps To Hangosi Steel Elevated Tank	No	Yes
	Ndwedwe - Esilengeni Reticulation	No	Yes
	Ndwedwe - Nsikeneni Reticulation	No	Yes
	Kwamagwaza Area	No	Yes
	Keasney Pumpstation	No	Yes
	Ndwedwe - Glendale Reticulation	No	Yes
	Melville Township	No	Yes
	Chili Shangse Area	No	Yes
	16502 Thethandaba Pump1&2	No	Yes
	16506 Mbitane Pump05	No	Yes
	Ndwedwe - Magwaza Reticulation	No	Yes
	Ndwedwe Wosiyane Mathabatha Reticulation	No	Yes
	Ndwedwe - Bhidakhona Reticulation	No	Yes
	Ndwedwe Wosiyane Reticulation	No	Yes
	Maphumulo - Thafamasi Reticulation	No	Yes
	Ndwedwe - Lihlithemba Reticulation	No	Yes
	Chili Shangase Area	No	Yes
	Ndwedwe - Lihlethemba Reticulation	No	Yes
	16504 Mbitane Pump03	No	Yes
	16505 Mbitane Pump04	No	Yes

	Maphumulo Thafamasi Borehole To Jojo Tanks	No	Yes
	Ndwedwe - Lihlethemba	No	Yes
	Chili Shangase Reservoir & Ps To Chili Shangase Reservoirs	No	Yes
	Ohlange Area	No	Yes
	Ndwedwe - Kwasathane Reticulation	No	Yes
	Ndwedwe - Siminya Reticulation	No	Yes
	Ndwedwe - Nondabula Reticulation	No	Yes
	Stanger - St. Christopher - Doringkop Reticulation	No	Yes
	Ndwedwe (Kwasogidi Area)	No	Yes
	Maphumulo (Otshongatshonga Area)	No	Yes
	Maphumulo (Magenqezeni Area)	No	Yes
	Maphumulo (Mphumulo Area)	No	Yes
	Maphumulo (Okhalweni Area)	No	Yes
	Maphumulo (Mbali Area)	No	Yes
	Maphumulo (White City Area)	No	Yes
	Maphumulo (Mfabantu Area)	No	Yes
	Maphumulo (Nyamazane Area)	No	Yes
	Maphumulo (Ebethe Area)	No	Yes
	Kwadukuza (Driefontein Area)	No	Yes
	Ndwedwe (Kwamagwaza Area)	No	Yes
	Ndwedwe (Glendale Area)	No	Yes
	Ndwedwe (Kwasathane Area)	No	Yes
	Ndwedwe (Nkomba Nyuswa Area)	No	Yes
	Ndwedwe (Sonkombo Area)	No	Yes
	Ndwedwe (Kwanodwengu Area)	No	Yes
	Ndwedwe (Esigedleni Area)	No	Yes
	Maphumulo (Khongolwane Area)	No	Yes
	Maphumulo (Ekunqobeni Area)	No	Yes
	Maphumulo (Masiwela Area)	No	Yes
	Maphumulo (Mambedwini/Mambedu Area)	No	Yes
	Maphumulo (Tshobho Area)	No	Yes

	Maphumulo (Jamiakha Area)	No	Yes
	Maphumulo (Vukile Area)	No	Yes
	Maphumulo (Kwantombihlulunina Area)	No	Yes
	Maphumulo (Nsungwini Area)	No	Yes
	Maphumulo (Mvozane Area)	No	Yes
	Zilungisele Booster Ps To Zilungisele Reservoir Sbs	No	Yes
	Maphumulo (Mzulwini Area)	No	Yes
	Maphumulo (Hlimbitha 2 Areas - Nothweni - Vuma)	No	Yes
	Maphumulo (Kwandaba Area)	No	Yes
	Maphumulo (Mvumase Area)	No	Yes
	Maphumulo (Maqumbi Area)	No	Yes
	Kwadukuza (Lindelani Area)	No	Yes
	Ndwedwe (Kwahlophe Area)	No	Yes
	Kwadukuza (Madundube Area)	No	Yes
	Mandeni Kwatasi Area Ward 3	No	Yes
	Mandeni Padianager Ward 4	No	Yes
	Mandeni Highview Park Ward 3	No	Yes
	Mandeni Sundumbili (Dark City)	No	Yes
	Mandeni Sundumbili (Chappies)	No	Yes
	Mandeni Sundumbili (Red Hills)	No	Yes
	Mandeni Sundumbili (Bhidla & Skhalambazo Ward 15)	No	Yes
	Mandeni Sundumbili (Ireland)	No	Yes
	Mandeni Sundumbili (White City)	No	Yes
	Mandeni Sundumbili (Thokoza)	No	Yes
	Mandeni (Ezakheni Ward 12)	No	Yes
	Mandeni (Tugala Mount Ward 2)	No	Yes
	Mandeni (Enembe Ward 5)	No	Yes
	Maphumulo (Mphise Ward 3)	No	Yes
	Maphumulo (Mangongo Ward 3)	No	Yes
	Maphumulo (Mahlongwa Ward 3)	No	Yes
	Maphumulo (Oqaqeni Ward 4)	No	Yes
	Maphumulo (Otimati)	No	Yes

	Maphumulo (Hlimbithwa 1 Area - Thulini - Makamane - Womoyi Areas)	No	Yes
	Maphumulo (Thafamasi Ward 5)	No	Yes
	Maphumulo (Ndukend Ward 5)	No	Yes
	Kwadukuza (Darnall Area)	No	Yes
	Ndwedwe (Nsunduze - Areas Supplied By Helzemere Dam)	No	Yes
	Ndwedwe (Montobello Mayelisweni Areas)	No	Yes
	Kwadukuza (Gledhow Area)	No	Yes
	Kwadukuza (Ohlange Sokesimbone Ohlange Sakhankhanya Sans Sauci)	No	Yes
	Maphumulo (Mthandeni Wome Mafahleni Ezibandleni Area)	No	Yes
	Maphumulokwadukuza Rws Zone Ag Retic	No	Yes
	Ndwedwe (Bhidakhona Luthuli Gogovuma Esigqokeni Njubanjuba Areas)	No	Yes
	Ndwedwe (Khenani Gcwensa Phambela)	No	Yes
	Ndwedwe (Wosiyane Mathabatha Chamane Chili Shangase Thafamasi)	No	Yes
	Kwadukuza (Malende Groutville)	No	Yes
	Kwadukuza (Ntshawini Melville Hangosi)	No	Yes
	Domestic Reticulation: Rws Zone A; Ndwedwe Ward 1 & Maphumulo Ward 8 & 11	No	Yes
	Domestic Reticulation Maphumulo/Kwadukuza Rws: Zone H	No	Yes
	Mthombisa Borehole Pump (Sugarcane)	No	Yes
	Madundube Borehole	No	Yes
	Nondabula Water Supply Scheme	No	Yes

	Inyoni Housing Development	No	Yes
	Chibini Reticulation Pipelines	No	Yes
	Esidumbini Pipelines	No	Yes
	Waterfall Reticulation	No	Yes
	Mdlebeni Reticulation	No	Yes
	Zone M Reticulation - Manjanjeni - Mafahleni - Mushane	No	Yes
	Zone F Reticulation - Danyini - Mvozane	No	Yes
	Zone L Reticulation - Mvozane - Wolongo	No	Yes
	Zone Ao1 & Ao2 Domestic Reticulation	No	Yes
	1.6Km X 75Mm Diameter Hdpe Gravity Reticulation (Ward 10)	No	Yes
	Ward 14 - P710 Sundumbili	No	Yes
	Macambini Reticulation	No	Yes
	Ward 5 Emhlangeni Reticulation Mandenilm	No	Yes
	Ward 6-Ndulinde - Evutha- Emdudu	No	Yes
	Ward 11 - Ethembeni - Nkuzempunga-Magundaneni- Sithebe	No	Yes
	Ward 12 - Sithebe Esangweni Elincane	No	Yes
	Ward 16 - Emthengeni - Hlanganani	No	Yes
	Ward 17 Sithebe Swidi	No	Yes
	Ward 18 Sithebe Emakhempini	No	Yes
	Kwadukuza (Tensing Climb)	No	Yes
	Ts/124/2013 1B	No	Yes
	Kwadukuza (Smiters Road)	No	Yes
	Kwadukuza (Strelitzia)	No	Yes
	Kwadukuza (Townview)	No	Yes
	Gledhow Sewer Reticulation Ts/129/2012	No	Yes
	Kwadukuza (Bauhinia Road)	No	Yes

	200Mm Dia Rm And 355Mm Dia Gm Sewer Pipes At Gledhow (Ward: 15)	No	Yes
	Inyoni Housing Development	No	Yes
	242Km Of 160Mm Diameter Pvc Sewers & 139 House Connections At Melville	No	Yes

5.9 Sewer Pump Stations

Table 13: Sewer Pump Stations FAR and GIS GAP

esri_id	Facility ID Modified	GIS	FAR
4a0c5d2f-06a8-4c22-add6-9662ead956ec	Booster Pump	Yes	No
e0df6d06-c9e4-455b-a406-3a668d4a3c9b	Clear Water	Yes	No
7dbec7e4-9f84-4d2a-8e91-cd1730a6077b	Glen Hills Pump Station	Yes	No
b0da4cbb-e3d4-4261-8520-e8826225adcd	Hangosi Pump Station	Yes	Yes
53e4678e-ce13-4cdc-95ac-c416031de9ee	No data	Yes	No
cc5dbcdb-cb55-4ef4-90cf-38c6b2b5dd9b	No data	Yes	No
4e59f875-c9b4-45b1-a14e-7928117ba09a	Old Pump Station	Yes	Yes
c90eb1c1-19be-438d-8d2e-9f162ea7d43d	Padianagar Sewage Booster Pump	Yes	Yes
81c20584-7a0e-4775-a985-0e16e7afcf0f	Sewage Pump	Yes	No
92b41720-47e5-4c11-a631-6bbec8ee1c51	Stanger Emergency Pump Station	Yes	No
b9ce9182-3574-4398-adc3-c1bec22d694d	Sundumbili Sewage Pump	Yes	Yes
b9ce9182-3574-4398-adc3-c1bec22d694d	Sundumbili Raw Water Pump Station	Yes	Yes
06f6a454-af18-4eb2-bafa-35bf7e112c57	W-Works Pump Station	Yes	No
98bbd3b5-2de6-4114-9efb-284842bfd329	Cactus Booster Pump Station	Yes	Yes
ad396d68-f201-291f-a1b9-c087d4f3a0d1	Gledhow Sewer Pump 6	Yes	Yes
64dg70ab-7ec0-43c1-eb5c-522hbb9f1cd2	Gledhow Sewer Pump 7	Yes	Yes
33415edf-7617-40e1-aabe-33e9db34b9f7	Gledhow Sewer Pump 4	Yes	Yes
32411edf-7617-20e1-abbe-31e9db34c8f6	Gledhow Sewer Pump 5	Yes	Yes
65ee70ab-7ec0-43c1-ab5c-562fbb9f1cd2	Stanger Blaine Street Booster Pumps	Yes	Yes
91b41720-47b5-4d22-a631-6bbec8ee1c51	Industrial Sewer Pump Station 1	Yes	Yes
33407edf-7628-40e1-aabe-66e9db32e7e7	Gledhow Sewer Pump 2	Yes	Yes
33407edf-7628-40e1-aabe-66e9db32d8g6	Gledhow Sewer Pump 1	Yes	Yes
33407edf-7628-40f1-dace-65e9db23b9f4	Gledhow Sewer Pump 3	Yes	Yes
a30ce4d2f-23a8-4d11-add6-9662ead956ec	Design 3 Sewer Pump Station	Yes	Yes
b675a1ba61f4-4ad5-aa3a-dbcfaa6798f7	Kudu Sewer Pump Station	Yes	Yes

2d1b5d2f-06a8-4c22-add6-9552ead956ec	Sandpiper Sewer Pump Station	Yes	Yes
a30ce4d2f-13d7-4f20-add6-9662ead956bc	Whimbrel Sewer Pump Station	Yes	Yes
	Violet Sewer Pump Station	No	Yes
	Nallah Crescent Pump Station	No	Yes
	Ematsheketshehi Sewer Booster Pump	No	Yes
	Sundhumbili New Sewer Pump Station	No	Yes
	Gledhow Sewer Pump Station	No	Yes
	Gledhow Sewer Ps Near Gledhow	No	Yes
	Gledhow Sewer Pump Station	No	Yes
	New Pump Station	No	Yes
	Njekane Sewer Pumpstation	No	Yes
	Sewer Pump Station Ts/88/2012	No	Yes
	Njekane Sewer Pump Station	No	Yes
	Melville Sewerage Reticulation	No	Yes

5.10 Outfall Sewer

Table 14: Outfall Sewer FAR and GIS GAP

esri_id	Facility ID Modified	GIS	FAR
	Maphumulo Vukile High School	No	Yes
	Kwadukuza Glenhills	No	Yes
	Sewer Pipeline From Ts/88/2012/Pump Station To Stanger Wwtw	No	Yes
	Mandeni (Padianager Ward 4 - Highview Park Ward 3)	No	Yes
	Mandeni (Kwatasi Area Ward 3)	No	Yes
	Mandeni Sundumbili (Dark City - Thokoza - Skhalambazo - Bhidla - Red Hill - Chappies - Ireland - Whi	No	Yes
	Kwadukuza Cbd Townview Rocky Ridge Design 3	No	Yes
	Amatikulu Septic Tank	No	Yes
	4.88Km Of 160 200 250 And 315M	No	Yes
	Kwadukuza Shakaville Stanger Manor	No	Yes

5.11 Wastewater Treatment Works

Table 15: Wastewater Treatment Works FAR and GIS GAP

esri_id	Facility ID Modified	GIS	FAR
275c83d7-1bfb-4211-bd7e-4d6e2c27d2da	Darnall Waste Water Treatment Works (Wwtw)	Yes	Yes
9ee0d7c1-f57e-46cc-8af0-74bd81f27cc7	Gledhow Wwtw	Yes	Yes
df43996c-bcac-4954-818b-af8bc48745da	Tugela Sewer Plant	Yes	Yes
d78c3d08-4dde-4104-a3e1-eb97533ba21b	Stanger Waste Water Treatment Works	Yes	Yes
df43996c-ecac-4954-818a-af8aa48758af	Melville Sewer Treatment Works	Yes	Yes
9ee0d7c1-f57e-46cc-8af0-74bd81f27cc7	Gledhow Wwtw	Yes	Yes
	Sundhumbili Sewer Plant Wwtw	No	Yes
	Vukile Sewege Plant	No	Yes
	Shakaskraal Sewage Treatment Works	No	Yes
	Darnall Sewrage Works	No	Yes
	Ts/140/2014	No	Yes