



STELLENBOSCH MUNICIPALITY

WATER DISTRIBUTION SYSTEM -
PIPE REPLACEMENT STUDY

June 2019



**WATER DISTRIBUTION SYSTEM -
PIPE REPLACEMENT STUDY**

June 2019

TABLE OF CONTENTS

| | <i>Pp</i> |
|---|-----------|
| 1. INTRODUCTION | 1 |
| 1.1 BRIEF | 1 |
| 1.2 SCOPE OF THE REPORT | 1 |
| 1.3 DISCLAIMER | 1 |
| 2. METHODOLOGY | 2 |
| 2.1 INTRODUCTION | 2 |
| 2.2 FACTORS CONTRIBUTING TO LIKELIHOOD OF FAILURE | 4 |
| 2.2.1 <i>Nominal diameter</i> | 4 |
| 2.2.2 <i>Reserve water pressure ratio</i> | 4 |
| 2.2.3 <i>Catalogue remaining useful life</i> | 5 |
| 2.2.4 <i>Master plan item</i> | 6 |
| 2.2.5 <i>Assessed condition</i> | 6 |
| 2.2.6 <i>Failure frequency</i> | 7 |
| 2.2.7 <i>Leakage volume</i> | 8 |
| 2.2.8 <i>Undesired material</i> | 8 |
| 2.2.9 <i>Geology</i> | 9 |
| 2.3 FACTORS CONTRIBUTING TO CONSEQUENCE OF FAILURE | 10 |
| 2.3.1 <i>High cost to consumer due to high water pressure</i> | 10 |
| 2.3.2 <i>High cost to consumer due to flow</i> | 10 |
| 2.3.3 <i>High repair cost</i> | 11 |
| 2.3.4 <i>Flooding due to geography</i> | 11 |
| 2.3.5 <i>Strategic location</i> | 12 |
| 2.3.6 <i>Network redundancy</i> | 12 |
| 2.3.7 <i>Pavement management system (PMS)</i> | 13 |
| 2.4 SOFTWARE MODEL | 13 |
| 3. DISCUSSION OF RESULTS | 15 |
| 4. RECOMMENDATION | 16 |
| 5. CONCLUSION | 17 |
| APPENDIX – FIGURES AND TABLES | 18 |

LIST OF FIGURES

Pp

| | | |
|-------------------------|---|-----------|
| Figure 1: | Graphical result where PRP is also influenced by slope analysis (on aerial image)..... | 14 |
| Figure 2: | Graphical result – detail view..... | 14 |
| Figure SRW 1(a): | Pipe replacement potential for Stellenbosch | 21 |
| Figure SRW 1(b): | Pipe replacement potential for Dwarsrivier | 22 |
| Figure SRW 1(c): | Pipe replacement potential for Klapmuts | 23 |
| Figure SRW 1(d): | Pipe replacement potential for Franschoek | 24 |
| Figure SRW 1(e): | Pipe replacement potential for Raithby..... | 25 |
| Figure SRW 2: | Pipe length weighted average PRP per town (Percentage)..... | 26 |

LIST OF TABLES

Pp

| | | |
|---------------------|--|-----------|
| Table SRW 1: | Top 112 pipes in Stellenbosch to be replaced based on PRP | 19 |
| Table SRW 2: | Processed pipe failure record | 20 |

LIST OF ABBREVIATIONS & ACRONYMS

| | | |
|----------------|---|---|
| AC/FC | - | Fibre reinforced cement |
| CBD | - | Central business district |
| CF | - | Consequence of failure |
| CI | - | Cast iron |
| CO | - | Copper |
| DI | - | Ductile iron |
| FF | - | Failure frequency |
| GIS | - | Geographic information system |
| GLS | - | GLS consulting engineers |
| GRP | - | Glass reinforced plastic |
| HDPE | - | High density polyethylene |
| kℓ | - | Kilolitre |
| kℓ/d | - | Kilolitre/day |
| km | - | Kilometre |
| kW | - | Kilowatt |
| kWh | - | Kilowatt-hour |
| ℓ | - | Litre |
| ℓ/day/UE | - | Litre/day/unit erf |
| ℓ/h/connection | - | Litre/hour/connection |
| ℓ/min | - | Litre/minute |
| ℓ/s | - | Litre/second |
| LDPE | - | Low density polyethylene |
| LF | - | Likelihood of failure |
| m | - | Metre |
| Mℓ | - | Megalitre |
| mm | - | Millimetre |
| MP | - | Master plan |
| mPVC | - | Modified polyvinyl chloride |
| PMS | - | Pavement management system |
| POS | - | Public open space |
| PRP | - | Pipe replacement potential |
| PVC | - | Polyvinyl chloride |
| RUL | - | Remaining useful life |
| uPVC | - | Unplasticized polyvinyl chloride |
| WADISO | - | Water distribution system optimization program (software) |

1. INTRODUCTION

1.1 BRIEF

GLS Consulting (GLS) was appointed to perform a pipe replacement prioritisation study for the entire water distribution system of the Stellebosch Municipality. This study was documented in a report dated March 2012. GLS was subsequently appointed to update the 2012 study.

The project entails the verification of system data, compilation of a computer model for the pipe replacement network, calibration of the computer model, work shopping of the relevant factors and weights applied in the analysis and performing the analysis.

1.2 SCOPE OF THE REPORT

This report addresses the prioritisation of replacing water pipes within the Stellenbosch Municipality, comprising the towns of Stellenbosch, Dwarsrivier, Klapmuts, Franschhoek and Raithby.

1.3 DISCLAIMER

The investigation has been performed and this report has been compiled based on the information made available to GLS. All efforts, within budget constraints, have been made during the gathering of information to ensure the highest degree of data integrity. The information supplied to GLS by the Stellenbosch Municipality and other consultants at the outset of this pipe replacement plan is assumed to be the most accurate representation of the existing system up to date hereof.

All recommendations pertaining to identifying pipes for replacement should be regarded as an initial best assumption, but the knowledge which the field staff may have regarding the condition of the various pipes should also be taken into account by the client in order to verify the pipe replacement priority before commencing any upgrading projects.

Subsequent to the completion of the data capturing the layout plans, including the relevant attributes, were handed back to the Municipality so that the information could be verified by the client. GLS can therefore not be held accountable for inaccurate information received pertaining to the components of the existing system.

2. METHODOLOGY

2.1 INTRODUCTION

The pipe replacement potential (PRP) for any one pipe in the water distribution model is assessed by combining two critical indices – the likelihood of failure (LF) and consequence of failure (CF). Various independent factors contribute to each of these indices.

For the LF the following independent factors have been identified pertaining to each pipe which will be discussed in more detail in paragraph 2.2 below.

1. Nominal diameter.
2. Reserve water pressure ratio.
3. Catalogue remaining useful life.
4. Master plan item
5. Assessed condition.
6. Failure frequency.
7. Leakage volume.
8. Undesired material.
9. Geology.

For the CF the following independent factors have been identified pertaining to each pipe which will be discussed in more detail in paragraph 2.3 below.

1. High cost to consumer due to high water pressure.
2. High cost to consumer due to flow.
3. High repair cost.
4. Flooding due to geography.
5. Strategic location.
6. Network redundancy.
7. Pavement management system alignment.

The various contributing factors are assessed for each pipe by allocating a rating value (0 to 5) to each factor. The contributing factors are then totalled using various respective weights and normalized to give a total LF or CF index in the range of 1 to 5 respectively. A LF % and CF % is also calculated with the ranked LF and CF values respectively.

An initial weight distribution for LF was adopted for Stellenbosch, but it was refined during workshop sessions with officials of the Municipality and amended as follows:

| Likelihood of Failure Property | Score out of 10 | Weight (%) |
|--------------------------------------|--------------------|---------------|
| Nominal diameter (mm) | 5.4 | 16 |
| Reserve water pressure ratio | 2.6 | 8 |
| Catalogue remaining useful life (yr) | 4.6 | 14 |
| Master plan item* | 0.0 | 0 |
| Assessed condition | 5.0 | 15 |
| Failure frequency (breaks/km/yr) | 8.9 | 26 |
| Leakage volume (l/min/km)* | 0.0 | 0 |
| Undesired material | 7.1 | 21 |
| Geology * | 0.0 | 0 |
| TOTAL | | 100.0 |

* Data not available for or relevant to Stellenbosch Municipality

Likewise an initial weight distribution for CF was adopted for Stellenbosch, which was also refined during the workshop session and amended as follows:

| Consequence of failure Property | Score out of 10 | Weight (%) |
|--|--------------------|---------------|
| High cost to consumer due to high water pressure | 2.2 | 8 |
| High cost to consumer due to flow | 2.2 | 8 |
| High repair cost* | 3.5 | 12 |
| Flooding due to geography* | 7.3 | 26 |
| Strategic location | 6.0 | 21 |
| Network redundancy | 7.3 | 26 |
| Pavement management system* | 0.0 | 0 |
| TOTAL | | 100.0 |

* Data not available for or relevant to Stellenbosch Municipality

The source data could have a granularity larger than that of one pipe (e.g. Geology could be defined for a whole area covering a selection of pipes). In this case contributing factors are assessed by spreading the overall value onto the entities of smallest granularity, i.e. over the individual modelled pipes.

The total PRP is then calculated for each pipe as an index

$$PRP = LF \times CF \text{ (in the range of 1 to 25)}$$

By calculating the product of the two indices the compound risk is assessed. Only if a pipe has a high index for likelihood of failure and a high risk for consequence of failure will a high potential for replacement result. In addition the expected replacement cost for every pipe is calculated. The table of pipes in the model can then be sorted in order of decreasing PRP and a ranking PRP% from 100% to 0% is also displayed. The pipes with the highest replacement potential can then be visualized graphically and the associated total replacement cost determined.

The PRP can then be aggregated in various ways to provide a weighted average, maximum or minimum for various collections, such as per

- Region (Township, suburb or neighbourhood)
- System (Reservoir zone or other subsystem)

2.2 FACTORS CONTRIBUTING TO LIKELIHOOD OF FAILURE

The procedure followed to determine each of the factors contributing to the LF is outlined below:

2.2.1 Nominal diameter

The Wadiso model contains a user definable field which contains the nominal pipe diameter. The basic assumption here is the larger the pipe diameter the less likely pipe failures will result. This is a primary factor which should ideally only be used when better information on the likelihood of failure is not available. The following classification index was adopted to rate this factor:

| Property | Criteria (\leq) | Rating (0..5) |
|-----------------------|------------------------|------------------|
| Nominal diameter (mm) | 50 | 5 |
| Nominal diameter (mm) | 75 | 4 |
| Nominal diameter (mm) | 110 | 3 |
| Nominal diameter (mm) | 160 | 2 |
| Nominal diameter (mm) | 250 | 1 |
| Nominal diameter (mm) | 400 | 0.5 |
| Nominal diameter (mm) | >400 | 0.1 |

It can be seen that very small diameters are severely penalized (high rating). Diameters above 400 mm are regarded as less likely to fail and are not penalized. A value of 0.1 is adopted here instead of 0 to ensure fewer pipes end up with identical PRP values and corresponding equal PRP%.

2.2.2 Reserve water pressure ratio

The concept of a reserve pressure ratio is introduced. Every pipe in the model can have the property [Pressure rating (kPa)] which expresses the maximum allowable service pressure of the pipe. This value is converted to units of metre (m) water pressure.

The highest pressures in a pipe network are usually experienced during static (low flow or night time) conditions. The result of the static analysis is presented at the nodes of the model. Every pipe has an upstream and a downstream node for which the static pressure is available from the Wadiso result variables. The [Pipe average static pressure (m)] is then determined by averaging the nodal static pressures, i.e. $[(US\ SHead + DS\ SHead) / 2]$. Should this value be negative, a zero value is assumed. The reserve pressure ratio is then defined as

$$[\text{Pipe average static pressure (m)}] / [\text{Pressure rating (m)}]$$

Should the pressure rating be zero for some reason (invalid data) then a zero reserve pressure ratio is assumed. A reserve pressure rating of 1.0 indicates that the pipe has no reserve capacity with regards to pressure and a rating of bigger than 1.0 indicates over stressing the pipe risking severe pipe rupture.

Should the pressure rating not be available for the pipes in the model, a suitable default value should be entered, such as 90 m (or for example 899 kPa to flag the

value as unknown). This will have the side effect of only evaluating the model based on average static pressure. The following classification index was adopted to rate this factor:

| Property | Criteria (\leq) | Rating (0..5) |
|------------------------|------------------------|------------------|
| Reserve pressure ratio | 0 | 0.1 |
| Reserve pressure ratio | 0.25 | 1 |
| Reserve pressure ratio | 0.50 | 2 |
| Reserve pressure ratio | 0.75 | 3 |
| Reserve pressure ratio | 1 | 4 |
| Reserve pressure ratio | >1 | 5 |

It can be seen that the rating increases as the reserve pressure increases to unity.

2.2.3 Catalogue remaining useful life

For every pipe in the model the remaining useful life (RUL) can be determined. The Wadiso model should contain the material for every pipe in the model. For every material a standard life is assumed for a pipe of that material, as outlined typically in the table below:

| Property | Criteria | Life (yr) |
|--------------------|---|-----------|
| Pipe material life | Fibre reinforced cement (FC or AC) | 40 |
| Pipe material life | (undefined) | 40 |
| Pipe material life | Modified polyvinyl chloride (mPVC)* | 50 |
| Pipe material life | Glass reinforced plastic (GRP)* | 60 |
| Pipe material life | Unplasticized polyvinyl chloride (uPVC) | 60 |
| Pipe material life | High density polyethylene (HDPE) | 80 |
| Pipe material life | Low density polyethylene (LDPE)* | 80 |
| Pipe material life | "Polycop" plastic piping (POLYCOP) | 80 |
| Pipe material life | Copper (CO) | 60 |
| Pipe material life | Steel (STEEL) | 80 |
| Pipe material life | Cast iron (CI) | 100 |
| Pipe material life | Ductile iron (DI)* | 100 |

* Data not available for or relevant to Stellenbosch Municipality

For pipes of unknown material (i.e. blank) an average life of 40 years is assumed. For every pipe in the Wadiso model, the year of installation of the pipe [AM*_year] should be available. This can often be obtained from asset register databases. The RUL for any pipe is then calculated as:

$$[\text{Standard life expectancy based on material}] - ([\text{Current year}] - [\text{AM year}])$$

Should the year of installation be unknown, the average age is calculated from all known installations are used. Forty years was used for Stellenbosch Municipality.

The following classification index was adopted to rate this factor:

| Property | Criteria (< =) | Rating (0..5) |
|----------------------------|-------------------|------------------|
| Remaining useful life (yr) | 0 | 5 |
| Remaining useful life (yr) | 10 | 4 |
| Remaining useful life (yr) | 20 | 3 |
| Remaining useful life (yr) | 30 | 2 |
| Remaining useful life (yr) | 50 | 1 |
| Remaining useful life (yr) | >50 | 0.1 |

It can be seen that the rating decreases as the RUL increases.

2.2.4 Master plan item

As part of the master plan (MP) of a water distribution network, pipes in the present model are identified, which should be upgraded by either replacement or parallel reinforcement. This provides an independent assessment by an engineer of those pipes that should be replaced in the water network based on the hydraulic capacity of the pipe.

The rationale of the MP item concept is that if a pipe has to be replaced due to insufficient hydraulic capacity, the replacement of this pipe can be brought forward if the other criteria indicate an increased likelihood of failure.

Usually only the future model (which includes schematic pipes for future extensions to the model) is provided to the client, with all the MP items identified. By spatially mapping the pipes identified with the MP prefix in the [MP type] field to pipes existing in the present model, the present model is augmented with the required information.

The following classification index was adopted to rate this factor:

| Property | Criteria | Rating (0..5) |
|--------------|-------------|------------------|
| MP item type | (undefined) | 3 |
| MP item type | MP* | 5 |

* Data not available for or relevant to Stellenbosch Municipality

2.2.5 Assessed condition

Pipes of poor quality or those known likely to fail can be identified. Care must however be taken not to base the assessed condition on another factor already considered such as pipe age or RUL. Data regarding the condition of the pipes in Stellenbosch Municipality was unavailable and this factor was not included. It is suggested the following classification index be adopted to rate this factor. A two character string is proposed (with meaning in brackets).

| Property | Criteria | Rating (0..5) |
|--------------|----------------|------------------|
| AM condition | VG (Very good) | 1 |
| AM condition | G (Good) | 2 |
| AM condition | (undefined) | 3 |
| AM condition | F (Fair) | 3 |
| AM condition | P (Poor) | 4 |
| AM condition | VP (Very poor) | 5 |

2.2.6 Failure frequency

Logged pipe failure is an important source of information to identify where pipe failures are likely to occur in future. Although a pipe section of the failed pipe would have been replaced by a new pipe, the underlying reason for failure might not have been resolved and future failures are likely to occur again in adjacent sections until a pipe replacement of the total street block or area of pipes has been done.

Typically a report containing information on the location, closest stand number (in some cases), street address (in some cases) and dates of pipe burst recording and repair is available. In Stellenbosch Municipality 3 121 incidents were captured for the period January 2001 to January 2012 and 1 286 incidents were captured for the period January 2013 to February 2018. This information was made available by Stellenbosch Municipality in hard copy and spread sheet format.

Then a process of geo-coding was followed to assign a latitude & longitude coordinate to the location of every incident as accurately as possible. This included using a cadastral CAD layer with stand numbers, a CAD drawing containing street names and the use of the latest street mapping software to geo-reference street number addresses. A total of 926 (86%) of the incident location could be successfully geo-referenced. The data was then converted from spreadsheet to point shape geographical information system (GIS) files with the incident address, repair completion date and completion year as attributes. Typically where the street number (or stand number) was not available, but only the road name, a location closest to middle of the street length was identified. For streets of short distance this is acceptable but for long streets this does introduce an approximation to the exact failure location. A total of 574 out of the 926 geo-referenced locations (62%) were thus approximate. It was however decided to use this data albeit that it was not very accurately located.

The relatively low percentage of breaks that could not be successfully geo-references is due to the lack of addresses or co-ordinates in the original data set.

See Table SRW 2 in Appendix for the final dataset used.

The pipe data model was then extended with fields to store the number of pipe failures per year for the surveyed years (2011 - 2018, but considering that the failure record is not the same for all areas) as well as the average annual number of pipe failures per length of modelled pipe. Results vary from a maximum of 28,6 incidents per year per km of modelled pipe to zero incidents per pipe.

By doing a spatial correlation between point shape file and the closest modelled pipe (using a custom function written to count the number of failures allotted to a pipe for each year up to a distance of 100 m away from any pipe and then divide the sum by

the total length of the modelled pipe in km), the above fields in the pipe data model were updated. Typically the modelled pipe comprises many pipe sections and thus the adjacent sections more likely to fail than the replaced one, will also be identified. This resulted in 647 pipes allocated with a non-zero failure frequency (FF).

It was decided to exclude failure counts where the spatially correlated pipe was replaced within the same year or after the failure was recorded. This assumes that the reason for the failure was related to the old pipe and that future failures are now unlikely to occur at that pipe. This resulted in 554 pipes allocated with a non-zero FF.

The following classification index was adopted after doing a frequency distribution on the data, to rate this factor. A value of 3 failures per year per km of modelled pipe was taken as approximately the 85 percentile and limit for the last open category.

| Property | Criteria (<=) (Failures/yr/km) | Rating (0..5) |
|-------------------|-----------------------------------|------------------|
| Failure frequency | 0 | 0.1 |
| Failure frequency | 1 | 0.5 |
| Failure frequency | 2 | 1 |
| Failure frequency | 3 | 3 |
| Failure frequency | 4 | 4 |
| Failure frequency | >4 | 5 |

2.2.7 Leakage volume

The historic bulk delivery of water into a zone can be measured by a zone meter. The end-user consumption of the water provided to the zone can be obtained from treasury water sales records. Provided zone meters are installed covering a number of smaller zones a water balance analysis can be performed for the smaller zones. Then by performing a zone to modelled pipe spatial correlation the pipe data model can be extended to include a [Leakage volume] field.

In Stellenbosch typically only a few bulk meters exist and the water balance and resulting calculation of leakage volume per pipe does not assist in identifying pipes to be prioritized for replacement. In the case of Stellenbosch Municipality this index has therefore been ignored.

2.2.8 Undesired material

Pipe material plays a large role in pipe replacement prioritisation. With technology development, improved and cheaper materials are discovered which expose older materials unwanted characteristics. These unwanted materials need to be replaced.

The Wadiso model should contain the material for every pipe in the model. Each material is outlined in the table below:

| Property | Criteria (<=) (Failures/yr/km) | Rating (0..5) |
|--------------------|-----------------------------------|------------------|
| Undesired material | Ductile Iron (DI) | 1 |
| Undesired material | HDPE | 1 |
| Undesired material | STEEL | 1 |
| Undesired material | LDPE* | 2 |
| Undesired material | uPVC | 2 |
| Undesired material | (undefined) | 3 |
| Undesired material | Cl | 3 |
| Undesired material | POLYCOP | 4 |
| Undesired material | AC | 5 |
| Undesired material | COPPER | 5 |

** Data not available for or relevant to Stellenbosch Municipality*

2.2.9 Geology

The geology in the area surrounding installed pipes can play a role in pipe replacement prioritisation. Where pipes have been installed in clay or dolomite areas a higher replacement likelihood is predicted especially in combination with non-flexible type pipe materials. In the case of Stellenbosch Municipality no information on expansive clays were initially available and to our knowledge no dolomite is present in this area and therefore this factor was also ignored in the analysis.

The following classification index can be used to rate this factor where two degrees of dolomite are supported.

| Property | Criteria | Rating (0..5) |
|----------|---------------------|------------------|
| Geology | NO DOLOMITE or CLAY | 0.1 |
| Geology | (undefined) | 2.5 |
| Geology | EXP. CLAY | 3 |
| Geology | DOLOMITE 1 | 4 |
| Geology | DOLOMITE 2 | 5 |

2.3 FACTORS CONTRIBUTING TO CONSEQUENCE OF FAILURE

The procedure followed to determine each of the factors contributing to the CF is outlined below:

2.3.1 High cost to consumer due to high water pressure

The Wadiso model data contains the balanced results after a steady-state analysis for the present operational average day demand scenario. This scenario models the situation in the pipe network expected on the average day of the year. During a pipe failure damage due to flooding can occur. The higher the water pressure in the pipe network the higher the potential for high damage cost to the consumer.

The field [AvgHead (m)] is available in the pipe data model to assess this factor. The following classification index was adopted to rate this factor:

| Property | Criteria (\leq) | Rating (0..5) |
|------------------------|------------------------|------------------|
| Consumer loss head (m) | 0 | 0.1 |
| Consumer loss head (m) | 25 | 1 |
| Consumer loss head (m) | 50 | 2 |
| Consumer loss head (m) | 75 | 3 |
| Consumer loss head (m) | 100 | 4 |
| Consumer loss head (m) | >100 | 5 |

2.3.2 High cost to consumer due to flow

The Wadiso model data contains the balanced results after a steady-state analysis for the present operational average day demand scenario. This scenario models the situation in the pipe network expected on the average day of the year. During a pipe failure damage due to flooding can occur. The higher the flow in the pipe network the higher the potential for high damage cost to the consumer. This can be unrelated to the pressure in the network at the point.

If a pipe is delivering water to consumers, i.e. not only feeding storage facilities such as reservoirs, then the flow in the pipe is directly proportional to the demand of the connected consumer(s). The potential cost of claims to the water service provider from the consumer due to the non-supply of water as a result of a pipe failure is again directly proportional to the amount of flow in the pipe.

The field [Flow (m)] is available in the pipe data model to assess this factor. The following classification index was adopted to rate this factor:

| Property | Criteria (\leq) | Rating (0..5) |
|--------------------------|------------------------|------------------|
| Consumer loss flow (l/s) | 0 | 0.1 |
| Consumer loss flow (l/s) | 5 | 1 |
| Consumer loss flow (l/s) | 10 | 2 |
| Consumer loss flow (l/s) | 20 | 3 |
| Consumer loss flow (l/s) | 50 | 4 |
| Consumer loss flow (l/s) | >50 | 5 |

2.3.3 High repair cost

The Wadiso model data contains data that classifies the type of pipe in the present model with respect to the excavation type in case of repair. The field [Cost_FN] mainly identifies where pipes are located in a road reserve (default) or under a road. Alternatively pipes located in a public open space (POS) can also be identified. Should this information not be available initially all pipes crossing or under roads can be identified graphically by overlaying the model on the cadastral and/or aerial imagery. Due to the uncertainty re the exact position of pipes this has not been performed for the Stellenbosch Municipality.

The following classification index was adopted to rate this factor:

| Property | Criteria | Rating (0..5) |
|-------------|-------------------------|------------------|
| Repair cost | Public open space* | 1.0 |
| Repair cost | Road reserve/undefined* | 3 |
| Repair cost | Under road* | 5 |

* Data not available for or relevant to Stellenbosch Municipality

2.3.4 Flooding due to geography

In order to quantify the likelihood of flooding due to the geography with emphasis on the cross slope of roads, a graphical interactive slope analysis is performed to establish whether a pipe is installed on the higher or lower side of a road. Should a pipe be located in a road reserve clearly on the higher side of a road, it is expected that should the pipe fail, water will collect mostly in the stormwater system of the road and thus not flood the properties on the lower side of the road. However, should the pipe be located in a road reserve on the lower side of the road, flooding of the properties on the lower side is imminent.

In order to identify the pipes which run parallel to height contours, only those pipes are highlighted initially which do not have a steep absolute slope over their length. Then with the contours overlaid, only the subset of pipes which are located in areas of steeper contours (typically with more than 10% fall over the width of the road) have been identified.

Then only the pipes on the lower side of the road (more critical) have been identified and the undefined value adopted for all other pipes.

The following classification index was adopted to rate this factor:

| Property | Criteria | Rating (0..5) |
|--------------|--------------|------------------|
| Side of road | (undefined)* | 3 |
| Side of road | Lower* | 5 |
| Side of road | Midblock | 5 |

* Data not available for or relevant to Stellenbosch Municipality

2.3.5 Strategic location

In order to accommodate the effect of strategic location with emphasis on high density industrial areas, hospitals or central business district (CBD) areas, a classification index is adopted for this factor:

| Property | Criteria | Rating (0..5) |
|--------------------|------------------|------------------|
| Strategic location | (undefined) | 3 |
| Strategic location | Industrial | 4 |
| Strategic location | Hospital | 5 |
| Strategic location | CBD | 5 |
| Strategic location | Education (EDU) | 5 |
| Strategic location | University (UNI) | 5 |

2.3.6 Network redundancy

Pipe redundancy plays a significant role in pipe replacement prioritisation. Pipe redundancy is calculated as follows:

The system is first balanced at the typical present operational average day demand scenario. Then a special routine evaluates the effect of the failure of every pipe individually. If the effect is that part of the network will not be supplied with water then the actual flow of the pipe is stored as criteria for the redundancy parameter. If the effect is that no part of the network will be isolated of water supply, then a value of zero is stored.

This analysis has been performed for Stellenbosch.

The following classification index was developed to rate this factor and shows the amount of flow that could not be delivered by the pipe if there is no redundancy.

| Property | Criteria | Rating (0..5) |
|------------------|----------|------------------|
| Redundancy (l/s) | 0 | 0.1 |
| Redundancy (l/s) | 5 | 1 |
| Redundancy (l/s) | 10 | 2 |
| Redundancy (l/s) | 20 | 3 |
| Redundancy (l/s) | 50 | 4 |
| Redundancy (l/s) | >50 | 5 |

2.3.7 Pavement management system (PMS)

As part of the PMS, roads are identified which should be upgraded by either resurfacing or reconstruction. This provides an independent assessment by an engineer of those roads that should be upgraded in the road network based on the assessment made for the PMS.

The rationale of the PMS item concept is that if a pipe has to be replaced due to likelihood of failure results, the replacement of this pipe can be brought forward if the PMS suggests future upgrading of the road within which the pipe falls.

The following classification index could be adopted in future to rate this factor:

| Consequence of failure property | Criteria (\leq) | Rating (0..5) |
|---------------------------------|------------------------|------------------|
| Pavement management system | (undefined)* | 1 |
| Pavement management system | Very good (VG)* | 1 |
| Pavement management system | Good (G)* | 2 |
| Pavement management system | Fair (F)* | 3 |
| Pavement management system | Poor (P)* | 4 |
| Pavement management system | Very poor (VP)* | 5 |

* Data not available for or relevant to Stellenbosch Municipality

2.4 SOFTWARE MODEL

The *Wadiso*® (GLS Software) software has been extended to perform the required analysis. Results are then reported in the embedded GIS system per pipe and can be inspected in table or graphical format. Figure 1 shows on an aerial background image how the PRP score (as categorized in the legend) is also influenced by the slope analysis. Figure 2 shows a detailed graphical view of the same area.

It can for example be seen how the pipe highlighted in red has a number of LF and CF factors (including the location on the lower side of the road and high dynamic pressure) contributing to a relative high PRP score of 0.27. The short pipe shown in magenta has a PRP score of 0.30 mainly contributed also by its high FF and location under the tarred road.



Figure 1: Graphical result where PRP is also influenced by slope analysis (on aerial image)

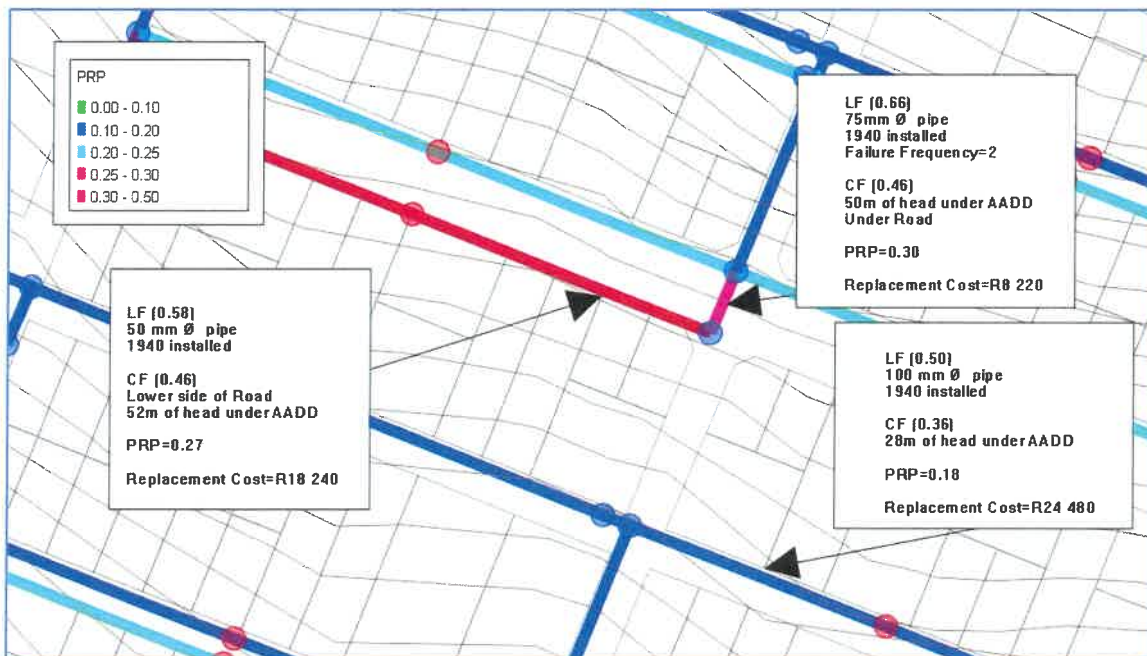


Figure 2: Graphical result – detail view

3. DISCUSSION OF RESULTS

The complete analysis has been performed for Stellenbosch Municipality. Results are available in the format of a GIS data set. The following is a discussion of results obtained and as presented in the included figures.

Figures SRW 1(a) to (e) show the total pipe replacement potential (PRP%) for each pipe in the model categorised as low (<60%), average (60%-80%), high (80%-90%) and very high (>90%). The higher the value, the higher the potential for replacement. Where a failure location is related to a pipe that has been replaced since the failure date, the location has been excluded from the map and deemed outdated.

The PRP per pipe was also rolled up per region (township/suburb/reservoir supply zone). Various options were investigated, such as a pipe length weighted average PRP per region. This identifies the areas where high PRP values are dominant and is shown in Figure SRW 2.

Table DRW 1 shows a list of pipes representing the top 112 pipes in Stellenbosch Municipality to be investigated for replacement, sorted in decreasing order of PRP together with their 2017/18 replacement value. Of these 112 pipes all 112 were identified as priority pipes where the PRP% of the pipe is > 85% and 3 or more incidents of pipe bursts were recorded on the pipe. These 112 priority pipes are also shown on Figures SRW 1(a) to (e) in blue together with their corresponding ranking, and a replacement value of R 8 591 220.

Table SRW 2 shows the total pipe failure record.

4. RECOMMENDATION

It was found that a number of pipe failures recorded by the field staff were not possible to be located. In these cases no address or only a street name without a street number was available. This should be brought to the attention of the field staff.

The location of pipe failures should in future be recorded preferably with accurate GPS coordinates. This would improve the integrity of the output of this pipe failure model. If a longer and more comprehensive pipe failure record could be established, the integrity of the output could be further enhanced.

It is recommended that pipe replacement in Stellenbosch Municipality is performed in accordance with the PRP values calculated in this study. Pipes with the highest PRP values should be considered to be replaced first. It should be noted that the priority pipes for replacement have been ranked only according to the criteria adopted for this study. The decision to replace a particular pipe or section of pipes should still however be taken on an engineering judgement basis using the results of this study as a guideline.

5. CONCLUSION

This new calibrated and tested pipe failure model identifies with a single geographical view where pipe failures are most likely to occur. It is foreseen that this model will greatly assist the pipe replacement prioritisation process as it is completely based on a scientific approach. By allocating funds to replacing those pipes most likely to fail in future, a limited budget can be spent effectively.

APPENDIX – FIGURES AND TABLES

Table SRW1: Top 150 pipes in Stellenbosch, Stellenbosch Municipality to be

| PRP Rank | Model Link Nr | SYS TYP | SYSTEM | REGION | Diam (mm) | Length (m) | Final (R) | Final LF% | Final CF | Final CF% | Final PRP | Final PRP% | Repl Cost (R) | Cum Repl Cost (R) |
|----------|---------------|---------|------------------------|--------------|-----------|------------|-----------|-----------|----------|-----------|-----------|------------|---------------|-------------------|
| 1 | 20069 | RET | Uniepark 1 | Stellenbosch | 100 | 50 | 3.8760 | 99.57 | 2.4948 | 87.77 | 9.6697 | 99.98 | 20 200 | 20 200 |
| 2 | 20084 | RET | Uniepark 1 | Stellenbosch | 100 | 55 | 3.8760 | 99.57 | 2.4948 | 87.77 | 9.6697 | 99.98 | 22 220 | 42 420 |
| 3 | 14441 | RET | Papegaaiberg | Stellenbosch | 150 | 50 | 3.7680 | 99.12 | 2.5628 | 89.62 | 9.6567 | 99.94 | 27 900 | 70 320 |
| 4 | 11510 | RET | Cloetesville reservoir | Stellenbosch | 75 | 100 | 3.9320 | 99.92 | 2.3614 | 78.43 | 9.2850 | 99.76 | 40 400 | 110 720 |
| 5 | 11726 | RET | Cloetesville reservoir | Stellenbosch | 75 | 55 | 3.9320 | 99.92 | 2.3614 | 78.43 | 9.2850 | 99.76 | 22 220 | 132 940 |
| 6 | 18494 | RET | Central | Stellenbosch | 50 | 155 | 3.9080 | 99.70 | 2.3614 | 78.43 | 9.2284 | 99.68 | 62 620 | 195 560 |
| 7 | 15365 | RET | Papegaaiberg | Stellenbosch | 100 | 90 | 3.7720 | 99.22 | 2.4407 | 84.14 | 9.2065 | 99.62 | 36 360 | 231 920 |
| 8 | 16034 | RET | Brandwacht PRV | Stellenbosch | 100 | 150 | 3.8760 | 99.57 | 2.3614 | 78.43 | 9.1528 | 99.50 | 60 600 | 292 520 |
| 9 | 18866 | RET | Central | Stellenbosch | 100 | 30 | 3.6400 | 98.37 | 2.4948 | 87.77 | 9.0810 | 99.48 | 12 120 | 304 640 |
| 10 | 19016 | RET | Central | Stellenbosch | 100 | 110 | 3.6400 | 98.37 | 2.4948 | 87.77 | 9.0810 | 99.48 | 44 440 | 349 080 |
| 11 | 13976 | RET | Papegaaiberg | Stellenbosch | 150 | 105 | 3.6640 | 98.60 | 2.4407 | 84.14 | 8.9429 | 99.24 | 58 590 | 407 670 |
| 12 | 17675 | RET | Central | Stellenbosch | 150 | 10 | 3.5840 | 98.04 | 2.4948 | 87.77 | 8.9413 | 99.21 | 5 580 | 413 250 |
| 13 | 11792 | RET | Cloetesville reservoir | Stellenbosch | 75 | 90 | 3.9840 | 99.98 | 2.2000 | 47.29 | 8.7649 | 99.00 | 36 360 | 449 610 |
| 14 | 12002 | RET | Cloetesville reservoir | Stellenbosch | 75 | 55 | 3.9840 | 99.98 | 2.2000 | 47.29 | 8.7649 | 99.00 | 22 220 | 471 830 |
| 15 | 10874 | RET | Kayamandi PRV 4 | Stellenbosch | 75 | 85 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 34 340 | 506 170 |
| 16 | 10754 | RET | Jamestown | Stellenbosch | 75 | 175 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 70 700 | 576 870 |
| 17 | 10508 | RET | Jamestown | Stellenbosch | 75 | 95 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 38 380 | 615 250 |
| 18 | 10058 | RET | Kayamandi PRV 4 | Stellenbosch | 75 | 130 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 52 520 | 667 770 |
| 19 | 11228 | RET | Kayamandi PRV 3 | Stellenbosch | 75 | 160 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 64 640 | 732 410 |
| 20 | 10247 | RET | Jamestown | Stellenbosch | 75 | 175 | 3.9320 | 99.92 | 2.2000 | 47.29 | 8.6505 | 98.69 | 70 700 | 803 110 |
| 21 | 11651 | RET | Cloetesville reservoir | Stellenbosch | 100 | 65 | 3.8760 | 99.57 | 2.2000 | 47.29 | 8.5273 | 98.39 | 26 260 | 829 370 |
| 22 | 13589 | RET | Cloetesville reservoir | Stellenbosch | 100 | 125 | 3.8760 | 99.57 | 2.2000 | 47.29 | 8.5273 | 98.39 | 50 500 | 879 870 |
| 23 | 9743 | RET | Cloetesville reservoir | Stellenbosch | 100 | 85 | 3.8760 | 99.57 | 2.2000 | 47.29 | 8.5273 | 98.39 | 34 340 | 914 210 |
| 24 | 15605 | RET | Central | Stellenbosch | 200 | 275 | 2.9480 | 83.75 | 2.8821 | 92.65 | 8.4964 | 98.11 | 196 900 | 1 111 110 |
| 25 | 19880 | RET | Uniepark 1 | Stellenbosch | 150 | 80 | 3.7680 | 99.12 | 2.2541 | 57.00 | 8.4933 | 98.10 | 44 640 | 1 155 750 |
| 26 | 14738 | RET | Cloetesville Tower | Stellenbosch | 75 | 140 | 3.9320 | 99.92 | 2.1460 | 27.41 | 8.4381 | 98.07 | 56 560 | 1 212 310 |
| 27 | 10642 | RET | Kayamandi PRV 4 | Stellenbosch | 75 | 15 | 3.9320 | 99.92 | 2.1460 | 27.41 | 8.4381 | 98.07 | 6 060 | 1 218 370 |
| 28 | 11690 | RET | Kayamandi PRV 3 | Stellenbosch | 75 | 30 | 3.9320 | 99.92 | 2.1460 | 27.41 | 8.4381 | 98.07 | 12 120 | 1 230 490 |
| 29 | 10586 | RET | Papegaaiberg | Stellenbosch | 75 | 195 | 3.9320 | 99.92 | 2.1460 | 27.41 | 8.4381 | 98.07 | 78 780 | 1 309 270 |
| 30 | 8066 | RET | Kleinvallei PRV 2 | Stellenbosch | 100 | 85 | 3.8240 | 99.39 | 2.2000 | 47.29 | 8.4129 | 97.94 | 34 340 | 1 343 610 |
| 31 | 12041 | RET | Welgelegen PRV | Stellenbosch | 100 | 135 | 3.6460 | 98.49 | 2.3074 | 65.86 | 8.4127 | 97.90 | 54 540 | 1 398 150 |
| 32 | 14584 | RET | Central | Stellenbosch | 100 | 215 | 3.1640 | 95.75 | 2.6561 | 91.23 | 8.4040 | 97.78 | 86 860 | 1 485 010 |
| 33 | 14042 | RET | Central | Stellenbosch | 100 | 55 | 3.7920 | 99.25 | 2.2054 | 47.99 | 8.3630 | 97.31 | 22 220 | 1 507 230 |
| 34 | 14111 | RET | Cloetesville Tower | Stellenbosch | 75 | 165 | 3.8800 | 99.68 | 2.1460 | 27.41 | 8.3265 | 97.24 | 66 660 | 1 573 890 |
| 35 | 15701 | RET | Papegaaiberg | Stellenbosch | 75 | 180 | 3.8800 | 99.68 | 2.1460 | 27.41 | 8.3265 | 97.24 | 72 720 | 1 646 610 |
| 36 | 20192 | RET | Central | Stellenbosch | 75 | 140 | 3.8800 | 99.68 | 2.1460 | 27.41 | 8.3265 | 97.24 | 56 560 | 1 703 170 |
| 37 | 20018 | RET | Uniepark 1 | Stellenbosch | 100 | 125 | 3.6920 | 98.77 | 2.2541 | 57.00 | 8.3220 | 97.17 | 50 500 | 1 753 670 |
| 38 | 20021 | RET | Uniepark 1 | Stellenbosch | 100 | 155 | 3.6920 | 98.77 | 2.2541 | 57.00 | 8.3220 | 97.17 | 62 620 | 1 816 290 |
| 39 | 16403 | RET | Brandwacht PRV | Stellenbosch | 100 | 155 | 3.5200 | 97.78 | 2.3614 | 78.43 | 8.3121 | 97.14 | 62 620 | 1 878 910 |
| 40 | 15905 | RET | Central | Stellenbosch | 150 | 65 | 3.7680 | 99.12 | 2.2000 | 47.29 | 8.2897 | 97.12 | 36 270 | 1 915 180 |
| 41 | 11090 | RET | Kayamandi PRV 1 | Stellenbosch | 100 | 205 | 3.3760 | 97.20 | 2.4407 | 84.14 | 8.2399 | 96.99 | 82 820 | 1 998 000 |
| 42 | 9527 | RET | Papegaaiberg | Stellenbosch | 100 | 215 | 3.8240 | 99.39 | 2.1460 | 27.41 | 8.2063 | 96.67 | 86 860 | 2 084 860 |
| 43 | 15032 | RET | Cloetesville Tower | Stellenbosch | 100 | 95 | 3.8240 | 99.39 | 2.1460 | 27.41 | 8.2063 | 96.67 | 38 380 | 2 123 240 |
| 44 | 11234 | RET | Kayamandi PRV 3 | Stellenbosch | 100 | 55 | 3.8240 | 99.39 | 2.1460 | 27.41 | 8.2063 | 96.67 | 22 220 | 2 145 460 |
| 45 | 11516 | RET | Kayamandi PRV 3 | Stellenbosch | 100 | 140 | 3.8240 | 99.39 | 2.1460 | 27.41 | 8.2063 | 96.67 | 56 560 | 2 202 020 |
| 46 | 14513 | RET | Central | Stellenbosch | 150 | 150 | 3.4120 | 97.31 | 2.4014 | 79.23 | 8.1937 | 96.57 | 83 700 | 2 285 720 |
| 47 | 20207 | RET | Uniepark 1 | Stellenbosch | 150 | 240 | 3.7160 | 99.01 | 2.2000 | 47.29 | 8.1753 | 96.54 | 133 920 | 2 419 640 |
| 48 | 14153 | RET | Welgelegen | Stellenbosch | 150 | 190 | 3.7160 | 99.01 | 2.2000 | 47.29 | 8.1753 | 96.54 | 106 020 | 2 525 660 |
| 49 | 15770 | RET | La Coline PRV | Stellenbosch | 150 | 100 | 3.7160 | 99.01 | 2.2000 | 47.29 | 8.1753 | 96.54 | 55 800 | 2 581 460 |
| 50 | 16037 | RET | Brandwacht PRV | Stellenbosch | 100 | 125 | 3.6980 | 98.89 | 2.2000 | 47.29 | 8.1357 | 96.44 | 50 500 | 2 631 960 |
| 51 | 14726 | RET | Central | Stellenbosch | 100 | 145 | 3.6920 | 98.77 | 2.2000 | 47.29 | 8.1225 | 96.42 | 58 580 | 2 690 540 |
| 52 | 15572 | RET | Central | Stellenbosch | 100 | 105 | 3.6920 | 98.77 | 2.2000 | 47.29 | 8.1225 | 96.42 | 42 420 | 2 732 960 |
| 53 | 15545 | RET | Central | Stellenbosch | 100 | 80 | 3.6920 | 98.77 | 2.2000 | 47.29 | 8.1225 | 96.42 | 32 320 | 2 765 280 |
| 54 | 21695 | RET | Uniepark 1 | Stellenbosch | 100 | 115 | 3.7720 | 99.22 | 2.1460 | 27.41 | 8.0947 | 95.89 | 46 460 | 2 811 740 |
| 55 | 14480 | RET | Cloetesville reservoir | Stellenbosch | 100 | 145 | 3.7720 | 99.22 | 2.1460 | 27.41 | 8.0947 | 95.89 | 58 580 | 2 870 320 |
| 56 | 15530 | RET | Papegaaiberg | Stellenbosch | 100 | 25 | 3.7720 | 99.22 | 2.1460 | 27.41 | 8.0947 | 95.89 | 10 100 | 2 880 420 |
| 57 | 20138 | RET | Central | Stellenbosch | 75 | 195 | 3.7480 | 99.06 | 2.1460 | 27.41 | 8.0432 | 95.22 | 78 780 | 2 959 200 |
| 58 | 20105 | RET | Central | Stellenbosch | 75 | 80 | 3.7480 | 99.06 | 2.1460 | 27.41 | 8.0432 | 95.22 | 32 320 | 2 991 520 |
| 59 | 15488 | RET | Welgelegen | Stellenbosch | 100 | 160 | 3.6460 | 98.49 | 2.2000 | 47.29 | 8.0213 | 95.13 | 64 640 | 3 056 160 |
| 60 | 21698 | RET | Uniepark 1 | Stellenbosch | 100 | 190 | 3.6460 | 98.49 | 2.2000 | 47.29 | 8.0213 | 95.13 | 76 760 | 3 132 920 |
| 61 | 14288 | RET | Cloetesville reservoir | Stellenbosch | 100 | 170 | 3.6460 | 98.49 | 2.2000 | 47.29 | 8.0213 | 95.13 | 68 680 | 3 201 600 |
| 62 | 16238 | RET | La Coline PRV | Stellenbosch | 100 | 145 | 3.6400 | 98.37 | 2.2000 | 47.29 | 8.0081 | 95.05 | 58 580 | 3 260 180 |
| 63 | 15797 | RET | La Coline PRV | Stellenbosch | 100 | 175 | 3.6400 | 98.37 | 2.2000 | 47.29 | 8.0081 | 95.05 | 70 700 | 3 330 880 |
| 64 | 19190 | RET | Central | Stellenbosch | 100 | 285 | 3.6400 | 98.37 | 2.2000 | 47.29 | 8.0081 | 95.05 | 115 140 | 3 446 020 |
| 65 | 19019 | RET | Central | Stellenbosch | 100 | 140 | 3.6400 | 98.37 | 2.2000 | 47.29 | 8.0081 | 95.05 | 56 560 | 3 502 580 |
| 66 | 13388 | RET | Cloetesville reservoir | Stellenbosch | 150 | 120 | 5.3580 | 97.87 | 2.2541 | 57.00 | 7.9749 | 94.81 | 66 960 | 3 569 540 |
| 67 | 10334 | RET | Papegaaiberg | Stellenbosch | 150 | 275 | 3.7160 | 99.01 | 2.1460 | 27.41 | 7.9745 | 94.79 | 153 450 | 3 722 990 |
| 68 | 9149 | RET | Papegaaiberg | Stellenbosch | 150 | 175 | 3.7160 | 99.01 | 2.1460 | 27.41 | 7.9745 | 94.79 | 97 650 | 3 820 640 |
| 69 | 19691 | RET | Idas Valley | Stellenbosch | 75 | 295 | 3.7020 | 98.92 | 2.1460 | 27.41 | 7.9445 | 94.72 | 119 180 | 3 939 820 |
| 70 | 20291 | RET | Central | Stellenbosch | 75 | 155 | 3.6960 | 98.83 | 2.1460 | 27.41 | 7.9316 | 94.47 | 62 620 | 4 002 440 |
| 71 | 20141 | RET | Central | Stellenbosch | 75 | 50 | 3.6960 | 98.83 | 2.1460 | 27.41 | 7.9316 | 94.47 | 20 200 | 4 022 640 |
| 72 | 20225 | RET | Central | Stellenbosch | 75 | 125 | 3.6960 | 98.83 | 2.1460 | 27.41 | 7.9316 | 94.47 | 50 500 | 4 073 140 |
| 73 | 20195 | RET | Central | Stellenbosch | 75 | 85 | 3.6960 | 98.83 | 2.1460 | 27.41 | 7.9316 | 94.47 | 34 340 | 4 107 480 |
| 74 | 14612 | RET | Cloetesville reservoir | Stellenbosch | 150 | 250 | 6.30560 | 91.84 | 2.5947 | 90.12 | 7.9295 | 94.41 | 139 500 | 4 246 980 |
| 75 | 8117 | RET | Papegaaiberg | Stellenbosch | 100 | 480 | 3.0230 | 91.20 | 2.6021 | 90.32 | 7.8662 | 94.21 | 193 920 | 4 440 900 |
| 76 | 16052 | RET | Papegaaiberg | Stellenbosch | 150 | 105 | 3.6640 | 98.60 | 2.1460 | 27.41 | 7.8629 | 94.20 | 58 590 | 4 499 490 |
| 77 | 15248 | RET | Welgelegen | Stellenbosch | 150 | 120 | 3.6640 | 98.60 | 2.1460 | 27.41 | 7.8629 | 94.20 | 66 960 | 4 566 450 |
| 78 | 12515 | RET | Papegaaiberg | Stellenbosch | 150 | 100 | 3.6640 | 98.60 | 2.1460 | 27.41 | 7.8629 | 94.20 | 55 800 | 4 622 250 |

Table SRW1: Top 150 pipes in Stellenbosch, Stellenbosch Municipality to be

| PRP Rank | Model Link Nr | SYS TYP | SYSTEM | REGION | Diam (mm) | Length (m) | Fi (l) | Final LF | Final LP% | Final CF | Final CF% | Final PRP | Final PRP% | Repl Cost (R) | Cum Repl Cost (R) |
|----------|---------------|---------|--|--------------|-----------|------------|----------|----------|-----------|----------|-----------|-----------|------------|---------------|-------------------|
| 79 | 8087 | RET | Kleinvallei PRV 2 | Stellenbosch | 100 | 175 | € 3.6460 | 98.49 | 2.1460 | 27.41 | 7.8243 | 94.06 | 70 700 | 4 692 950 | |
| 80 | 13676 | RET | Cloeteville reservoir | Stellenbosch | 225 | 150 | 1 3.5560 | 97.90 | 2.2000 | 47.29 | 7.8233 | 94.03 | 146 550 | 4 839 500 | |
| 81 | 13025 | RET | Cloeteville reservoir | Stellenbosch | 225 | 160 | € 3.5560 | 97.90 | 2.2000 | 47.29 | 7.8233 | 94.03 | 156 320 | 4 995 820 | |
| 82 | 19997 | RET | Central | Stellenbosch | 100 | 60 | 1 3.6400 | 98.37 | 2.1460 | 27.41 | 7.8114 | 94.00 | 24 240 | 5 020 060 | |
| 83 | 16073 | RET | La Coline PRV | Stellenbosch | 150 | 35 | € 3.5320 | 97.85 | 2.2000 | 47.29 | 7.7705 | 93.76 | 19 530 | 5 039 590 | |
| 84 | 16757 | RET | Central | Stellenbosch | 100 | 160 | € 3.5140 | 97.75 | 2.2000 | 47.29 | 7.7309 | 93.51 | 64 640 | 5 104 230 | |
| 85 | 8252 | RET | Kleinvallei PRV 2 | Stellenbosch | 100 | 215 | € 3.5940 | 98.11 | 2.1460 | 27.41 | 7.7127 | 93.45 | 86 860 | 5 191 090 | |
| 86 | 11354 | RET | Papegaaiberg | Stellenbosch | 100 | 150 | € 3.5940 | 98.11 | 2.1460 | 27.41 | 7.7127 | 93.45 | 60 600 | 5 251 690 | |
| 87 | 12575 | RET | Welgelegen PRV | Stellenbosch | 100 | 160 | € 3.5940 | 98.11 | 2.1460 | 27.41 | 7.7127 | 93.45 | 64 640 | 5 316 330 | |
| 88 | 13646 | RET | Cloeteville reservoir | Stellenbosch | 150 | 210 | € 3.4120 | 97.31 | 2.2541 | 57.00 | 7.6909 | 93.35 | 117 180 | 5 433 510 | |
| 89 | 11891 | RET | Jamestown | Stellenbosch | 75 | 220 | € 3.5760 | 97.98 | 2.1460 | 27.41 | 7.6741 | 93.16 | 88 880 | 5 522 390 | |
| 90 | 19982 | RET | Uniepark 1 | Stellenbosch | 100 | 380 | € 3.4680 | 97.61 | 2.2000 | 47.29 | 7.6297 | 92.92 | 153 520 | 5 675 910 | |
| 91 | 15455 | RET | Papegaaiberg | Stellenbosch | 75 | 165 | € 3.5240 | 97.84 | 2.1460 | 27.41 | 7.5625 | 92.66 | 66 660 | 5 742 570 | |
| 92 | 15104 | RET | Papegaaiberg | Stellenbosch | 150 | 125 | 1 3.4860 | 97.72 | 2.1460 | 27.41 | 7.4810 | 92.07 | 69 750 | 5 812 320 | |
| 93 | 8426 | RET | Kleinvallei PRV 1 | Stellenbosch | 150 | 380 | € 3.4860 | 97.72 | 2.1460 | 27.41 | 7.4810 | 92.07 | 212 040 | 6 024 360 | |
| 94 | 12047 | RET | Welgelegen PRV | Stellenbosch | 100 | 175 | € 3.4680 | 97.61 | 2.1460 | 27.41 | 7.4423 | 91.61 | 70 700 | 6 095 060 | |
| 95 | 8072 | RET | Kleinvallei PRV 2 | Stellenbosch | 100 | 280 | € 3.4680 | 97.61 | 2.1460 | 27.41 | 7.4423 | 91.61 | 113 120 | 6 208 180 | |
| 96 | 19967 | RET | Central | Stellenbosch | 100 | 245 | € 3.4620 | 97.47 | 2.1460 | 27.41 | 7.4295 | 91.53 | 98 980 | 6 307 160 | |
| 97 | 14657 | RET | Cloeteville reservoir | Stellenbosch | 150 | 200 | 2 3.3600 | 97.18 | 2.2000 | 47.29 | 7.3921 | 91.43 | 111 600 | 6 418 760 | |
| 98 | 15311 | RET | La Coline PRV | Stellenbosch | 150 | 155 | 4 3.3540 | 97.12 | 2.2000 | 47.29 | 7.3789 | 91.32 | 86 490 | 6 505 250 | |
| 99 | 40045 | RET | Franschhoek - Wemmershoek re: Greater Frar | 100 | 70 | € 3.3960 | 97.24 | 2.1460 | 27.41 | 7.2878 | 90.19 | 28 280 | 6 533 530 | | |
| 100 | 19877 | RET | Uniepark 1 | Stellenbosch | 150 | 330 | € 3.2280 | 96.74 | 2.2541 | 57.00 | 7.2761 | 90.15 | 184 140 | 6 717 670 | |
| 101 | 19442 | RET | Central | Stellenbosch | 100 | 350 | 1 3.2840 | 96.83 | 2.2000 | 47.29 | 7.2249 | 89.57 | 141 400 | 6 859 070 | |
| 102 | 9440 | RET | Papegaaiberg | Stellenbosch | 150 | 295 | € 3.3600 | 97.18 | 2.1460 | 27.41 | 7.2106 | 89.27 | 164 610 | 7 023 680 | |
| 103 | 14165 | RET | Papegaaiberg | Stellenbosch | 150 | 230 | 1 2.9520 | 87.17 | 2.4407 | 84.14 | 7.2051 | 89.24 | 128 340 | 7 152 020 | |
| 104 | 12341 | RET | Papegaaiberg | Stellenbosch | 150 | 165 | € 3.3080 | 96.94 | 2.1460 | 27.41 | 7.0990 | 88.23 | 92 070 | 7 244 090 | |
| 105 | 8330 | RET | Kleinvallei PRV 2 | Stellenbosch | 150 | 225 | € 3.3080 | 96.94 | 2.1460 | 27.41 | 7.0990 | 88.23 | 125 550 | 7 369 640 | |
| 106 | 11843 | RET | Papegaaiberg | Stellenbosch | 150 | 145 | € 3.3080 | 96.94 | 2.1460 | 27.41 | 7.0990 | 88.23 | 80 910 | 7 450 550 | |
| 107 | 10904 | RET | Jamestown | Stellenbosch | 75 | 560 | € 3.2200 | 96.70 | 2.2000 | 47.29 | 7.0841 | 87.53 | 226 240 | 7 676 790 | |
| 108 | 20171 | RET | Uniepark 1 | Stellenbosch | 75 | 310 | € 3.2200 | 96.70 | 2.2000 | 47.29 | 7.0841 | 87.53 | 125 240 | 7 802 030 | |
| 109 | 20066 | RET | Uniepark 1 | Stellenbosch | 150 | 385 | € 3.2040 | 96.47 | 2.2000 | 47.29 | 7.0489 | 86.97 | 214 830 | 8 016 860 | |
| 110 | 12677 | RET | Central | Stellenbosch | 110 | 250 | € 2.9052 | 82.93 | 2.4154 | 83.37 | 7.0173 | 86.57 | 101 000 | 8 117 860 | |
| 111 | 19583 | RET | Central | Stellenbosch | 315 | 320 | 2 2.6380 | 61.63 | 2.6569 | 91.25 | 7.0088 | 86.19 | 432 960 | 8 550 820 | |
| 112 | 14609 | RET | Cloeteville reservoir | Stellenbosch | 110 | 100 | € 3.2540 | 96.77 | 2.1460 | 27.41 | 6.9831 | 85.84 | 40 400 | 8 591 220 | |

Table SRW2: Processed pipe failure records

| Idx | Township | Address | Wardisc_num | Integrity | Failure_da | Failure_ye | FittingTyp | Comment | Diameter | ExistMat | Pipe_Class | Source | GLS Dia | GLS Mat | GLS Dia33 | GLS_year | Reason | SoilType | Surfacing | Mountd |
|-----|--------------|------------------------|-------------|-----------|------------|------------|------------|---------|----------|----------|------------|--------|----------|----------|-----------|----------|--------|----------|-----------|--------|
| | Stellenbosch | 13 Jan Pienaar | 15797 | 3 | 13/10/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Soetewoide | 18824 | 1 | 20/02/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 10 Erasmus smit | 19505 | 1 | 28/02/2016 | 2016 | H/W/P | H/W/P | | | | | 75 UPVC | 75 UPVC | 899 | 2010 | | | | |
| | Stellenbosch | Crozier st | 15848 | 2 | 13/06/2016 | 2016 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1990 | | | | |
| | Stellenbosch | 9 Jean st | 15455 | 1 | 10/10/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | Rienveld/Merriman | 16133 | 2 | 21/04/2016 | 2016 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1990 | | | | |
| | Stellenbosch | Joubert st | 16257 | 2 | 10/06/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 11 Erasmus smit | 19505 | 1 | 12/07/2016 | 2016 | H/W/P | H/W/P | | | | | 75 UPVC | 75 UPVC | 899 | 2010 | | | | |
| | Stellenbosch | Houbert st | 16738 | 1 | 05/09/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 4 Soetewoide | 18227 | 3 | 13/03/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 130 Merriman | 19590 | 1 | 07/05/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 27 Webersvalley | 10904 | 1 | 16/09/2016 | 2016 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1990 | | | | |
| | Stellenbosch | Rorine | 10754 | 3 | 27/09/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | 4 Silecta st | 10247 | 1 | 19/10/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | Webersvalley | 11894 | 3 | 20/02/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | 21 Whiteheart | 10904 | 1 | 22/03/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | 81 Webersvallei | 10904 | 1 | 26/08/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | Rorine st | 10754 | 3 | 09/11/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | 9 Evieboaring | 10608 | 1 | 13/12/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | Crozier st | 15848 | 3 | 05/04/2016 | 2016 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1990 | | | | |
| | Stellenbosch | Webersvalley rd | 10904 | 3 | 04/11/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | 6 Silecta st | 10247 | 1 | 27/10/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1975 | | | | |
| | Stellenbosch | Rheingart st | 20291 | 3 | 06/04/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Boschenal | 21185 | 3 | 20/04/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | libertas laan | 20192 | 3 | 21/04/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1965 | | | | |
| | Stellenbosch | 1 Zwaanswjk | 20138 | 1 | 24/03/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | Hofmeier st | 19019 | 3 | 24/03/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 2 De Vos st | 18494 | 1 | 03/04/2016 | 2016 | H/W/P | H/W/P | | | | | 50 AC | 50 AC | 899 | 1990 | | | | |
| | Stellenbosch | 2 Otterkuil | 20275 | 1 | 26/06/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Martinswjk/Morkel | 20018 | 2 | 30/06/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 7 Zwaanswjk | 20195 | 1 | 30/06/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 44 Noorcowal Obs | 18911 | 1 | 21/04/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | De Waal | 19016 | 2 | 30/04/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Hofmeier/Malais | 19166 | 2 | 27/06/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 32 Berg laan | 16034 | 1 | 31/05/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Wegje/Brandwajlht | 16037 | 2 | 14/09/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Sullan/Keiffer | 11876 | 2 | 19/09/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 15 Irene laak | 16238 | 1 | 05/09/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Morkel | 20018 | 3 | 07/01/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Bergh st | 16031 | 3 | 13/01/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 7 Meerlust | 20138 | 1 | 07/02/2016 | 2016 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | van Dier Stei | 19442 | 3 | 20/03/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Neethling/van Ribereck | 17543 | 3 | 22/03/2016 | 2016 | H/W/P | H/W/P | | | | | 225 AC | 225 AC | 899 | 1990 | | | | |
| | Stellenbosch | 7 Blinmakring st | 15305 | 1 | 29/12/2016 | 2016 | H/W/P | H/W/P | | | | | 110 UPVC | 110 UPVC | 899 | 2012 | | | | |
| | Stellenbosch | Wegje/Brandwajlht | 16037 | 2 | 14/12/2016 | 2016 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | Mkalla st | 11321 | 1 | 28/07/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1965 | | | | |
| | Stellenbosch | Barf y st | 11321 | 1 | 28/07/2015 | 2015 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1965 | | | | |
| | Stellenbosch | Mkalla st | 14153 | 1 | 28/07/2015 | 2015 | H/W/P | H/W/P | | | | | 110 UPVC | 110 UPVC | 899 | 2014 | | | | |
| | Stellenbosch | 2 Otterkuil | 20225 | 1 | 30/06/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1990 | | | | |
| | Stellenbosch | 19 Kiri st | 14111 | 1 | 08/02/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | Mkalla st | 11321 | 1 | 21/07/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1990 | | | | |
| | Stellenbosch | 15 Martin st | 21389 | 1 | 17/06/2015 | 2015 | H/W/P | H/W/P | | | | | 110 UPVC | 110 UPVC | 899 | 2014 | | | | |
| | Stellenbosch | 111 Mawetu | 11228 | 1 | 10/09/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1970 | | | | |
| | Stellenbosch | Neliniolus st | 15488 | 3 | 18/09/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1965 | | | | |
| | Stellenbosch | Davdise st | 11870 | 1 | 04/08/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1970 | | | | |
| | Stellenbosch | 152 Mkalla | 11321 | 1 | 04/08/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1965 | | | | |
| | Stellenbosch | Luxido st | 10825 | 1 | 14/08/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1970 | | | | |
| | Stellenbosch | 79 Lang st | 14357 | 1 | 23/04/2015 | 2015 | H/W/P | H/W/P | | | | | 110 UPVC | 110 UPVC | 899 | 2014 | | | | |
| | Stellenbosch | Mastthandane st | 11516 | 3 | 26/04/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1970 | | | | |
| | Stellenbosch | Mastthandane st | 11516 | 3 | 29/04/2015 | 2015 | H/W/P | H/W/P | | | | | 75 AC | 75 AC | 899 | 1965 | | | | |
| | Stellenbosch | Rhorpe st | 13676 | 2 | 16/03/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1970 | | | | |
| | Stellenbosch | Kalder/Bloekom | 20150 | 2 | 14/04/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1970 | | | | |
| | Stellenbosch | Mastthandane st | 11516 | 3 | 16/04/2015 | 2015 | H/W/P | H/W/P | | | | | 225 AC | 225 AC | 899 | 1965 | | | | |
| | Stellenbosch | Mastthandane st | 12002 | 1 | 08/06/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 1970 | | | | |
| | Stellenbosch | Jamal st | 13547 | 1 | 10/06/2015 | 2015 | H/W/P | H/W/P | | | | | 90 UPVC | 90 UPVC | 899 | 1965 | | | | |
| | Stellenbosch | 102 Pine st | 15521 | 3 | 10/06/2015 | 2015 | H/W/P | H/W/P | | | | | 150 AC | 150 AC | 899 | 1965 | | | | |
| | Stellenbosch | Draai laan | 11129 | 3 | 11/05/2015 | 2015 | H/W/P | H/W/P | | | | | 50 AC | 50 AC | 899 | 1970 | | | | |
| | Stellenbosch | Lamia st | 11798 | 3 | 30/04/2015 | 2015 | H/W/P | H/W/P | | | | | 50 AC | 50 AC | 899 | 1970 | | | | |
| | Stellenbosch | Second avenue | 11798 | 3 | 30/04/2015 | 2015 | H/W/P | H/W/P | | | | | 50 AC | 50 AC | 899 | 1970 | | | | |
| | Stellenbosch | Franschoek | 40465 | 1 | 16/02/2015 | 2015 | H/W/P | H/W/P | | | | | 95 UNIK | 95 UNIK | 899 | 0 | | | | |
| | Stellenbosch | Dwars River | 30130 | 3 | 19/02/2015 | 2015 | H/W/P | H/W/P | | | | | 100 AC | 100 AC | 899 | 0 | | | | |

| | | | | | | | | | |
|--------------|-------------------------|-------|---|------------|------|-------|----------|------|------|
| Franschoek | 109 Jakaranda st | 40155 | 1 | 22/02/2015 | 2015 | H/W/P | 100 UNK | 899 | 0 |
| Klammuts | Mercham st | 50470 | 3 | 23/04/2015 | 2015 | H/W/P | 160 UPVC | 1200 | 0 |
| Kla muts | B P Garage Klammuts | 50870 | 1 | 13/07/2015 | 2015 | H/W/P | 150 UNK | 899 | 0 |
| Kla muts | B P Garage Klammuts | 50870 | 1 | 15/08/2015 | 2015 | H/W/P | 150 UNK | 899 | 0 |
| Franschoek | Smeekbos | 40045 | 3 | 13/07/2015 | 2015 | H/W/P | 100 UNK | 899 | 0 |
| Devars River | 11 Daffodil st | 35290 | 1 | 18/12/2015 | 2015 | H/W/P | 9H AC | 899 | 0 |
| Stellenbosch | White Hearts | 11891 | 3 | 18/01/2016 | 2016 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | William st | 14480 | 3 | 11/04/2015 | 2015 | H/W/P | 100 AC | 899 | 1965 |
| Franschoek | 109 Jakaranda st | 40155 | 1 | 23/02/2015 | 2015 | H/W/P | 100 UNK | 899 | 1965 |
| Stellenbosch | Omega st | 21389 | 1 | 21/10/2015 | 2015 | H/W/P | 110 UPVC | 1200 | 2014 |
| Stellenbosch | Omega st | 21698 | 2 | 22/10/2015 | 2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | Cloetsvlei sportgron | 13286 | 1 | 03/11/2015 | 2015 | H/W/P | 110 HDPE | 899 | 1965 |
| Stellenbosch | Donnerand | 13421 | 1 | 14/10/2015 | 2015 | H/W/P | 110 HDPE | 1200 | 1998 |
| Stellenbosch | Curry st | 10991 | 1 | 17/10/2015 | 2015 | H/W/P | 90 HDPE | 1250 | 1965 |
| Stellenbosch | Ewerberry | 13035 | 1 | 08/12/2015 | 2015 | H/W/P | 110 UPVC | 1200 | 2010 |
| Stellenbosch | 10 Rhode st | 13958 | 1 | 23/12/2015 | 2015 | H/W/P | 225 AC | 899 | 1965 |
| Stellenbosch | 35 Eike st | 50675 | 1 | 19/02/2015 | 2015 | H/W/P | 50 AC | 899 | 1965 |
| Stellenbosch | Klammuts Hotel | 50675 | 1 | 19/02/2015 | 2015 | H/W/P | 150 UNK | 899 | 0 |
| Stellenbosch | 23 King st | 14111 | 1 | 08/11/2015 | 2015 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Mc Coy st | 21695 | 1 | 06/11/2015 | 2015 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Hof laan | 20066 | 3 | 29/04/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Unie park | 20180 | 3 | 09/02/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Unie park | 20180 | 3 | 09/02/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 34 Dahlia | 19982 | 1 | 22/02/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 50 Dahlia | 19982 | 1 | 22/02/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 7 Prounsig | 20165 | 1 | 25/01/2016 | 2016 | H/W/P | 110 UPVC | 1200 | 2006 |
| Stellenbosch | Maroela st | 22034 | 3 | 06/04/2016 | 2016 | H/W/P | 150 AC | 899 | 1980 |
| Stellenbosch | Hof laan | 20066 | 3 | 05/04/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Marinsson st | 19877 | 3 | 17/10/2016 | 2016 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 2 Lindall st | 19907 | 2 | 10/11/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2012 |
| Stellenbosch | 6 Orange laan | 20207 | 1 | 07/11/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 68 Dahlia st | 19982 | 1 | 08/11/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Marinsson/Unie | 19880 | 2 | 03/08/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Rozendal st | 21713 | 3 | 11/10/2016 | 2016 | H/W/P | 110 UPVC | 1200 | 2009 |
| Stellenbosch | Stellenbosch | 19691 | 1 | 31/08/2016 | 2016 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Du Toit | 14513 | 3 | 30/01/2016 | 2016 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Bergzicht | 14042 | 3 | 04/02/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 16 Pui's | 8072 | 1 | 04/02/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 9 Pheasicht/Zwaanswyk | 20291 | 2 | 23/11/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Markel/Marinsson | 20218 | 2 | 10/12/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Ottenkui st | 20225 | 3 | 14/12/2016 | 2016 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | 8 Kleinvalley | 8465 | 1 | 29/03/2016 | 2016 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | 78 Jan Pierruwet | 8069 | 1 | 01/04/2016 | 2016 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | Bergzicht | 14042 | 3 | 16/04/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 8 Trouplant | 8252 | 1 | 20/02/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 28 Flamingo | 8285 | 1 | 25/02/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 6 Kleinvalley | 8465 | 1 | 24/03/2016 | 2016 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | Laan/Faber | 19004 | 2 | 18/07/2016 | 2016 | H/W/P | 75 HDPE | 1250 | 1965 |
| Stellenbosch | Laan/zaac | 21110 | 3 | 06/08/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | De Vos st | 18494 | 3 | 22/08/2016 | 2016 | H/W/P | 50 AC | 899 | 1990 |
| Stellenbosch | De Vos st | 18494 | 3 | 14/07/2016 | 2016 | H/W/P | 50 AC | 899 | 1990 |
| Stellenbosch | Markel st | 20018 | 2 | 14/07/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Jonkershoek/Boschendal | 21281 | 2 | 15/07/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Markel/Jonkershoek | 21416 | 2 | 13/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Libertas/Zwaanswyk | 20192 | 2 | 18/10/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Libertas/Zwaanswyk | 20192 | 2 | 14/11/2016 | 2016 | H/W/P | 160 UPVC | 899 | 1984 |
| Stellenbosch | Hofmeyer st | 19019 | 3 | 11/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | De Waal st | 19016 | 3 | 22/08/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 152 Adringa | 15545 | 1 | 18/01/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Planken | 11894 | 3 | 23/03/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 59 Anesta st | 15731 | 1 | 07/03/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 7 Ackerman st | 15362 | 1 | 16/13/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 11 Adelaar st | 8084 | 1 | 29/11/2016 | 2016 | H/W/P | 160 UPVC | 899 | 1990 |
| Stellenbosch | Aan de Wagen | 13082 | 1 | 25/12/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Oranje laan | 20207 | 3 | 08/03/2016 | 2016 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Mesaon | 8510 | 2 | 12/05/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Bergzicht/9 Alexander | 14042 | 2 | 20/06/2016 | 2016 | H/W/P | 110 UPVC | 1200 | 2005 |
| Stellenbosch | Koch/Ackerman | 15362 | 2 | 15/07/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 17 Du Toit st | 12677 | 1 | 10/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 7 Jan Fiskaal | 8030 | 1 | 10/05/2016 | 2016 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | 59 Bokewood | 9004 | 1 | 07/06/2016 | 2016 | H/W/P | 110 HDPE | 1250 | 1990 |
| Stellenbosch | 10 Patrys | 8072 | 1 | 07/06/2016 | 2016 | H/W/P | 160 UPVC | 1200 | 2012 |
| Stellenbosch | Alexander/Bergzicht | 14042 | 2 | 15/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Tarentaal/Jan Pierruwet | 8051 | 2 | 17/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 36 Patrys st | 8090 | 1 | 18/10/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Bosman crossing | 9860 | 1 | 12/09/2016 | 2016 | H/W/P | 225 AC | 899 | 1940 |

| | | | | | | | | | | |
|--------------|----------------------|-------|---|------------|------|-------|-----|------|------|------|
| Stellenbosch | 17 Du Toit st | 12677 | 1 | 01/09/2016 | 2016 | H/W/P | 110 | HDPE | 1250 | 1990 |
| Stellenbosch | van Der Stel | 19442 | 3 | 25/01/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 1 Zwans wijk | 20138 | 1 | 01/01/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | Protea/Rustenburg | 19668 | 2 | 06/12/2015 | 2015 | H/W/P | 110 | UPVC | 899 | 2010 |
| Stellenbosch | Joubert st | 16757 | 1 | 20/12/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 13 Thibault | 19667 | 1 | 16/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 36 Pownan | 19814 | 1 | 26/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Groenevelde | 20105 | 1 | 31/01/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 2 Anreith | 19667 | 3 | 27/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 14 Schoongezigt | 19474 | 1 | 04/02/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | Thibault | 19667 | 3 | 05/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1990 |
| Stellenbosch | Des's st | 19403 | 3 | 13/08/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 11 Erasmus smit | 19505 | 1 | 13/10/2015 | 2015 | H/W/P | 90 | HDPE | 1250 | 1992 |
| Stellenbosch | Simonsberg st | 19736 | 1 | 21/10/2015 | 2015 | H/W/P | 75 | UPVC | 899 | 2010 |
| Stellenbosch | 4 Kleeneude | 18968 | 1 | 27/06/2015 | 2015 | H/W/P | 150 | AC | 899 | 1990 |
| Stellenbosch | Versweede/Banghoek | 19190 | 2 | 03/07/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | Hofmeier | 19019 | 3 | 05/07/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Adrija/Borchard | 17675 | 2 | 26/11/2015 | 2015 | H/W/P | 150 | AC | 899 | 1990 |
| Stellenbosch | Helschoogte | 20033 | 1 | 30/11/2015 | 2015 | H/W/P | 110 | UPVC | 899 | 2012 |
| Stellenbosch | 14 Luckhoff st | 19616 | 1 | 02/11/2015 | 2015 | H/W/P | 75 | UPVC | 899 | 2010 |
| Stellenbosch | Banghoek | 19295 | 1 | 04/11/2015 | 2015 | H/W/P | 160 | UPVC | 1200 | 2012 |
| Stellenbosch | Erasmus smit | 19505 | 3 | 22/10/2015 | 2015 | H/W/P | 75 | UPVC | 899 | 2010 |
| Stellenbosch | 49 van Der Stel | 19709 | 1 | 10/11/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 83 Jonkershoek weg | 20021 | 1 | 01/11/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 14 Zwaanswijk | 20141 | 3 | 26/12/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Unie/Meriton | 19190 | 3 | 14/09/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 19880 | 19880 | 2 | 18/10/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 83 Jonkershoek | 20021 | 1 | 07/11/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | De Waal | 19016 | 1 | 20/09/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 7 Rincezigh | 20291 | 1 | 03/01/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | 14 Zwaans wijk | 20294 | 1 | 17/01/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | 9 Meerlust st | 20138 | 1 | 31/12/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | De Vos st | 18494 | 3 | 12/03/2015 | 2015 | H/W/P | 50 | AC | 899 | 1990 |
| Stellenbosch | 4 De Vos | 18494 | 1 | 19/09/2015 | 2015 | H/W/P | 50 | AC | 899 | 1990 |
| Stellenbosch | 9 Meerlust st | 20138 | 1 | 15/06/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | 13 van Der Stel | 19307 | 1 | 24/06/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 7 Meerlust | 20138 | 1 | 27/06/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Rouan | 19724 | 1 | 12/04/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Marais st | 19151 | 3 | 23/04/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Morkel st | 20018 | 3 | 29/04/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 47 van Der Stel | 19709 | 1 | 06/08/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 11 Meerlust | 20138 | 1 | 14/08/2015 | 2015 | H/W/P | 75 | AC | 899 | 1990 |
| Stellenbosch | Banghoek/Groenevalde | 19058 | 2 | 15/08/2015 | 2015 | H/W/P | 160 | UPVC | 1200 | 2012 |
| Stellenbosch | 1 Du Plessis | 19997 | 1 | 04/08/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 13 Thibault | 19967 | 1 | 03/07/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Roberts st | 15716 | 1 | 16/07/2015 | 2015 | H/W/P | 100 | AC | 899 | 1965 |
| Stellenbosch | 81 Bultekring | 15248 | 1 | 26/09/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | Bultekring | 16295 | 3 | 03/10/2015 | 2015 | H/W/P | 100 | AC | 899 | 1965 |
| Stellenbosch | 14 Vreje | 10139 | 1 | 26/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | Bultekring | 16295 | 3 | 26/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | 46 Bultekring | 15764 | 1 | 26/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | Dr Malan/Paul Roos | 16673 | 2 | 16/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | Reneveld st | 15896 | 1 | 26/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | 8 Binnekring | 15305 | 1 | 19/12/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | Krommerivier | 14831 | 3 | 16/01/2015 | 2015 | H/W/P | 160 | UPVC | 899 | 2012 |
| Stellenbosch | 29 Conde str | 15749 | 1 | 12/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1940 |
| Stellenbosch | Kolbas st | 18899 | 3 | 13/01/2015 | 2015 | H/W/P | 110 | UPVC | 899 | 2012 |
| Stellenbosch | 37 Bergh st | 16034 | 1 | 11/02/2015 | 2015 | H/W/P | 75 | HDPE | 1250 | 1965 |
| Stellenbosch | 38 Brandwaght st | 17096 | 1 | 19/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 0 |
| Stellenbosch | Suidwal/Pietretief | 15605 | 2 | 20/05/2015 | 2015 | H/W/P | 110 | UPVC | 900 | 2012 |
| Stellenbosch | Koch st | 15365 | 1 | 20/07/2015 | 2015 | H/W/P | 200 | AC | 899 | 1940 |
| Stellenbosch | Binnekring | 15695 | 3 | 10/01/2015 | 2015 | H/W/P | 100 | AC | 899 | 1940 |
| Stellenbosch | 5 Van Taak st | 17096 | 1 | 24/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1965 |
| Stellenbosch | 30 Binnekring | 15248 | 1 | 24/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1965 |
| Stellenbosch | 13 Spring st | 17480 | 1 | 24/02/2015 | 2015 | H/W/P | 150 | AC | 899 | 1965 |
| Stellenbosch | 5 Wrege | 16403 | 1 | 24/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1965 |
| Stellenbosch | 23 Sonneblom | 15905 | 1 | 27/02/2015 | 2015 | H/W/P | 110 | UPVC | 900 | 2012 |
| Stellenbosch | Dorval/Hofmeier | 19016 | 2 | 10/04/2015 | 2015 | H/W/P | 100 | AC | 899 | 2010 |
| Stellenbosch | Hofmeier st | 19019 | 3 | 12/05/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 21 Sonneblom st | 19436 | 1 | 24/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | Banghoek weg | 19295 | 3 | 26/02/2015 | 2015 | H/W/P | 110 | UPVC | 900 | 2012 |
| Stellenbosch | Hofmeier | 19019 | 3 | 26/02/2015 | 2015 | H/W/P | 100 | AC | 899 | 1990 |
| Stellenbosch | 1 Kähler | 19691 | 1 | 30/05/2015 | 2015 | H/W/P | 75 | AC | 899 | 1945 |

| | | | | | | | | |
|--------------|--------------------------|-------|--------------|------|--------|----------|------|------|
| Stellenbosch | Bloekomlaan | 20069 | 3 21/08/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 25 Erasmus smit | 19505 | 1 06/09/2017 | 2017 | H/W/P | 75 UPVC | 899 | 2010 |
| Stellenbosch | 16 Kommandeur | 19493 | 1 15/09/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 54 Lelie | 19655 | 1 28/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Bloekom | 20084 | 3 30/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Cluwer/Schoongesigth | 19352 | 2 20/08/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | Bloekom/Lelie | 19805 | 2 29/10/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Bloekomlaan | 20084 | 3 05/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 20 Here Single | 19634 | 1 07/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Jonkerspark | 19808 | 3 18/09/2017 | 2017 | H/W/P | 315 UNK | 899 | 1990 |
| Stellenbosch | Bloekomlaan | 20084 | 3 02/10/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | luchoff st | 19739 | 3 10/10/2017 | 2017 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | 68 Dahlia | 19982 | 1 23/04/2017 | 2017 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 20 Klavier st | 19691 | 1 09/05/2017 | 2017 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | 18 Cluwer weg | 19352 | 1 18/05/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | Rozendal | 21653 | 3 05/02/2017 | 2017 | Tennis | 110 UPVC | 1200 | 2009 |
| Stellenbosch | Verreweide | 19190 | 3 08/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 46 Luchhoff st | 19739 | 1 15/03/2017 | 2017 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Bloekomlaan | 19424 | 1 06/06/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 6 Schoongesigth | 20069 | 3 24/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Woodman | 21545 | 3 28/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Moses st | 20396 | 3 31/05/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | 4 Baker st | 19439 | 1 26/05/2017 | 2017 | H/W/P | 110 HDPE | 1250 | 2002 |
| Stellenbosch | 9 Rhezicht | 20291 | 1 02/04/2017 | 2017 | H/W/P | 75 UPVC | 899 | 2010 |
| Stellenbosch | Lamzerac | 21110 | 3 30/04/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Jonkershoek/Jammasch | 19679 | 2 26/05/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Plain st | 15980 | 3 16/11/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | van Der stel st | 19442 | 3 26/01/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 19 Rhezicht | 20291 | 1 20/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 3 Meerlust | 20138 | 1 15/07/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | 11 Meerlust | 20138 | 1 16/07/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | 9 Libertas | 20192 | 1 07/06/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Jammasch/Jonkershoek | 19679 | 2 18/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Rowan/Morgenster | 19727 | 2 28/06/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Markei st | 20021 | 3 28/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 5 Morkel | 21425 | 1 29/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Onge st | 19190 | 3 15/10/2017 | 2017 | H/W/P | 250 UNK | 899 | 1990 |
| Stellenbosch | Verreweide | 19190 | 3 15/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Verreweide | 19190 | 3 29/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Ruime erf st | 18866 | 3 18/05/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Plain st | 15980 | 3 15/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | De Vos st | 18494 | 3 03/09/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 12 Neethling | 17573 | 1 04/09/2017 | 2017 | H/W/P | 50 AC | 899 | 1990 |
| Stellenbosch | Dorp/Louw | 15866 | 2 05/04/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Drostj/Dorp | 16631 | 2 13/01/2017 | 2017 | H/W/P | 160 HDPE | 899 | 2013 |
| Stellenbosch | 13 Rorine st | 10754 | 1 09/08/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | Dorpsig st | 16157 | 3 11/01/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | Draai laan | 15521 | 3 11/01/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Ber/f/brandwaght | 16031 | 2 03/03/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Kolbe st | 18699 | 3 20/06/2017 | 2017 | H/W/P | 110 UPVC | 899 | 2012 |
| Stellenbosch | 5 Limes st | 19061 | 1 30/09/2017 | 2017 | H/W/P | 75 HDPE | 1250 | 1965 |
| Stellenbosch | 95 Webersvallei | 10904 | 1 12/06/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | Blaukiri jery/Canterbury | 12500 | 2 01/03/2017 | 2017 | H/W/P | 110 UPVC | 899 | 1965 |
| Stellenbosch | Fresno/Rolinda | 9767 | 2 18/04/2017 | 2017 | H/W/P | 75 HDPE | 1250 | 1965 |
| Stellenbosch | Rorine | 10754 | 3 17/07/2017 | 2017 | H/W/P | 75 HDPE | 1250 | 1965 |
| Stellenbosch | 6 Selekta | 10247 | 1 30/07/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | Rorine st | 10754 | 3 06/08/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 15 Rorine st | 10754 | 1 25/06/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | De Beer st | 17654 | 3 16/08/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 11 Irene park | 16238 | 1 30/08/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 16 Dr-Milani | 16073 | 1 16/09/2017 | 2017 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 9 Dan Pienaar | 15797 | 1 02/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Dr Mahan/Paul Roos | 16673 | 2 04/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 36 Lindida dr | 15311 | 2 27/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Kommandeurs laan | 19493 | 3 14/01/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | Erasmusmuy/Lelie | 19655 | 2 15/01/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Dan Pienaar | 15797 | 3 26/10/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 81 Soetewiede | 18488 | 1 20/10/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Neimapius | 15188 | 3 07/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Charme st | 15665 | 3 09/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Houtkapper/Pison | 16046 | 2 06/06/2017 | 2017 | H/W/P | 110 UPVC | 1200 | 1985 |
| Stellenbosch | 35 Bergj st | 16034 | 1 07/03/2017 | 2017 | H/W/P | 200 UPVC | 1200 | 1985 |
| Stellenbosch | 11 Kronendal | 16154 | 1 30/08/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |

| | | | | | | | | | |
|--------------|--------------------------|-------|---|-------------|------|-------|----------|------|------|
| Stellenbosch | 36 Berg'n laan | 16034 | 1 | 06/09/2017 | 2017 | H/W/P | 100 AC | 899 | 0 |
| Stellenbosch | Irene park | 16238 | 3 | 09/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 98 R newel | 16133 | 1 | 15/04/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 15 Dan Pienaar | 15797 | 1 | 14/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 37 Bosman | 18182 | 2 | 09/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Bosman/Victoria | 18371 | 2 | 09/12/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 37 Vrededek st | 12908 | 1 | 21/01/2018 | 2018 | H/W/P | 110 HDPE | 1250 | 1965 |
| Stellenbosch | Kleinvallei st | 8465 | 3 | 21/01/2018 | 2018 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | 28 Lelie st | 19469 | 1 | 24/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Du Toit st | 12677 | 3 | | 2018 | H/W/P | 110 HDPE | 899 | 1990 |
| Stellenbosch | 10 Nared st | 11261 | 1 | 21/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | Ever-bearing st | 10508 | 1 | 21/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 64 Jonkershoek | 19679 | 1 | 01/02/2018 | 2018 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Kajamandi mall | 10642 | 2 | 02/02/2018 | 2018 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | Stelliga park | 11726 | 3 | 02/02/2018 | 2018 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 17 Whiteheart st | 11891 | 1 | | 2018 | H/W/P | 100 AC | 899 | 2010 |
| Stellenbosch | 77 Jonkershoek | 19910 | 2 | | 2018 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 24 Kallier | 19891 | 1 | | 2018 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Luchhof/Protea | 19706 | 2 | | 2018 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | 44 February st | 12059 | 1 | 08/01/2018 | 2018 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 5 Swavel | 8180 | 1 | 16/11/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Flemingo/Pat'ys | 8900 | 2 | 30/11/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Erasmus smit | 19505 | 3 | 02/01/2018 | 2018 | H/W/P | 75 UPVC | 899 | 2010 |
| Stellenbosch | Jam Fiskaal | 8030 | 3 | | 2018 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Kyramandi mall | 10642 | 2 | 14/01/2018 | 2018 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 34 Goosberfiv | 13373 | 1 | 15/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | 19 Kallier st | 19891 | 1 | 09/01/2018 | 2018 | H/W/P | 110 UPVC | 899 | 2000 |
| Stellenbosch | Suidkaj st | 15104 | 3 | 08/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | 4 Conrillon st | 21116 | 1 | 21/01/2018 | 2018 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | 7 Mierlust st | 20138 | 1 | 23/01/2018 | 2018 | H/W/P | 110 HDPE | 1250 | 2003 |
| Stellenbosch | Mk Coj st | 21695 | 3 | 16/01/2018 | 2018 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Bloekomlaan/Welber | 20069 | 2 | 18/01/2018 | 2018 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 28 Bartlett Rise | 11744 | 1 | 15/02/2018 | 2018 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Pieter Langevellet skool | 8117 | 2 | | 2018 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | Adamas/Devonvalli | 11228 | 2 | 24/02/2018 | 2018 | H/W/P | 100 AC | 899 | 1980 |
| Stellenbosch | 303 Mawethu | 12675 | 1 | 06/02/2018 | 2018 | H/W/P | 150 AC | 899 | 1960 |
| Stellenbosch | 21 Welkemade | 14631 | 2 | | 2018 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | Krujer/Doop | 11548 | 1 | 11/02/2018 | 2018 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | 58 Molani st | 11348 | 1 | 11/02/2018 | 2018 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | 10 Jan Pierewiet st | 8078 | 1 | 26/02/2018 | 2018 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | 5 Conrillon st | 21116 | 1 | 02/01/2018 | 2018 | H/W/P | 110 UPVC | 899 | 2012 |
| Stellenbosch | 18 Troujan st | 8252 | 1 | 25/02/2018 | 2018 | H/W/P | 110 HDPE | 1250 | 2003 |
| Stellenbosch | Adelaar/Tarentaal | 8075 | 2 | 24/02/2018 | 2018 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 52 William st | 15032 | 1 | 28/01/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 52 William st | 15032 | 1 | 31/01/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | William st | 14480 | 3 | 20/02/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Mento st | 21863 | 1 | 27/02/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 74 Maroela | 21932 | 1 | 27/04/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 5 Peadoring st | 21953 | 1 | 28/06/2017 | 2017 | H/W/P | 150 AC | 899 | 1980 |
| Stellenbosch | 32 William st | 14480 | 1 | 22/11/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 80 William st | 14996 | 1 | 12/11/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Klaarvuts | 50235 | 3 | 28/11/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Mandela city | 40155 | 1 | 04/09/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 90 Jakaranda st | 41035 | 1 | 03/10/2017 | 2017 | H/W/P | 110 UPVC | 1200 | 0 |
| Stellenbosch | 5 Hofman | 42686 | 3 | 06/10/2017 | 2017 | H/W/P | 100 UNK | 899 | 0 |
| Stellenbosch | Daniel Hugo | 19823 | 3 | 15/12/2017 | 2017 | H/W/P | 110 PVC | 899 | 0 |
| Stellenbosch | Thibault | 21281 | 1 | 18/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 106 Jonkershoek | 20105 | 1 | 30/12/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 14 Anreth st | 19442 | 1 | 18/07/2017 | 2017 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | 23 van Der stiel | 19997 | 2 | 21/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | van Der stel/Du Plessie | 20392 | 1 | 22/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 5 Piet Retief | 14052 | 1 | 109/12/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Kock/Jean | 15365 | 2 | 30/11/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Lindley/Pacham | 21716 | 2 | 01/02/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Doornbosch | 14165 | 3 | 08/11/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Park/Piet Retief | 16187 | 2 | 21/03/2017 | 2017 | H/W/P | 150 AC | 899 | 1980 |
| Stellenbosch | Stearkin st | 14111 | 3 | 16/08/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Bergapnes | 9743 | 3 | 19/10/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | 41 Gaubriel | 12533 | 1 | 08/11/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Stelliga park | 11726 | 3 | 15/06/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 63 Lang Suid | 14657 | 1 | 23/06/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Hine/Gabriels | 12548 | 2 | 07/07/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Tarenaal/Patrys | 8066 | 2 | 22/05/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Tarenaal/Pat'ys | 8066 | 2 | 07/07/2017 | 2017 | H/W/P | 100 AC | 899 | 1955 |
| Stellenbosch | 2 Torreliduf | 8132 | 1 | 08/11/2017 | 2017 | H/W/P | 110 UPVC | 899 | 2012 |

| | | | | | | | | | |
|--------------|--------------------|-------|---|------------|------|-------|----------|------|------|
| Stellenbosch | 7 Gonzales st | 11792 | 1 | 21/11/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 7 Hine st | 14522 | 1 | 18/11/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 42 February st | 12059 | 3 | 20/02/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | North end | 13689 | 3 | 02/03/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 67 Lanj st | 14657 | 1 | 03/04/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 35 Gabriel st | 12308 | 1 | 10/01/2017 | 2017 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Cupido st | 11855 | 3 | 21/01/2017 | 2017 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | Seabine st | 10226 | 3 | 11/02/2017 | 2017 | H/W/P | 225 AC | 899 | 1965 |
| Stellenbosch | Rhode st | 13676 | 3 | 23/05/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Bergsgras | 9743 | 3 | 23/05/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Carriem st | 11729 | 3 | 30/05/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 146 Lanj st | 13388 | 2 | 25/04/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 6 Davids st | 11651 | 1 | 11/04/2017 | 2017 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Red oak | 12194 | 3 | 03/02/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 12 Ismail st | 12002 | 1 | 29/03/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Hine st | 12832 | 3 | 10/04/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 17 Maria singel | 9527 | 1 | 26/10/2016 | 2016 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | 23 Wottemade st | 12575 | 1 | 26/10/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Mountain silver | 11324 | 1 | 21/01/2016 | 2016 | H/W/P | 50 AC | 899 | 1965 |
| Stellenbosch | 5 Willger st | 15131 | 1 | 03/07/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 4 Davids st | 11651 | 1 | 10/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 4 Davids st | 11651 | 1 | 10/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Stellia park | 11726 | 3 | 20/04/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 59 Hine | 12632 | 1 | 24/05/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 36 Davids | 12191 | 1 | 02/06/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Swellegreel | 12479 | 3 | 08/08/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Ditmars/Brandwacht | 15140 | 2 | 23/08/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2011 |
| Stellenbosch | Swellegreel | 12479 | 3 | 23/08/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2011 |
| Stellenbosch | 71 Lovell lan | 11720 | 1 | 15/07/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2011 |
| Stellenbosch | 14 Swellegreel | 12479 | 1 | 17/07/2016 | 2016 | H/W/P | 150 AC | 899 | 2011 |
| Stellenbosch | Doringbosch | 13976 | 2 | 02/08/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2011 |
| Stellenbosch | Swellegreel | 12479 | 3 | 10/09/2016 | 2016 | H/W/P | 110 UPVC | 900 | 2011 |
| Stellenbosch | Swellegreel | 12479 | 3 | 10/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Ditmars/Brandwacht | 15140 | 2 | 12/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Koch st | 15330 | 3 | 29/08/2016 | 2016 | H/W/P | 150 AC | 899 | 1960 |
| Stellenbosch | 14 Formosa st | 11843 | 1 | 30/08/2016 | 2016 | H/W/P | 100 UNK | 899 | 0 |
| Stellenbosch | Profesa st | 40200 | 3 | 21/09/2016 | 2016 | H/W/P | 100 UNK | 899 | 0 |
| Stellenbosch | Sonneblom st | 40045 | 3 | 07/10/2016 | 2016 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Sonneblom st | 40045 | 3 | 07/10/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 29 Khaler st | 19691 | 1 | 19/11/2016 | 2016 | H/W/P | 160 PVC | 1200 | 0 |
| Stellenbosch | William st | 14480 | 3 | 02/04/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Dahla st | 31530 | 2 | 07/08/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 30 William st | 14480 | 1 | 23/11/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | William st | 14480 | 3 | 27/11/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 29 Carriem st | 11729 | 1 | 22/11/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Rhode st | 13676 | 2 | 07/12/2016 | 2016 | H/W/P | 225 AC | 899 | 1965 |
| Stellenbosch | 7 Curido | 11603 | 1 | 31/12/2016 | 2016 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | Gonzales st | 11792 | 3 | 23/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Valentijn st | 14609 | 3 | 07/11/2016 | 2016 | H/W/P | 110 UPVC | 1200 | 0 |
| Stellenbosch | 146 Lang st | 13388 | 2 | 16/11/2016 | 2016 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 38 Luckhoff st | 19739 | 1 | 09/08/2016 | 2016 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | 16 Oranje lan | 20207 | 1 | 11/08/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 4 Bloekom | 19805 | 1 | 19/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 63 Gorridon | 21680 | 1 | 16/04/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |
| Stellenbosch | 25 Bantier rise | 21659 | 1 | 05/04/2016 | 2016 | H/W/P | 110 UPVC | 899 | 2012 |
| Stellenbosch | Peiklaan/Loerte | 8369 | 2 | 31/03/2016 | 2016 | H/W/P | 100 AC | 899 | 1980 |
| Stellenbosch | Dennesi st | 13046 | 3 | 22/04/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 105 Luxolo | 10925 | 1 | 24/05/2016 | 2016 | H/W/P | 90 HDPE | 1250 | 1990 |
| Stellenbosch | Drenesi/hof | 13046 | 2 | 29/01/2016 | 2016 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | 47 Forest Drive | 10367 | 1 | 26/02/2016 | 2016 | H/W/P | 75 AC | 899 | 1970 |
| Stellenbosch | 73 Lu-rolu st | 9746 | 1 | 19/03/2016 | 2016 | H/W/P | 75 AC | 899 | 1980 |
| Stellenbosch | Adrima | 15689 | 2 | 12/06/2016 | 2016 | H/W/P | 200 AC | 899 | 1970 |
| Stellenbosch | Muller | 15353 | 2 | 15/06/2016 | 2016 | H/W/P | 100 AC | 899 | 1950 |
| Stellenbosch | Beil/Bird | 13577 | 2 | 25/06/2016 | 2016 | H/W/P | 110 HDPE | 1250 | 1990 |
| Stellenbosch | Masintandane | 10340 | 2 | 03/06/2016 | 2016 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Bossie | 15689 | 3 | 11/06/2016 | 2016 | H/W/P | 100 AC | 899 | 1970 |
| Stellenbosch | Adrima | 19568 | 3 | 10/03/2016 | 2016 | H/W/P | 160 UPVC | 1200 | 2014 |
| Stellenbosch | Rustenburg | 19568 | 3 | 10/03/2016 | 2016 | H/W/P | 200 AC | 899 | 1990 |
| Stellenbosch | Simonsberg st | 19736 | 3 | 02/12/2016 | 2016 | H/W/P | 110 UPVC | 899 | 2010 |
| Stellenbosch | Rustenburg weg | 19568 | 3 | 18/10/2016 | 2016 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | 4 Primrose | 14734 | 1 | 05/01/2016 | 2016 | H/W/P | 110 UPVC | 1200 | 2010 |
| Stellenbosch | Eike st | 14288 | 3 | 21/01/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Stellenbosch | 19430 | 2 | 09/09/2016 | 2016 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | Desh/Lelle st | 19430 | 2 | 09/09/2016 | 2016 | H/W/P | 75 AC | 899 | 1945 |
| Stellenbosch | De Wet | 14642 | 3 | 23/01/2016 | 2016 | H/W/P | 100 AC | 899 | 1945 |

| | | | | | | | | | |
|--------------|------------------------|-------|--------------|------|-------|----------|------|------|--|
| Stellenbosch | Saffronlaan/Lovelly | 9640 | 2 18/04/2017 | 2017 | H/W/P | 100 AC | 899 | 0 | |
| Stellenbosch | 22 Weidenhof | 12035 | 1 15/04/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | Jamestown begraafplaas | 8777 | 1 26/03/2017 | 2017 | H/W/P | 75 UNK | 899 | 0 | |
| Stellenbosch | Jamestown begraafplaas | 8777 | 1 28/03/2017 | 2017 | H/W/P | 75 UNK | 899 | 0 | |
| Stellenbosch | Doombosch | 14165 | 3 19/05/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | Barry | 14153 | 3 11/07/2017 | 2017 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | Koch st | 15965 | 3 07/09/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | 4 Dr. Melan | 15911 | 1 06/09/2017 | 2017 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | Borchers/Adringa | 15572 | 2 05/05/2017 | 2017 | H/W/P | 150 AC | 899 | 1990 | |
| Stellenbosch | Borchard st | 15572 | 3 13/04/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | 12 Clover weg | 15572 | 3 20/04/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Jan Marais | 19286 | 1 03/05/2013 | 2013 | H/W/P | 150 AC | 899 | 1990 | |
| Stellenbosch | Smits st | 19151 | 2 16/02/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Banghoek/De Beer | 17615 | 3 20/03/2013 | 2013 | H/W/P | 315 UNK | 899 | 1990 | |
| Stellenbosch | Banghoek wj | 16607 | 2 05/04/2013 | 2013 | H/W/P | 160 uPVC | 1200 | 2012 | |
| Stellenbosch | 5 Verreweide | 19190 | 3 13/07/2013 | 2013 | H/W/P | 300 AC | 899 | 1990 | |
| Stellenbosch | Conde | 19190 | 1 14/08/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | 209 Banghoek weg | 14927 | 3 18/08/2013 | 2013 | H/W/P | 110 uPVC | 899 | 2012 | |
| Stellenbosch | 10 Soerewede | 19064 | 1 13/06/2013 | 2013 | H/W/P | 160 uPVC | 1200 | 2012 | |
| Stellenbosch | Soerewede/Bosman | 18468 | 1 08/07/2013 | 2013 | H/W/P | 100 AC | 899 | 1940 | |
| Stellenbosch | van Der Stel | 18227 | 2 11/07/2013 | 2013 | H/W/P | 100 AC | 899 | 1940 | |
| Stellenbosch | Van Der Stel | 19442 | 3 10/09/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Vrede st | 15701 | 3 26/09/2013 | 2013 | H/W/P | 75 AC | 899 | 1940 | |
| Stellenbosch | Andringa/Dorji | 19442 | 3 13/10/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Dorji/Andringa | 16007 | 2 22/06/2013 | 2013 | H/W/P | 200 AC | 899 | 1990 | |
| Stellenbosch | 3 van Der Stel | 19907 | 2 17/06/2013 | 2013 | H/W/P | 200 AC | 899 | 1990 | |
| Stellenbosch | 6 Vrede st | 19701 | 2 09/07/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Jonkersdijft | 19283 | 1 22/11/2013 | 2013 | H/W/P | 75 AC | 899 | 1940 | |
| Stellenbosch | 5 Verreweide | 19190 | 3 07/01/2013 | 2013 | H/W/P | 110 uPVC | 1200 | 2010 | |
| Stellenbosch | Skool/Pietretief | 15243 | 1 16/11/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Bergh/Brandwacht | 16037 | 2 14/10/2013 | 2013 | H/W/P | 100 AC | 899 | 1940 | |
| Stellenbosch | Stellenberf | 16961 | 3 03/11/2013 | 2013 | H/W/P | 110 uPVC | 1200 | 1998 | |
| Stellenbosch | Endler st | 19583 | 3 07/11/2013 | 2013 | H/W/P | 315 UNK | 899 | 1990 | |
| Stellenbosch | 34 Bergh | 16034 | 1 22/08/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Buitekring | 15248 | 3 22/08/2013 | 2013 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | 87 Buitekring | 19918 | 1 05/10/2013 | 2013 | H/W/P | 75 AC | 899 | 1965 | |
| Stellenbosch | Therby | 20093 | 3 07/11/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Wesg/Brandwacht | 16000 | 2 05/12/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Banhoek/Aynewell | 16040 | 2 18/10/2013 | 2013 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | Jan Marais | 19151 | 3 01/11/2013 | 2013 | Toevo | 315 UNK | 899 | 1990 | |
| Stellenbosch | 7 Hendrick bergh | 15690 | 1 20/02/2013 | 2013 | H/W/P | 110 uPVC | 899 | 2012 | |
| Stellenbosch | Andringa/Borchard | 15572 | 2 23/09/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | 59 Borchard st | 15575 | 1 03/10/2013 | 2013 | H/W/P | 110 HDPE | 1250 | 1990 | |
| Stellenbosch | 63 Borchard st | 15575 | 1 04/10/2013 | 2013 | H/W/P | 110 HDPE | 1250 | 1990 | |
| Stellenbosch | 7 Meerlust | 20138 | 1 23/04/2013 | 2013 | H/W/P | 75 AC | 899 | 1990 | |
| Stellenbosch | 81 Buitekring | 15248 | 1 03/05/2013 | 2013 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | 25 Buitekring | 15224 | 1 13/06/2013 | 2013 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | 3 Meerlust st | 20138 | 1 08/04/2013 | 2013 | H/W/P | 75 AC | 899 | 1990 | |
| Stellenbosch | 8 Sdadu st | 15908 | 1 24/02/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Rokewors/Kameel | 12515 | 2 05/06/2013 | 2013 | H/W/P | 150 AC | 899 | 1960 | |
| Stellenbosch | Lovellaa | 10634 | 3 11/07/2013 | 2013 | H/W/P | 160 uPVC | 900 | 2011 | |
| Stellenbosch | 16 Troujant | 8252 | 1 11/07/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Devonvallei Rd | 8162 | 2 06/04/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | 18 Formosa sf | 11843 | 1 19/04/2013 | 2013 | H/W/P | 150 AC | 899 | 1960 | |
| Stellenbosch | van Rheede st | 10994 | 3 01/05/2013 | 2013 | H/W/P | 110 uPVC | 899 | 2011 | |
| Stellenbosch | 5 Woitermade | 11840 | 1 10/09/2013 | 2013 | H/W/P | 100 AC | 899 | 1973 | |
| Stellenbosch | Saffraan/Eldorado | 9149 | 2 17/10/2013 | 2013 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | 28 Tarentaal | 8087 | 1 18/12/2013 | 2013 | H/W/P | 100 AC | 899 | 1955 | |
| Stellenbosch | 4 Formosa | 11873 | 1 21/07/2013 | 2013 | H/W/P | 100 AC | 899 | 1960 | |
| Stellenbosch | 13 Kelliewyn | 8327 | 1 19/08/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | 10 Paris st | 8072 | 1 30/08/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Stasie st | 12038 | 3 17/11/2013 | 2013 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | Herold st | 12653 | 3 02/10/2013 | 2013 | H/W/P | 100 AC | 899 | 1940 | |
| Stellenbosch | 6 Eldorado | 9149 | 1 12/10/2013 | 2013 | H/W/P | 150 AC | 899 | 1940 | |
| Stellenbosch | 2 Troujant st | 8252 | 3 12/01/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Kokkewiet st | 12479 | 3 05/04/2013 | 2013 | H/W/P | 150 AC | 899 | 1965 | |
| Stellenbosch | swellen urebel | 9527 | 2 10/12/2013 | 2013 | H/W/P | 110 uPVC | 900 | 2011 | |
| Stellenbosch | Lovellaa/Marina | 13046 | 3 03/05/2013 | 2013 | H/W/P | 100 AC | 899 | 1965 | |
| Stellenbosch | Dommestij st | 14726 | 1 11/06/2013 | 2013 | H/W/P | 90 HDPE | 1250 | 1990 | |
| Stellenbosch | 10 Langfontein st | 15332 | 2 23/06/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |
| Stellenbosch | Meirman/Bird | 14915 | 2 14/04/2013 | 2013 | H/W/P | 200 AC | 899 | 1990 | |
| Stellenbosch | Bird/Muller | 14915 | 2 14/04/2013 | 2013 | H/W/P | 110 HDPE | 1250 | 1990 | |
| Stellenbosch | Langfontein | 14726 | 3 09/05/2013 | 2013 | H/W/P | 100 AC | 899 | 1990 | |

| | | | | | | | |
|--------------|---------------------|-------|--------------|-------|----------|------|------|
| Stellenbosch | Martinson/Umie | 19880 | 2 02/10/2014 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Tennant st | 13646 | 1 25/01/2014 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Beil st | 14612 | 3 18/02/2014 | H/W/P | 150 AC | 899 | 0 |
| Stellenbosch | 9 Adelaar st | 8084 | 1 12/02/2014 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | La Colline Weg | 15308 | 3 10/01/2014 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 2 Hercoles | 11955 | 1 10/01/2014 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Alexander/Berglight | 14042 | 2 19/06/2015 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | 3 Herold st | 12251 | 2 24/02/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | 17 Du Toit st | 12677 | 1 24/02/2015 | H/W/P | 110 HDPE | 1250 | 1990 |
| Stellenbosch | 79 Lovel laan | 12041 | 1 12/02/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | Santa Rosa | 11180 | 3 20/02/2015 | H/W/P | 100 AC | 899 | 2011 |
| Stellenbosch | Saffraan/Rokewood | 12182 | 2 17/06/2015 | H/W/P | 150 AC | 899 | 0 |
| Stellenbosch | Du Toit st | 13976 | 1 17/06/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Rokewood st | 10583 | 3 15/05/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Combrig | 10586 | 3 24/05/2015 | H/W/P | 160 UPVC | 1200 | 2012 |
| Stellenbosch | 1 Lovel laan | 10115 | 1 24/05/2015 | H/W/P | 75 AC | 899 | 0 |
| Stellenbosch | Adamas Distel | 10272 | 1 24/02/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Adamas/Dorp st | 10763 | 2 27/02/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Du Toit st | 10583 | 3 30/04/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Rokewood/Kaneel | 10583 | 2 26/07/2015 | H/W/P | 160 UPVC | 1200 | 2012 |
| Stellenbosch | Du Toit st | 10763 | 3 10/11/2015 | Toeco | 150 AC | 899 | 1940 |
| Stellenbosch | 7 Lovel laan | 10118 | 1 01/07/2015 | H/W/P | 100 AC | 899 | 0 |
| Stellenbosch | Saffraan laan | 10334 | 1 20/06/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | 12 Rokewood | 12515 | 1 25/05/2015 | H/W/P | 150 AC | 899 | 0 |
| Stellenbosch | 13 Weltemade | 12047 | 1 05/08/2015 | H/W/P | 150 AC | 899 | 1960 |
| Stellenbosch | Kerff/Sallan | 11687 | 2 02/09/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | 12 Lovel laan | 10358 | 1 23/03/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | lang R44 | 12809 | 1 12/04/2015 | H/W/P | 160 UPVC | 900 | 2011 |
| Stellenbosch | Saffraan/Ellorado | 9149 | 2 13/05/2015 | H/W/P | 450 AC | 899 | 0 |
| Stellenbosch | Koch/Cruise | 15365 | 3 14/05/2015 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Piet rafter/Vrede | 15605 | 2 20/05/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | 10 Vrede st | 15701 | 1 30/04/2015 | H/W/P | 200 AC | 899 | 1940 |
| Stellenbosch | De Wet st | 14642 | 1 29/11/2015 | H/W/P | 75 AC | 899 | 1940 |
| Stellenbosch | 11 Berry st | 14153 | 1 29/11/2015 | H/W/P | 100 AC | 899 | 0 |
| Stellenbosch | 21 Berry laan | 14447 | 1 23/02/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 18 Hoop Hoop st | 8903 | 1 26/02/2015 | H/W/P | 160 UPVC | 899 | 2012 |
| Stellenbosch | 14 Peka st | 12755 | 1 23/02/2015 | H/W/P | 100 AC | 899 | 1955 |
| Stellenbosch | 73 Lovel laan | 12041 | 1 23/02/2015 | H/W/P | 150 AC | 899 | 1973 |
| Stellenbosch | 30 Binnekring | 14870 | 1 23/02/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | 95 Lovel laan | 12743 | 1 26/02/2015 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 97 Lovel laan | 12743 | 1 26/02/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | 28 Weltemade | 13298 | 1 27/02/2015 | H/W/P | 100 AC | 899 | 1960 |
| Stellenbosch | 34 Berry laan | 14447 | 1 26/02/2015 | H/W/P | 1200 | 2000 | 2012 |
| Stellenbosch | 14 Berry laan | 14153 | 1 26/02/2015 | H/W/P | 160 UPVC | 899 | 2012 |
| Stellenbosch | 12 Hoop Hoop | 8249 | 1 26/02/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 1 Dgbrek st | 8426 | 1 05/02/2015 | H/W/P | 100 AC | 899 | 1955 |
| Stellenbosch | Tanraai/Keikewyn | 8411 | 2 24/02/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 5 Dgbrek | 8426 | 1 16/03/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 1 Dgbrek | 8426 | 1 06/01/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Jan Frederik | 22571 | 3 23/01/2015 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 31 Ostara | 10079 | 1 12/02/2015 | H/W/P | 100 AC | 899 | 1965 |
| Stellenbosch | 20 Pison st | 15371 | 1 19/02/2015 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | 22 Pison st | 8330 | 1 19/02/2015 | H/W/P | 100 AC | 899 | 1975 |
| Stellenbosch | 8 Flamingo | 8330 | 1 22/03/2015 | H/W/P | 110 UPVC | 1200 | 1985 |
| Stellenbosch | Adamas/Devonwall | 8117 | 2 23/05/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | Faber st | 19004 | 3 11/02/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Nared | 10754 | 1 08/11/2015 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | 18 Kleinvallei | 8465 | 1 13/06/2015 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Langehoven | 14726 | 1 24/07/2015 | H/W/P | 160 UPVC | 1200 | 2012 |
| Stellenbosch | Jamstown Hoerskool | 75920 | 1 02/11/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Ronne st | 10754 | 1 06/11/2015 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 21 Rorine | 10754 | 1 06/11/2015 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 1 Borcherd | 15011 | 1 24/05/2015 | H/W/P | 160 HDPE | 1250 | 1990 |
| Stellenbosch | Rokewood | 10683 | 3 08/03/2015 | H/W/P | 160 UPVC | 1200 | 2012 |
| Stellenbosch | 8 Kleinvallei | 8465 | 1 12/02/2015 | H/W/P | 110 HDPE | 1250 | 2012 |
| Stellenbosch | Jansdijk | 14852 | 2 12/02/2015 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Drokkers laan | 14303 | 1 07/10/2015 | H/W/P | 200 AC | 899 | 1990 |
| Stellenbosch | 5 Everbearing | 10508 | 1 02/04/2015 | H/W/P | 75 AC | 899 | 1975 |
| Stellenbosch | 10 Elektron | 8591 | 1 06/04/2015 | H/W/P | 110 UPVC | 899 | 1985 |
| Stellenbosch | Kaib/Lesuer | 18674 | 2 23/02/2015 | H/W/P | 150 AC | 899 | 1965 |
| Stellenbosch | 14 Gilson st | 15368 | 1 26/02/2015 | H/W/P | 75 UPVC | 1200 | 1985 |

| | | | | | | | | | |
|--------------|-------------------|-------|---|------------|------|-------|--------|-----|------|
| Stellenbosch | Alexander | 14648 | 3 | 12/09/2014 | 2014 | H/W/P | 100 AC | 899 | 1940 |
| Stellenbosch | Bergzicht | 14042 | 3 | 03/10/2014 | 2014 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Hofmeier st | 18866 | 3 | 28/01/2014 | 2014 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | S Libertas | 20192 | 3 | 08/05/2014 | 2014 | H/W/P | 75 AC | 899 | 1965 |
| Stellenbosch | Coetzenburg | 19037 | 3 | 18/05/2014 | 2014 | H/W/P | 75 AC | 899 | 1940 |
| Stellenbosch | 34 Die Leen | 18536 | 3 | 19/07/2014 | 2014 | H/W/P | 75 AC | 899 | 1990 |
| Stellenbosch | Hofmeier st | 18866 | 3 | 27/09/2014 | 2014 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Roethling | 17477 | 3 | 24/08/2014 | 2014 | H/W/P | 150 AC | 899 | 1990 |
| Stellenbosch | Vrede/Piet Retief | 15701 | 1 | 30/07/2014 | 2014 | H/W/P | 75 AC | 899 | 1940 |
| Stellenbosch | Vrede/Strand | 16052 | 2 | 22/08/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Aan de Wagen | 13082 | 2 | 02/09/2014 | 2014 | H/W/P | 75 AC | 899 | 1940 |
| Stellenbosch | Papegaai st | 13178 | 3 | 08/04/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Pietretief/Vrede | 16052 | 2 | 20/05/2014 | 2014 | H/W/P | 50 AC | 899 | 1940 |
| Stellenbosch | Skone uitsig | 14441 | 3 | 28/06/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Dornbosch | 13976 | 3 | 15/10/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Brd/Alexander | 15284 | 2 | 27/11/2014 | 2014 | H/W/P | 100 AC | 899 | 1990 |
| Stellenbosch | Suidwal | 15104 | 3 | 20/09/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |
| Stellenbosch | Piet Retief | 16052 | 2 | 07/09/2014 | 2014 | H/W/P | 150 AC | 899 | 1940 |



Pipe Replacement Potential

- Low (<60%)
- Average (60%-80%)
- High (80%-90%)
- Very High (90%-100%)
- Priority pipes
- Recorded burst near unreplaced pipe



Scale 1:50000



June 2019

Pipe replacement study Stellenbosch

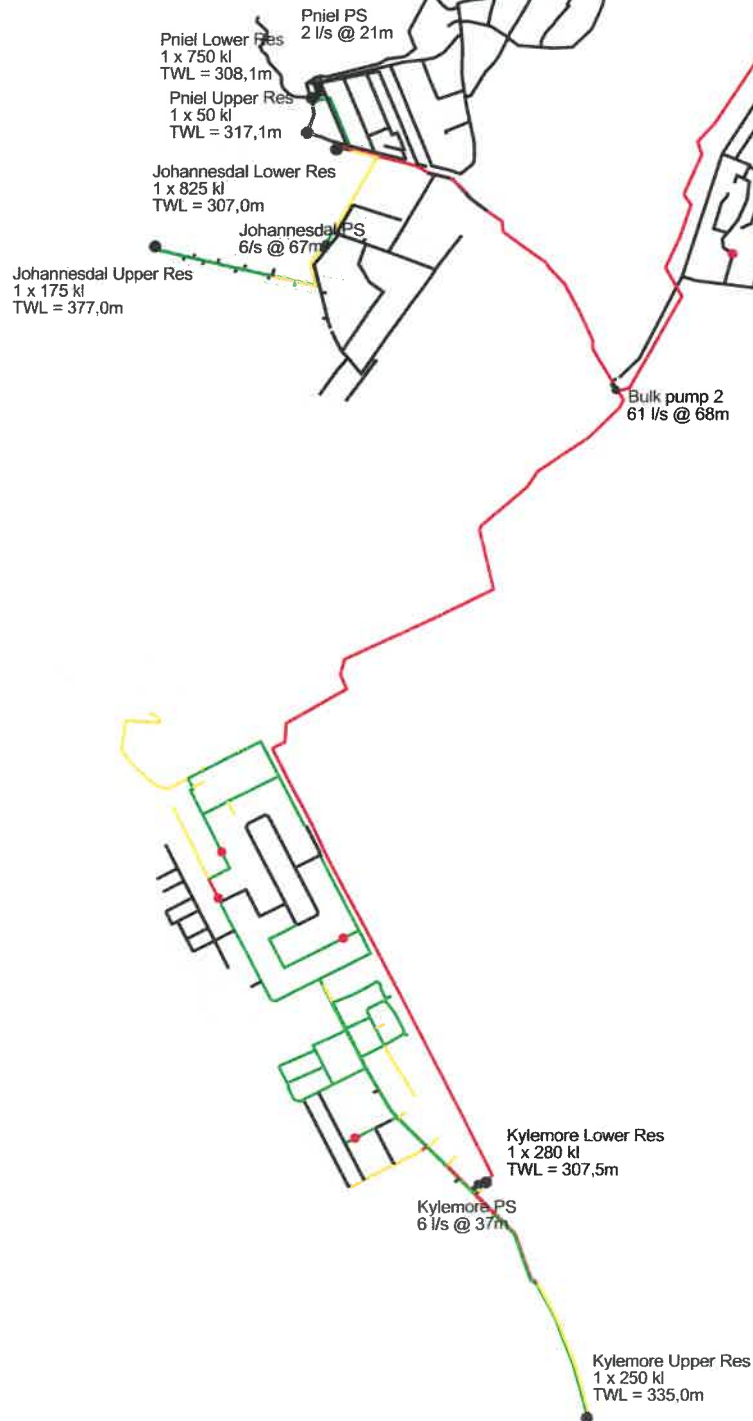
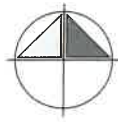


Figure SRW 1 (a)

Pipe replacement potential for Stellenbosch

Pipe Replacement Potential

- Low (<60%)
- Average (60%-80%)
- High (80%-90%)
- Very High (90%-100%)
- Priority pipes
- Recorded burst near unreplaced pipe



Scale 1:20000



June 2019

Pipe replacement study Stellenbosch

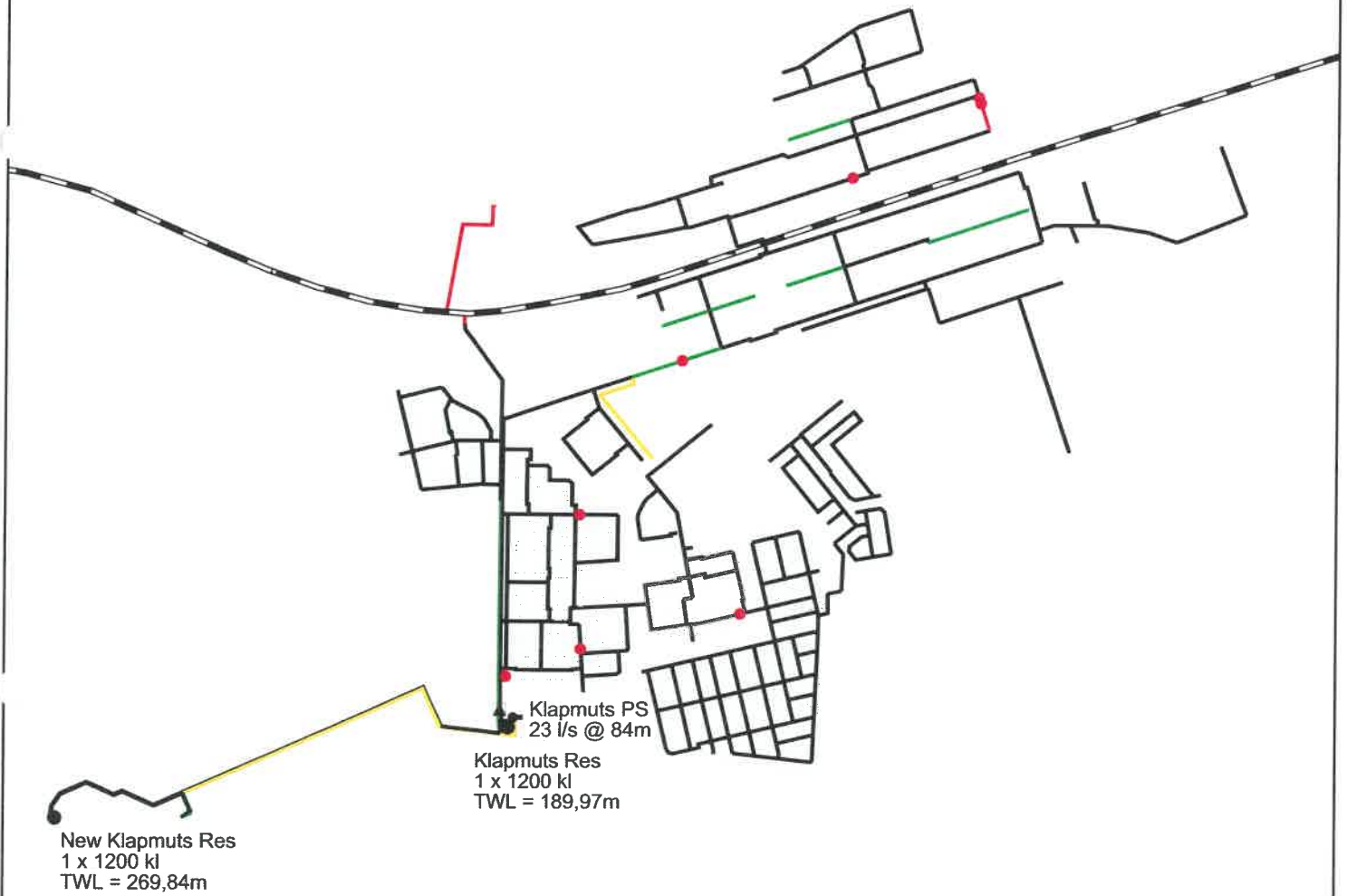
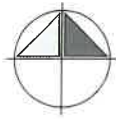


Figure SRW 1 (b)

Pipe replacement potential for Dwars River

Pipe Replacement Potential

- Low (<60%)
- Average (60%-80%)
- High (80%-90%)
- Very High (90%-100%)
- Priority pipes
- Recorded burst near unreplaced pipe



June 2019

Pipe replacement study Stellenbosch

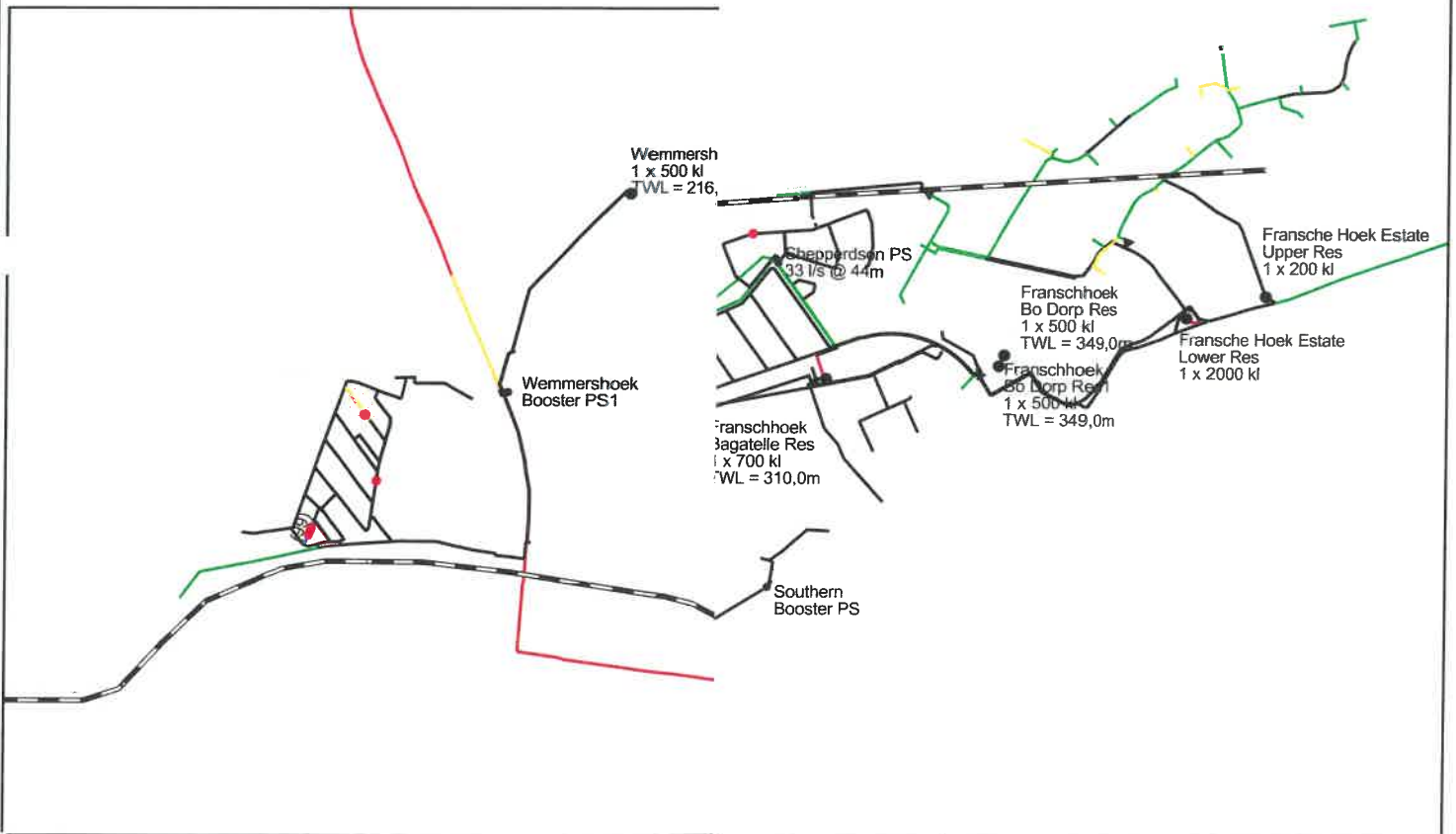
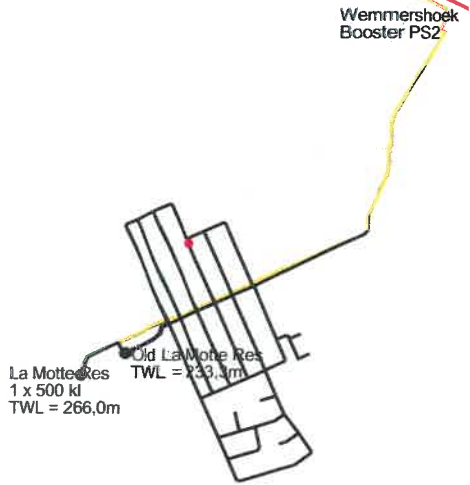
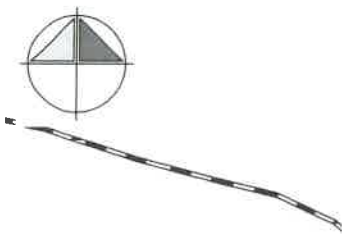


Figure SRW 1 (c)

Pipe replacement potential for Klapmuts

Pipe Replacement Potential

- Low (<60%)
- Average (60%-80%)
- High (80%-90%)
- Very High (90%-100%)
- Priority pipes
- Recorded burst near unreplaced pipe



June 2019

Pipe replacement study Stellenbosch

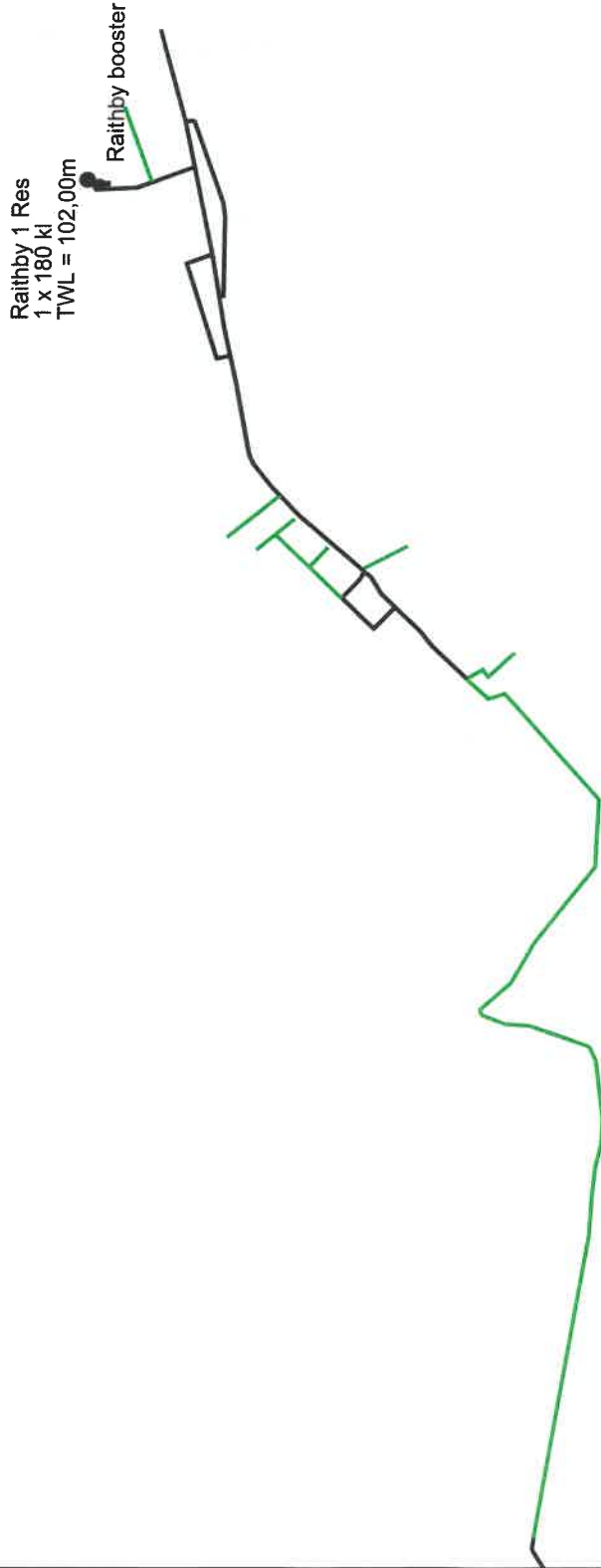


Figure SRW 1 (d)

Pipe replacement potential for Franschhoek



- Pipe Replacement Potential**
- Low (<60%)
 - Average (60%-80%)
 - High (80%-90%)
 - Very High (90%-100%)
 - Priority pipes
 - Recorded burst near unreplaced pipe



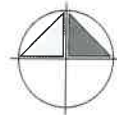
June 2019

Pipe replacement study Stellenbosch



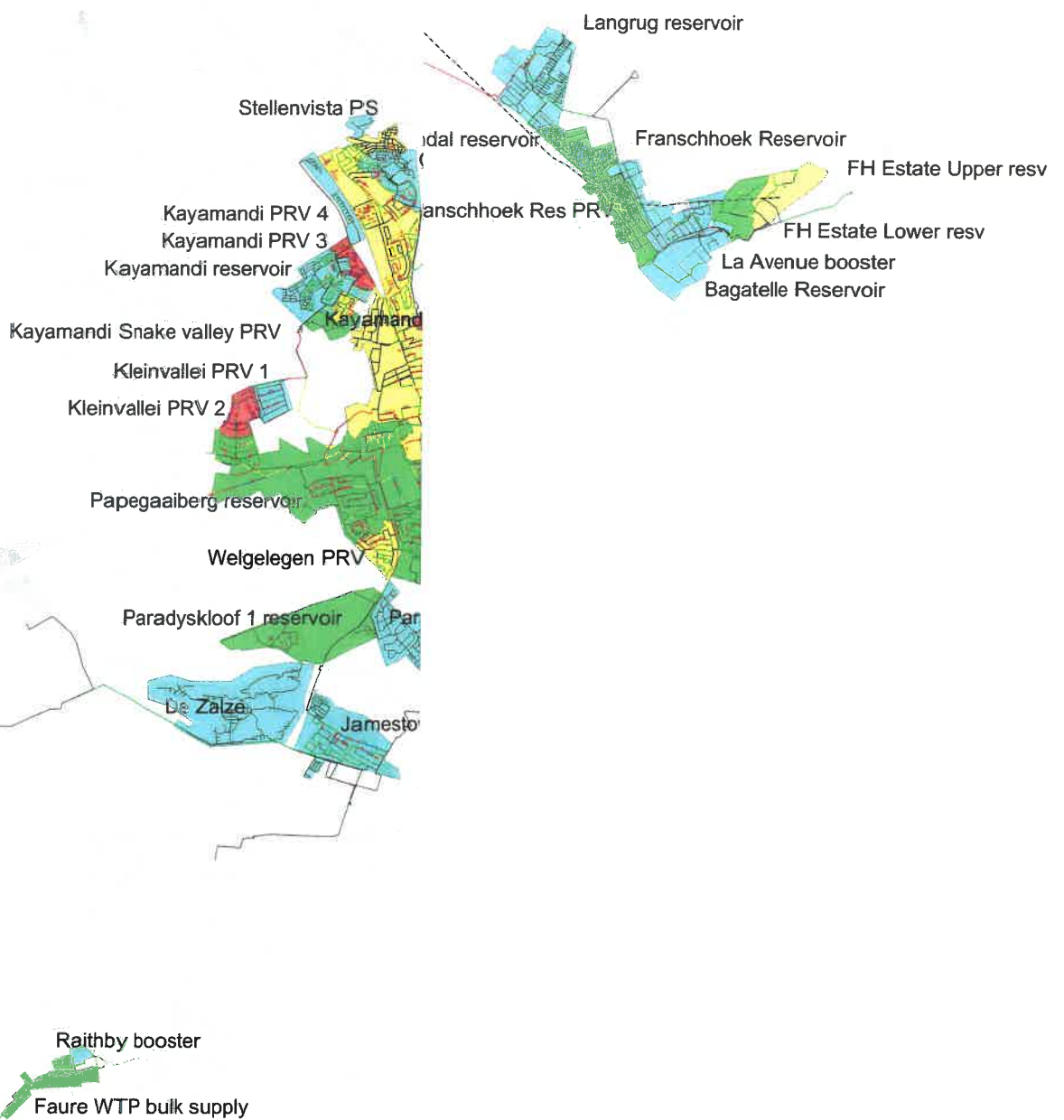
Figure SRW 1 (e)

Pipe replacement potential for Raithby



Avg PRP(%)

- <60 %
- 60% - 80%
- 80% - 90%
- 90% - 100%



June 2019

Pipe replacement study Stellenbosch



Figure SRW 2

Pipe length weighted average PRP per Region (%)

| LF weights | | | | |
|------------|--------|-----------|------------|---------|
| Property | Weight | MaxRULDel | RULZeroPos | RULMode |
| L_NomDiam | 5.4 | 25 | 3 | 1 |
| L_ResPR | 2.6 | 25 | 3 | 1 |
| L_CRUL | 4.6 | 25 | 3 | 1 |
| L_MPItem | 1.4 | 25 | 3 | 1 |
| L_FailFreq | 8.9 | 25 | 3 | 1 |
| L_Material | 7.1 | 25 | 3 | 1 |
| L_Conditn | 5 | 25 | 3 | 1 |

| CF Weights | |
|-------------|--------|
| Property | Weight |
| C_ConLossH | 2.2 |
| C_ConLossQ | 2.2 |
| C_RepCost | 3.5 |
| C_RoadSlpe | 7.3 |
| C_StratLoc | 6 |
| C_NWRRedund | 7.3 |
| C_PMS | 0 |

| LF Legend | | | | |
|------------|----------|--------|-------|-------------|
| Property | Criteria | Rating | Count | CountP |
| L_NomDiam | 0.001 | 2.5 | 0 | 0.0 |
| L_NomDiam | 50 | 5.0 | 309 | 4.4 |
| L_NomDiam | 76 | 4.0 | 639 | 9.0 |
| L_NomDiam | 98.9 | 3.0 | 69 | 1.0 |
| L_NomDiam | 99 | 2.5 | 252 | 3.6 |
| L_NomDiam | 110 | 3.0 | 2697 | 38.2 |
| L_NomDiam | 160 | 2.0 | 1587 | 22.5 |
| L_NomDiam | 250 | 1.0 | 961 | 13.6 |
| L_NomDiam | 400 | 0.5 | 474 | 6.7 |
| L_NomDiam | 10000 | 0.1 | 73 | 1.0 |
| L_ResPR | 0.0 | 0.1 | 287 | 4.1 |
| L_ResPR | 0.25 | 1.0 | 641 | 9.1 |
| L_ResPR | 0.5 | 2.0 | 2006 | 28.4 |
| L_ResPR | 0.75 | 3.0 | 2242 | 31.8 |
| L_ResPR | 0.999 | 4.0 | 1697 | 24.0 |
| L_ResPR | 10000 | 5.0 | 188 | 2.7 |
| L_CRUL | -100 | 5.0 | 0 | 0.0 |
| L_CRUL | 0 | 5.0 | 1934 | 27.4 |
| L_CRUL | 10 | 4.0 | 1837 | 26.0 |
| L_CRUL | 20 | 3.0 | 1086 | 15.4 |
| L_CRUL | 30 | 2.0 | 396 | 5.6 |
| L_CRUL | 50 | 1.0 | 832 | 11.8 |
| L_CRUL | 10000 | 0.1 | 976 | 13.8 |
| L_MPItem | | 3.0 | 7061 | 100.0 |
| L_MPItem | FS | 3.0 | 0 | 0.0 |
| L_MPItem | MP | 5.0 | 0 | 0.0 |
| L_FailFreq | 0.00 | 0.1 | 6508 | 92.2 |
| L_FailFreq | 1 | 0.5 | 121 | 1.7 |
| L_FailFreq | 2 | 1.0 | 163 | 2.3 |
| L_FailFreq | 3 | 3.0 | 87 | 1.2 |
| L_FailFreq | 4 | 4.0 | 48 | 0.7 |
| L_FailFreq | 10000 | 5.0 | 134 | 1.9 |
| L_Material | AC | 5.0 | 2897 | 41.0 |
| L_Material | CI | 3.0 | 13 | 0.2 |
| L_Material | COPPER | 5.0 | 0 | 0.0 |
| L_Material | DI | 1.0 | 2 | 0.0 |
| L_Material | FC | 5.0 | 0 | 0.0 |
| L_Material | GRP | 1.0 | 0 | 0.0 |
| L_Material | HDPE | 1.0 | 229 | 3.2 |
| L_Material | LDPE | 2.0 | 0 | 0.0 |
| L_Material | MPVC | 2.0 | 0 | 0.0 |
| L_Material | OPVC | 2.0 | 0 | 0.0 |
| L_Material | PVC | 2.0 | 402 | 5.7 |
| L_Material | POLY | 4.0 | 0 | 0.0 |
| L_Material | STEEL | 1.0 | 284 | 4.0 |
| L_Material | SS | 1.0 | 0 | 0.0 |
| L_Material | UNK | 3.0 | 1490 | 21.1 |
| L_Material | UPVC | 2.0 | 2028 | 28.72114431 |
| L_Material | ST | 1.0 | 0 | 0.0 |
| L_Material | CU | 5.0 | 0 | 0.0 |
| L_Conditn | | 3.0 | 7056 | 99.9 |
| L_Conditn | F | 3.0 | 0 | 0 |
| L_Conditn | G | 2.0 | 0 | 0 |
| L_Conditn | P | 4.0 | 3 | 0.0424869 |
| L_Conditn | VG | 1.0 | 0 | 0 |
| L_Conditn | VP | 5.0 | 2 | 0.0283246 |

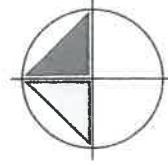
| CF Legend | | | | | |
|-------------|----------|--------|-------|--------|-----|
| Property | Criteria | Rating | Count | CountP | |
| C_ConLossH | | 0 | 0.1 | 265 | 3.8 |
| C_ConLossH | 25 | 1.0 | 685 | 9.7 | |
| C_ConLossH | 50 | 2.0 | 2298 | 32.5 | |
| C_ConLossH | 75 | 3.0 | 2845 | 40.3 | |
| C_ConLossH | 100 | 4.0 | 875 | 12.4 | |
| C_ConLossH | 10000 | 5.0 | 93 | 1.3 | |
| C_ConLossQ | 0 | 0.1 | 174 | 2.5 | |
| C_ConLossQ | 5 | 1.0 | 5975 | 84.6 | |
| C_ConLossQ | 10 | 2.0 | 201 | 2.8 | |
| C_ConLossQ | 20 | 3.0 | 191 | 2.7 | |
| C_ConLossQ | 50 | 4.0 | 117 | 1.7 | |
| C_ConLossQ | 10000 | 5.0 | 403 | 5.7 | |
| C_RepCost | 0 | 1.0 | 539 | 7.6 | |
| C_RepCost | 1 | 1.0 | 6522 | 92.4 | |
| C_RepCost | 2 | 3.0 | 0 | 0.0 | |
| C_RepCost | 3 | 5.0 | 0 | 0.0 | |
| C_RoadSlpe | | 3.0 | 7055 | 99.9 | |
| C_RoadSlpe | MIDBLOCK | 5.0 | 6 | 0.1 | |
| C_StratLoc | | 3.0 | 6407 | 90.7 | |
| C_StratLoc | CBD | 4.0 | 146 | 2.1 | |
| C_StratLoc | EDU | 5.0 | 78 | 1.1 | |
| C_StratLoc | HOS | 5.0 | 19 | 0.3 | |
| C_StratLoc | IND | 5.0 | 102 | 1.4 | |
| C_StratLoc | UNI | 5.0 | 309 | 4.4 | |
| C_NWRRedund | 0 | 0.1 | 4211 | 59.6 | |
| C_NWRRedund | 5 | 1.0 | 2185 | 30.9 | |
| C_NWRRedund | 10 | 2.0 | 102 | 1.4 | |
| C_NWRRedund | 20 | 3.0 | 86 | 1.2 | |
| C_NWRRedund | 50 | 4.0 | 91 | 1.3 | |
| C_NWRRedund | 10000 | 5.0 | 386 | 5.5 | |
| C_PMS | | 1.0 | 7061 | 100.0 | |
| C_PMS | F | 3.0 | 0 | 0.0 | |
| C_PMS | G | 2.0 | 0 | 0.0 | |
| C_PMS | P | 4.0 | 0 | 0.0 | |
| C_PMS | VG | 1.0 | 0 | 0.0 | |
| C_PMS | VP | 5.0 | 0 | 0.0 | |



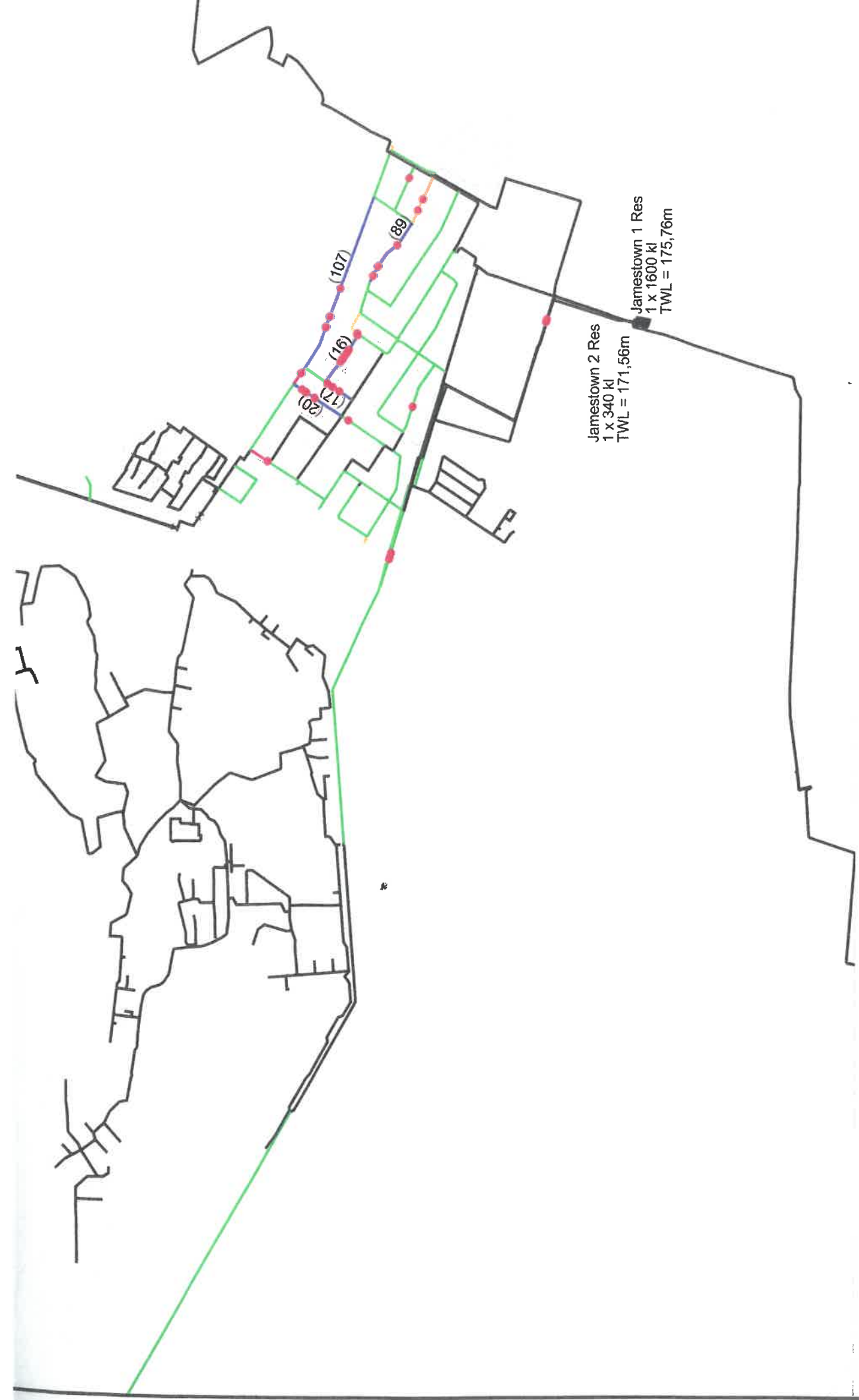
June 2019



Pipe replacement study Stellenbosch

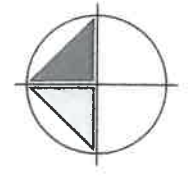


- Pipe Replacement Potential**
- Low (<60%)
 - Average (60%-80%)
 - High (80%-90%)
 - Very High (90%-100%)
 - Priority pipes (numbered)
 - Recorded burst near unreplaced pipe



June 2019

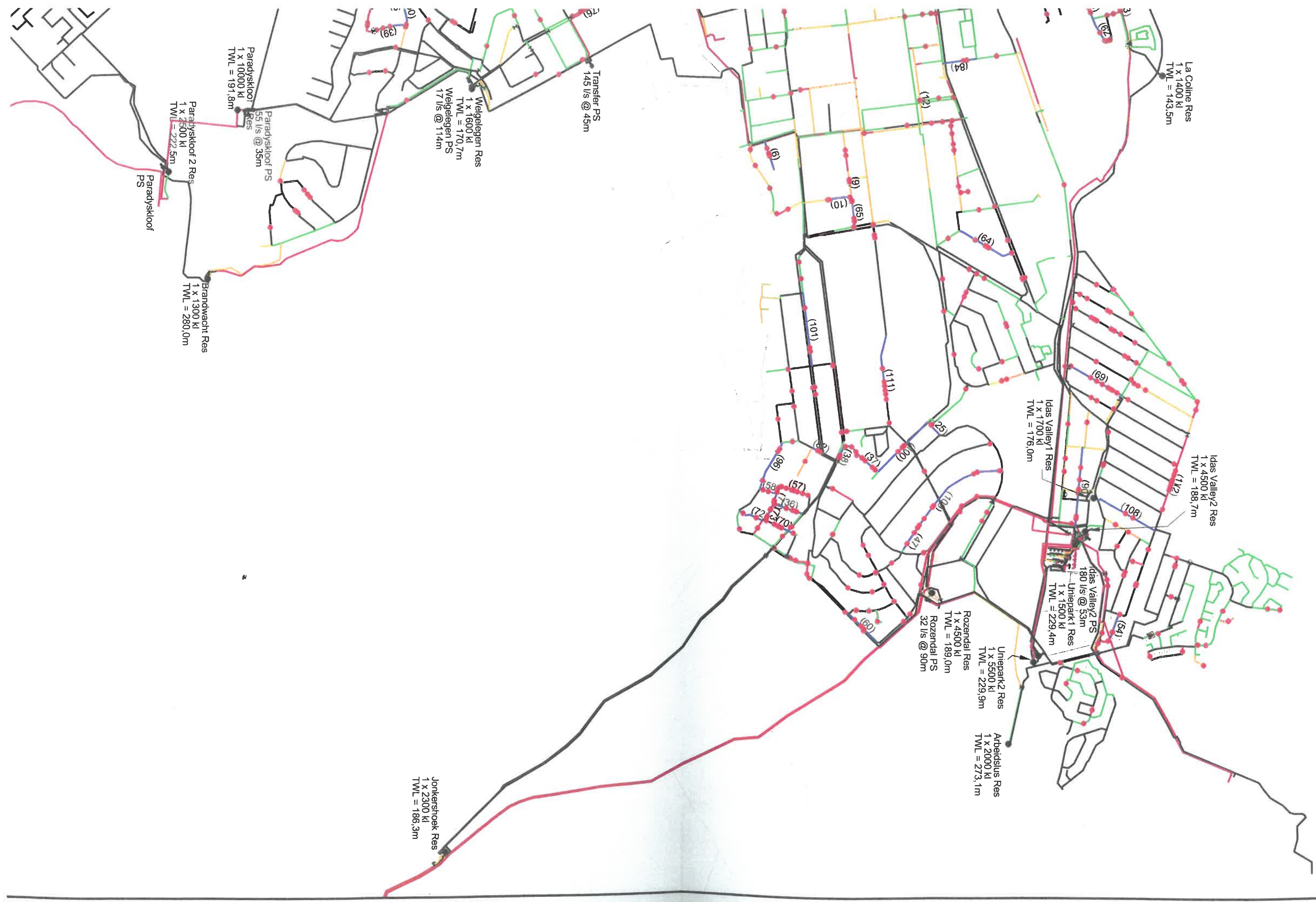
Pipe replacement study Stellenbosch



| Pipe Replacement Potential | |
|-----------------------------|------------------------|
| — Low (<60%) | — Average (60%-80%) |
| — High (80%-90%) | — Very High (90%-100%) |
| — Priority pipes (numbered) | |

● Recorded burst near unreplaced pipe





La Coline Res
1 x 1400 Kl
TWL = 143,5m

Idas Valley2 Res
1 x 4500 Kl
TWL = 188,7m

Idas Valley1 Res
1 x 1700 Kl
TWL = 176,0m

Idas Valley2 PS
180 l/s @ 53m
Uniepark1 Res
1 x 1500 Kl
TWL = 229,4m

Uniepark2 Res
1 x 5500 Kl
TWL = 229,9m

Arbeidslus Res
1 x 2000 Kl
TWL = 273,1m

Rozendal Res
1 x 4500 Kl
TWL = 189,0m
Rozendal PS
32 l/s @ 90m

Transfer PS
145 l/s @ 45m

Weigellegen Res
1 x 1600 Kl
TWL = 170,7m
Weigellegen PS
17 l/s @ 114m

Paradyskloof Res
1 x 10000 Kl
TWL = 191,8m

Paradyskloof PS
55 l/s @ 35m

Paradyskloof 2 Res
1 x 2500 Kl
TWL = 222,5m

Paradyskloof PS

Brandwacht Res
1 x 1300 Kl
TWL = 280,0m

Jonkershoek Res
1 x 2300 Kl
TWL = 186,3m