

**ARCHAEOLOGICAL IMPACT ASSESSMENT
PROPOSED DEVELOPMENT OF BULK ENGINEERING
SERVICES & PROPOSED UPGRADING OF EXISTING
WASTEWATER TREATMENT WORKS AND BULK WATER
SUPPLY FOR KLAPMUTS
WESTERN CAPE**

Prepared for

WITHERS ENVIRONMENTAL CONSULTANTS

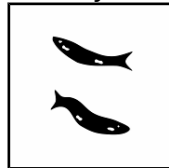
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EXECUTIVE SUMMARY

Withers Environmental Consultants requested that the Agency for Cultural Resource Management undertake an Archaeological Impact Assessment for the proposed development of bulk engineering services for the town of Klapmuts. A parallel project includes the proposed upgrading of the Klapmuts Waste Water Treatment Works and the increase of the bulk water supply (reservoir) to the town, which is situated between Paarl and Stellenbosch in the Western Cape.

Klapmuts is expanding and a number of new developments, both residential and commercial are being realized, while several other developments are currently in the planning stage. This will result in an increased strain on existing bulk services, including sewage treatment, water provision and storm water management. The need to upgrade and develop existing and new bulk engineering services, is therefore recognized in order to meet current and anticipated future needs of this rapidly developing Winelands town.

An Environmental Impact Assessment process for the proposed development of bulk engineering services and a Basic Assessment process for the proposed upgrading of the existing wastewater treatment works and bulk water supply in Klapmuts is currently underway, both of which require an archaeological investigation.

The aim of the archaeological study is to locate and map archaeological sites that may be impacted by the proposed engineering works, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

The approach followed in the archaeological study entailed a foot survey of each of the proposed development sites, for all the works planned. This included two candidate sites for the proposed bulk water reservoir, and five candidate sites for the proposed WWTW. The proposed pipeline to the proposed bulk water reservoir was also searched for archaeological occurrences.

The following findings were made:

Only four archaeological occurrences were documented during the assessment of the planned works. These included two, crude Early Stone Age flakes at the proposed Reservoir Site 2, which is located directly alongside the existing Klapmuts Kop Reservoir. One Early Stone Age core was found in the proposed pipeline route to the proposed Reservoir Site 1A-C, while one Early Stone Age chunk/core was documented at the WWTW Alternative Site 3.

Each of the finds has been assigned a GPS waypoint and photographed in-situ. The tools all occur in disturbed and isolated context and have been rated as having low local significance.

The Phase 1 Archaeological Impact Assessment has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

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1. INTRODUCTION

1.1 Background and brief

Withers Environmental Consultants, on behalf of the Stellenbosch Municipality requested that the Agency for Cultural Resource Management undertake an Archaeological Impact Assessment for the proposed development of bulk engineering services for Klapmuts. A parallel project includes the proposed upgrading of the Klapmuts Waste Water Treatment Works and the increase of the bulk water supply (reservoir) to the town, which is situated between Paarl and Stellenbosch in the Western Cape.

The town of Klapmuts is expanding and a number of new developments, both residential and commercial are being realized, while several other developments are currently in the planning stage. This will result in an increased strain on existing bulk engineering services, including sewage treatment, water provision and storm water management. The need to upgrade and develop existing and new bulk engineering services, is therefore recognized in order to meet both current and anticipated future needs of this developing Winelands town.

An Environmental Impact Assessment process for proposed development of the planned bulk engineering services and a Basic Assessment process for the proposed upgrading of the existing wastewater treatment works and bulk water supply is currently underway, both of which require archaeological investigation.

The following project components are planned:

- Proposed bulk sewer infrastructure that entails (for the purpose of this study) the upgrading of the existing Klapmuts wastewater treatment works (WWTW) and the construction of a new regional WWTW, which will eventually replace the existing Klapmuts WWTW. Five proposed candidate sites have been assessed.
- Proposed 15MI new reservoir and pipeline next to Klapmuts Kop. Two candidate sites have been assessed.

The proposed upgrading of the existing Klapmuts WWTW and the construction of a new regional WWTW covers the following properties:

- Remainder of Farm 479 (WWTW Alternative Site 1)
- Farm 736 (WWTW Alternative Site 2a and 2b)
- Farm 736 (WWTW Alternative Site 3)
- Farm 736 (WWTW Alternative Site 4)
- Portion 40 of Farm 716 Skoongesig (WWTW Alternative Site 5)

The area required for this type of works is about 7.5 ha.

The proposed new 15MI reservoir and ± 300 m long pipeline will be on:

- Remainder of Klapmuts Rivier 742.

The area required for the proposed reservoir is less than 0.5 ha.

The current zoning of the properties is Agriculture 1.

Another component of the planned infrastructure developments for Klapmuts is a new substation for the provision of electricity, but which formed part of a separate EIA and an Archaeological Impact Assessment (Kaplan 2009).

The aim of the archaeological study is to locate and map archaeological sites that may be impacted by the proposed works, to assess the significance of the potential impacts and to propose measures to mitigate against the impacts.

A Notice of Intent to Develop (NID) has been completed by Withers Environmental Consultants but an Archaeological Impact Assessment was not undertaken at the time.

2. TERMS OF REFERENCE

The terms of reference for the archaeological study were:

- to determine whether there are likely to be any archaeological sites of significance within the proposed WWTW sites, the proposed reservoir site and associated pipeline;
- to identify and map any sites of archaeological significance within the proposed WWTW sites, the proposed reservoir site and associated pipeline;
- to assess the sensitivity and conservation significance of archaeological sites within the proposed WWTW sites, the proposed reservoir site and associated pipeline;
- to assess the status and significance of any impacts resulting from the proposed development, and
- to identify mitigatory measures to protect and maintain any valuable archaeological sites that may exist within the proposed WWTW site, the proposed reservoir site and associated pipeline

3. THE STUDY SITE

A locality map is illustrated in Figure 1. An aerial photograph of Klapmuts and the proposed activities is illustrated in Figure 2.

The candidate sites for each of the proposed activities are illustrated in Figures 3-26.

Klapmuts is located about 40 kms east of Cape Town and just south of the N1 highway. It is about 20 kms north of Stellenbosch along the R44 and approximately 15kms west of Paarl along the N1. The predominant land use of the surrounding properties is agriculture, vacant land and small holdings. Apart from Klapmuts Kop, there are no significant landscape features covering the proposed work sites.

Except for Remainder of Farm 479 (WWTW 1), and Portion 40 of Farm 716 (WWTW 5) the proposed WWTW (Sites 2-4) are on municipal-owned land. The proposed site for the new bulk water supply reservoir and pipeline is on privately owned land (i.e. Klapmuts Rivier 742).

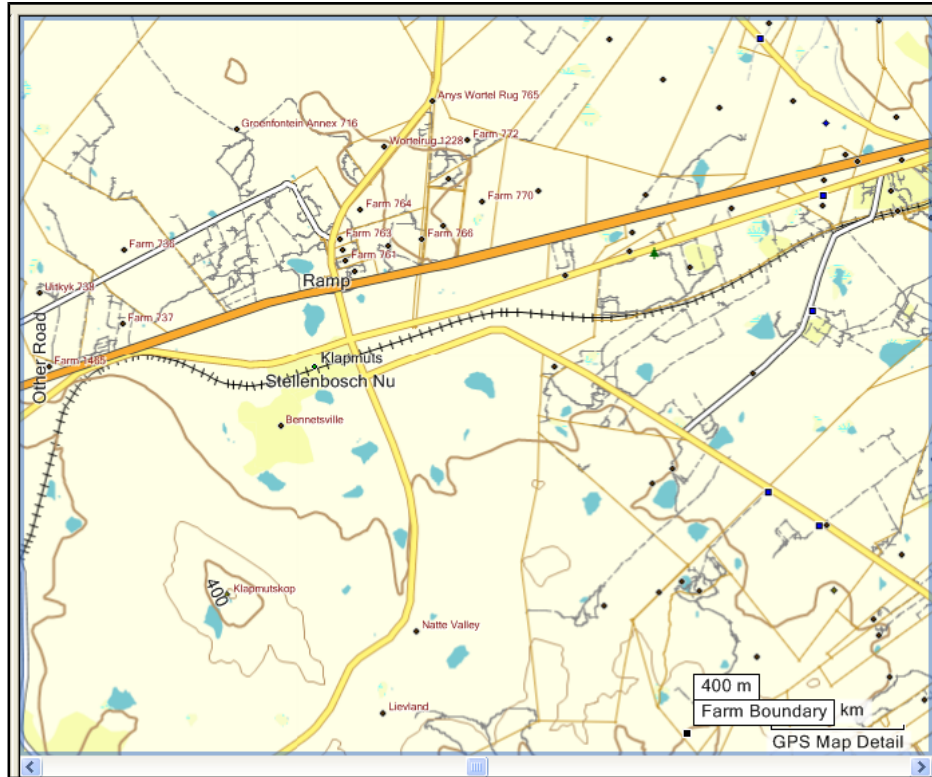


Figure 1. Locality Map

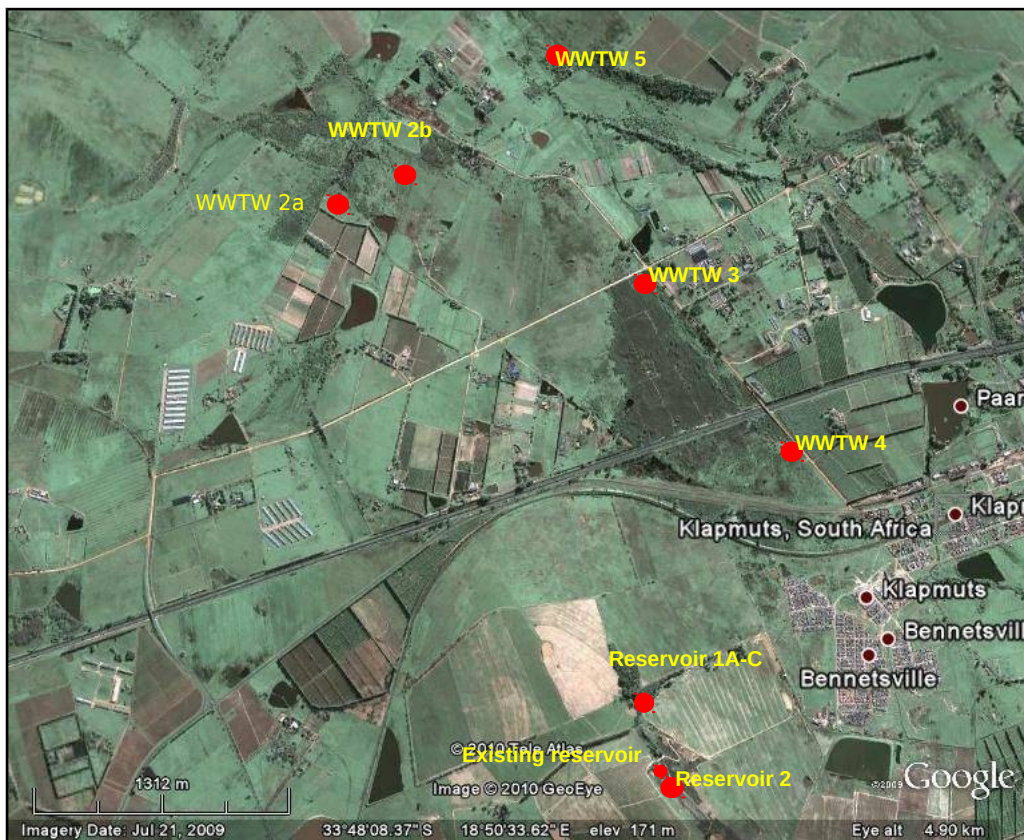


Figure 2. Aerial photograph indicating the proposed activities



Figure 3. WWTW Site 2a view facing west



Figure. 7. WWTW Site 2a view facing north



Figure 4. WWTW Site 2a view facing south east



Figure. 8. WWTW Site 2 view facing south



Figure 5. WWTW Site 2a view facing north



Figure 9. WWTW Site 3 view facing north



Figure 6. WWTW Site 2b view facing north



Figure 10. WWTW Site 3 view facing south



Figure 11. WWTW Site 4 view facing north



Figure 12. WWTW Site 4 view facing north east



Figure 13. WWTW Site 5 view facing north east



Figure 14. WWTW Site 5 view

facing north



Figure 15. WWTW Site 5 view facing west



Figure 16. WWTW Site 5 view facing south



Figure 17. Reservoir Site 2 view facing north east



Figure 18. Reservoir Site 2 view facing south east



Figure 19. Reservoir Site 1A-C view facing south



Figure 20. Reservoir Site 1A-C view facing south east



Figure 21. Reservoir Site 1A-C view facing north east



Figure 22. Reservoir Site 1A-C

view facing west



Figure 23. Reservoir Site 1A-C view facing west



Figure 24. Pipeline route to Reservoir Sites 1A-C view facing north north west



Figure 25. Pipeline route to Reservoir Sites 1A-C view facing north



**Figure 26. Alt. pipeline route to Reservoir
Sites 1 A-C view facing north north west
4. STUDY APPROACH**

4.1 Method

The approach followed in the archaeological study entailed a foot survey of each of the proposed development sites, for all the works planned. This included two candidate sites (1A-C and Site 3) for the proposed bulk water reservoir and five candidate sites (Alternatives 1-5) for the proposed WWTW. The proposed pipeline to the proposed bulk water reservoir was also searched for archaeological occurrences.

A GPS track path of the AIA was created. This track path has been saved to a CD and submitted with a digital copy of the report. All archaeological occurrences were plotted (and photographed) *in situ*, using a Garmin Oregon 300 GPS unit, set on map datum wgs 84. A spreadsheet of the waypoints and a description of each of the artefacts are also included with the report.

The site visit and assessment took place on the 21st January, 2010. A desktop study was also undertaken.

4.2 Constraints and limitations

There were no constraints or limitations associated with the proposed project.

4.3 Identification of potential risks

Based on the results of the study, there are no archaeological risks associated with the proposed project.

4.4 Results of the desk-top study

Several archaeological studies have been conducted by the archaeologist in the Klapmuts area.

Relatively large numbers of Early Stone Age (ESA) tools, including several Acheulean handaxes and cleavers were documented in grazing lands on the farm Groenfontein, alongside the R44, north of the study area (Kaplan 2005). Many of the tools were found close to the floodplain of the Klapmuts River. A low density scatter of ESA and a few Middle Stone Age (MSA) tools were documented on heavily contoured lands on the farm Klapmutsrivier (Kaplan 2006a). A few MSA tools were also found on Farm 739 alongside Old Paarl Road (Kaplan 2001). ESA and MSA tools were counted in the proposed alignment of the Muldersvlei Safariland 132 KV Powerline that runs alongside the railway line in Klapmuts (Kaplan 2006b). An ESA handaxe and a few MSA flakes were found among blocks of vineyards on the Farm 716 in Klapmuts (Kaplan 2007). A dozen or so isolated ESA occurrences were also documented south of Klapmuts alongside the R44 (Kaplan 2009b). ESA tools have also been recorded on the northern slopes of the Klapmutskop (Finnegan and Halkett 2007). All the tools were found in highly transformed and modified farmlands.

Withers reports (2010) that an addit at the north eastern foot of the Klapmuts Kop was dug into the side of the hill to explore for silver and gold during the early 1900's but none was found.

5. RESULTS OF THE SURVEY

5.1 WWTW Alternative Site 1

The proposed WWTW Site 1 is situated on the Remainder of Farm 479 but has been screened out of the Basic Assessment process and is no longer considered an alternative

5.2 WWTW Alternative Site 2a

No archaeological remains were documented on the proposed site, which comprises old agricultural lands. Most of the site is infested with large Blue gums, and many new Port Jackson saplings that have sprung up after a recent fire. There is little surface stone lying about and the soils are very compact. Dumping of rubble is also widespread, while several small footpaths intersect the site. The site is severely degraded

5.3 WWTW Alternative Site 2b

No archaeological occurrences were documented on the proposed site, which comprises old agricultural lands. There is no surface stone on the site, which slopes slightly from north to south and is situated alongside an old capped waste disposal site.

5.4 WWTW Alternative Site 3

One Early Stone Age quartzite chunk/core (KLP1) was found embedded in a small footpath in the south western portion of the proposed site (Figure 27). The site is situated alongside the Groenfontein and Protea gravel road and less than 1 km from the existing WWTW site (Alternative Site 4). The site slopes toward the Groenfontein Road and is infested with Port Jackson trees. Historically, the site has been used as a dumping ground and is quite severely degraded.

5.5 WWTW Alternative Site 4

No archaeological remains were found on the proposed site. The intention is to upgrade the existing WWTW site by extending the southern boundary fence by another 15 -20 m. The receiving environment is infested with Port Jackson and thick grasses, resulting in low archaeological visibility. Dumping is also widespread and there are some drainage channels that have also been excavated. The site is severely degraded.

5.6. WWTW Alternative Site 5

No archaeological remains were documented on the proposed site, which is the preferred site for the new regional WWTW. The site is situated alongside (i.e. north of) the Klapmuts River on Portion 40 of Farm 716 Skoongesig. The site comprises old agricultural lands that have not been utilised for many years. The site slopes from south to west and is covered in long, dry summer grasses, resulting in very low archaeological visibility. There is no visible surface stone on the site. Some sporadic trees are situated on the site, while a thick stand of Port Jackson occurs in the south.

5.7 Alternative 1A-1C Bulk Water Reservoir

No archaeological remains were documented on the proposed reservoir site. The proposed site is situated in a corner of the farm Klapmuts Rivier 742 and is surrounded and screened by large Blue Gum trees and a few large Oak trees. The site slopes from the north west and is quite severely degraded and disturbed. The hydromorphic soils are very compact and there is hardly any surface stone lying about. Leaf litter and fallen branches lie thick on the ground.

5.8. Alternative 2 Bulk Water Reservoir

Two crude, Early Stone Age quartzite flakes (KLP2) were found on the proposed site, which is situated directly alongside the existing Klapmuts Kop Reservoir. The proposed site is severely disturbed. The small, $\pm 350\text{m}^2$ site has been cleared of vegetation and scraped, while a large pile of sandstone and quartzite has been dumped alongside the gravel farm road. There is some surface stone lying about, however. The tools have been mapped with a GPS and photographed *in situ* (Figure 28).

5.9 Proposed Bulk Water Reservoir pipeline

One Early Stone Age core (KLP3) in quartzite was found half embedded in a drainage channel more or less in the proposed pipeline route below the 250 m contour (Figure 29). The receiving environment comprises old agricultural lands (wheat) which have been contoured and shaped and utilised for many years. There is some surface stone lying about but the receiving environment is severely disturbed and transformed. No archaeological remains were found in the short section of the alternative pipeline route.



Figure 27. KLP1. Scale is in cm



Figure 28. KLP2. Scale is in cm



Figure 29. KLP3. Scale is in cm

Site	Name	Long	Lat	Finds
KLP	Remainder of Farm 479 Farm 736 Groenfontein 716 Klapmuts Kop 742			
KLP1		S33 47. 729	E18 50.973	ESA chunk/core
KLP2		S33 49.125	E18 51.008	2 ESA flakes
KLP3		S33 48.976	E18 51.110	ESA core

Table 1. Spreadsheet of site observations

6. IMPACT STATEMENT

The impact of the proposed project on archaeological heritage remains is likely to be **low**. The proposed WWTW sites and the proposed bulk water reservoir sites range from fairly severely disturbed, to severely disturbed and degraded. The receiving environment is not considered to be archaeologically sensitive.

Some ESA tools may be exposed during construction activities for the proposed engineering works, but the impacts are likely to be low to negligible.

7. CONCLUSION

The Archaeological Impact Assessment of the proposed development of bulk engineering services and the proposed upgrading of the Klapmuts waste water treatment works has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

All the proposed work sites are suitable for development.

Should any human remains be disturbed, exposed or uncovered during excavations and earthworks for the proposed project, these should immediately be reported Heritage Western Cape (Mr Nic Wiltshire 021 483 9692).

8. REFERENCES

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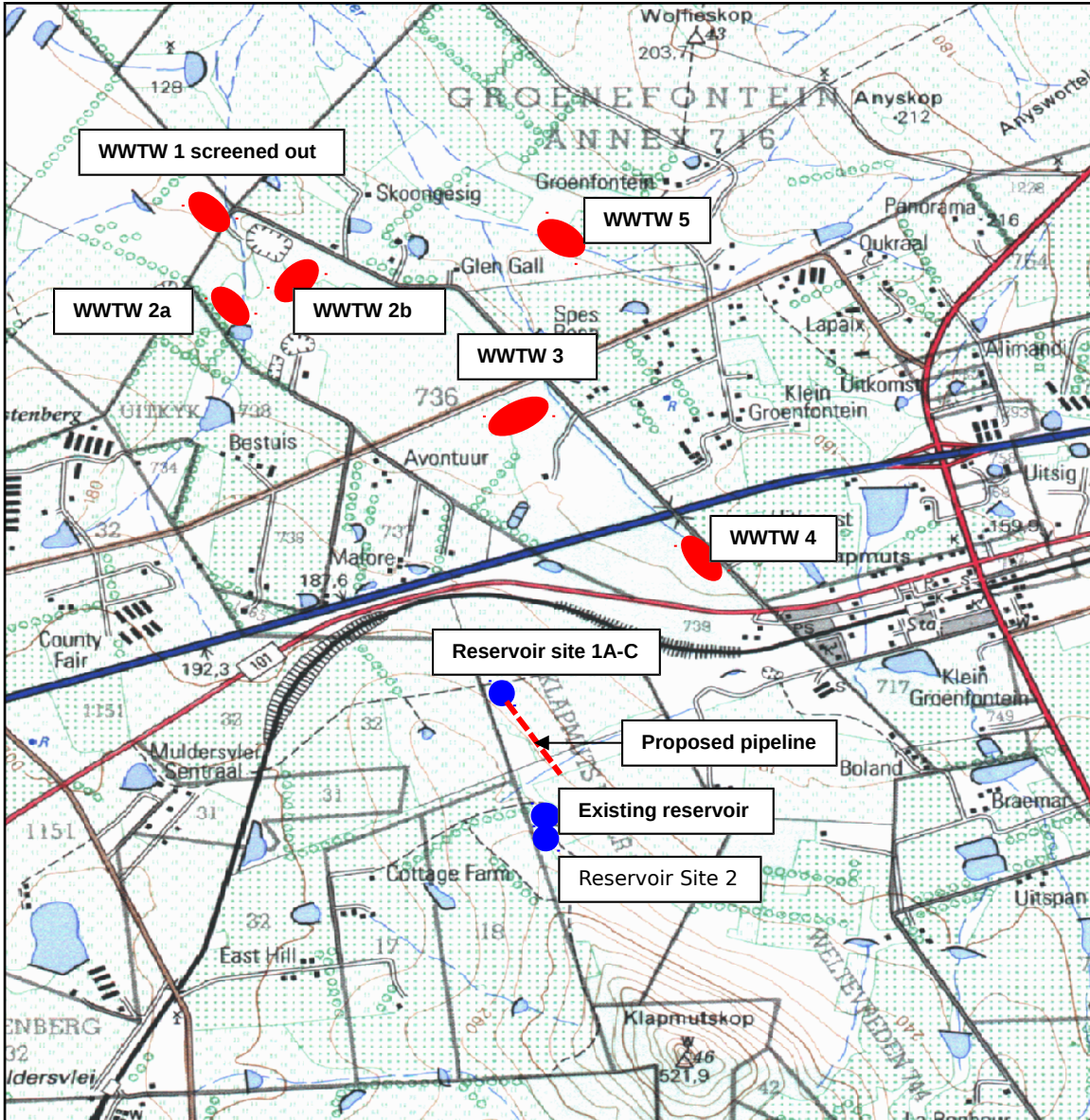
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Kaplan, J. 2001. Archaeological Impact Assessment Farm 739 Klapmuts. Report prepared for Doug Jeffery Environmental Consultants. Agency for Cultural Resource Management.

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Locality Map 3318DD Stellenbosch