

**ARCHAEOLOGICAL IMPACT ASSESSMENT  
PROPOSED UPGRADING OF THE KLEIN BERG RIVER  
IRRIGATION SCHEME  
TULBAGH  
WESTERN CAPE PROVINCE**

Prepared for:

**ENVIROAFRICA**

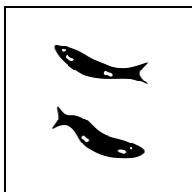
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## **Executive summary**

An Archaeological Impact Assessment of the proposed upgrading of the Klein Berg River Irrigation Scheme in Tulbagh has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to the proposed development activities.

The proposed project involves upgrading the 'Lower Bloubank' canal system and improving overall water distribution to end users. This entails excavating a servitude alongside the existing canal system which will then be replaced with underground pipelines, with off takes to registered farms.

It is estimated that more than 95% of the proposed pipeline route has been heavily transformed as a result of years of agricultural activity. The receiving environment comprises fruit orchards, vineyards, agricultural lands and road servitudes.

The following findings were made

- Early Stone Age tools were documented on the affected lands but these occur in a severely disturbed context and have been rated as having low local significance.

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## **1. INTRODUCTION**

### **1. Background and brief**

EnviroAfrica, on behalf of the Witzenberg Municipality requested that the Agency for Cultural Resource Management conduct an Archaeological Impact Assessment (AIA) for the proposed upgrading of the Klein Berg River Irrigation Scheme, in Tulbagh in the Western Cape.

The Klein Berg River Irrigation Scheme was designed by consulting Engineers Ninhan Shand sometime in the 1960's. The scheme comprises two sections; namely the Upper Bloubank and the Lower Bloubank. The Upper Bloubank consists of separate stream diversions, each accessing water directly from particular mountain streams (i.e. the Klein Berg River and the Bloubank Stream). The Lower Bloubank consists of a canal system with one main stream diversion from the Klein Berg River on the Farm Bloubank. From here, the water is distributed along a series of canals up to the properties of listed members.

The irrigation scheme covers a total of about 20 km of canals and earth channels including some shorter piped sections. Altogether about 100 properties currently draw water from the scheme. Over time, sections of the concrete canals and channels have been reconstructed and replaced by underground pipelines due to wear and tear and inefficiency. In addition, leakages currently occur in places along the canal, affecting the effectiveness and supply of the system.

The proposed project therefore involves upgrading of the Lower Bloubank canal system and improving overall water distribution to end users.

The project entails excavating a servitude alongside the existing canal system which will then be replaced with underground pipelines, with off takes to registered farms. Once completed, water distribution will then switch over from the canal system (which will be decommissioned), to the proposed new underground pipeline. The proposed scheme is being driven by the Tulbagh Water Users Association.

The extent of the proposed development (a linear development exceeding more than 300 m in length) falls within the requirements for an archaeological impact assessment as required by Section 38 of the South African Heritage Resources Act (No. 25 of 1999).

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

A Notification of Intent to Develop (NID) checklist has been completed by the archaeologist and submitted to Heritage Western Cape (Belcom) for comment.

## **2. TERMS OF REFERENCE**

The terms of reference for the archaeological study were to:

- Identify and map archaeological heritage remains affected by the proposed upgrading of the irrigation scheme;
- Determine the importance of archaeological heritage remains affected by the proposed upgrading of the irrigation scheme;
- Determine and assess the potential impacts of the proposed development on archaeological heritage remains, and
- Recommend mitigation measures to minimise impacts associated with the proposed irrigation scheme.

## **3. THE STUDY SITE**

A locality map indicating the proposed and proposed Alternative pipeline routes are illustrated in Figures 1 and 2.

Aerial photographs indicating the study area and the proposed and proposed Alternative pipeline routes are illustrated in Figures 3 and 4.

The Klein Berg River Irrigation Scheme commences at an abstraction point on the Klein Berg River, on the Farm Die Eike. The scheme then passes through numerous farms in the Tulbagh Valley, until just before Trunk Road 22 on the Farm Uitkyk (Figures 5-28).

It is estimated that more than 95% of the proposed and proposed alternative pipeline routes have already been heavily transformed as a result of years of agricultural activity. The receiving environment (for the proposed scheme) comprises fruit orchards, vineyards, existing agricultural lands (mainly grazing) and road servitudes. There is virtually no natural veld that will be affected by the proposed project.



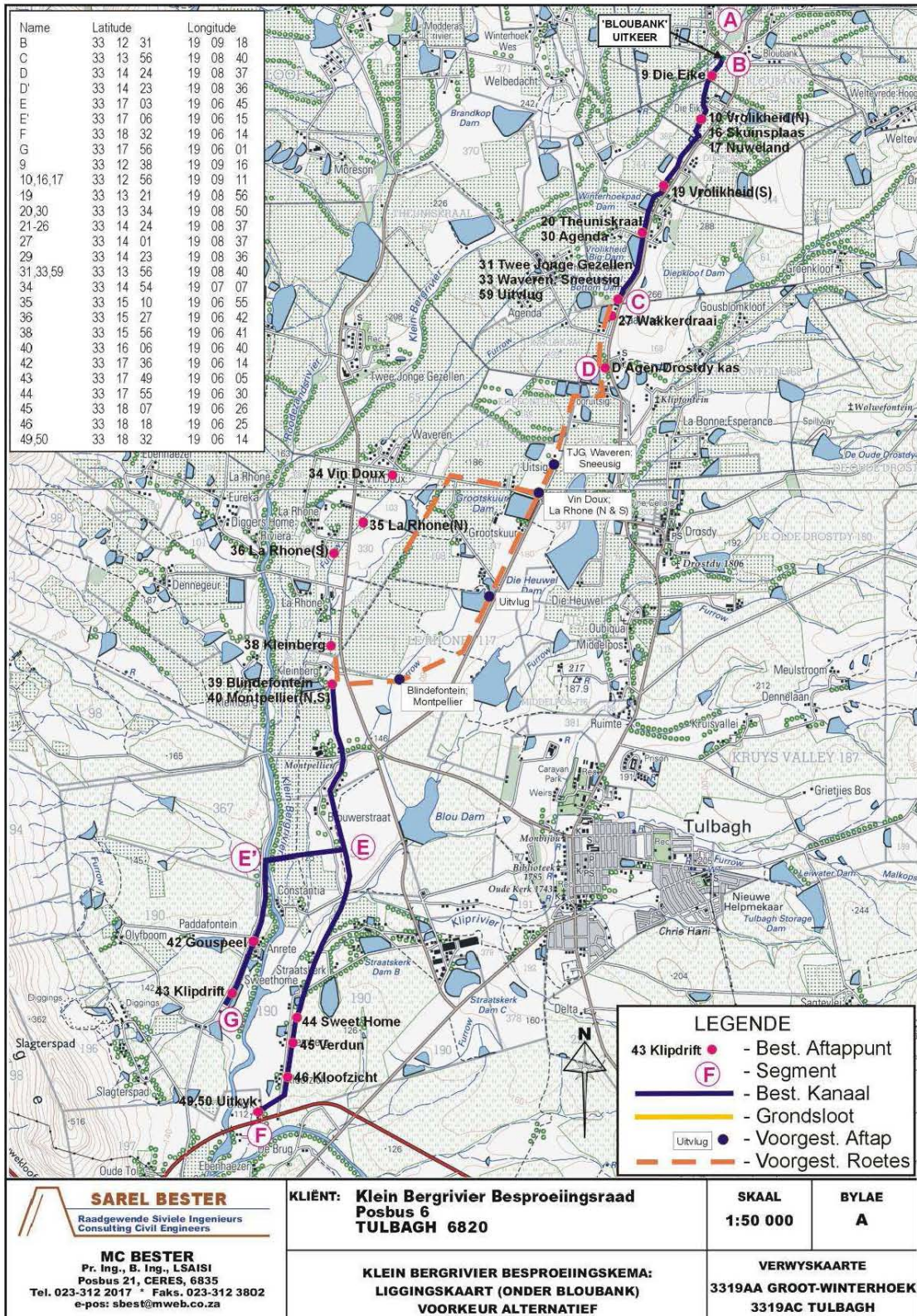


Figure 1. Locality Map: Proposed Alternative



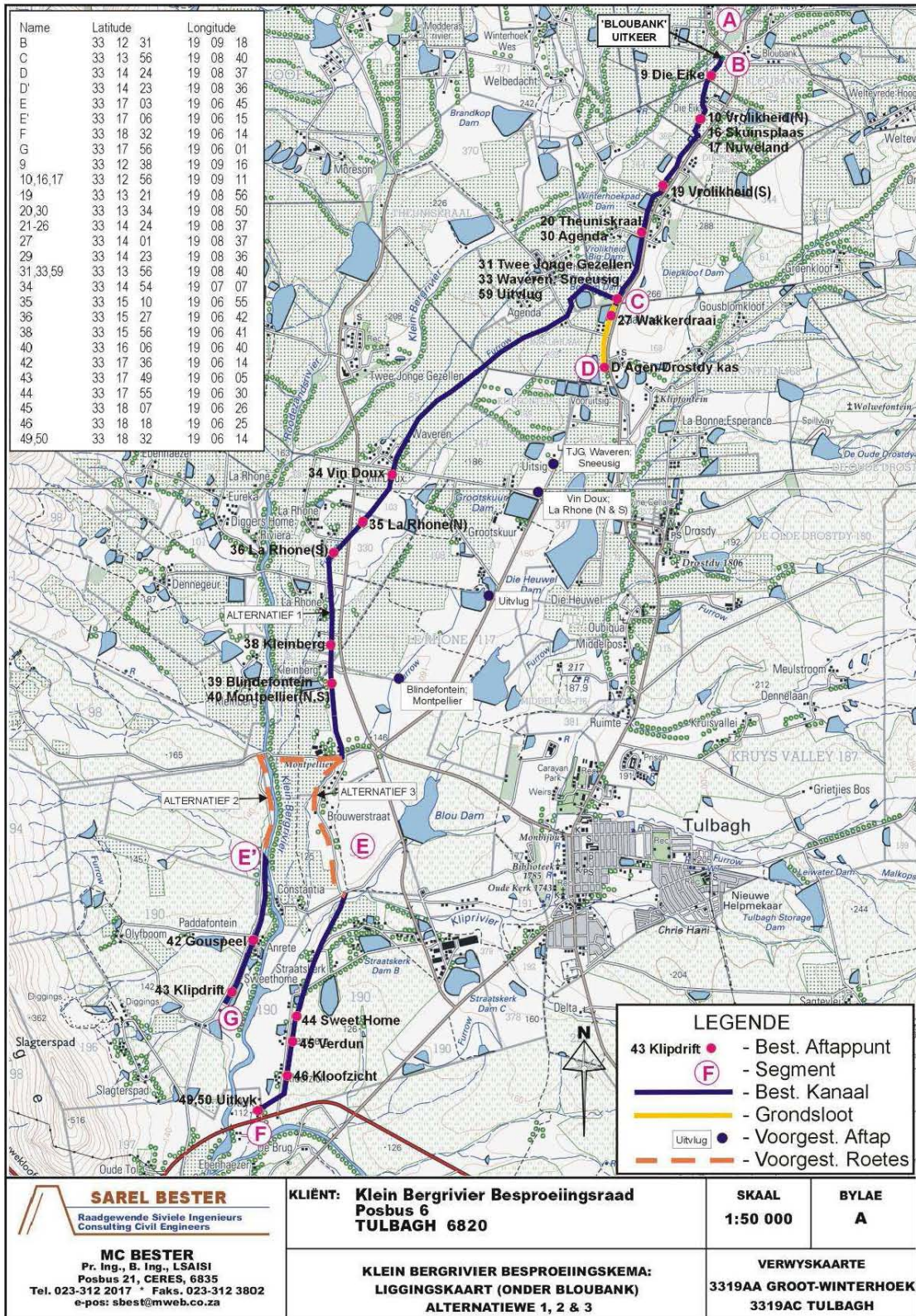


Figure 2. Locality Map: Proposed Alternatives 1, 2 and 3



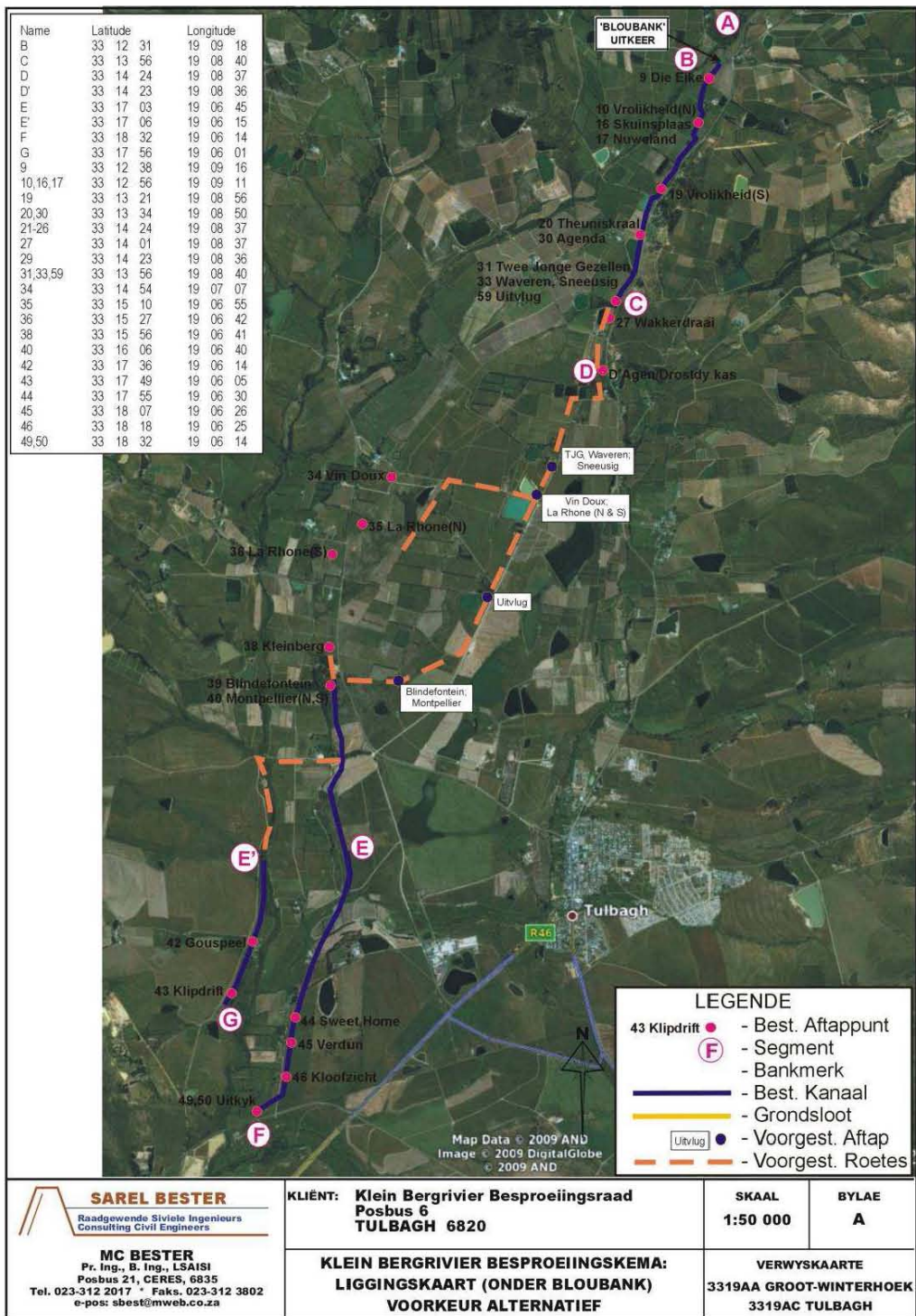


Figure 3. Aerial photograph illustrating proposed Alternative



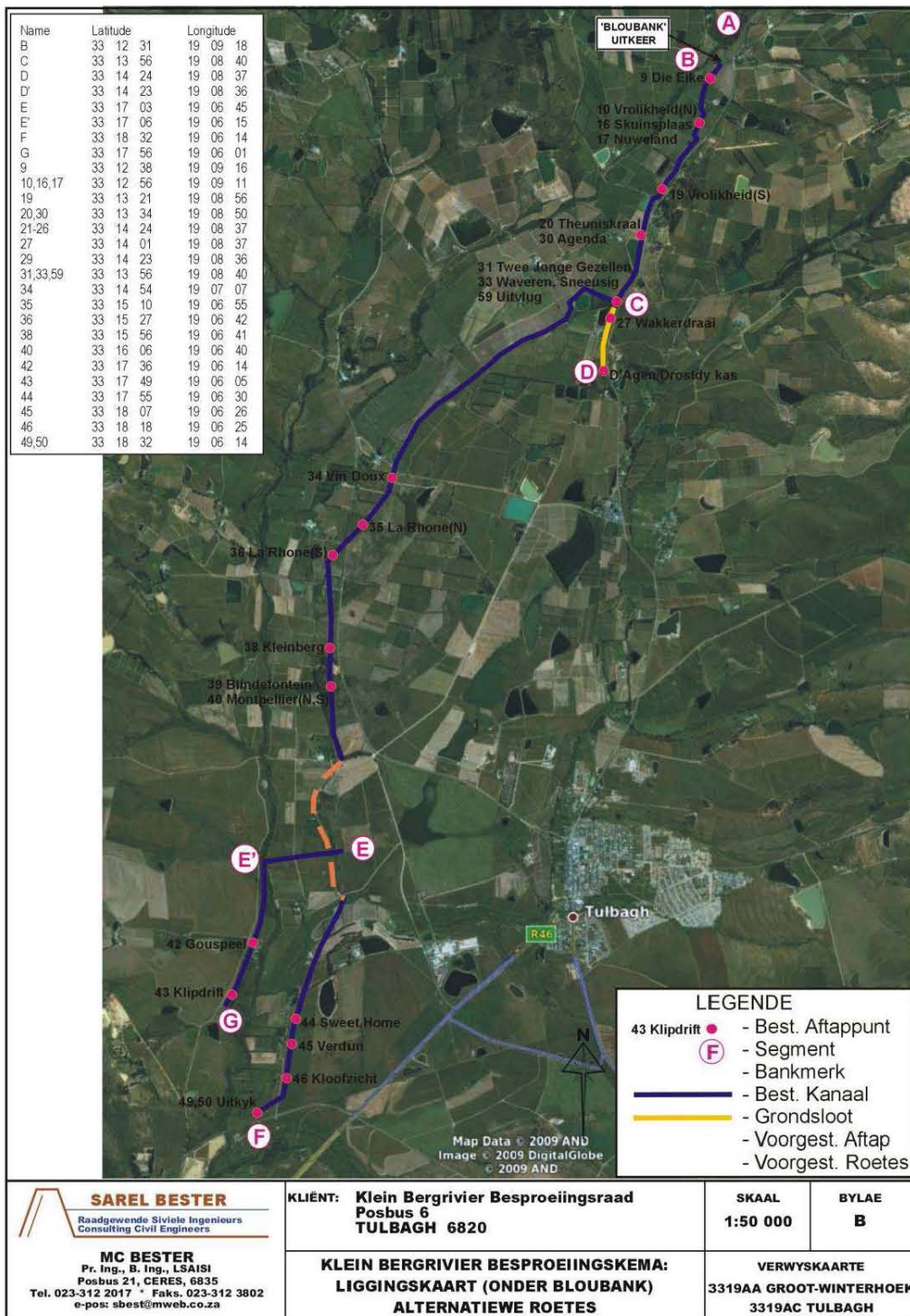


Figure 4. Aerial photograph illustrating proposed Alternative routes





Figure 5. The Bloubank Abstraction



Figure 9. Canal on the Farm Welbedacht



Figure 6. Fruit Orchards on the Farm Vrolikheid



Figure 10. Canal on the Farm Welbedacht



Figure 7. Canal in the road reserve



Figure 11. Canal on the Farm Klipfontein

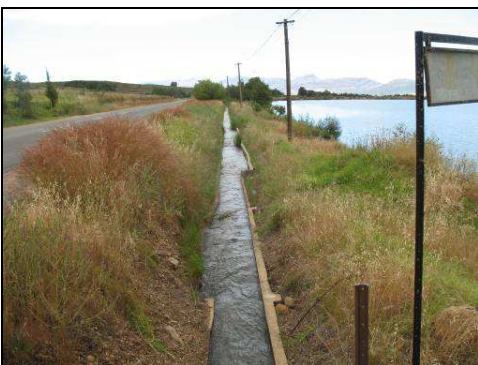


Figure 8. Canal in the road reserve



Figure 12. Canal on the farm Grootskuur.





Figure 13. Servitude near the farm Sneusig



Figure 17. Canal on Farm La Rhone



Figure 14. Servitude near Uitvlug



Figure 18. Canal on the Farm Vin Doux



Figure 15. Proposed route Kleinberg Farm



Figure 19. Canal on the Farm La Rhone-N

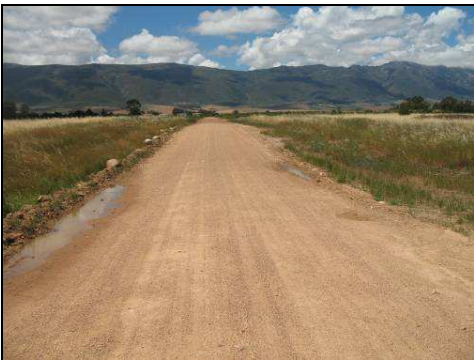


Figure 16. Servitude near Odessa



Figure 20. Canal on the Farm La Rhone-S





Figure 21. Servitude near Kleinberg



Figure 25. Canal on the Farm Montpellier



Figure 22. Servitude near Kleinberg



Figure 26. Proposed route Montpellier



Figure 23. Proposed route Kleinberg



Figure 27 Canal near Kleinberg



Figure 24. Canal on the Farm Montpellier



Figure 28. Canal near Blindefontein

## **4. STUDY APPROACH**

### **4.1 Method**

The proposed and proposed alternative pipeline routes were searched for archaeological remains.

Methods of assessment involved a combination of foot searches (mainly through vacant farmlands), inspection points along the existing canals, and servitudes.

The site visit and assessment took place on the 14<sup>th</sup> November, 2008.

### **4.2 Constraints and limitations**

There were no constraints or limitations associated with the study.

### **4.3 Identification of potential risks**

There are no potential (archaeological) risks associated with the proposed project.

### **4.4 Results of the desk top study**

Early Stone Age (ESA) tools have been documented in several contexts in the Tulbagh Valley (Kaplan 2002). Relatively large numbers of ESA flake tools, chunks, cores, retouched flakes and handaxes were counted in agricultural lands on the Farm Groot Vallei alongside Trunk Road (TR22), as well as on the banks of the Skilpadrug River that crosses underneath TR22 (Kaplan 2006a). Large numbers of ESA tools, including more than 60 handaxes were documented on the Farm Schalkenbosch, a few kms outside Tulbagh, on the road to Wolseley (Kaplan 2005). Flakes, large cores, an incomplete handaxe and broken/flaked cobbles were also documented on the Farm Straatskerk alongside TR22, near the turnoff to Tulbagh (Kaplan 2008), while relatively large numbers of ESA tools, including large flakes, chunks, flaked cobbles, retouched flakes and several handaxes were documented on the farms Goedgevonden, Artois, Boontjiesrivier and Weltevreden, near Wolseley (Kaplan, 2006, 1997).

It is also interesting to note the previous owner of the farm Erfdeel, situated near the upper reaches of the Klein Berg River in Tulbagh, amassed an extremely large collection of ESA tools (including handaxes, cleavers and choppers) collected over many years from the Tulbagh Valley and surrounding countryside (Kaplan 2006b).

The bulk of the above tools are all struck from rounded river quartzite cobbles.

While Middle Stone Age (MSA) and Later Stone Age (LSA) tools appear to be relatively rare in the valley, a few LSA caves, some with paintings have been found at Waterval just outside Tulbagh (personnel observation). Recently, well preserved LSA rock paintings were recorded in the mountains near Wolseley (Kaplan 2009).

## 5. RESULTS OF THE IMPACT ASSESSMENT

Two ESA flakes (one partially retouched) and several flaked and broken quartzite river cobbles were found in a ploughed field of alluvial sands at the Bloubank abstraction point near the Klein Berg River, on the Farm Die Eike (see Figure 5).

One broken ESA flake was also found near the servitude among the fruit orchards on the Farm Vrolikheid (see Figure 6), while several broken quartzite cobbles and one large ESA flake was found alongside the concrete canal at Vin Doux (see Figure 18).

At Blindfontein, one ESA flake and some broken quartzite/flaked cobbles were found in rocky fields of vineyards alongside the existing stream channel.

At Montpellier, one of the few areas surrounded by natural veld, a broken quartzite chunk was found (see Figure 25).

A large broken ESA flake was found near the proposed servitude at Kleinberg (see Figure 21), a possible broken Middle Stone Age flake was also found in a degraded area near Kleinberg (see Figure 22) and several broken cobbles, a large flake and a large chunk were found near the canal at Kleinberg (see Figure 27).

The tools are all in quartzite and have been struck from rounded river cobbles. The tools are identical to those that have been found in earlier studies in the Tulbagh Valley. All occur in a severely disturbed and degraded context.

**The archaeological remains have been rated as having low local significance.**

## 6. IMPACT STATEMENT

The Phase 1 Archaeological Impact Assessment of the proposed upgrading of the Klein Berg River Irrigation Scheme in Tulbagh has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to the proposed development activities.

The assessment of the proposed project has rated the potential impact to archaeological material as being **low**.

The probability of locating important pre-colonial archaeological heritage remains during implementation of the project is likely to be improbable.

## 7. RECOMMENDATIONS

- Should any unmarked human remains or graves be disturbed, exposed or uncovered during excavations for the pipeline, these should immediately be reported to the archaeologist or the South African Heritage Resources Agency (Dr A. Jerardino (021) 462 4502). Burial remains should not be disturbed or removed until inspected by the archaeologist.



## 8. REFERENCES

Kaplan, J. 2009. Archaeological assessment proposed expansion of agricultural lands on the Farm Waverley 380 and Gou Kyk 366 Wolseley. Report prepared for Cederberg Environmental Assessment Practice. Agency for Cultural Resource Management.

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