iLifa leMveli leNtshona Koloni
Erfenis Wes-Kaap
Heritage Western Cape

NOTIFICATION OF INTENT TO DEVELOP

Completion of this form is required by Heritage Western Cape for the initiation of all impact assessment processes under Section 38(1) & (8) of the National Heritage Resources Act (NHRA).

Whilst it is not a requirement, it may expedite processes and in particular avoid calls for additional information if certain of the information required in this form is provided by a heritage specialist/s with the necessary qualifications, skills and experience.

A. APPLICABILITY OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA)

HWC Case Number: 16091504	DEADP Reference Number:
NOTE: A DEADP (W Cape Dept. Environment Affairs & Development Planning) reference number must be included in all NHRA Section 38(8) processes where DEADP is the decision making authority under NEMA. The effect of this requirement is that the NEMA process must be initiated with DEADP prior to the NHRA process with HWC.	
If a DEADP reference number is not entered above please check one of the following boxes:	
☒ This application is made in terms of Section 38(8) of the NHRA and an application under NEMA has been made to the following authority: Department of Environmental Affairs and Development Planning (DEA&DP)	
☐ This development will not require a NEMA application.	
NOTE: Making an incorrect statement or providing incorrect information in this part of the form may result in all or part of the application having to be reconsidered by HWC in the future, or submission of a new application.	

B. BASIC DETAILS

PROPERTY DETAILS:

Name of property: Seweweekspoort Pass	
Street address or location (eg: off R44): The project is along the R323 Seweweekspoort Pass (MR309) within the road reserve.	
Erf or farm number/s: Road reserve	Coordinates: 33° 24' 50"S 21° 24' 10"E (A logical centre point. Format based on WGS84.)
Town or District: Laingsburg & Ladismith	Responsible Municipality: Eden District Municipality& Central Karoo District Municipality
Extent of property: n/a (road reserve width is 25 m split evenly on either side of the road centre line in unfenced areas, or otherwise id located between the fences)	Current use: Road reserve
Predominant land use/s of surrounding properties: agriculture and nature reserve	

REGISTERED OWNER OF PROPERTY:

Name		
Address		
Telephone	Cell	E-mail
By the submission of this form and all material submitted in support of this notification (ie: 'the material'), all applicant parties acknowledge that they are aware that the material and/or parts thereof will be put to the following uses and consent to such use being made: filing as a public record; presentations to committees, etc; inclusion in databases; inclusion on and downloading from websites; distribution to committee members and other stakeholders and any other use required in terms of powers, functions, duties and responsibilities allocated to Heritage Western Cape under the terms of the National Heritage Resources Act. Should restrictions on such use apply or if it is not possible to copy or lift information from any part of the digital version of the material, the material will be returned unprocessed.		
I confirm that I enclose with this form four hardcopies of all material submitted together with a CD ROM containing digital versions of all of the same.		

Signature of owner or authorised agent Date / / 20
(Agents must attach copy of power of attorney to this form.)

DEVELOPMENT DETAILS:

Please indicate below which of the following Sections of the National Heritage Resources Act, or other legislation has triggered the need for notification of intent to develop.

☐ S38(1)(a) Construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier over 300m in length.	S38(1)(c) Any development or activity that will change the character of a site -
☐ S38(1)(b) Construction of a bridge or similar structure exceeding 50m in length.	☐ (i) exceeding 5 000m^2 in extent;
☐ S38(1)(d) Rezoning of a site exceeding 10 000m^2 in extent.	☐ (ii) involving three or more existing erven or subdivisions thereof;
☒ Other triggers, eg: in terms of other legislation, (ie: National Environment Management Act, etc.) Please set out details: The project requires a Basic Assessment under NEMA.	☐ (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years.
	If you have checked any of the three boxes above, describe how the proposed development will change the character of the site:

If an impact assessment process has also been / will be initiated in terms of other legislation please provide the following information:

Authority / government department (ie: consenting authority) to which information has been /will be submitted for final decision: Department of Environmental Affairs and Development Planning (DEA&DP)

Present phase at which the process with that authority stands: pre-application phase

Provide a full description of the nature and extent of the proposed development or activity including its potential impacts (eg: changes in land use, envisaged timeframes, provision of additional bulk services, excavations, landscaping, total floor area, height of development, etc. etc.): The Seweweekspoort Pass, located on MR309 approximately between km 40.9 to 58.1, is a gravel road linking the towns of Laingsburg and Ladismith. The road meanders through Seweweekspoort. The gorge is very narrow with the result that the gravel road crosses the Seweweekspoort River numerous times in a short distance of 18km. Structures have been constructed over many years consisting mostly of one or two pipes. The result is that even small rain events cause the road to be overtopped with ensuing damage not only at the river crossing but also along the road since the road acts as a weir when the hydraulic capacity is exceeded. The frequent overtopping of the road requires repair work to be done by the Eden District Municipality and the Central Karoo District Municipality (the border between the two municipalities is half way through Seweweekspoort).

It is thus proposed to construct new structures that will be large enough to allow 1:2 year floods to pass easily beneath them, bearing in mind vegetation and other debris that might be carried in the stream. The 1:5 year floods may need to pass above the structures but the design would allow for minimal damage to the roadway in such events. In three places the river runs alongside the road and undercuts it during flood events. In these locations a retaining wall would be constructed between road and river to protect the road. The full list of structures and locations requiring remedial work is tabulated in the supporting document and photographs of a selection of them are also provided there.

The following general principles are proposed for the designing of the new culverts:
• Routing of the water through a drainage opening is preferable to a drift structure where all water passes over the road.
• Make the vertical clear height of drainage openings as big as possible within the constraints of the river bed and the vertical alignment of the road.
• The vertical opening of the drainage structure must have a minimum clear height of 1m for ease of cleaning the structure by hand from siltation and debris.
• The top level of the slab must be lower than the road on both sides to prevent the water creating a new river alignment if the openings are blocked. The vertical alignment of the road has been changed over the years very effectively to achieve this, but this principle may be developed further where it is not implemented yet.
• Drop inlets may be used where required. In such cases the concrete of piers must be protected against abrasion of fast moving rock if present in the river bed.

In addition, alignment of the opening of the drainage structure to the direction of the river will be done as best as possible and clear spans with fewer piers will be favoured to reduce the risk of siltation build up and blockage forming.

C. HERITAGE RESOURCES AND IMPACTS THEREUPON

Section 3 of the National Heritage Resources Act sets out the following categories of heritage resource as forming part of the national estate. Please indicate the known presence of any of these by checking the box alongside and then providing a description of each occurrence, including nature, location, size, type

Failure to provide sufficient detail or to anticipate the likely presence of heritage resources on the site may lead to a request for more detailed specialist information.

(The assistance of relevant heritage professionals is particularly relevant in completing this section.)

Provide a short history of the site and its environs (Include sources where available): Zoar and Amalienstein are two neighbouring mission towns at the southern end of Seweweekspoort. They were both established on the Farm Elandsfontein, Zoar in 1817, Amalienstein in 1853. Although modernised to a degree, both villages retain some of their original character.

The Seweweekspoort Pass is most relevant to this project. The poort was in use by locals prior to the construction of the pass but was very difficult to get through. The presence of rock art testifies to the pre-colonial use of the poort as well. The pass was constructed from 1859 to 1862. 108 convicts were used for the work under the initial direction of Mr Aapsey. Adam G. de Schmidt took over supervision of the project in 1860. He was the brother in law of Thomas Bain. The latter was brought in to effect repairs to the pass in 1875 after floods caused severe damage to the road.

It has been regularly maintained over the years because of the frequent flood damage that occurs.

There is controversy over the origin of the name of the pass with some speculating that it may have been derived from a missionary, Johan Zerwick, who served at Zoar. It perhaps more likely relates to the Seven Weeks Fern that grows in the area.

Please indicate which heritage resources exist on the site and in its environs, describe them and indicate the nature of any impact upon them:

☒	**Places, buildings, structures and equipment of cultural significance** Description of resource: There are many historical buildings in the general area but none are located close to the project area. The pass itself, however, can be referred to as a built structure in terms of the NHRA definition. It has some low retaining walls and is still in use. It was completed in 1862. There would have been some sort of construction around the river crossings but due to the multiple occasions over one and half centuries on which the pass has flooded and the crossings have been damaged, it is highly unlikely that any riginal fabric will be affected by the proposed works. Altough a product of colonialism, the pass is valued by the local community because of the fact that it is still in a state very close to the way in which it was built (i.e. gravel road without large bridges). Description of impact on heritage resource: No impacts to any surrounding historical farm buildings are expected but alterations to the road and possibly (very small chance) to some original fabric of the pass may occur. The overall character of the road will be slightly altered through the insertion of larger (wider and higher) culverts.
☒	**Places to which oral traditions are attached or which are associated with living heritage** Description of resource: One of the tributary streams in the poort is fed by a permanent spring and has been historically relied upon by the local community (Zoar) when other rivers have been dry. The stream is known locally as "Sterkwater" or "Drinkwater" and is still frequently visited to collect water because of its very pure taste. Description of impact on heritage resource: Construction of a detour road around the crossing point would disrupt part of the stream at the location used for water collection.

☒	**Historical settlements and townscapes** Description of resource: The village of Zoar lies just outside the southern end of the poort. It was started as a mission station. It lies well away from the proposed work area. Description of impact on heritage resource: No impacts expected.
☒	**Landscapes and natural features of cultural significance** Description of resource: The stream described above ("Sterkwater" or "Drinkwater") is a natural feature of cultural significance. Furthermore, the entire poort has significance to the local community as born out by the many local names applied to various parts of the pass. The area is also included within the Cape Floristic Region World Heritage Site for its natural vegetation. Description of impact on heritage resource: The Sterkwater stream would not be disturbed as its crossing is robust and not in need of replacement. No work will occur there. The rest of the poort would suffer minor impacts through constructionof the temporary detour roads around the various river crossings. These impacts would be primarily to the vegetation and would thus also affect the Cape Floristic Region World Heritage Site.
☒	**Geological resources of scientific or cultural importance** Description of resource: The poort represents a cross-section through the Cape Fold-Thrust Belt Mountains and is thus a valuable geological resource. The drainage evolution of the poort is also of geomorphological interest. It was cut back in a northwards direction by headwards erosion. However, at a alater stage the original river that created this mighty cleft was captured by another leading to today's relatively small stream flowing through the poort. (Information sourced from John Almond) Description of impact on heritage resource: No impacts expected.
☒	**Archaeological resources** (Including archaeological sites and material, rock art, battlefields & wrecks)**:** Description of resource: A number of archaeological resources were located in the poort. The majority are historical sites relating to the 19th century construction of the road and some small-scale farming activities. These sites comprise of the ruins of houses and convict stations scattered through the gorge and a water mill and house just outside the southern end. A single rock art site was recorded. This is in a rock shelter known locally as "Bakoond". The art consists of a few probable eland torsos and two clusters of finger dots. This site lies across the river from the existing road and is of no further concern to the project. There may well be other rock art sites in the poort that are located further away from the road. The survey focused on areas close to the river crossings and within close range of the road. Description of impact on heritage resource: Impacts are unlikely since the known sites will be demarcated as no-go areas. However, there is a very small chance that sites completely hidden in vegetation and not visible during the survey may be impacted by the proposed bypass roads. The rock art site is away from the existing road and will not be impacted.
☒	**Palaeontological resources** (ie: fossils)**:** Description of resource: Although much of the study area is underlain by geological units considered to be of high sensitivity (see attached extract from the SAHRIS palaeosensitivity map), the project will only impact on superficial sediments like colluvium, scree and river gravel and sand. So, although fossils may be present in the surrounding geology, the ground to be disturbed is not considred sensitive. This has been confirmed with palaeontologist Dr John Almond. Description of impact on heritage resource: No impacts expected.
☒	**Graves and burial grounds** (eg: ancestral graves, graves of victims of conflict, historical graves & cemeteries)**:** Description of Resource: There is a small historic graveyard with four stone-packed graves located on Farm 87 in the middle of the poort. It is located away from any area where work is required. There may be unmarked graves associated with another historical farm within the

	poort, although none were seen during the survey. Description of Impact on Heritage Resource: No impacts expected.
☒	**Other human remains:** Description of resource: There is a chance that unmarked (and probably historical) graves might occur within the poort and on surrounding farms. Description of impact on heritage resource: Unlikely to be impacted.
☐	**Sites of significance relating to the history of slavery in South Africa:** Description of resource: Although it is known that 108 convicts were used in constructing the pass, it is not known whether any slaves were involved. In any case, the kind of work envisaged will not affect the pass as originally constructed. Description of impact on heritage resource: No impacts expected.
☐	**Other heritage resources:** Description of resource: Description of impact on heritage resource:

Describe elements in the environs of the site that could be deemed to be heritage resources: as above

Description of impacts on heritage resources in the environs of the site: as above

Summary of anticipated impacts on heritage resources: There are two sources of impact that are of potential concern. The poort has many historical archaeological sites scattered along its length and there is a small chance that some may be impacted by the proposed bypass routes or other activities within the poort. The second apect is that any disturbance to the natural vegetation constitutes an impact to the Cape Floristic Region World Heritage Site. SAHRA will thus also need to be consulted for this project.

ILLUSTRATIVE MATERIAL (This form will not be processed unless the following are included):

Attach to this form a minimum A4 sized locality plan showing the boundaries of the area affected by the proposed development, its environs, property boundaries and a scale. The plan must be of a scale and size that is appropriate to creating a clear understanding of the development.

Attach also other relevant graphic material such as maps, site plans, satellite photographs and photographs of the site and the heritage resources on it and in its environs. These are essential to the processing of this notification.

Please provide all graphic material on paper of appropriate size and on CD ROM in JPEG format. It is essential that graphic material be annotated via titles on the photographs, map names and numbers, names of files and/or provision of a numbered list describing what is visible in each image.

D. RECOMMENDATION

In your opinion do you believe that a heritage impact assessment is required? ☒ Yes ☐ No

Recommendation made by:

Name Dr Jayson Orton

Capacity Archaeologist and heritage consultant

PLEASE NOTE: No Heritage Impact Assessment should be submitted with this form or conducted until Heritage Western Cape has expressed its opinion on the need for such and the nature thereof.

E. INFORMATION TO BE PROVIDED AND STUDIES TO BE CONDUCTED AS PART OF THE HERITAGE IMPACT ASSESSMENT (HIA)

If it is recommended that an HIA is required please complete this section of the form.

DETAILS OF HERITAGE PRACTITIONERS AND SPECIALISTS INTENDING TO CONDUCT THE HIA:

1.	Name of individual: Jayson Orton Name of Practice: ASHA Consulting (Pty) Ltd Area of specialisation: Archaeology and rural heritage Qualifications: MA (Archaeology, UCT), D.Phil (Archaeology, Oxford, UK) Experience: Full time CRM practice since 2004 Standing in heritage resource management: Accredited professional heritage practitioner with the Association of Professional Heritage Practitioners and accredited ASAPACRM Section member No. 233. E-mail Address: jayson@asha-consulting.co.za Telephone: 021 788 8425 Cell: 083 272 3225
2.	Name of individual: Name of Practice: Area of specialisation: Qualifications: Experience: Standing in heritage resource management: E-mail Address: Telephone: Cell:
3.	Name of individual: Name of Practice: Area of specialisation: Qualifications: Experience: Standing in heritage resource management: E-mail Address: Telephone: Cell:
4.	Name of individual: Name of Practice: Area of specialisation: Qualifications: Experience: Standing in heritage resource management: E-mail Address: Telephone: Cell:

5.	Name of individual: Name of Practice: Area of specialisation: Qualifications: Experience: Standing in heritage resource management: E-mail Address: Telephone: Cell:

If this submission is made in terms of Section 38(8) of the National Heritage Resources Act indicate below the particulars of the principle environmental consultant on the project.

Name of individual: Nandi Odendal Name of Practice: Hatch Africa Area of specialisation: Environmental assessment

E-mail Address: nandi.odendal@hatch.com Telephone: 021 911 5823 Cell: 082 839 1919

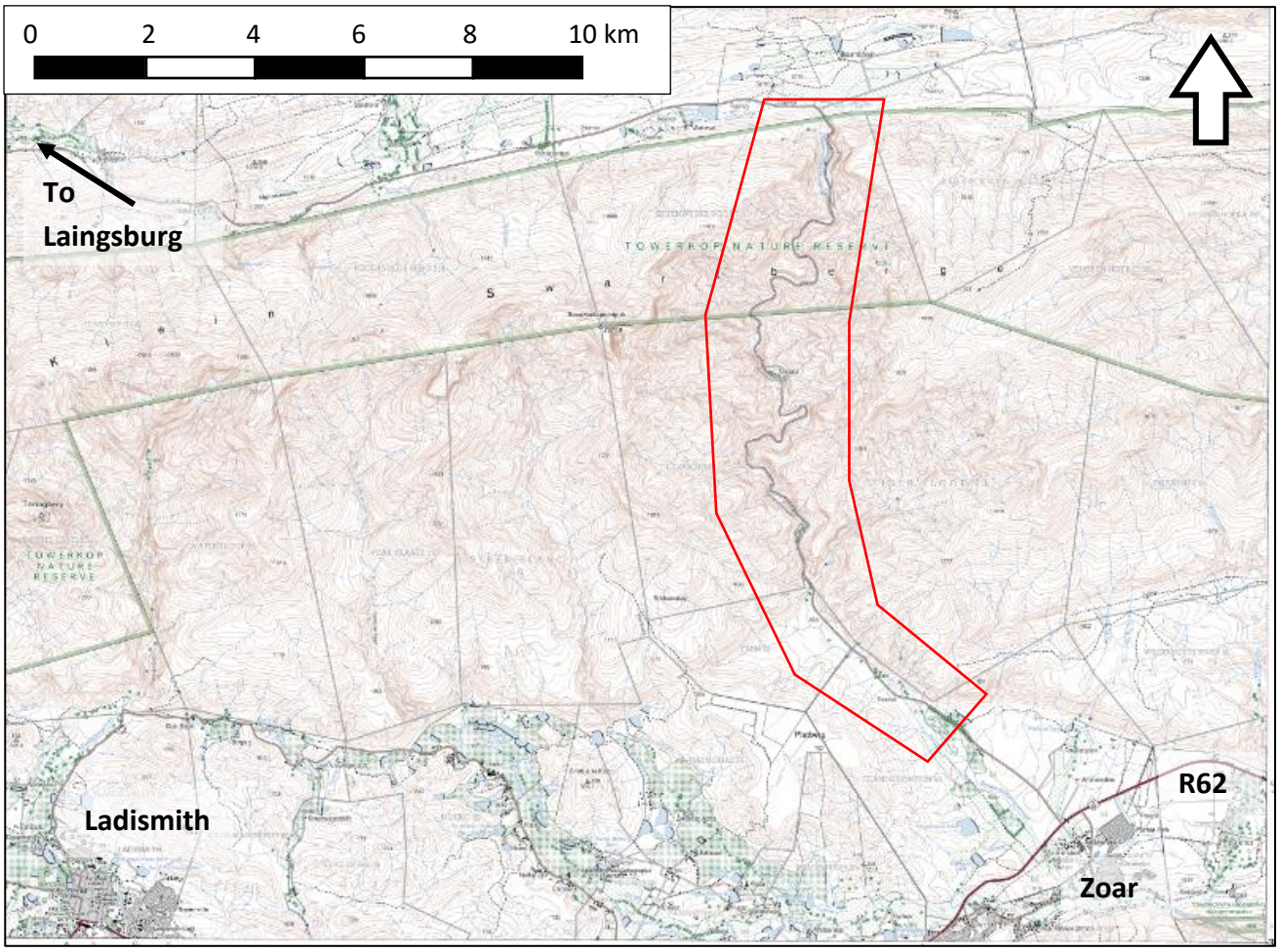
Postal Address: 2nd Floor, False Bay Building, Tygerberg Hills Office Park
163 Uys Krige Drive, Plattekloof Cape Town, 7500

DETAILS OF STUDIES TO BE CONDUCTED IN THE INTENDED HIA

In addition to the requirements set out in Section 38(3) of the NHRA, indicate envisaged studies:	
☐	Heritage resource-related guidelines and policies.
☐	Local authority planning and other laws and policies.
☐	Details of parties, communities, etc. to be consulted.
☒	Specialist studies, eg: archaeology, palaeontology, architecture, townscape, visual impact, etc. Provide details: archaeology
☒	Other. Provide details: assessment of impacts to the Cape Floristic Region WHS

PLEASE NOTE: Any further studies which Heritage Western Cape may resolve should be submitted must be in the form of a single, consolidated report with a single set of recommendations. Specialist studies must be incorporated in full, either as chapters of the report, or as annexures thereto.

NID supporting document:
Seweweekspoort Pass repairs/replacement of river culverts



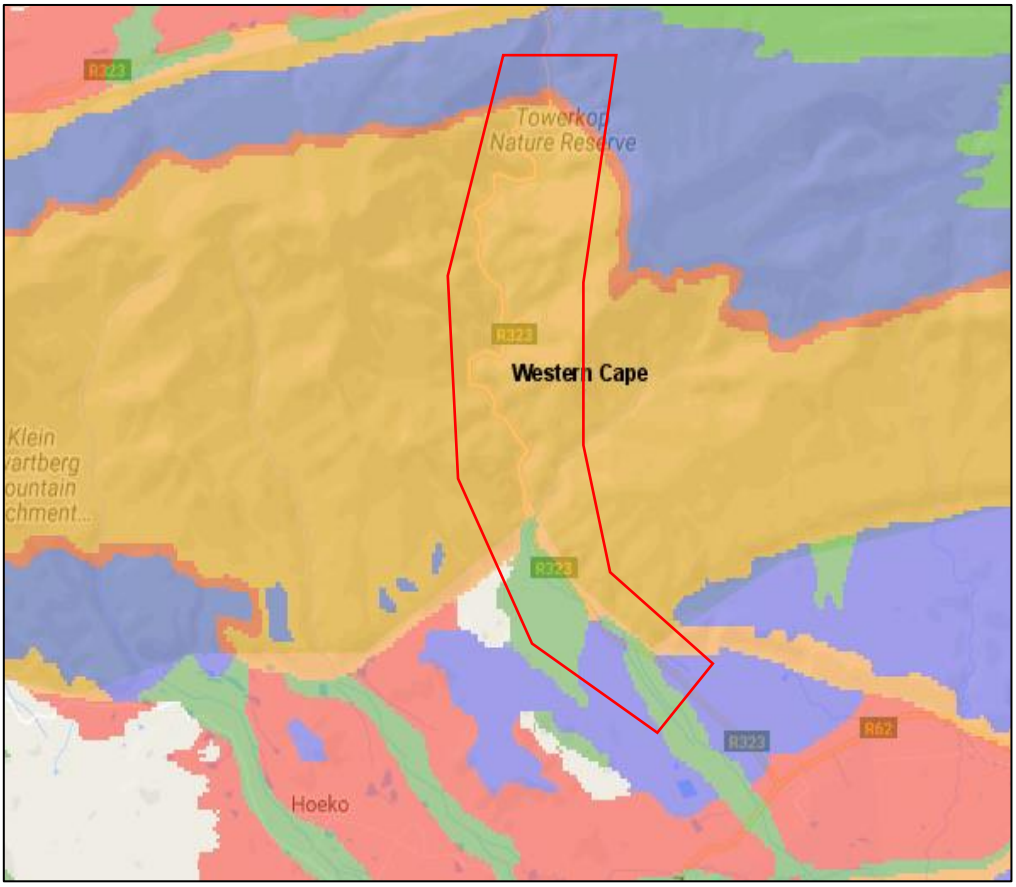
Extract from 1:50 000 mapsheet 3321AD showing the location of Seweweekspoort Pass (inside red polygon) relative to the towns of Ladismith and Zoar.

Two examples of damaged river crossings from recent floods illustrating the need for the proposed remedial work.

List of structures proposed for remedial work

Km Dist.	GPS Coordinates	Existing Structure	Proposed Structure
40.90	33°21'41.30"S 21°24'35.42"E	3x600mm pipes with gabions upstream, ponding occurs at inlet and outlet	6m wide causeway
44.10	33°22'51.38"S 21°24'31.32"E	2x600mm encased pipes, large skew angle	4m wide causeway
44.30	33°22'55.45"S 21°24'26.95"E	2x600mm encased pipes, with wing walls, apron slabs, gabions downstream damaged	6m wide causeway
44.50	33°23'1.12"S 21°24'21.51"E	2x600mm encased pipes, grouted stone head walls, base scoured and water running under structure	4m wide causeway
44.70	33°23'8.56"S 21°24'22.03"E	2x600mm encased pipes, heavy siltation, low level	6m wide causeway
45.05	33°23'11.26"S 21°24'31.42"E	2x600mm encased pipes, grouted stone head walls, mostly damaged, slight siltation	4m wide causeway
45.10	33°23'13.16"S 21°24'34.38"E	2x600mm encased pipes, with stone and concrete head walls upstream	4m wide causeway
45.50	33°23'24.84"S 21°24'37.91"E	1x600mm pipe only for side stream	3m wide causeway
45.97	33°23'27.84"S 21°24'22.06"E	2x600mm encased pipes with concrete and stone head walls at inlet and outlet, heavy siltation, structure completely buried	4m wide causeway
46.35	33°23'23.57"S 21°24'7.61"E	1x600mm pipe with stone head wall	2m wide causeway
46.50	33°23'26.04"S 21°24'5.27"E	2x600mm pipes with concrete and stone head walls at inlet and outlet, stone pitching aprons, siltation, structure completely buried	6m wide causeway
48.00	33°24'3.53"S 21°23'55.81"E	1x900mm pipe, stone head and wing walls, damaged apron slabs both sides, river channel is deep	6m wide causeway
50.10	33°24'42.25"S 21°24'31.50"E	3x600mm pipes with stone head walls up and down stream, stone pitching aprons severely damaged	8m wide causeway
50.30	33°24'46.14"S 21°24'29.91"E	2x900mm pipes with stone head and return wall downstream, severely damaged and siltation issue	5m wide causeway
50.80	33°24'56.08"S 21°24'14.54"E	3x600mm pipes with stone head and return walls up and down stream, severely damaged and siltation prevalent	6m wide causeway
51.10	33°24'59.11"S 21°24'7.50"E	2x900mm pipes with stone head wall up and down stream, severely damaged, large boulders abundant in river bed	6m wide causeway
51.60	33°25'1.52"S 21°23'51.22"E	River blocked by fallen tree and erodes bank and under scours road when flood comes through	30m concrete or gabion wall
52.00	33°25'16.31"S 21°23'50.59"E	2x900mm pipes with stone head wall up and down stream, severely damaged, boulders abundant in river bed	6m wide causeway
53.20	33°25'35.88"S 21°24'16.53"E	2x900mm pipes with concrete protection works up and down stream, scouring severe	6m wide causeway
53.40	33°25'39.94"S 21°24'20.83"E	2x600mm pipes with stone head walls at and outlet, mostly buried, nearly completely destroyed	6m wide causeway
53.50	33°25'43.76"S 21°24'23.71"E	2x900mm pipes with concrete protection works up and down stream, scouring severe	6m wide causeway
53.80	33°25'52.34"S 21°24'31.94"E	Road way gets flooded by river and washes material away completely during floods	100m long concrete retaining wall
54.10	33°25'56.48"S 21°24'26.57"E	2x900mm pipes with stone head wall up and down stream, mostly damaged, large boulders abundant in river	6m wide causeway
54.30	33°26'0.20"S 21°24'24.55"E	2x900mm pipes with stone head wall up and down stream, mostly damaged, large boulders abundant in river bed, siltation high	6m wide causeway
54.40	33°26'3.00"S 21°24'24.34"E	Road way gets flooded by river and washes material away completely during floods	350m long concrete retaining wall
57.10	33°27'14.40"S 21°25'15.08"E	57m long causeway with 6x2.4m openings, 500mm thk slab, aprons and wing walls, 4 openings completely blocked with rocks only 2 openings clear	Drop inlet and river realignment
58.10	33°27'34.98"S 21°25'43.17"E	1x1.9m W causeway with 750mm pipe down steam, broken apron slabs and downstream return walls	6m wide causeway

SAHRIS Palaeosensitivity Map



Extract from the SAHRIS Palaeosensitivity map showing the study area (red polygon) to be of variable palaeontological sensitivity but with 'high' being most dominant. The shading indicates sensitivity as follows: RED = very high, ORANGE = high, GREEN = moderate, BLUE = low.

Examples of the river crossings that require work

Current river crossing at km 57.1.

Current river crossing at km 54.1.

Current river crossing at km 53.4.

Current river crossing at km 47.2.

Current river crossing at km 50.8.

Current river crossing at km 44.3.

<u>Examples of heritage resources in the poort</u>

Stone walled prison site used for convicts working on construction of the pass (waypoints 215-216).

Small ruin thought to have been a prison for convicts building the road (waypoint 247).

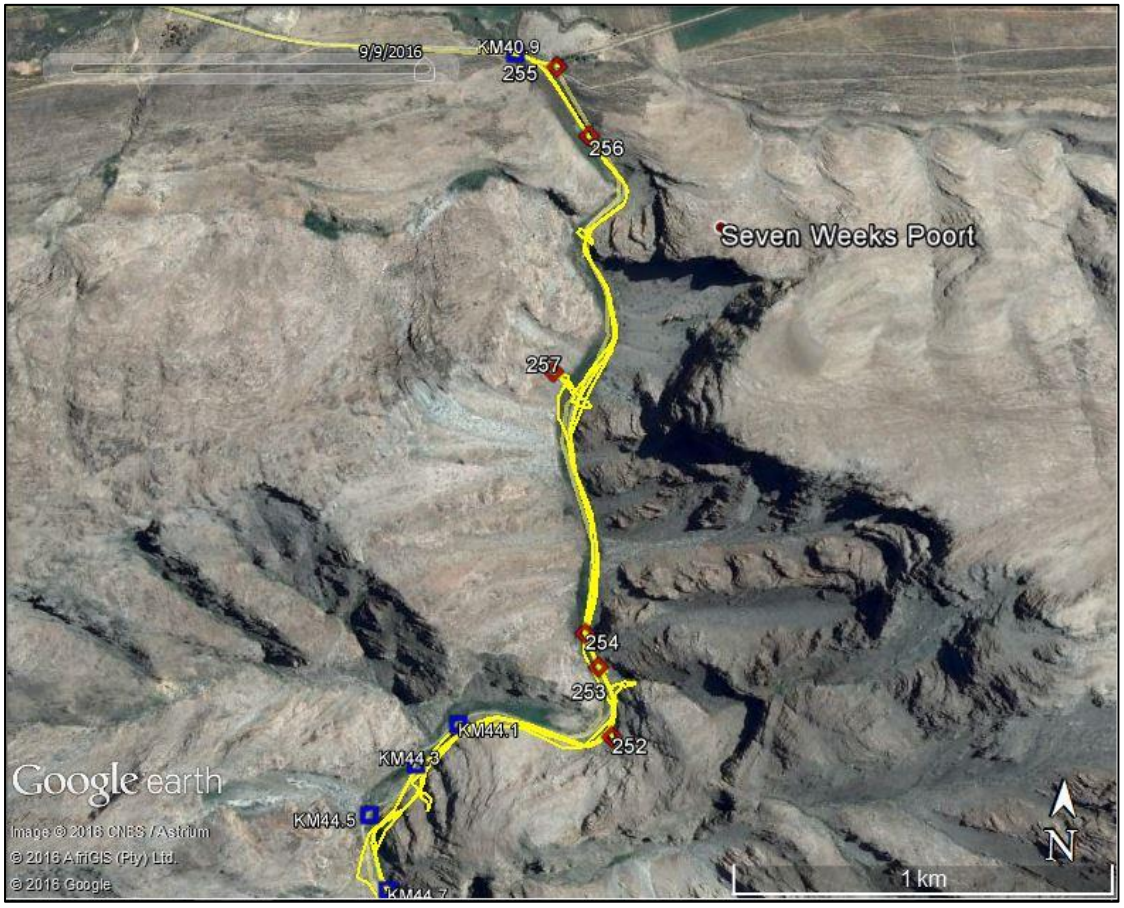
The remains of a water mill at the southern end of the poort (waypoint 219).

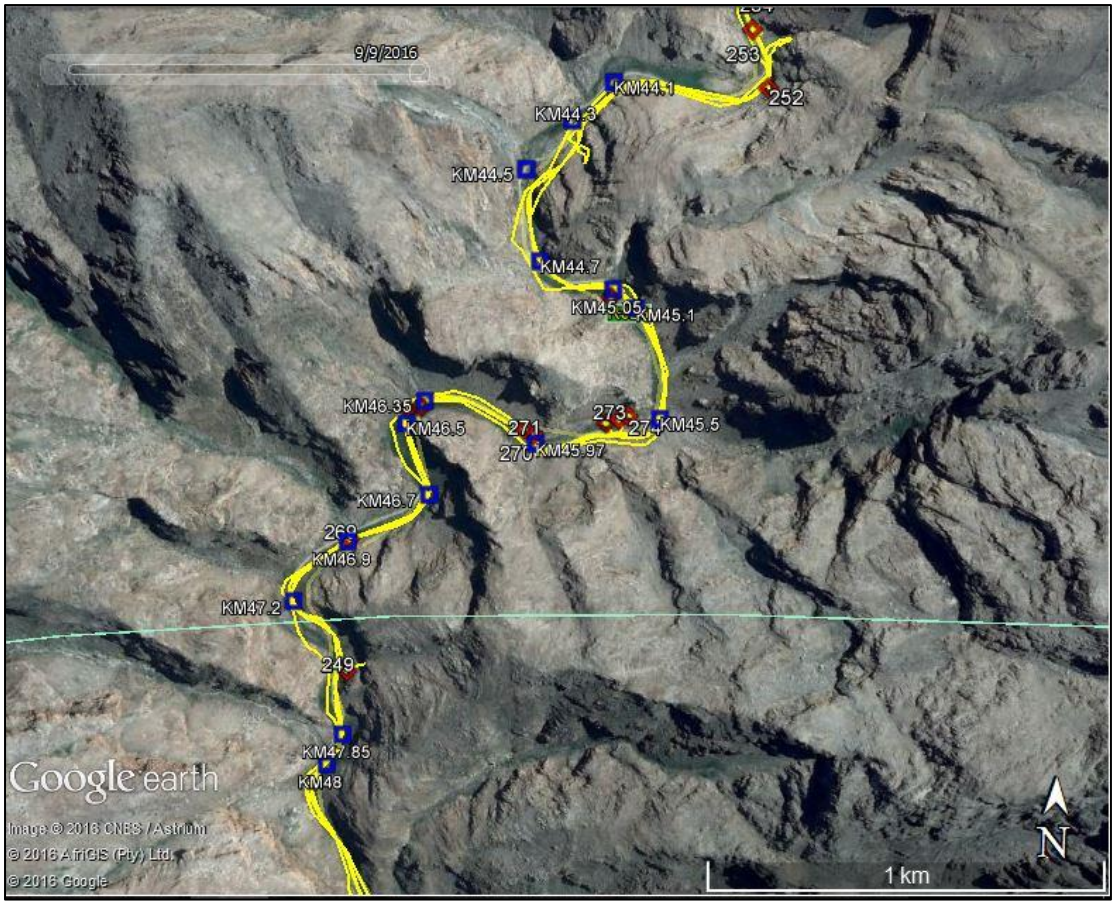
Poorly preserved rock art with probable eland torsos and a number of finger dots (waypoint 217).

Drystone retaining wall with road above and river below (waypoint 217).

Drystone retaining wall with mountain slope above and road below (waypoint 250).

Mapping of sites requiring work (blue symbols numbered with their km marker) and heritage sites and places of local significance (numbered red symbols). The yellow lines represent the drive- and walk-paths recorded during the survey. The five maps below proceed from north to south.

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253
252
KM44.1
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KM45.05
KM45.1
KM46.35
KM46.5
271
270
KM45.97
273
KM45.5
KM46.7
269
KM46.9
KM47.2
249
KM47.85
KM48
Google earth
Image © 2016 CNES / Astrium
© 2016 AfriGIS (Pty) Ltd.
© 2016 Google
N
1 km


9/9/2016
KM48
258
259
260
R323
KM50.1
KM50.3
268
248
267
KM50.8
KM51.1
262
247
218
KM52
217
KM53.2
Google earth
Image © 2016 CNES / Astrium
© 2016 AfriGIS (Pty) Ltd.
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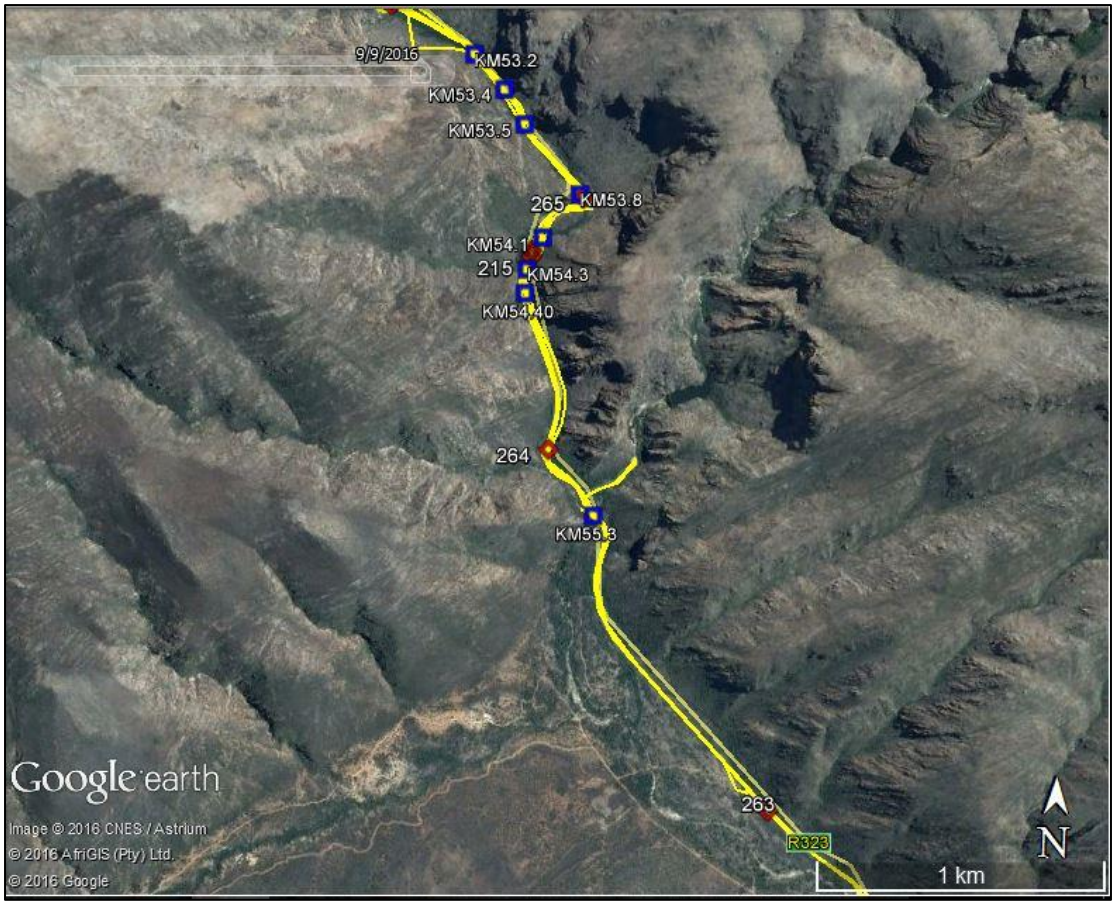
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KM53.2
KM53.4
KM53.5
265
KM53.8
KM54.1
215
KM54.3
KM54.40
264
KM55.3
263
R323
Google earth
Image © 2016 CNES / Astrium
© 2016 AfriGIS (Pty) Ltd.
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1 km


9/9/2016
263
R323
KM57.1
275
KM58.1
219
220
Google earth
Image © 2016 CNES / Astrium
© 2016 AfriGIS (Pty) Ltd.
© 2016 Google
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HERITAGE IMPACT ASSESSMENT FOR PROPOSED REMEDIAL WORKS TO THE SEWEWEEKSPOORT PASS, LAINGSBURG AND LADISMITH MAGISTERIAL DISTRICTS, WESTERN CAPE

Required under Section 38 (8) of the National Heritage Resources Act (No. 25 of 1999).

HWC Case No.: 16091504AS1018E
SAHRA Case ID: 10422

Report for:

Hatch Africa
2nd Floor, False Bay Building, Tygerberg Hills Office Park
163 Uys Krige Drive, Plattekloof Cape Town, 7500
Tel: (021) 911 5823
Email: nandi.odendal@hatch.com

On behalf of:

Western Cape Government

Dr Jayson Orton
ASHA Consulting (Pty) Ltd
40 Brassie Street, Lakeside, 7945
Tel: (021) 788 8425 | 083 272 3225
Email: jayson@asha-consulting.co.za

04 February 2017

EXECUTIVE SUMMARY

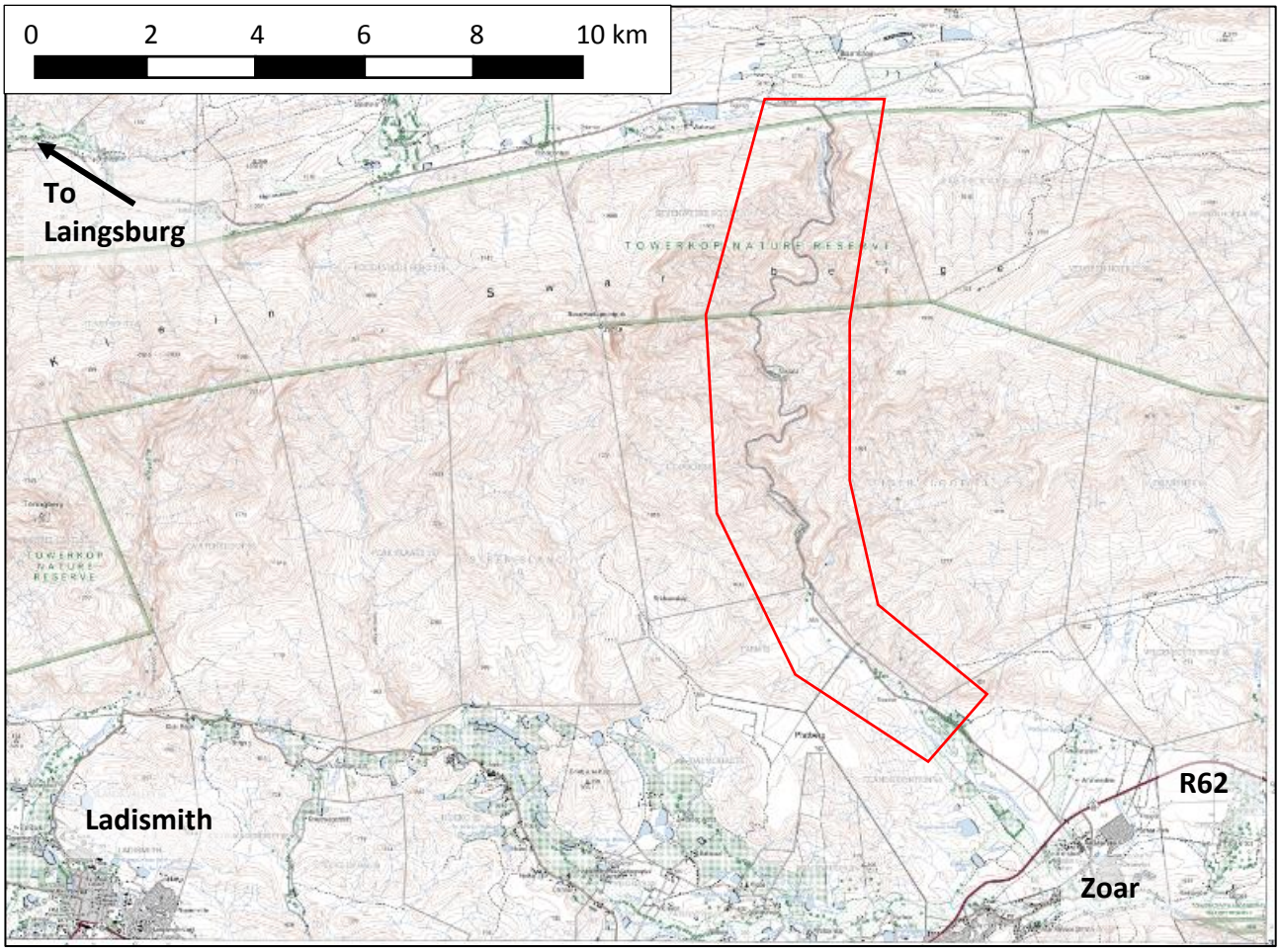
1. Site Name

Seweweekspoort Pass

2. Location

MR309 road reserve in Seweweekspoort which bisects the Klein Swartberg Mountains, north of Zoar, in the Laingsburg and Kannaland Municipalities. The north end of the pass is located at S33° 21' 40" E21° 24' 40", while the south end is at S33° 27' 40" E21° 26' 00".

3. Locality Plan



4. Description of Proposed Development

It is proposed to upgrade a total of twenty-four river crossings along the length of the Pass because they are frequently damaged by floods. The crossings currently have pipes which frequently get blocked by vegetation and rocks. They would be replaced by causeways designed to allow 1:2 year floods to pass easily beneath them while 1:5 year floods would flow both under and over them without damaging the gravel road on either side. In three locations concrete or gabion retaining walls will be built between the road and the river to prevent undercutting of the road

5. Heritage Resources Identified

Seweweekspoort is rich in heritage resources.

- Although Stone Age archaeology is only minimally represented in the valley bottom, historical archaeology abounds, much of it connected with the 1859 – 1862 road construction period but some also related to farming. Very little archaeology occurs in close proximity to the river crossings that are the subject of this assessment.
- Palaeontological and geological heritage, although present in the Poort, are of no concern to this assessment.
- Graves and buildings occur but away from the river crossings. The road itself, along with two original retaining walls, is also considered to be a built heritage resource (although note that none of the current crossing structures are old, the road has been resurfaced many times and sections in the south have been realigned).
- A few sites related to living heritage occur, one of which – a permanent water source – is at a river crossing (although this one does not require upgrade work). The rest are largely places along the road that have specific names known to and remembered by the local community. One is a bend at which a retaining wall will need to be built.
- Many of these heritage resources go together to create a cultural and scenic landscape stretching through the Poort, while the indigenous vegetation is part of the Cape Floral Region World Heritage Site that includes the Seweweekspoort area.

6. Anticipated Impacts on Heritage Resources

Fortunately the vast majority of the identified heritage resources are located at least a short distance away from the rivers where they are safer from flooding. Aside from excavations into the fabric of the road bed, some of which may still be original, the only other direct impact expected is to the end of one of the historical retaining walls. That end may have been reconstructed at some point because it lies immediately adjacent to the stream at which a causeway is required. No other direct impacts are expected, although there is the possibility of unknown archaeological features in the dense bush around the southernmost convict station. Indirect impacts in the form of accidental damage to sites out of the work area are highly unlikely to happen because of the strict controls being put in place because of the impacts to botanical resources.

7. Recommendations

Because the impacts to heritage resources are not likely to be of high significance and are manageable, it is recommended that the proposed upgrade work be allowed to continue but subject to the following conditions:

- In general, all disturbance footprints should be kept to an absolute minimum;
- Archaeological features close to crossings should be marked as no-go areas during the construction period;
- At Km 45.97 construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is used then the bypass should be constructed within 8 m of the edge of the existing road in order to reduce the chances of impacts to archaeological artefacts and features related to the historic farm *werf*.

- At Km 46.35 construction of the temporary bypass, if required, must occur on the downstream side of the road to protect the historic retaining wall. During construction of the new structure impacts to the historic retaining wall must be minimised and, as far as possible, the new structure should be integrated with the old wall. Where required, the drystone retaining wall should be reconstructed in a manner that matches the existing walling;
- At Km 51.6 all work and related activities must be restricted to the downstream side of the road. No activity to be allowed on the upslope (northwest) side of the road at this point so as to protect the ruin that lies very close to the edge of the road;
- At Km 54.1 construction of the temporary bypass is preferred on the upstream side of the road. However, if the downstream side is to be used then the bypass should be constructed within 8 m of the edge of the existing road and no further than 25 m south of the stream bed in order to avoid impacts to possible unknown archaeological features in the dense bush around the convict station;
- At Km 54.3 construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is to be used then the bypass should be constructed within 8 m of the edge of the existing road and no further than 25 m north of the stream bed in order to avoid impacts to possible unknown archaeological features in the dense bush around the convict station
- At Km 46.35 minimise damage to the drystone walling, integrate the new works with the base of the wall and rebuild the wall where it was damaged in such a way as to ensure minimal contrast between the old and new fabric;
- No bollards must be placed on top of the new retaining walls between the road and the river as this would be out of character with the pass; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Heritage Western Cape should consider the merits of declaring the Seweweekskloof Pass a Provincial Heritage Site (PHS).

8. **Author/s and Date**

Heritage Impact Assessment: Jayson Orton, ASHA Consulting (Pty) Ltd, 04 February 2017
Archaeological specialist study: Dr Jayson Orton, 04 February 2017
Palaeontological input: Dr John Almond, 13 January 2017
Archival search: Gustav Hendrich, February 2017

Glossary

Colluvial deposit: loose, unconsolidated surface sediments deposited at the base of slopes by non-channelised flow under the force of gravity and assisted by water.

Later Stone Age: Period of the Stone Age extending over the last approximately 20 000 years.

Werf: The Afrikaans word for a farm yard/complex.

Abbreviations

APHP: Association of Professional Heritage Practitioners

ASAPA: Association of Southern African Professional Archaeologists

BAR: Basic Assessment Report

CRM: Cultural Resources Management

ECO: Environmental Control Officer

GPS: global positioning system

HIA: Heritage Impact Assessment

HWC: Heritage Western Cape

IUCN: International Union for Conservation of Nature.

LSA: Later Stone Age

NEMA: National Environmental Management Act (No. 107 of 1998)

NHRA: National Heritage Resources Act (No. 25) of 1999

NID: Notification of Intent to Develop

PHS: Provincial Heritage Site

SAHRA: South African Heritage Resources Agency

SAHRIS: South African Heritage Resources Information System

WCARS: Western Cape Archives and Record Services

Acknowledgement

Mr Alistair Reizenberg of Zoar is thanked for his time and effort in accompanying the author through Seweweekspoort on 9 September 2016. This report is richer for his input which is gratefully acknowledged.

Contents

1. INTRODUCTION

ASHA Consulting (Pty) Ltd was appointed by Hatch Africa to conduct an assessment of the potential impacts to heritage resources that might occur through the implementation of proposed remedial works along the MR309 which passes through the Seweweekspoort Pass which links Laingsburg in the north with Zoar in the south (Figure 1). The northernmost and southernmost interventions are located at S32° 21' 41.2" E21° 24' 35.2" and S33° 27' 35.0" E21° 25' 43.0" respectively. The development would all be within the MR309 road reserve.

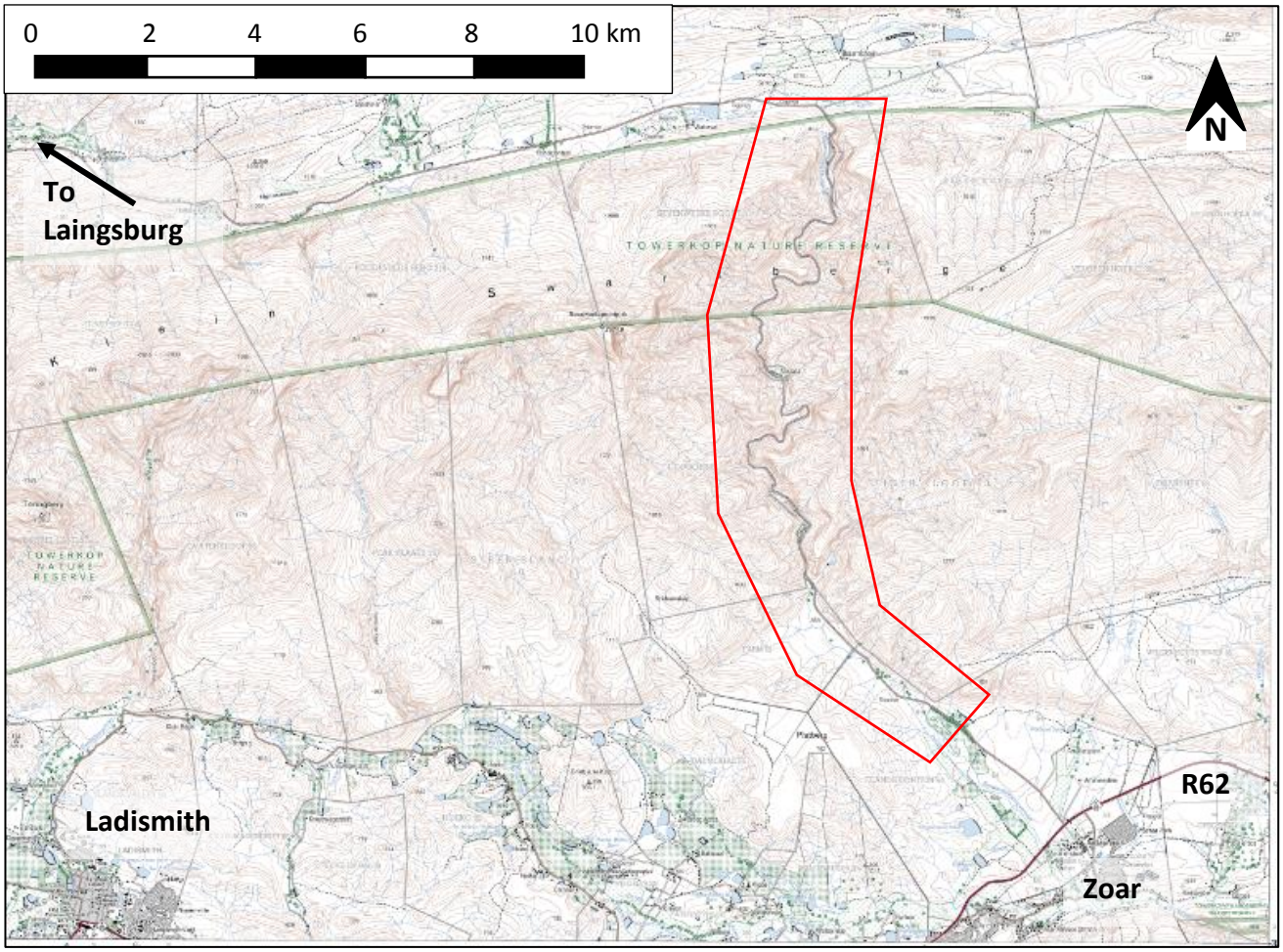


Figure 1: *Extract from 1:50 000 mapsheet 3321AD showing the location of Seweweekspoort Pass (inside red polygon) relative to the towns of Ladismith and Zoar. The gravel road to the northwest leads approximately 50 km further before reaching Laingsburg. (Mapping information supplied by Chief Directorate: National Geo-Spatial Information. Website: wwwi.ngi.gov.za)*

1.1. Project description

The Seweweekspoort Pass, located on MR309 approximately between km 40.9 and km 58.1, is a gravel road linking the towns of Laingsburg in the north and Ladismith and Zoar in the south. The road meanders through the very narrow Seweweekspoort gorge crossing the Seweweekspoort River numerous times in a short distance of 18km. Structures allowing vehicles to cross the river have been constructed over many years with the majority consisting of one or two pipes with some

cement over the top. Because these structures are incapable of accommodating the river when it swells after rains, the crossing are frequently overtopped with damage occurring not only at the river crossings but also along the road since the road acts as a weir when the hydraulic capacity is exceeded. The frequent overtopping of the road requires repair work to be done by the Eden District Municipality and the Central Karoo District Municipality (the border between the two municipalities is half way through Seweweekspoort).

It is thus proposed to construct new structures that will be large enough to allow 1:2 year floods to pass easily beneath them, bearing in mind vegetation and other debris that might be carried in the stream. The 1:5 year floods may need to pass above the structures but the design would allow for minimal damage to the roadway in such events. In three places the river runs alongside the road and undercuts it during flood events. In these locations a retaining wall would be constructed between road and river to protect the road. The full list of structures and locations requiring remedial work is provided in Table 1. Photographs of a selection of them are provided here (Figures 2 to 7), while a full photographic catalogue appears in Appendix 3.

The following general principles are proposed for the designing of the new culverts:

- Routing of the water through a drainage opening is preferable to a drift structure where all water passes over the road;
- The vertical clear height of drainage openings will be made as big as possible within the constraints of the river bed and the vertical alignment of the road;
- The vertical opening of the drainage structure must have a minimum clear height of 1m for ease of cleaning the structure by hand from siltation and debris;
- The top level of the slab must be lower than the road on both sides to prevent the water creating a new river alignment if the openings are blocked. The vertical alignment of the road has been changed over the years very effectively to achieve this, but this principle may be developed further where it is not implemented yet; and
- Drop inlets may be used where required. In such cases the concrete of piers must be protected against abrasion of fast moving rock if present in the river bed.

In addition, alignment of the opening of the drainage structure to the direction of the river will be done as best as possible and clear spans with fewer piers will be favoured to reduce the risk of siltation build up and blockage forming.

A key element of the project for the present assessment is that short bypass routes will need to be created in order to allow construction vehicles to access both sides of each river crossing and to allow the road to remain in use by the public during the construction period. It should be noted that none of the specialists on the project supported the idea of the bypass routes at the outset but, after discussion with the client and engineers, it was found that there was no other way to implement the project because the construction crews needed to access both sides of each structure and to be able to reach other structures. The new structures would be constructed in batches rather than doing all of them simultaneously.

Note that the Alternatives for assessment are as follows;

- Alternative 1: No-Go alternative in which the status quo remains; and
- Alternative 2: Preferred alternative in which the structures are upgraded.

Table 1: *List of structures proposed for remedial work.*

Km distance	Co-ordinates	Description of Existing Structure	Description Of Proposed Structure
40.90	33°21’41.30’’S 21°24’35.42’’E	3x600mm pipes with gabions upstream, ponding occurs at inlet and outlet	6m wide causeway
44.10	33°22'51.38"S 21°24'31.32"E	2x600mm encased pipes, large skew angle	4m wide causeway
44.30	33°22'55.45"S 21°24'26.95"E	2x600mm encased pipes, with wing walls, apron slabs, gabions downstream damaged	6m wide causeway
44.50	33°23'1.12"S 21°24'21.51"E	2x600mm encased pipes, grouted stone head walls, base scoured and water running under structure	4m wide causeway
44.70	33°23'8.56"S 21°24'22.03"E	2x600mm encased pipes, heavy siltation, low level	6m wide causeway
45.05	33°23'11.26"S 21°24'31.42"E	2x600mm encased pipes, grouted stone head walls, mostly damaged, slight siltation	4m wide causeway
45.10	33°23'13.16"S 21°24'34.38"E	2x600mm encased pipes, with stone and concrete head walls upstream	4m wide causeway
45.50	33°23'24.84"S 21°24'37.91"E	1x600mm pipe only for side stream	3m wide causeway
45.97	33°23'27.84"S 21°24'22.06"E	2x600mm encased pipes with concrete and stone head walls at inlet and outlet, heavy siltation, structure completely buried	4m wide causeway
46.35	33°23'23.57"S 21°24'7.61"E	1x600mm pipe with stone head wall	2m wide causeway
46.50	33°23'26.04"S 21°24'5.27"E	2x600mm pipes; concrete and stone head walls at inlet and outlet, stone pitching aprons, siltation, structure buried	6m wide causeway
48.00	33°24'3.53"S 21°23'55.81"E	1x900mm pipe, stone head and wing walls, damaged apron slabs both sides, river channel is deep	6m wide causeway
50.10	33°24'42.25"S 21°24'31.50"E	3x600mm pipes with stone head walls up and down stream, stone pitching aprons severely damaged	2 x 3m Wide Cell causeway
50.30	33°24'46.14"S 21°24'29.91"E	2x900mm pipes with stone head and return wall downstream, severely damaged and siltation issue	4m Wide Cell causeway
50.80	33°24'56.08"S 21°24'14.54"E	3x600mm pipes with stone head and return walls up and down stream, severely damaged and siltation prevalent	4m Wide Cell causeway
51.10	33°24'59.11"S 21°24'7.50"E	2x900mm pipes with stone head wall up and down stream, severely damaged, large boulders abundant in river bed	4m Wide Cell causeway
51.60	33°25'1.52"S 21°23'51.22"E	River blocked by fallen tree and erodes bank and under scours road when flood comes through	30m Long Wall
52.00	33°25'16.31"S 21°23'50.59"E	2x900mm pipes with stone head wall up and down stream, severely damaged, boulders abundant in river bed	4m Wide Cell causeway
53.20	33°25'35.88"S 21°24'16.53"E	2x900mm pipes with concrete protection works up and down stream, scouring severe	4m Wide Cell causeway
53.40	33°25'39.94"S 21°24'20.83"E	2x600mm pipes with stone head walls at and outlet, mostly buried, nearly completely destroyed	4m Wide Cell causeway
53.50	33°25'43.76"S 21°24'23.71"E	2x900mm pipes with concrete protection works up and down stream, scouring severe	4m Wide Cell causeway
53.80	33°25'52.34"S 21°24'31.94"E	Road way gets flooded by river and washes material away completely during floods	100m Long Wall
54.10	33°25'56.48"S 21°24'26.57"E	2x900mm pipes with stone head wall up and down stream, mostly damaged, large boulders in river	4m Wide Cell causeway
54.30	33°26'0.20"S 21°24'24.55"E	2x900mm pipes with stone head wall up and down stream, mostly damaged, large boulders in river bed, siltation high	4m Wide Cell causeway
54.40	33°26'3.00"S 21°24'24.34"E	Road way gets flooded by river and washes material away completely during floods	350m Long Wall
57.10	33°27'14.40"S 21°25'15.08"E	57m causeway with 6x2.4m openings, 500mm slab, aprons and wing walls, 4 openings blocked with rocks only 2 openings clear	Drop inlet on existing structure
58.10	33°27'34.98"S 21°25'43.17"E	1x1.9m W causeway with 750mm pipe down steam, broken apron slabs and downstream return walls	6m Wide Cell causeway

Figure 2: *Current river crossing at km 57.1. Note siltation and grass growth under culvert.*

Figure 3: *Current river crossing at km 54.1. Note small pipes for river.*

Figure 4: *Current river crossing at km 53.4. Note small culvert and exposure of road to river.*

Figure 5: *Current river crossing at km 47.2. Note eroded road surface in foreground.*

Figure 6: *Current river crossing at km 50.8.*

Figure 7: *Current river crossing at km 44.3.*

1.1.1. Aspects of the project relevant to the heritage study

All aspects of the proposed development are relevant since the proposed bypass routes and excavations for foundations may impact on archaeological and/or palaeontological remains. The proposed above-ground structures (culverts and retaining walls) have the potential to create visual (contextual) impacts to the cultural landscape and any significant heritage sites that might be visually sensitive.

1.2. Terms of reference

ASHA Consulting was asked to compile a Heritage Impact Assessment (HIA) that would meet the requirements of Heritage Western Cape (HWC). A Notification of Intent to Develop was earlier submitted to HWC and hey responded on 3rd November 2016 with the following:

> Heritage Western Cape is in receipt of your application for the above matter received on 18 October 2016. This matter was discussed at the Heritage Officers meeting held on 27 October 2016.
>
> You are hereby notified that, since there is reason to believe that the proposed development will impact on heritage resources, HWC requires that a Heritage Impact Assessment (HIA) that satisfies the provisions of section 38(3) of the NHRA be submitted. This HIA must have specific reference to the following:
>
> - Impacts to archaeological (pre-colonial and post-colonial) heritage resources
> - Impacts to palaeontological heritage resources.
>
> The required HIA must have an integrated set of recommendations.
>
> The comments of relevant registered conservation bodies and the relevant Municipality must be requested and included in the HIA where provided. Proof of these requests must be supplied.

It should also be noted, however, that following S.38(3) of the National Heritage Resources Act (No. 25 of 1999), even though certain specialist studies may be specifically requested, all heritage resources should be identified and assessed.

1.3. Scope and purpose of the report

An HIA is a means of identifying any significant heritage resources before development begins so that these can be managed in such a way as to allow the development to proceed (if appropriate) without undue impacts to the fragile heritage of South Africa. This HIA report aims to fulfil the requirements of the heritage authorities such that a comment can be issued by them for consideration by the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) who will review the Basic Assessment Report (BAR) and grant or refuse authorisation. The HIA report will outline any management and/or mitigation requirements that will need to be complied with from a heritage point of view and that should be included in the conditions of authorisation should this be granted.

1.4. The author

Dr Jayson Orton has an MA (UCT, 2004) and a D.Phil (Oxford, UK, 2013), both in archaeology, and has been conducting Heritage Impact Assessments and archaeological specialist studies in the Western Cape and Northern Cape provinces of South Africa since 2004 (Please see curriculum vitae

included as Appendix 1). He has also conducted research on aspects of the Later Stone Age in these provinces and published widely on the topic. He is an accredited heritage practitioner with the Association of Professional Heritage Practitioners (APHP) and also holds archaeological accreditation with the Association of Southern African Professional Archaeologists (ASAPA) CRM section (Member #233) as follows:

- Principal Investigator: Stone Age, Shell Middens & Grave Relocation; and
- Field Director: Colonial Period & Rock Art.

1.5. Declaration of independence

ASHA Consulting (Pty) Ltd and its consultants have no financial or other interest in the proposed development and will derive no benefits other than fair remuneration for consulting services provided.

2. HERITAGE LEGISLATION

The National Heritage Resources Act (NHRA) No. 25 of 1999 protects a variety of heritage resources as follows:

- Section 34: structures older than 60 years;
- Section 35: palaeontological, prehistoric and historical material (including ruins) more than 100 years old;
- Section 36: graves and human remains older than 60 years and located outside of a formal cemetery administered by a local authority; and
- Section 37: public monuments and memorials.

Following Section 2, the definitions applicable to the above protections are as follows:

- Structures: “any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith”;
- Palaeontological material: “any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace”;
- Archaeological material: a) “material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures”; b) “rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation”; c) “wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation”; and d) “features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found”;

- Grave: “means a place of interment and includes the contents, headstone or other marker of such a place and any other structure on or associated with such place”; and
- Public monuments and memorials: “all monuments and memorials a) “erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government”; or b) “which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.”

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list “historical settlements and townscapes” and “landscapes and natural features of cultural significance” as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value; some of these speak directly to cultural landscapes.

Section 38 (2a) states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted. This report fulfils that requirement.

Under the National Environmental Management Act (No. 107 of 1998; NEMA), as amended, the project is subject to a BAR. HWC is required to provide comment on the proposed project in order to facilitate final decision making by DEA&DP.

3. METHODS

3.1. Literature survey and information sources

A survey of available literature was carried out to assess the general heritage context into which the development would be set. This literature included published material, unpublished commercial reports and online material, including reports sourced from the South African Heritage Resources Information System (SAHRIS). The 1:50 000 map and historical aerial images were sourced from the Chief Directorate: National Geo-Spatial Information.

3.2. Field survey

The site was initially surveyed on 6th August, but a return visit was made with on the 9th September 2016. Once the project description had been further refined, several areas of potential concern became evident and these were revisited on 3rd March 2017. These surveys were during late winter, early spring and late summer respectively. Given the location of the study area along the Seweweekspoort River, the vegetation is always quite dense and so the season of the surveys would not have affected their outcome. Away from the river, however, visibility tended to be quite good because the area had recently been burned by a mountain fire. During the surveys the positions of finds were recorded on a hand-held GPS receiver set to the WGS84 datum. Photographs were taken at times in order to capture representative samples of both the affected heritage and the landscape setting of the proposed development. Every river crossing was also photographed.

A local tour guide, Mr Alistair Reizenberg, was contacted in order to obtain local information regarding the pass, its history and stories. Mr Reizenberg accompanied the author through

Seweweekspoort on 9th September 2016 and shared much local knowledge which is incorporated into this report.

3.3. Specialist studies

The archaeological specialist study was conducted by the present author and is presented within the body of the report in section 6.1.

lthough it was indicated in the NID application that no palaeontological impacts were expected, a specialist palaeontological assessment was requested by HWC (see Section 1.2 above). On discussing this with the case officer it appears that HWC had anticipated far more road works than what is envisaged as part of this project. As such, the case officer informed the present author in an email on 10 November 2016 that a letter should be included in the HIA explaining that no impacts to palaeontology are expected. This letter is presented in Appendix 2.

A search of the archives was carried out by Gustav Hendrich. Some of the information so derived is presented in Section 6.8.

3.4. Impact assessment

For consistency, the impact assessment was conducted through application of a scale supplied by Hatch Africa.

3.5. Grading

S.7(1) of the NHRA provides for the grading of heritage resources into those of National (Grade I), Provincial (Grade II) and Local (Grade III) significance. Grading is intended to allow for the identification of the appropriate level of management for any given heritage resource. Grade I and II resources are intended to be managed by the national and provincial heritage resources authorities respectively, while Grade III resources would be managed by the relevant local planning authority. These bodies are responsible for grading, but anyone may make recommendations for grading.

It is intended under S.7(2) that the various provincial authorities formulate a system for the further detailed grading of heritage resources of local significance but this is generally yet to happen. Heritage Western Cape (2016), however, uses a system in which resources of local significance are divided into Grade IIIA, IIIB and IIIC. These approximately equate to high, medium and low local significance, while sites of very low or no significance (and generally not requiring mitigation or other interventions) are referred to as Not Conservation Worthy (NCW).

3.6. Consultation

The draft HIA was submitted to relevant interested and affected parties as required by HWC in their response to the NID application.

3.7. Assumptions and limitations

The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of

archaeological material visible at the surface. Visibility was often difficult because of the thick bush present along the river margins and in the base of the valley. It is possible that sites could have been obscured from view and were not recorded during the ground survey. The accuracy of the GPS co-ordinates is also highly variable because the steep sides of the valley resulted in poor reception in many parts of the study area. The desktop study for this project was limited by the very small number of cases lodged on SAHRIS for the broader area.

4. PHYSICAL ENVIRONMENTAL CONTEXT

4.1. Site context

The study area is very remote owing to its location within a deeply incised valley incapable of accommodating development. The only infrastructure besides the gravel road and culverts of the pass is a telephone line and a few buildings at the Aristata Seweweekspoort guest accommodation. Near the southern end of the pass there is a dam about 500 m up one of the tributary streams on the eastern side of the valley. It is not visible from the road. The mountain land around the pass is all part of the Towerkop Nature Reserve which is managed by CapeNature. The villages of Amalienstein and Zoar lie at the southern end of the pass, while Laingsburg lies some 65 km along the road towards the northwest from the northern end of the pass.

4.2. Site description

The study area is a pass through a narrow, deeply incised valley that twists and turns through the Cape Fold Belt Mountains. Steep slopes and cliffs occur in many areas on both sides of the road. Vegetation tends to be quite dense along the river margins and on the floor of the valley, while the mountain slopes are somewhat sparser. Additional to Figures 2 to 7 above, Figures 8 to 12 show various views to characterise the study area. The road itself is a gravel road with numerous river crossings, mostly across the Seweweekspoort River but also across some of its tributaries (see examples in Figures 2 to 7).

Figure 8: *View across the river towards the road which winds through an especially narrow section of the* poort *in the central part of the study area.*

Figure 9: *View towards the northeast along a straight section of road in the central part of the pass.*

Figure 10: *View towards the southwest from the same point as the image in Figure 9.*

Figure 11: *View towards the northeast in the central part of the pass.*

Figure 12: *View towards the northeast in the northern part of the pass.*

5. HERITAGE CONTEXT

This section of the report contains the desktop study and establishes what is already known about heritage resources in the vicinity of the study area. What was found during the field survey may then be compared with what is already known in order to gain an improved understanding of the significance of the newly reported resources.

5.1. Archaeological aspects

Archaeological research in the southern Cape region has focused strongly on rock shelters containing Stone Age occupation deposits. Examples are Boomplaas, near Oudtshoorn (Deacon 1979; Deacon *et al.* 1976, 1978; Von Den Driesch & Deacon 1985), and Montagu Cave, located a short distance east of Montagu (Keller 1970, 1973). The mountains of the southern Cape region are

known for the rock art they contain (Rust & Van der Poll 2011). According to Wurz (2006), seeral rock art sites have been recorded in Seweweekspoort. Orton (2014) reported three rock art sites some 5-7 km west of the northern end of Seweweekspoort with one of these rock shelters also containing stone artefacts and pottery. Elsewhere in the broader region others have reported archaeological sites ranging from rock shelters with deposits and/or rock paintings to open scatters of artefacts (e.g. Halket 2002, 2006; Kaplan 2005; Orton 2009).

Historical archaeology, although not researched, abounds in the region. There are large numbers of ruined historical structures that are likely to be greater than 100 years of age and hence classified as archaeology (personal observation). Formal surveys such as those conducted by Halkett (2002) support this observation but such work is scarce in the area.

5.2. Historical aspects and the built environment

Although the poort was already in use by locals, the Seweweekspoort Pass was built in 1859-1862 using convict labour and has a rich history which will be explored in greater detail as part of the findings below. More generally, the region has been used for the last few centuries by colonial farmers and continues to be dominated by farming activities today with many small stock farms present in the region. Historical buildings abound in the area (Fransen 2004) and the villages of Zoar and Amalienstein, although containing few especially important individual buildings, are significant as villages for their general history. Zoar (founded 1817) is far older than Amalienstein (founded 1853), Ladismith (founded 1851) and Calitzdorp (founded 1845). Zoar was originally run by the South African (Dutch Reformed) Missionary Society before being taken over by the Lutheran Berlin Missionary Society in 1837. Because of difficulties related to the locals not accepting some Lutheran customs, the South African Missionary Society resumed control of Zoar from 1856 until 1867 and then again from 1888 with the Lutherans once more in charge during the intervening years. In 1853 the Berlin Missionary Society had founded Amalienstein as a Lutheran Mission. It continues to function under their leadership, while Zoar continues as a Dutch Reformed congregation (Fransen 2006).

6. FINDINGS OF THE HERITAGE STUDY

This section describes the heritage resources recorded in the study area during the course of the project. The locations of all river crossings and other sites requiring work, as well as all heritage sites and places of local significance, are mapped in Appendix 4. The maps proceed from north to south. Table 2 provides details of every heritage site recorded during the surveys.

Table 2: *List of sites recorded during the surveys. Please note that some details, especially those relating to oral tradition, were provided or confirmed by Mr Alistair Reizenberg (pers. comm. 2016) and have not been specifically referenced at every location. The records are arranged from north to south through the poort.*

GPS No.	Location	Notes	Significance Grade
255	S33 21 42.6 E21 24 40.6	Ruin of the old toll house at the northern end of the pass. Stone structure with mud mortar. Inside is partially plastered with mud. Front (north) wall appears to be still standing to full height.	Medium-High IIIA

256	S33 21 49.6 E21 24 44.8	Graffiti with date 1957.	---
257	S33 22 16.7 E21 24 45.0	Old convict station according to survey diagram.	Medium-High IIIA
254	S33 22 40.7 E21 24 46.0	Low retaining wall across a steep slope that was to stop water running into an animal enclosure that used to lie at the foot of the cliff to the left (south) – it is now buried by a rock fall.	Low NCW
253	S33 22 44.1 E21 24 47.8	Ruin that apparently functioned as a jail during the road construction period.	Medium-High IIIA
252	S33 22 50.8 E21 24 49.6	Small ruin known locally as "*Die Klein Huisie*".	Medium IIIB
251	S33 23 12.1 E21 24 31.2	Graffiti with date 7/2/1947.	---
---	---	This whole area is an old farm. There are many fragments of old and rusty but thick-stranded and still strong barbed wire and many rocks have been moved out of the lands and piled along the edges. A single possible grave was found but it is possible that the bushes have obscured another in this area.	Medium-High IIIA (entire site but individual features vary from IIIB to NCW)
270	S33 23 26.3 E21 24 20.7	Small house ruin of stone and mud brick.	
271	S33 23 26.9 E21 24 21.8	Main house of stone and mud brick. Family of Machiel Mitchell used to live there during the late 19th century.	
676	S33 23 26.6 E21 24 21.7	The base of a tiny square stone structure.	
677	S33 23 27.5 E21 24 23.0	Possible grave comprised of several rocks lying adjacent to one another. They are flat on the ground and there is no obvious headstone and the stones are quite small. The feature is aligned loosely east-west. Seems an unlikely grave.	
706	S33 23 27.1 E21 24 23.8	Light scatter of artefacts at the base of the rocky slope. Ceramics, glass and metal present along with several burnt bones, some of which are clearly rock hyrax (*Procavia capensis*) and might represent an animal that died in the recent fire.	
678	S33 23 27.5 E21 24 24.6	Some sort of small stone feature. Partly obscured in bushes.	
679	S33 23 26.8 E21 24 25.4	Some sort of small stone feature.	
680	S33 23 26.7 E21 24 26.0	Low stone terrace running northwards towards the base of the mountain. A pile of peach pips is present at the waypoint (mostly burnt but presumably by the recent fire).	
681	S33 23 26.6 E21 24 26.6	A large stone teardrop-shaped berm with a cement floor of about 3.5 m by 8.0 m on top of it. The overall teardrop-shaped feature is some 40 m long with the cement floor located near the north-eastern end of it.	
682	S33 23 26.0 E21 24 28.8	Small pile of four stones.	
683	S33 23 25.9 E21 24 29.7	Small pile of three stones with a metal hook placed in the top of it.	
684	S33 23 25.5 E21 24 30.4	Low terrace running between the berm and the base of the slope.	
686	S33 23 25.2 E21 24 33.4	An *Agave* plant.	
687	S33 23 25.6 E21 24 35.5	Small pile of five stones.	
272	S33 23 25.4 E21 24 31.0	Ruin of a small structure.	
273	S33 23 25.0 E21 24 32.7	Possible small dam.	

274	S33 23 24.6 E21 24 33.9	A rock known locally as "*Lêklip*" because it was comfortable to lie on.	
710	S33 23 27.3 E21 24 22.3	Fairly modern cement slab with a wooden pole in it and a survey point cemented in the ground alongside it.	
675	S33 23 23.7 E21 24 07.8	Historic drystone retaining wall along the road to retain embankment above road cutting. The waypoints mark the ends. The north-eastern end lies at the stream where new works are required and is likely to be disturbed. It is uncertain whether this north-eastern end has been modified subsequent to the original wall construction but this does seem a possibility.	Medium IIIB
674	S33 23 24.6 E21 24 05.6		
269	S33 23 38.6 E21 23 58.4	Tributary stream that is known locally as "*Sterkwater*" or "*Drinkwater*". It is a very important communal water source as it is the only permanent water close to Zoar and was relied on in times of drought. It is still a special place to which people return to collect bottles of pristine water.	High IIIA
249	S33 23 53.0 E21 23 58.4	Large rock shelter with no art or archaeology visible and a muddy floor (must get washed out by heavy floods).	---
258	S33 24 19.6 E21 24 03.9	Four stone-packed graves with headstone and the remains of a stone wall surrounding them. There are also old pine trees planted around the graveyard. The graves seem to be in the area where an early survey diagram indicates a 'contractor's store' so they perhaps relate to the later farming days and not to the road construction period.	High IIIA (graves) IIIB (farm and structures)
259	S33 24 19.4 E21 24 05.2	Stone walling related to the old Aristata Farm. It appears to have been constructed to hold the stream to an alignment further to the north. The wall may thus post-date the use of the site as a road construction camp. An old apricot orchard stands close by but has been partly removed.	
260	S33 24 21.4 E21 24 07.1	Historical cottage at the old Aristata Farm, now altered but retaining significant amounts of original fabric. Possibly early 20th century.	
268	S33 24 44.7 E21 24 31.5	Cliff above the eastern side of the river known locally as "*Oliphantskrans*". There is a grey patch in the rock that, with imagination, looks like an elephant.	---
248	S33 24 46.6 E21 24 28.2	Rock shelter with signs of rock art but graffiti and wear and tear are too great to allow further description.	Low NCW
267	S33 24 52.4 E21 24 16.1	Section in the middle of the pass known as "*Rusbos*" because it is the area where people would outspan their oxen and rest among the bushes at the western edge of the valley.	Medium IIIB
261	S33 25 00.9 E21 23 51.6	Brick house ruin on a stone foundation. This ruin is known locally as "the white house" and was the house in which the road construction superintendent apparently lived.	Medium-High IIIA
262	S33 25 00.3 E21 23 51.6	Small stone ruin behind "the white house" and that apparently housed servants.	
247	S33 25 08.3 E21 23 48.0	Small ruin apparently used as a prison for convicts building the road.	Medium IIIB
218	S33 25 12.5 E21 23 49.8	Rock shelter at the base of the cliff with no archaeology or rock art present. Much graffiti. Wall is blackened from fires being made in the shelter.	---
217	S33 25 30.8 E21 24 05.1	Rock shelter known locally as "*Bakoond*" and located on the west side of the poort. Two or more possible eland, various red patches and some finger dots visible on back wall among graffiti. No artefacts seen.	Medium IIIB
217	S33 25 30.8 E21 24 05.1	Stretch of dry stone walling holding up the road around the bend on the east side of the river in a very tight section of the poort.	Medium IIIB
265	S33 25 51.8 E21 24 32.2	Bend in the road known locally as "*Aartappeldraai*".	IIIC
215	S33 25 58.7 E21 24 25.2	Large ruin used as a prison during the period of road construction. South corner of the ruin (first reading). (Note that GPS-points were	Medium-High IIIA

		taken on two different visits and these differ so all points are provided here. The 711-714 points may be too far north.)	
216	S33 25 58.0 E21 24 25.2	North corner of the ruin (first reading).	
711	S33 25 57.2 E21 24 25.6	East corner of the ruin (only reading).	
712	S33 25 56.9 E21 24 25.1	North corner of the ruin (second reading).	
714	S33 25 57.8 E21 24 25.2	South corner of the ruin (second reading).	
713	S33 25 56.5 E21 24 25.5	A possible stone terrace to the north of the ruin. It runs north-south	
264	S33 26 21.0 E21 24 28.2	Site of a now removed monument commemorating the last ox wagon to have travelled through the pass.	Unknown
263	S33 27 02.8 E21 25 00.5	Straight section of road referred to locally as "*Langbaan*".	IIIC
275	S33 27 32.6 E21 25 34.3	High point on the road just outside the southern end of the poort known locally as "*Daadshoogte*" because of the regular accidents that occurred as a result of people going too fast towards the south. A man called Dawid also lived close by.	IIIC
673	S33 27 35.8 E21 25 37.3	Small mudbrick ruin on a stone foundation. Walls partially standing. Occasional artefacts (glass and ceramics) in the area. The original road must have passed close to this house but it is not possible to tell if the current farm track uses this road because of modern erosion, etc.	Low-medium IIIC
663	S33 27 33.9 E21 25 45.3	A small cement canal running parallel to the current road. The canal was not followed.	Low NCW
664	S33 27 32.9 E21 25 47.1	A series of waypoints along the original alignment of the Seweweekspoort Pass. It disappears into the riverine bush at waypoint 672 and is not visible any longer.	Medium IIIB (Note that entire pass is at least IIIA)
665	S33 27 32.9 E21 25 49.1		
666	S33 27 33.1 E21 25 50.9		
667	S33 27 34.0 E21 25 52.4		
668	S33 27 34.9 E21 25 54.2		
672	S33 27 33.0 E21 25 45.6		
669	S33 27 34.9 E21 25 55.4	Collapsed mudbrick ruin. The site has a high mount because it seems the walls have all collapsed inwards. Rare ceramic fragments (all plain white) seen to the north of the ruin. Some very large trees occur to the west of the house (they seem largely dead, though a few small shoots are present). These trees are clearly evident in the 1944 aerial photography. The old road passed immediately south of this house (the 1944 aerial photograph shows this clearly) but its surface was not visible there.	Medium IIIB (entire site but 671 is IIIC)
670	S33 27 34.4 E21 25 55.7	Low stone-walled ruin about 12-15 m upslope from the house ruin. It is heavily overgrown with bush.	
671	S33 27 34.0 E21 25 54.2	Low stone terrace running along the slope, no doubt to create a planting area for subsistence agriculture.	
219	S33 27 39.0 E21 25 58.8	Ruin that used to be a water mill. The millrace is on the north-western end of the ruin. The water wheel apparently still survives but has long since been removed from the site.	Medium IIIB (entire site but 662 is NCW)
660	S33 27 38.1 E21 25 58.6	Stone canal running into the mill race of the water mill. Partly lined with stones, partly excavated into the rock (but difficult to see because it is heavily silted up with sand and gravel from sheetwash).	

661	S33 27 37.6 E21 25 58.1	As above. The canal is heavily overgrown further northwest of this point. Given that there is no obvious river valley to the north, the canal may have led from a spring.	
662	S33 27 38.1 E21 25 57.9	Historical artefact scatter. There were occasional artefacts all over this area but the waypoint represents a slight concentration.	
220	S33 28 05.7 E21 26 37.6	House ruins. No further details known.	Medium IIIB
n/a	n/a	The Poort represents a cut through the Cape Fold Belt Mountains and is thus a useful and important geological heritage site.	Medium-High IIIA
n/a	n/a	There are many small excavations along the edges of the road throughout the length of the pass. These were places were gravel and stone (colluvium) were quarried for use in building the original road. There are likely to be well in excess of 100 such excavations and they were not recorded individually.	Low NCW
n/a	n/a	The Poort cuts through a section of the Cape Floristic Region World Heritage Site. An impact to the vegetation would thus constitute an impact to the WHS.	High I

6.1. Archaeology

Stone Age archaeological remains are uncommon in the poort. Just two sites were found, although it is likely that other material was once present before historic and recent use of the poort obliterated it. The recorded site, at waypoint 217, is a large rock shelter known to locals as "*Bakoond*". On the rear wall of the shelter is a rock panel with a fair amount of rock art. The art includes at least two possible eland torsos, various red patches and some finger dots (Figure 13). A shallow rock shelter located at waypoint 248 also has some red paint on its rear wall but the art is poorly preserved and damaged by graffiti. It is no longer possible to recognize any of the images. Neither of these sites contained any stone artefacts.

Figure 13: *View of the rock art panel on the rear wall of the '*Bakoond*' rock shelter at waypoint 217. Finger dots are marked by yellow arrows and the two likely eland torsos with red arrows.*

The vast majority of archaeological finds are historical archaeological remains. These relate almost exclusively to two things:

1. Construction of the road including accommodation for workers, material sources (borrow pits), and aspects of the road itself; and
2. Small farms on the alluvial terraces in areas where the poort is slightly wider and can accommodate a small floodplain.

The function of some of the structures in the poort, however, remains unknown. A number of examples are discussed and illustrated below. One of these sites contains graves and standing buildings and will be covered in Sections 6.3 and 6.4.

Most of the ruined structures were built from stone and sections of walling often remain standing. At the northern end of the pass, immediately alongside a T-junction in the road, stands the ruin of what was once a toll house controlling access to the pass (Figure 14). It is a small stone structure built with mud mortar between the rocks and tiny stones inserted into gaps to stabilise successive courses of stones.

The ruin at waypoint 247 exists only as a stone foundation marking out the position of the structure (Figure 15). Waypoint 253 marks another stone structure but this time with partially standing walls and some stone terracing (Figure 16). At waypoints 215-216 is a third structure, also with walls partially standing, but which has been disturbed through pushing of gravel against and over one of

its side walls (Figure 17). It is unknown to what extent the walling remains intact beneath the gravel and stones, but the structure is shown on a survey diagram (see Section 6.7 below) as U-shaped with the open side facing the road so there may be very little buried fabric. All three of these sites are said to have functioned as prisons for housing some of the convicts who worked on the road construction.

Figure 14: *Ruined structure at waypoint 255.*

Figure 15*: Ruined structure at waypoint 247.*

Figure 16: *Ruined structure at waypoint 253 with stone terracing present on the slope below. The road is just to the left in this view.*

Figure 17: *Ruined structure at waypoints 215-216. The foreground rocks have been pushed up against the ruin.*

Clearly a more important building, the structure at waypoint 261 was built from sun-dried mud-bricks atop a stone foundation (Figure 18). The stone section was quite high so as to raise the floor level of the structure far higher than any of the other ruins in the poort. The bricks contain fragments of sandstone and were very likely manufactured in the poort by the same convicts who worked on the road. The ruin was apparently the house of the supervisor of the road construction and is known locally as “The White House”. It stands almost exactly halfway through the poort when measured from the toll house (10.6 km along the road north of waypoint 261) to the R62 road in the south (10.3 km along the road south of waypoint 261). A smaller structure stood behind this house at waypoint 262. It was again built of stone and is said to have housed the servants of the road construction supervisor.

There are also a few ruins to the south of the poort in the area where the valley opens out. One of these is located very close to the road and was a water mill (waypoint 219; Figure 19). The millrace is still evident on the north-western end of the building but the mill wheel – which apparently still exists somewhere – has long since been removed. Interestingly, this building is not located below a stream and a stone-lined canal (some parts seem to be excavated into the rock) runs towards the northwest. Unfortunately it was heavily silted up and disappeared into dense bush making it impossible to follow to its source.

Figure 18: *Ruined structure at waypoint 261. It has mud brick walls on a stone foundation.*

Figure 19: *Ruined structure at waypoint 219. It is built of mud bricks.*

Two small farms were found to have been located within the poort. One has now been turned into a guesthouse and, as noted above, will be addressed in Sections 6.3 and 6.4. The other is purely archaeological and was comprised of many features, some of which are described here. The main aspect was the house which had been constructed of stone and mud bricks (Figures 20 & 21). According to Mr Reizenberg, the family of Machiel Mitchell used to live in this house during the late 19th century. Its ruin lies at the eastern end of the *werf*, very close to one of the river crossings where work is required. A second, and far smaller, structure stood about 30 m to the northwest of the main house.

Figure 20: *Collapsed mud brick structure at*

Figure 21: *Detail of collapsed mud brick walling*

waypoint 271.

Some 250 m to the east there is the remains of another small structure, while there are a few low terraces to help level the land which otherwise slopes gently downhill towards the west. An aerial view of the area from 1944 shows what looks like a number of terraces across the site with bushes surrounding them (Figure 22). The aerial view shows that the land south of the river at the eastern end of the *werf* was not cultivated, while the land between the road and river in the east was cultivated.

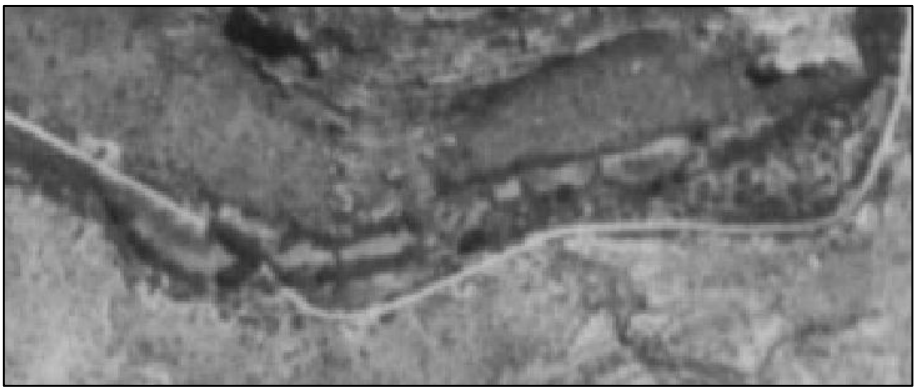


Figure 22: *Aerial view of the farm werf at waypoint 271 (Job 53, strip 8, photograph 2743).*

Further east again, and near the end of the lands, is a large stone with a slightly curved upper surface (Figure 23). On finding this stone during the survey, Mr Reizenberg expressed great delight because it existed in local oral history but he had never seen it. The rock was referred to locally as 'Lêklip'. Elsewhere on this old farm are a number of small cairns and, although they look very informal, one of them has a metal hook pushed into the top of it showing that, at least in this case, the cairn was deliberately built (Figure 24). There are also a number of berms, some of which may be at least partly accumulated by the river. There is no doubt, however, that they have been added to as stones were removed from the lands and piled on the berms. One of the berms is a teardrop shape and has a thin cement floor on top of its widest part (waypoint 681). The cement is not modern and, if it relates to the farm, it must have been one of the last additions to it (Figure 25).

Figure 23: *Rock known as '*Lêklip*' in local oral history*

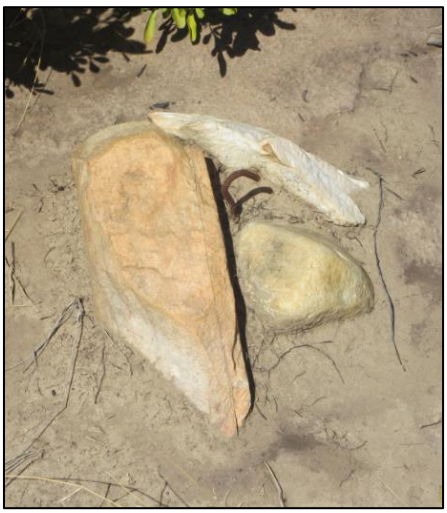


Figure 24: *Stone cairn with a metal*

(waypoint 274). *hook (waypoint 683)*

Figure 25: *Thin cement floor with stone edging raised from the surrounding land by having been built on top of a wide stone berm (waypoint 681).*

The last archaeological features of note are the very large number of small excavations situated alongside the road throughout the length of the pass (Figures 26 & 27). These were material sources dating to the original construction of the road. They were excavated into the colluvial deposits at the foot of the slopes in order to obtain rocks and gravel. Comparison of a section of the pass on 1944 and modern aerial photographs shows these features clearly – they were less overgrown in 1944 (Figure 28).

Figure 26: *Example of one of the larger stone and gravel quarries scattered along the entire length of the pass.*

Figure 27: *Example of one of the very small stone and gravel quarries found along the side of the road in the pass.*

Figure 28: *Comparative historical (1944; J Job 53, strip 8, photograph 2743) and modern aerial views of a section of the pass right in the middle of the Poort. The small borrow pits are more clearly evident in the earlier view as light patches.*

The important archaeological resources identified during the surveys tend to be located well away from river crossing points as is to be expected. People would not have constructed structures close to the river in areas where they would be susceptible to flood damage. However, it is entirely possible that further archaeological resources remain undiscovered.

6.2. Palaeontology and geological heritage

Although much of the study area is underlain by geological units considered to be of high palaeontological sensitivity (Figure 29), the project will only impact on superficial sediments like colluvium and scree (see Figures 26 & 27), river gravel and sand, much of which is relatively recently derived. So, although fossils may be present in the surrounding hard rock geology, the ground to be disturbed in the active river channel is not considered sensitive. This has been confirmed with palaeontologist Dr John Almond (pers. comm. 2017). Please see correspondence in Appendix 2. Dr Almond specifically highlighted the fact that the very sensitive Cederberg Formation is only minimally exposed in one place in the far north of the study area and, to the best of his knowledge, only poorly so.

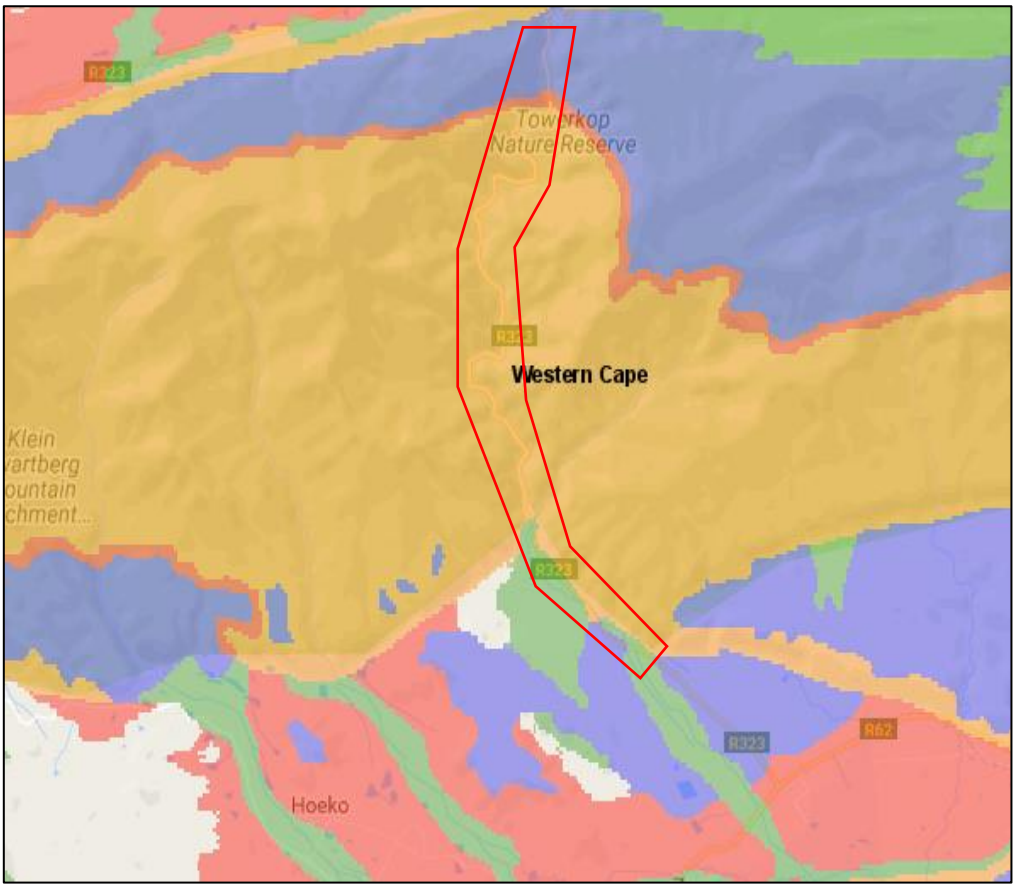


Figure 29: *Extract from the SAHRIS Palaeosensitivity map showing the study area (red polygon) to be of variable palaeontological sensitivity but with 'high' being most dominant. The shading indicates sensitivity as follows: RED = very high, ORANGE = high, GREEN = moderate, BLUE = low.*

Of more interest here is the geological heritage displayed by the rocks of the poort. The poort makes a spectacular gash through the Cape Fold Belt Mountains and offers excellent, accessible exposures of the folding (Figure 30) and this, along with other geological features, makes the poort a good candidate for declaration as a geological heritage site (Almond, pers. com. 2017).

Figure 30: *View of the folding of the sandstone layers in the middle of the pass.*

6.3. Graves

Definite graves were only found in one area. This was on the Aristata Farm, at its north-western end. The graves are on the opposite side of the road from the road and well away from any river crossings. There are four stone-packed graves with the remains of a low stone wall around them (Figure 31). Some stone pines also occur around the tiny graveyard. The graves have sandstone headstones but no inscriptions are present. They are assumed to post-date the pass construction because a survey diagram of the construction camp that was situated here indicated a 'contractor's store' in the location now occupied by the graveyard. A possible grave was located on the Machiel Mitchell farm *werf* but, given the many stones potentially available for grave construction, the relatively few present on this features suggests it is unlikely to be a grave (Figure 32).

Figure 31: *View of two graves and, at left, the stone wall surrounding the graves at waypoint 258.*

Figure 32: *The grave-like stone feature at waypoint 677.*

6.4. Built environment

Heritage resources falling within the category of buildings occurred at one place only – the Aristata Farm. Here there are a few small stone structures that have been renovated to fulfil the function of guest accommodation. Figure 33 shows the best example which has had an addition to its rear and had its front porch divided in half, presumably to create a bathroom. It appears as though some original joinery occurs. The house looks to be early 20th century in age and does not match the location of any structure on the 1872 survey diagram. It seems likely that the original construction camp structures were demolished with the stones used to build new farm structures. It is possible that some structures are original and that the survey diagram is simply inaccurate. In any case, the structures on the farm are all on the opposite side of the river from the road and well away from any crossings.

Other heritage resources considered under built environment are sections of walling that were built as part of the road and retain their original functionality. Such retaining walls were observed in two locations, one above the road (waypoint 674-675; Figure 34) and one below the road where the latter passes very close to the river (waypoint 217). While no works are planned in the vicinity of

the second one, the first one does have a tributary stream crossing that requires attention immediately at its north-eastern end. This section on the end does look slightly different to the rest and may have been reconstructed after flood damage at some point in the past.

Figure 33: *View of the historical stone cottage On the Aristata Farm at waypoint 260.*

Figure 34: *View of the stone retaining wall located along the road at waypoints 674-675.*

The pass itself is also considered a built heritage resource. Although its surface has been regraveled and repaired many times, it still retains much of its original character. Importantly, it should be noted that all the river crossing structures currently in place are modern and likely all less than 60 years of age. The pass was constructed from 1859 to 1862, using 108 convicts. Work was initially under the supervision of a Mr Apsey but from 1860 Adam de Schmidt, the brother-in-law of Thomas Bain, took over (Ross 2011).

For the majority of its length within the steep-sided valley it follows the most logical route as chosen for its original mid-19th century construction. In the south-east, however, it has been substantially altered. To the southeast of about km 55 we see from the 1944 aerial photography that the road has been straightened considerably (Figure 35). The long straight section known as "*Langbaan*", however, was always straight. It is interesting to note that the place known as "*Daadshoogte*" used to be a very sharp turn and it was no doubt at this point that accidents used to happen prior to the straightening of the road. The 1966 1:50 000 topographic map appears to show the straightened roadway, as does the 1968 aerial photograph (Job 586, strip 8, photograph 1369) which means that the changes were made between 51 and 73 years ago.

Figure 35: *Aerial views dating to 1944 (Job 53, strip 10, photograph 3652) and 2016 (Google Earth). The two views cover an identical area and it is evident in the northwest and southeast that the road alignments have been straightened in recent times. "*Daadshoogte*" is indicated by the red arrows.*

6.5. Sites relating to living heritage

A number of places in the poort are well-remembered by the local community (represented in this instance by Mr Reizenberg) for the historical significance they hold. Good examples are the traditional resting area used by travellers through the pass ("*Rusbos*", waypoint 267) and the tributary stream that flows throughout the year and was always (and still is) regarded as a reliable source of drinking water during times of drought ("*Sterkwater*" or "*Drinkwater*", waypoint 269). Another interesting example is a stone that was referred to locally as "*Lêklip*" and that was located on one of the small farms in the Poort (Figure 23). "*Sterkwater*" is the only living heritage site at a river crossing, which, fortunately, does not require remedial work. The only example where work is required is the bend in the pass known as "*Aartappeldraai*". Here a retaining wall will protect the road from future flood damage.

Not recorded in Table 2 are a series of large boulders located immediately alongside the road. These are known, from south to north, as "*Eerste Klip*", "*Tweede Klip*", etc.

Figure 36: *The important water point known as "Sterkwater" or "Drinkwater"* (w*aypoint 269). Note the plastic pipe inserted to make water collection easier.*

6.6. The cultural landscape and scenic resources

The Seweweekspoort Pass could be regarded as one very extensive cultural landscape with many constituent parts (the road, borrow pits, ruins, etc), but it also has a number of smaller cultural landscapes pertaining to individual areas such as the farm *werfs*. These aspects have been explored above and further discussion is thus not merited at this point.

The Poort is incredibly scenic due to the massive, towering cliffs, the twists and turns, the river and the vegetation. Winter and Oberholzer (2013) have considered the Pass to bea Grade II scenic route. The very 'primitive' nature of the road (gravel surface and lack of large structures – with the exception of a few causeways) contributes significantly to the overall experience of the landscape by road users.

6.7. Cape Floral Region World Heritage Site

The Cape Floral Region World Heritage Site (WHS) is a serial nomination comprised of eight protected areas (UNESCO 2017). The WHS Nomination Document indicated that the original western limit of the Swartberg Complex was Gamkapoort, which lies about 20 km east of Seweweekspoort (Indigenous Vegetation Consultancy 2003). Seweweekspoort, as part of the Towerkop Nature Reserve, was included within the buffer zone (Palmer 2008). The WHS was extended in 2015 but no mapping of the extension is provided by UNESCO (2017) who only map a dot at Cape Point as the position of the WHS. The International Union for Conservation of Nature (IUCN 2015), however, indicates that Seweweekspoort was included within the extension application which was recommended for acceptance. It is thus assumed for the purposes of the present HIA that the study area does lie within the WHS.

In this case, impacts to the WHS are determined largely by impacts to botanical resources. Emms and MacDonald (2017) note that North Swartberg Sandstone Fynbos, Central Inland Shale Band Vegetation, South Swartberg Sandstone Fynbos and Montagu Shale Renosterveld are all crossed by

Seweweekspoort. While riverine vegetation lies within the river channel, much of the project would occur along the margins in areas classified as Fynbos Riparian Vegetation. The entire study area is considered by the botanical specialists to be of high conservation importance. The expected impacts to botanical resources are considered to be negative and of high significance. However, in terms of the WHS as a whole whose ends lie some 580 km apart, the area in which impacts would occur is extremely small.

6.8. Survey diagrams

Historical survey diagrams often contain snippets of useful information. Commencing in the north, Diagram 553 of 1848 shows the road running along the base of the mountains but only the river enters Seweweekspoort. Diagram 2081 of 1958 was drawn for a consolidation and indicates both the road and two structures at the location of the toll house (Waypoint 255; Figure 37).

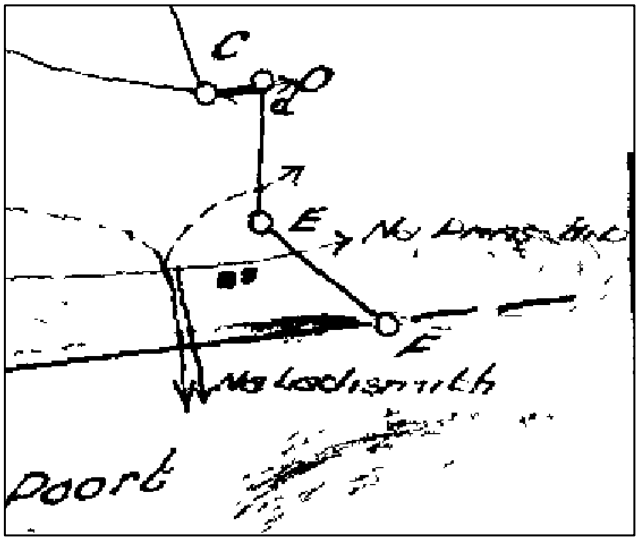


Figure 37: *Extract from survey diagram 2081/58. The entrance of the Poort is indicated by the arrows and the words '*Na Ladismith*'.*

The next diagram of interest is 666 of 1872 which shows a small piece of land in the bottom of the Poort with a convict station marked on it. This is the ruined structure at waypoint 257. It was only from the survey diagram that the function of the site was determined. It is unknown why the farm was surveyed off at that time, ten years after completion of the pass.

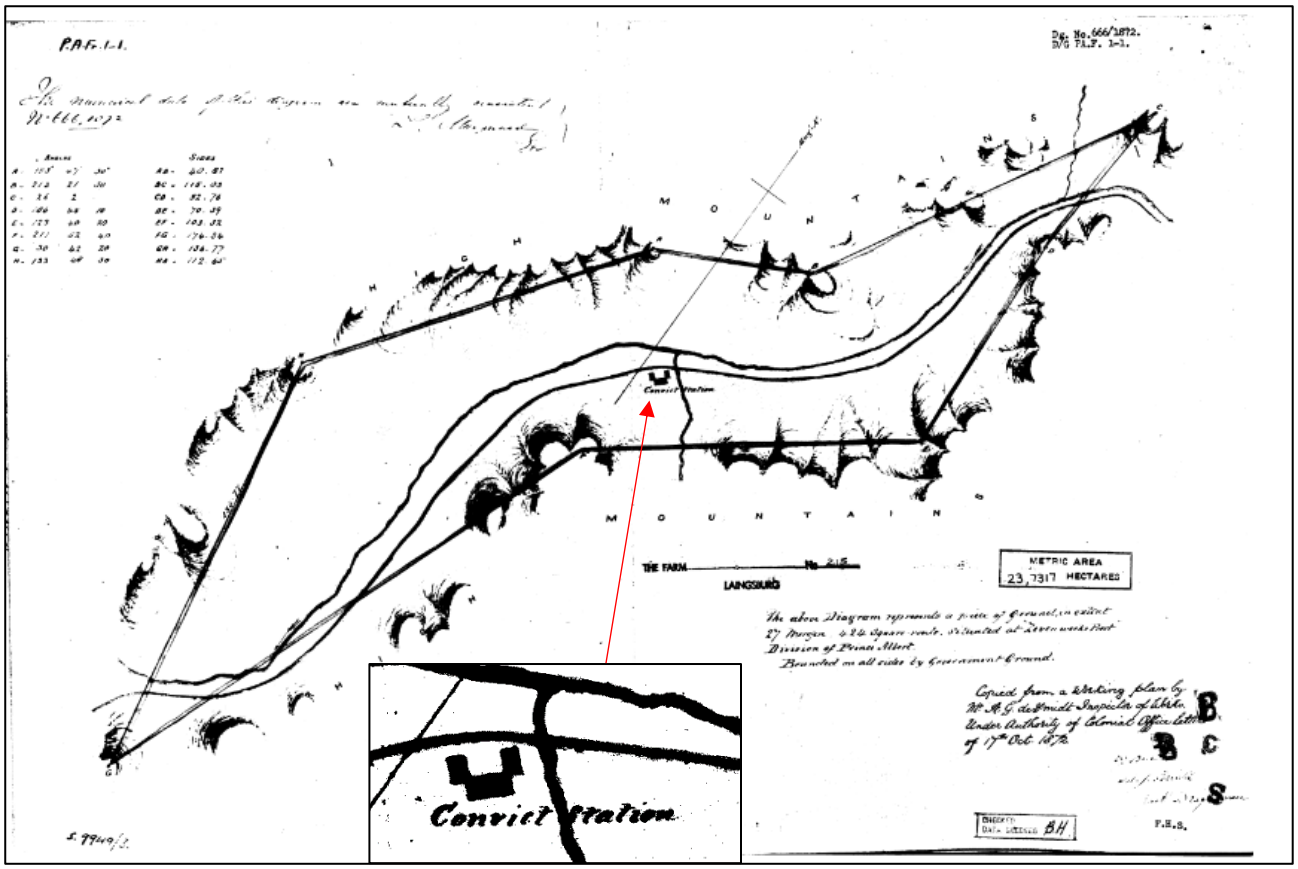


Figure 38: *Survey diagram 666 of 1872 showing the now-ruined structure at Waypoints 215 & 216 as a convict station.*

Further south another small piece of land was also surveyed off in 1872. This might indicate that the land became a private farm in 1872. Survey Diagram 667/1872 indicates that it was "Copied from a working plan by Mr. A.G. de Schmidt" which suggests that this was likely the main construction camp set up during the construction period. The diagram indicates a barracks, a superintendent's house, a kitchen, a smithy, three stables and a contractors store (Figure 39). It was very difficult to determine whether any of the original structures still remain. The image in Figure 40 was created by first superimposing the farm boundary (obtained from Cape Farm Mapper) onto Google earth and then tracing it (purple polygon in Figure 40), and then attempting to reconcile the 1872 survey diagram with the modern aerial image. It appears, despite the inaccuracies, that the original structures have been largely (if not completely) removed and replaced by newer farm buildings. It seems likely that he original structures were built with drystone walling and the subsequent structures may have reused the rocks but with cement. Two notable features are that the river has been realigned since the earliest days of the settlement (see stone walling at Waypoint 259 in Figure 40) and the position of the current graveyard seems to have been occupied by a stable building before.

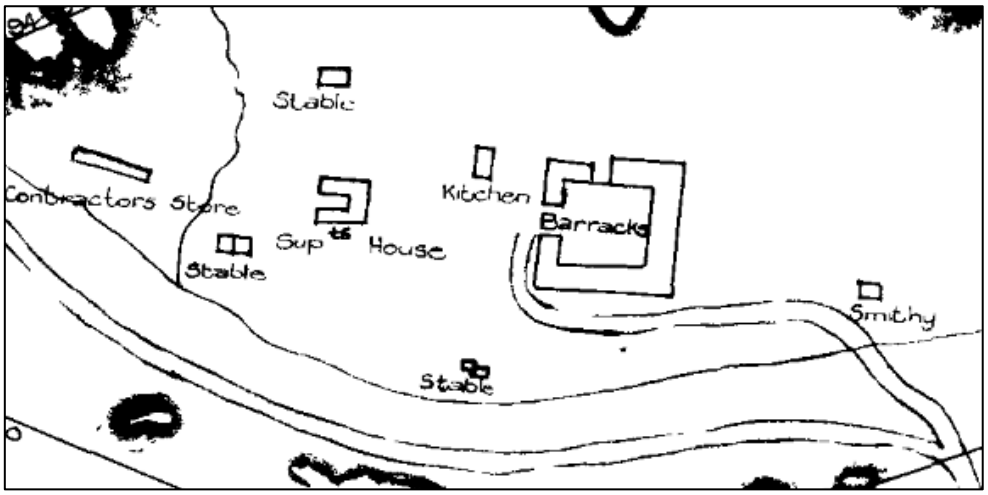


Figure 39: *Extract from Survey Diagram 667/1872 showing the various buildings present.*

Figure 40: *Composite image created by superimposing Survey Diagram 667/1872 onto the modern aerial view. The purple polygon is, according to Cape Farm Mapper, the correct farm boundary.*

Further south again, Survey Diagram 665/1872 is once more indicating a small farm. This one has a 'convict barracks' indicated on it and is the now-ruined structure located at Waypoints 215 and 216.

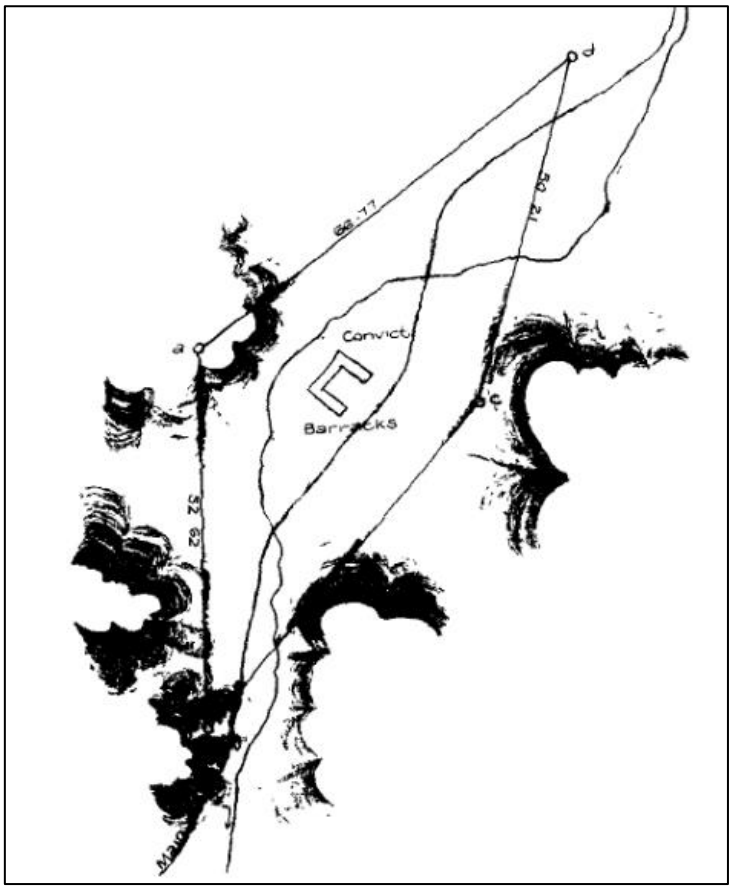


Figure 40: *Extract from Survey Diagram 665/1872 showing the U-shaped 'convict barracks' with the river to its northwest and the road to its southeast.*

The only other point of interest is to note that the south-eastern end of the pass traverses two farms (Annex Elandsfontein 62 and Elandsfontein 64) that were surveyed in 1838. This shows that the mountain land was only surveyed far later (1872) because of its lack of utility for agriculture and grazing.

6.9. Archival research

Between 1838 and 1859 there were a number of petitions made for a road to be constructed through Seweweekspoort (Western Cape Archives and Record Services [WCARS] CCP 1-2-1-6; WCARS CO 4103, J18). A significant motivation was that the land to the north was suited largely to pastoral production and that to the south to agriculture. It would be mutually beneficial to able to exchange products across the Swartberg Mountains (WCARS CCP 1-2-1-6).

On 18th February 1871 a toll fee was proclaimed at the north end of the poort. In May 1882 the Ladismith Divisional Council published notice of its intention to establish a toll at Elandsfontein at the south end of the Poort. This was strongly objected to by the Prince Albert Divisional Council because they thought it would be undesirable to have a toll at both ends. They were, however, amenable to having a single toll in the south if the collected funds were shared between the two Divisions (WCARS PWD 2-5-251). Prince Albert Division would then cancel their 1871 proclamation of a toll at the north end. This was done on 23rd July 1887. The Chief Inspector of the Public Works Department then declared on 10th October 1887 that, given the agreement between the two councils, he saw no reason to prevent the establishment of the toll in the Ladismith Division.

However, it was necessary that the Ladismith Division's portion of the road should be declared a Main or Divisional Road before the toll could be established there (WCARS PWD 2-5-251).

It is unclear whether the toll was ever effected, especially since in 1899 we find that after much discussion on the costs of reconstructing the then badly damaged road an application to have it listed under the Mountain Passes Act was turned down because only part of the road was a divisional road and the remainder (on the Ladismith side) was as yet unproclaimed (WCARS PWD 2-5-251).

6.10. Summary of heritage indicators

Seweweekspoort is rich in heritage resources. Although Stone Age archaeology is only minimally represented in the valley bottom, historical archaeology abounds, much of it connected with the 1859 – 1862 road construction period but some also related to farming. Very little occurs in close proximity to the river crossings that are the subject of this assessment. Palaeontological and geological heritage, although present in the Poort, are of no concern to this assessment. Graves and buildings occur but away from the river crossings. The road itself, along with two original retaining walls, is also considered to be a built heritage resource (although note that none of the current crossing structures are old, the road has been resurfaced many times and sections in the south have been realigned). A few sites related to living heritage occur, one of which – a permanent water source – is at a river crossing (although this one does not require upgrade work). The rest are largely places along the road that have specific names known to and remembered by the local community. Many of these heritage resources go together to create a cultural and scenic landscape stretching through the Poort, while the vegetation is part of a WHS that includes the Seweweekspoort area.

6.11. Statement of significance and provisional grading

Section 38(3)(b) of the NHRA requires an assessment of the significance of all heritage resources. In terms of Section 2(vi), ''cultural significance'' means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

The most important archaeological resources are deemed to have generally medium to high cultural significance for their historical, scientific and social values. These can be provisionally graded up to Grade IIIA, but many other features are of lower significance.

Palaeontological and geological heritage resources will not be impacted, although are considered to have high significance in the Poort for their scientific value. A Grade of IIIB would likely be appropriate for any palaeontological resources found, while Grade IIIA is assigned to the geological heritage resource.

Graves are deemed to have high cultural significance for their social value and can be considered as Grade IIIA resources.

The few buildings in the study area have up to medium significance for their architectural value (Grade IIIB), although most were not examined. The road itself and associated retaining walls is considered to have high significance. The road itself is at least a Grade IIIA resource and, despite the altered alignments in the south, might even be worthy of Grade II for both its technical achievement and the overall scenic experience of using it.

Sites related to living heritage are of variable significance but the most important one is of high significance for its social and historical values and can be given Grade IIIA.

The cultural landscape and scenic resources are deemed to be of high significance (Grade IIIA or possible Grade II). Note that Winter and Oberholzer (2013) assigned Grade II to the Pass.

The Cape Floristic Region WHS has high significance for its scientific value and is thus considered to be Grade I.

7. ASSESSMENT OF IMPACTS

7.1. Impacts to archaeological resources

Impacts to archaeological resources might occur during the planning, design and construction phase when the surface is cleared for laying of the temporary bypass roads. No impacts are expected at the locations of the new crossing structures. There are very few archaeological features located in close proximity to the river and the locations of the temporary bypass routes which means that the probability of occurrence is improbable. The intensity of impacts is thus low. The significance ratings before and after mitigation respectively are low and very low. The impacts apply equally to the No-Go alternative because machinery used in maintenance work could also result in similar impacts, although the chances of this occurring are even lower since bypass routes are unlikely to be required. The impacts are assessed in Table 3. Indirect impacts in the form of accidental damage to sites out of the work area are highly unlikely to happen because of the strict controls being put in place because of the impacts to botanical resources.

No impacts are expected to occur during the operational phase because traffic would only make use of the gravel carriageway and maintenance work would be limited to the immediate proximity of the structures where archaeological resources do not occur. No decommissioning phase is anticipated.

Table 3: *Assessment of archaeological impacts during the planning, design and construction phase.*

Potential impact on heritage aspects:	Alternative 1: No-go	Alternative 2: Upgrades
Nature of impact:	Direct destruction of archaeological resources	Direct destruction of archaeological resources
Extent of impact:	Local	Local
Duration of impact:	Permanent	Permanent
Intensity of impact:	Low	Low
Probability of occurrence:	Improbable	Improbable
Degree to which the impact can be reversed:	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	High	High
Cumulative impact prior to mitigation:	Low	Low
Significance rating of impact prior to mitigation:	Low	Low
Degree to which the impact can be mitigated:	High	High
Proposed mitigation:	• Ensure that archaeological features close to crossings	• Ensure that archaeological features close to crossings are marked as no-go areas

	are marked as no-go areas during maintenance work. • Keep disturbance footprint to a minimum.	during construction period. • Keep disturbance footprint to a minimum. • See specific measures listed below.
Cumulative impact post mitigation:	Very low	Very low
Significance rating of impact after mitigation	Very low	Very low

7.1.1. Mitigation and management

There are no known archaeological resources within the proposed work areas and no archaeological mitigation work is required. However, the contractors should be made aware of the archaeological resources in the Poort where these occur close to the river crossings and these should be avoided at all times. Keeping the disturbance footprint to an absolute minimum (e.g. by creating single lane bypasses) will reduces the chances of impacts to as yet undiscovered heritage resources.

Four specific concerns include the following:

- Km 45.97: Construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is used then the bypass should be constructed within 8 m of the edge of the existing road in order to reduce the chances of impacts to archaeological artefacts and features related to the historic farm *werf*;
- Km 46.35: Construction of the temporary bypass, if required[1], must occur on the downstream side of the road to protect the historic retaining wall. During construction of the new structure impacts to the historic retaining wall must be minimised and, as far as possible, the new structure should be integrated with the old wall. Where required, the drystone retaining wall should be reconstructed in a manner that matches the existing walling;
- Km 51.6: All work and related activities must be restricted to the downstream side of the road. No activity to be allowed on the upslope (northwest) side of the road at this point so as to protect the ruin that lies very close to the edge of the road;
- Km 54.1: Construction of the temporary bypass is preferred on the upstream side of the road. However, if the downstream side is to be used then the bypass should be constructed so as to not be further than 15 m from the centre point of the present culvert in order to avoid impacts to possible archaeological features in the dense bush around the convict station; and
- Km 54.3: Construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is to be used then the bypass should be constructed within 8 m of the edge of the existing road and no further than 25 m north of the stream bed in order to avoid impacts to possible unknown archaeological features in the dense bush around the convict station.

7.2. Impacts to palaeontology and geological heritage

[1] This section of the road crosses a fairly steep slope and it is likely that no bypass will be possible and that construction will take place over half the road width at a time so as to allow the other half to remain open to traffic.

The nature of the sediments (active river gravels and colluvium) in and on which the project will occur is such that no impacts are expected to occur at any stage in the development. Palaeontology is thus not considered further.

The geological heritage is represented largely in the cliffs that tower above the river and no impacts to geological heritage are expected. This aspect, too, is thus not considered further.

7.3. Impacts to graves

No impacts to graves are expected because the substrate close to the rivers is far too rocky to allow for excavation of a grave. Impacts to graves are therefore not considered further.

7.4. Impacts to the built environment

In this category of heritage it is only the road itself and its associated retaining walls with which we are concerned. The river crossings present today are all fairly modern (likely all less than 60 years old) and are of no concern. There is one place where an original retaining wall would very likely be impacted (waypoints 674-675). No other impacts are expected and this assessment thus pertains largely to a single built feature. Because the impacts are likely to involve direct destruction of a small part of the 60 m long retaining wall the intensity of impact for Alternative 2 is regarded as being medium. Although some damage to the wall is likely to be unavoidable, the impact can be mitigated to a degree. The impacts are assessed in Table 4.

A second aspect worth noting is that the addition of further concrete causeways to the pass will add 'modern' aspects to the road. However, there are already some concrete causeways present and the degree of overall impact from this aspect is certainly no more than that indicated in the assessment in Table 4.

Table 4: *Assessment of built environment impacts during the planning, design and construction phase.*

Potential impact on heritage aspects:	Alternative 1: No-go	Alternative 2: Upgrades
Nature of impact:	None expected	Direct destruction of built environment resources
Extent of impact:	n/a	Local
Duration of impact:	n/a	Permanent
Intensity of impact:	n/a	Medium
Probability of occurrence:	n/a	Highly probable
Degree to which the impact can be reversed:	n/a	Low
Degree to which the impact may cause irreplaceable loss of resources:	n/a	High
Cumulative impact prior to mitigation:	n/a	Low
Significance rating of impact prior to mitigation:	n/a	Medium
Degree to which the impact can be mitigated:	n/a	Low
Proposed mitigation:	n/a	• Keep disturbance footprint to a minimum. • Integrate new work with base of wall. • Rebuild wall where damage is unavoidable.
Cumulative impact post mitigation:	n/a	Very low

Significance rating of impact after mitigation	n/a	Low

7.4.1. Mitigation and management

It is likely that damage to the retaining wall at waypoints 674-675 is going to be inevitable during upgrade of the structure at km 46.35. However, the section of concern may have been at least partially rebuilt during maintenance work subsequent to its original construction. Mitigation measures would involve minimising the damage to the drystone walling, integrating the new works with the base of the wall and rebuilding the wall where it was damaged. It would be important to use old, weathered and lichen-coated rocks so as to not create a high degree of contrast between old and new fabric.

Where new retaining walls are to be constructed between the road and the river there should not be bollards placed on the wall as this would be out of character with the pass. It is preferable that the finished product has a similar appearance to the status quo and that the wall be as unobtrusive as possible with plants able to grow along the edge. This will reduce the degree of 'modernisation' of the pass.

7.5. Impacts to sites relating to living heritage

Only one living heritage site is associated with a river crossing but that crossing will not receive any upgrade work. As such, no impacts to living heritage sites are expected and this aspect is not considered any further.

7.6. Impacts to the cultural landscape and scenic resources

These impacts are well covered by the impacts to archaeology (Section 7.1) and the road (Section 7.4) and are therefore not specifically considered any further here.

7.7. Impacts to the Cape Floral Region WHS

It should be borne in mind that the botanical specialists have examined the impacts at the site level (Emms and MacDonald 2017), whereas from the heritage point of view the impacts to the World Heritage Site as a whole need to be considered. From this point of view the expected impacts at any stage in the development are exceedingly small relative to the great size of the declared area and are not worth considering further.

8. INPUT TO THE ENVIRONMENTAL MANAGEMENT PROGRAM

The specific mitigation measures listed above should be incorporated into the authorisation for the project. However, some monitoring of the site should also be carried out by the Environmental Control Officer (ECO). This will be most important during site establishment. The ECO should familiarise him/herself with the relevant heritage resources of concern (see Sections 7.1.1 and 7.4.1), alert the contractors to their presence and cordon off any sensitive areas that are deemed to be under potential threat of disturbance during the construction period. Ongoing periodic monitoring of the site should serve to ensure that no-go areas are not transgressed.

9. EVALUATION OF IMPACTS RELATIVE TO SUSTAINABLE SOCIAL AND ECONOMIC BENEFITS

Section 38(3)(d) requires an evaluation of the impacts on heritage resources relative to the sustainable social and economic benefits to be derived from the development. In this instance the main benefit to be derived is that the road is unlikely to require closure following heavy rain or flood events because the river crossings will be more able to cope with the runoff. A number of people make use of the road on a daily basis, while it is a popular scenic route for tourists. Although the presence of concrete causeways will add a 'modern' aspect to the road, the benefit of not having intermittent road closures is a long term benefit that likely outweighs the impacts to heritage.

10. CONSULTATION WITH HERITAGE CONSERVATION BODIES

HWC specifically requested that registered heritage conservation bodies and the relevant municipalities be consulted as part of this assessment. There is only one heritage conservation body, the Simon van der Stel Foundation, currently listed on the HWC database (http://hwc.org.za.dedi6.cpt3.host-h.net/conservation-bodies) with interests in the area. There are two relevant municipalities, Laingsburg and Kannaland. However, comment was also sought from CapeNature who manage the Towerkop Nature Reserve as well as the local Attaqua Tribal Council and the Zoar Community Property Association.

Laingsburg Municipality
Kannaland Municipality (including Ward 3 representative for Tourism)
The Attaqua Tribal Council
The Zoar Community Property Association
Simon van der Stel Foundation
CapeNature

11. CONCLUSIONS

A large number of heritage resources occur in Seweweekspoort including archaeological sites, palaeontological resources, geological heritage, buildings, graves, sites associated with living heritage, the Cape Floral Region WHS and the actual Seweweekspoort Pass itself. The bulk of these resources by number are archaeological. The most significant tend to be ruined structures, especially those associated with historical landscapes. Built heritage resources of concern are the road and its associated retaining walls. With appropriate mitigation measures in place it is likely that very little impact to heritage will occur. There is one site (historical retaining wall) at which impacts are unavoidable but these can be satisfactorily managed.

The benefits of upgrading the river crossings outweigh the limited impacts to heritage and will result in a better quality road that will retain virtually all of its present character.

12. RECOMMENDATIONS

Because the impacts to heritage resources are not likely to be of high significance and are manageable, it is recommended that the proposed upgrade work be allowed to continue but subject to the following conditions:

- In general, all disturbance footprints should be kept to an absolute minimum;
- Archaeological features close to crossings should be marked as no-go areas during the construction period;
- At Km 45.97 construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is used then the bypass should be constructed within 8 m of the edge of the existing road in order to reduce the chances of impacts to archaeological artefacts and features related to the historic farm *werf*.
- At Km 46.35 construction of the temporary bypass, if required, must occur on the downstream side of the road to protect the historic retaining wall. During construction of the new structure impacts to the historic retaining wall must be minimised and, as far as possible, the new structure should be integrated with the old wall. Where required, the drystone retaining wall should be reconstructed in a manner that matches the existing walling;
- At Km 51.6 all work and related activities must be restricted to the downstream side of the road. No activity to be allowed on the upslope (northwest) side of the road at this point so as to protect the ruin that lies very close to the edge of the road;
- At Km 54.1 construction of the temporary bypass is preferred on the upstream side of the road. However, if the downstream side is to be used then the bypass should be constructed within 8 m of the edge of the existing road and no further than 25 m south of the stream bed in order to avoid impacts to possible unknown archaeological features in the dense bush around the convict station;
- At Km 54.3 construction of the temporary bypass is preferred on the downstream side of the road. However, if the upstream side is to be used then the bypass should be constructed within 8 m of the edge of the existing road and no further than 25 m north of the stream bed in order to avoid impacts to possible unknown archaeological features in the dense bush around the convict station
- At Km 46.35 minimise damage to the drystone walling, integrate the new works with the base of the wall and rebuild the wall where it was damaged in such a way as to ensure minimal contrast between the old and new fabric;
- No bollards must be placed on top of the new retaining walls between the road and the river as this would be out of character with the pass; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

Heritage Western Cape should consider the merits of declaring the Seweweekskloof Pass a Provincial Heritage Site (PHS).

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APPENDIX 1 – Photographic catalogue of work areas

Dates of photography as follows:

- 40.9 to 51.1 were taken on 9th September 2016.
- 51.6 was taken in June 2015 and sourced from Fenton (2016).
- 52.0 to 58.1 were taken on 8th August 2016.


km 40.9


km 44.1


km 44.3


km 44.5


km 44.7


km 45.05


km 45.1


km 45.5


km 45.97


km 46.35


km 46.5


km 46.7


km 46.9


km 47.2


km 47.85


km 48.0


km 50.1


km 50.3


km 50.8


km 51.1


km 51.6


km 52.0


km 53.2


km 53.4


km 53.5


km 53.8


km 54.1

km 54.3

km 54.4

km 53.3

km 57.1

km 58.1

APPENDIX 2 – Curriculum Vitae

Curriculum Vitae

Jayson David John Orton

ARCHAEOLOGIST AND HERITAGE CONSULTANT

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SA College High School	Matric	1994
University of Cape Town	B.A. (Archaeology, Environmental & Geographical Science)	1997
University of Cape Town	B.A. (Honours) (Archaeology)*	1998
University of Cape Town	M.A. (Archaeology)	2004
University of Oxford	D.Phil. (Archaeology)	2013

*Frank Schweitzer memorial book prize for an outstanding student and the degree in the First Class.

Employment History:

Spatial Archaeology Research Unit, UCT	Research assistant	Jan 1996 – Dec 1998
Department of Archaeology, UCT	Field archaeologist	Jan 1998 – Dec 1998
UCT Archaeology Contracts Office	Field archaeologist	Jan 1999 – May 2004
UCT Archaeology Contracts Office	Heritage & archaeological consultant	Jun 2004 – May 2012
School of Archaeology, University of Oxford	Undergraduate Tutor	Oct 2008 – Dec 2008
ACO Associates cc	Associate, Heritage & archaeological consultant	Jan 2011 – Dec 2013
ASHA Consulting (Pty) Ltd	Director, Heritage & archaeological consultant	Jan 2014 –

Memberships and affiliations:

South African Archaeological Society Council member	2004 –
Assoc. Southern African Professional Archaeologists (ASAPA) member	2006 –
ASAPA Cultural Resources Management Section member	2007 –
UCT Department of Archaeology Research Associate	2013 –
Heritage Western Cape APM Committee member	2013 –
UNISA Department of Archaeology and Anthropology Research Fellow	2014 –
Fish Hoek Valley Historical Association	2014 –

Professional Accreditation:

Association of Southern African Professional Archaeologists (ASAPA) membership number: 233
CRM Section member with the following accreditation:

- Principal Investigator: Coastal shell middens (awarded 2007)
  Stone Age archaeology (awarded 2007)
  Grave relocation (awarded 2014)
- Field Director: Rock art (awarded 2007)
  Colonial period archaeology (awarded 2007)

Association of Professional Heritage Practitioners (APHP)

- Accredited Professional Heritage Practitioner

Fieldwork and project experience:

Extensive fieldwork as both Field Director and Principle Investigator throughout the Western and Northern Cape, and also in the western parts of the Free State and Eastern Cape as follows:

Phase 1 surveys and impact assessments:

- Project types
  - Notification of Intent to Develop applications (for Heritage Western Cape)
  - Heritage Impact Assessments (largely in the Environmental Impact Assessment or Basic Assessment context under NEMA and Section 38(8) of the NHRA, but also self-standing assessments under Section 38(1) of the NHRA)
  - Archaeological specialist studies
  - Phase 1 test excavations in historical and prehistoric sites
  - Archaeological research projects
- Development types
  - Mining and borrow pits
  - Roads (new and upgrades)
  - Residential, commercial and industrial development
  - Dams and pipe lines
  - Power lines and substations
  - Renewable energy facilities (wind energy, solar energy and hydro-electric facilities)

Phase 2 mitigation and research excavations:

- ESA open sites
  - Duinefontein, Gouda
- MSA rock shelters
  - Fish Hoek, Yzerfontein, Cederberg, Namaqualand
- MSA open sites
  - Swartland, Bushmanland, Namaqualand
- LSA rock shelters
  - Cederberg, Namaqualand, Bushmanland
- LSA open sites (inland)
  - Swartland, Franschhoek, Namaqualand, Bushmanland
- LSA coastal shell middens
  - Melkbosstrand, Yzerfontein, Saldanha Bay, Paternoster, Dwarskersbos, Infanta, Knysna, Namaqualand
- LSA burials
  - Melkbosstrand, Saldanha Bay, Namaqualand, Knysna
- Historical sites
  - Franschhoek (farmstead and well), Waterfront (fort, dump and well), Noordhoek (cottage), variety of small excavations in central Cape Town and surrounding suburbs
- Historic burial grounds
  - Green Point (Prestwich Street), V&A Waterfront (Marina Residential), Paarl

APPENDIX 3 – Palaeontology letter of exemption

RE: Seweweekspoort palaeo comment

From "John Almond" <naturaviva@universe.co.za>
to "'Jayson Orton'" <jayson@asha-consulting.co.za>

Fri 2017-01-13 11:05 AM

You replied to this message on 13 January 2017 05:07:07 PM.

Dear Jayson,

The Seweweekspoort is incised through Palaeozoic bedrocks of the Table Mountain Group (Cape Supergroup) of Ordovician to Silurian age that are, for the most part, very sparsely fossiliferous fluvial sandstones and quartzites (e.g. occasional low diversity trace fossil assemblages). The outcrop area of the main potentially fossiliferous horizon, the Late Ordovician Cederberg Formation, is crossed by the road close to the northern entrance of the poort but, to my recollecton, the Cederberg mudrocks are not well exposed here.

The proposed road development will exclusively impact Late Caenozoic superficial sediments (colluvium, malluvium) that are of very low palaeontological sensitivity (*e.g.* possible occasional transported mammal bones and teeth, freshwater molluscs). The impact significance of the roadworks is therefore very low and in my view no further specialist palaeontological input is required, pending the discovery of new fossil remains during construction, in which case the ECO should alert Heritage Western Cape to discuss appropriate mitigation measures.

The Seweweekspoort provides an exceptionally good, and accessible, horizontal geological section through a major component of the Cape Fold-Thrust Belt (a mega-anticline, faulted in the south). The intense folding is spectacularly well-displayed in the steep canyon walls. The poort is also of geoheritage significance as a well-establish example of the formation of steep-sided, slot-shaped stream gorges as a consequence of aggressive headswards erosion and vertical down-cutting during Late Caenozoic episodes of crustal uplift of the Southern African region. It also clearly displays subsequent beheading of the drainage network whereby the original headwaters north of the poort have now been diverted into parallel drainage networks to the west and east, leaving the Seweweekspoortrivier a pale shadow of its former glory (also a consequence of aridification). These various structural and palaeo-drainage geological features have been commented upon in the geological literature. In my view, the Seweweekspoort is a worthy candidate for declaration as a geoheritage site.

John E. Almond
Natura Viva **cc**
PO Box 12410 Mill Street
CAPE TOWN 8010, RSA
Tel: 021 462 3622
E-mail: naturaviva@universe.co.za

From: Jayson Orton [mailto:jayson@asha-consulting.co.za]
Sent: Tuesday, December 20, 2016 10:00 PM
To: John Almond
Subject: Seweweekspoort palaeo comment

Hi John

Hope you're well. I am assessing the replacement of culverts in Seweweekspoort. I see the area is largely orange on SAHRIS but assumed no palaeo issues in the NID because they will be digging up river gravel in the stream beds! HWC asked for palaeo input though. When I queried this and explained again (I think the provided project description I had pasted in the NID was not 100% clear) Andrew suggested that I should just include a note from you to motivate that there will indeed not be any impacts. The works will all take place within the active river channel with the temporary bypass roads being on the surface as far as possible because they are being watched VERY closely by CapeNature to make sure that impacts are minimised.

I also wanted to ask was about the folding. The poort is a great example of a section through the Cape Fold Belt so I think it is worth listing as a geological heritage site from that point of view. Do you agree? There is one especially spectacular view of folds as below.

Thanks very much for your time!

best
Jayson

APPENDIX 4 – Mapping of tracks and finds

Note that the aerial photography and GPS co-ordinates do not always match up due to both the way in which the aerial photographs have been loaded on Google Earth and the fact that the steep mountains on either side of the Poort has reduced the accuracy of the GPS readings.

Figure A4.1: *Map 1 showing the river crossings and other sites requiring work (blue symbols numbered with their km marker), all heritage sites and places of local significance (numbered red symbols), and the drive- and walk-paths recorded during the survey (yellow lines).*

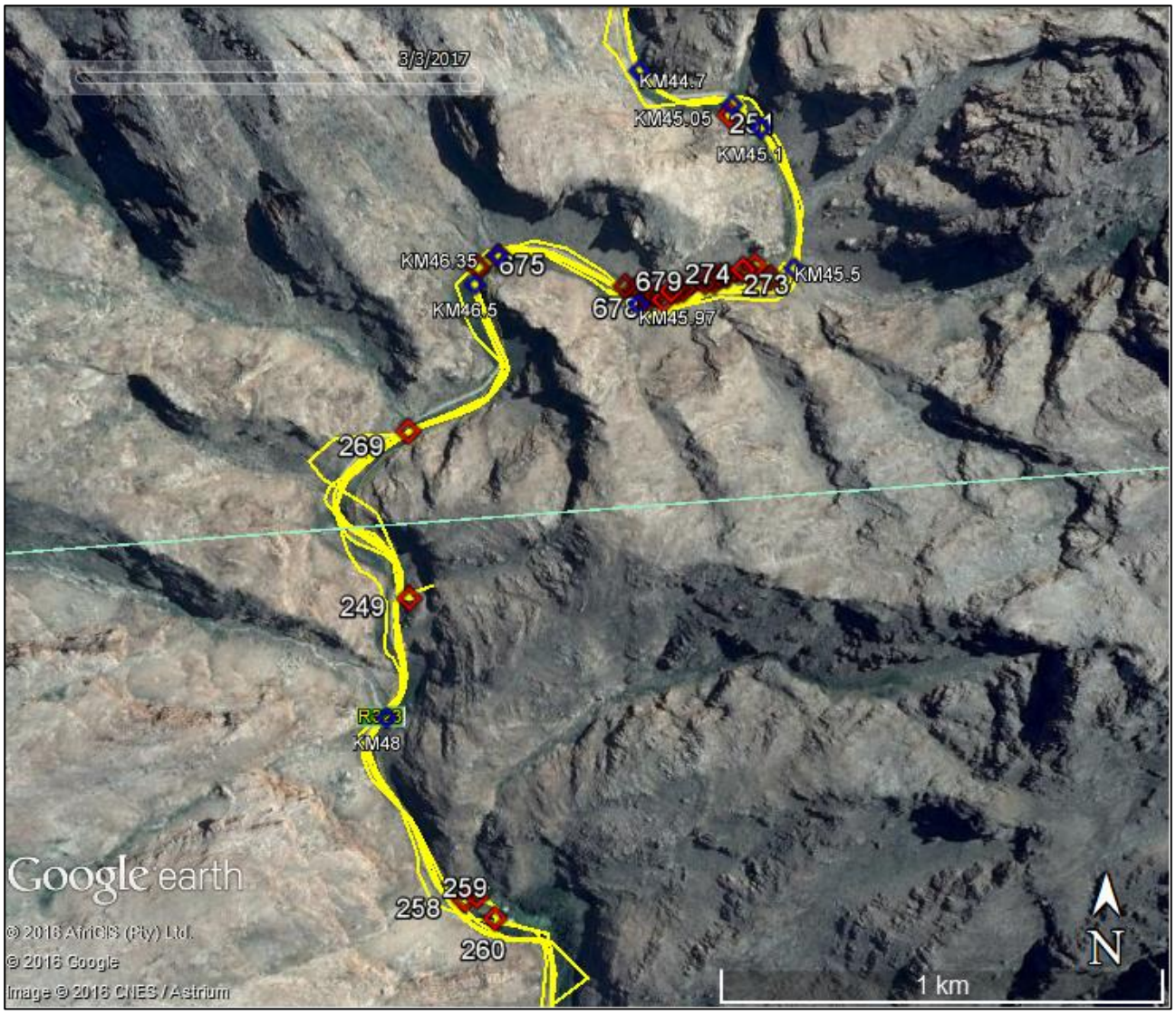

Figure A4.2: *Map 2 (see Figure A4.1 caption).*

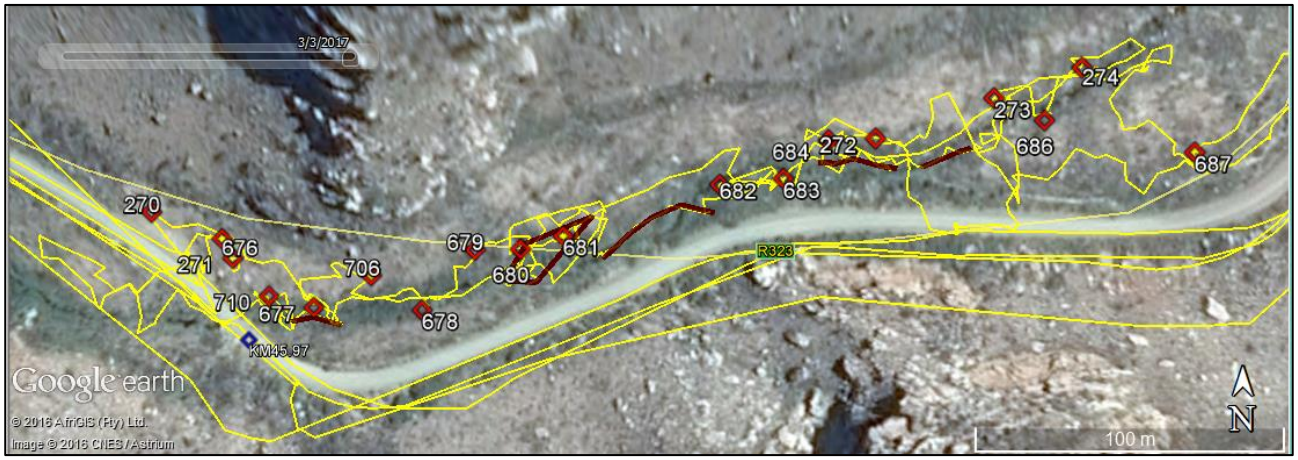

Figure A4.3: *Map 2A (see Figure 13 caption). The dark red lines indicate piled stone berms.*

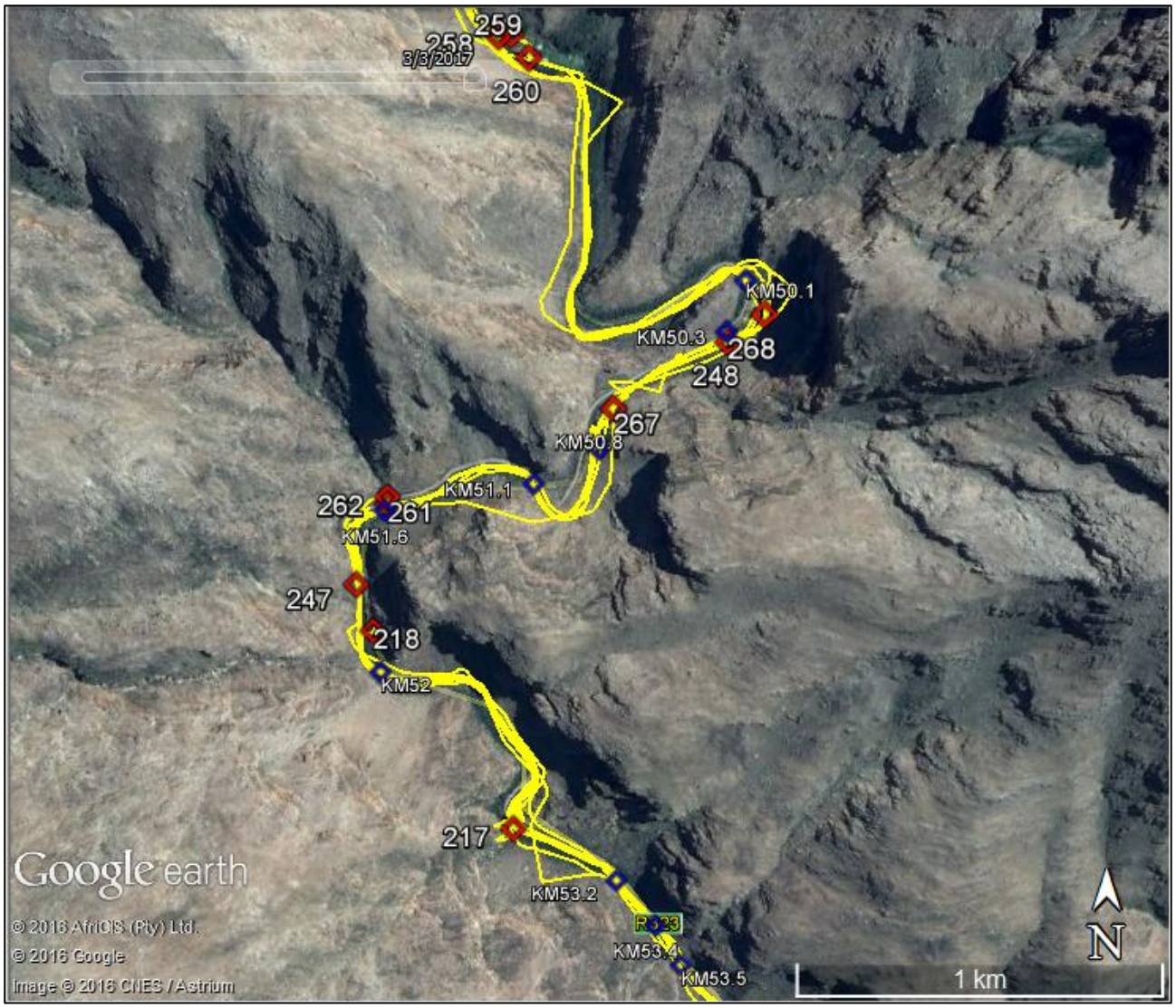

Figure A4.4: *Map 3 (see Figure A4.1 caption).*

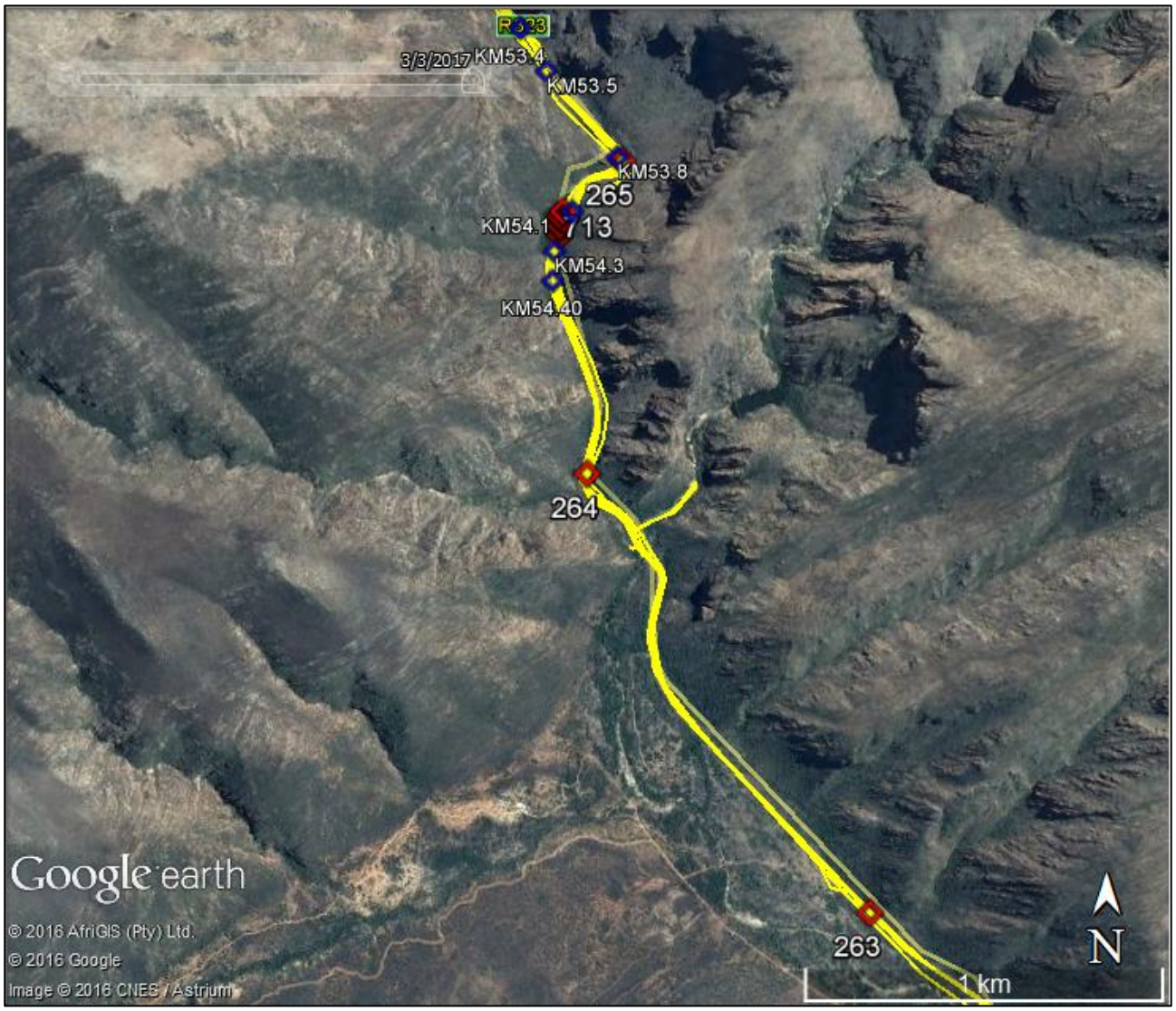

Figure A4.5: *Map 4 (see Figure A4.1 caption).*

Figure A4.6: *Map 4 (see Figure A4.1 caption).*

Figure A4.7: *Map 5A (see Figure A4.1 caption).*

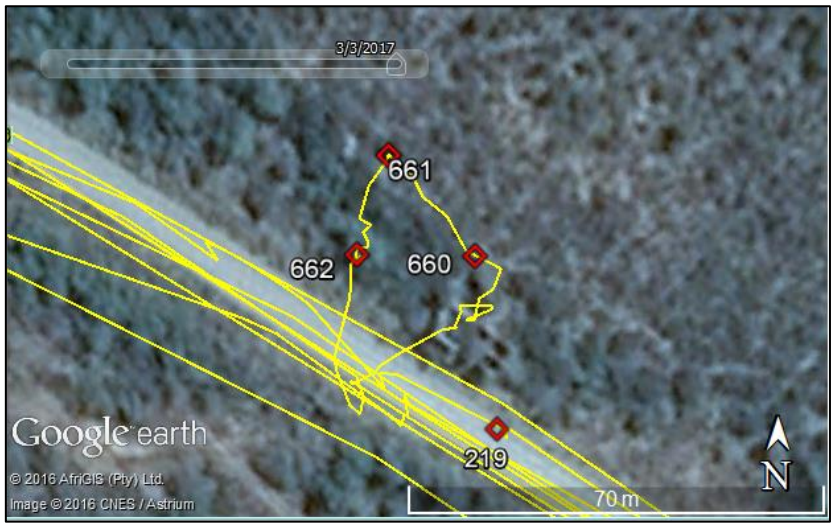

Figure A4.8: *Map 5B (see Figure A4.1 caption).*