



SWARTBERG MANAGEMENT ROAD

CONDITION ASSESSMENT - STORMWATER DAMAGE

PROJECT REF NO: 11755011

30 July 2025

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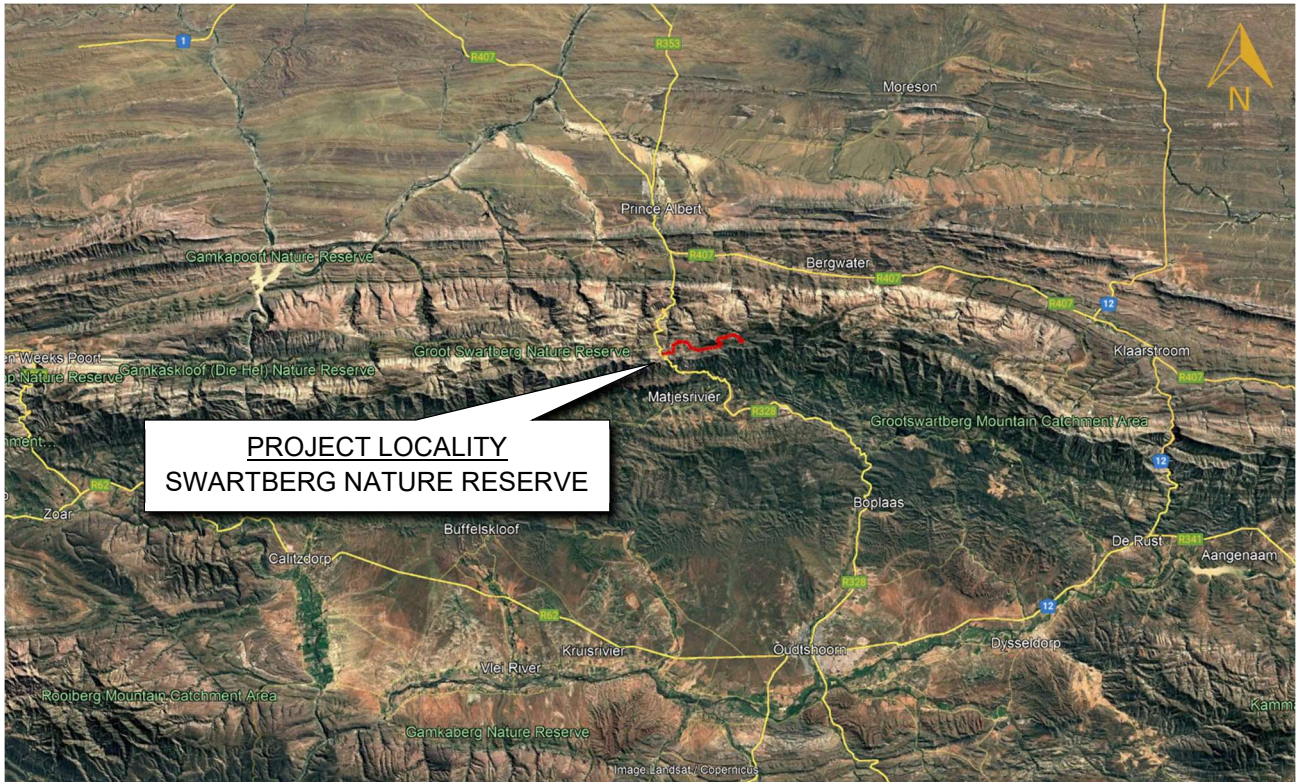


Figure 1: Project Locality Plan - Swartberg Nature Reserve

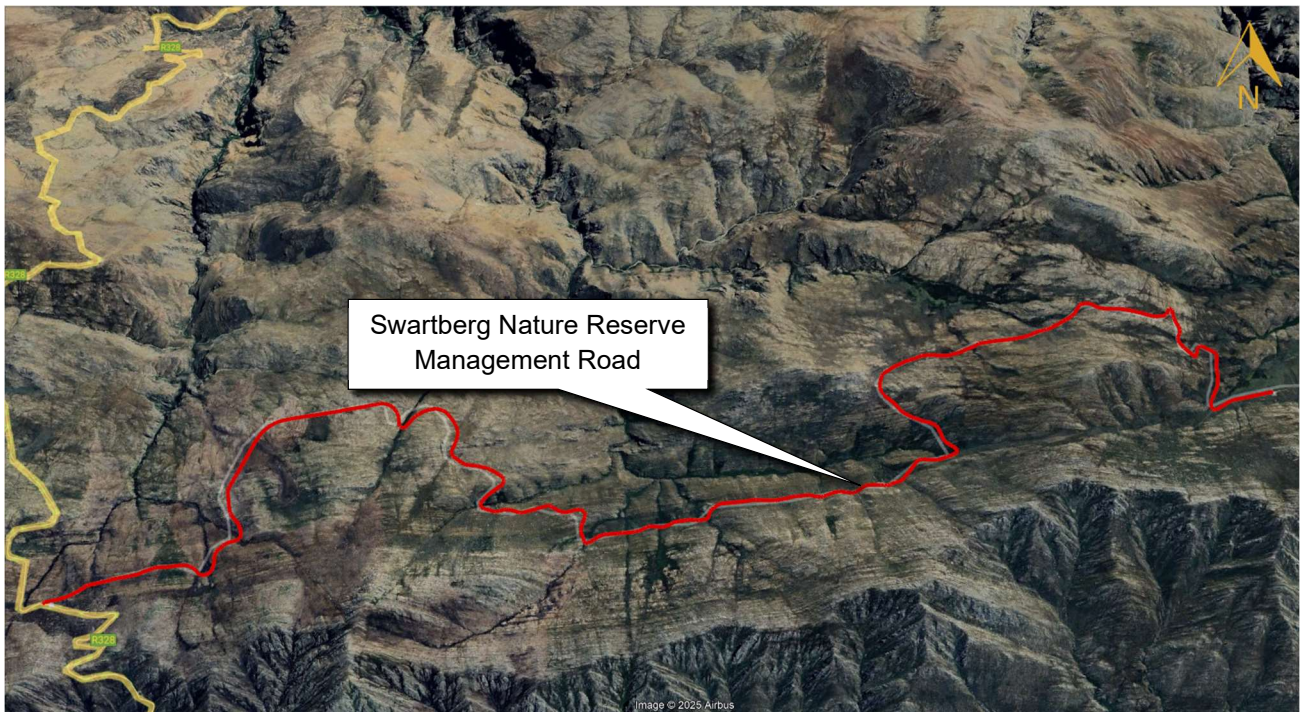


Figure 2: Swartberg Nature Reserve Management Road

LOCALITY PLANS

CONDITION ASSESSMENT SWARTBERG MANAGEMENT ROAD

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1 INTRODUCTION

V3 Consulting Engineers (Pty) Ltd was appointed by Western Cape Government Department of Infrastructure to conduct disaster damage conditional assessments of storm-damaged infrastructure across 22 CapeNature reserves in the Western Cape and report on the current condition and any recommended remedial work deemed necessary. This report focuses on the Swartberg Nature Reserve Management Road, located 30 km north of Oudtshoorn, as indicated on the locality plans (Figures 1 and 2).

The assessment was commissioned following infrastructure damage caused by severe storms across the province in 2024, which raised concerns from the CapeNature authority. The storm damage has negatively impacted operations, and various forms of damage were observed, including:

- Eroded roads
- The loss of fines in road tracks
- Extensively reduced riding quality

The site visit was conducted on the 12th of June 2025 to assess the current condition of the affected road within the Swartberg Nature Reserve. Three team members from V3 Consulting Engineers (Pty) Ltd undertook the assessment, accompanied by a representative from CapeNature – Masehly Scheepers (Field Ranger).

1.1 PROJECT SCOPE / BRIEF

The scope of work is understood to include:

- Conducting a site inspection to assess the condition of the storm-damaged Management Road in the Swartberg Nature Reserve
- Compiling a report on findings and providing recommendations on remedial measures where necessary.

1.2 BASIS OF INFORMATION

This assessment is based on visual inspections conducted on-site. All measurements should be considered approximate, and the final quantities are to be confirmed on site.

A subsequent assessment was conducted in the presence of a representative from CapeNature – Masehly Scheepers (Field Ranger) to ensure a consistent baseline approach to evaluating each road and associated road infrastructure.

It should be noted: Only a visual assessment was conducted, and no invasive testing or exploratory investigations were performed. Therefore, there remains a possibility of unforeseen issues arising when a contractor begins remedial work.

2 SITE DESCRIPTION

2.1 CAPENATURE – SWARTBERG NATURE RESERVE

Site name:	CapeNature – Swartberg Nature Reserve
Management Road	Swartberg Management Road
Assessed:	

2.2 FINDINGS SUMMARY

2.2.1 Swartberg Management Road

The general condition of the Swartberg Management Road varies primarily from average to critical along its length. There are notable differences in wheel path integrity, drainage provisions, and soil stability, especially in steep areas. In a few sections, there is plenty vegetation, which helps prevent excessive erosion of the soil by reducing the speed of the stormwater, whereas excessive erosion can be observed on other sections.

Multiple sections exhibit severe soil erosion, particularly on steeper gradients with limited to no vegetation. These areas show signs of rutting, trenching, and inverted slopes, where stormwater accumulates and accelerates road degradation due to a lack of proper drainage infrastructure. The absence of dedicated stormwater channels and appropriate slope gradients is a recurring issue, leading to water pooling and undermining of the road structure. This poses a significant risk during high rainfall events.

Several segments contain large exposed, ungraded, loose rocks, which reduce the effectiveness of the wheel path and contribute to further erosion and user discomfort. Parts of these sections are in critical condition and will need to be remedied first before the road can be deemed usable and safe. Previous remedial actions were evident in some sections – such as concrete strips along the wheel paths. Some of these concrete strips are holding well, while others are already showing signs on wear with cracking.

For a detailed breakdown of individual observations and descriptions, refer to the condition assessment attached as Annexure A.

3 ON SITE ASSESSMENT

3.1 SITE ASSESSMENT CHECKLISTS AND PHOTOGRAPHS

The road was assessed using a uniform checklist listing all the associated infrastructure (e.g. culverts, drains, humps, etc. – to be referred to as items) grouped by function and details such as size and quantity. A rating system is used to rate the current condition of each item based on urgency and severity of intervention required. The ratings ranked as follows:

- 1- Excellent:** No intervention required now. Road/item should function as intended for another 2-3 years.
- 2- Good:** Road/item still functioning as intended, but plan for maintenance within the next 1-2 years.
- 3- Average:** Road/item in fair condition with no immediate risk but is recommended to be addressed within a year.
- 4- Poor:** Road/item poses a risk to users and remedial action to be taken as soon as possible.
- 5- Critical:** Road/item poses a serious safety risk to users and should be barred off / not used at all until remedial works are carried out.

Swartberg



Figure 3: Photo 1, road path is in good condition, no remedial work required.



Figure 4: Photo 3, the road is in average condition with erosion along wheel tracks. Imported material required.



Figure 5: Photo 4, concrete slab bridge in good condition. No remedial action required at the bridge.



Figure 6: Photo 6, road eroded. Imported fill material along wheel tracks required.

Swartberg (continued)



Figure 7: Photo 7, road path is in excellent condition, no remedial work required.



Figure 8: Photo 11, the road is in average condition, some erosion evident.



Figure 9: Photo 17, road in good condition. Concrete strips are still in good condition.



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Swartberg (continued)



Figure 11: Photo 23, road in good condition. Bumps need reshaping.



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Figure 13: Photo 26, soil is eroded, a lot of rocks exposed.



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Swartberg (continued)



Figure 15: Photo 33, concrete strips in average condition. Cracking and some movement visible.



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Figure 17: Photo 52, road is in poor condition. Eroded with large rocks exposed.



Figure 18: Photo 57, rock in poor condition. Evidence of stormwater running along road and soil washed away. Humps required to direct water away from road

Swartberg (continued)



Figure 19: Photo 65, road is in critical condition. All fines eroded. Large rocks exposed.



Figure 20: Photo 67, road in poor condition. All fines eroded. Large rocks exposed.



Figure 21: Photo 72, road path is in poor condition. Wheel tracks eroded.



Figure 22: Photo 78, the road in average condition. Reshaping of humps required.

Swartberg (continued)



Figure 23: Photo 80, soil eroded, humps required to channel the water out of the road path.



Figure 24: Photo 81, roadway eroded with exposed rocks, no adequate stormwater drainage.



Figure 25: Photo 84, road in good condition.
Reshaping of humps required.



Figure 26: Photo 87, road in average condition.
Reshaping of humps required.

Swartberg (continued)



Figure 27: Photo 90, road is in average condition. There's standing water on wheel tracks due to poor stormwater drainage.



Figure 28: Photo 91, the road is in poor condition. Wheel tracks eroded, rocks exposed and water standing in wheel tracks.



Figure 29: Photo 98, road in average condition. Reshaping of humps required.



Figure 30: Photo 114, road in excellent condition. No remedial action needed.



Figure 31: Photo 126, Road in excellent condition.

4 RECOMMENDATIONS

4.1 REPAIR WORKS SPECIFICATIONS

4.1.1 Hand-Laid Stone Pitching:

Hand-laid stone pitching involves preparing the area, then placing stones individually, often with mortar, to create a stable, erosion-resistant surface. This technique is commonly used for lining open drains, protecting slopes, and constructing retaining walls.

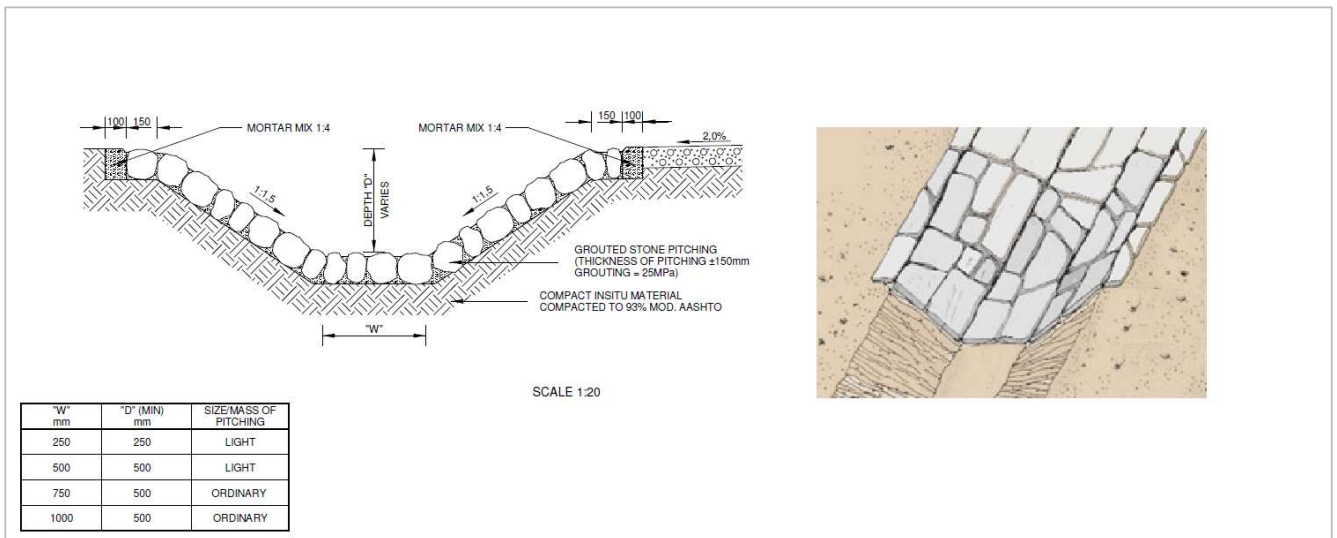


Figure 32: Hand-Laid Stone Pitching

Use stones for hand-laid pitching in the following areas:

- Natural watercourses to remedy erosion.
- Areas adjacent to roads where there are signs of washout or undermining.

Table 1: Approximate length of stone pitching to be constructed

Management Road Assessments	Length(m)
Swartberg	-

Stones must be:

- Tightly interlocked.
- Embedded slightly below grade to prevent displacement.

Rolling Dips/Water Bars:

Rolling dips collect surface runoff and direct it across and away from the roadway or trail, minimizing erosion.

- Construct using:
 - Imported gravel humps, placed at an angled alignment to divert water gently off the road surface.

Table 2: Approximate number of 3m long Rolling Dips to be constructed

Management Road Assessments	Number (No)
Swartberg	17

4.1.2 Rolling Dips/Water Bars

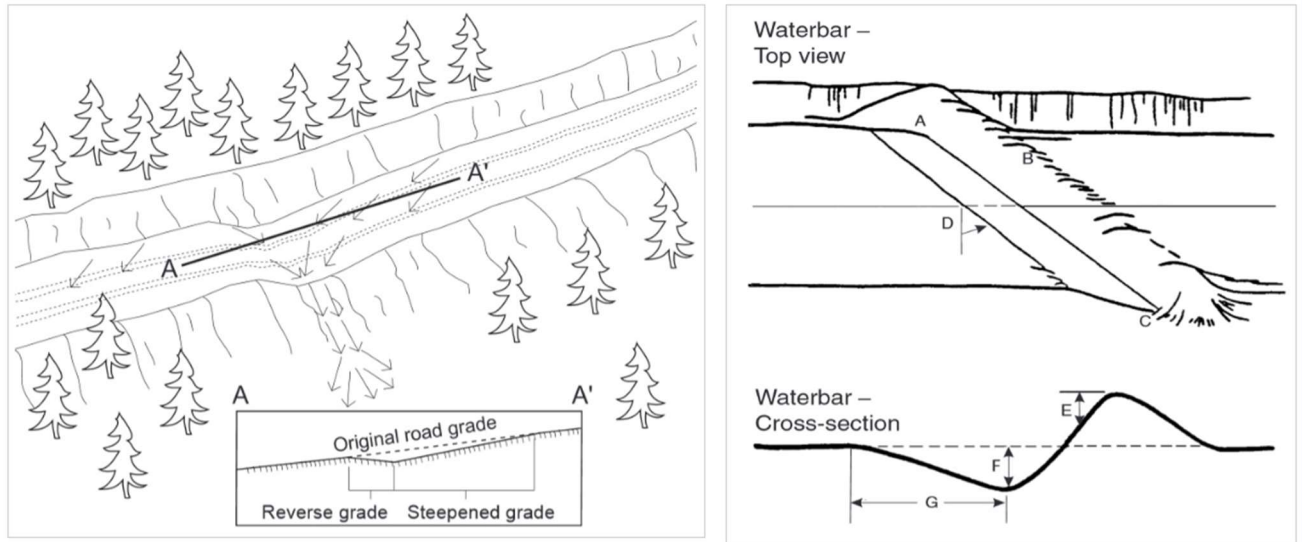


Figure 33: Rolling Dips/Water Bars

4.1.3 Concrete Access Strips

Concrete access strips are often constructed to provide basic, low-maintenance vehicle access over erodible, steep, or wet terrain. While there is no single national standard document specific to rural 4x4 access strips, they are usually designed using principles from the following references:

4.1.3.1 Reference Standards & Guidelines:

1. South African National Standards (SANS):
 - SANS 1200 G: Concrete (Structural)
 - SANS 10100-1: The structural use of concrete – Part 1: Design
 - SANS 10100-2: The structural use of concrete – Part 2: Materials and execution of work
2. TMH 1: Standard Methods of Testing Road Construction Materials – CSIR
3. COLTO (Committee of Land Transport Officials) Standard Specifications
4. SANRAL Standard Drawings (particularly rural road and low-volume roads manual)

Table 3: Typical Specifications for Concrete Access Strips

Item	Specification
Strip Width	600 mm to 800 mm per wheel path
Gap Between Strips	600 mm to 1000 mm (depending on wheel track width)
Strip Length per Panel	2.0 m (Cast Alternatively with Expansion joints every 10m)
Concrete Class	25 MPa at 28 days (Class 25/19)
Aggregate Size	Max 19 mm (Standard)
Strip Thickness	150 mm for standard access (light vehicles); increase to 175–200 mm for heavier 4x4s or steep gradients
Base Layer	150 mm G5 or G6 compacted to 95% Mod AASHTO (as per SANS 1200DM)
Subgrade	Minimum CBR of 8%, otherwise subgrade improvement required
Jointing	Cast in alternate 2 m sections to allow for shrinkage cracking (construction joints every 2 m). Provide a 15 mm wide expansion joint at every 10 m interval and at all interfaces with fixed structures. Fill joint with bitumen-impregnated fiberboard to full slab depth (150 mm). Seal with flexible mastic if desired to prevent debris ingress.
Surface Finish	Light broom finish for traction
Edge Restraint	Optional – may include edge thickening or shallow side drains for drainage control
Reinforcement	Typically unreinforced for cost, but can include light mesh (A142) if needed for durability or in steep terrain

4.1.4 Drainage Considerations:

- Lateral fall or crown to prevent water ponding.
- Provide mitre drains or side ditches at regular intervals.
- Cross-fall of ~3% is typical to ensure runoff.

4.1.5 Construction Notes:

- Cast alternate slabs to prevent thermal cracking.
- Cure with plastic sheeting or curing compound for at least 7 days.
- Compact sub-base and base thoroughly to reduce future movement.
- Concrete must be vibrated or well-compacted to reduce voids.

Table 4: Approximate length of concrete strips to be constructed

Management Road Assessments	Length (m)
Swartberg	551

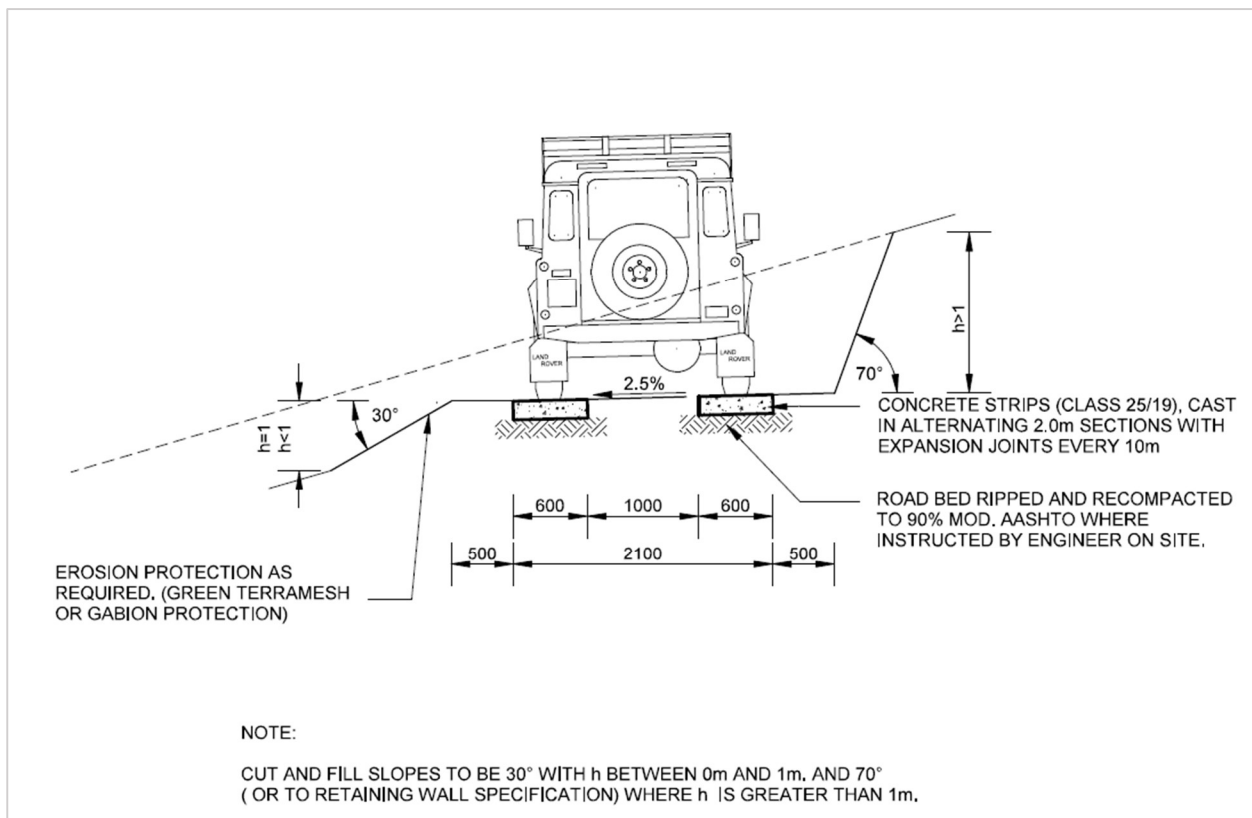


Figure 34: Typical Cross-Section of Concrete Access Strip

4.1.6 Low Level Crossing

Low-level crossings are designed to provide vehicular access over intermittent or seasonal watercourses where high-level bridges are not economically feasible.

Culverts can optionally be incorporated into the low-level crossing to facilitate the controlled passage of water during low to moderate flow conditions. This reduces the risk of erosion and surface washouts, enhances road safety, and prolongs the service life of the crossing. The provision and installation of culverts are dependent on the accessibility of the site for transporting construction materials. In areas with difficult or steep terrain, the delivery of precast elements may not be feasible. In such cases, alternative solutions or omitting culverts may be considered based on practical constructability and environmental conditions.

4.1.6.1 Culvert Specification

- Type: Precast concrete box culvert
- Dimensions: 1200 mm wide x 300 mm high
- Quantity: Optional based on site-specific hydrological assessment
- Placement: Transverse to the road, below the low-level slab or gravel surface
- Inlet/Outlet Protection: Rock pitching or Reno® Mattresses are recommended to prevent scour.

These culverts are suitable for rural and low-traffic volume routes where the watercourse experiences occasional flows. The size (1200 x 300 mm) is effective for small catchments or where flow is shallow and dispersed. In larger or fast-flowing watercourses, additional culverts or alternative hydraulic structures may be required.

4.1.6.2 Maintenance and Monitoring

Regular inspection and removal of debris are essential to maintain flow capacity. Blockages can lead to overtopping and potential damage to the crossing.

4.1.6.3 Summary

The optional use of 1200 x 300 mm culverts in low-level crossings provides a practical and cost-effective solution for managing intermittent water flows. However, implementation is subject to the ability to transport and install culvert units in challenging terrain. Final culvert numbers and placements should be determined through a site-specific assessment, considering hydrology, constructability, and logistical constraints.

Table 5: Approximate number of low-level crossings to be constructed

Management Road Assessments	Number (No)
Swartberg	-

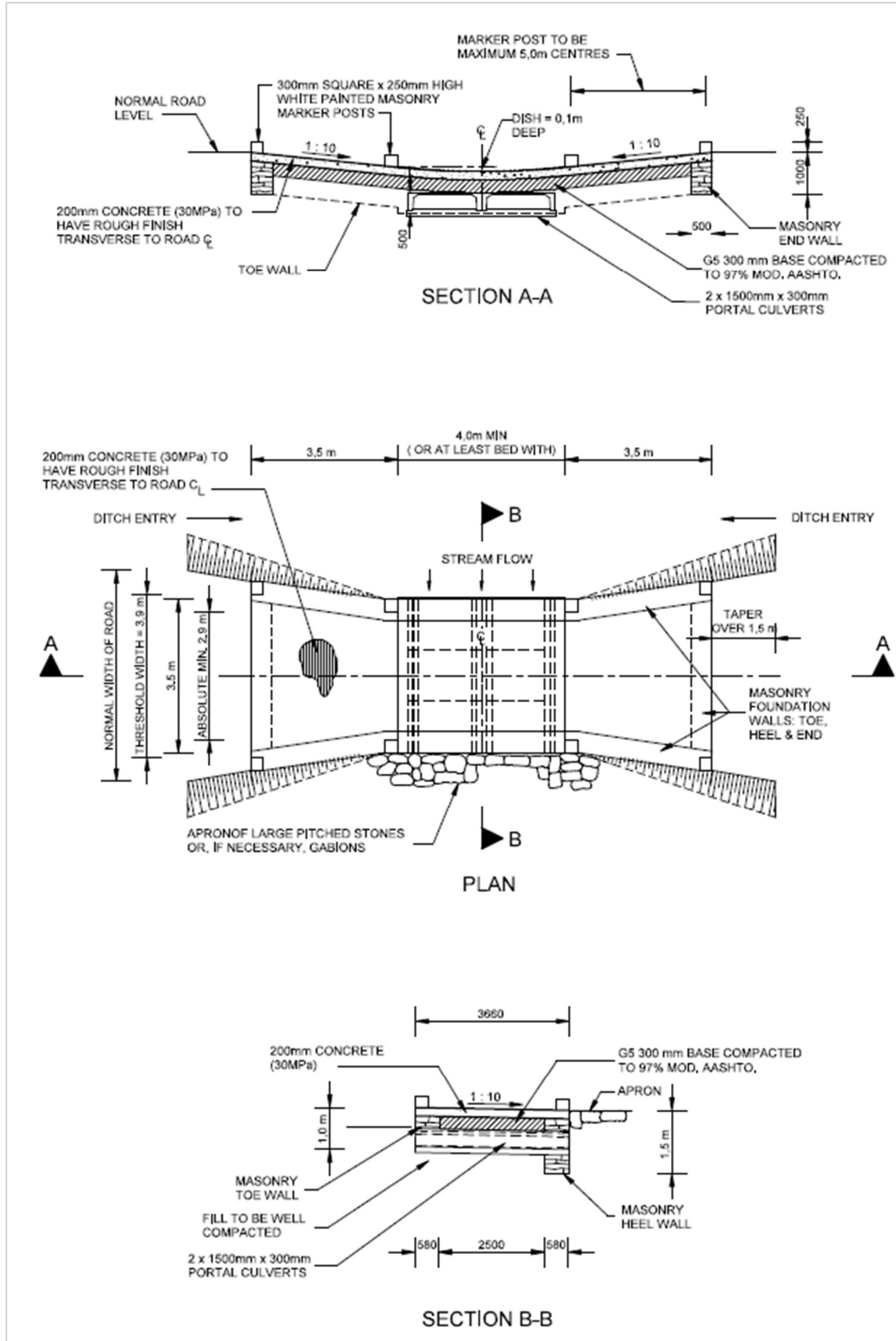


Figure 35: Typical Low-Level Crossing

4.1.7 Concrete Drifts

Concrete drifts are low-water crossings constructed to allow the safe and reliable passage of vehicles over intermittent or low-flow watercourses. In rural areas with two-track maintenance access roads, these drifts serve as cost-effective and low-maintenance alternatives to conventional bridges, particularly in terrains where watercourses cross frequently and where stormwater flow is seasonal.

The primary function of concrete drifts is to facilitate vehicle access during dry conditions while withstanding occasional submersion during floods. For rural two-track maintenance access roads, especially in undeveloped or mountainous areas, they improve accessibility without significantly altering the natural drainage system.

Concrete drifts are especially suitable for rugged terrain where the construction of culverts or bridges is constrained by cost, limited access to heavy machinery, or environmental sensitivity. Their low profile minimizes visual and ecological impact while maintaining essential connectivity for maintenance purposes.

4.1.7.1 Drift Design Considerations

- **Concrete Strength:** Concrete Class 25/19 is commonly used, offering sufficient durability against abrasion and water exposure.
- **Foundation:** Drifts are cast in-situ on a compacted sub-base or rock bed to prevent undermining and ensure structural stability.
- **Hydraulic Capacity:** The structure is designed to be overtopped by floodwater.
- **Surface Texture:** A broom or brush finish is applied to enhance traction for maintenance vehicles.
- **Approach Protection:** Gabions and Reno® Mattresses may be included upstream and downstream to reduce erosion at entry and exit points.

Table 6: Approximate number of concrete drifts to be constructed

Management Road Assessments	Number (No)
Swartberg	-

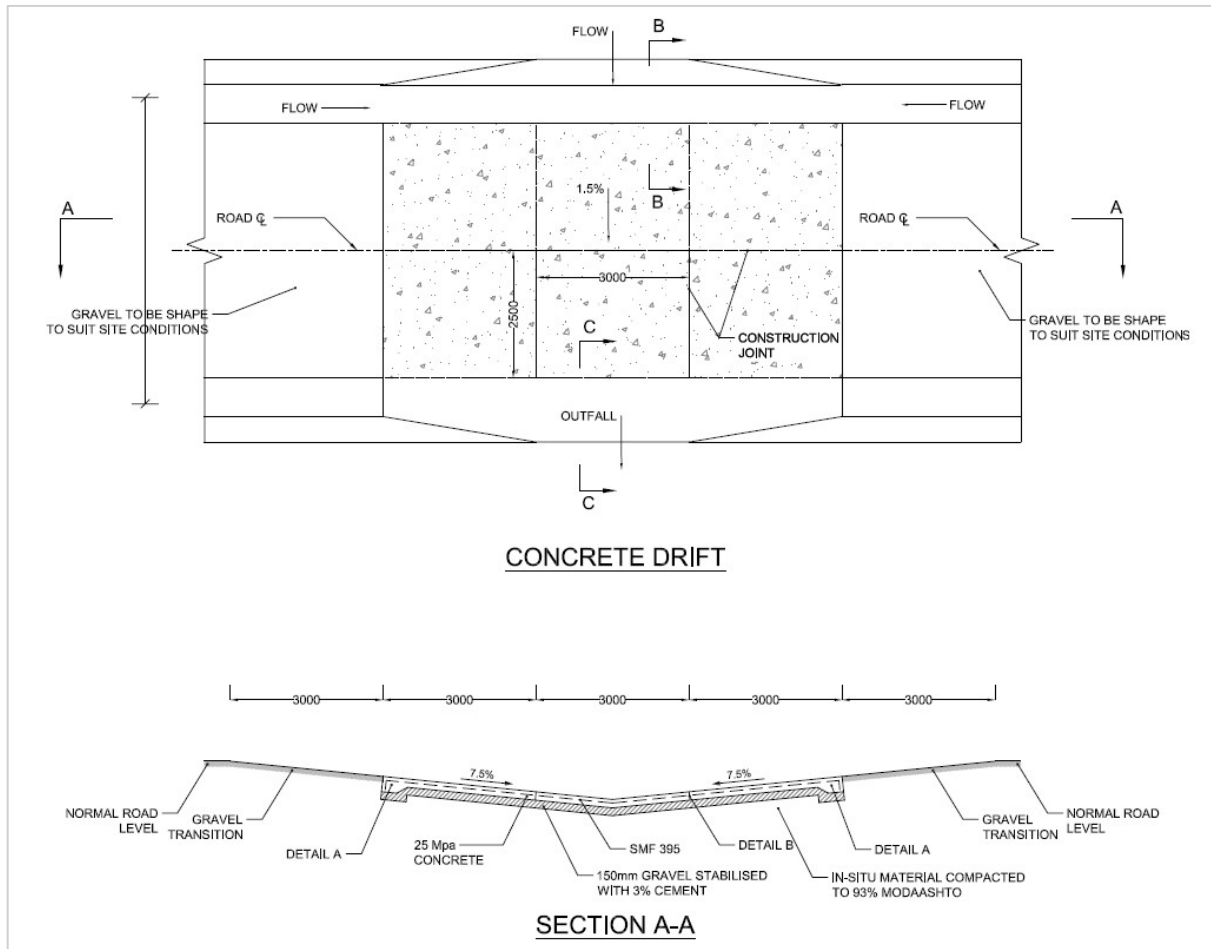


Figure 36: Typical Concrete Drift

Note: Image sourced from <https://www.sanparks.org/wp-content/uploads/2021/09/concrete-drift-drawing.pdf>

4.1.8 Gabion Wall for Erosion Protection on Steep Slopes

Two-track maintenance access roads traversing steep terrain are particularly susceptible to surface runoff and erosion, which can undermine road stability and cause washaways. In areas where terrain conditions limit the use of conventional stormwater drainage or retaining structures, gabion walls serve as a cost-effective, durable, and locally adaptable erosion protection solution.

Gabion walls are used to:

- Stabilize the toe of steep embankments and cut slopes.
- Prevent soil erosion and retain fill or natural slope material.
- Protect road shoulders and maintain track width and integrity.

4.1.8.1 Design Considerations

- Height: Gabion walls should typically not exceed 3.0 m in height without stepped terraces or additional geotechnical design.
- Batter: A stepped or battered configuration (e.g., 6V:1H) increases stability.
- Foundation: Compact and level foundation with possible use of filter fabric to prevent soil migration.
- Drainage: Adequate weep holes or granular backfill should be provided to relieve hydrostatic pressure.
- Materials: Galvanized or PVC-coated wire baskets filled with well-graded angular rock (preferably 100–200 mm in size).

4.1.8.2 Construction Notes

- Use local rock fill where available to reduce costs and logistics.
- Layer baskets tightly and securely with staggered joints.
- Install from the lowest elevation upward.
- Vegetation can be introduced for additional surface stabilization.

4.1.8.3 Typical Applications

- Downslope protection on outer edges of mountain tracks.
- Retaining material on inside bends of tight curves with cut slopes.
- Intermittent check structures in erosive gullies adjacent to the road.

4.1.8.4 Maintenance

Annual inspection for settlement, wire corrosion, or dislodged rock is essential, especially after heavy rainfall events. Repair or replacement of damaged baskets should be prioritized to prevent further slope degradation.

Table 7: Approximate square metres of Gabion retaining walls to be constructed

Management Road Assessments	Area (m ²)
Swartberg	-

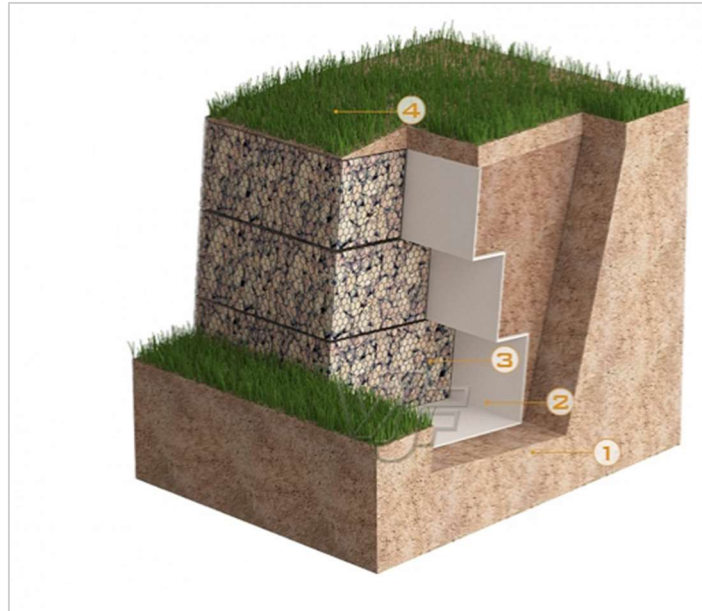


Figure 37: Typical Gabion Wall for Erosion Protection on Steep Slopes

Note: Image sourced from <https://www.geotech.hr/en/gabion-walls/>

5 GENERAL

The Contractor shall note that the site is within a popular tourist amenity. The Contractor shall comply with all CapeNature, Western Cape Governments and Local Authority regulations including those relating to health, the environment and fire. The Contractor shall ensure that all camp facilities, including those for fueling, comply with all such regulations.

Should the contract include either the Easter weekend and / or the end of year builders' holidays the camp shall be dis-established in its entirety prior to such periods and re-established at the end of such periods.

The Contractor shall provide sufficient latrine facilities for its workers as required by local regulations and these shall be in proximity to the work area.

The following is to be noted when works are undertaken at CapeNature Reserves:

Reinstatement of services and structures damaged during construction

The Contractor shall inform the Employer's Agent immediately when a service or structure is damaged. The extent of the damage and a proposal on how to reinstate the service or structure shall be submitted to the Employer's Agent on a sketch with dimensions and time frames.

The Contractor shall not be allowed to reinstate any service or structure unless indicated so by the Employer's Agent. The Contractor shall render all reasonable assistance to the service or structure owner with the reinstatement of the service or the structure if required.

The Contractor shall be liable to reinstate the service or structure to its original state or for the full cost thereof if reinstated by others.

Water and Power Supply

The Contractor shall make their arrangements for water supply, and the cost, if any, will be for the Contractor's account.

The Contractor shall make his arrangements for the supply of electricity that he may require for the execution of the works and the costs of any connections, additional reticulation and the supply of electricity shall be borne by the Contractor.

Waste Disposal

The Contractor shall make their arrangements for solid and liquid waste disposal off-site. No disposal of any waste will be permitted within the nature reserve.

Ablution Facilities

Ablution facilities are not available on site. The Contractor shall therefore make the necessary arrangements to provide these facilities.

Dealing with high winds

The site is situated in a region where high winds and seasonal rain can be expected. Strong winds occur during the summer and winter months, and rain occurs during the winter.

All heaps of materials, either forming part of the excavations or imported for use in construction, shall be kept covered during high winds to prevent contamination of surrounding vegetation

Excavation

All excavations shall be carried out with suitable equipment operating strictly within the work area as defined above. Any excavation by mechanical means shall be carried out by mechanical equipment operating from the existing road surface within the demarcated work area. All excavation shall be carried out such that no damage to the environment, including flora and fauna, shall occur and that the natural vegetation surrounding the working areas is not affected in any way.

Material from excavations required for backfilling may be stockpiled outside the demarcated work area on the existing road but shall be stockpiled strictly on the surface and shall not be allowed to encroach onto the shoulders or onto vegetation abutting the road. If this requirement is not strictly adhered to, the Contractor shall not be allowed to stockpile material on the road but shall stockpile material at locations directed by the Employer's Agent. No compensation for any additional expense that may be incurred in this regard shall be paid.

6 PROJECT BUDGET

6.1 PROVISIONAL BUDGET – PROJECT INCEPTION

Provisional budget for the remedial works on the Swartberg Management Road by the Department is as follows:

R353 249.00

The consultant team was tasked to determine a provisional budget during the combined Stages 1 and 2 scope assessment and determination by compiling an elemental estimate of all works and items deemed to be included in the project scope of work.

Upon review of the combined Stages 1 and 2 reports, the Department is to indicate which items are to be included or not, and a provisional project budget will be established to secure funding. The final project budget will be refined during Stage 3.

6.2 PROVISIONAL BUDGET – CURRENT ELEMENTAL ESTIMATE COST

6.2.1 Cost Consultant

V3 Consulting Engineers will be the approved Cost Consultant from the WCG DOI consultant framework to assist with the high-level cost estimates for all civil related work. The estimated budget is based on a priced provisional bill of quantities method with rates taken from the Framework BOQ prices of 2025/2026 as supplied by DOI. The estimate will consider the following assumptions:

- Value Added Tax at 15%.
- Normal working hours. No overtime or night shifts factored in.
- Professional fees allowed at 10%, including additional PSPs, Land Surveyor, Arborist, AIAA and OHS.
- Contingency allowance of 10%.
- Disbursements allowance of 5%.
- Escalation-based BER BCI Pre-tender (December 2023 to October 2024)
- CPAP allowance: HAYLETT: Post Contract - construction stage - (October 2024 to June 2025)
- Construction assumed to start third quarter of 2025 with an 8-month construction period.

Table 8: Data table

Section	Construction cost	Priority 1 (Critical)	Priority 2 (Poor)	Priority 3 (Average)	Priority 4 (Good)
1. Swartberg Tourism Road	R 3,163,431.50	R 1,288,876.00	R 969,465.50	R 905,090.00	
Estimated current Construction cost excl. P & G, Fees, Escalation & VAT	R 3,163,431.50	R 1,288,876.00	R 969,465.50	R 905,090.00	R -
Preliminary and General could be 40%	R 1,265,372.60	R 515,550.40	R 387,786.20	R 362,036.00	R -
Subtotal	R 4,428,804.10	R 1,804,426.40	R 1,357,251.70	R 1,267,126.00	R -
Contingency (10%)	R 442,880.41	R 180,442.64	R 135,725.17	R 126,712.60	R -
Estimated current cost excl. Fees & VAT	R 4,871,684.51	R 1,984,869.04	R 1,492,976.87	R 1,393,838.60	R -
Escalation costs (0%)	R -	R -	R -	R -	R -
Estimated final cost excl. Fees & VAT	R 4,871,684.51	R 1,984,869.04	R 1,492,976.87	R 1,393,838.60	R -
Professional fees (10%)	R 487,168.45	R 198,486.90	R 149,297.69	R 139,383.86	R -
Disbursements (5%)	R 243,584.23	R 99,243.45	R 74,648.84	R 69,691.93	R -
Estimated final cost excl. VAT	R 5,602,437.19	R 2,282,599.40	R 1,716,923.40	R 1,602,914.39	R -
Value Added Tax (15%)	R 840,365.58	R 342,389.91	R 257,538.51	R 240,437.16	R -
ESTIMATED FINAL COST ALL INCLUSIVE	R 6,442,802.76	R 2,624,989.31	R 1,974,461.91	R 1,843,351.55	R -

7 SUB-CONSULTANT LIST

Table 9: Sub-consultant list

No.	Sub-consultant	Requirement	Procurement
1	Environmentalist	Regulatory requirement	Subconsultant to V3 Consulting Eng.
2	Health and Safety Consultant	Regulatory requirement	From WCG DOI Framework

8 PROJECT SCHEDULE

8.1 PROVISIONAL SCHEDULE

The provisional timeline for the project is summarized as per the ECSA guidelines, stages 1 to 6.

Table 10: Provisional project timeline

Stage No.	Description	Timeline	Comment
1	Inception	05 May 2025 to 23 May 2025	Stages 1 and 2 combined.
2	Concept and Viability	26 May 2025 to 25 July 2025	<i>Client review and approval period: 21 July 2025 to 25 July 2025</i>
3	Detail Design	28 July 2025 to 05 September 2025	<i>Client review and approval period: 25 August 2025 to 05 September 2025</i>
4	Document and Procurement	08 September 2025 to 06 October 2025	<i>Client review, approval, and procurement period: 08 September 2025 to 06 October 2025</i>
5	Construction	06 October 2025 to 27 March 2026	Final estimated construction period to be determined at end of Stage 3. **Inclusive of Builder's Break.
6	Closeout	30 March 2026 to 24 April 2026	All efforts to be made to avoid overall project timeline overrun.

❖ *Timelines are an estimation and subject to change pending approvals.*



ANNEXURE A

Condition Assessments



Photo ID	Stake Value	Distance	Rating	Description	Erosion Control and Drainage Measures
PROJECT: CapeNature Condition Assessment DATE: 2025-07-11					
DESCRIPTION: Swartberg Nature Reserve - Swartberg Management Road					
1	0		2.Good	Road is in moderate condition.	No remedial work is required in this section. The surface condition are satisfactory and meet current performance standards.
2	180	180			
-	310	130			
3	310	130	3.Average	At 430m there's a low water concrete slab bridge with two stormwater pipes. After the bridge the soil is eroded.	Import gravel material 150mm thickness on the wheel path. After the concrete slab bridge the gravel material should be imported.
4	430	120			
5	479	49			
6	551	72			
7	728	177	2.Good	Road is in very good condition.	No remedial work is required in this section. The surface condition is satisfactory and meets the current performance standards.
8	813	85			
9	977	164			
11	1066	89			
13	1152	86	3.Average	There's exposed sharp rocks, which pose a threat to vehicles. The road is steep.	Construct concrete strips for 200m, then import G5 gravel material on the wheel path. The strips should be 700mm wide by 3000 long, with a thickness of 150mm.
14	1190	38			
17	1259	69			
18	1368	109			
19	1413	45			
22	1520	107	4.Poor	Soil erosion, existing concrete strips.	Import gravel material 150mm thickness on the wheel path.
23	1694	174			
24	1785	91			
26	2025	240			
28	2070	45			
30	2093	23	2.Good	There's exposed sharp rocks, severe soil erosion, and standing water. Inadequate stormwater drainage. A pot hole on the wheel path.	Fix existing concrete strips that is broken, add an angular concrete hump. Import G5 gravel material on the wheel path.
-	2198	105			
33	2198	105			
32	2198	0			
36	2337	139			
39	2710	373	3.Average	Road in good condition	No remedial work required.
40	2907	197			
41	3059	152			
43	3318	-			
43	3318	259	2.Good	Wheel tracks eroded.	Import gravel
45	3438	120			
48	3599	161			
				Existing concrete strips	No remedial work required.



PROJECT:	CapeNature Condition Assessment				DATE:	2025-07-11
DESCRIPTION:	Swartberg Nature Reserve - Swartberg Management Road					
Photo ID	Stake Value	Distance	Rating	Description	Erosion Control and Drainage Measures	
52	3699	100	4.Poor	Exposed sharp rocks, soil erosion, standing stormwater on the wheel path. Inadequate stormwater drainage on the wheel path.	Import G5 gravel material 150mm thickness. Construct angular gravel humps across the 500mm width, to rain stormwater out of the wheel path. In the vicinity of 100m the humps should be constructed.	
54	4204	505				
55	4269	65				
57	4324	55				
58	4324	0				
59	4446	122	5.Critical	Exposed rocks, steep gradient. Soil erosion, hence standing stormwater.	Construct concrete strips, then import G5 gravel material on the wheel path. The strips should be 700mm wide by 3000 long, with a thickness of 150mm.	
60	4496	50				
61	4540	44				
62	4562	22				
65	4573	11				
67	4672	99				
70	4717	45	4.Poor	Soil erosion, exposed rocks.	Import G5 gravel material,	
72	4797	80				
73	4848	51	2.Good	Road is in very good condition. There's existing concrete strips.	No remedial work is required in this section. The surface condition is satisfactory and meets the current performance standards.	
74	4993	145				
78	5071	78	3.Average	Exposed rocks, soil erosion .	Import G5 gravel material, construct angular gravel humps	
76	5099	28				
79	5213	114				
80	5213	0	3.Average	Road is in average condition.	Construct angular gravel humps where required for stormwater drainage and import gravel on wheel tracks	
81	5276	63				
82	5359	83				
83	5409	50				
84	5468	59	3.Average	Inadequate stormwater drainage, soil erosion	Import G5 gravel material, construct angular gravel humps.	
87	5688	220				
88	5800	112				
89	5984	184				
90	6192	208				



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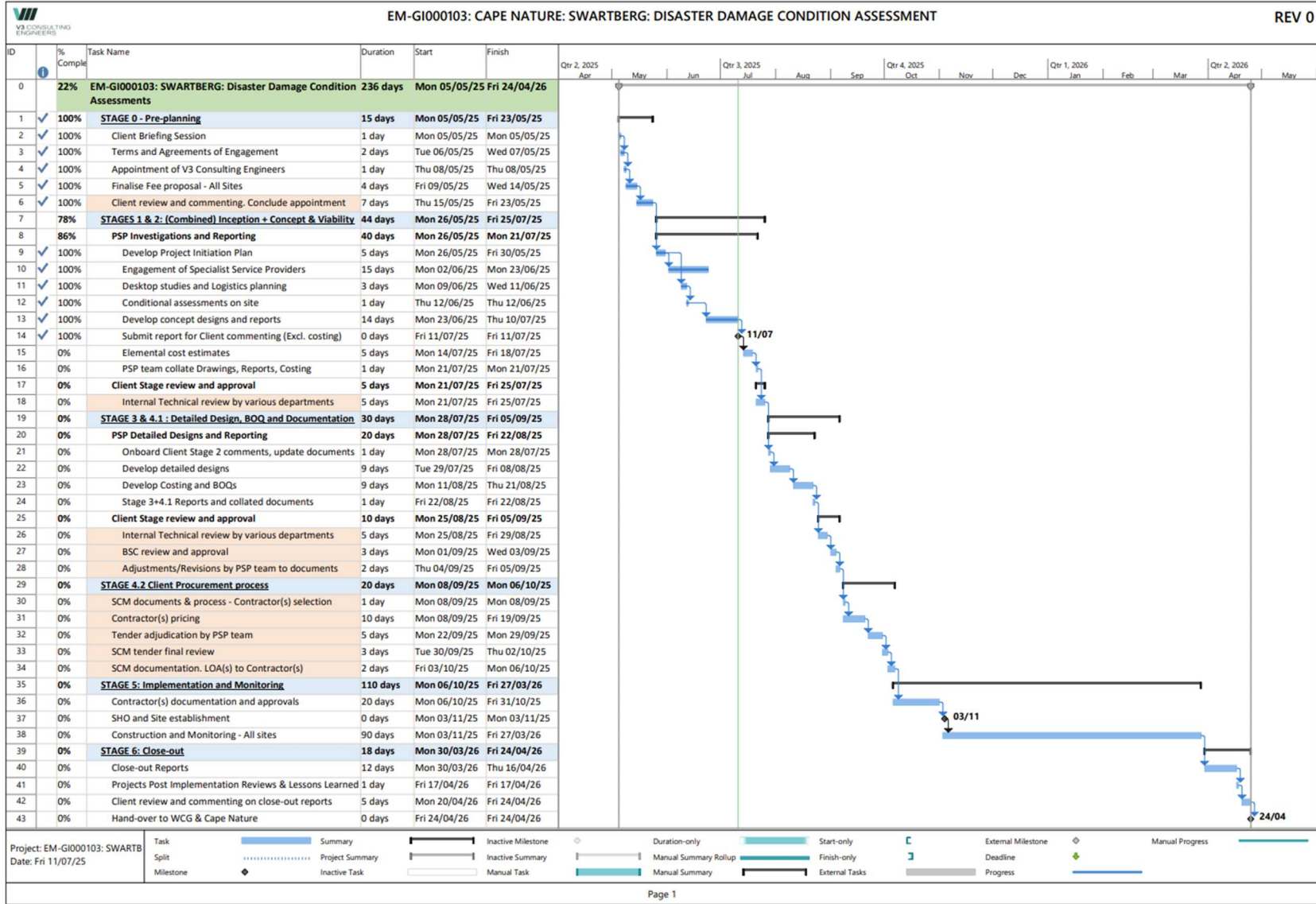
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PROJECT:	CapeNature Condition Assessment				DATE:	2025-07-11
DESCRIPTION:	Swartberg Nature Reserve - Swartberg Management Road					
Photo ID	Stake Value	Distance	Rating	Description	Erosion Control and Drainage Measures	
91	6652	460	3.Average	Exposed sharp rocks, soil erosion. Inadequate stormwater drainage on the wheel path. Steep gradient.	Import G5 gravel material. Construct gravel humps	
93	6825	173				
94	7076	251	2.Good	Road in good condition.	No remedial work required.	
97	7215	139				
98	7272	57				
100	7329	57	2.Good	Road is in very good condition.	No remedial work is required in this section. The surface condition is satisfactory and meets the current performance standards.	
101	7628	299				
102	7647	19				
103	8262	615				
105	8444	182				
106	8759	315				
107	8863	104				
109	9033	170				
113	10075	1042				
114	10375	300				
115	10568	193				
118	10671	103				
119	10883	212				
120	10998	115				
121	11021	23				
124	11505	484				
125	11673	168				
127	11788	115				
126	12000	212				




ANNEXURE B

Provisional Schedule






ANNEXURE C

Attendance Register

 V3 CONSULTING ENGINEERS	Meeting Attendance Register
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CONTRACT DESCRIPTION:	Swartberg Rd condition assessment	
CONTRACT NUMBER:	EM-62000103	PROJECT NUMBER: 11755011
MEETING:	Swartberg Nature reserve	DATE OF MEETING: 12 JUNE 2025

Name of Firm	Representative	Designation	Postal Address	Contact Information	Signature
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Cape Nature	Masehly Scheepers	Swartberg field ranger	Baron Van Rheeke Street, Queens Building No 5. Oudtshoorn 6625	Tel. No: 087 087 3002 Cell No: E-mail:	macheepers
				Tel. No: Cell No: E-mail:	
				Tel. No: Cell No: E-mail:	