



BASIC ASSESSMENT REPORT

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File Reference Number:

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Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014 as amended, promulgated in terms of the National Environmental Management Act, 1998(Act No. 107 of 1998), as amended.

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 as amended and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority **unless indicated otherwise by the Department**.
7. No faxed or e-mailed reports will be accepted **unless indicated otherwise by the Department**.
8. The report must be compiled by an independent environmental assessment practitioner (EAP). The EAP must satisfy conditions 11 below.
9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
- 11.1 The Environmental Assessment Practitioner (EAP) must be registered in terms of S24H Regulations with the Registration Authority EAPASA as from 8 August 2022

11.2. S24H (14) states that “only a person registered as an Environmental Assessment practitioner may perform tasks in connection with an application for an environmental authorisation contemplated in

(a) Chapter 5 of the Act read with the Environmental impact Assessment Regulations.

(b) Section 24G of the Act

(c) Chapter 5 of the National Environmental Management Waste Act 2008 (Act No 59 of 2008) read with the Environmental Impact Assessment Regulations

11.3. Tasks in regulation 14 may only be conducted by an EAP that is registered

11.4. Regulations 20 of S24H indicates the offences and penalties as indicated below:

“20. Offences and penalties

(1) A person is guilty of an offence if that person-

(a) contravenes regulation 14 of the Regulations; or

(b) pretends to be a registered environmental assessment practitioner or registered candidate environmental assessment practitioner.

(2) A person convicted of an offence in terms of subregulation (1) is liable to the penalties contemplated in section 49B(3) of the Act.”

Section 49B(3) of the Act states:

“A person convicted of an offence in terms of section 49A(1)(h), (l), (m), (n), (o) or (p) is liable to a fine or to imprisonment for a period not exceeding one year, or to both a fine and such imprisonment.”

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EAP'S BACKGROUND AND DECLARATION

Megan Hugo - Megan is an environmental consultant and business owner with a decade of professional experience in the environmental management and regulatory compliance sector. She began her career in February 2015 following the completion of her Honours degree in Environmental Science at Rhodes University, Makhanda (formerly Grahamstown), having previously obtained a Bachelor of Science with majors in Zoology and Environmental Science from the same institution. She has completed accredited training in Environmental Impact Assessments and ISO 14001 Environmental Management Systems.

Megan joined Indwe Environmental Consulting in September 2017 and became a principal member of the business in April 2018. She is a Registered Environmental Assessment Practitioner (EAPASA Reg. No. 2019/1530) and is professionally registered with the South African Council for Natural Scientific Professions (SACNASP Reg. No. 118810). She is an active, paid-up member of the International Association for Impact Assessment (IAIA) South Africa and the Institute of Waste Management of Southern Africa (IWMSA).

As a business owner and principal consultant, Megan is responsible for the strategic management of the company, including operational oversight, financial management, business development, and client liaison. She has extensive experience across all aspects of Integrated Environmental Management, including Full Scoping and Environmental Impact Assessments, Basic Assessments, Mining Permit Applications, Environmental Auditing, Strategic Environmental Planning, Ecological Reporting, and Water Use Licence-related approvals through the Department of Water and Sanitation. She also has in-depth knowledge of permitting and compliance requirements associated with ToPS, PNCO, and NFA legislation.

Megan has served as project manager and lead report author for a wide range of developments, including large public infrastructure projects (such as regional water supply schemes, overhead powerlines, and national road upgrades), private commercial and residential developments, small- and large-scale agricultural projects, mixed-use developments, renewable energy projects, large public and private instream and off-stream storage dams, and the rehabilitation of coastal and terrestrial environments.

Her key strengths include a strong working knowledge of South African environmental legislation and policy, with particular expertise in the Eastern Cape Province. With ten years in the industry, Megan brings well-developed project, technical, and financial management expertise, supported by a practical, solutions-driven approach to environmental consulting.

Megan held the position of Registered EAP.

A copy of the EAP's Curriculum Vitae and professional registration is included in **Appendix G9**.

As the lead Environmental Assessment Practitioner on this project assessment, I **Megan Hugo** can confirm the following:

- 1) To the best of my knowledge, all information authored by Indwe Environmental Consulting presented in this report is factually correct. We have relied on reports and information sourced from external parties. In this regard we assume that all external information is a true reflection and is factually correct.
- 2) I can confirm that all information of relevance received in the form of comments and inputs from stakeholders and interested and affected parties has been included; and
- 3) Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties of relevance has been included.

For Indwe Environmental Consulting:



Megan Hugo
Registered EAP: EAPASA (Reg no. 2019/1530)
Main Member

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

NO✓

If YES, please complete form XX for each specialist thus appointed:

Any specialist reports must be contained in Appendix D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail

Project Background

The project falls within the Ngqamakhwe region of the Mquma Local Municipality within the Amathole District Municipality (ADM) in the Eastern Cape Province.

Government policy dictates that all citizens within South Africa be supplied with water. Access to clean water is a necessity and a human need. The government has thus emphasized the importance of investigating regional and rural water supply schemes that are capable of supplying areas in need.

With the above mentioned being considered, the Water Services Plan compiled by the ADM identified Ngqamakhwe as a priority area in need of basic services which includes the clean supply and accessibility to water. The overall estimated project cost for maintenance and new infrastructure within the scheme is R 383 471 082. Funding allocation for the current financial year is set at R 1 311 500.00. The WSS will positively impact 3838 households.

It is the intention of the ADM to implement the Ngqamakhwe Water Supply Scheme (WSS) Phase 3 to service areas without adequate supply systems in the area. Phase 3 will include the transfer, storage and distribution of water to the Ngqamakhwe Town Centre and 29 villages in Wards 13, 16, 18 and 20 of the Mquma Local Municipality area in the Eastern Cape Province.

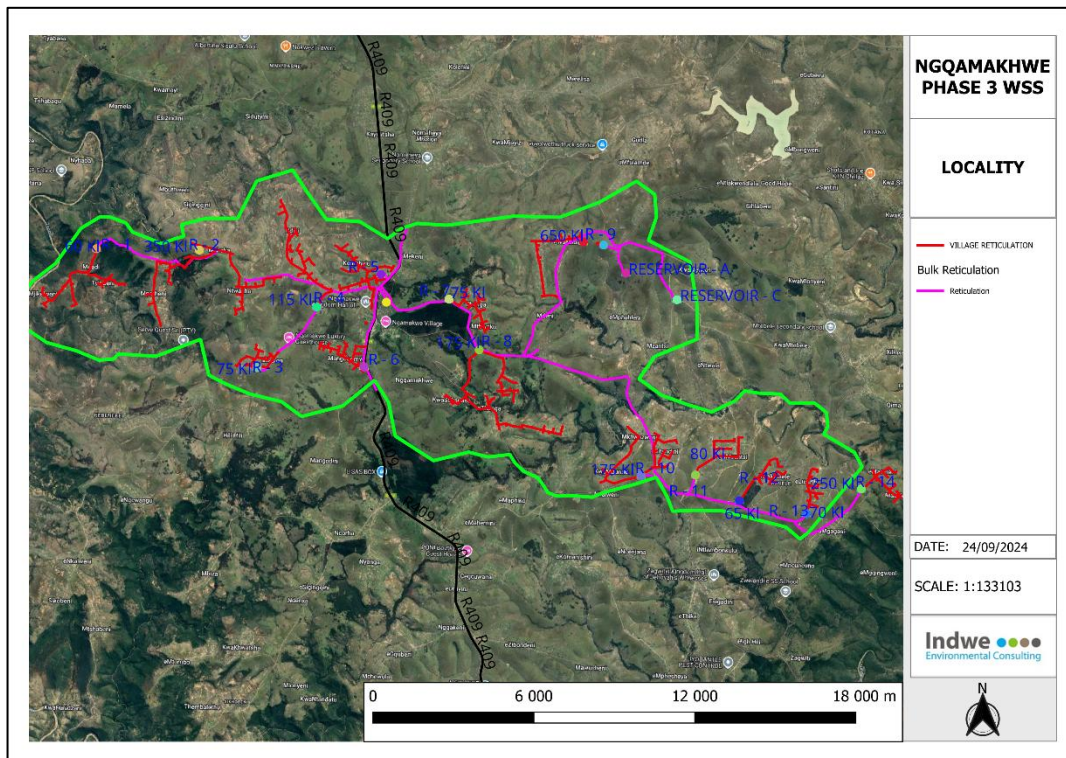


Figure 1: View of the project layout of the proposed Ngqamakhwe Ph 3 WSS.

Reservoirs and Clear Water Storage

There will be four distribution reservoirs namely Reservoir 2, 5, 9, 14 ranging between 250 and 980kL in capacity. Ten service reservoirs are proposed for Phase 3 ranging between 60 and 175kL in capacity. A total of 48 hours clear water storage for distribution reservoir and 24 hours for services reservoirs is proposed for Phase 3.

Bulk Mains

The clear water gravity main will be sized to cater for a medium to long term demand of 60l/ capita/ day and will include a transmission loss factor of 10%. To regulate pressure difference, break pressure tanks will be installed at strategic points to dissipate residual pressures.

Table 1: Length and diameter of bulk pipelines proposed

| Diameter (mm) | Length | Material |
|----------------------|---------------|-----------------|
| 50 | 14810 | HDPE |
| 63 | 1808 | UPVC |
| 75 | 8316 | UPVC |
| 90 | 6860 | UPVC |
| 110 | 5376 | UPVC |
| 160 | 15689 | UPVC |
| 200 | 5943 | UPVC |

Reticulation and Standpipes

The reticulation shall be designed to deliver 0.17l/s per standpipe. There may be exceptions where this would not be achieved due to local topography. No pipe smaller than 50mm in diameter shall be used for the reticulation.

The standpipes will be spaced in order for each household to be within 200m walking distance from a standpipe. The total number of standpipes to be installed will be 325.

Table 2: Length and diameter of reticulation pipelines proposed

| Diameter (mm) | Length | Material |
|----------------------|---------------|-----------------|
| 50 | 77055 | HDPE |
| 63 | 18060 | HDPE |
| 75 | 14448 | HDPE |
| 90 | 4816 | HDPE |

| | | |
|-----|------|------|
| 110 | 3612 | HDPE |
| 160 | 2409 | HDPE |

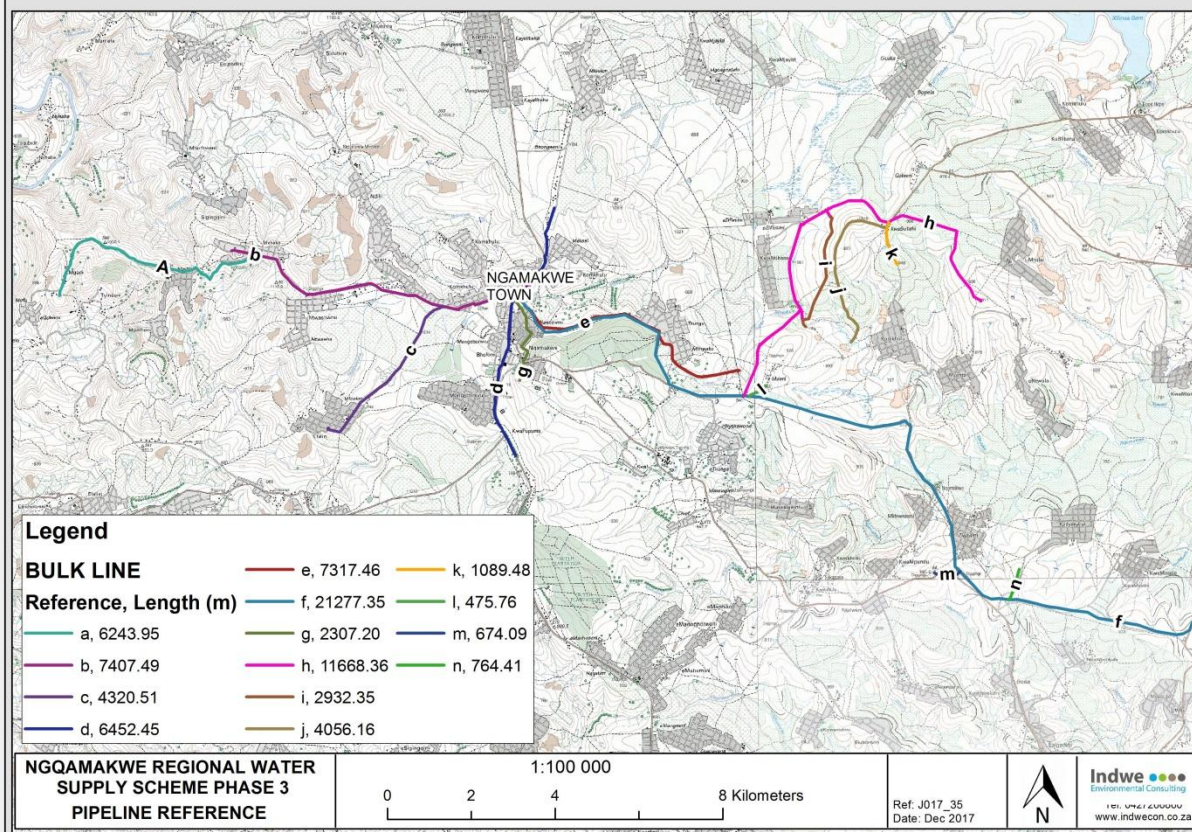


Figure 2: Layout indicating proposed pipeline routes

The project proposal triggers GN. R. 327 and 324 of the Environmental Impact Assessment Regulations, 2014, as amended. As such, Amathole District Municipality is required to apply for Environmental Authorisation from the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), Amathole Region.

The below provides a detailed description of listed activities associated with the project:

Table 3: Description of listed activities associated with the project in terms of the EIA Regulations, 2014 as amended.

| Detailed description of listed activities associated with the project | |
|--|--|
| Listed activity as described in GN R.324, 325, and 327 | Description of project activity that triggers listed activity |
| GN. R. 327 – Listing Notice 1 – Activity 12: The development of | Certain sections of the project traverses watercourses whereby pipelines of various diameters will be installed within the watercourse boundaries. Cumulatively, it is |

| | |
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| <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more Where such development occurs-</p> <ul style="list-style-type: none"> (a) Within a watercourse; (c) Within 32metres of a watercourse | <p>anticipated that 100 square metres of infrastructure is expected to be constructed within 32m of various watercourses. Approximate locations of where the infrastructure will traverse the watercourses are the following:</p> <p>32°11'9.80"S 27°49'16.36"E 32°11'15.60"S 27°49'42.20"E 32°11'22.14"S 27°49'50.49"E 32°10'58.61"S 27°51'32.87"E 32°11'12.27"S 27°53'43.57"E 32° 9'31.52"S 27°53'53.80"E 32°11'33.40"S 27°55'0.37"E 32°12'41.71"S 27°53'48.88"E 32°12'47.35"S 27°53'29.27"E 32°11'20.18"S 27°56'8.46"E 32°10'53.48"S 27°56'52.70"E 32°12'44.21"S 27°59'22.08"E 32°13'10.29"S 27°59'18.70"E 32°13'18.24"S 27°59'36.32"E 32°14'11.90"S 28° 4'35.88"E</p> <p>It must be noted that all pipeline routes are following existing main and internal roads through and into the village clusters.</p> |
| <p>GN. R. 327 – Listing Notice 1 – Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> | <p>Certain sections of the project traverses watercourses whereby in order to install the pipeline, trenches will be excavated and material will be used as backfill once the pipe has been installed. These sections that fall within watercourses will trigger this activity and therefore require Environmental Authorisation. Approximate locations of where the infrastructure will traverse the watercourses are the following:</p> <p>32°11'9.80"S 27°49'16.36"E 32°11'15.60"S 27°49'42.20"E 32°11'22.14"S 27°49'50.49"E 32°10'58.61"S 27°51'32.87"E 32°11'12.27"S 27°53'43.57"E 32° 9'31.52"S 27°53'53.80"E 32°11'33.40"S 27°55'0.37"E 32°12'41.71"S 27°53'48.88"E 32°12'47.35"S 27°53'29.27"E 32°11'20.18"S 27°56'8.46"E 32°10'53.48"S 27°56'52.70"E 32°12'44.21"S 27°59'22.08"E 32°13'10.29"S 27°59'18.70"E 32°13'18.24"S 27°59'36.32"E 32°14'11.90"S 28° 4'35.88"E</p> <p>It must be noted that all pipeline routes are following existing main and internal roads through and into the village clusters.</p> |

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| <p>GN. R. 324 – Listing Notice 3 – Activity 2: The development of reservoirs, for bulk water supply, excluding dams, with a capacity of more than 250 cubic metres.</p> <p>Eastern Cape: ii) Outside urban areas in: dd) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> | <p>The project will include the construction of 4 distribution reservoirs of 250- 980kL each. Critical Biodiversity Areas, as defined by the Eastern Cape Biodiversity Conservation Plan (ECBCP), will be intercepted by the infrastructure. The ECBCP is considered a systematic biodiversity plan by the Eastern Cape Department of Economic Development, Environmental Affairs, and Tourism (DEDEAT).</p> |
| <p>GN. R. 324 – Listing Notice 3 – Activity 12: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>Eastern Cape: i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> | <p>The project includes the installation of approximately 30km of pumping mains, and 120km of village reticulation. It is anticipated that at least 300 square metres of indigenous vegetation will need to be cleared to accommodate the infrastructure.</p> <p>The area falls within the Mthatha Moist Grassland vegetation unit which is listed as “Critically Endangered” in the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004): National List of Threatened Ecosystems.</p> |
| <p>GN. R. 324 – Listing Notice 3 – Activity 14: The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more;</p> <p>where such development occurs— (a) within a watercourse; (b) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>a. Eastern Cape i. Outside urban areas: (ff) Critical biodiversity areas or ecosystem services areas as identified in systematic biodiversity plans adopted by the competent authority.</p> | <p>The project includes the installation of approximately 30km of pumping mains, and 120km of village reticulation. Certain sections of the project traverses watercourses whereby pipelines of various diameters will be installed within the watercourse boundaries. Cumulatively, it is anticipated that 10 square metres of infrastructure is expected to be constructed within 32m of various watercourses. Approximate locations of where the infrastructure will traverse the watercourses are the following:</p> <p>32°11'9.80"S 27°49'16.36"E 32°11'15.60"S 27°49'42.20"E 32°11'22.14"S 27°49'50.49"E 32°10'58.61"S 27°51'32.87"E 32°11'12.27"S 27°53'43.57"E 32° 9'31.52"S 27°53'53.80"E 32°11'33.40"S 27°55'0.37"E 32°12'41.71"S 27°53'48.88"E 32°12'47.35"S 27°53'29.27"E 32°11'20.18"S 27°56'8.46"E 32°10'53.48"S 27°56'52.70"E 32°12'44.21"S 27°59'22.08"E 32°13'10.29"S 27°59'18.70"E 32°13'18.24"S 27°59'36.32"E 32°14'11.90"S 28° 4'35.88"E</p> <p>It must be noted that all pipeline routes are following existing main and internal roads through and into the village clusters.</p> |

2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) ~~the property on which or location where it is proposed to undertake the activity;~~
- (b) ~~the type of activity to be undertaken;~~
- (c) ~~the design or layout of the activity;~~
- (d) ~~the technology to be used in the activity;~~
- (e) ~~the operational aspects of the activity; and~~
- (f) the option of not implementing the activity

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Paragraphs 3 – 13 below should be completed for each alternative.

S1:NO-GO alternative

The No-Go alternative is applicable to the proposed development. This would involve not implementing the bulk water supply project and the 3838 households allocated as part of the project not being able to access a sustainable supply of clean water.

3. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

List alternative sites if applicable.

Alternative: Latitude (S): Longitude (E):

Alternative S1¹ (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

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In the case of linear activities:

Alternative: Latitude (S): Longitude (E):

Alternative S1 (preferred or only route alternative)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

| | | | |
|-----|-----------|-----|-----------|
| 32° | 11.231'S | 27° | 49.464'E |
| 32° | 11.424' S | 28° | 0.650' E |
| 32° | 14.877' S | 28° | 3.988' "E |

Alternative S2 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

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Alternative S3 (if any)

- Starting point of the activity
- Middle point of the activity
- End point of the activity

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| | | | |
| | | | |

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative: Size of the activity:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

| |
|--|
| |
|--|

¹ "Alternative S.." refer to site alternatives.

² "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative A3 (if any)

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

180km

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:

Size of the site/servitude:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

5. SITE ACCESS

Does ready access to the site exist?

YES✓

If NO, what is the distance over which a new access road will be built

N/A

Describe the type of access road planned:

Existing roads are present on site that the bulk and reticulation pipelines are routed along. These are gravel roads, formalised in village clusters and connecting villages.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

Refer to Appendix C.

6. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document.

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;

6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

6.10 the positions from where photographs of the site were taken.

Refer to Appendix A.

7. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

Refer to Appendix B for site photographs for the proposed development.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

Refer to Appendix C.

9. ACTIVITY MOTIVATION

9(A) SOCIO-ECONOMIC VALUE OF THE ACTIVITY

What is the expected capital value of the activity on completion?

R 383 471 082

What is the expected yearly income that will be generated by or as a result of the activity?

N/A

Will the activity contribute to service infrastructure?

YES✓

Is the activity a public amenity?

YES✓

How many new employment opportunities will be created in the development phase of the activity?

65

What is the expected value of the employment opportunities during the development phase?

R 15 Million

What percentage of this will accrue to previously disadvantaged individuals?

80%

How many permanent new employment opportunities will be created during the operational phase of the activity?

| |
|---------|
| 5 |
| Unknown |
| 100% |

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?

9(B) NEED AND DESIRABILITY OF THE ACTIVITY

Motivate and explain the need and desirability of the activity (including demand for the activity):

In Amathole District Municipality's (ADM) Draft Integrated Development Plan (2026 – 2027), it is recognized that access to potable water is a basic human right. ADM undertook a comprehensive backlog verification in the 2021/2022 financial year to assess the true extent of service delivery challenges. The following were areas of concern needing intervention:

- Water and Sanitation Service Quality (45%)
- Water Resource Management (44%)

ADM still faces a water backlog of 32.62%, meaning 78,815 households remain without reliable access to safe water or are served below the Reconstruction and Development Programme (RDP) standard. It is also noted in terms of Key Performance Area 1 – Service Delivery and Infrastructure Development, 2025/2026 objectives include providing safe adequate infrastructure and safe drinking water to all communities by 2027. This is to occur through the implementation of the water services development plan (WSDP).

Additionally, in Mquma Local Municipality's IDP, in 2022, Mquma Local Municipality had a total number of 7 710 (10.81%) households with no formal piped water. Again, this emphasizes the need for development of infrastructure to provide communities with safe drinking water. Therefore, the Ngqamakhwe Bulk Water Supply Scheme will assist in the provision of potable water to the Ngqamakhwe town centre and 29 villages of Wards 13, 16, 18 and 20, ultimately servicing approximately 20 000 residents.

AMATHOLE DISTRICT MUNICIPALITY - REGIONAL BULK INFRASTRUCTURE GRANT - BUDGET 2025/2026 TO 2027/2028

| Project Name | New /Renew | Water /Sanitation/ VIP/Other | Region | 2025 2026 BUDGET | 2026 2027 BUDGET | 2027 2028 BUDGET |
|------------------------------|------------|------------------------------|--------------|-------------------|-------------------|-------------------|
| Ngqamakhwe Bulk Water Supply | New | Water | EC122 MNQUMA | 80 000 000 | 90 401 000 | 94 921 000 |

Indicate any benefits that the activity will have for society in general:

- Provide short term job creation during the construction phase
- Employment potential due to skills transferred during project implementation
- Provide SSME opportunities for communities on route
- Provide water for local villages which include providing potable water to the residents of the Ngqamakhwe
- Improved water conservation and demand management

Indicate any benefits that the activity will have for the local communities where the activity will be located:

- Job creation during the construction phase
- Provide SSME opportunities for communities on route
- Improved access to potable water on completion of the project
- Improved health and hygiene
- Growth in the level of agriculture and other commercial activities by the community

10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

| Title of legislation, policy or guideline: | Administering authority: | Date: |
|--|---|-----------|
| National Environmental Management Act (NEMA) (Act No. 107 Of 1998) | DFFE | 1998 |
| National Environmental Management Laws Amendment Act, 2022 (Act No. 2 of 2022) GG. No 48869 | South African Government & DFFE | 2023 |
| The Constitution of South Africa Act, 1998 (Act No. 108 of 1996) | South African Government | 1996 |
| Environmental Impact Assessment Regulations of 2014, as amended <i>EIA Regulations promulgated under the NEMA GN No. 327; 324, 325, and 326 for listed activities that may impact on the environment.</i> | DFFE & DEDEAT | 2017 |
| National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) | DFFE & DEDEAT | 2004 |
| Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) | DRDAR | 1983 |
| National Heritage Resources Act, 1999 (Act No. 25 of 1999) | South African Heritage Resources Agency (SAHRA) & Eastern Cape Provincial Heritage Resource Agency (ECPHRA) | 1999 |
| Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(A) and (H) And 44 of the National Environmental Management Act, 1998, When Applying for Environmental Authorisation GN. R. 320; GG. No 43110 | DFFE & DEDEAT | 2020 |
| Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(A) And (H) And 44 of the National Environmental Management Act, 1998, When Applying for Environmental Authorisation GN. R. 1150; GG. No 43855 | DFFE & DEDEAT | 2020 |
| National Water Act, 1998 (Act 36 of 1998) | DWS | 1998 |
| General Authorisation in terms of Section 39 of the National Water Act (Act No. 36 of 1998), Section 21 (c) and (i), as amended in 2023. | DWS | 1998 |
| Mnquma Local Municipality Final Integrated Development Plan (IDP) 2025-2026 | Mnquma Local Municipality | 2025-2026 |
| Amathole District Municipality Draft Integrated Development Plan (IDP) 2026-2027 | Amathole District Municipality | 2026-2027 |

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(A) SOLID WASTE MANAGEMENT

Will the activity produce solid construction waste during the construction/initiation phase?

YES✓

If yes, what estimated quantity will be produced per month?

~30m³

How will the construction solid waste be disposed of (describe)?

The solid construction waste will be that of spoil and other material from excavation activities that cannot be used as backfilling. A suitable spoil site must be located to effectively spoil the material in a non-harmful manner towards the environment. Such a spoil site would include an abandoned borrow pit, quarry or an area that has undergone significant erosion, but does not fall within 100m of a watercourse. Alternatively, if no such area is available within an affordable distance to the project area, a registered landfill must be located and used.

Additionally, general waste from workers will be generated at the site camp. This waste will be disposed of at registered landfill site, possibly in Mthatha.

Where will the construction solid waste be disposed of (describe)?

General waste will be disposed of at a registered landfill site, which will likely be in Mthatha.

Will the activity produce solid waste during its operational phase?

NO✓

If yes, what estimated quantity will be produced per month?

N/A

How will the solid waste be disposed of (describe)?

N/A

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?

NO✓

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility?

NO✓

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

11(B) LIQUID EFFLUENT

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

NO✓

If yes, what estimated quantity will be produced per month?

N/A

Will the activity produce any effluent that will be treated and/or disposed of on site?

NO✓

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

NO✓

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:

Telephone:

Cell:

E-mail:

Fax:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

11(C) EMISSIONS INTO THE ATMOSPHERE

Will the activity release emissions into the atmosphere?

YES✓

If yes, is it controlled by any legislation of any sphere of government?

NO✓

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the emissions in terms of type and concentration:

During the construction phase, emissions into the atmosphere will be limited to the construction dust. Sources of emissions include those produced by heavy vehicles and machinery involved in site preparation and construction activities related to installing the pipeline. These activities are anticipated to occur only over a short period. During the operational phase, the installed structures will not produce any atmospheric emissions.

11(D) GENERATION OF NOISE

Will the activity generate noise?

YES✓

If yes, is it controlled by any legislation of any sphere of government?

NO✓

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The use of machinery and vehicles on site during the construction will emit noise, however, this noise will be limited to the few vehicles and machinery operating on site and within the immediate working area. The standard working hours must also be adhered to, according to the municipal by-laws.

12. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

| | |
|--|----------------------------------|
| | the activity will not use water✓ |
|--|----------------------------------|

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

N/A

Does the activity require a water use permit from the Department of Water Affairs?

YES✓

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

In terms of GN 4167 of 2023 titled “General Authorisation in terms of Section 39 of the National Water Act, 1998 for water uses as defined in Section 21 (c) or Section 21(i)”, water uses that fall within the ambit of this Government Notice require “General Authorisation” provided the water use is within the limits of the said General Authorisation. According to, the definition of “regulated area of a watercourse” for Section 21(c) or (i) of the Act refers to a) the outer edge of the 1 in 100 year flood line and or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; b) in absence of a determined 1 in 100 year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood or; c) a 500 m radius from the delineated boundary (extent) of any wetland or pan.

In terms of the National Water Act (Act 36 of 1998) an application for a General Authorisation will be submitted to DWS for the following water uses: Section 21(c) and (i) due to the development and construction within the Department of Water and Sanitation’s 500m regulated area of a wetland and 100m of a watercourse.

13. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

This project will not include any designs to improve the energy efficiency as the activity will not use electricity in the construction and operation phase. Pumps do not fall part of the project scope and the WTW has already been constructed in Tsomo of which all electricity is generated from Tsomo.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?

| | |
|------|--|
| YES✓ | |
|------|--|

If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

Indwe Environmental Consulting has identified that the following important Specialist Assessments which will be required in order to assess the important environmental factors on site and how these environmental factors will be impacted by the proposed Water Supply Scheme

In terms of additional “specialist” input, the following “specialist” assessments were commissioned:

- Aquatic Biodiversity Assessment**
- Archaeological and Cultural Impact Assessment**
- Palaeontological Impact Assessment**
- Terrestrial Biodiversity Assessment including Plant and Animal Species Themes**

According to the National Web Based Screening Tool, the following sensitivities applicable to the project and the site were identified:

Table 4: Theme sensitivities as extracted from the Screening Tool Report generated by the National Web Based Screening Tool.

| Theme | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|--|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme | X | | | |
| Animal Species Theme | | X | | |
| Aquatic Biodiversity Theme | X | | | |
| Archaeological and Cultural Heritage Theme | X | | | |
| Civil Aviation Theme | | | | X |
| Defence Theme | | | | X |
| Paleontology Theme | X | | | |
| Plant Species Theme | | | X | |
| Terrestrial Biodiversity Theme | X | | | |

All remaining sensitivities not covered by the specialist studies mentioned above will be dealt with and motivated in Appendix G7- Screening Tool Deliverables.

14. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

| | | | | |
|-------|-------|---|-------|---|
| Flat✓ | 1:50 | - | 1:20 | - |
| | 1:20✓ | | 1:15✓ | |

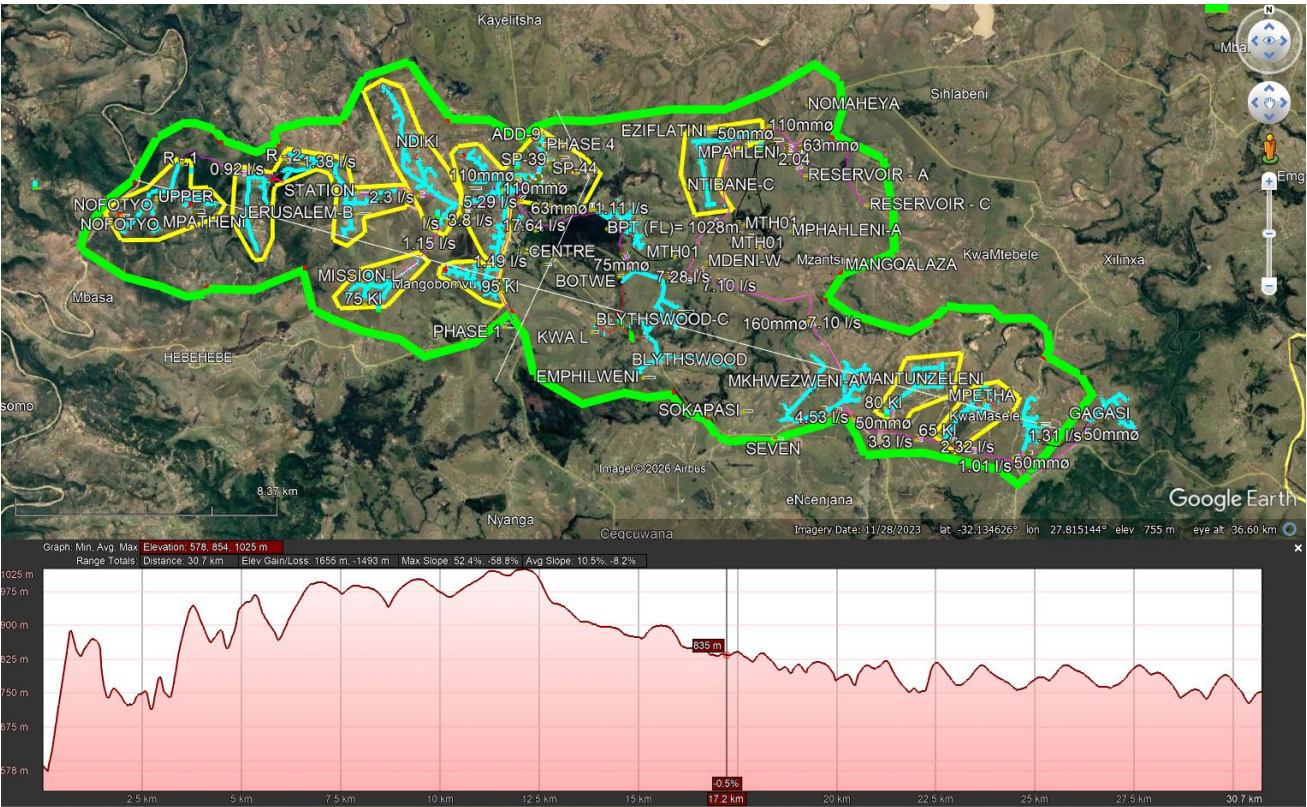
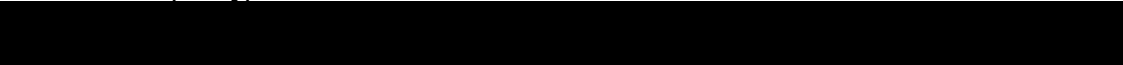
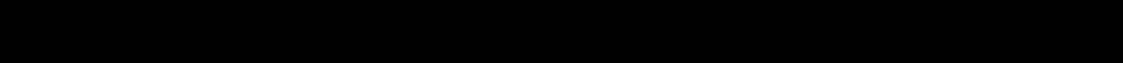


Figure 3: Elevation profile as shown through the middle of the site.

Alternative S2 (if any):



Alternative S3 (if any):



15. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site:

~~2.1 Ridgeline~~

~~2.2 Plateau~~

2.3 Side slope of hill/mountain✓

~~2.4 Closed valley~~

~~2.5 Open valley~~

~~2.6 Plain~~

2.7 Undulating plain / low hills

~~2.8 Dune~~

~~2.9 Seafront~~

16. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

| | Alternative S1: | Alternative S2 (if any): | Alternative S3 (if any): |
|--|--------------------------|--------------------------|--------------------------|
| Shallow water table (less than 1.5m deep) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Dolomite, sinkhole or doline areas | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Seasonally wet soils (often close to water bodies) | YES✓ | <input type="checkbox"/> | <input type="checkbox"/> |
| Unstable rocky slopes or steep slopes with loose soil | YES✓ | <input type="checkbox"/> | <input type="checkbox"/> |
| Dispersive soils (soils that dissolve in water) | YES✓ | <input type="checkbox"/> | <input type="checkbox"/> |
| Soils with high clay content (clay fraction more than 40%) | <input type="checkbox"/> | NO✓ | <input type="checkbox"/> |
| Any other unstable soil or geological feature | <input type="checkbox"/> | NO✓ | <input type="checkbox"/> |
| An area sensitive to erosion | YES✓ | <input type="checkbox"/> | <input type="checkbox"/> |

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

17. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.2 Natural veld – scattered aliens^E✓

4.7 Cultivated land✓

4.10 Bare soil✓

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

| | | |
|--|---|------------|
| | Natural veld with scattered aliens ^E ✓ | |
| | Cultivated land✓ | Bare soil✓ |

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

18. LAND USE CHARACTER OF SURROUNDING AREA

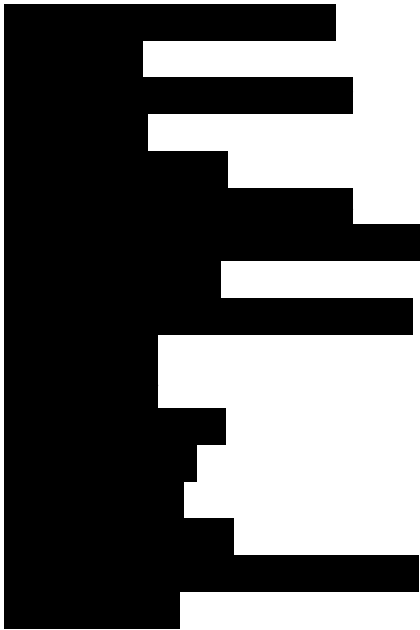
Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

5.1 Natural area✓

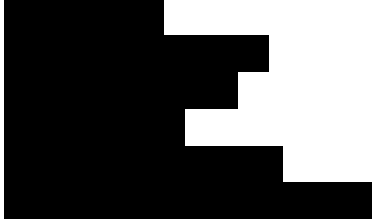
5.5 Informal residential✓

5.14 Quarry, sand or borrow pit✓

5.15 Dam or reservoir✓



- 5.33 Agriculture✓
- 5.34 River, stream or wetland✓
- 5.36 Mountain, koppie or ridge✓



If any of the boxes marked with an "N" are ticked, how will this impact / be impacted upon by the proposed activity.
N/A

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity.
If YES, specify and explain: **N/A**
If YES, specify: **N/A**

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity.
If YES, specify and explain: **N/A**
If YES, specify: **N/A**

19. ENVIRONMENTAL THEMES

The national web-based Environmental Screening tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended, whereby a Screening Report is required to accompany any application for Environmental Authorisation. The National Environmental Screening Tool indicates the following for each sector of the development, which has relevance to this section.

Table 5: Theme sensitivities as extracted from the Screening Tool Report generated by the National Web Based Screening Tool.

| Theme | Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|--|-----------------------|------------------|--------------------|-----------------|
| Agriculture Theme | X | | | |
| Animal Species Theme | | X | | |
| Aquatic Biodiversity Theme | X | | | |
| Archaeological and Cultural Heritage Theme | X | | | |
| Civil Aviation Theme | | | | X |
| Defence Theme | | | | X |
| Paleontology Theme | X | | | |
| Plant Species Theme | | | X | |
| Terrestrial Biodiversity Theme | X | | | |

19.1. TERRESTRIAL BIODIVERSITY

The specialist report, titled “Terrestrial Biodiversity Assessment: Ngqamakhwe Phase 3 Bulk Reticulation” was compiled by Jamie Pote. The report investigates the various terrestrial themes and the impacts the proposed project would have on these features. A desktop and field assessment were conducted by the specialist. The following sections cover the topics discussed in the report.

19.1.1. Regional Context

The below provides a summary of the regional planning biodiversity features associated with the site:

Table 6: Summary of Regional Planning Biodiversity Features

| Feature | Description | Implications/ Comment |
|---|--|---|
| National Web Based Screening Tool | Low & Very High Terrestrial Biodiversity Medium Low Plant & Animal Species sensitivities | Refer to the balance of this section. |
| National Vegetation Map | Mthatha Moist Grassland Tsomo Grassland Eastern Valley Bushveld Bisho Thornveld | Endangered Least Concern Least Concern Least Concern |
| Critically Endangered and Endangered Ecosystems (RLE, 2022) | Mthatha Moist Grassland | Endangered, implications of status will be assessed |
| Vulnerable Ecosystems (NBA, 2022) | None | Not applicable |
| Eastern Cape Biodiversity Conservation Plan (2019) | CBA 1, CBA 2 & ESA 2 | Not applicable |
| Protected Areas | | Not applicable |
| Strategic Water Source Areas (SWSA) | | Not applicable |

| | | |
|---|---|---|
| Regional Hotspots & Regions of Endemism | None | Not applicable |
| Important Bird Areas (IBA's) | None | Not applicable |
| Key Biodiversity Areas (KBA's) | None | Not applicable |
| Marine/Coastal areas | None | Not applicable |
| RAMSAR sites | None | Not applicable |
| Surrounding Land Uses | Surrounding land primarily rural villages. | Site and surrounding area are relatively degraded and/or transformed and/or with scattered secondary vegetation elements. |
| Critical Habitat for listed endemic/protected species | No specific populations of threatened species were identified within the footprint, and the affected footprint is largely disturbed or comprised of secondary vegetation. | |

19.1.2. Eastern Cape Biodiversity Conversation Plan (2019)

The Eastern Cape Biodiversity Conservation Plan – Terrestrial (2019) indicates that the pipeline(s) and associated infrastructure does overlap with areas designated CBA 1, CBA 2 & ESA 2. The western extent of the pipeline overlaps with CBA 1 and some CBA 2, the central area with some fragmented CBA 2 and minor ESA 2 pockets on the eastern side. The bulk water pipeline & associated infrastructure including reservoirs is located within an area having a moderate density of rural villages with associated land use including cultivated crops and roads. Baseline levels of fragmentation, transformation and degradation are thus fairly high. Much of the bulk water pipeline will also largely be installed adjacent to existing roads.

The pipeline is deemed a temporary activity and will likely rehabilitate to pre-construction conditions within 2 years of completion. The reservoirs, while permanent, have a relatively small and localised footprint that is unlikely to affect conservation targets nor connectivity above current baseline levels.

Much of the bulk water pipeline will also be installed along existing roads. The impact to designated CBA and ESA, as well as Endangered vegetation is thus likely to be low.

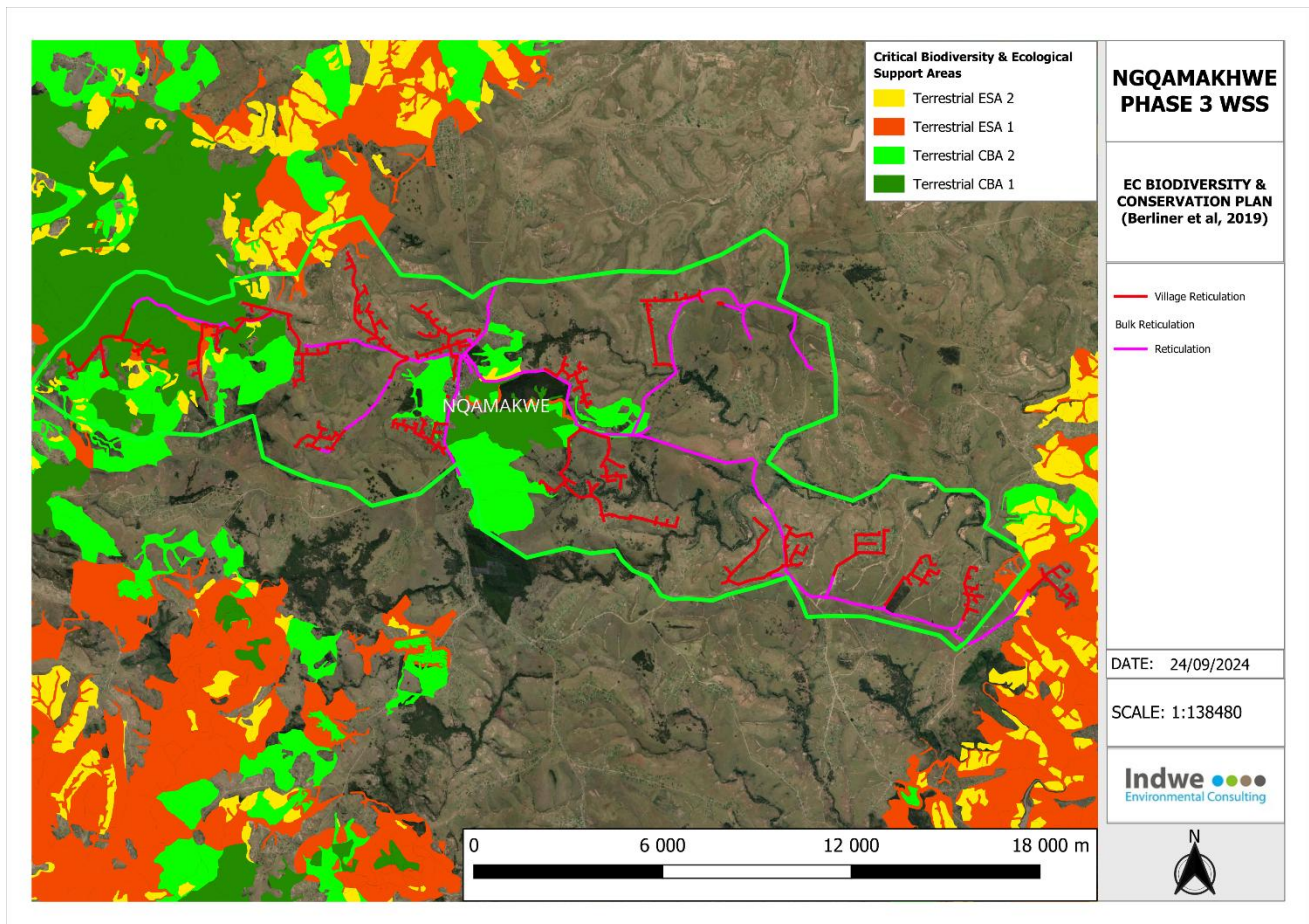


Figure 4: Eastern Cape Biodiversity Conservation Plan, 2019

19.1.3. Vegetation

The National Vegetation Map (NVM, 2024) indicates that the pipeline and associated infrastructure fall predominantly within **Mthatha Moist Grassland**, with short sections within Tsomo Grassland and Eastern Valley Bushveld on the western side and Bisho Thornveld on the eastern side. The vegetation associated with the proposed pipeline and the surrounding rural villages shows high levels of fragmentation and degradation, being within an area having a moderately high density of rural villages with associated infrastructure including roads and cultivated areas. Degradation emanating from livestock grazing and general utilisation of biodiversity resources (i.e. fuelwood and building materials).

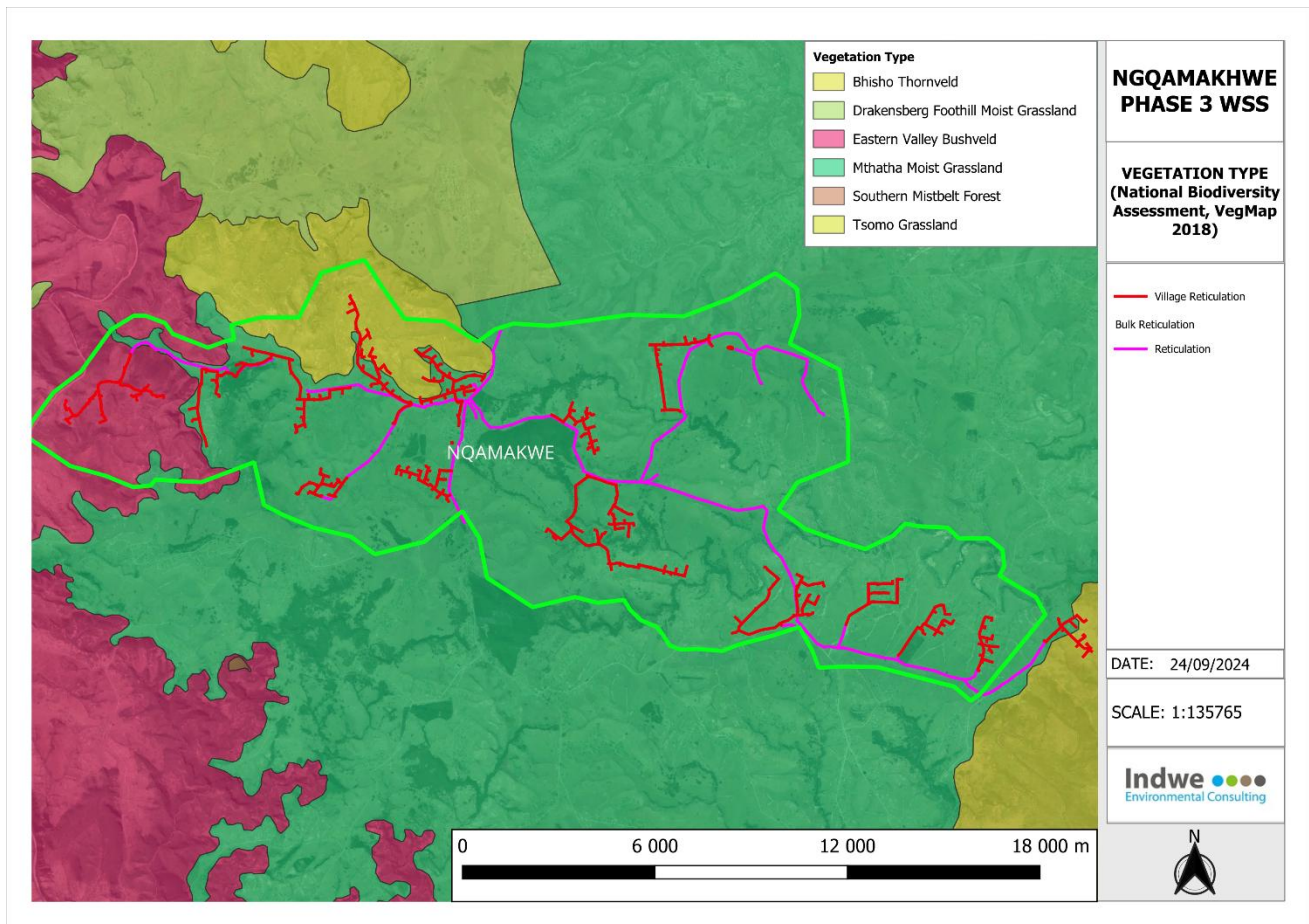


Figure 5: Vegetation map (Mucina *et al.*, 2006 - 2024)

The majority of the bulk water pipeline and associated infrastructure falls within Mthatha Moist Grassland (Endangered), with some passing through Tsomo Grassland, Eastern Valley Bushveld (on the western side) and Bisho Thornveld (on the eastern side), all having a Least Concern status. All units are typical of their respective vegetation units (as described below) and tend to be degraded due to high usage (grazing, wood harvesting, crop cultivation, etc.).

The **Mthatha Moist Grassland**, although Endangered, is largely showing signs of degradation due to disturbances associated with the rural settlements in the area and associated land use (agriculture, grazing, wood harvesting, etc.). In general, it is comprised of grassland with open thornveld still present along drainage lines. The vegetation is generally species-poor, dominated by grasses including *Eragrostis plana* and *Sporobolus africanus*. Indicative of the condition is the limited presence of *Themeda triandra*, due to the high utilisation for grazing.

The **Eastern Valley Bushveld** is comprised mostly of semideciduous savanna woodlands in a mosaic with thickets, often succulent and dominated by species of *Euphorbia* and *Aloe*. Most of the river valleys run along a northwest-southeast axis which results in unequal distribution of rainfall on respective north-facing and south-facing slopes since the rain-bearing winds blow from the south. The steep north-facing slopes are sheltered from the rain and also receive greater amounts of insolation adding to xerophilous conditions on these slopes.

The **Tsomo Grassland** also shows a high level of utilisation of this unit leading to degradation and transformation and the vegetation shows various stages of overutilisation. Shifting cultivation and the effects of development have caused continuous disturbance of the soil surface, which has led to secondary succession changes in the grassland.

The Bisho Thornveld also shows high level of utilisation, leading to degradation and transformation and the vegetation shows various stages of overutilisation, including tree harvesting. The vegetation is comprised of a grassland comprising species common to the adjacent grasslands, but with scattered sweet thorn (*Vachellia karoo*) and trees and various other common small trees and shrubs.

The vegetation is predominantly comprised of well grazed grasses with occasional less disturbed areas having an herbaceous layer (with some geophytic herbs), scattered trees and Aloes. Dense pockets of alien trees are also present (*Acacia mearnsii*). Several exposed rocky outcrops were noted, but no specialised habitat nor associated flora Species of Conservation Concern were observed to be present.

The majority of the pipeline is directly adjacent to existing gravel roads and generally areas that are disturbed to a greater or lesser extent. The vegetation is largely dominated by grasses with the occasional trees, including *Acacia karroo*, although the vegetation is typically a grassland, fire, overgrazing and wood harvesting are evident. Small dense clumps of invasive wattle (*Acacia mearnsii*) persist in fire protected rocky and incised watercourse sites.

The Eastern Valley Bushveld and Bisho Thornveld tree elements on the eastern and western side are largely lost along the ridges and adjacent to the roads and through settlements and cultivated lands, where the pipeline is planned and a degraded secondary grassland with occasional shrub elements remains. Thicket and Thornveld elements are now generally confined to incised valleys and lower slopes.

All reservoirs were noted to be located in predominantly open grassland with some rocky outcrops. Due to the limited localised footprint of the reservoirs and the overall degraded nature of the vegetation in the area, the terrestrial biodiversity impact of these will be negligible.

19.1.4. Flora and Fauna

No endemic and range restricted species were recorded to be present. Several species are known from the surrounding area, but unlikely to be affected by the proposed activity. Species listed under the Provincial Nature Conservation Ordinance (PNCO) protected species were noted in the area, for which permits will be required.

Table 7: PNCO Species (Flora)

| Scientific Name | Family |
|-------------------------|---------------|
| <i>Aloe arborescens</i> | Asphodelaceae |
| <i>Aloe marlothii</i> | Asphodelaceae |
| <i>Aloe rupestris</i> | Asphodelaceae |

In terms of Red Listed and Protected Fauna, **no Endangered or Critically Endangered fauna species were found to be present nor are known to be present in close proximity to the affected area or are likely to be directly affected by the proposed activity and no faunal species of conservation concern was recorded on the site.**

19.1.5. Alien and Invasive Plant Species

Several exotic invasive and other weed species were noted within the site and surrounding area. Proliferation of weedy and exotic species often indicate disturbance especially during or after construction. A list of species is included in the table below. During construction it is highly likely that species listed as well as species currently not on site could be introduced through the construction process and will tend to flourish on disturbed areas (such as pipeline trench and around reservoirs). A weed management programme is recommended throughout and after construction to counter the weed proliferation that would be expected. These species can have serious implications on terrestrial biodiversity but also crop cultivation in the area.

Table 8: Alien and Invasive plant species recorded on site

| Species name | Common name | Alien Invasive Category |
|------------------------|----------------|-------------------------|
| <i>Cirsium vulgare</i> | Scotch Thistle | 1b |
| <i>Datura sp</i> | Datura | 1b |

| Species name | Common name | Alien Invasive Category |
|--------------------------------|------------------|-------------------------|
| <i>Bidens Pilosa</i> | Blackjack | 1b |
| <i>Acacia mearnsii</i> | Black Wattle | 2 |
| <i>Acacia dealbata</i> | Silver Wattle | 2 |
| <i>Solanum mauritianum</i> | Bugweed | 1b |
| <i>Pennisetum clandestinum</i> | Kikuyu | 1b |
| <i>Ricinis communis</i> | Castor oil plant | 1b |
| <i>Tagetes minuta</i> | Khakibos | 1b |

19.1.6. Present Ecological State

In summary, the specialist noted the following general observations regarding the site:

- The area in and around the pipeline & associated infrastructure is largely degraded and/or transformed and/or secondary vegetation.
- Alien invasion is variable to low along most of the route, but high in localised dense alien wattle stands
- Erosion risk is moderate to high due to slope, around watercourse and general dispersive nature of the soils in the area.

The entire proposed pipeline, which will be considered a temporary activity (that will re-instate to pre-construction conditions within 2 years), is designated a **low terrestrial sensitivity**. The watercourse crossings and reservoirs sites are designated a moderate sensitivity, since the habitat is still degraded to varying degrees and loss associated with the proposed activity will be negligible, but additional duty of care will be required before and during construction.

Aquatic systems do not function in isolation and in terms of ecological processes, the aquatic systems are intricately linked to the terrestrial system. In this case the riverine community that runs past the border of the site forms an integral link between upstream and downstream communities and as a corridor for various faunal especially avifaunal species. The bulk water pipeline will traverse degraded non-perennial watercourses, but the largely temporary activity in degraded and secondary habitat (largely associated with existing road crossings) is unlikely to have any significant impacts above current baseline levels of disturbance.

19.1.7. Terrestrial Vegetation Sensitivity Assessment

An overall vulnerability assessment of proposed pipeline and pipeline, incorporating key vegetation and ecological indicators was undertaken by the specialist and includes the following key criteria:

- relative levels of intactness in terms of overall loss of indigenous vegetation cover.
- presence, diversity, and abundance of species of special concern (weighted in favour of local endemic species).
- extent of invasion (severity and overall ecological impact), as well as the degree to which successful rehabilitation could take place.
- overall degradation incorporating above factors.
- relative importance of the vegetation communities relative to regional conservation status - indicated as vulnerability of the area because of loss.

Refer to page 27 of the specialist report for the methodology.

The specialist categorised the overall sensitivity as follows:

Table 9: Summary of Sensitivity Assessment

| Indicator | Status | Comment |
|------------|---------------------------------|--|
| Intactness | Intactness for the site is Low. | Low: > 75 % of original vegetation has been removed or lost; and/or no |

| Indicator | Status | Comment |
|---|---|---|
| | | species of special concern present that are critically endangered, endangered, or endemic with highly localised distribution. |
| Alien Vegetation | Alien invasion for the site is Low to High. | Scattered individuals to areas with dense and impenetrable stands where rehabilitation will be intensive |
| Degradation | Degradation for the site is Moderate (degraded grasslands) to High (Transformed). | None |
| Habitat Sensitivity – Pipeline | Low | None |
| Habitat Sensitivity – Reservoir & Crossings | Moderate | None |

19.1.8. Terrestrial Biodiversity Assessment

19.1.8.1. Risks and Potential Impacts to Biodiversity

The main impacts likely to result from the proposed activity include the following:

- **Permanent or temporary loss of indigenous vegetation cover** because of site clearing. Site clearing before construction will result in the blanket clearing of vegetation within the affected footprint.
- **Loss of Flora Species of Conservation Concern** during pre-construction site clearing activities. Species of special concern are potentially present within the affected area, which could be destroyed during site preparation.
- **Susceptibility of some areas to erosion** because of construction related disturbances. Removal of vegetation cover and soil disturbance may result in some areas being susceptible to soil erosion after completion of the activity.
- **Susceptibility of post construction disturbed areas** to invasion by exotic and alien invasive species and removal of exotic and alien invasive species during construction. Post construction disturbed areas having no vegetation cover are often susceptible to invasion by weedy and alien species, which can not only become invasive but also prevent natural flora from becoming established.
- **Disturbances to ecological processes.** Activity may result in disturbances to ecological processes.
- **Aquatic and Riparian processes.** Diversion and increased velocity of surface water flows – Changes to the hydrological regime and increased potential for erosion. Impact of changes to water quality. Loss of riparian vegetation / aquatic habitat. Loss of species of special concern.
- **Loss of Faunal Habitat & Species of Conservation Concern:** Activity will result in the loss of habitat for faunal species as well as potential direct loss of faunal species.

19.1.8.2. Summary of Findings

The following is a summary of the results from the ecologist:

- The vegetation on site is generally near-natural but degraded along most of the pipeline length as well as around the reservoir sites.
- The proposed infrastructure does overlap with some designated CBA 1, CBA 2 and ESA 2 areas. Since the pipeline largely follows existing roads and is within disturbed areas, as well as being a temporary activity that will rehabilitate to pre-construction conditions within two years, the impact to CBA or ESA will be negligible. Similarly, the small and localised footprint of the reservoirs will also result in a negligible impact to CBA or ESA targets.
- No Sensitive Plant or Animal species identified as per the National Environmental Screening Tool were found to be present or likely to be present.
- Species protected in terms of the PNCO are present and permits and a pre-construction search and rescue recommended.

- The pipeline is largely considered to have a LOW Sensitivity due to the disturbed nature of the habitat and the temporary nature of the activity.
- The reservoir and watercourse crossings are designated a MODERATE Sensitivity, as additional precautionary measures may be required during construction.
- No HIGH sensitivity areas are identified.
- No No-go areas are identified within the site footprint.
- No significant direct, indirect or cumulative impacts are anticipated.

19.1.9. DFFE Screening Report Sensitivity Results and Verification

The Department of Forestry, Fisheries and the Environment's (DFFE) National Environmental Screening Tool has flagged the following themes relevant to this section:

- Terrestrial Biodiversity is Low/Very High
- Plant species sensitivity is Low/Moderate
- Animal Species sensitivity is Low/Moderate/High

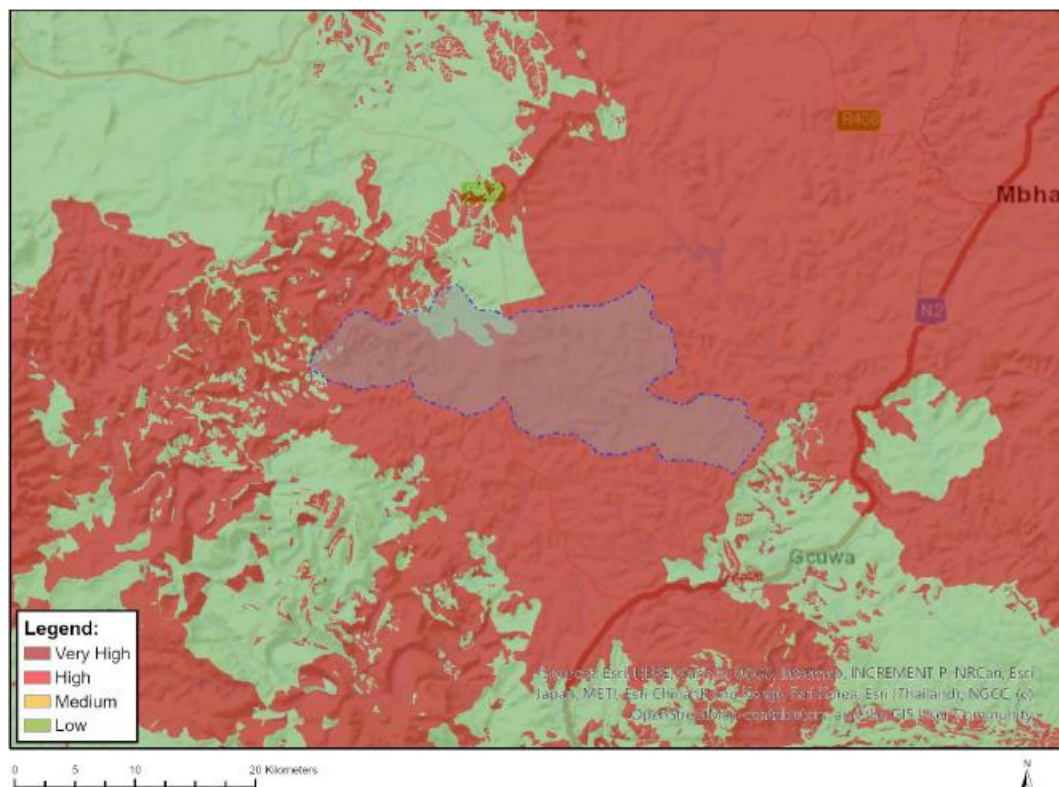


Figure 6: Results from the National Web-Based Screening for the Terrestrial Biodiversity Theme

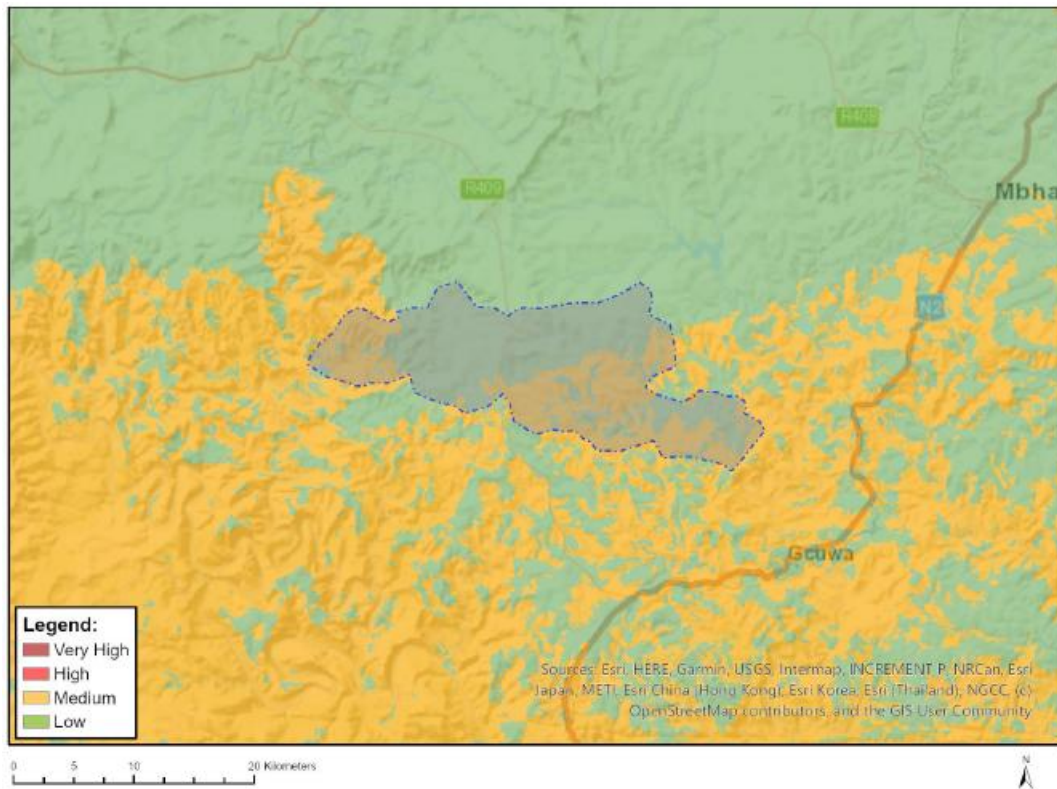


Figure 7: Results from the National Web-Based Screening for the Plant Species Theme

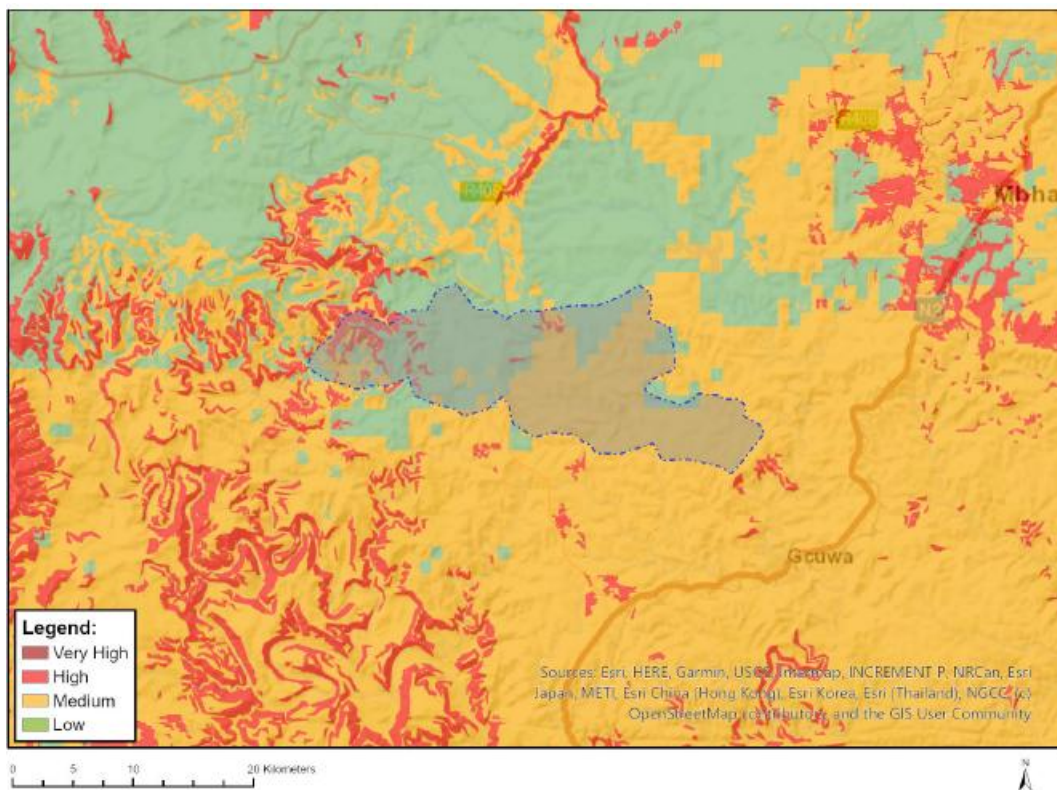


Figure 8: Results from the National Web-Based Screening for the Animal Species Theme

The below table provides a summary of the screening tool designations:

Proposed Ngqamakhwe Ph 3 Water Supply Scheme, Amathole District, Eastern Cape – Draft Basic Assessment Report
Indwe Environmental Consulting ©

Table 10: Summary of Screening tool designations

| | |
|--------------------------------|--|
| Terrestrial Sensitivity | Feature(s) in proximity |
| Very High | CBA1, CBA2, ESA2, FEPA Sub-catchment, Mthatha Moist Grassland (EN) |
| High | None |
| Medium | None |
| Low | Present |
| Plant Sensitivity | Feature(s) in proximity |
| Very High | None |
| High | None |
| Medium | <i>Greyia flanaganii</i> , <i>Adromischus liebenbergii</i> subsp. <i>orientalis</i> , <i>Asclepias cooperi</i> , <i>Prunus africana</i> , Sensitive species 1252, 1144, 80, 535, 554, 451, 1248, 944, 191 & 19 |
| Low | Present |
| Animal Sensitivity | Feature(s) in proximity |
| Very High | None |
| High | <i>Gyps coprotheres</i> & <i>Falco biarmicus</i> (birds) |
| Medium | <i>Hydropogon caspia</i> & <i>Neotis denhami</i> (birds), <i>Chrysoritis lyncurium</i> (insect), <i>Chrysospalax trevelyani</i> & Sensitive Species 8 (mammals) |
| Low | Present |

NOTE: as per point 1.5 of the Terrestrial Biodiversity Specialist Assessment and Minimum Report Content Requirements:

'If any part of the proposed development footprint falls within an area of 'very high' sensitivity, the assessment and reporting requirements prescribed for the 'very high' sensitivity apply to the entire footprint, excluding linear activities for which impacts on terrestrial biodiversity are temporary and the land in the opinion of the terrestrial biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies. Development footprint in the context of this protocol means the area on which the proposed development will take place and includes any area that will be disturbed.'

Based on the above reporting protocol condition, the entire proposed bulk water pipelines will fall into the above category, which implies that for a temporary linear activity, such as a pipeline, the screening tool designated high sensitivity should be reduced to a low sensitivity and only a compliance statement would be required. Remnant disturbance after completion of pipeline will be nominal, whereas reservoirs will be permanent but limited in extent. It is anticipated that the construction pipeline footprint will return to its current state within two years of completion of construction.

The site assessment has physically screened for the presence of any species as listed in the National Environmental Screening Tool, as well as other possible species or sensitivities that are not identified in the screening tool. Not all features are directly affected, but being in proximity, the risks associated with the activity will be investigated further and addressed in the report. The following is deduced from the DFFE National Environmental Screening Tool:

- The terrestrial biodiversity theme is LOW. The site falls within an urban area and is not designated CBA or ESA nor is the vegetation unit under threat. The low terrestrial biodiversity sensitivity is confirmed to be correct, and a specialist sensitivity of low is thus allocated.
- A single flora (plant) species regarded as being of concern are flagged as potentially being present (MEDIUM sensitivity) and are assessed further in the report, however it is not present within the largely transformed and degraded vegetation, nor will the vegetation likely provide suitable habitat. The medium sensitivity is thus disputed, and a specialist sensitivity of low is allocated.
- No fauna (animal) species regarded as being of concern are flagged as potentially being present (LOW sensitivity) and are assessed further in the report. The site falls within an urban area and is comprised of transformed and secondary vegetation, thus unlikely to provide suitable habitat for faunal species of concern. The low fauna sensitivity is confirmed to be correct, and a specialist sensitivity of low is thus allocated.
- The aquatic sensitivity is Very High due to the pipeline traversing a watercourse. The aquatic aspects are outside of this terrestrial biodiversity assessment, but it is confirmed that no natural riparian elements of concern are present nor likely to be affected. Refer to Aquatic Assessment.

The proposed pipeline is situated either within road verges or areas where no natural vegetation of significance remains, being largely degraded or transformed. The Site Sensitivity Verification thus confirms the designated Low Terrestrial Biodiversity sensitivity, and the specialist designates a low terrestrial biodiversity sensitivity. The pipeline is also a linear, temporary activity and any disturbance will likely return to pre-construction state within a 2-year period.

National Environmental Screening Tool flagged several flora species. The proposed pipeline & associated infrastructure (reservoir) is situated in degraded grassland and disturbed areas adjacent to existing roads and tracks and through settlements. The flagged species are not present along the pipeline route, in the vicinity of the reservoirs, nor in proximity. Several of the listed Sensitive Species (flora) are also species that are harvested for traditional medicinal purposes, and if any were preset historically, they are no longer present. The specialist thus disputes the medium flora ('plant') species sensitivity designation, and the specialist designates a low plant species sensitivity.

National Environmental Screening Tool flagged several fauna species. The proposed pipeline & associated infrastructure (reservoir) is situated in degraded grassland and disturbed areas adjacent to existing roads and tracks and through settlements and no suitable habitat remains for faunal species of conservation concern nor were any recorded. No faunal species of conservation concern are thus present along the pipeline route and nor in proximity to associated infrastructure (reservoirs). The specialist thus disputes the medium fauna ('animal') species sensitivity, and the specialist designates a low animal species sensitivity.

The site verification thus confirms that the pipeline & associated infrastructure (reservoirs) do not fall within any sensitive terrestrial biodiversity habitat, it is within a degraded rural settlement landscape. The degraded nature of the footprint is also unlikely to provide suitable habitat for any flagged flora (plant) or fauna (animal) species of conservation concern, and no fauna (animal) or flora (plant) species of conservation concern were recorded nor are likely to occur in proximity due to the degraded nature of the route. Several of the listed Sensitive Species (flora) are also species that are harvested for traditional medicinal purposes, and if any were preset historically, they are no longer present.

19.2. Aquatic Biodiversity

As part of the requirement for the EIA application process, a Freshwater Ecological Assessment was compiled by **GroundTruth**. The report, compiled in January 2026, is titled "Ngqamakhwe Water Supply Scheme, Aquatic Biodiversity Assessment" and the responsible professional for the assessment was Steven Ellery, registered with the South African Council for Natural Scientific Professions (SACNASP) (Reg no. 132408). The specialist report provided specifics around the aquatic biodiversity status of the study area.

To provide context and meaningful impact assessment efforts to the affected watercourses, it was generally accepted that the impacts associated with linear features such as pipelines such as the proposed development, are limited to within 50m of the development position. As such, detailed delineation of the aquatic ecosystems were only undertaken within a 50m buffer on either side of each pipeline. Thereafter, less detailed delineation was undertaken. Additionally, given the extent and scope of the area, and constraints in field, aquatic ecosystems located over 100m away from the proposed pipelines were not delineated or assessed in detail.

19.2.1. Regional Context

The majority of the study area falls under two distinct quaternary catchments, namely the **S50J and S70D catchments**. The Mean Annual Precipitation (MAP) for S50J is 668 mm, and the Potential Evapotranspiration (PET) is 1450 mm (Schulze, 2007). The Mean Annual Precipitation (MAP) for S70D is 682 mm, and the Potential Evapotranspiration (PET) is 1350 mm (Schulze, 2007). This would suggest that any aquatic ecosystems within the S50J or S70D catchments would have a moderately low to low sensitivity to hydrological impacts respectively (Macfarlane et al., 2020).

19.2.2. National Freshwater Ecosystem Priority Areas (NFEPA)

The National Freshwater Ecosystem Priority Areas (NFEPA) project represents a multi-partner project between the Council for Scientific and Industrial Research (CSIR), South African National Biodiversity Institute (SANBI), Water Research Commission (WRC), Department of Water Affairs (DWA), Department of Environmental Affairs (DEA), Worldwide Fund for

Nature (WWF), South African Institute of Aquatic Biodiversity (SAIAB) and South African National Parks (SANParks). More specifically, the NFEPA project aims to:

- Identify Freshwater Ecosystem Priority Areas to meet national biodiversity goals for freshwater ecosystems; and
- Develop a basis for enabling effective implementation of measures to protect FEPA's, including free-flowing rivers.

The first aim uses systematic biodiversity planning to identify priorities for conserving South Africa's freshwater biodiversity, within the context of equitable social and economic development. The second aim comprises a national and sub-national component: The national component aims to align DWA and DEA policy mechanisms and tools for managing and conserving freshwater ecosystems. The sub-national component aims to use three case study areas to demonstrate how NFEPA products should be implemented to influence land and water resource decision-making processes at a sub-national level. The project further aims to maximise synergies and alignment with other national level initiatives such as the National Biodiversity Assessment (NBA) and the Cross-Sector Policy Objectives for Inland Water Conservation.

While the NWM5_AEA layer identified two rivers in the vicinity, NFEPA layer (Nel et al., 2011) was used to determine its conservation status. The Tsomo River which intersects a small portion of the 500m DWS-regulated buffer, has been flagged as a non-FEPA river and is currently in a largely modified condition (Ecological Category of C). The Gcuwa River borders the study area on the eastern side and has been flagged as an upstream management area by NFEPA. It is currently considered moderately modified (Ecological Category C). The proximity of both these systems to sensitive wetland systems and their role in regional hydrological connectivity warrant careful consideration during planning and construction.

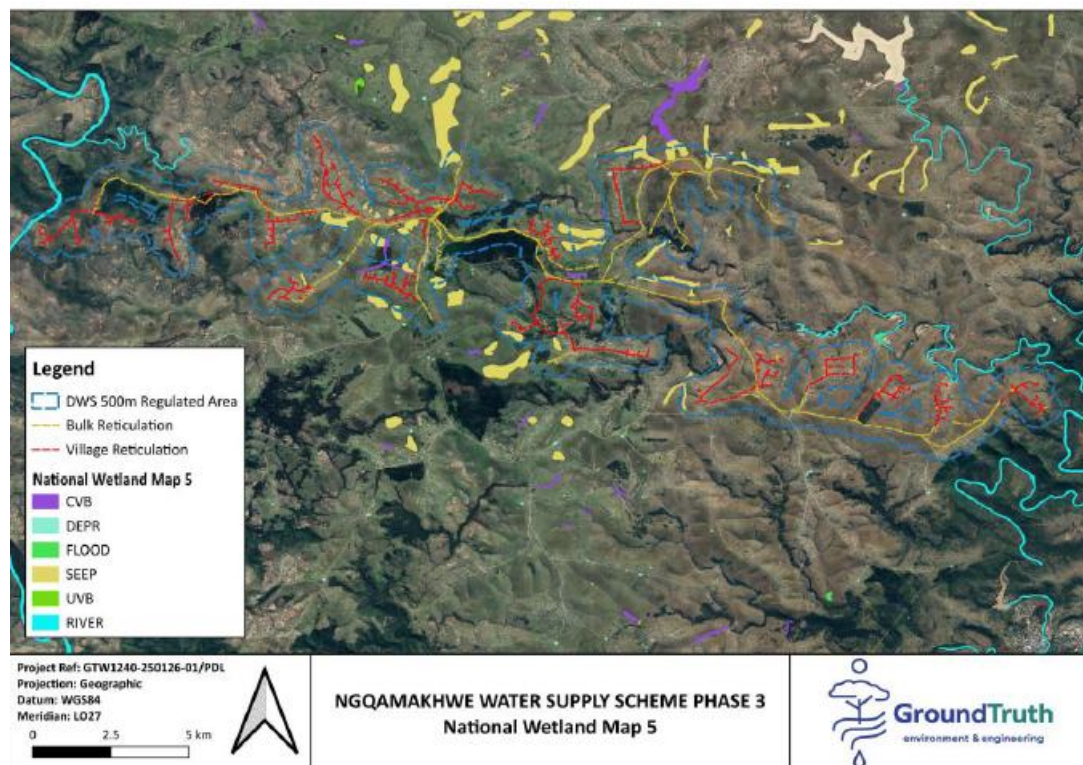


Figure 9: Overview of the National Wetland Map 5 coverage of the study area (Ellery, 2026)

19.2.3. Strategic Water Source Areas (SWSA's)

Strategic Water Source Areas or SWSA's are national ecological infrastructure assets that are essential for water security. These areas of high rainfall make up just 10% of the land area of South Africa, Lesotho and Eswatini but supply 50% of water to these countries. What happens within the boundaries of SWSA's has an impact on water quality and quantity for millions of people and for economic and agricultural activity downstream. A total of 20 SWSA's were identified. SWSA can also be separated into surface water sources (SWSA_{sw}) and groundwater sources (SWSA_{gw}). Groundwater SWA's are areas which have a high groundwater recharge / availability and are classified as a nationally important resource.

The proposed site is, however, not located within a SWSA and will therefore not have any impact on the existing quality and quantity (yield and capacity) of any SWSA's.

19.2.4. Freshwater Aquatic Habitat

A total of **217 watercourses** were observed to be hydrologically connected to and within 500m of the proposed water supply pipelines (**Figure 10**). These watercourses are made up of the following hydrogeomorphic types:

- Twenty one mountain headwater streams (MHS)
- Twenty two mountain streams (MS)
- Eight transitional rivers (TR)
- Four upper foothills rivers (UFH)
- One lower foothills river (LFH)
- Two lowland rivers (LLR)
- Six channelled valley-bottom wetlands (CVB)
- Seven depression wetlands (DEPR)
- One floodplain wetland (FLOOD)
- Eighty three hillslope seep wetlands (SEEP)
- Four unchannelled valley-bottom wetlands (UCVB)
- Fifty eight watercourses (WC) with no riverine or wetland indicators.

As identified by the specialist, due to the steep nature of the landscape, many of the watercourses have experienced extensive natural erosion which has likely been accelerated by grazing and the development of roads and houses in the catchments of these systems. The effects of erosion were experienced most critically by wetlands located on the steep slopes (SEEP wetlands) and the broad valley bottoms (UVBs and CVBs). The DEPR wetlands were located on flat 'plain' like features, often on the crest of a hillslope and were generally spared from any erosional damage but were instead exposed to intensive livestock trampling and water quality related impacts. The FLOOD wetland was located within a broad valley-bottom which has undergone significant unnatural sediment deposition and has been encroached by invasive alien plants (IAPs).

The LLR's were the Tsomo and a tributary of the Tsomo River and were located on the western portion of the study site. The LFH, UFH, TR, MS, and MHS rivers were located throughout the study site and were associated with a number of different river systems. The WC's are scattered across the study site, and have been classified as watercourses because they have natural channel characteristics, but do not have the soil or vegetation characteristics that would have them be categorised as wetlands or riverine systems.

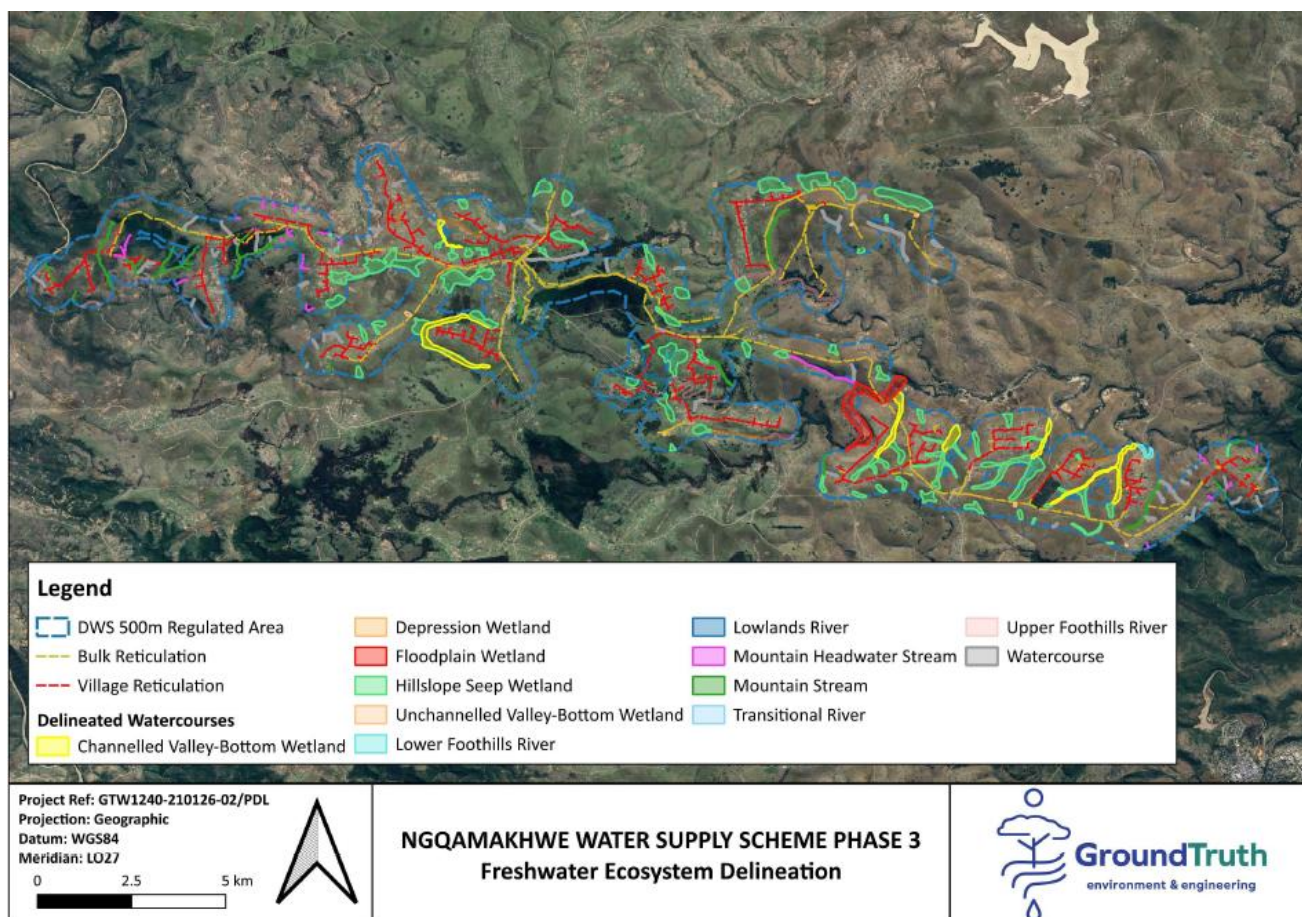


Figure 10: Freshwater ecosystems within 500m of the proposed developments (Ellery, 2026).

19.2.5. Results of the Aquatic Biodiversity Assessment

19.2.5.1. Present Ecological State

The PES of the wetland ecosystems was assessed for the hydrology, geomorphology, vegetation and water quality components for the current scenario. Similarly, the PES of the riverine ecosystems was assessed for multiple ecological components including alteration of hydrology, vegetation, aquatic fauna, physio-chemistry and other indicators of ecological condition for the current scenario. Generally, the ecological condition of the aquatic ecosystems ranged from being **largely natural** to being **moderately** to **largely** modified. Generally, the impacts across the aquatic ecosystems were similar and included:

- The most prominent impact to the freshwater ecosystems is anthropogenically accelerated erosion. Many of the freshwater ecosystems have undergone varying levels of gully erosion (often in the SEEP, UVB, CVB and some of the headwater riverine ecosystems), sheet erosion (often in the SEEP ecosystems) or bank erosion (often in the CVB, FLOOD and lower order riverine ecosystems).
- Cultivation within the freshwater ecosystems (predominantly within the wetland areas) which has resulted in the disturbance of the soil and a complete shift in the vegetation composition within the freshwater ecosystems.
- Construction of infrastructure such as roads, houses or dams within the freshwater ecosystems has resulted in the infilling of some of the ecosystems and has also resulted in the modification of channel characteristics within the ecosystems thereby modifying patterns of flow distribution and retention.
- Cultivation within the aquatic ecosystems (predominantly within the wetland areas) which has resulted in the disturbance of the soil and a complete shift in the vegetation composition within the aquatic ecosystems.
- The landscape is steep in some areas, so there is some level of natural erosion that will occur. However, excavation of material and road construction through the freshwater ecosystems have accelerated some of these erosional processes and led to increased loss of soil from some freshwater ecosystems.

- The proliferation of invasive alien species in some of the freshwater ecosystems has resulted in the alteration of vegetation characteristics in these ecosystems.
- The widespread rearing of livestock in the area means many of the freshwater ecosystems are heavily grazed, especially in winter. Furthermore, the movement of livestock (particularly cattle) results in the trampling and erosion of some of the more well used areas of the freshwater ecosystems.

19.2.5.2. Aquatic ecosystem goods and service delivery

The EGS of the aquatic ecosystems was assessed using the WET-EcoServices (Level 2) assessment technique for both rivers and wetlands. Generally, the EGS delivery ranged from **very low** to **moderately high** for both rivers and wetlands. The EGS provided by the aquatic ecosystems included:

- Provisioning services included water supply, as many residents in the area rely on the multiple springs and rivers in the area as their main source of water and cultivation as many cultivated areas were located within wetlands. The most important provisioning service provided by the freshwater ecosystems (most notably by the herbaceous wetlands), was grazing for livestock. Many people in rural areas rely heavily on livestock as a source of food, a source of income, and rearing livestock remains an important part of their culture.
- Regulating services provided by aquatic ecosystems included:
 - Limited water quality enhancement given the demand for these services was low, and the ability of many of the ecosystems to supply them was also compromised
 - Erosion control and sediment trapping services
 - Streamflow regulation was provided by SEEP and to a lesser degree DEPR wetlands
 - Biodiversity maintenance in the form of providing a habitat for importance species.

Given that the EGS assessment does not provide a single consolidated score, the scores for each aquatic ecosystem are not presented in this report. However, the EIS scoring process incorporates the EGS scores and provides a consolidated score for the EGS. Therefore, the EIS score can be taken as a fair representation of the EGS score for the aquatic ecosystems.

19.2.5.3. Ecological importance and Sensitivity

The EIS of the aquatic ecosystems ranged from **low/marginal** to **high**. Generally, the factors that contributed to the EIS scores for the freshwater ecosystems were associated with freshwater ecosystems of ecological importance, or they were areas that harboured a high level of biodiversity.

Of the 217 watercourses that were observed to be hydrologically connected to and within 500m of the proposed water supply pipelines the following 17 watercourses are to be **directly impacted by the proposed development**:

Table 11: Register of the watercourse crossings where the infrastructure poses a direct impact on the receiving watercourse

| Table No. ³ | Crossing ID | Feature Type | PES / Condition | EIS | Key Risks | Recommended Mitigation |
|------------------------|-------------|---------------------------|---------------------|----------|--|--|
| 8-7 | S50J-2 | Mountain headwater stream | Moderately modified | Moderate | Disturbance to headwater system; sedimentation | Use existing crossing; minimise footprint; rehab banks |
| 8-8 | S50J-1 | Mountain stream | Moderately modified | Moderate | Channel disturbance; erosion risk | Limit instream work; stabilise disturbed areas |

³ Reference in the Ellery (2026) Report.

| Table No. ³ | Crossing ID | Feature Type | PES / Condition | EIS | Key Risks | Recommended Mitigation |
|------------------------|-------------|----------------------------------|--------------------------|---------------|--|---|
| 8-9 | S50J-3 | Mountain stream | Moderately modified | Moderate | Sediment mobilisation; vegetation loss | Timing (dry season); erosion control |
| 8-10 | S50J-4 | Mountain stream | Moderately modified | Moderate | Localised erosion; habitat disturbance | Reinstate channel profile post-construction |
| 8-18 | S50J-6 | Mountain headwater stream | Moderately modified | Moderate | Headwater sensitivity; flow disruption | Avoid widening crossing; use existing road |
| 8-20 | S50J-5 | Mountain stream | Moderately modified | Moderate | Sedimentation; bank instability | Install erosion protection; rapid rehab |
| 8-40 | S50J-7 | Seep wetland | Moderately modified | Moderate–High | Wetland degradation; compaction; hydrological alteration | Avoid direct footprint; use spanning or edge crossing |
| 8-77 | S70D-8 | Seep wetland | Moderately modified | Moderate | Loss of wetland function; trampling | Demarcation; restrict machinery access |
| 8-78 | S70D-9 | Transitional river | Moderately modified | Moderate | Flow disruption; sedimentation | Maintain flow path; install temporary crossings |
| 8-85 | S70D-10 | Transitional river | Moderately modified | Moderate | Erosion; vegetation clearing | Progressive rehabilitation |
| 8-87 | S70D-11 | Transitional river | Moderately modified | Moderate | Channel disturbance | Limit disturbance width |
| 8-89 | S70D-12 | Transitional river | Moderately modified | Moderate | Sediment input; bank destabilisation | Erosion and sediment controls |
| 8-88 | S70D-13 | Seep wetland | Moderately modified | Moderate–High | Wetland compaction; altered drainage | Avoid central wetland; edge crossing only |
| 8-98 | S70D-14 | Upper foothills river | Largely natural–moderate | Moderate | Erosion at crossing point | Use existing road crossing; reinforce banks |
| 8-99 | S70D-15 | Upper foothills river | Largely natural–moderate | Moderate | Similar to above; cumulative disturbance | Consolidate crossings if possible |
| 8-112 | S70D-16 | Floodplain wetland | Moderately modified | Moderate–High | Floodplain disturbance; hydrological change | Avoid trenching in active zone; use sleeves |
| 8-114 | S70D-17 | Channelled valley-bottom wetland | Moderately modified | Moderate–High | Flow concentration; erosion | Maintain channel integrity; rehab vegetation |
| 8-143 | S70D-18 | Hillslope seep wetland | C (moderate condition) | Moderate | Grazing impacts; erosion; invasion; pipeline disturbance | Cross at road edge; minimise footprint; rehabilitate |

19.2.5.4. Resource Quality Objectives and the Recommended Ecological Category

The management objective for any watercourse is set by considering the pre-development PES and the EIS of the given watercourse. The Tsomo and Gcuwa Rivers have resource quality objectives (RQO) set for them. The RQO for the Gcuwa River has been set for a reach that is within the S70D catchment which does coincide with this study area. The Mtwaku and Ngqamakhwe Rivers are tributaries of the Gcuwa River and fall within the same catchment. All streams and rivers that are associated with these rivers therefore get the REC as set out by DWS (2023) (REC of D). The RQOs for the Tsomo River has been set for a reach that is located within the S50G catchment and does not coincide with this study area. Therefore, the reach of the Tsomo, Ngculu and the catchments wherein the delineated watercourses lie, do not have resource quality objectives prescribed for them. Therefore, individual REC's have been set for the freshwater ecosystems across the site that do not have prescribed REC's following the Rountree et al. (2013) method. Refer to the able overleaf.

Table 12: Summary of the RECs for the aquatic ecosystems located onsite

| Ecosystem Type | Feature / System | Current PES Category | Recommended Ecological Category (REC) | Management Objective |
|----------------|-----------------------------------|--|---------------------------------------|---|
| River | Mountain headwater streams | C (Moderately modified) | B/C | Maintain ecological functioning; improve where feasible |
| River | Mountain streams | C (Moderately modified) | B/C | Prevent further degradation; stabilise banks |
| River | Transitional rivers | C (Moderately modified) | B/C | Maintain flow and channel integrity |
| River | Upper foothills rivers | B/C (Largely natural to moderately modified) | B | Protect existing condition; minimise disturbance |
| Wetland | Seep wetlands | C (Moderately modified) | B/C | Prevent further degradation; maintain hydrology |
| Wetland | Hillslope seep wetlands | C (Moderately modified) | B/C | Maintain ecological processes; limit disturbance |
| Wetland | Channelled valley-bottom wetlands | C (Moderately modified) | B/C | Improve condition where possible; control erosion |
| Wetland | Floodplain wetlands | C (Moderately modified) | B/C | Maintain floodplain function; avoid hydrological alteration |

19.2.5.5. Buffer Requirements

Generally, buffers are adopted to protect aquatic ecosystems from physical disturbance and to protect the water resource from pollution from the adjacent landscape. The aquatic ecosystems within the study site have generally been slightly to moderately modified, with the alteration of the systems' integrity associated with current and historical disturbances. As such the buffer distances are largely associated with the buffer functions that contribute towards protecting the water resource rather than biodiversity. The width of a buffer is determined by the type of development proposed, which in this case has been classified as a service infrastructure development of pipelines for the transportation of clean water.

It should be noted that a core assumption about buffer zones is that *they will not be utilised for anything other than providing buffering capacity*. However, given the rural nature of the environment and the complex land tenure and land use agreements, this assumption does not stand and therefore has been factored into the buffer assessment. Initially the buffers were derived for the onsite aquatic ecosystem habitat using 'The Estuary, River and Wetland Buffer Guidelines' model (McFarlane & Bredin, 2017) and were based on the characteristics of the aquatic ecosystems, the potential impacts associated with the proposed development and the characteristics of the derived buffer zones. An unmitigated buffer assessment was undertaken to show the buffer requirements should a poor mitigation scenario be adopted by the developer

for both the construction and operation phases of the development. Additionally, a mitigated buffer assessment was undertaken to show the buffer requirements should a best-case mitigation scenario be adopted by the application.

The buffer for the proposed development is split up between the construction and the operation phases. In this case, these buffer distances were the same. There was no difference between the poor mitigation and the best-case mitigation scenarios and therefore the buffer areas have been consolidated into one buffer zone per phase. Furthermore, given the extensive number of ecosystems, and taking a pragmatic approach to defining buffer zones for so many systems, a general construction buffer zone and a general operational buffer zone has been applied to all ecosystems. This will reduce the possible confusion and administration for the contractor and the environmental control officer while implementing onsite. The buffer zones can be considered as being 'conservative' (i.e. they are possibly wider than necessary), but it is the opinion of the specialist that, given the nature of the landscape, it is better to be cautious. While the development poses both Low risks to the ecosystems, it is recommended that appropriate mitigation activities are adopted.

Table 13: Recommended buffer distance to be adopted for the aquatic ecosystems present within the development footprint

| Watercourse | Buffer Distance per Phase | |
|------------------|---------------------------|-------------|
| | Construction | Operational |
| All watercourses | 15m | 15m |

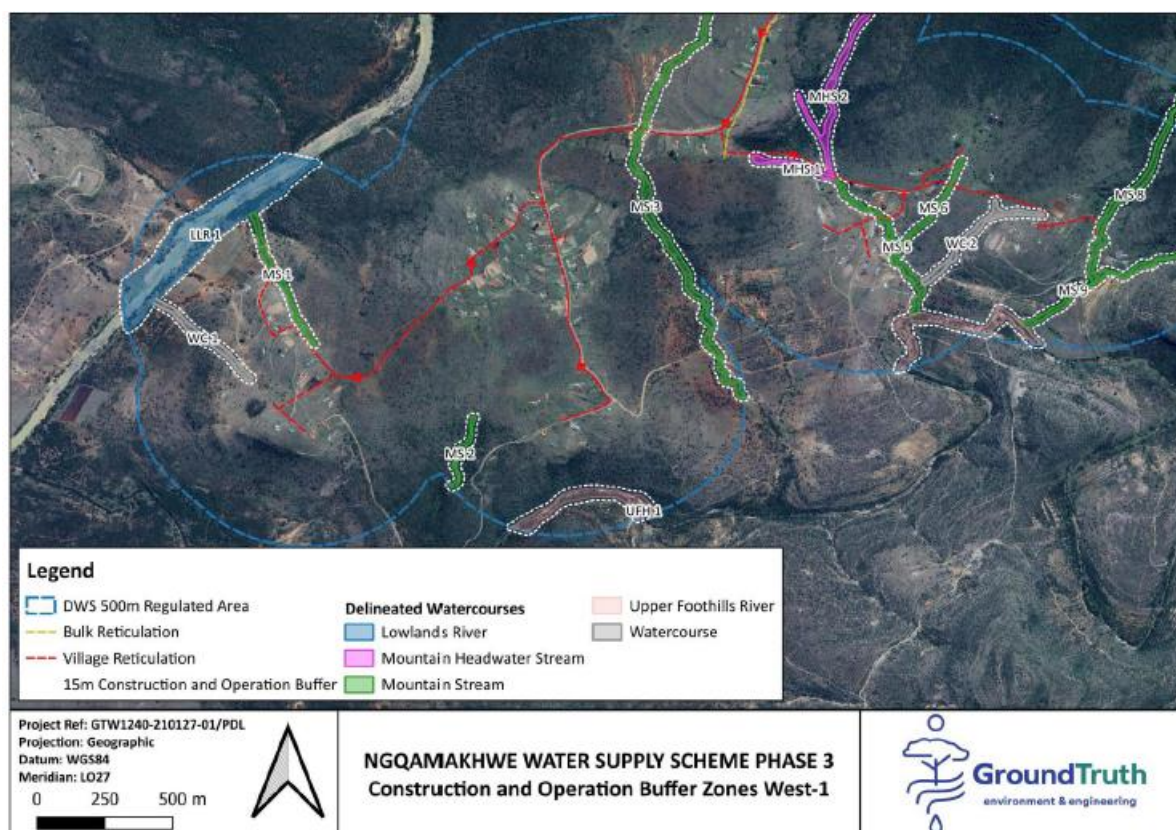


Figure 11: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the western portion of the study area.

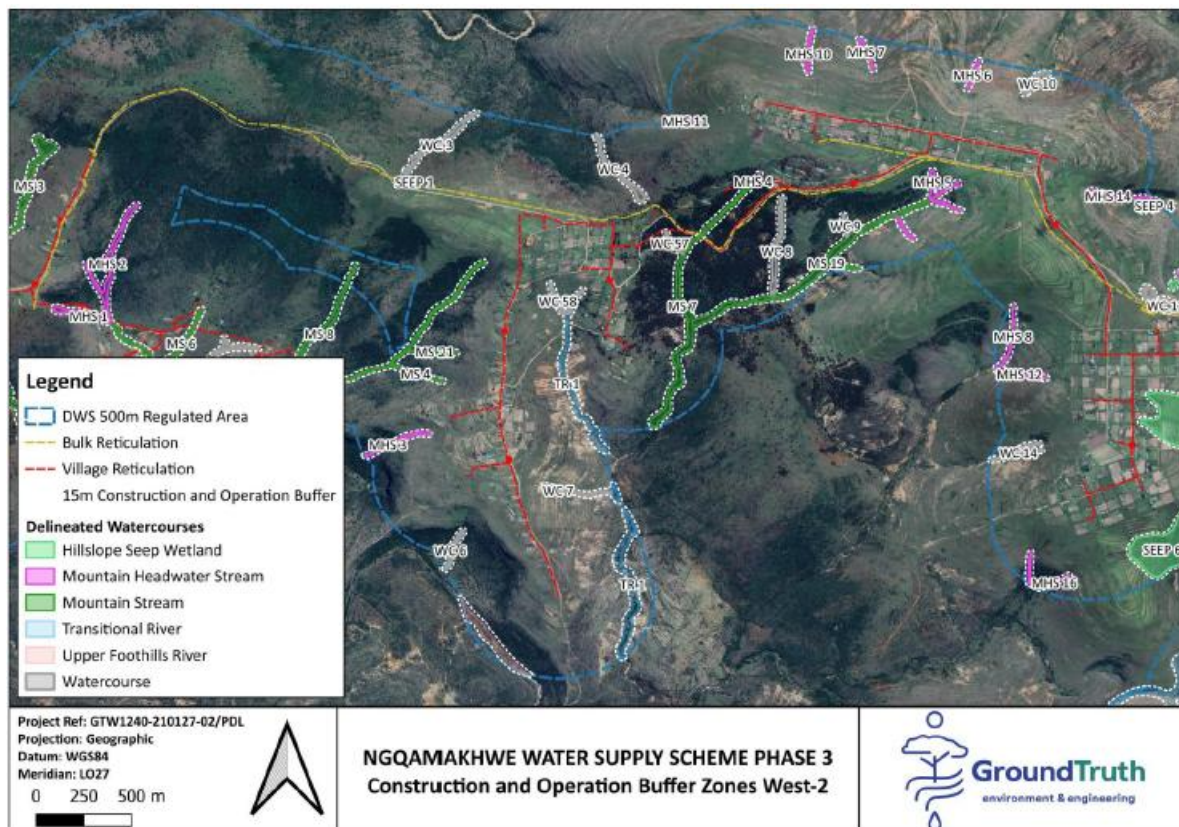


Figure 12: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the western portion of the study area.

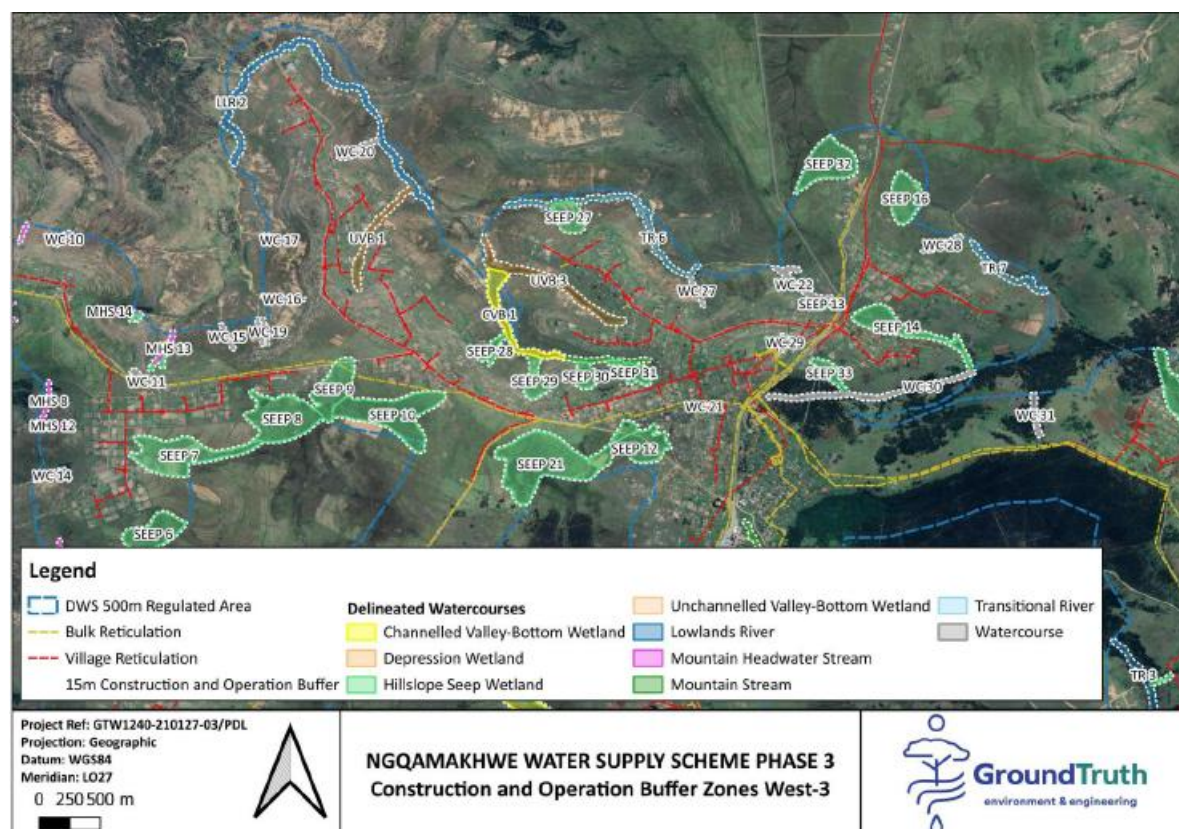


Figure 13: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the western portion of the study area.

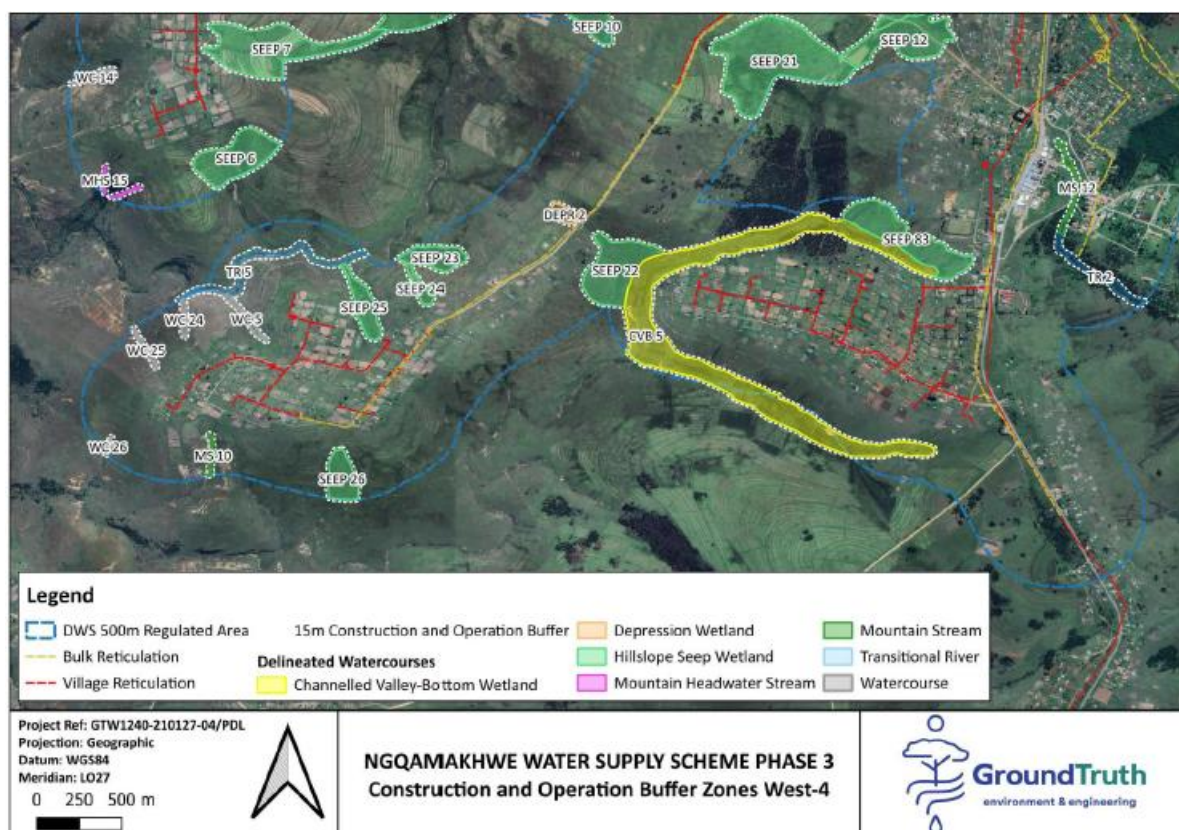


Figure 14: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the western portion of the study area.

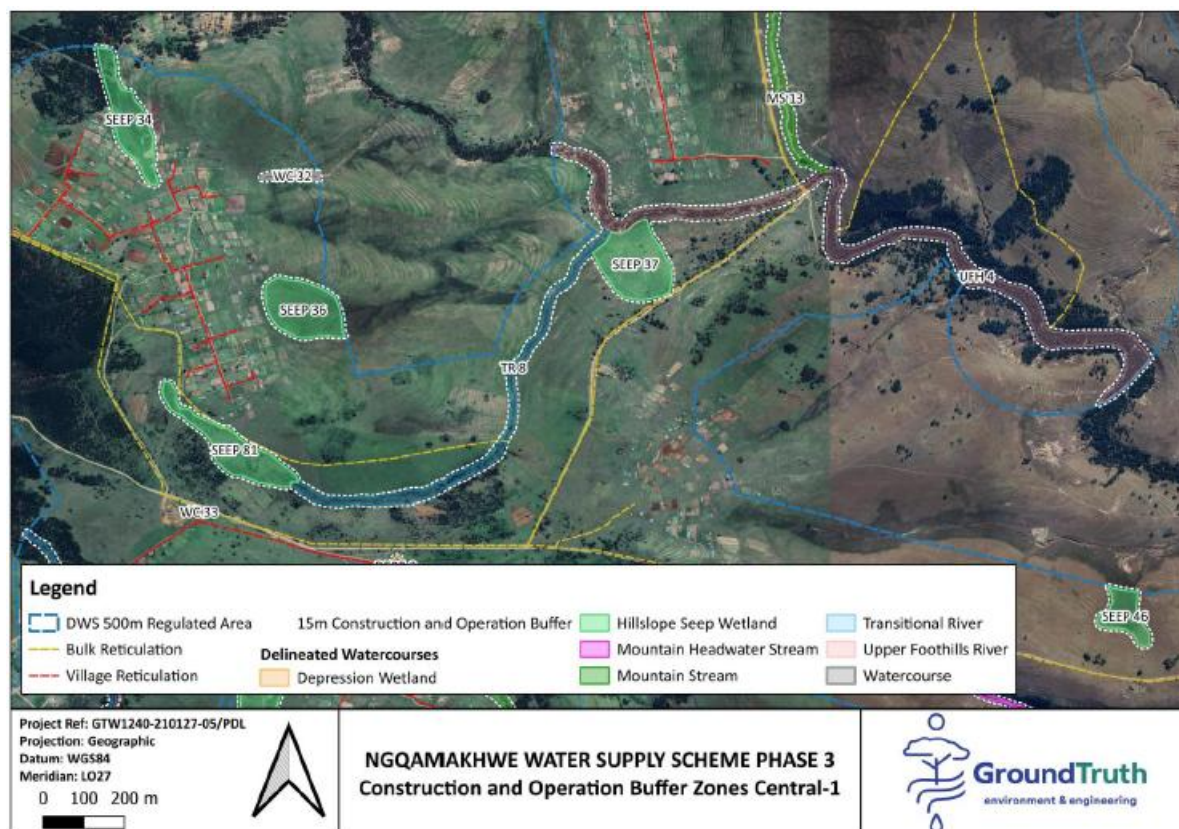


Figure 15: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the central portion of the study area.

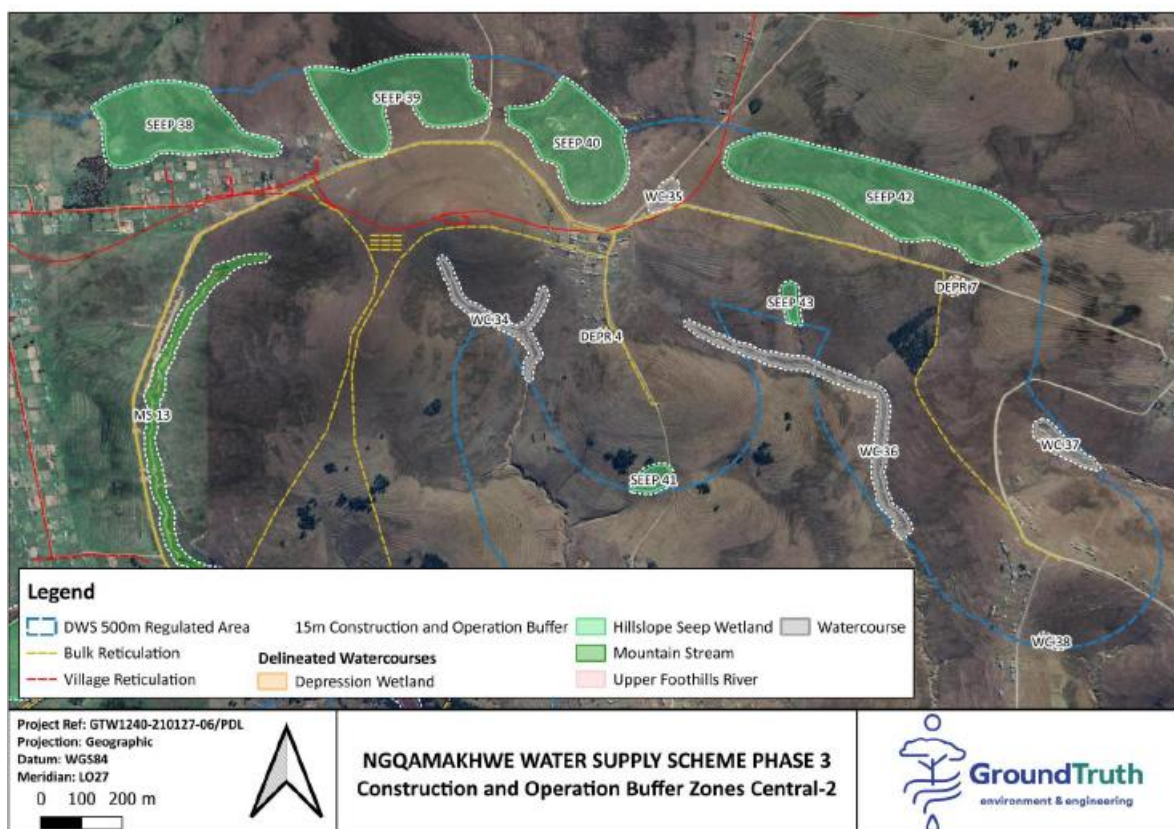


Figure 16: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the central portion of the study area.

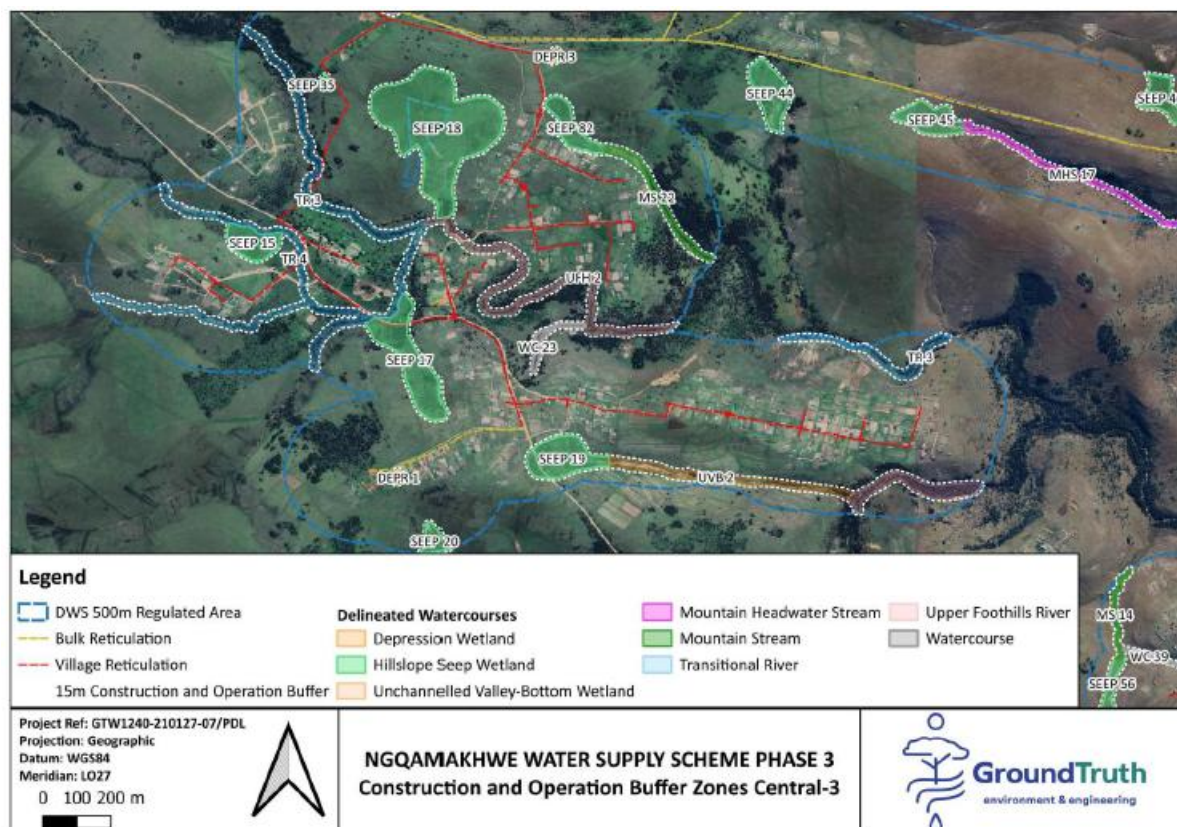


Figure 17: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the central portion of the study area.

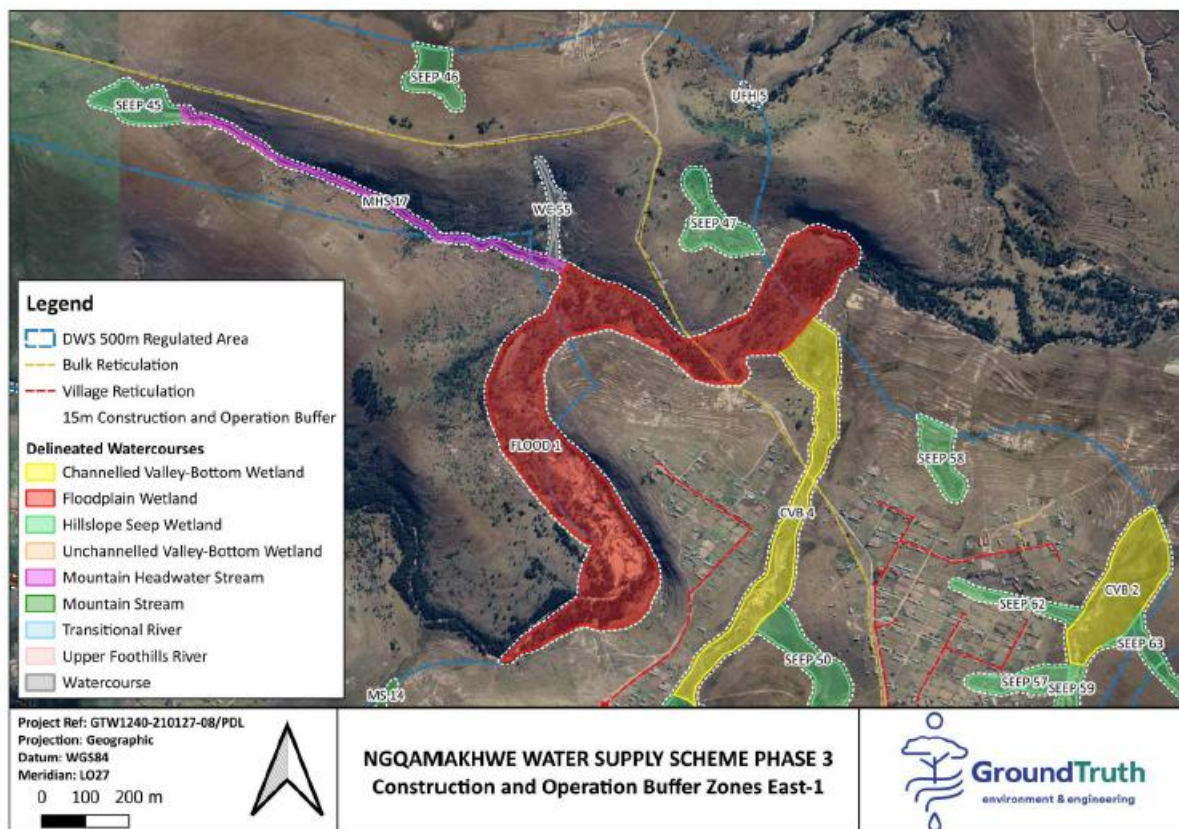


Figure 18: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the eastern portion of the study area.

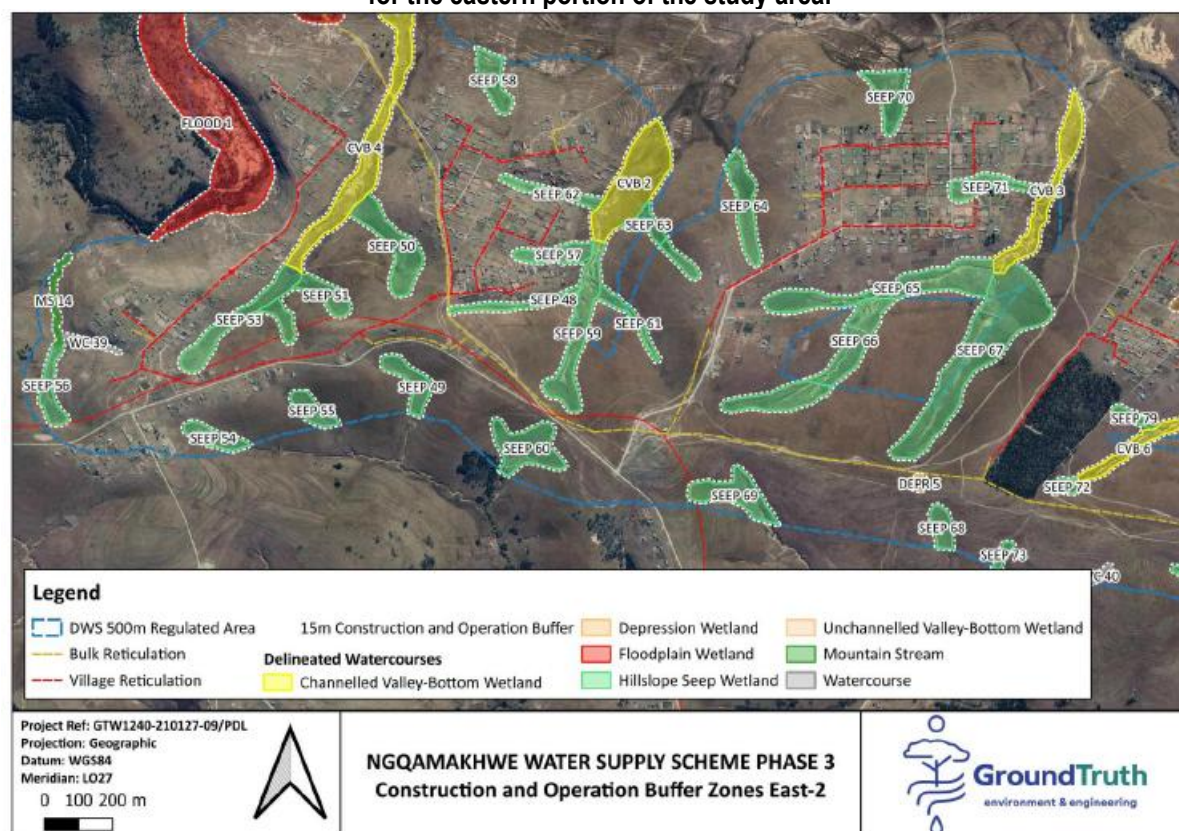


Figure 19: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the southern portion of the study area.

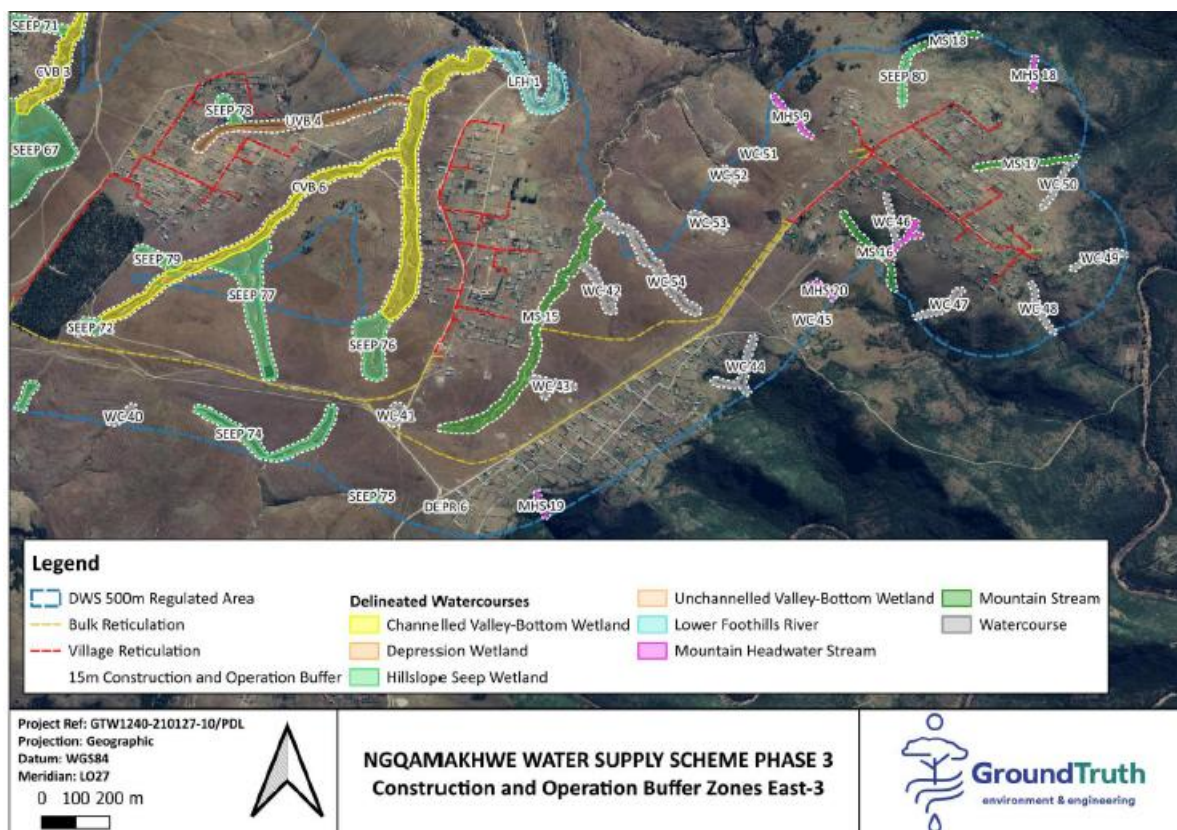


Figure 20: Results of the freshwater ecosystem buffer zone assessment for the construction and operation phase for the eastern portion of the study area.

19.2.5.6. Potential Impacts of the pipeline servitude and water supply scheme

It is important to understand the potential impacts on the aquatic ecosystems associated with any form of development. The proposed pipelines cross various freshwater ecosystems and watercourses and therefore there are direct impacts envisaged as a result of the construction of the water pipelines. The anticipated impacts have been split into three separate categories to keep the risk and impact assessments simple, considering the number of watercourses to be assessed. These three categories are 1) impacts and risks posed to watercourses from pipeline alignments within the catchment of the watercourse, but that fall outside of the construction and operational buffer zones, 2) impacts and risks posed to watercourses from pipeline alignments within the catchment of the watercourse, but that fall inside the construction and operational buffer zones, and 3) impacts and risks posed to watercourses from direct impacts where a pipeline alignment crosses directly through a watercourse.

The potential impacts to the hydrologically linked aquatic ecosystems are numbered and listed below:

Construction Phase Impacts

The impacts associated with the construction of small features such as pipelines weirs generally relate to the physical disturbance footprint of the construction activities, such as vehicle movements, earth moving and storage etc., as well as the potential of the infrastructure to create impoundments, additional water inputs, and unfavourable sub-surface drainage within the watercourse.

- Water contamination from the operation and washing of machinery in the catchments of the watercourses.
- Siltation in the aquatic ecosystems due to vegetation clearing and earthworks that will be undertaken within and in the catchments of the watercourses.
- Spread of invasive alien plants into the watercourses as a result of disturbance during construction.
- Direct loss of watercourse habitat due to excavation and installation of pipelines which could be a result of water contamination, siltation or the spread of IAPs.

Linear features such as pipelines tend to have spatially limited impacts during the operational phase unless they interrupt driving processes that shape watercourse structure and function. The impacts of linear features are generally limited to the construction phase, and the main impact associated with the operational phase is if the infrastructure fails. These can include:

- #### 19.2.6. DFFE Screening Report Sensitivity Results and Verification (Aquatic Biodiversity Theme)

During the site verification, multiple wetland areas were identified, all of which are hydrologically connected to parts of the proposed development. The nearby Gcuwa, Mtwaku Ngculu, Ngqamakhwe and Tsomo Rivers play an important ecological role in the area. Because of the close proximity and ecological importance of these water features, a detailed aquatic biodiversity specialist study is required. This assessment, guided by the National Environmental Management Act (Act No. 107 of 1998), as amended in 2020 (GNR 320), will help determine the current ecological condition of the wetlands and rivers, and guide appropriate mitigation measures to ensure the natural systems are protected during and after construction.



19.3. Archaeological and Cultural Heritage

A Phase 1 Archaeological and Cultural Impact Assessment (AIA) was conducted by Ms Karen van Ryneveld, an Independent Archaeologist, in late 2017/early 2018.

A letter of recommendation (LoR) for the exemption from a Phase 1 Archaeological and Cultural Heritage Impact Assessment (AIA) for the Ngqamakhwe Regional Water Supply Scheme – Phase 3, Ngqamakhwe, Amathole District Municipality, Eastern Cape, was issued by van Ryneveld to the Eastern Cape Provincial Heritage Resources Authority (ECPHRA). This was to motivate the archaeological and cultural heritage compliance for the 2024 proposed Phase 3 Ngqamakhwe regional WSS project.

ECPHRA accepted the LoR and the 2017/2018 Phase 1 Archaeological and Cultural Heritage Impact Assessment, subject to the condition that any newly identified heritage resources must be immediately cordoned off in accordance with the recommendations.

In terms of methodology, the Phase 1 AIA included a basic pre-feasibility study and field assessment, comprising of the following:

- The pre-feasibility assessment is based on the Appendix A schematic outline of South Africa's Pre-colonial and Colonial past, associated with introductory archaeological as well as general and scientific literature available and relevant to the study site. Databases consulted include the SAHRA 2009 Mapping Project Database (MPD), the South African Heritage Resources Information System (SAHRIS) and SAHRA database(s) on declared Provincial Heritage Sites (PHS) pertaining to the study site. The study excludes consultation of museum and university databases (Van Ryneveld, 2018).
- The field assessment was done over a 1 day period with fieldwork conducted by Van Ryneveld. The assessment was done by vehicle and foot and limited to a Phase 1 surface survey. GPS co-ordinates were taken with a Garmin Montana 680 (Datum: WGS84). Photographic documentation was done with a Canon EOS 1300D camera. A combination of Garmap (Base Camp) and Google Earth software was used in the display of spatial information (Van Ryneveld, 2018).

Eight (8) archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the Ngqamakhwe Regional Water Supply Scheme – Phase 3, Ngqamakhwe, ADM, Eastern Cape development study site, six (6) of which constitute Later Iron Age sites and two (2) classed as Colonial Period sites. In addition to these eight heritage resources, Van Ryneveld (2018) identified a number of culturally sensitive or heritage site types not directly impacted by the proposed project.

These included the following:

- Graves are often found fenced within homestead yards. Only graves situated immediately adjacent to the line route are recorded in this report, but caution should be taken when working in an area where family graves / cemeteries are situated in nearby homestead yards.
- Patches of aloe are typically found on the landscape. These do represent cultural sensitive areas in that aloe often overgrow old stone walled livestock enclosures. No impact on such features are envisioned and the developer should avoid impact.
- Deserted homesteads and homestead ruins are found scattered across the greater study site. These seem to in general be younger than 60 years of age and thus not formally protected by the NHRA 1999. Any impact on abandoned homesteads or homestead ruins should be avoided.
- Homesteads and homestead ruins are often associated with stone walled livestock enclosures. Again, impact on these should be avoided. Such sites have also in cases been interpreted as living heritage sites.
- Stone walled demarcations across the greater study site are not restricted to animal husbandry practices and stone outlines demarcating agricultural fields are visible in places.

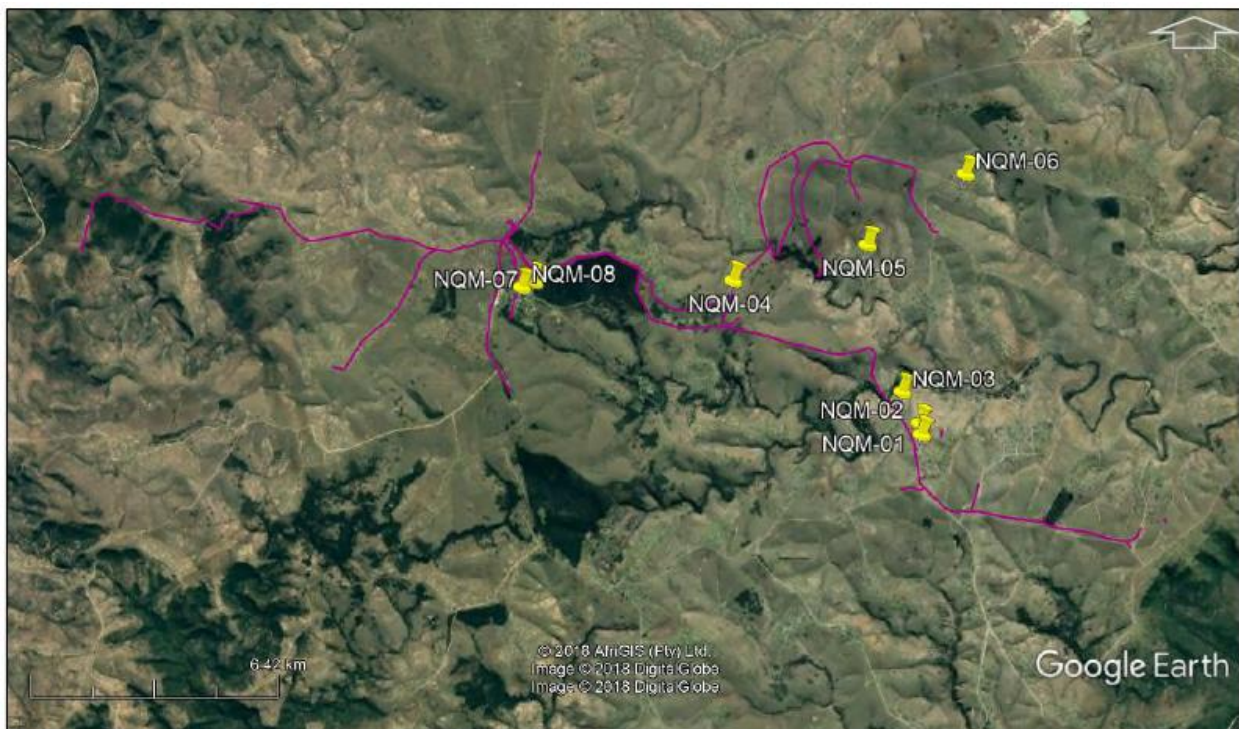


Figure 22: Phase 1 AIA field assessment results for the Ngqamakhwe Regional Water Supply Scheme – Phase 3, Ngqamakhwe, ADM, Eastern Cape, study site (Van Ryneveld, 2018).

| SAHRA Archaeological & Cultural Heritage Site Significance System | | | |
|---|-------------------------|-------------|--|
| Site Significance | Field Rating | Grade | Recommended Mitigation |
| High Significance | National Significance | Grade I | Heritage site conservation / Heritage site development |
| High Significance | Provincial Significance | Grade II | Heritage site conservation / Heritage site development |
| High Significance | Local Significance | Grade III-A | Heritage site conservation or extensive mitigation prior to development / destruction |
| High Significance | Local Significance | Grade III-B | Heritage site conservation or extensive mitigation prior to development / destruction |
| High / Medium Significance | Generally Protected A | Grade IV-A | Heritage site conservation or mitigation prior to development / destruction |
| Medium Significance | Generally Protected B | Grade IV-B | Heritage site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction |
| Low Significance | Generally Protected C | Grade IV-C | On-site sampling, monitoring or no heritage mitigation required prior to or during development / destruction |

Figure 23: SAHRA archaeological and cultural heritage site significance assessment ratings and associated mitigation recommendations (Van Ryneveld, 2018).

From Van Ryneveld's (2018) report, the following findings were noted:

- The proposed development poses no 'fatal flaws' with reference to archaeological and cultural heritage resources.
- From an archaeological and cultural heritage point of view consideration of a 'No-Go' option is irrelevant.
- Archaeological and cultural heritage mitigation recommendations as per the Heritage Compliance Summary should be implemented during the construction phase.
- The development will have no cumulative impact on archaeological or cultural heritage resources.
- In the event of any incidental archaeological and cultural heritage resources, as defined and protected by the NHRA 1991, being identified during the course of development the process described in 'Appendix B: Heritage Protocol for Incidental Finds during the Construction Phase' should be followed. The developer is advised to ensure a sufficient heritage contingency budget to address incidental finds during the course of development.

Refer to the figure below for the Heritage Compliance Summary

| Heritage Compliance Summary – Ngqamakhwe Regional Water Supply Scheme – Phase 3, Ngqamakhwe, Amathole District Municipality, Eastern Cape | | | | |
|--|----------------------------------|----------------------------|--|-----------------------------|
| Map Code | Site | Co-ordinates | Site Significance | Recommendations |
| Ngqamakhwe Regional Water Supply Scheme – Phase 3 | | | | |
| NQM-01 | Later Iron Age – Graves | S32°14'23.6"; E28°02'59.9" | High / Medium Significance Generally Protected IV-A | Temporary fence and signage |
| NQM-02 | Later Iron Age - Cemetery | S32°14'14.1"; E28°02'58.4" | High / Medium Significance Generally Protected IV-A | Temporary signage |
| NQM-03 | Later Iron Age – Homestead Ruins | S32°13'47.8"; E28°02'42.4" | Low Significance Generally Protected IV-C | Temporary fence and signage |
| NQM-04 | Later Iron Age - Cemetery | S32°12'11.2"; E27°59'59.4" | High / Medium Significance Generally Protected IV-A | Temporary signage |
| NQM-05 | Later Iron Age – Graves | S32°11'45.0"; E28°02'11.9" | High / Medium Significance Generally Protected IV-A | Temporary fence and signage |
| NQM-06 | Later Iron Age - Graves | S32°10'49.2"; E28°03'49.6" | High / Medium Significance Generally Protected IV-A | Temporary signage |
| NQM-07 | Colonial Period – Residences | S32°12'06.9"; E27°56'45.5" | Low Significance Generally Protected IV-C | N/A |
| NQM-08 | Colonial Period - Building | S32°12'11.4"; E27°56'33.0" | Medium Significance Generally Protected IV-B | N/A |

Figure 24: Heritage Compliance Summary (Van Ryneveld, 2018).

Should any palaeontological, archaeological or cultural heritage resources, including human remains / graves, as defined and protected by the NHRA 1999, be identified during the construction phase of development (including as a norm during vegetation clearing, surface scraping, trenching and excavation phases), Van Ryneveld (2018) has recommended that the Heritage Protocol for Incidental Finds during the construction phase be followed, as contained within the report.

19.3.1. DFFE Screening Report Sensitivity Results and Verification (Archaeological and Cultural Heritage Theme)

According to the National Screening Tool's Archaeological and Cultural Heritage theme, the study site is classified as having a **Very High sensitivity** due to the project footprint occurring within 100m of an Ungraded Heritage Site and within 150m of a Grade IIIa, IIIb, and IIIc Heritage Site.

Given the findings and the results from Van Ryneveld's (2018) Archaeological and Cultural Impact Assessment, it is believed that the very high sensitivity rating of the screening tool is accurate.

19.4. Palaeontology

A Palaeontological Impact Assessment Report was compiled by Dr Barry Milstead in November 2025. The most effective methodology in both areas for determining the fossiliferous potential of the project area was determined to be to traverse available roads by vehicle to locate accessible rock exposures (e.g., road cutting and borrow pits, etc). Special attention was placed on the examination of any bedrock outcrops that may be present within the project area by foot. These outcrops were investigated to determine their lithology and fossil content. The entire extent of the project area was not directly observed (due to time and financial budget constraints. The path of the traverses was recorded as a trackway on a hand-held GPS. Photographs were taken, and observations were taken at several locations. The location of the photographs and observation points was recorded using a hand-held GPS. A summary of the findings from the report titled "**Full Palaeontological Heritage Impact Assessment Report on the Sites of the Proposed Implementation of the Ngqamakhwe Regional Water Supply Scheme Phase 3. Phase 3 will include the Distribution of Water to the Ngqamakhwe Town Centre and 29 Villages in Wards 13, 16, 18 and 20 of the Mnquma Local Municipality Area in the Eastern Cape Province**" is provided below.

The Palaeontological Impact Assessment (PIA) evaluated the potential impacts on fossil resources associated with the proposed implementation of the Ngqamakhwe Regional Water Supply Scheme Phase 3. The assessment forms part of the Heritage Impact Assessment under Section 38 (2a) of the National Heritage Resources Act (Act 25 of 1999) and aims to ensure compliance with relevant heritage regulations.

The region surrounding the project area is entirely underlain by rocks of the Permian Adelaide and Triassic Tarkastad Subgroups, Karoo Supergroup. Examination of the 1:250,000 Geological Sheet 3226 King William's Town (Geological Survey of South Africa, 1976) indicates that the bedrocks underlying the project infrastructure are indeed the Balfour Formation of the Adelaide Subgroup and the Katberg formation of the Tarkastad Subgroup. It is also evident that extensive areas of the project and its environs are underlain by intrusive rocks of the Karoo Dolerite Suite.

In terms of palaeontological potential, the available 1:250,000 geological sheet covering the study area does not differentiate the Balfour Formation into separate members. It is evident that the *Lystrosaurus declivis* Assemblage Zone extends westwards from immediately west of Umthatha. It is accordingly accepted herein that the Balfour Formation rocks underlying the project area fall within the *Lystrosaurus declivis* Assemblage Zone.

The volume of bedrock that will be disturbed by the construction of the water reticulation system will be large, when the entire extent of the project's surface area is considered. Although the cross section of each excavation will be small (e.g. wide enough to bury pipes to a maximum of 2 m deep), the cumulative volume of rock to be excavated means that it is probable that fossil materials will be negatively impacted. Added to this scenario is that the palaeontology of the Eastern Cape is poorly understood compared to other parts of South Africa. As such, any fossils located would potentially add significantly to the understanding of the faunas in this biozone. Accordingly, it is proposed, herein, that damage mitigation and fossil-find protocols need to be put in place to safeguard the palaeontological heritage of the region.

The following mitigation protocols are recommended by the specialist:

- Excavations made as part of the implementation of this project, as well as any areas cleared (e.g., the footprint of storage tanks) should be examined by a suitably experienced Karoo palaeontologist to ascertain if fossils are present.
- However, the project has a large aerial extent, and it is expected that the installation of the infrastructure elements will occur over a protracted period of time.
- Thus, it would not be financially viable to have a palaeontologist permanently based on site for the duration. Nor would it be financially viable to have frequent visits made, as this would be prohibitively expensive and would only provide selected "snapshots" of the palaeontological potential of the excavations (as they will be infilled as soon as the pipelines are laid).
- Before commencement of the project one person in the staff (e.g., site foreman, or Environmental Control Officer [ECO]) must be identified and appointed as responsible for the implementation of the damage mitigation protocol outlined herein. In instances of accidental fossil discovery this must be reported to the ECO or site manager. If the ECO or site manager is not present on site, then the responsible person on site should follow the protocol correctly in order to not jeopardize the conservation and well-being of the fossil material. It must be accepted, however, that damage or destruction may occur to fossils as they will be uncovered by industrial machinery.
- Workmen and foremen need to be trained by the appointed palaeontologist in the procedure to follow in instances of accidental discovery of fossil material. Training via a video conference is suggested as a cost-effective methodology. A brief introduction to the process to follow in the event of possible accidental discovery of fossils should be conducted to the staff by the designated Environmental Control Officer, or the foreman or site agent in the absence of the ECO. This will allow all staff to be prepared in the event that accidental discovery of fossil material takes place.
- Once a workman notices possible fossil material, he/she should report this to the ECO or site agent.
- Should staff identify fossil materials work in that area should be immediately suspended, and the appointed palaeontologist immediately informed by the appointed company agent. Photographs of the fossil material (and, if possible, GPS coordinates) should also be transmitted to the palaeontologist.
- In addition to the above suggested training process of staff, a work plan must be negotiated between the contractors performing the infrastructure installation, the Amathole District Municipality (as the water services provider), and the appointed palaeontologist to determine (based on the schedule of the project) the appropriate number and duration of site visits to ascertain if there are fossils in the excavations/cleared areas/or waste rock piles from the excavations.
- Should scientifically or culturally significant fossil material exist within the project area any negative impact upon it could be mitigated by its excavation (under permit from SAHRA) by a palaeontologist and the resultant material being lodged with an appropriately permitted institution. In the event that an excavation of the fossil material is

either impossible or inappropriate the fossil or fossil locality could be protected and the site of any planned construction moved.

As the project infrastructure required for this project will be constructed upon potentially fossiliferous strata that are characterised as high sensitivity (red) within the SAHRA Palaeo-Sensitivity map a Full Palaeontological investigation of the rocks was conducted. No fossil material was located, however, given the potentially fossiliferous nature of the bedrock strata and the extensive nature of the project's footprint, it is considered possible that scientifically significant fossils of the *Lystrosaurus declivis* Assemblage Zone will be encountered and negatively impacted upon. Any negative impacts will be of unsure probability, and localised extent. Damage to fossils will be irreparable and potentially impacting upon fossils of a highly scientifically significant fauna and flora.

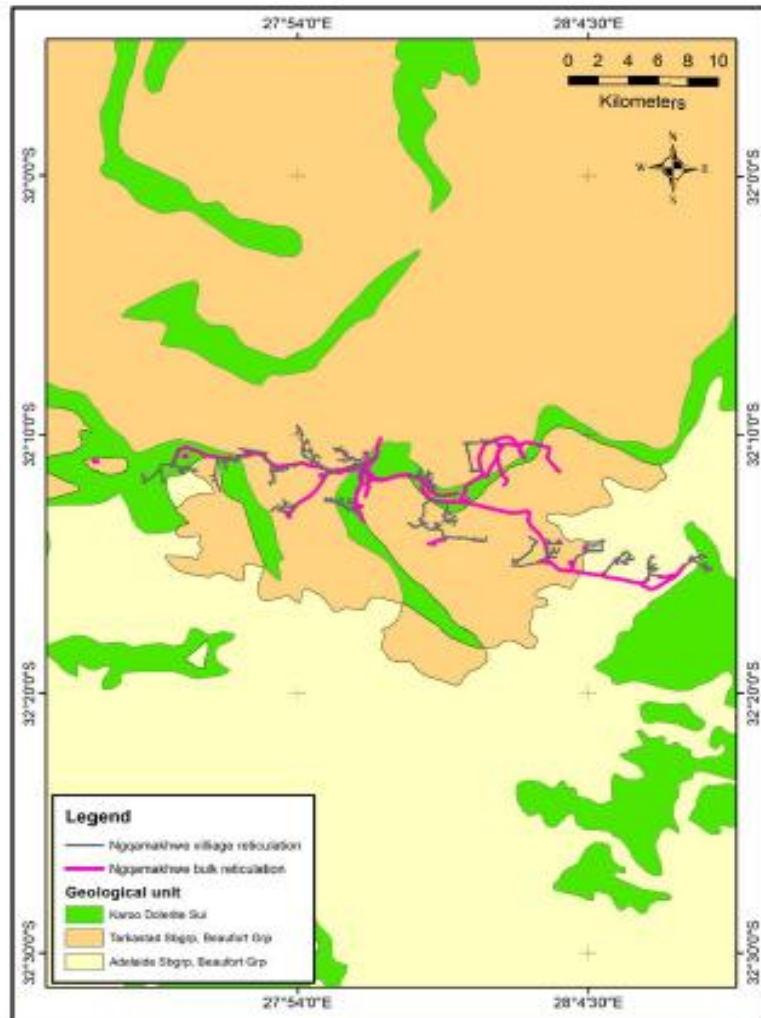


Figure 25: Geological map of the bedrock geology underlying the project area and its environs. (Milstead, 2025)

19.4.1. DFFE Screening Report Sensitivity Results and Verification (Palaeontology)

According to the National Screening Tool's Palaeontology theme, the study site is classified as having a Very High sensitivity.

Given the findings and the results from Millstead's (2025) Palaeontological Heritage Impact Assessment, it is believed that the very high sensitivity rating of the screening tool is accurate.

20. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including

Archaeological or paleontological sites, on or close (within 20m) to the site?

| | |
|--|-----|
| | NO✓ |
|--|-----|

| |
|-----|
| NO✓ |
|-----|

If YES, explain:

N/A

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:

Refer to Appendix D for the specialist input provided by Dr Barry Milstead (Palaeontological Impact Assessment) and Karen Van Ryneveld (Archaeological and Cultural Impact Assessment).

Palaeontological Impact Assessment:

No fossil material was located, however, given the potentially fossiliferous nature of the bedrock strata and the extensive nature of the project's footprint, it is considered possible that scientifically significant fossils of the *Lystrosaurus declivis* Assemblage Zone will be encountered and negatively impacted upon. Any negative impacts will be of unsure probability, and localised extent. Damage to fossils will be irreparable, and potentially impacting upon fossils of a highly scientifically significant fauna and flora.

A series of damage mitigation protocols have been provided and must be inserted into the EMP. If these are implemented the risk of significant damage to the fossil heritage of the area will be significantly reduced.

Archaeological and Cultural Impact Assessment:

The following archaeological and cultural heritage resources and sites were recorded during the assessment:

| Heritage Compliance Summary | | | | |
|---|---|--|--|-----------------------------|
| Ngqamakhwe Regional Water Supply Scheme – Phase 3, Amathole District Municipality, Eastern Cape | | | | |
| Site nr | Site | Co-ordinates | Site significance | Recommendations |
| NQM-01 | Later Iron Age (LIA): Graves | S32°14'23.6"; E28°02'59.9" | High/medium significance Generally Protected IV-A | Temporary fence and signage |
| NQM-02 | Later Iron Age (LIA): Cemetery | S32°14'14.1"; E28°02'58.4" | High/medium significance Generally Protected IV-A | Temporary signage |
| NQM-03 | Later Iron Age (LIA): Homestead ruins | S32°13'47.8"; E28°02'42.4" | Low significance Generally Protected IV-C | Temporary fence and signage |
| NQM-04 | Later Iron Age (LIA): Cemetery | S32°12'11.2"; E27°59'59.4" | High/medium significance Generally Protected IV-A | Temporary signage |
| NQM-05 | Later Iron Age (LIA): Graves | S32°11'45.0"; E28°02'11.9" | High/medium significance Generally Protected IV-A | Temporary fence and signage |
| NQM-06 | Later Iron Age (LIA): Graves | S32°10'49.2"; E28°03'49.6" | High/medium significance Generally Protected IV-A | Temporary signage |
| NQM-07 | Colonial/Historical Period (CP): Residences | S32°12'06.9"; E27°56'45.5" | Low significance Generally Protected IV-C | N/A |
| NQM-08 | Colonial/Historical Period (CP): Building | S32°12'11.4"; E27°56'33.0" | Medium Significance Generally Protected IV-B | N/A |
| Heritage resources/sites annotations | | | | |
| NQM-01 | LIA: Graves | Three (3) modern style graves (well conserved but not fenced). | | |
| NQM-02 | LIA: Cemetery | Approximately 20 graves, mainly modern style but including traditional earth mound graves (formally fenced). | | |
| NQM-03 | LIA: Homestead ruins | Extensive homestead ruins including mainly modern style/contemporary structures but also some old structures/structure ruins— <i>daga</i> and pole hut remains—that are older than 60 years of age (not fenced). | | |
| NQM-04 | LIA: Cemetery | Cemetery: approximately 30 graves, mainly modern style graves but including traditional stone cairn graves (formally fenced). | | |
| NQM-05 | LIA: Graves | Three (3) modern style graves (two graves are individually fenced, the third is unfenced). | | |
| NQM-06 | LIA: Cemetery | Small cemetery of four (4) modern style graves (formally fenced) | | |
| NQM-07 | CP: Residences | Three (3) CP residences situated along the main road to Ngqamakhwe town (formally conserved and in current use). | | |
| NQM-08 | CP: Building | Old government building (formally conserved and in current use). | | |

- The Colonial/Historical Period sites, Sites NQM-07 and NQM-08, comprise structure sites. All Colonial Period structures are still in use with basic permanent conservation measures (fences) in place. All structure sites are situated 500m+ from any proposed development aspects
- The Site NQM-03 LIA homestead is of recent/contemporary age, although aspects of the site are older signalling time-depth that may be of significance with reference to earlier settlement of the general Ngqamakhwe region. The general Ngqamakhwe region is of the more recently

settled areas of the old Transkei (by current peoples of the region), dating mainly to the initial arrival (1818) and subsequent government resettlement of the amaMfengu to the region after the 1865 establishment of the Transkeian Territories. Ngqamakhwe was founded in 1876 with its establishment directly vested in the founding of the Blythwood Mission and College. Site NQM-03 is situated in fair proximity from the development aspects that would need to be monitored during construction.

- The majority of identified sites are recent/contemporary LIA grave and cemetery sites. Sites NQM-02, NQM-04 and NQM-06 were already formally fenced at the time of the 2018 AIA. Temporary fencing/conservation recommendations were made for Sites NQM-01 and NQM-05. Sites NQM-05 and NQM-06 are situated 500+m from any proposed development aspects but Sites NQM-01, NQM-02 and NQM-04 are in direct to near/fair proximity from the proposed development aspects.

Will any building or structure older than 60 years be affected in any way?

NO ✓

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO ✓

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

Following the submission of the Notification of Intention to Develop (NID) to the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) including the various heritage and palaeontology reports, ECPHRA issued their formal feedback dated 29 January 2026. The feedback was as follows:

“There are no objections to the proposed development, provided that specialists’ recommendations, including those by ECPHRA, are adhered to. ECPHRA acknowledges and accepts the LoR & AIA report (van Ryneveld, November 2024 & 2018 respectively), subject to the condition that any newly identified heritage resources must be immediately cordoned off in accordance with the recommendations.

However, the committee noted with concern the limited community input on living heritage. Future studies must place greater emphasis on oral histories and living heritage, and during the Public Participation Process, information relating to the cultural landscape must be actively obtained from surrounding communities.

The PIA report (Millstead, BD. November 2025) is also acknowledged and acceptable, provided that the stated conditions are incorporated into the Environmental Authorisation (EA).”

The SAHRIS Case ID is 26884.

SECTION C: PUBLIC PARTICIPATION

21. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

Refer to Appendix G.

22. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
 - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
 - (iii) the nature and location of the activity to which the application relates;
 - (iv) where further information on the application or activity can be obtained; and
 - (iv) the manner in which and the person to whom representations in respect of the application may be made.

Refer to Appendix G.

23. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

Refer to Appendix G.

24. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

25. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

Refer to Appendix E.

26. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

- | |
|---|
| <ol style="list-style-type: none">1. Department of Economic Development, Environmental Affairs and Tourism – Amathole Region2. Department of Water and Sanitation3. South African Civil Aviation Authority4. Department of Defence5. Eastern Cape Provincial Heritage Authority6. Amathole District Municipality7. Mquma Local Municipality |
|---|

List of authorities from whom comments have been received:

- | |
|--|
| <ol style="list-style-type: none">1. Department of Economic Development, Environmental Affairs and Tourism – Amathole Region2. Eastern Cape Provincial Heritage Authority3. Mquma Local Municipality |
|--|

27. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that subregulation to the extent and in the manner as may be agreed to by the competent authority.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES✓

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

Engagement with the community and the Ward Councillors was undertaken in 2018 and 2025, by Mr Vusi Klaas, specialist Community Liaison Officer at Indwe Environmental Consulting.

During the 2018 engagement, the following is a summary of the key issues that came out of the meetings:

- People need jobs and construction will assist with this
- The Contractor must have designated areas to stockpile rocks and soil during construction
- Ward councillors do not take proper care of the project area during construction
- Environmentalist must enforce penalties for transgressions
- People are competing with animals for scarce water resources
- Drinking of water is not safe
- Liaison with community members during construction is needed
- What employment will be available to local community members
- Taps in the area are standing dry
- Communities are forced to back to nearby streams to collect water
- Community is using water supplied by the nearby hospital
- The project must be fast tracked as much as possible
- Water supply is non existent
- Theft of solar panels and generators supporting current water supply
- Long distances are travelled to collect water

During the 2025 engagement, the following is a summary of the key issues that came out of the meetings:

- High unemployment rate in the surrounding community and therefore there is a need to employ and train local residents during the construction period
- Liaison with community members during construction is needed
- Community is using water supplied by the nearby hospital
- Clean drinking water must be made a priority
- The project is supported
- The project must be fast tracked as much as possible
- Long distances are travelled to collect water

Refer to Appendix G for copies of all the responses and registers.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 as amended, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

28. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Lack of clean water supply

Theft of provisional water supply equipment

Domestic animals sharing water resources with people

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

Response (any) to Issue's raised during initial public participation period

N/A

29. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed.

Alternative (preferred alternative)

Direct impacts:

Due to impacts being a combination of Direct, Indirect and Cumulative Please see Table 41 below

Indirect impacts:

Due to impacts being a combination of Direct, Indirect and Cumulative Please see Table 41 below

Cumulative impacts:

Due to impacts being a combination of Direct, Indirect and Cumulative Please see Table 41 below

Table 14: List of potential impacts for the preferred alternative of the proposed development

*Proposed Ngqamakhwe Ph 3 Water Supply Scheme, Amathole District, Eastern Cape – Draft Basic Assessment Report
Indwe Environmental Consulting ©*

| |
|---|
| Alternative (preferred alternative) |
| Potential Impacts that are likely to occur in PLANNING & DESIGN PHASE |
| Legislation and Policy Compliance (Direct & Indirect): Failure to comply with applicable legislation and policy frameworks during the planning and design phase may result in legal non-compliance, fines, and project delays or failure. It may also lead to conflict with national, provincial and local planning instruments and result in unintended environmental impacts. |
| Potential Impacts that are likely to occur in CONSTRUCTION PHASE |
| Legislation and Policy Compliance (Direct & Indirect): Non-compliance with legislative and policy requirements during construction may result in legal penalties, environmental damage, and project delays. |
| Loss of Vegetation and Species of Conservation Concern (Direct): Vegetation clearing will result in temporary loss of natural vegetation and may impact species of conservation concern if not properly managed. |
| Loss of Faunal Habitat and Species (Direct): Construction activities may lead to habitat destruction and potential harm or displacement of fauna. |
| Disruption of Ecological Processes (Direct): Vegetation clearing and habitat fragmentation may reduce biodiversity and disrupt ecosystem functioning. |
| Spread of Invasive Alien Plants (Direct): Disturbance of soils and vegetation during construction increases the risk of invasion and spread of alien plant species. |
| Water Contamination (Direct): Construction activities, including machinery operation and washing, may contaminate nearby watercourses. |
| Siltation and Sedimentation of Watercourses (Direct): Earthworks and vegetation clearing may increase sediment loads in watercourses. |
| Loss of Watercourse Habitat (Direct): Excavation and pipeline installation may result in direct loss or disturbance of aquatic habitats. |
| Archaeological and Cultural Heritage Impacts (Direct): Construction may damage or destroy heritage resources if encountered. |
| Palaeontological Impacts (Direct): Excavation activities may impact fossil-bearing geological material. |
| Employment Opportunities (Positive Impact): Construction activities will generate temporary employment opportunities for local communities. |
| Provision of Basic Services (Positive Impact): The project will contribute to improved access to water supply for affected communities. |
| Climate Change – Greenhouse Gas Emissions (Direct): Construction vehicles and machinery will contribute to increased greenhouse gas emissions. |
| Solid Waste Generation (Direct): Construction activities will generate waste which may impact the environment if not properly managed. |
| Potential Impacts that are likely to occur in OPERATIONAL PHASE |
| Spread of Alien Invasive Species (Direct): Disturbed areas from construction may remain susceptible to invasion by alien and invasive plant species, potentially affecting biodiversity and ecosystem functioning. |

| |
|---|
| <p>Soil Erosion (Direct): Previously disturbed areas may remain vulnerable to erosion due to loss of vegetation cover and altered soil structure.</p> |
| <p>Flow Modification (Direct & Indirect): Changes in runoff patterns, increased surface hardening, and altered hydrology may result in increased flow volumes, velocities and flood peaks in downstream watercourses.</p> |
| <p>Provision of Basic Services (Positive Impact): The operational water supply system will provide a reliable and sustainable source of potable water, significantly improving livelihoods and service delivery in the affected communities.</p> |
| <p>Potential Impacts that are likely to occur in DECOMMISSIONING AND CLOSURE PHASE</p> |
| <p>No discernible impacts are envisaged as it is unlikely that any aspect of the project will be decommissioned or closed now.</p> |

Table 15: List of potential impacts for the preferred alternative of the proposed development

| |
|--|
| <p>No-Go Alternative (least preferred alternative)</p> |
| <p>Potential Impacts that are likely to occur SHOULD THERE BE NO DEVELOPMENT</p> |
| <p>Non-Provision of Basic Services (Direct): Failure to implement the project will result in continued lack of access to reliable potable water for affected communities, negatively impacting livelihoods and basic human needs.</p> |

30. CLIMATE CHANGE ASSESSMENT

Climate change issues must be considered as part of the EIA process. EAP must determine:

- a) The potential impact of climate change on society and the economy, whether the impact is negative or positive, considering that society needs to be at the centre of the proposed development;

Climate change may result in extreme weather patterns which could lead to flooding or drought. South Africa is currently facing severe pressure with respect to water security due to an increased water demand with growing populations, poor planning and management of water resources, limited investment into water reservoir infrastructure, and recurring droughts over the past 10 years. Thus, the proposed water supply scheme can assist the Ngqamakhwe villages to cope with potential droughts caused by climate change.

See Appendix G7

- b) The potential alternatives of the proposed development, alternatives that will have less impact on climate change (environment and generation of waste included), the society and economy;

The no-go alternative is the only alternative that has been considered. This alternative would involve not constructing the water supply scheme for the Ngqamakhwe area. The impact on climate change would be slightly less as there would be no GHGs emitted by vehicles and machinery during the construction phase of the proposed development.

- c) whether, and to what extent, the proposed development will result in the release of greenhouse gas (GHG) emissions;

During the construction phase, the increase in construction vehicle traffic and the use of diesel/petrol operated construction equipment will increase the GHG emissions generated as a result of construction activities (e.g. carbon dioxide, carbon monoxide, etc.). These GHGs will cumulatively contribute to the global GHG emission sources. GHG emissions will not directly be produced in the operational phase from the water supply scheme.

- d) whether the proposed development is necessary to achieve long term decarbonisation goals;

This project will not contribute to achieving long term decarbonisation goals.

- e) the impact of the development on social, economic, natural and built environment that are crucial for climate change, adaptation and resilience;

Climate change may result in extreme weather patterns which could lead to flooding or drought. South Africa is currently facing severe pressure with respect to water security due to an increased water demand with growing populations, poor planning and management of water resources, limited investment into water reservoir infrastructure, and recurring droughts over the past 10 years. Thus, the proposed water supply scheme can assist the Ngqamakhwe residents to cope with potential droughts caused by climate change.

- f) the projected impact of climate change on proposed development; and surrounding environment, and implications for the development.

Climate change may result in extreme weather patterns which could lead to flooding or drought. South Africa is currently facing severe pressure with respect to water security due to an increased water demand with growing populations, poor planning and management of water resources, limited investment into water reservoir infrastructure, and recurring droughts over the past 10 years. Thus, the proposed water supply scheme can assist the Ngqamakhwe residents to cope with potential droughts caused by climate change.

- g) Explanation of how the impacts is likely to be exacerbated or minimised as result of climate change and what measures are likely to be implemented to accommodate and manage (adapt to) the anticipated worst scenario where applicable

Climate change may result in extreme weather patterns which could lead to flooding or drought. South Africa is currently facing severe pressure with respect to water security due to an increased water demand with growing populations, poor planning and management of water resources, limited investment into water reservoir infrastructure, and recurring droughts over the past 10 years. Thus, the proposed water supply scheme can assist the Ngqamakhwe residents to cope with potential droughts caused by climate change.

During the operational period, Chris Hani District municipality must inspect the integrity of the water supply scheme on a regular basis to ensure no failures occur that could potentially impact the surrounding terrestrial and aquatic environment.

- h) whether, and to what extent, the impacts identified in (a) –(g) can be mitigated.

If the water supply scheme is continuously monitored and maintained, the infrastructure will be sound to handle climate change impacts.

31. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Preferred Alternative & No-Go

Table 16: Pre and Post Impact Significance

| Aspect | Impact | Phase | Significance (Pre-Mitigation) | Status | Significance (Post-Mitigation) | Status |
|---------------------------------|----------------|-------------------------|-------------------------------|--------|--------------------------------|--------|
| Legislation & Policy | Non-compliance | Planning & Construction | Low | (-) | Very Low | (-) |

| | | | | | | |
|-------------------------------------|---|--------------|---------------|-----|---------------|-----|
| Terrestrial Biodiversity | Loss of vegetation (SCC) | Construction | Low | (-) | Very Low | (-) |
| | Loss of faunal habitat | Construction | Low | (-) | Very Low | (-) |
| | Ecological processes | Construction | Low | (-) | Very Low | (-) |
| | Alien invasive species | Construction | Medium | (-) | Low | (-) |
| Aquatic Ecology | Water contamination | Construction | Low | (-) | Very Low | (-) |
| | Siltation & sedimentation | Construction | Medium | (-) | Low | (-) |
| | Invasive aquatic plants | Construction | Medium | (-) | Low | (-) |
| | Habitat loss | Construction | Medium | (-) | Low | (-) |
| Heritage & Palaeontology | Archaeological sites (high sensitivity) | Construction | Low (+) | (+) | N/A | N/A |
| | Archaeological sites (low sensitivity) | Construction | Low (+) | (+) | N/A | N/A |
| | Palaeontological impacts | Construction | Medium | (-) | Low | (-) |
| Socio-Economic | Employment opportunities | Construction | Medium (+) | (+) | N/A | N/A |
| Climate Change | GHG emissions | Construction | Medium | (-) | Low | (-) |
| Waste Management | Solid waste | Construction | Low | (-) | Very Low | (-) |
| Terrestrial Biodiversity | Alien invasive species | Operation | Medium | (-) | Low | (-) |
| | Soil erosion | Operation | Low | (-) | Very Low | (-) |
| Aquatic Ecology | Flow modification | Operation | Low | (-) | Very Low | (-) |
| Socio-Economic | Water supply provision | Operation | Very High (+) | (+) | Very High (+) | (+) |
| No-Go Alternative | Lack of basic services | No-Go | Very High | (-) | N/A | N/A |

The assessment of potential environmental impacts associated with the proposed development indicates that the majority of identified impacts are of **low to medium significance prior to mitigation**. These impacts are primarily associated with the **construction phase** and include disturbances to **terrestrial biodiversity, aquatic systems, soil**, and potential increases in **greenhouse gas emissions**.

With the implementation of the recommended mitigation measures, as detailed in the Environmental Management Programme (EMPr), the significance of most negative impacts is reduced to **Low or Very Low levels**. Key mitigation measures include restricting construction activities to defined footprints, implementing erosion and sediment control measures, managing alien invasive species, ensuring proper handling and storage of hazardous substances, and maintaining compliance with applicable environmental legislation.

Impacts on **terrestrial biodiversity**, including vegetation clearance and faunal disturbance, are assessed as Low prior to mitigation and reduced to Very Low following mitigation. Similarly, impacts on **aquatic ecology**, such as sedimentation, contamination, and habitat disturbance, are reduced from Medium to Low significance with the application of appropriate control measures.

The **palaeontological impact**, while initially assessed as Medium due to the potential disturbance of fossil-bearing strata, can be reduced to Low significance through the implementation of chance-find protocols and monitoring.

Positive impacts have also been identified. The project will result in **medium positive socio-economic benefits during construction** through temporary employment opportunities. Most notably, during the operational phase, the project will provide a **very high positive** impact by improving access to reliable water supply, thereby significantly enhancing community well-being and service delivery.

In contrast, the **No-Go Alternative** would result in a **Very High negative socio-economic impact**, as communities would continue to lack access to essential water services.

No impacts of **high or very high negative significance remain after mitigation**, and no fatal flaws have been identified that would preclude the development from proceeding.

32. SUMMARY OF SPECIALIST RECOMMENDATIONS

1. AQUATIC BIODIVERSITY

Watercourse Protection

- All watercourses must be **clearly delineated and demarcated prior to construction**.
- A **minimum buffer zone (as determined in the study)** must be maintained and no-go areas enforced.

Construction Controls

- All pipeline crossings must be:
 - Installed **perpendicular to flow direction**
 - Completed **in the shortest possible time**
- No stockpiling, refuelling, or vehicle maintenance within **32 m of watercourses**.
- Construction footprint within freshwater ecosystems must be **minimised (±12 m working width)**.

Erosion & Sediment Control

- Implement:
 - Silt fences, sediment traps, berms
 - Stabilisation measures (gabions, Reno mattresses where required)
- Disturbed areas must be **rehabilitated immediately after construction**

Pollution Prevention

- All hazardous substances must be:
 - Stored in **bunded areas**
 - Managed under a **spill response plan**
- No discharge of contaminants into watercourses

Rehabilitation & Monitoring

- All impacted watercourses must be:
 - **Rehabilitated to pre-construction condition**
 - **Monitored post-construction**
- Indigenous vegetation must be re-established

Operational Phase

- Implement:
 - **Leak detection systems**
 - Ongoing maintenance of infrastructure
- Monitor cumulative impacts on hydrology

2. TERRESTRIAL BIODIVERSITY

Vegetation Clearing

- Clearing must be:
 - Restricted strictly to the **approved footprint**

- Avoid all **moderate sensitivity areas where possible**
- No unnecessary disturbance outside demarcated areas

Species Protection

- Permits must be obtained for:
 - **Protected plant species**
- A **search-and-rescue / relocation plan** must be implemented where required

Faunal Protection

- No killing, trapping, or disturbance of fauna
- Daily inspections for fauna in trenches/excavations
- ECO must oversee relocation of species

Alien Invasive Species Management

- Implement an **Alien Invasive Management Plan** including:
 - Removal during construction and operation
 - Ongoing monitoring
- Disturbed areas must be stabilised to prevent invasion

Topsoil Management

- Topsoil must be:
 - Stripped and stockpiled separately
 - Replaced during rehabilitation

Rehabilitation

- All disturbed areas must be:
 - Rehabilitated immediately post-construction
 - Re-vegetated with indigenous species or natural regeneration

Monitoring

- Post-construction monitoring (minimum **6 months**) for:
 - Vegetation recovery
 - Alien regrowth

3. PALAEOLOGY

Chance Find Protocol

- A **formal Fossil Chance Find Procedure** must be implemented:
 - Stop work immediately if fossils are encountered
 - Notify a qualified palaeontologist
 - No disturbance until clearance is granted

Training & Awareness

- Construction personnel must be:
 - **Briefed on fossil identification**
 - Aware of reporting procedures

Monitoring

- A palaeontologist must be:
 - **On-call during construction**
 - Available for site inspections if required

Fossil Management

- All fossils recovered must be:
 - Recorded and documented
 - Curated in an approved repository

4. HERITAGE (ARCHAEOLOGY & CULTURAL RESOURCES)

Site Protection

- All identified heritage sites must be:
 - **Clearly demarcated prior to construction**
 - Protected via **temporary fencing and signage**

Avoidance

- Infrastructure must:

- Avoid heritage sites where feasible
- Maintain buffer distances

Chance Find Procedure

- If any unknown heritage resources are discovered:
 - Work must cease immediately
 - ECPHRA must be notified
 - A heritage specialist must assess the find

Access Control

- No construction personnel allowed within protected heritage areas

SECTION E. RECOMMENDATIONS OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

| | |
|------|--|
| YES✓ | |
| YES✓ | |

Is an EMPr attached?

The EMPr must be attached as Appendix F.

If “NO”, indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

N/A

If “YES”, please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

The overall objective of the BA is to provide sufficient information to enable informed decision-making by the authorities. This was undertaken through consideration of the proposed Project components, identification of the aspects and sources of potential impacts and subsequent provision of mitigation measures.

It is the opinion of Indwe Environmental Consulting and the Registered EAP that the information contained in this document (read in conjunction the EMPr) is sufficient for DEDEAT to make an informed decision for the environmental authorisation being applied for in respect of this Project.

Mitigation measures have been developed, where applicable, for the above aspects and are presented within the EMPr (Appendix F). It is imperative that all impact mitigation recommendations contained in the EMPr, of which the environmental impact assessment took cognisance, are legally enforced.

Considering the findings of the respective studies, no fatal flaws were identified for the proposed Project. Should the avoidance and mitigation measures prescribed be implemented, the significance of the considered impacts for all negative aspects pertaining to the environmental aspects is expected to be low. It is thus the opinion of the EAP that the Project can proceed, and that all the prescribed mitigation measures and recommendations are considered by the issuing authority.

The Based on the information provided it is the opinion of Indwe Environmental Consulting that no significant fatal flaws have been identified for the Proposed Ngqamakhwe Phase 3 Water Supply Scheme in the Amathole District, Eastern Cape and that the information contained within this report is sufficient to allow DEDEAT to make an informed decision.

Indwe Environmental Consulting therefore recommends that Environmental Authorisation be granted for the

- All necessary authorisations in the form of an EA, GA/WUL and/or other must be obtained prior to construction should they be required.
- All species requiring PNCO permits are obtained.
- An ECO should be appointed for the duration of the construction period to monitor the compliance with conditions of the authorisation/permits.
- The ECO needs to conduct a pre-commencement survey for PNCO species that will need search and rescue after the relevant permits have been achieved.
- The construction activities must be restricted to the approved actual footprint. Ensure minimal or no disturbance outside of the development footprint area during construction, and all material arising from the development must be prohibited from entering the freshwater habitats and associated buffer zones.
- Stormwater should be managed using suitable structures. Silt and sedimentation should be kept to a minimum, using the above-mentioned structures by also ensuring that all structures do not create any form of erosion.
- Vegetation clearing should occur in parallel with the construction progress to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.
- All construction materials including fuels and oil should be stored in demarcated areas that are contained within berms / bunds to avoid spread of any contamination into the stream adjacent to the site. Washing and cleaning of equipment should also be done in berms or bunds, to trap any cement and prevent excessive soil erosion.
- All alien invasive vegetation must be removed from the site, and an alien invasive management plan must be developed prior to construction to prevent further spread and establishment of problem species into all freshwater and terrestrial ecosystems.

EA AUTHORISATION PERIOD

Appendix 1(3)(1)(q) of the NEMA EIA Regulations 2014, as amended requires “where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised” must be included in the BA Report.

The EA is required for a period of 5 years from the date of issuance of the EA to the end of the construction period (including rehabilitation), when the proposed activities applied for are completed.

CONCLUSION

In summary, the BA process thus far has assessed both biophysical and socio-economic environments and identified appropriate management and mitigation measures. The biophysical impact assessment revealed that there are no moderate or major environmental fatal flaws and no significant negative impacts associated with the proposed Project should mitigation and management measures be implemented.

It is the opinion of Indwe Environmental Consulting that the information contained in this **DRAFT** BAR is sufficient for all stakeholders to issue their comments relating to the Application for EA that is being applied for in respect of this Project.

SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information