



DRAFT BASIC ASSESSMENT REPORT

for AIRPORT WATER PIPELINE

on
RE/464, 113/208, 65/208, 112/208, 44/208,
RE/102/208, 45/208, 96/208, 139/208, 53/208,
132/208, 131/208, 68/208 George, Western Cape
Province

In terms of the
National Environmental Management Act (Act No.
107 of 1998, as amended) & 2014 Environmental
Impact Regulations

Prepared for Applicant:

George Municipality

Date: 15 November 2024



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Report Reference: GEO744b/06
Department Reference: 16/3/3/1/D2/19/0036/24
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Assisted by Candidate EAP: Ms Mariska Byleveld (MSc Geology [University of the Free State]) (Candidate EAPASA Registration Number: **2023/6593**).

PURPOSE OF THIS REPORT:

Departmental Review

APPLICANT:

George Municipality

CAPE EAPRAC REFERENCE NO:

GEO744b/06

SUBMISSION DATE

15 November 2024

DRAFT BASIC ASSESSMENT REPORT

in terms of the

National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended &
Environmental Impact Regulations 2014

AIRPORT WATER PIPELINE

RE/464, 113/208, 65/208, 112/208, 44/208, RE/102/208, 45/208, 96/208, 139/208, 53/208, 132/208,
131/208, 68/208 George, Western Cape Province

Submitted for:

Departmental Compliance

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George 6530

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**Western Cape
Government**

Department of Environmental Affairs and
Development Planning

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

APRIL 2024



BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

APRIL 2024

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

The proposed project entails the **installation of a Municipal water pipeline** along the R102 towards George Airport (Figure 1– Yellow Box) as a replace-upgrade to cater for current and future demands and to supply potable water to the new Airport Precinct development.

The Airport Precinct in George, existing users and additional areas such as Herold's Bay, are supplied with potable water through an existing 200mm diameter pipeline along the R102. This existing pipeline is past its design lifespan and often bursts, resulting in frequent disruption and costly maintenance/repair works to the Municipality. It is the intention of the Applicant, George Municipality, to replace approximately 3.8km of this pipeline with a greater capacity pipeline, which will vary in diameter from 250mm – 400mm (Figure 1) along the same road reserve / alignment.

This replacement is not a *like-for-like* since the existing 200mm pipeline must remain operational during construction as it needs to provide continued water supply until the new pipeline section is installed and fully operational. The existing pipeline will therefore not be removed from its current position once the new line is installed but will be defunct.

The proposed replacement water pipeline extends just east of Gwaing River Bridge to George Airport (Figure 1 – Yellow Box). Most of the pipeline section will be installed within the 5m building line of adjacent private properties north of the R102. However, a few shorter sections are also proposed on the south side of the R102 in a similar manner to account for constraints/environmental features along the route (Figure 1).

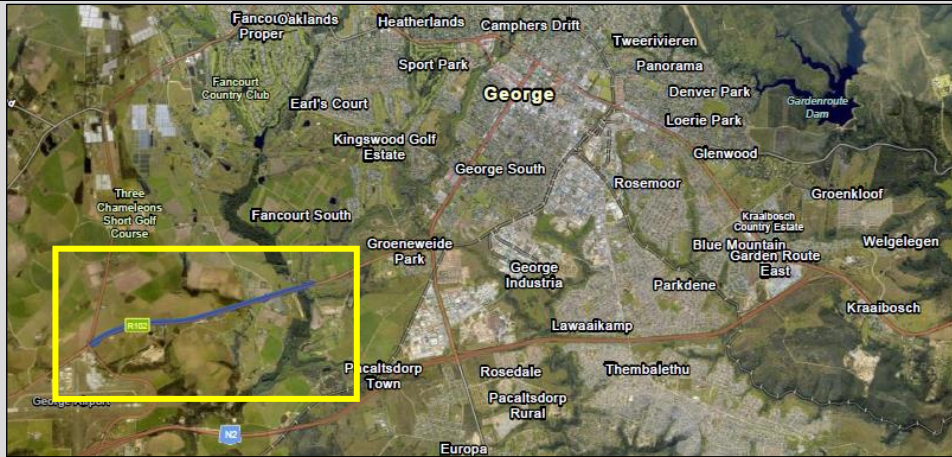


Figure 1: Locality map of the proposed section of the water pipeline (blue solid line within yellow box) along the R102 from the Gwaing Bridge towards George Airport.

DESCRIPTION OF ALL PIPELINE ROUTE ALTERNATIVES

The R102 a proclaimed road reserves of the Provincial Roads, and the ideal pipeline route was to install the pipe within the road reserve. Installing a pipeline in the road reserve would have provided unrestricted access for repairs. However, since the Western Cape Government is the road authority they have the mandate to approve/refuse infrastructure/structures within the road reserve. They ultimately restricted a possible route for the new pipeline to only a 1m corridor directly adjacent to the fence lines on either side of the road as the only available space within the road reserve.

An extensive site investigation by the Consulting Engineers was done along this corridor, and it was determined that existing services were already installed in this allocated 1m corridor. Thus, it was determined that there was no space left within the corridor for the new pipeline along certain sections of the 1m corridor route. As a result, the alternative of installing the pipeline within the 5m building line of private properties is deemed feasible (Engineering Design Report, 2024).

Most of the pipeline will be installed through **trenching** by using an excavator (open up a trench to install the pipeline and cover the pipeline again with the excavated material). To avoid and/or mitigate anticipated impacts along the route, a few sections will be installed by using a technique called **Horizontal Direction Drilling (HDD)**. HDD will be implemented at **road crossings** and areas deemed **more sensitive** i.e., **watercourses/wetlands**. This method allows installation of the pipeline section with minimal earthworks/surface disturbance that reduces disturbances/impact.

Start of Water Pipeline on RE/464

All alternative routes start with the connection of the new pipeline at the scour chamber of Groeneweide Park water pipeline just east of Gwaing River Bridge, south of the R102 (Figure 2a). The water pipeline will cross the R102 by means of HDD where it will be installed within the road reserve, north of the R102, before it crosses the Gwaing River Bridge (Figure 2b).

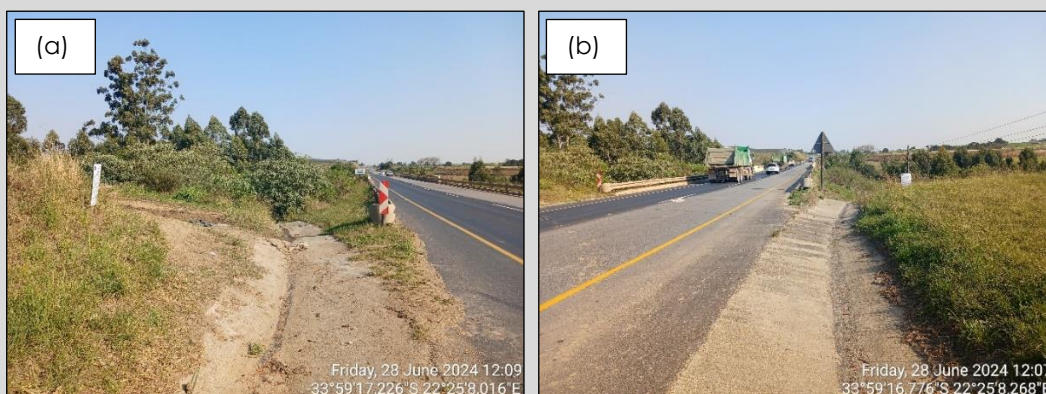


Figure 2: (a) East of Gwaing River Bridge, south of the R102 (b) East of Gwaing River Bridge, north of the R102.

Gwaing River Bridge Crossing

All alternatives involve the replacement of the existing water pipeline crossing the bridge with a 400mm water pipeline after which the pipeline will enter the 5m building line of private property 113/208 Gwayang (Figure 3).

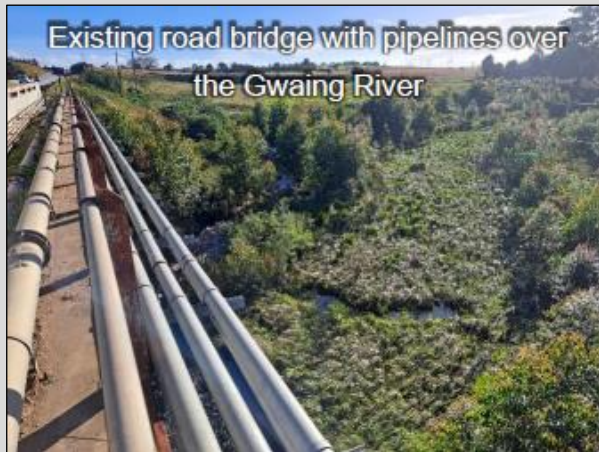
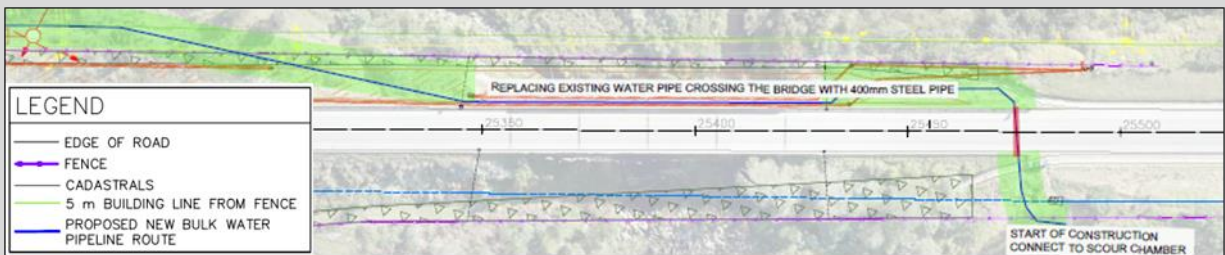


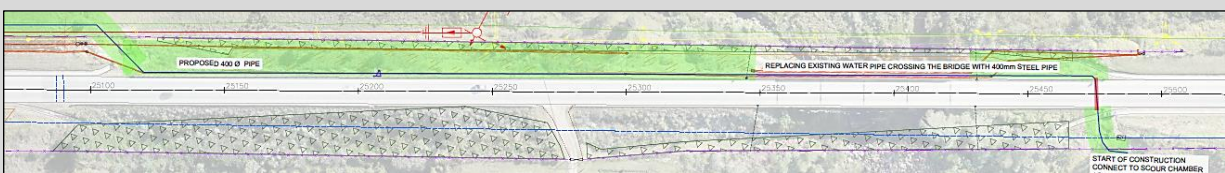
Figure 3: Gwaing River bridge with existing pipelines.

Three (3) different route options are proposed on how the pipeline will be routed within private property 113/208 Gwayang after crossing the Gwaing River Bridge.

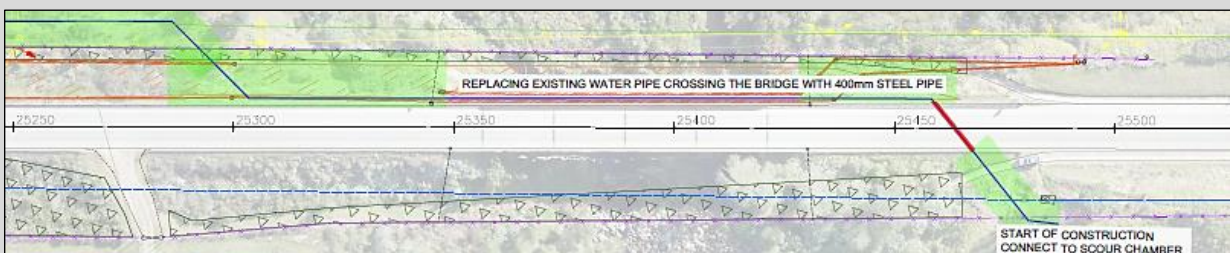
- **Gwaing Bridge Option 01:** Straight from the bridge diagonally into private property 113/208 Gwayang.



- **Gwaing Bridge Option 02:** The pipeline will remain within the road reserve of the R102 for approximately 250m from the bridge, from where it will then diagonally enter private property 113/208 Gwayang.



- **Gwaing Bridge Option 03:** The pipeline will remain within the road reserve for approximately 50m from the bridge where it will diagonally enter private property 113/208 Gwayang.



Option 02 is the **Preferred Route Alternative** as it is the only route where the pipeline remains within the road reserve for the longest section namely 250m. **Options 01 & 03** are the **non-preferred route alternatives**.

Norga River Bridge Crossing (Culvert Crossing)

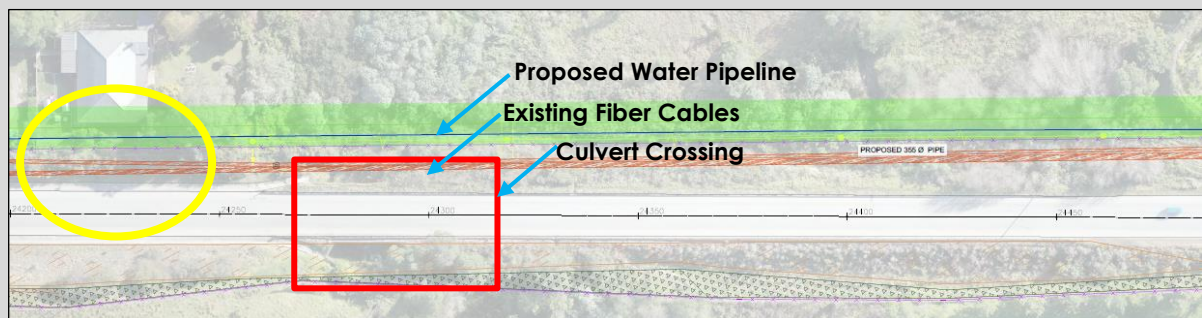
The water pipeline remains within the 5m building line of private properties (113/208 and 112/208 Gwayang) north-side of the R102, up until a culvert crossing approximately 850m from the Gwaing River Bridge (Figure 4).



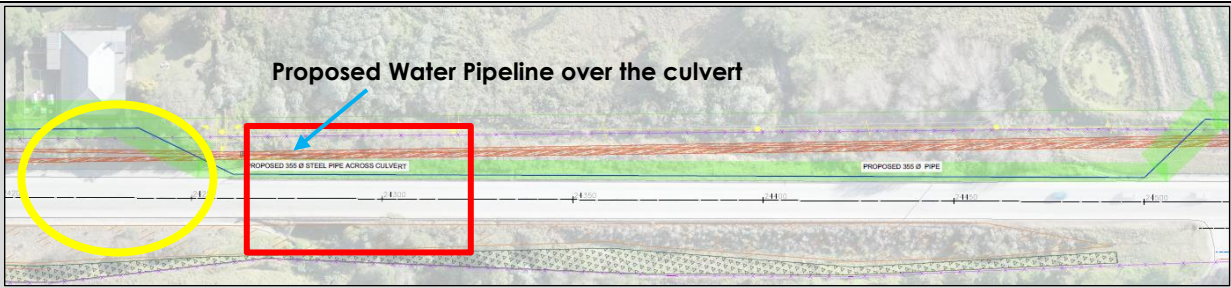
Figure 4: Norga River culvert crossing.

Three (3) different route options are proposed:

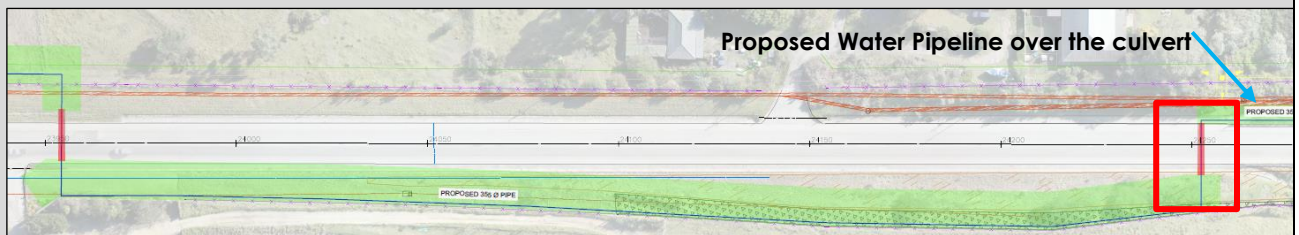
- **Norga Culvert Crossing Option 01:** The water pipeline (proposed 355 ϕ pipe) will remain within the 5m building line of the private property north-side of the R102 (44/208 Gwayang). The pipeline will be installed within the culvert just north of the existing fibre cables. This alternative is **not preferred** as it will result in disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls) (Kindly refer to the yellow circle in the figure below).



- **Norga Culvert Crossing Option 02:** Proposed 355 ϕ steel pipe within the road reserve over the culvert after which it will return to the 5m building line of the private property (RE/102/208 Gwayang). This alternative is **not preferred** as it will result in disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls) (Kindly refer to the yellow circle in the figure below).

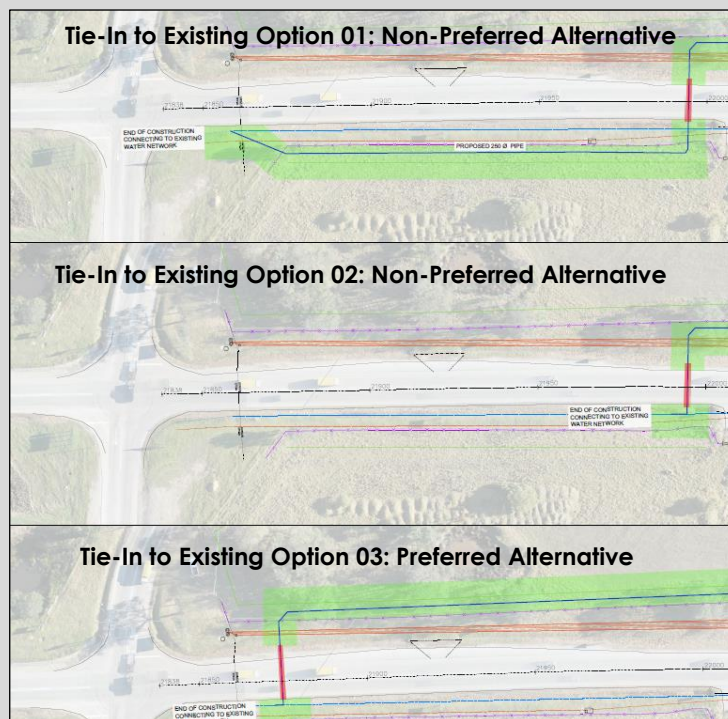


- Norga Culvert Crossing Option 03 (Preferred Route Alternative):** Proposed 355 ϕ pipe within the road reserve over the culvert, after which the pipeline will cross the R102 (HDD) to be installed within the road reserve south side of the R102. The reason the pipeline crosses the R102 at this point, is to avoid disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls). This pipeline will extend for approximately 300m (Road Reserve of R102) where it will again cross the R102 (HDD) and proceed within the 5m building line to the north-side (44/208 Gwayang).



End of the Pipeline

Three (3) options were proposed to connect the water pipeline to the existing network at George Airport (refer to figure below). All three (3) alternatives will tie-in to the existing network south-side of the R102, near the R102/R404 intersection. It is **preferred** to keep most of the water pipeline north of the R102, after which it will cross the R102 to connect directly to the existing network.



On 17 April 2024, George Municipality notified the affected landowners about the proposed project and different route alternatives since the pipeline must be installed within the building lines of private properties. Two (2) queries were received from affected landowners. Both queries were reviewed by the Engineer and Applicant to finalise the preferred pipeline route sections.

On 29 July 2024, George Municipality sent a final notification letter to the landowners addressing the two queries that were received previously and sharing the **preferred pipeline route** inclusive of the modifications to accommodate inputs:

- **Gwaing Bridge Option 02** (Figure 5),
- **Culvert Crossing Option 03** (Figure 5),
- **Tie-in to existing Option 03** (Figure 5), and
- **Option 01** for the remainder of the water pipeline (Figure 5).



Figure 5: Preferred Pipeline Route (Preferred Design Alternative).

Construction Scope of Work for the Preferred Route Alternative (Draft Engineering Design Report, 2024):

- Installation of a 400mm diameter pipeline for approximately 660m, including a 78m long river/bridge crossing
- Installation of a 315mm diameter pipeline for approximately 2240m, including a 30m culvert crossing.
- Installation of a 250mm diameter line for approximately 790m.
- Install air valves, scour valves, and isolation on the new bulk pipeline.
- Install new connection tee-off points for future use.
- Install new connection tee-off points to existing properties and water meters.
- Construction of reinforced concrete chamber to house valves, scour valves, and isolation.
- Ensuring the existing water main remains operational during the construction of the new pipeline.
- Install all road crossings by means of horizontal directional drilling (HDD).
- Repairing and reinstating existing infrastructure that will be affected or damaged during construction.

Summary of Pipeline Specifications	
Pipeline Length	±3.8km
Pipeline Depth	Max 3m
Pipeline Diameter	250 – 400mm
Workspace (Width)	Max 10m along the pipeline route

Note that all chambers i.e., valve chambers, scour chambers, air valve chambers and T-off chambers will be within the 10m temporary disturbance area along the pipeline route.

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.
2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".

3. *Submission of documentation, reports and other correspondence:*

The Department has adopted a digital format for corresponding with proponents/applicants or the general public. If there is a conflict between this approach and any provision in the legislation, then the provisions in the legislation prevail. If there is any uncertainty about the requirements or arrangements, the relevant Competent Authority must be consulted.

The Directorate: Development Management has created generic e-mail addresses for the respective Regions, to centralise their administration. Please make use of the relevant general administration e-mail address below when submitting documents:

DEADPEIAAdmin@westerncape.gov.za

Directorate: Development Management (Region 1):
City of Cape Town; West Coast District Municipal area;
Cape Winelands District Municipal area and Overberg District Municipal area.

DEADPEIAAdmin.George@westerncape.gov.za

Directorate: Development Management (Region 3):
Garden Route District Municipal area and Central Karoo District Municipal area

General queries must be submitted via the general administration e-mail for EIA related queries. Where a case-officer of DEA&DP has been assigned, correspondence may be directed to such official and copied to the relevant general administration e-mail for record purposes.

All correspondence, comments, requests and decisions in terms of applications, will be issued to either the applicant/requester in a digital format via email, with digital signatures, and copied to the Environmental Assessment Practitioner ("EAP") (where applicable).

4. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
5. All applicable sections of this BAR must be completed.
6. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.
7. This BAR is current as of **April 2024**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at <http://www.westerncape.gov.za> to check for the latest version of this BAR.
8. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations

when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.

9. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.
10. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.
11. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.
12. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.
13. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.
14. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link <https://screening.environment.gov.za/screeningtool> to generate the Screening Tool Report. The screening tool report must be attached to this BAR.
15. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-
Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS

CAPE TOWN OFFICE: DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 1) (City of Cape Town, West Coast District, Cape Winelands District & Overberg District)	GEORGE REGIONAL OFFICE: DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 3) (Central Karoo District & Garden Route District)
<p>The completed Form must be sent via electronic mail to: DEADPEIAAdmin@westerncape.gov.za</p> <p>Queries should be directed to the Directorate: Development Management (Region 1) at: E-mail: DEADPEIAAdmin@westerncape.gov.za Tel: (021) 483-5829</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000</p>	<p>The completed Form must be sent via electronic mail to: DEADPEIAAdmin.George@westerncape.gov.za</p> <p>Queries should be directed to the Directorate: Development Management (Region 3) at: E-mail: DEADPEIAAdmin.George@westerncape.gov.za Tel: (044) 814-2006</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530</p>

MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	<p>The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following:</p> <ul style="list-style-type: none"> • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. <p>For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken.</p> <p>Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.</p>
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	<p>Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following:</p> <ul style="list-style-type: none"> • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development must be clearly indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan. • Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to):

	<ul style="list-style-type: none"> o Watercourses / Rivers / Wetlands o Flood lines (i.e., 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): o Ridges; o Cultural and historical features/landscapes; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow <p>A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.</p>
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as Appendix C . The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as Appendix D .
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as Appendix A3 .

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ (tick) or a x (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			✓ (Tick) or x (cross)
Appendix A:	Maps		
	Appendix A1:	Locality Map	✓
	Appendix A2:	Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning	X
	Appendix A3:	Map with the GPS co-ordinates for linear activities	✓
Appendix B:	Appendix B1:	Site development plan(s)	✓
	Appendix B2	A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;	✓
Appendix C:	Photographs		✓
Appendix D:	Biodiversity overlay map		✓
Appendix E:	Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.		
	Appendix E1:	Final comment/ROD from HWC	✓
	Appendix E2:	Copy of comment from Cape Nature	X
	Appendix E3:	Final Comment from the DWS	X
	Appendix E4:	Comment from the DEA: Oceans and Coast	X
	Appendix E5:	Comment from the DAFF	X
	Appendix E6:	Comment from WCG: Transport and Public Works	X
	Appendix E7:	Comment from WCG: DoA	X
	Appendix E8:	Comment from WCG: DHS	X

	Appendix E9:	Comment from WCG: DoH	X
	Appendix E10:	Comment from DEA&DP: Pollution Management	X
	Appendix E11:	Comment from DEA&DP: Waste Management	X
	Appendix E12:	Comment from DEA&DP: Biodiversity	X
	Appendix E13:	Comment from DEA&DP: Air Quality	X
	Appendix E14:	Comment from DEA&DP: Coastal Management	X
	Appendix E15:	Comment from the local authority	X
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	X
	Appendix E17:	Comment from the District Municipality	X
	Appendix E18:	Copy of an exemption notice	X
	Appendix E19	Pre-approval for the reclamation of land	X
	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	X
	Appendix E21:	Proof of land use rights	✓
	Appendix E22:	Proof of public participation agreement for linear activities	X
Appendix F:	Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.		✓
Appendix G:	Specialist Report(s)		✓
Appendix H:	EMPr		✓
Appendix I:	Screening tool report		✓
Appendix J:	The impact and risk assessment for each alternative		X (in BAR)
Appendix K:	Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline		X (in BAR)

SECTION A: ADMINISTRATIVE DETAILS

	CAPE TOWN OFFICE: REGION 1	GEORGE OFFICE: REGION 3
Highlight the Departmental Region in which the intended application will fall	(City of Cape Town, West Coast District)	(Cape Winelands District & Overberg District)
Duplicate this section where there is more than one Proponent Name of Applicant/Proponent: Name of contact person for Applicant/Proponent (if other): Company/ Trading name/State Department/Organ of State: Company Registration Number: Postal address: Telephone: E-mail:	George Municipality	
	Melanie Geyer	
	PO BOX 19	
	George	Postal code: 6530
	044 801 9268	Cell:
	mgeyer@george.gov.za	Fax: ()
	Company of EAP: Cape Environmental Assessment Practitioners (Cape EAPrac)	
	EAP name: Louise-Mari van Zyl (Appointed EAP) / Mariska Byleveld (Candidate EAP)	
	Postal address: PO Box 2070	
	George	Postal code: 6530
044 874 0365	Cell: 071 603 4132 / 084 5036 587	
E-mail: louise@cape-eaprac.co.za mariska@cape-eaprac.co.za	Fax: ()	
Qualifications: Louise-Mari van Zyl: MA Geography [US] Mariska Byleveld: MSc Geology [UFS]		
EAP registration no: Louise-Mari van Zyl: 2019/1444 Mariska Byleveld: 2023/6593		
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	George Municipality (Property: RE/464)	
	Melanie Geyer	
	PO Box 19	
	George	Postal code: 6530
	044 801 9268	Cell:
	mgeyer@george.gov.za	Fax: ()
	Name of landowner: Platinum Mac Inv (Pty) Ltd (Property: 113/208)	
	Name of contact person for landowner (if other):	
	Postal address: PO Box 10266, George	
	George	Postal code: 6530
082 351 2366	Cell:	
E-mail: marius@daanmarra.co.za	Fax: ()	
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone:	Outeniqua Palms (Pty) Ltd (Property: 65/208)	
	Name of contact person for landowner (if other):	
	Postal address:	
	Postal code:	
	044 876 0364	Cell: 073 451 5067

E-mail:	admin@outeniquapalms.co.za	Fax: ()
Duplicate this section where there is more than one landowner	Chanpiet CC (Property: RE/102/208)	
Name of landowner:		
Name of contact person for landowner (if other):		
Postal address:		
		Postal code:
Telephone:	044 876 9169	Cell:
E-mail:	pdyzel@gmail.com	Fax: ()
Duplicate this section where there is more than one landowner	Mr/Ms BJ de Swart Trustees (Property: 44/208)	
Name of landowner:		
Name of contact person for landowner (if other):		
Postal address:	25 Fichart Street	
	George	Postal code: 6530
Telephone:	044 873 4501	Cell: 084 516 0710
E-mail:	carinmare7@gmail.com	Fax: ()
Duplicate this section where there is more than one landowner	Fine Asset Inv 109 (Pty) Ltd (Property: 45/208)	
Name of landowner:		
Name of contact person for landowner (if other):		
Postal address:	Postnet Suite 349, Private Bag X1007, Lyttelton Manor	
		Postal code:
Telephone:		Cell: 082 800 6699
E-mail:	jos.matthysen@yahoo.com	Fax: ()
Duplicate this section where there is more than one landowner	Mr/Ms HM de Swart (96/208)	
Name of landowner:		
Name of contact person for landowner (if other):		
Postal address:	PO Box 199, Rozenblad, Gwayang District	
	George	Postal code: 6530
Telephone:	044 876 9254 / 044 874 2045	Cell: 083 632 3776
E-mail:	hendrinadeswardt42@gmail.com	Fax: ()
Duplicate this section where there is more than one landowner	Hark Properties (Pty) Ltd (Property: 139/208)	
Name of landowner:		
Name of contact person for landowner (if other):	Mr Jacques Douglas Wheeler	
Postal address:	PO Box 12654	
	Garden Route Mall	Postal code: 6546
Telephone:		Cell: 078 190 3982
E-mail:	jw@synnpro.com	Fax: ()
Duplicate this section where there is more than one landowner	Mr/Ms TSVM Farm Trading / Vargold CC (Property: 53/208)	
Name of landowner:		
Name of contact person for landowner (if other):		
Postal address:	PO Box 4179	
	George	Postal code: 6530
Telephone:		
E-mail:		Fax: ()

Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	George Aerotropolis (Pty) Ltd (Properties: 131/208 & 132/208)	
	PO BOX 14043 Mobray	
		Postal code:
		Cell: 083 265 7099
	zahfer@spearprop.co.za	Fax: ()
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	Airports Company Ltd (Property: 68/208)	
	Brenda Vorster	
		Postal code:
	044 803 9310	Cell:
	Brenda.Vorster@airports.co.za	Fax: ()
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	Provincial Roads (Road Reserve of R102)	
	Evan Burger	
		Postal code:
	044 803 9310	Cell:
	Evan.Burger@westerncape.gov.za	Fax: ()
Duplicate this section where there is more than one landowner Name of landowner: Name of contact person for landowner (if other): Postal address: Telephone: E-mail:	Barnyard Kennels & Cattle, George (112/208)	
		Postal code:
	044 876 9975	Cell: 082 4882455
	barnyardkennels01@gmail.com	Fax: ()
Name of Person in control of the land: Name of contact person for person in control of the land: Postal address: Telephone: E-mail:	Same as above (landowner details)	
		Postal code:
		Cell:
		Fax: ()
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall: Contact person: Postal address: Telephone: E-mail:	George Municipality (same as Applicant)	
	Melanie Geyer	
	PO Box 19	
	George	Postal code: 6530
	044 801 9278	Cell:
	mgeyer@george.gov.za	Fax: ()

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New	✓	Expansion		
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.					
<p>According to a Ground Penetrating Radar Survey that was conducted by UDS Surveyors in areas identified by SMEC, various utilities were located within the road reserve of the R102:</p> <ul style="list-style-type: none"> Existing municipal water pipeline. Multiple existing fibre cables and fibre manholes. Existing municipal sewer lines with manholes and chamber structures. Stormwater pipelines and culverts. Electrical lines. 						
3. For Linear activities or developments (water pipeline)						
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:					
	#	Farm Portions	Locality	#	Farm Portions	Locality
	1	RE/464	Road Reserve of R102	8	96/208	Road Reserve of R102
	2	113/208	Private Property: 5m Building Line Road Reserve of R102	9	139/208	Private Property: 5m Building Line
	3	65/208	Road Reserve of R102	10	53/208	Private Property: 5m Building Line
	4	112/208	Private Property: 5m Building Line	11	132/208	Road Reserve of R102
	5	44/208	Private Property: 5m Building Line	12	131/208	Road Reserve of R102
	6	RE/102/208	Road Reserve of R102	13	68/208	Road Reserve of R102
	7	45/208	Private Property: 5m Building Line Road Reserve of R102			
3.2.	Development footprint of the proposed development for all alternatives.				±34 444m²	
<p><u>Preferred Alternative (Gwaing Bridge Option 02 and Culvert Crossing & Tie-in Options 03).</u> ±34 444m²</p> <p><u>Non-Preferred Alternatives</u></p> <p>Route Option 1: ±35 028m² (Gwaing Bridge, Culvert Crossing and Tie-in Option 01). Route Option 2: ±32 815m² (Gwaing Bridge, Culvert Crossing and Tie-in Option 02). Route Option 3: ±33 745m² (Gwaing Bridge, Culvert Crossing and Tie-in Option 03).</p> <p>Please note that the above-mentioned footprint includes a working area of a 10m wide corridor.</p>						
3.3.	Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.					
<p>The proposed development entails the replacement-upgrade of a Municipal water pipeline extending from Gwaing River Bridge to George Airport along the R102 corridor. The pipeline will be approximately 3,8km long and the specific section applicable for this application, will vary in diameter from 250mm to 400mm.</p> <p>Most of the pipeline will be installed within the 5m building line of private properties north of the R102. The R102 is in proclaimed road reserves of the Provincial Roads, and the ideal pipeline route was to install the pipe in the road reserve. Installing a pipeline in the road reserve provided unrestricted access for repairs. The Western Cape Government is the road authority of the R102 and restricted the pipeline to only a 1m corridor adjacent to the fence line on either side of the road. An extensive site investigation was done, and it was determined that existing services were already installed in this 1m corridor, and there was no space for the new pipeline in certain sections of the 1m corridor.</p>						

George Municipality already notified each landowner of the proposed water pipeline routes and have incorporated and considered inputs received into the preferred alternative.

DESCRIPTION OF ALL ALTERNATIVES

01. Start of the pipeline on RE/464: All alternatives start with the connection of the new pipeline with the scour chamber of Groeneweide Park water pipeline just east of Gwaing River Bridge, south of the R102. The water pipeline will cross the R102 by means of HDD.



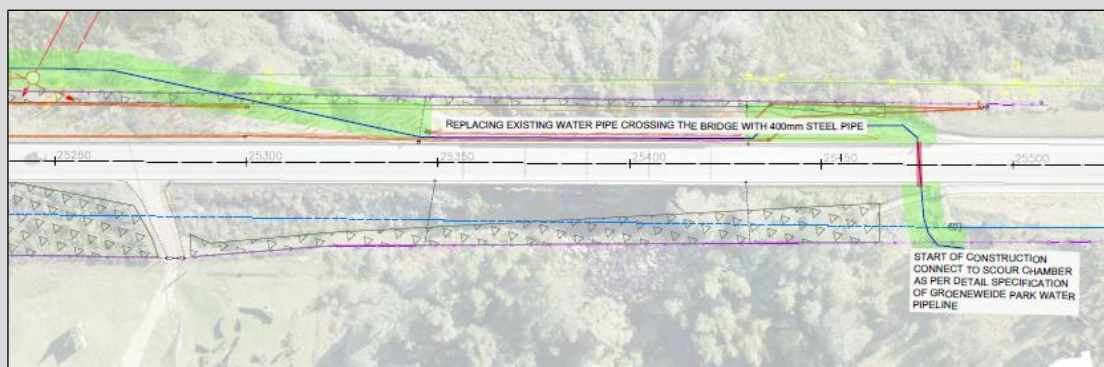
Figure 6: Gwaing River bridge with existing pipelines.

02. After crossing the Gwaing Bridge: All alternatives involve the replacement of the existing water pipe crossing the bridge with a 400mm pipe after which the pipeline will enter the 5m building lines of private properties.

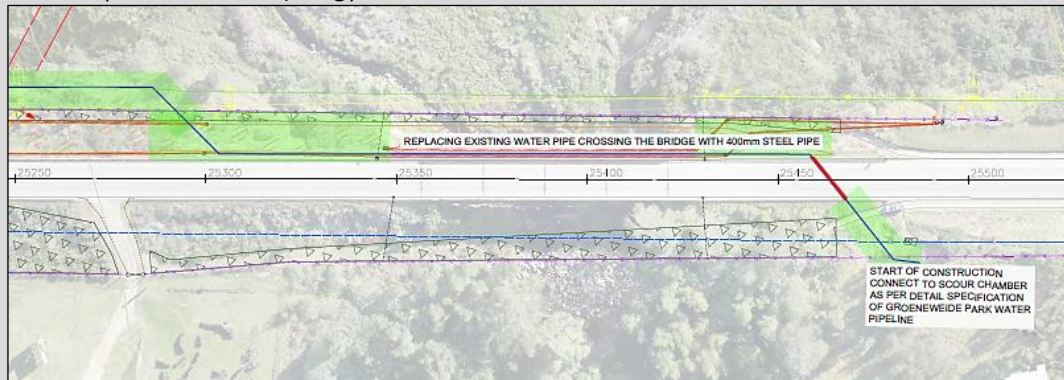
- **Preferred Alternative (Gwaing Bridge Option 02):** The pipeline will remain within the road reserve of the R102 for approximately 250m from the bridge, from where it will then diagonally enter a private property (113/208 Gwayang). This is the preferred route as it is the only route where the pipeline remains within the road reserve for 250m.



- **Non-Preferred Alternatives**
 - Gwaing Bridge Option 01: Straight from the bridge diagonally into a private property (113/208 Gwayang).



- o Gwaing Bridge Option 03: The pipeline will remain within the road reserve for approximately 50m from the bridge where it will diagonally enter a private property (113/208 Gwayang).

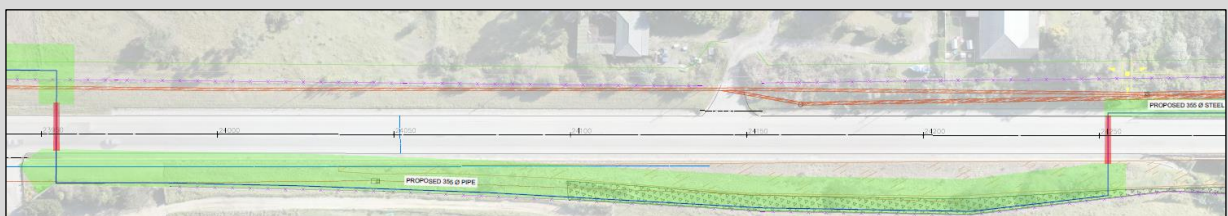


3. Norga River Bridge Crossing Options (Culvert Crossing): The water pipeline remains within the 5m building line of private properties (113/208 and 112/208 Gwayang) north-side of the R102, up until a culvert crossing approximately 850m from the Gwaing River Bridge.

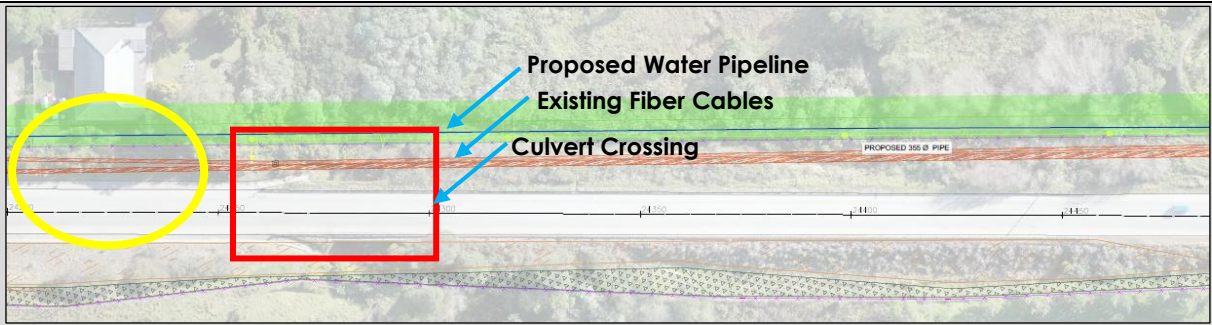


Figure 7: Norga River culvert crossing.

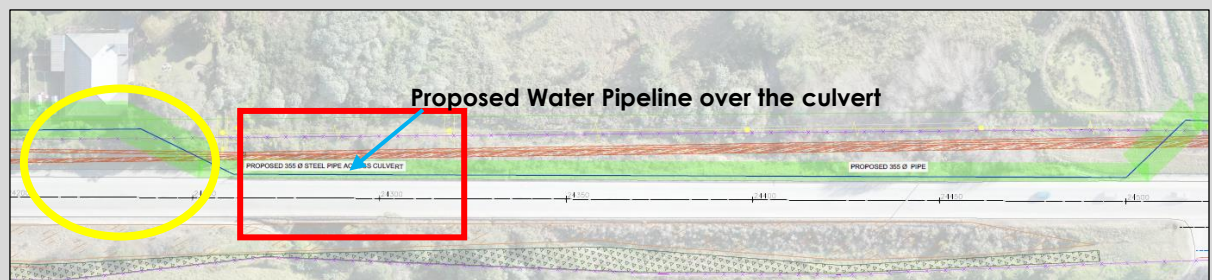
- **Preferred Alternative (Culvert Crossing Option 03):** Proposed 355 ø pipe within the road reserve over the culvert, after which the pipeline will cross the R102 (HDD) to be installed within the road reserve south side of the R102. The reason the pipeline crosses the R102 at this point, is to avoid disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls). This pipeline will extend for approximately 300m (Road Reserve of R102) where it will again cross the R102 (HDD) and proceed within the 5m building line to the north-side (44/208 Gwayang).



- **Non-Preferred Alternatives**
 - o **Culvert Crossing Option 01:** The water pipeline (proposed 355 ø pipe) will remain within the 5m building line of the private property north-side of the R102 (44/208 Gwayang). The pipeline will be installed within the culvert just north of the existing fibre cables. This alternative is not preferred as it will result in disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls) (Kindly refer to the yellow circle in the figure below).



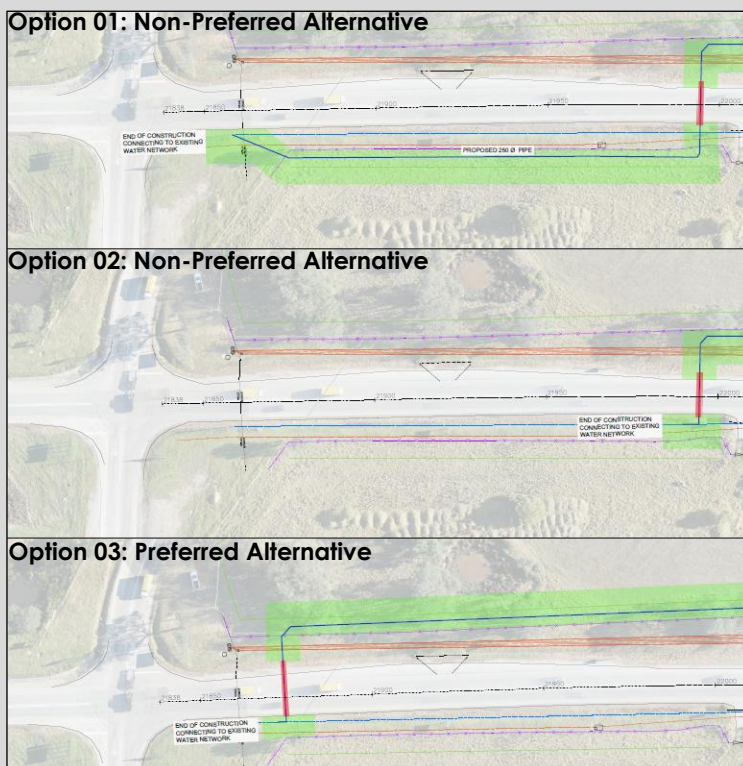
- Culvert Crossing Option 02: Proposed 355 ø steel pipe within the road reserve over the culvert after which it will return to the 5m building line of the private property (RE/102/208 Gwayang). This alternative is not preferred as it will result in disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls) (Kindly refer to the yellow circle in the figure below).



04. End of Pipeline: Three (3) options were proposed to connect the water pipeline to the existing network at George Airport (refer to figure below).

All three (3) alternatives will tie-in to the existing network south-side of the R102, near the R102/R404 intersection.

It is preferred to keep most of the water pipeline north of the R102, after which it will cross the R102 to connect directly to the existing network.



End of Pipeline:



3.4. Indicate how access to the proposed routes will be obtained for all alternatives.

Main access will be directly off the R102, and the Municipality will rehabilitate the affected work areas post-construction of each section.

3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives	C 0 2 7 0 0 0 2 0 0 0 0 0 4 6 4 0 0 0 0
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 6 5
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 1 3
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 1 2
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 4 4
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 0 2
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 4 5
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 9 6
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 3 9
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 5 3
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 3 2
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 1 3 1
		C 0 2 7 0 0 0 0 0 0 0 0 0 2 0 8 0 0 0 6 8

3.6. **Starting point co-ordinates for all alternatives (Preferred & Non-Preferred Alternatives)**

Latitude (S)	33°	59'	17.84"
Longitude (E)	22°	25'	08.11"
Middle point co-ordinates for all alternatives (Preferred & Non-Preferred Alternatives)			
Latitude (S)	33°	59'	33.97"
Longitude (E)	22°	23'	55.69"
End point co-ordinates for all alternatives (Preferred Alternative)			
Latitude (S)	33°	59'	47.56"
Longitude (E)	22°	22'	52.93"
End point co-ordinates for all alternatives (Non-Preferred Alternative: Tie-in Option 01)			
Latitude (S)	33°	59'	47.72"
Longitude (E)	22°	22'	52.60"
End point co-ordinates for all alternatives (Non-Preferred Alternative: Tie-in Option 02)			
Latitude (S)	33°	59'	47.56"
Longitude (E)	22°	22'	52.93"

Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.

4. **Other developments**

4.1.	Property size(s) of all proposed site(s):	
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:	
4.4.	Provide a detailed description of the proposed development and its associated infrastructure. (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).	
4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.	
4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:	
4.7.	Coordinates of the proposed site(s) for all alternatives:	
	-Latitude (S)	
	-Longitude (E)	

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	NO
---	-----	----

2. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	YES	NO
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1.	YES	NO
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.	YES	NO
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	NO
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	NO
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	YES	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	NO
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	NO

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.

Western Cape PSDF (2014)

The Western Cape Provincial Spatial Development Framework (WCPSDF) was approved in 2014 by the Western Cape Parliament and serves as a strategic spatial planning tool that “communicates the provinces spatial planning agenda”.

The proposed activity aligns with:

Policy R1 - Protect Biodiversity and Ecosystem Services.

All route alternatives are within areas of low fauna, botanical and biodiversity sensitivity.

- The project area is mostly comprised of transformed habitat.
- The project area will not impact on CBA and ESA.
- No remaining Garden Route Granite Fynbos exists in the project area.
- The entire section along the R102 is currently used as agricultural fields.
- The vegetation within the project area is not consistent with any Red Listed Ecosystem.

According to the agricultural specialist, no agricultural land is permanently lost and therefore the proposed water pipeline is assessed as being of very low agricultural significance.

A series of meetings have been held with the project team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at the Gwaing River crossing, attaching the pipeline to the top of the culvert at the Norga River crossing, and using horizontal direction drilling at other highly sensitive wetland/dam crossings. According to the aquatic specialist, the impacts assessed for both construction and operational phase can be mitigated to negligible, and the Risk Matrix determined that the impacts are of Low Risk to potentially affected watercourses.

Policy E3 – Revitalise and strengthen urban space-economies as the engine of growth.

The proposed activity strengthens the Municipality’s ability to provide services to its residents and businesses as part of its service delivery mandate.

Eden Spatial Development Framework (2017)

The Eden District Spatial Development Framework was approved in 2017 and aims to establish a strong strategic direction and vision, towards increasing levels of detail in the spatial recommendations that are directive rather than prescriptive and providing guidance to local municipalities in the district regarding future spatial planning, strategic decision making and regional integration.

The proposed activity complies with the District’s Strategic Objective (SO4): Environmental management and public safety and their associated strategies (supported by Policy 1.1.):

- Protect and conserve important terrestrial, aquatic (rivers, wetlands, and estuaries) and marine habitats as identified through Critical Biodiversity Area (CBA) mapping exercise or similar conservation planning process.
 - It is proposed to implement Horizontal Direction Drilling in certain areas where conventional open trenching will cause unnecessary disturbance or excessive environmental disturbance at the wetland/dam crossings.

George MSDF (2023/27)

The proposed water pipeline aligns with Policy A1 of the Spatial Development Vision for George:

Maintain, improve, and expand basic engineering services (water, sewer, electricity, stormwater and refuse removal).

The following policy proposals were followed:

- Promote services provision to support densification and infill.
 - The proposed water pipeline will service one (1) important node described in the George SDF:
 - The Airport Precinct Node
Sub-regional node in proximity to the N2 and George Airport, targeted at Southern Cape agri-processing/related manufacturing, freight and logistics, and services industries.
- New infrastructure and infrastructure upgrading to consider environmental sensitivities and risks.
 - The Applicant appointed various specialists (aquatic, fauna, flora, heritage and agriculture) to best inform the preferred pipeline route.
 - A series of meetings have been held with the project team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at the Gwaing River crossing, attaching the pipeline to the top of the culvert at the Norga River crossing, and using horizontal direction drilling at other highly sensitive wetland/dam crossings. According to the aquatic specialist, the impacts assessed for both construction and operational phase can be mitigated to negligible, and the Risk Matrix determined that the impacts are of Low Risk to potentially affected watercourses.

5. Guidelines

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.

Guideline on Need and Desirability (March 2013)

Need & Desirability refers to the temporal and spatial need of an area for a specific development. This Guideline was used to define the requirements and implications of Need & Desirability. Refer to section E12 for a detailed Need & Desirability project description.

Guideline on Alternatives (March 2013)

Three (3) different route options were assessed at three (3) different localities along the R102: (1) Gwaing River (2) Norga River and (3) End of Pipeline (i.e., tie-in to existing). The preferred route was selected after consultation with the public and development team including inputs from the aquatic specialist.

Although assessed, the No-Go option would result in no pipeline upgrade and would therefore limit development in the airport precinct and surrounding areas due to limited potable water supply. As the proposed pipeline upgrade aims to increase the capacity of an existing pipeline which travels along an existing linear infrastructure (R102), the no-go is not considered practical given the requirement for growth in George. The airport precinct as a development node represents an important strategic area for growth.

Guideline for Environmental Management Plans (June 2005)

The EMMPr has been included with this Draft Basic Assessment Report to provide practical and implementable actions to ensure that the development maintains sustainability and minimise impacts through all its phases. The document is finalised as per the Guidelines and requirements of NEMA and covers both the construction as well as future maintenance work.

Guideline on generic terms of Reference for EAPs and Project Schedules (March 2013)

Followed guidance on:

- Generic Requirements for EAPS (what an EAP must manage).
- General Requirements for persons compiling a specialist report.
- Scope of Work (project description, primary responsibility, anticipated inputs etc.).

Guideline for determining the scope of specialist involvement in the EIA process, June 2005

This Guideline was used to determine the timing, scope and quality of specialist inputs in the EIA process.

Circular EADP 0028/2014: One Environmental Management System

This Circular provided guidance in terms of best practice (timeframes, public participation, notifications to I&APs, availability of report for comment, comments & responses etc.).

6. Protocols

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form

According to the DEADP series of guidelines for the involvement of specialists in the EIA process (2005), one of the underpinning generic principles is to **eliminate the unnecessary specialist involvement** through proactive project planning and design to avoid or sufficiently reduce negative impacts.

Another is to **maximise the use of existing relevant information** prior to involving a specialist. This includes the input from the EAP and specialists, in the form of site photographs and site inspections. These principles apply to the specialist studies that have been identified in the screening tool and motivated as not necessary in this report.

The Screening Tool identified the following studies as potentially being applicable to the proposed development:

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
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Agricultural Theme

The Screening Tool identifies the agricultural sensitivity theme as “very high” (Figure 2).

Johann Lanz **confirms** the **very high sensitivity** rating of the site by the screening tool because of the site's cropping potential and current agricultural land use within the preferred corridor, which includes irrigated croplands. The climate, terrain and soils are suitable for, and much of the area is utilised for, the production of lucerne, planted pastures, oats and macadamia nuts.

According to the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources:

- 1.1. An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of “very high” or “high” sensitivity for agricultural resources must submit an Agricultural Specialist Assessment **unless**:
 - 1.1.1. The application is for a linear activity for which impacts on the agricultural resource are temporary and the land in the opinion of the soil scientist or agricultural scientist, based on the mitigation and remedial measures, can be returned to the current land capability within two years of the completion of the construction phase.
- 1.2. In such instances (of 1.1.1), an Agricultural Compliance Statement can be submitted.

The specialist confirms that the impact duration is confined to the construction period only (i.e., **temporary**) and the pipeline will be buried which means that agricultural activities (potential) can continue unaffected above it, once construction is completed. Therefore, **no land is permanently lost to agriculture**. The agricultural impact is therefore assessed as being of **very low significance**.

An **Agricultural Compliance Statement** is submitted with the Draft BAR (Appendix G1).

The **Western Cape Department of Agriculture** has been approached for comment on the DBAR.

Animal Species Theme

The screening tool identified the sensitivity for animal species (fauna) as “high”.

According to the independent SACNASP registered faunal specialist, the project area is mostly comprised of **transformed habitat**, with little to no natural vegetation. This is largely due to agriculture (grazing). Other habitat modifications observed are due to dense alien plant invasion.

According to the faunal specialist, animal SCC identified by the Screening Tool have a low **likelihood of occurrence**:

Animal SCC	Observed on site	Suitable habitat	Likelihood of occurrence
Circus ranivorus	No	No	Low
Neotis denhami	No	No	Low
Bradyperus sylvaticus	No	Possible	Low
Afrixalus knysnae	No	No	Low
Stephanoaetus coronatus	No	No	Low
Neotis denhami	No	No	Low
Sensitive Species 8	No	No	Low
Aneuryphymus montanus	No	No	Low

The faunal specialist **disputes** the high sensitivity and confirms that it should be **LOW** as there is very little natural vegetation and habitat and there is a low likelihood of occurrence of terrestrial animal SCC within the project footprint (including the 10m working area) for all route alternatives. No animal SCC were found on the site. The LOW sensitivity allows for a **Terrestrial Animal Species Compliance Statement** to be issued.

A **Terrestrial Animal Compliance Statement** is submitted with the Draft BAR (Appendix G2).

CapeNature has been approached for comment on the Draft BAR.

Aquatic Biodiversity Theme

The screening tool identified the aquatic biodiversity theme as “very high”.

According to the independent SACANSP registered aquatic specialist (Dr Jackie Dabrowski – Confluent Environmental), the proposed pipeline crosses four (4) watercourses (Gwaing River, Norga River, Seep Wetland and Dam). These watercourses have already been impacted not only by the initial disturbance for installing existing pipelines and periodic maintenance, but by the presence of the road (R102).

The aquatic specialist **confirms** the **very high** aquatic sensitivity. An **Aquatic Impact Assessment** will be submitted with the BAR (Appendix G3).

The aquatic specialist also compiled a Risk Matrix to determine whether a GA (Low Risk) or WULA would be applicable. The Risk Matrix determined that the impacts were of **Low Risk** to potentially affected watercourses.

BOCMA has been approached for comment on the DBAR.

Archaeological & Cultural Heritage Theme

The screening tool identified this theme as being “Low”.

The proposed development triggers the following activity set out in Section 38(1) of the National Heritage Resources Act:

38. (1)(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.

Perception Planning submitted a Notice of Intent to Develop to Heritage Western Cape who confirmed that **no additional studies are required**.

The Final Background Information Document & NID are attached as Appendix G4 to this DBAR.

HWC has been approached for comment on the DBAR.

Plant Species Theme & Terrestrial Biodiversity Theme

The screening tool identified the **plant species theme** as “Medium”.

According to the independent SACNASP registered botanist, no plant SCC or protected tree species were observed within the area where the proposed pipeline will be installed (including the 10m working area) for all three (3) route alternatives. The potential for the vegetation within the project site to support SCC is **LOW**.

The botanist compiled a site-specific vegetation map showing that the vegetation within the proposed site does not represent Garden Route Granite Fynbos. Sections of degraded and invaded fynbos are present in small patches, but none of these patches will be affected by the proposed pipeline.

The botanist **disputes** the **medium** sensitivity and **confirms** that it should be **LOW**. No plant SCC were found on site and has a low likelihood of occurrence.

The screening tool identified **terrestrial biodiversity theme** as “very high”.

According to the Botanist, the Terrestrial Biodiversity for the proposed pipeline is **Low** for the following reasons:

- The proposed water pipeline does not negatively affect the drainage line that are categorised as ESA2 and CBA1 and 2 areas.
- The impact of this project on CBA and ESA areas will not counter the objectives of these areas.
- The vegetation along the entire section of the R102 is currently used as agricultural fields.
- The vegetation of the drainage lines is heavily invaded.
- No remaining Garden Route Granite Fynbos exists in the project area, and the vegetation is not consistent with any Red Listed ecosystem.

The specialist **disputes** the **very high** environmental sensitivity and **confirms** that it should be **low** for reasons stipulated above.

A Botanical/Biodiversity Compliance Statement is submitted with this DBAR (Appendix G5).

CapeNature has been approached for comment on the DBAR.

SACAA & Defence Themes

The sensitivity rating for both themes are refuted, and the EAP is of the opinion that the theme is not applicable to this application. **SACAA** has been approached for comment on the DBAR.

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 1	Describe the portion of the proposed development to which the applicable listed activity relates.
9	<p>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or stormwater –</p> <p>(i) with an internal diameter of 0.36 metres or more; or</p> <p>(ii) with a peak throughput of 120 litres per second or more.</p> <p>Excluding where –</p> <p>(a) such infrastructure is for bulk transportation of water or stormwater drainage inside a road reserve or railway line reserve; or</p> <p>(b) where such development will occur within an urban area.</p>	<p>The proposed pipeline will be approximately 3.70km in length for the bulk transportation of potable water.</p> <p>The pipeline will vary in diameter from 250mm to 400mm.</p> <p>Majority of the pipeline will be within the 5m building line of private properties north and south of the R102 road reserve (113/208, 112/208, 44/208, 45/208, 139/208, 53/208).</p> <p>A few shorter sections of the pipeline will be within the road reserve of the R102.</p> <p>The proposed pipeline is not within an urban area.</p>
12	<p>The development of –</p> <p>(ii) infrastructure or structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs-</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse.</p> <p>excluding—</p> <p>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour,</p> <p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies,</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies.</p> <p>(dd) where such development occurs within an urban area,</p>	<p>According to the aquatic specialist, the proposed pipeline crosses four (4) watercourses along the route corridor.</p> <p>These watercourses have already been impacted not only by the initial disturbance for installing existing Municipal water/sewer pipelines / Fibre Cables and periodic maintenance thereof, but by the presence of the road/bridges/culverts itself as well (R102).</p> <p>According to Dr Dabrowski (aquatic specialist), the proposed water pipeline has a Low Risk for watercourses at these crossing points.</p>

	<p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.</p>	
19	<p>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>but excluding where such infilling, depositing, dredging, excavation, removal or moving –</p> <p>(a) will occur behind a development setback,</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan,</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies,</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour, or</p> <p>(e) where such developments is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>The excavation of soil of more than 10 cubic metres from a watercourse to develop a trench to install the water pipeline (RE/464, 113/208, 112/208, 44/208, 45/208 and 139/208).</p> <p>According to the aquatic specialist, the proposed pipeline crosses four (4) watercourses.</p> <p>These watercourses have already been impacted not only by the initial disturbance for installing existing pipelines and periodic maintenance, but by the presence of the road (R102).</p> <p>HDD is proposed at two (2) of the four (4) watercourses. HDD is not proposed at the other two (2) watercourses as the new pipeline will be installed above the Gwaing and Norga River.</p>
Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Listing Notice 3	Describe the portion of the proposed development to which the applicable listed activity relates.
12	<p>The clearance of an area of 300m² or more of indigenous vegetation except where such clearance is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>(i) Within any critically endangered ecosystem listed in terms of section 52 of the NEM:BA or has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004.</p> <p>(ii) Within critical biodiversity areas identified in bioregional plans.</p>	<p>According to CapeFarmMapper, the proposed pipeline will be within a critically endangered ecosystem (Garden Route Granite Fynbos) as well as aquatic critical biodiversity area (CBA).</p> <p>According to Ms Fouche, the Terrestrial Biodiversity for the proposed pipeline is Low for the following reasons:</p> <ul style="list-style-type: none"> • No remaining Garden Route Granite Fynbos exist in the project area of influence, and the vegetation is not consistent/representative of any Red Listed ecosystems. • The proposed water pipeline does not negatively affect drainage lines

		<p>that are categorised as ESA2 and CBA1 and 2. The impact of this project on CBA or ESA will not counter the management objectives of these areas.</p> <ul style="list-style-type: none"> • Consideration to environmentally sensitive areas has resulted in the proposed use of HDD to avoid/minimise impacts. <p>The vegetation along the entire section of the R102 within the building line is currently used as agricultural fields.</p>
14	<p>The development of – (ii) infrastructure or structures with a physical footprint of 10m² or more; Where such development occurs – (a) within a watercourse, (b) in front of a development setback, or (c) if no development setback has been adopted, within 32m of a watercourse, measured from the edge of the watercourse.</p> <p>Excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>(i) Outside urban areas (ff) Critical Biodiversity Areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority.</p>	<p>Please note that the Critical Biodiversity Areas within the Western Cape Province have not been adopted by the Competent Authority as a geographical area yet. Therefore, both Listing Notice 1 Activity 12 & Listing Notice 3 Activity 14 are included in the application for Environmental Authorization, until such time that a biodiversity spatial plan for the Western Cape been adopted by the relevant competent authority.</p> <p>The proposed pipeline is not within an urban area, but watercourses are affected (RE/464, 113/208, 112/208, 44/208, 45/208 and 139/208).</p> <p>According to Ms Fouche, the Terrestrial Biodiversity for the proposed pipeline is Low for the following reasons:</p> <ul style="list-style-type: none"> • No remaining Garden Route Granite Fynbos exist in the project area of influence, and the vegetation is not consistent with any Red Listed ecosystems. • The proposed water pipeline does not negatively affect drainage lines that are categorised as ESA2 and CBA1 and 2. The impact of this project on CBA or ESA will not counter the management objectives of these areas. • Consideration to environmentally sensitive areas has resulted in the proposed use of HDD. <p>The vegetation along the entire section of the R102 is currently used as agricultural fields.</p>
<p>Note:</p> <ul style="list-style-type: none"> • The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted. • Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority. 		

List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant Basic Assessment Activity(ies) as set out in Category A	Describe the portion of the proposed development to which the applicable listed activity relates.

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant Listed Activity(ies)	Describe the portion of the proposed development to which the applicable listed activity relates.

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1. Provide a description of the preferred alternative.

Preferred Activity

The proposed project entails the **installation of a water pipeline** along the R102 towards George Airport as a replace-upgrade to cater for current and future demands and to supply water to the new Airport Precinct development.

The Airport Precinct in George, existing users and additional areas such as Herold's Bay, are supplied with water through an existing 200mm diameter pipeline along the R102. It is the intention of the Applicant, George Municipality, to replace approximately 3.7km of this pipeline with a **greater capacity pipeline**, which will vary in diameter from **250mm – 400mm**.

Note that this replacement is not like-for-like since the existing 200mm pipeline will need to provide continued water supply, until the new pipeline section is fully operational. The existing pipeline will therefore not be removed from its current position once the new line is installed.

Preferred Route/Alignment

The proposed water pipeline extends just east of Gwaing River Bridge to George Airport. Most of the pipeline section will be installed within the 5m building line of adjacent private properties north of the R102. However, a few shorter sections are also proposed on the south side of the R102 in a similar manner to account for constraints/environmental features (Figure 8).



Figure 8: Preferred Pipeline Route (Preferred Design Alternative).

Affected Properties

#	Farm Portions	Locality	#	Farm Portions	Locality
1	RE/464	Road Reserve of R102	8	96/208	Road Reserve of R102
2	113/208	Private Property: 5m Building Line Road Reserve of R102	9	139/208	Private Property: 5m Building Line
3	65/208	Road Reserve of R102	10	53/208	Private Property: 5m Building Line
4	112/208	Private Property: 5m Building Line	11	132/208	Road Reserve of R102
5	44/208	Private Property: 5m Building Line	12	131/208	Road Reserve of R102

6	RE/102/208	Road Reserve of R102	13	68/208	Road Reserve of R102
7	45/208	Private Property: 5m Building Line Road Reserve of R102			

Preferred Installing Methods

1. Trenching by using an excavator

Open a trench to install the pipeline and cover the pipeline again with the excavated material

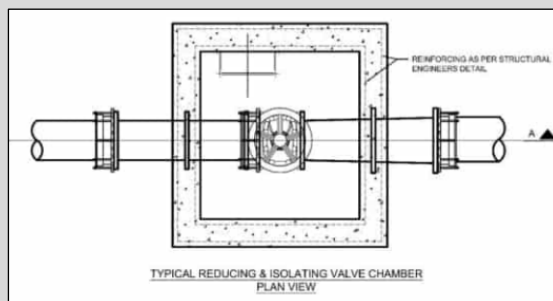
2. Horizontal Direction Drilling

To avoid and/or mitigate anticipated impacts, a few sections will be installed by using a technique called **Horizontal Direction Drilling (HDD)**¹.

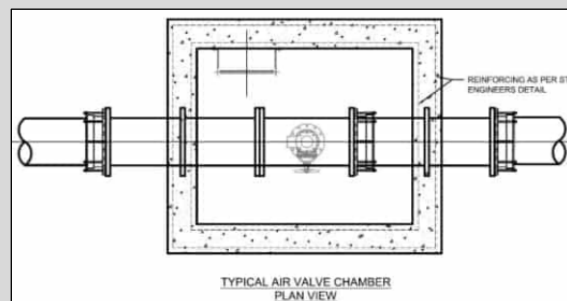
HDD will be implemented at **road crossings** and areas deemed **more sensitive** i.e., **watercourses/wetlands**. This method allows installation of the pipeline section with minimal earthworks/surface disturbance.

Additional Infrastructure within the max 10m disturbance area

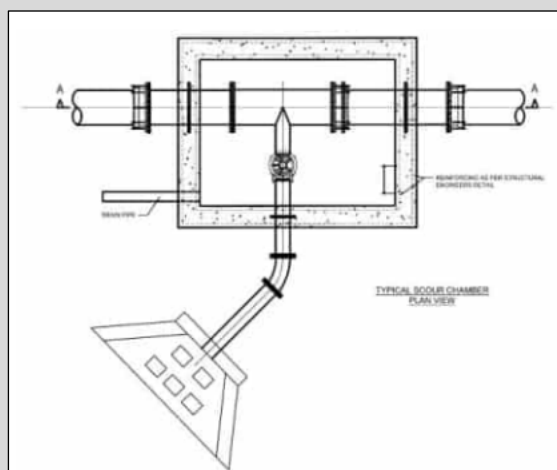
Valve Chambers



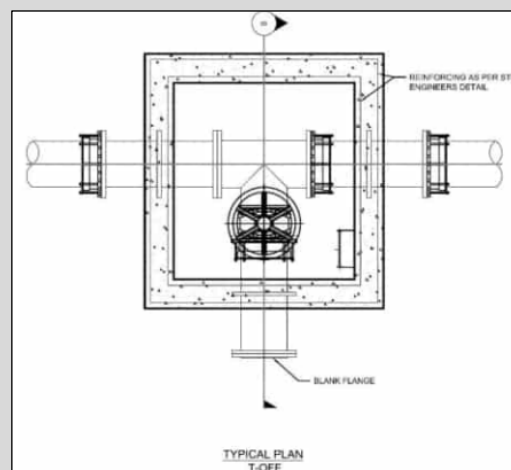
Air Valve Chambers



Scour Chambers



T-off Chambers



¹ HDD is a construction technique whereby a tunnel is drilled under a watercourse or other designated area, and a pipeline or other utility is pulled through the drilled underground tunnel. Excavations are necessary at the entry/exit position of the section to enable machinery to access at the correct level under natural ground level.

2.	Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.
The proposed pipeline is within the 5m building lines of all adjacent private properties that specifically makes provision for the installation of services like this.	
3.	Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.
Existing approvals: Not to the knowledge of the EAP. Potential conflict: Not applicable.	
4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.
<p>The Western Cape Provincial Spatial Development Framework (WCPSDF) was approved in 2014 by the Western Cape Parliament and serves as a strategic spatial planning tool that “communicates the provinces spatial planning agenda”.</p> <p>The proposed activity aligns with:</p> <p>Policy R1 - Protect Biodiversity and Ecosystem Services.</p> <p>All route alternatives are within areas with a low fauna, botanical and biodiversity sensitivity.</p> <ul style="list-style-type: none"> • The project area is mostly comprised of transformed habitat. • The project area will not impact on CBA and ESA. • No remaining Garden Route Granite Fynbos exists in the project area. • The entire section along the R102 is currently used as agricultural fields. • The vegetation within the project area is not consistent with any Red Listed Ecosystem. <p>According to the agricultural specialist, no agricultural land is permanently lost and therefore the proposed water pipeline is assessed as being of very low agricultural significance.</p> <p>A series of meetings have been held with the project team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at the Gwaing River crossing, attaching the pipeline to the top of the culvert at the Norga River crossing, and using horizontal direction drilling at other highly sensitive wetland/dam crossings. According to the aquatic specialist, the impacts assessed for both construction and operational phase can be mitigated to negligible, and the Risk Matrix determined that the impacts are of Low Risk to potentially affected watercourses.</p> <p>Policy E3 – Revitalise and strengthen urban space-economies as the engine of growth.</p> <p>The proposed activity strengthens the Municipality’s ability to provide services to its residents and businesses as part of its service delivery mandate.</p>	
4.2	The Integrated Development Plan of the local municipality.
The proposed Airport Water Pipeline forms part of George Municipality's Water Services Development Plan which aims to ensure efficient, affordable, economical, and sustainable access to water services to all customers and potential customers in its area of jurisdiction, to promote sustainable livelihoods and economic development.	
4.3.	The Spatial Development Framework of the local municipality.
<p>The proposed water pipeline aligns with Policy A1 of the Spatial Development Vision for George: <i>Maintain, improve, and expand basic engineering services (water, sewer, electricity, stormwater and refuse removal).</i></p> <p>The following policy proposals were followed:</p> <ul style="list-style-type: none"> • Promote services provision to support densification and infill. 	

- The proposed water pipeline will service one (1) important node described in the George SDF:
 - The Airport Precinct Node

Sub-regional node in proximity to the N2 and George Airport, targeted at Southern Cape ari-processing/related manufacturing, freight and logistics, and services industries.

- New infrastructure and infrastructure upgrading to consider environmental sensitivities and risks.
 - The Applicant appointed various specialists (aquatic, fauna, flora, heritage and agriculture) to best inform the preferred pipeline route.

A series of meetings have been held with the project team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at the Gwaing River crossing, attaching the pipeline to the top of the culvert at the Norga River crossing, and using horizontal direction drilling at other highly sensitive wetland/dam crossings. According to the aquatic specialist, the impacts assessed for both construction and operational phase can be mitigated to negligible, and the Risk Matrix determined that the impacts are of Low Risk to potentially affected watercourses.

4.4. The Environmental Management Framework applicable to the area.

Not applicable.

5. Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

Comments received during the public participation process from relevant authorities and/or specialists will be included in the Final BAR.

6. Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

According to the Botanical/Biodiversity Compliance Statement (2024) & Aquatic Impact Assessment (2024), the Biodiversity Spatial Plan for the Western Cape (WC BSP) does not include most of the proposed pipeline route in their prioritised biodiversity planning areas (Figure 9).

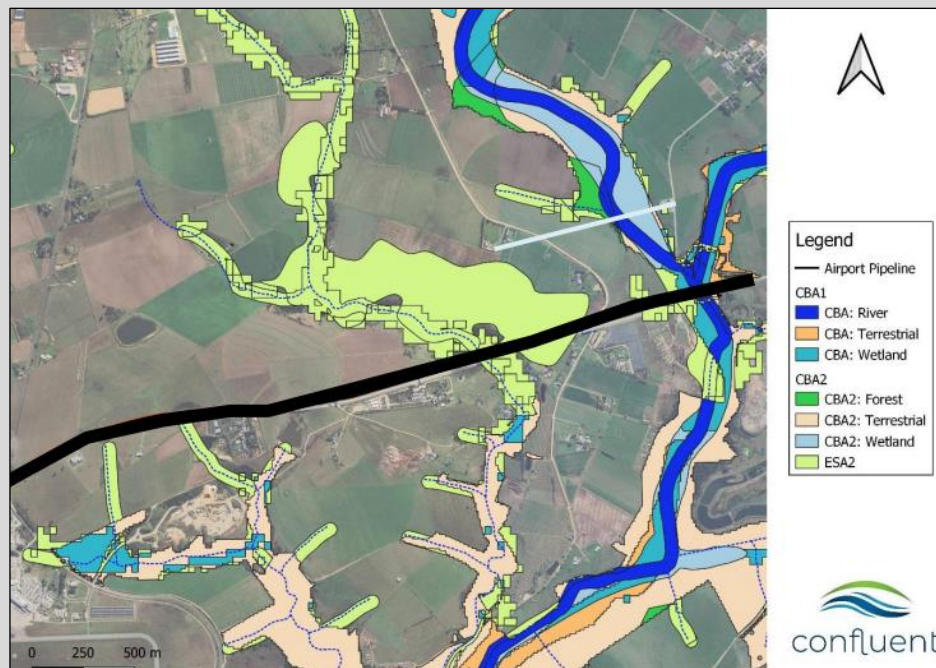



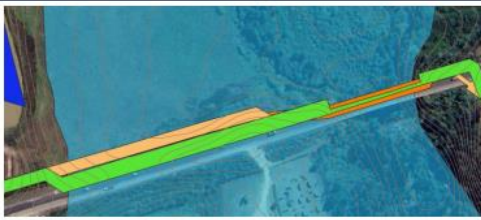

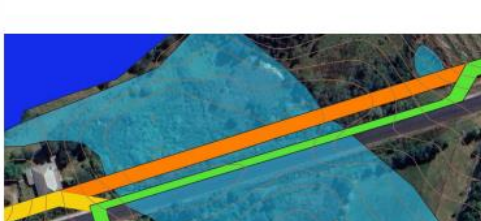

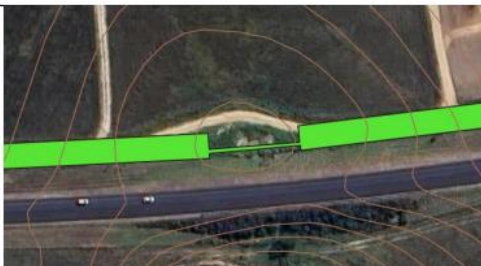


Figure 9: Mapped Western Cape Biodiversity Spatial Plan (source: Confluent).

The areas that are included are all associated with mapped watercourses including the Gwaing River which is identified as a Critical Biodiversity Area 1 (CBA1) and the wetland area further west which is identified as an Ecological Support Area 2 (ESA2).

According to the aquatic specialist, necessary actions in relation to the WCBSP are to ensure that the pipeline upgrade does not negatively impact sites with a high biodiversity classification. The definition and management objectives for each of the mapped categories is explained in the table below:

WCBSP Category	Definition	Management Objectives
CBA1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
ESA2	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.

The proposed water pipeline crosses four (4) watercourses:

Label	Photo	Aerial layout	Notes
A			<p>Gwaing River Channelled Valley Bottom Wetland and associated enhanced wetland due to stormwater runoff to the west. Existing pipeline route above river on bridge and above wetland along road embankment.</p>
B			<p>Norga River Channelled Valley Bottom Wetland dammed upstream of the road. Major interception of flow by dam. Channelled spillway from dam leads to culvert under road. The preferred option crossing would be mounting the pipeline on top of the culvert (see arrow).</p>
C			<p>Possible Wetland Historic temporary seep significantly disturbed due to intensive grazing road construction and subsequent erosion and slumping of soil. Pipeline installed using Horizontal Directional Drilling at this point.</p>
D			<p>Dam Probably old seep which was excavated for a dam. New pipeline route through highly disturbed vegetation impacted by existing road, dam embankment and alien vegetation. Pipeline installed using Horizontal Directional Drilling at this point.</p>

The four (4) watercourses crossed by the proposed pipeline route are already impacted by the presence of the R102 road. The Gwaing River and Norga Rivers also have pipelines and electrical / fibre cables that have been laid along them or on the bridge / culverts crossing them.

A series of meetings have been held with the engineering and environmental team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at Crossing A, attaching the pipeline to the top of the culverts at Crossing B, and using horizontal directional drilling at Crossings C and D.

Impacts assessed for both the construction and operational phase can be effectively mitigated to **negligible negative ratings**, and the Risk Matrix determined that the impacts were of a **Low Risk** to potentially affected watercourses. The Preferred Layout option was confirmed as having an overall Negligible Negative impact which was lower than alternatives assessed for Crossings A and B.

The botanical/biodiversity specialist also confirmed the following:

- The project area will not impact on CBA1 and ESA2.
- No remaining Garden Route Granite Fynbos exists in the project area.
- The entire section along the R102 is currently used as agricultural fields.
- The vegetation within the project area is not consistent with any Red Listed Ecosystem.

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.
----	--

Not Applicable.

8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.
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The screening tool has not changed. It is still the same screening tool submitted with the application form.

9.	Explain how the proposed development will optimise vacant land available within an urban area.
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Not applicable. The proposed development is not within an urban area nor is it on vacant land.

10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
-----	--

The four watercourses crossed by the proposed pipeline route are already impacted by the presence of the R102 road. The Gwaing and Norga Rivers also have pipelines and electrical / fibre cables that have been laid along them or on the bridge / culverts crossing them. In this sense, there is already a major pre-existing impact which has already undergone construction and is currently in operation.

11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).
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The proposed development will not use water / electricity during its operational phase.

12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.
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Need', as defined by DEADP refers to the timing of the proposal and the 'Desirability' refers to the 'placing' of the proposed development.

Questions to be engaged with when considering need & desirability

How will this development impact on the ecological integrity of the area?

- According to the fauna specialist, there is very little natural vegetation and habitat and there is a low likelihood of occurrence of terrestrial animal SCC within the project footprint

(including the 10m working area) for all route alternatives. No animal SCC were found on the site. Therefore, the proposed development will **not impact on any fauna SCC**.

- The aquatic specialist confirmed that the impacts assessed (on watercourses) for both the construction and operational phase can be effectively mitigated to **negligible negative** ratings, and the Risk Matrix determined that the impacts were of a Low Risk to potentially affected watercourses.
- The botanical/biodiversity specialist confirmed that no plant SCC or protected tree species were observed within the area where the proposed pipeline will be installed (including the 10m working area) for all three (3) route alternatives. According to the specialist, the Terrestrial Biodiversity for the proposed pipeline is Low for the following reasons:
 - The proposed water pipeline does not negatively affect the drainage line that are categorised as ESA2 and CBA1 and 2 areas.
 - The impact of this project on CBA and ESA areas will not counter the objectives of these areas.
 - No remaining Garden Route Granite Fynbos exists in the project area, and the vegetation is not consistent with any Red Listed ecosystem.

How will this development enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to avoid negative impacts and enhance positive impacts?

All specialists (agricultural, fauna, botany, biodiversity, aquatic, heritage and archaeology) provided a list of mitigation measures to avoid any negative impacts on the surrounding environment. These mitigation measures are included in the Environmental Management Programme (EMPr). An Environmental Control Officer (ECO) will be appointed to monitor compliance with the EMPr.

How will this development pollute and/or degrade the biophysical environment? What measures were explored to avoid or minimise these impacts.

An experienced and suitably qualified Environmental Control Officer will be appointed to oversee as-so-far-as the construction phase of the proposed pipeline to ensure that the biophysical environment will not be polluted by construction activities.

What waste will be generated by this development? Measures to avoid waste.

Construction waste will be generated during the construction phase and operational phase (maintenance / repair work). All waste must either be within a designated / demarcated area to be taken away at the end of the day or a skip. Additional measures are provided by the aquatic specialist to avoid any impacts on the watercourse crossings (included in the EMPr).

Normal waste will also be generated when construction staff bring their lunch (food, chip packets, cans, plastic bottles). The contractor must provide bins and toilets when working on site. Ensure that there are enough bins on-site at each working locality and enough toilets (1 per 15 people).

How will the **ecological impacts** result from this development impact on people's environmental right in terms of the following:

NEGATIVE: Temporary noise during construction, however the development footprint areas are so isolated that it is unlikely to impact negatively on any receptors in the nearby areas – refer to EMPr for mitigation measures.

POSITIVE: The current 200mm water pipeline is old and often bursts, which leads to frequent maintenance and repair work. Additionally, the growing demand in the R102 areas has prompted the George Municipality to upgrade this main pipeline. This upgrade aims to ensure an adequate and reliable water supply for current properties and to provide enough water supply to future developments along the R102 heading eastwards the N2, as well as future demands towards Herold's Bay, Oubaai, and the Airport Precinct.

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that if the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

(a)	fixing a notice board at a place conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of -			
(i)	the site where the activity to which the application relates is or is to be undertaken; and	YES	EXEMPTION	
(ii)	any alternative site.	YES	EXEMPTION	
(b)	giving written notice, in any manner provided for in section 47D of the NEMA, to -			
(i)	the occupiers of the site and, if the applicant is not the owner or person in control of the site on which the activity is to be undertaken, the owner or person in control of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;	YES	EXEMPTION	
(ii)	owners, persons in control of, 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;	YES	EXEMPTION	
(iii)	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;	YES	EXEMPTION	
(iv)	the municipality (Local and District Municipality) which has jurisdiction in the area;	YES	EXEMPTION	
(v)	any organ of state having jurisdiction in respect of any aspect of the activity; and	YES	EXEMPTION	
(vi)	any other party as required by the competent authority;	N/A	YES	EXEMPTION
(c)	placing an advertisement in -			
(i)	one local newspaper; or	YES	EXEMPTION	
(ii)	any official <i>Gazette</i> that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;	N/A	YES	EXEMPTION
(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 district municipality in which it is or will be undertaken.	N/A	YES	EXEMPTION
(e)	using reasonable alternative methods, as agreed to by the Department, in those instances where a person is desirous of but unable to participate in the process due to—	N/A	YES	EXEMPTION
	(i) illiteracy; (ii) disability; or (iii) any other disadvantage.			

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

The Public Participation Plan as indicated in the application form has been complied with:

- Affected / Neighbouring property owners were identified using CapeFarmMapper,
- Select property owners were compiled into a list sent to the George Municipality for confirmation of contact details,
- Key Authorities were identified according to whether they have a mandated interest in the area/site,
- Local Councillor was verified with the George Municipality,
- Site Notices were placed on site calling for I&APs to register and review the DBAR,
- Written notifications were sent to all potential I&APs via email/post/hand delivery informing of the availability of the DBAR and the opportunity to register as an I&AP.
- Advert appeared in the *George Herald* for I&APs to register and submit comment on the DBAR.

Noted that the 30-day commenting period was extended by a week to accommodate a late submission of the final Engineering Report. The commenting period was subsequently re-advertised and I&APs issued updated letters informing of the amended dates. The Competent Authority has also been kept informed of this extension to ensure transparency of the public participation process.

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

George Municipality: Technical (Melanie Geyer)
BOCMA (Mr Carlo Abrahams)
George Municipality: Environmental Officer (Lauren Josias)
CapeNature (Megan Simons)
Garden Route District Municipality (Ms Nina Viljoen)
Heritage Western Cape (Stephanie-Ann Barnardt)
Department of Agriculture (Mr Cor van der Walt)
Department of Forestry: (Melanie Koen)
SACAA (Evelyn Shogole)
Provincial Roads (Evan Burger & Vanessa Stoffels)
Ward 23 Councillor (Browen Johnson)
Department of Health (Nathan Jacobs)

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

Department of Defence – The EAP is of the opinion that the theme is not applicable to this application. Since there is no provision in the Protocols for 'not applicable' the lowest possible rating level of Low remains. There are no reasonable grounds to conduct any specialists' studies to affirm this and further consultation with the Department of Defence is not necessary.

5. if any of the State Departments and Organs of State did not respond, indicate which.

All comments received in response to the DBAR will be reflected in the Final BAR and information will then be available as to which State Departments, if any, did not respond within the prescribed 30-day commenting period.

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

Issues raised by I&APs during the Public Participation Period will be reflected in the Final BAR.

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that "Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
 - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
 - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
 - if a facsimile was sent, a copy of the facsimile Report;
 - if an electronic mail was sent, a copy of the electronic mail sent; and
 - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. Groundwater

1.1.	Was a specialist study conducted?	YES	NO
1.2.	Provide the name and/or company who conducted the specialist study.		
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		

2. Surface water

2.1.	Was a specialist study conducted?	YES	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
Confluent Environmental (Dr Dabrowski).			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
<p>The proposed water pipeline crosses four (4) watercourses:</p> <ol style="list-style-type: none"> 1. Gwaing River: Crossing A (Figure 10) <ul style="list-style-type: none"> • Classification: Channelled valley-bottom wetland. • Present Ecological State (PES): Seriously Modified. • Vegetation: The pipeline traverses a significant area of wetland west of the Gwaing River which is significantly enhanced by stormwater runoff from the road. 			



Figure 10: The Gwaing River: Crossing A (source: Confluent)

2. Norga River: Crossing B (Figure 11)

- Classification: Valley-bottom wetland.
- Present Ecological State: Highly Modified.
- Vegetation in the footprint of the crossing is a mixture of indigenous and numerous alien invasive species.

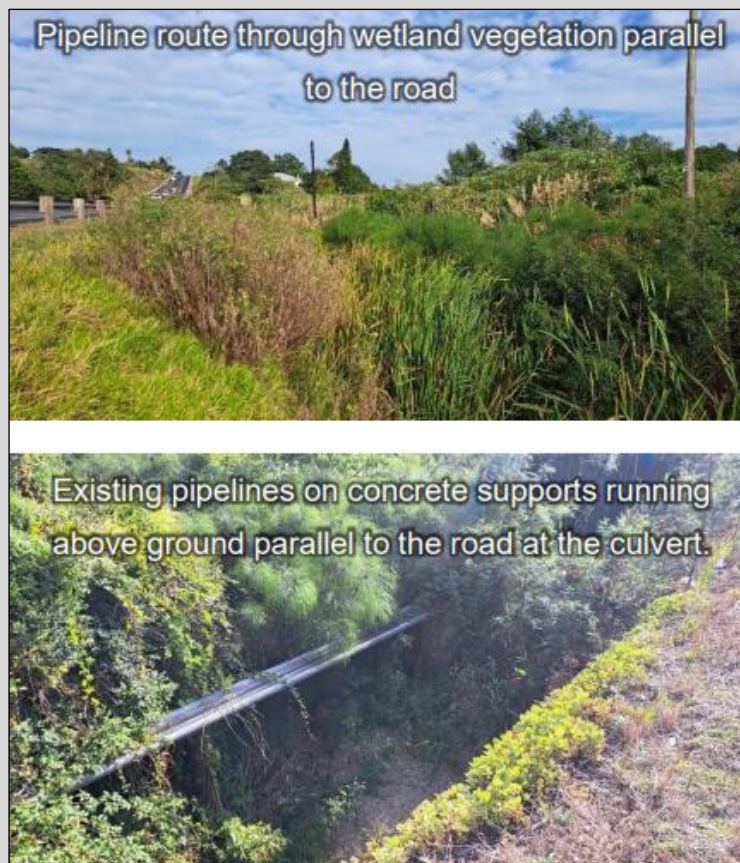


Figure 11: Norga River Culvert Crossing B (source: Confluent).

3. Wetland: Crossing C (Figure 12)

- Classification: Seep wetland
- The wetland area is very minor in extent with no wetland vegetation present.

- The wetland has a seasonal hydrological regime.



Figure 12: Crossing C – Seep Wetland.

4. Wetland: Crossing D (Figure 13)

- Classification: Small dam which was likely a headwater seep.
- Extensive wetland vegetation has established around the dam.
- The proposed pipeline is planned for installation along the toe of the dam parallel to the road using horizontal direction drilling to minimise any structural / ecological risk to the dam.



Figure 13: Crossing D – Dam embankment with road parallel (source: Confluent).

Label	Photo	Aerial layout	Notes
A			<p>Gwaing River Channelled Valley Bottom Wetland and associated enhanced wetland due to stormwater runoff to the west. Existing pipeline route above river on bridge and above wetland along road embankment.</p>
B			<p>Norga River Channelled Valley Bottom Wetland dammed upstream of the road. Major interception of flow by dam. Channelled spillway from dam leads to culvert under road. The preferred option crossing would be mounting the pipeline on top of the culvert (see arrow).</p>
C			<p>Possible Wetland Historic temporary seep significantly disturbed due to intensive grazing road construction and subsequent erosion and slumping of soil. Pipeline installed using Horizontal Directional Drilling at this point.</p>
D			<p>Dam Probably old seep which was excavated for a dam. New pipeline route through highly disturbed vegetation impacted by existing road, dam embankment and alien vegetation. Pipeline installed using Horizontal Directional Drilling at this point.</p>

Figure 14: Summary of watercourses crossed by the pipeline to be upgraded. Green = Preferred route; Pink = Route 3; Orange = Route 1. Route 2 does not appear on the layout because it is overlapped at each watercourse crossing by another route option. Thin line options in Crossings C and D are areas of Horizontal Directional Drilling which are consistent across all route options. Width of the pipeline route shown is inclusive of disturbance footprint.

The four (4) watercourses crossed by the proposed pipeline route are already impacted by the presence of the R102 road (Figure 14). The Gwaing River and Norga Rivers also have pipelines and electrical / fibre cables that have been laid along them or on the bridge / culverts crossing them.

Several meetings were held between the engineering (SMEC) and environmental team (Cape EAPrac and Confluent) to discuss potentially sensitive areas of the pipeline route and how these could best be navigated to avoid and minimise impacts. Therefore, following the mitigation hierarchy. The resulting Preferred Pipeline layout was selected, and alternative methods of installation such as the horizontal directional drilling at Crossings C and D address the design and layout phase of the impact assessment process.

Impacts assessed for both the construction and operational phase can be effectively mitigated to **negligible negative ratings**, and the Risk Matrix determined that the impacts were of a **Low Risk** to potentially affected watercourses. The Preferred Layout option was confirmed as having an overall negligible negative impact which was lower than other alternatives assessed for Crossings A and B.

3. Coastal Environment

3.1.	Was a specialist study conducted?	YES	NO
3.2.	Provide the name and/or company who conducted the specialist study.		

3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.

4. Biodiversity

4.1.	Were specialist studies conducted?	YES	NO									
4.2.	Provide the name and/or company who conducted the specialist studies.											
Confluent Environmental (Ms Bianke Fouche).												
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.											
<ul style="list-style-type: none"> • The DFFE Screening Tool. • SANBIs Botanical Research and Herbarium Management System. • iNaturalist. • The 2018 updated South African National Vegetation Map from SANBIs Biodiversity GIS database. • Shapefiles for the Western Cape Biodiversity Spatial Plan. • Cape Farm Mapper. • Chief Directorate: National Geo-spatial Information Geospatial Portal and Google Earth. • Revised National List of Ecosystems. <p>The botanical/biodiversity specialists used the above-mentioned biodiversity informants to compile a detailed Botanical and Terrestrial Biodiversity Assessment.</p>												
4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.											
<p>According to the Botanical/Biodiversity Compliance Statement (2024) & Aquatic Impact Assessment (2024), the Biodiversity Spatial Plan for the Western Cape (WC BSP) does not include most of the proposed pipeline route in their prioritised biodiversity planning areas.</p> <p>The areas that are included are all associated with mapped watercourses including the Gwaing River which is identified as a Critical Biodiversity Area 1 (CBA1) and the wetland area further west which is identified as an Ecological Support Area 2 (ESA2).</p> <p>According to the aquatic specialist, necessary actions in relation to the WCBSP are to ensure that the pipeline upgrade does not negatively impact sites with a high biodiversity classification. The definition and management objectives for each of the mapped categories is explained in the table below:</p>												
<table border="1"> <thead> <tr> <th>WCBSP Category</th> <th>Definition</th> <th>Management Objectives</th> </tr> </thead> <tbody> <tr> <td>CBA1</td> <td>Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.</td> <td>Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.</td> </tr> <tr> <td>ESA2</td> <td>Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.</td> <td>Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.</td> </tr> </tbody> </table>				WCBSP Category	Definition	Management Objectives	CBA1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.	ESA2	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.
WCBSP Category	Definition	Management Objectives										
CBA1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.										
ESA2	Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.	Restore and/or manage to minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.										
<p>As described above (Figure 10), the proposed pipeline crosses four (4) watercourses. The four (4) watercourses crossed by the proposed pipeline route are already impacted by the presence of the R102 road. The Gwaing River and Norga Rivers also have pipelines and electrical / fibre cables that have been laid along them or on the bridge / culverts crossing them.</p>												

Several meetings were held between the engineering (SMEC) and environmental team (Cape EAPrac and Confluent) to discuss potentially sensitive areas of the pipeline route and how these could best be navigated to avoid and minimise impacts. Therefore, following the mitigation hierarchy. The resulting Preferred Pipeline layout was selected, and alternative methods of installation such as the horizontal directional drilling at Crossings C and D address the design and layout phase of the impact assessment process.

Therefore, the proposed project aligns with the management objectives of CBA1 and ESA2.

4.5. Explain what impact the proposed development will have on the site-specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.

- Aquatic Impacts assessed for both the construction and operational phase can be effectively mitigated to **negligible negative ratings**, and the Risk Matrix determined that the impacts were of a **Low Risk** to potentially affected watercourses. The Preferred Layout option was confirmed as having an overall negligible negative impact which was lower than other alternatives assessed for Crossings A and B.
- No Impacts from a botanical / biodiversity perspective:
 - The project area will not impact on CBA1 and ESA2.
 - No remaining Garden Route Granite Fynbos exists in the project area.
 - The entire section along the R102 is currently used as agricultural fields.
 - The vegetation within the project area is not consistent with any Red Listed Ecosystem.

4.6. If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.

The proposed development is not located in a protected area.

4.7. Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.

According to the independent SACNASP registered faunal specialist, the project area is mostly comprised of **transformed habitat**, with little to no natural vegetation. This is largely due to agriculture (grazing). Other habitat modifications observed are due to dense alien plant invasion.

According to the faunal specialist, animal SCC identified by the Screening Tool have a low **likelihood of occurrence**:

Animal SCC	Observed on site	Suitable habitat	Likelihood of occurrence
Circus ranivorus	No	No	Low
Neotis denhami	No	No	Low
Bradyperus sylvaticus	No	Possible	Low
Africalus knysnae	No	No	Low
Stephanoaetus coronatus	No	No	Low
Neotis denhami	No	No	Low
Sensitive Species 8	No	No	Low
Aneuryphymus montanus	No	No	Low

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
<p>No geographical aspects will be affected by the proposed development.</p> <p>SMEC appointed Roadlab Laboratories to carry out a material investigation which included (a) material sampling and investigation, (b) dynamic probe light penetration test and (c) laboratory testing and reporting. The aim of the investigation was to determine the soil conditions for design and construction of the pipeline and the suitability of the material to be used for bedding or backfilling.</p> <p>The area mainly consists of soft material being classified as either sand, soil, or clayey soil. The side walls in all test pits were stable (stiff) (Engineering Design Report, 2024).</p>

6. Heritage Resources

6.1.	Was a specialist study conducted?	YES	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
Perception Planning			
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		
<p>According to Perception Planning, the proposed water pipeline alignment would follow the alignment of the Airport Road through a highly transformed rural landscape (Final BID, 2024).</p> <p>Based on fieldwork, historic background research and the literature review undertaken as part of this assessment it is therefore Perception Planning's view that no heritage resources of cultural significance (i.e. built environment, cultural landscape, archaeology, or palaeontology) would be impacted through the proposed development (Final BID, 2024).</p>			

7. Historical and Cultural Aspects

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.
There are no culturally or historically significant elements that will be affected by the proposed activity.







8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
<p>The proposed site is in the vicinity of:</p> <ul style="list-style-type: none"> • The R102 (Provincial Road) • Multiple Agricultural Fields (Irrigated Croplands) – Gwayang Farms • Nurseries (Cape Garden, George Garden Centre, Norgarivier Nursery) • Restaurants (Apprentice Restaurant, The Marshmallow Garden Cafe) • Barnyards Kennels and Cattery. • George Airport 	
8.2.	Explain the socio-economic value/contribution of the proposed development.

	<ul style="list-style-type: none"> • Create temporary employment opportunities during the construction phase. • Create temporary employment opportunities for contractors and suppliers during the construction phase. • Ensure that the Municipality can achieve and deliver its mandate of service delivery. • Installation and upgrade of the bulk water pipeline will ensure the sustainable delivery of water to the airport precinct and other future developments and is necessary for the development of George.
8.3.	<p>Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.</p> <ul style="list-style-type: none"> • Employment of local labour. • Source materials locally.
8.4.	<p>Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.</p> <p>The key social issues associated with the proposed activity may include some temporary negative impacts during the construction phase:</p> <ul style="list-style-type: none"> • Negative: Security and safety risk posed by workers when conducting the work. • Negative: Temporary noise impacts for residents.

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered.

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.				
Provide a description of the preferred property and site alternative.					
#	Preferred Property	Preferred Site within the Preferred Property	#	Preferred Property	Preferred Site within the Preferred Property
1	RE/464	Road Reserve of R102	8	96/208	Road Reserve of R102
2	113/208	Private Property: 5m Building Line Road Reserve of R102	9	139/208	Private Property: 5m Building Line
3	65/208	Road Reserve of R102	10	53/208	Private Property: 5m Building Line
4	112/208	Private Property: 5m Building Line	11	132/208	Road Reserve of R102
5	44/208	Private Property: 5m Building Line	12	131/208	Road Reserve of R102
6	RE/102/208	Road Reserve of R102	13	68/208	Road Reserve of R102
7	45/208	Private Property: 5m Building Line Road Reserve of R102			
Provide a description of any other property and site alternatives investigated.					
No other property alternatives were investigated. However, other site alternatives within the preferred property alternatives were investigated:					
<u>Gwaing Bridge Options (Preferred Properties: RE/464 & 113/208)</u>					
Option 02: Preferred Site. Options 01 & 03: Non-Preferred Sites.					
					
<u>Culvert Crossings Options (Preferred Properties: 113/208, 44/208 & RE/102/208)</u>					
Option 03: Preferred Site. Options 01 & 02: Non-Preferred Sites.					
					
<u>Tie-in to Existing Options (Preferred Properties: RE/53/208, 131/208 and 132/208)</u>					
Option 03: Preferred Site. Options 01 & 02: Non-Preferred Sites.					
					

Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.

Preferred Properties

There is already an existing 200mm municipal potable water pipeline, along the R102, that supplies water to Geoge Airport, Herold's Bay, and other properties along the R102/R404. This pipeline has exceeded its design life and should therefore be replaced/upgraded with a greater capacity pipeline, which will vary in diameter from 250mm to 400mm.

Preferred Sites

Most of the pipeline will be installed within the 5m building line of private properties north of the R102. The R102 is in proclaimed road reserves of the Provincial Roads, and the ideal pipeline route was to install the pipe in the road reserve. Installing a pipeline in the road reserve provided unrestricted access for repairs. The Western Cape Government is the road authority of the R102 and restricted the pipeline to only a 1m corridor adjacent to the fence line on either side of the road. An extensive site investigation was done, and it was determined that existing services were already installed in this 1m corridor, and there was no space for the new pipeline in certain sections of the 1m corridor.

Comparative Aquatic Assessment

Dr Dabrowski conducted a comparative assessment for the preferred and non-preferred sites at each watercourse crossing during the construction & operational phase. The preferred alternative has a significance rating of negligible – negative while the non-preferred has a slightly higher significance rating of minor – negative.

Construction Phase

Gwaing River Crossing: The preferred site had a predicted negligible negative impact during the construction phase, while the non-preferred site which is located further away from the road had a slightly higher negative impact rated as a minor negative.

Norga River Crossing: The preferred site which is attached to the top of the existing culvert has a Negligible Negative impact, which confirms this as the preferred alternative to the non-preferred which would require trenching through the wetland, with an associated Minor Negative Impact.

Operational Phase

Gwaing River Crossing: The Preferred site had a predicted negligible negative impact during the operational phase, while the non-preferred which is located further away from the road had a slightly lower negative impact rated as a minor negative

Norga River Crossing: The preferred site which is attached to the top of the existing culvert has a Negligible Negative impact because maintenance would create little to no impact to the wetland. The non-preferred would require excavations in the wetland for periodic maintenance which would disturb and degrade habitat.

Provide a full description of the process followed to reach the preferred alternative within the site.

- SMEC obtained drawings of the existing services from relevant service providers and local authorities. However, the information did not confirm the presence of absence of services and does not specify their exact locations or depths. Therefore, extensive site investigations were conducted (topographical surveys, visual assessments, ground penetrating radar surveys and material investigations) to determine if adequate space existed to install the pipeline only within the road reserve within the 1m corridor. After the data was analysed, it was found that services were already installed in the 1m corridor, which resulted in the decision to install most of the pipeline, where feasible, within the 5m building line of private properties.

<ul style="list-style-type: none"> • Various specialists (botany/biodiversity, fauna and aquatic) were appointed to best inform the preferred pipeline route alternative. • A series of meetings have been held with the project team to discuss sensitive areas which are primarily the watercourse crossing points. Design and layout modifications were made to avoid and minimise impacts in these areas which include attaching the pipeline to the Gwaing River Bridge at the Gwaing River crossing, attaching the pipeline to the top of the culvert at the Norga River crossing, and using horizontal direction drilling at other highly sensitive wetland/dam crossings. According to the aquatic specialist, the impacts assessed for both construction and operational phase can be mitigated to negligible, and the Risk Matrix determined that the impacts are of Low Risk to potentially affected watercourses. • On 17 April 2024, George Municipality notified the affected landowners about the proposed project and different route alternatives since the pipeline must be installed within the building lines. Two (2) queries were received from affected landowners. Both queries were reviewed by the Engineer and Applicant to finalise the preferred pipeline route sections.
<p>Provide a detailed motivation if no property and site alternatives were considered.</p>
<p>List the positive and negative impacts that the property and site alternatives will have on the environment.</p>
<p>Positive</p> <ul style="list-style-type: none"> • No negative impacts on drainage lines within the property and site alternatives. • No impacts on Garden Route Granite Fynbos or any Red Listed ecosystem. • No impacts on Plant SCC, Protected Tree Species and Fauna SCC. • No impacts on highly sensitive agricultural fields. <p>Negative</p> <ul style="list-style-type: none"> • Access will need to be requested from the landowners for maintenance or replacing of large fittings during the operational phase. • Temporary security & noise impacts for affected landowners during the construction phase. • Temporary access restrictions during the installation of the water pipeline across roads/driveways of private properties during the construction phase.
<p>1.2. Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.</p>
<p>Provide a description of the preferred activity alternative.</p>
<p>The installation of a water pipeline along the R102 towards George Airport as a replace-upgrade to cater for current and future demands and to supply water to the new Airport Precinct development. The Airport Precinct in George, existing users and additional areas such as Herold's Bay, are supplied with water through an existing 200mm diameter pipeline along the R102. It is the intention of the Applicant, George Municipality, to replace approximately 3.7km of this pipeline with a greater capacity pipeline, which will vary in diameter from 250mm – 400mm.</p>
<p>Provide a description of any other activity alternatives investigated.</p>
<p>No-Go Activity Alternative i.e., no replace/upgrade of the existing 200mm water pipeline.</p>
<p>Provide a motivation for the preferred activity alternative.</p>
<p>The current 200mm water pipeline is old and often bursts, which leads to frequent maintenance and repair work. Additionally, the growing demand in the R102 areas has prompted the George Municipality to upgrade this main pipeline. This upgrade aims to ensure an adequate and reliable water supply for current properties and to provide enough water supply to future developments along the R102 heading eastwards the N2, as well as future demands towards Herold's Bay, Oubaai, and the Airport Precinct.</p>
<p>Provide a detailed motivation if no activity alternatives exist.</p>

List the positive and negative impacts that the activity alternatives will have on the environment.

Preferred Activity Alternative

Positive

- Ensure adequate and reliable water supply to current properties and future demands.
- No frequent maintenance and repair work.

Negative

- Temporary noise & safety impacts during construction.
- Temporary access restrictions for affected landowners when the pipeline is installed through roads/driveways.

No-Go Activity Alternative

Positive

- No temporary noise & safety impacts during installation of the water pipeline.
- No temporary access restrictions for affected landowners.

Negative

- Cost implications because of more frequent maintenance and repair work.
- The No-Go Activity Alternative would result in no pipeline upgrade and would therefore limit development in the airport precinct and surrounding areas due to limited potable water supply. As the proposed pipeline upgrade aims to increase the capacity of an existing pipeline which travels along existing linear infrastructure (the road), the No-Go Development is not considered practical given the requirement for growth in George. The airport precinct as a development node also represents an important strategic area for growth.

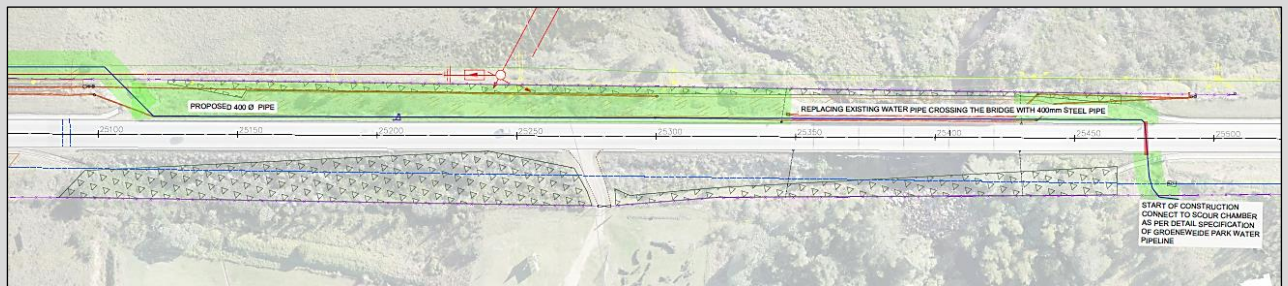
1.3. Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts

Provide a description of the preferred design or layout alternative.

Start of Pipeline: Connection of the new pipeline with the scour chamber of Groeneweide Park water pipeline just east of Gwaing River Bridge, south of the R102 on RE/464. The water pipeline will cross the R102 by means of HDD to be installed further within the road reserve north of the R102. The pipeline remains within the road reserve of the R102 for approximately 45m up until it reaches the Gwaing River Bridge.

Gwaing River Bridge Option 02: Replacement of the existing water pipe crossing the bridge with a 400mm pipe. After the pipeline crosses the bridge, it will remain within the road reserve of the R102 for approximately 250m from where it will then diagonally enter a private property (113/208 Gwayang).

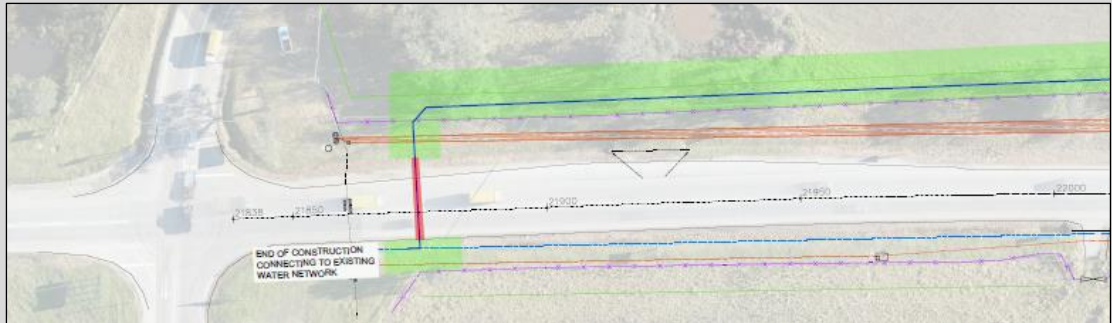
The water pipeline remains within the 5m building line of private properties (113/208 and 112/208 Gwayang) north-side of the R102, up until a culvert crossing at Norga River Bridge approximately 850m from the Gwaing River Bridge.



Culvert Crossing Option 03: Proposed 355mm pipe within the road reserve over the culvert, after which the pipeline will cross the R102 (HDD) to be installed within the road reserve south side of the R102. This pipeline will extend for approximately 300m (Road Reserve of R102) where it will again cross the R102 (HDD) and proceed within the 5m building line to the north-side (44/208 Gwayang).



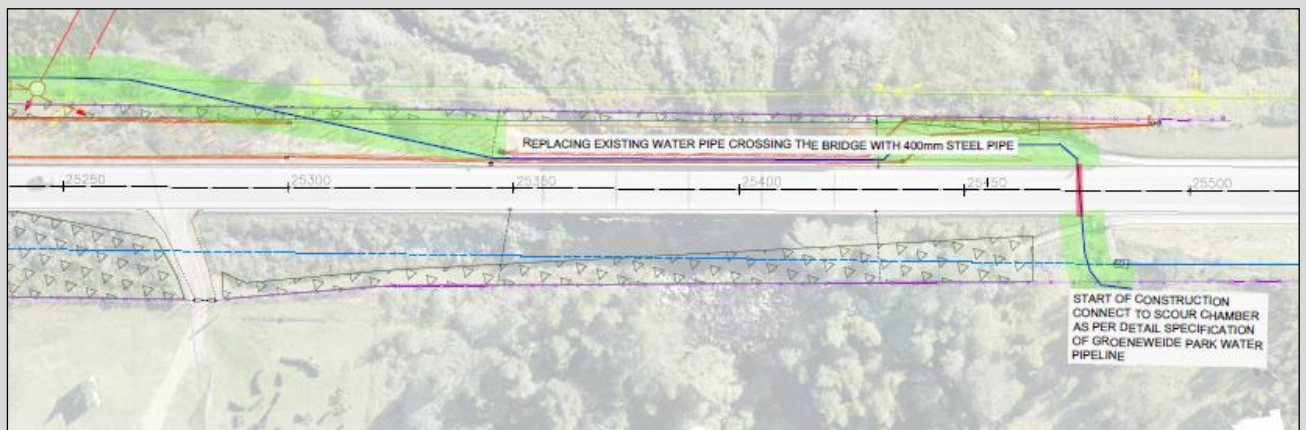
End of Pipeline (Tie-in to existing Option 03): The pipeline remains within the 5m building line of private properties (44/208, 45/208, 139/205, RE/53/208) north side of the R102 for approximately 2km where it will cross the R102 to be tied into the existing network at the George Airport, south-side of the R102, near the R102/R404 intersection.



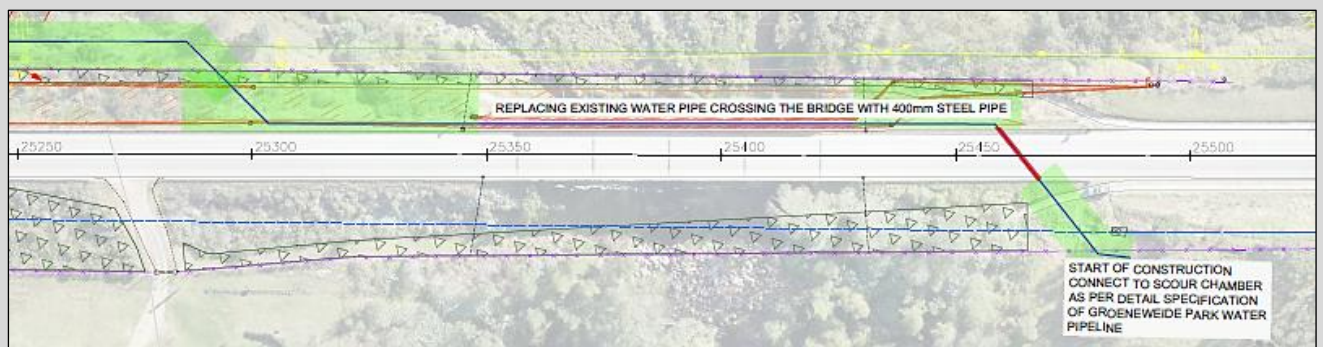
Provide a description of any other design or layout alternatives investigated.

Gwaing River Bridge

Option 01 (non-preferred): Straight from the bridge diagonally into a private property (113/208 Gwayang).

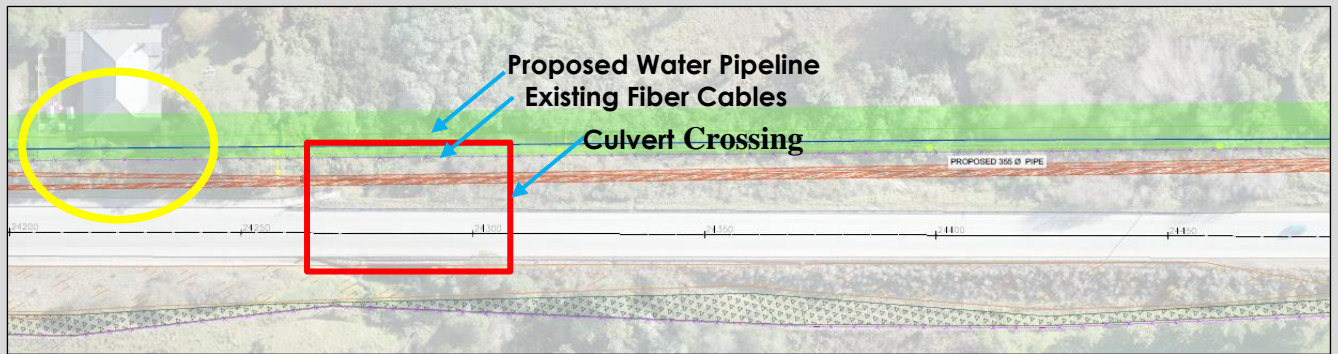


Gwaing Bridge Option 03 (non-preferred): The pipeline will remain within the road reserve for approximately 50m from the bridge where it will diagonally enter a private property (113/208 Gwayang).

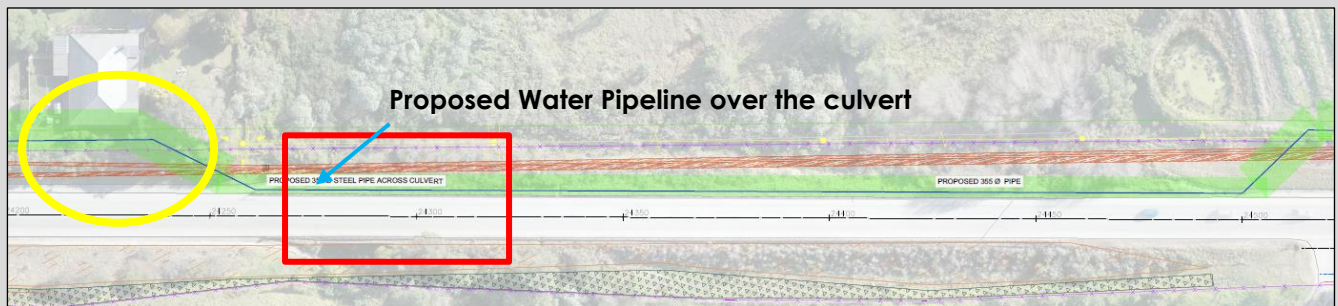


Culvert Crossing

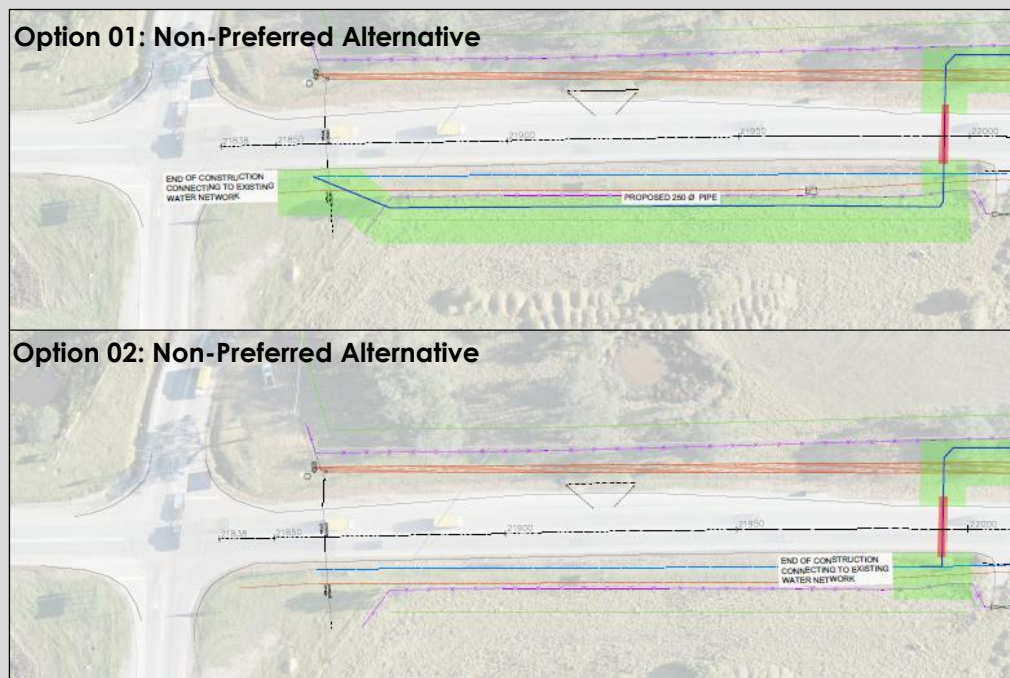
Option 01 (non-preferred): The water pipeline (proposed 355 ϕ pipe) will remain within the 5m building line of the private property north-side of the R102 (44/208 Gwayang). The pipeline will be installed within the culvert just north of the existing fibre cables.



Option 02 (non-preferred): Proposed 355 ϕ steel pipe within the road reserve over the culvert after which it will return to the 5m building line of the private property (RE/102/208 Gwayang).




End of Pipeline:



Provide a motivation for the preferred design or layout alternative.

- The preferred route:
 - avoids disturbance of existing infrastructure on 44/208 as indicated by the landowner (existing septic tank, residential house and stepped walls).
 - remains the longest within the road reserve of the R102 for unrestricted accessibility.

	<ul style="list-style-type: none"> ○ results in the least amount of disturbance of wetland vegetation at the Gwaing bridge crossing. ○ avoids the bed of the wetland at the Norga River crossing. <p>According to the aquatic specialist, the main different for consideration in the different layout options is at Crossing A (Gwaing) and Crossing B (Norga). At Crossing A, the Preferred route had a predicted negligible impact during the construction phase, while the non-preferred routes which is located further away from the road had a slightly higher negative impact as a minor negative.</p> <p>At Crossing B, the preferred option which is attached to the top of the existing culvert has a Negligible Negative Impact, which confirms this as the preferred alternative to the non-preferred which would require trenching through the wetland, with an associated Minor Negative impact.</p>
	Provide a detailed motivation if no design or layout alternatives exist.
	List the positive and negative impacts that the design alternatives will have on the environment.
	<p>Positive</p> <ul style="list-style-type: none"> • No negative impacts on drainage lines within the property and site alternatives. • No impacts on Garden Route Granite Fynbos or any Red Listed ecosystem. • No impacts on Plant SCC, Protected Tree Species and Fauna SCC. • No impacts on highly sensitive agricultural fields. <p>Negative</p> <ul style="list-style-type: none"> • Access will need to be requested from the landowners for maintenance or replacing of large fittings during the operational phase. • Temporary security & noise impacts for affected landowners during the construction phase. • Temporary access restrictions during the installation of the water pipeline across roads/driveways of private properties during the construction phase.
1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
	Provide a description of the preferred technology alternative:
	Not applicable.
	Provide a description of any other technology alternatives investigated.
	Provide a motivation for the preferred technology alternative.
	Provide a detailed motivation if no alternatives exist.
	List the positive and negative impacts that the technology alternatives will have on the environment.
1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
	Provide a description of the preferred operational alternative.
	No applicable.
	Provide a description of any other operational alternatives investigated.
	Provide a motivation for the preferred operational alternative.

Provide a detailed motivation if no alternatives exist.	
List the positive and negative impacts that the operational alternatives will have on the environment.	
1.6.	The option of not implementing the activity (the 'No-Go' Option).
Provide an explanation as to why the 'No-Go' Option is not preferred.	
<p>The No-Go Option would result in no pipeline upgrade and would therefore limit development in the airport precinct and surrounding areas due to limited potable water supply. As the proposed pipeline upgrade aims to increase the capacity of an existing pipeline which travels along existing linear infrastructure (the road), the No-Go Development is not considered practical given the requirement for growth in George. The airport precinct as a development node also represents an important strategic area for growth.</p>	
1.7.	Provide an explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.
Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.	
1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
<p><u>Preferred Activity Alternative</u></p> <p>The proposed project entails the installation of a water pipeline along the R102 towards George Airport as a replace-upgrade to cater for current and future demands and to supply water to the new Airport Precinct development.</p> <p>The Airport Precinct in George, existing users and additional areas such as Herold's Bay, are supplied with water through an existing 200mm diameter pipeline along the R102. It is the intention of the Applicant, George Municipality, to replace approximately 3.7km of this pipeline with a greater capacity pipeline, which will vary in diameter from 250mm – 400mm.</p> <p>Note that this replacement is not like-for-like since the existing 200mm pipeline will need to provide continued water supply, until the new pipeline section is fully operational. The existing pipeline will therefore not be removed from its current position once the new line is installed.</p> <p><u>Preferred Route/Alignment</u></p> <p>The proposed water pipeline extends just east of Gwaing River Bridge to George Airport. Most of the pipeline section will be installed within the 5m building line of adjacent private properties north of the R102. However, a few shorter sections are also proposed on the south side of the R102 in a similar manner to account for constraints/environmental features (Figure 8).</p>	
	
<p align="center">Figure 15: Preferred Pipeline Route (Preferred Design Alternative).</p>	

Preferred Property & Site Alternatives

#	Farm Portions	Locality	#	Farm Portions	Locality
1	RE/464	Road Reserve of R102	8	96/208	Road Reserve of R102
2	113/208	Private Property: 5m Building Line Road Reserve of R102	9	139/208	Private Property: 5m Building Line
3	65/208	Road Reserve of R102	10	53/208	Private Property: 5m Building Line
4	112/208	Private Property: 5m Building Line	11	132/208	Road Reserve of R102
5	44/208	Private Property: 5m Building Line	12	131/208	Road Reserve of R102
6	RE/102/208	Road Reserve of R102	13	68/208	Road Reserve of R102
7	45/208	Private Property: 5m Building Line Road Reserve of R102			

Preferred Installing Methods

1. Trenching by using an excavator

Open a trench to install the pipeline and cover the pipeline again with the excavated material

2. Horizontal Direction Drilling

To avoid and/or mitigate anticipated impacts, a few sections will be installed by using a technique called **Horizontal Direction Drilling (HDD)**².

HDD will be implemented at **road crossings** and areas deemed **more sensitive** i.e., **watercourses/wetlands**. This method allows installation of the pipeline section with minimal earthworks/surface disturbance.

2. "No-Go" areas

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

The development footprint and working area will be demarcated. All areas outside the demarcation are considered as "No-Go" areas during the construction phase.

3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

Criteria for Assessment

These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989.

These criteria include:

- **Nature of the impact**

This is the appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

² HDD is a construction technique whereby a tunnel is drilled under a watercourse or other designated area, and a pipeline or other utility is pulled through the drilled underground tunnel. Excavations are necessary at the entry/exit position of the section to enable machinery to access at the correct level under natural ground level.

- **Extent of the impact**

Describe whether the impact will be local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

- **Duration of the impact**

The specialist / EAP should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long term (16-30 years) or permanent.

- **Intensity**

The specialist / EAP should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The study must attempt to quantify the magnitude of the impacts and outline the rationale used.

- **Probability of occurrence**

The specialist / EAP should describe the probability of the impact occurring and should be described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

The impacts should also be assessed in terms of the following aspects:

- **Legal requirements**

The specialist / EAP should identify and list the relevant South African legislation and permit requirements pertaining to the development proposals. He / she should provide reference to the procedures required to obtain permits and describe whether the development proposals contravene the applicable legislation.

- **Status of the impact**

The specialist / EAP should determine whether the impacts are negative, positive or neutral ("cost – benefit" analysis). The impacts are to be assessed in terms of their effect on the project and the environment. For example, an impact that is positive for the proposed development may be negative for the environment. It is important that this distinction is made in the analysis.

- **Accumulative impact**

Consideration must be given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts must be evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

- **Degree of confidence in predictions**

The specialist / EAP should state what degree of confidence (low, medium or high) is there in the predictions based on the available information and level of knowledge and expertise.

Based on a synthesis of the information contained in the above-described procedure, you are required to assess the potential impacts in terms of the following significance criteria:

No significance: the impacts do not influence the proposed development and/or environment in any way.

Low significance: the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.

Moderate significance: the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.

High significance: the impacts will have a major influence on the proposed development and/or environment and will result in the "no-go" option on the development or portions of the development

regardless of any mitigation measures that could be implemented. This level of significance must be well motivated.

4. Assessment of each impact and risk identified for each alternative.

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

CONSTRUCTION PHASE IMPACTS

Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Excessive disturbance to soil and plants in wetlands
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	Extend: Very Limited (with mitigation) Extend: Limited (without mitigation) Duration: Short term (with and without mitigation)
Consequence of impact or risk:	Active vehicles, workers and stored materials in wetland habitat causing unnecessary disturbance.
Probability of occurrence:	Likely (with mitigation) Certain/definite (without mitigation)
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	High (with and without mitigation)
Indirect impacts:	None
Cumulative impact prior to mitigation:	If poorly managed, the cumulative impact could be significant given the number of affected watercourses along the route. However, this impact is relatively easy to mitigate.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible
Proposed mitigation:	*Prior to construction, the minimum footprint of disturbance must be delineated and should include vehicle access points, material stockpile areas, refuelling areas and actual work areas. The No-Go area must be delineated 5 m either side of the pipeline route. The delineated No-Go area must be indicated using construction mesh attached to wooden droppers or similar materials. Alternatively, danger tape or wooden

	<p>stakes could be used if the previously mentioned materials could be stolen but is less effective.</p> <p>*As far as possible the watercourse should be accessed from a single point only to reduce disturbance to features such as slopes and vegetation. At all crossings attempts should be made to limit access to the side of the watercourse only.</p> <p>*Signage indicating No-Go areas must be printed and placed on fencing.</p> <p>*All contractors must be briefed that vehicles, workers and materials may not encroach into No-Go areas in and around watercourses.</p> <p>*As far as possible, try to keep vehicles out of the watercourse, working from the banks from the inside towards the outside to minimise disturbance. Excavators/Backacters should operate from the maximum distance possible to reduce soil compaction and disturbance to vegetation.</p>
Residual impacts:	None
Cumulative impact post mitigation:	If poorly managed, the cumulative impact could be significant given the number of affected watercourses along the route. However, this impact is relatively easy to mitigate.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative
Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Materials and Vehicle Management
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	<p>Extend: Very Limited (with mitigation)</p> <p>Extend: Limited (without mitigation)</p> <p>Duration: Immediate (with mitigation)</p> <p>Duration: Short term (without mitigation)</p>
Consequence of impact or risk:	Pollution of Wetlands
Probability of occurrence:	<p>Rare / Improbable (with mitigation)</p> <p>Probable (without mitigation)</p>
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	High (with and without mitigation)
Indirect impacts:	None

Cumulative impact prior to mitigation:	Mitigation measures should be applied through the length of the pipeline installation to ensure cumulative impacts are managed.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible
Proposed mitigation:	<p>*All construction materials (topsoil, subsoil, building sand) must be stockpiled as far from the watercourse or slope edge as practically possible.</p> <p>*Materials to be removed must be taken away without delay to reduce the risk of washing into wetlands.</p> <p>*Retain the upper 30cm of topsoil including vegetation during grubbing. This material should be stockpiled separately to other materials, kept uncontaminated, and protected with shade cloth and bunding.</p> <p>*There is limited space to work along the pipeline route, and stockpiled materials must not be placed in a way that they force vehicles to move around them into sensitive wetland habitat.</p> <p>*Vehicle refuelling areas must be located as far from wetlands as possible, and a spill kit must be on hand in case of fuel spills.</p> <p>*Vehicles leaking fuel (diesel or oil) may not be permitted to work on site.</p> <p>*No materials may be dumped into the watercourse.</p>
Residual impacts:	None
Cumulative impact post mitigation:	Mitigation measures should be applied through the length of the pipeline installation to ensure cumulative impacts are managed.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative

Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Stormwater Runoff from Disturbed Areas
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	Extend: Very Limited (with mitigation) Extend: Local (without mitigation) Duration: Brief (with mitigation)

	Duration: Short term (without mitigation)
Consequence of impact or risk:	Erosion of soil from disturbed areas resulting in downstream deposition and destabilisation of banks
Probability of occurrence:	Probable (with mitigation) Almost Certain / Highly Probable (without mitigation)
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	High (with mitigation) Medium (without mitigation)
Indirect impacts:	None
Cumulative impact prior to mitigation:	Risk reduction is dependent on proactive and reactive mitigation measures as construction progresses across the site. Adaptive management to stormwater management during construction is essential.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible
Proposed mitigation:	<p>*Weekly and daily checks for predicted rainfall. Proactive steps to be taken in response to predicted rainfall.</p> <p>*Do not continue work during rainfall (when working in close proximity to the water courses), and ensure the site is prepared to minimise erosion and sediment-laden runoff in advance of rainfall.</p> <p>*The site office / vehicle should have a store of materials suitable for rapid preparation and response to rainfall such as shade-cloth (silt-fencing & check dams), wooden droppers, sandbags, hessian fabric, and fencing wire.</p> <p>*All material stores should be kept on flat areas and be bunded to prevent material loss during rainfall.</p> <p>*Soil from the trench for installation of the pipeline should be preferably placed on the upslope side of the trench so it washes back into it in the event of rain, and not down the slope to wetland habitat. Alternatively, short lengths of trenching must be undertaken at a time when rainfall is predicted to reduce the risk of soil washing downslope.</p> <p>*Monitor the site during / following periods of rainfall, and install check dams at points where runoff collects using sandbags and haybales with hessian or shade cloth (90%).</p> <p>*Following rainfall, water pumped out of trenches or other excavations must not be directed to the watercourse. A temporary coffer dam can be created using shadecloth as a filter material to contain silt-laden water which can</p>

	then flow through vegetation into the watercourse where feasible.
Residual impacts:	None
Cumulative impact post mitigation:	Risk reduction is dependent on proactive and reactive mitigation measures as construction progresses across the site. Adaptive management to stormwater management during construction is essential.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative
Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE	
Potential impact and risk:	Incomplete Post-Construction Rehabilitation
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	Extend: Very Limited (with mitigation) Extend: Limited (without mitigation) Duration: Short term (with mitigation) Duration: Medium term (without mitigation)
Consequence of impact or risk:	Loss of topsoil and vegetation without replacement renders areas vulnerable to erosion and invasive plants.
Probability of occurrence:	Probable (with mitigation) Almost Certain / Highly Probable (without mitigation)
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	High (with mitigation) Low (without mitigation)
Indirect impacts:	None
Cumulative impact prior to mitigation:	If this aspect is not well managed, it will contribute further to extensive alien vegetation establishment in the area, compounding this negative impact.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible
Proposed mitigation:	* Ensure all soil surfaces are reshaped to avoid preferential flow paths and very steep gradients. *All areas disturbed during the construction phase must have topsoil from the site mixed with indigenous grass

	<p>seed (<i>Stenotaphrum secundatum</i> and <i>Cynodon dactylon</i>) replaced to a depth of 30 cm above subsoils.</p> <p>*Where sloping areas occur it will be necessary to stake a cover of soil saver matting over the grass seed / top soil mix to prevent movement downslope until vegetation can establish.</p> <p>*Alien vegetation must be removed 2 months and 6 months post replacement of the soil until the grass / indigenous vegetation is established.</p> <p>*Ensure any litter from construction works or personnel is removed from the site. No litter, food scraps, or waste materials can be left at the site.</p>
Residual impacts:	None
Cumulative impact post mitigation:	If this aspect is not well managed, it will contribute further to extensive alien vegetation establishment in the area, compounding this negative impact.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative

OPERATIONAL PHASE IMPACTS

Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE. OPERATIONAL PHASE	
Potential impact and risk:	Alien vegetation establishment along disturbed areas
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	<p>Extend: Limited (with mitigation)</p> <p>Extend: Local (without mitigation)</p> <p>Duration: Short term (with mitigation)</p> <p>Duration: Medium term (without mitigation)</p>
Consequence of impact or risk:	Degradation of habitat, increase in extend and density of alien invasive plant species
Probability of occurrence:	<p>Unlikely (with mitigation)</p> <p>Likely (without mitigation)</p>
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	<p>High (with mitigation)</p> <p>Medium (without mitigation)</p>
Indirect impacts:	None
Cumulative impact prior to mitigation:	Not applicable.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative

Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible
Proposed mitigation:	<p>*The full length of the newly installed pipeline at each of the 4 watercourse crossing points must be inspected 6- and 12-months following completion of project by the site ECO. The purpose is to ensure disturbed areas are well vegetated with indigenous plants.</p> <p>*If alien plants are present, it is necessary to appoint a contractor to remove them to ensure the pipeline footprint is clear of alien plants.</p>
Residual impacts:	None
Cumulative impact post mitigation:	Not applicable.
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative
Alternative:	Preferred & Non-Preferred Route Alternatives
PLANNING, DESIGN AND DEVELOPMENT PHASE. OPERATIONAL PHASE	
Potential impact and risk:	Repairs and maintenance to the pipeline.
Nature of impact:	Negative (with and without mitigation)
Extent and duration of impact:	<p>Extend: Limited (with mitigation)</p> <p>Extend: Local (without mitigation)</p> <p>Duration: Brief (with mitigation)</p> <p>Duration: Short term (without mitigation)</p>
Consequence of impact or risk:	Renewed wetland disturbance and potential sedimentation
Probability of occurrence:	<p>Probable (with mitigation)</p> <p>Almost Certain / Highly Probable (without mitigation)</p>
Degree to which the impact may cause irreplaceable loss of resources:	Low (with and without mitigation)
Degree to which the impact can be reversed:	Medium (with and without mitigation)
Indirect impacts:	None
Cumulative impact prior to mitigation:	Not applicable.
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Minor – Negative
Degree to which the impact can be avoided:	
Degree to which the impact can be managed:	EMPr
Degree to which the impact can be mitigated:	From Minor to Negligible

Proposed mitigation:	<p>*Where the pipeline must be accessed for repairs or maintenance, the same footprint of disturbance applies as that described in the construction phase impact. I.e. 5 m either side of the pipeline.</p> <p>*Any excessive sedimentation that has smothered plants in a wetland must be removed from the wetland by hand using spades, and contours must be reshaped to avoid concentrated flow paths.</p> <p>*Renewed areas of disturbance must be grassed as per mitigation measures in the construction phase to ensure vegetation covers soil vulnerable to erosion or invasion with alien plants.</p> <p>*Alien plants must be removed from the length of the pipeline in each watercourse while works are in progress.</p>
Residual impacts:	None
Cumulative impact post mitigation:	Not applicable
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Negligible - Negative

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.
<p><u>Aquatic</u></p> <p><u>Findings</u></p> <ul style="list-style-type: none"> • The proposed pipeline crosses four (4) watercourses. These watercourses have already been impacted not only by the initial disturbance for installing existing pipelines and periodic maintenance, but by the presence of the road (R102). • The Gwaing and Norga Rivers also have pipelines and electrical / fibre cables that have been laid along them or on the bridge / culverts crossing them. In this sense, there is already a major pre-existing impact which has already undergone construction and is currently in operation. • Impacts assessed for both the construction and operational phase can be effectively mitigated to negligible negative ratings, and the Risk Matrix determined that the impacts were of a Low Risk to potentially affected watercourses. <p><u>Impact Management Measures and Recommendations identified by the Aquatic Specialist</u></p> <ul style="list-style-type: none"> • Prior to construction, the minimum footprint of disturbance must be delineated and should include vehicle access points, material stockpile areas, refuelling areas and actual work areas. • The No-Go area must be delineated 10 m either side of the pipeline route. The delineated No-Go area must be indicated using construction mesh attached to wooden droppers or similar materials. Alternatively, danger tape or wooden stakes could be used if the previously mentioned materials could be stolen but is less effective. • As far as possible the watercourse should be accessed from a single point only to reduce disturbance to features such as slopes and vegetation. At all crossings attempts should be made to limit access to the side of the watercourse only. • Signage indicating No-Go areas must be printed and placed on fencing. • All contractors must be briefed that vehicles, workers and materials may not encroach into No-Go areas in and around watercourses. 	

- As far as possible, try to keep vehicles out of the watercourse, working from the banks from the inside towards the outside to minimise disturbance. Excavators/Backacters should operate from the maximum distance possible to reduce soil compaction and disturbance to vegetation.
- All construction materials (topsoil, subsoil, building sand) must be stockpiled as far from the watercourse or slope edge as practically possible.
- Materials to be removed must be taken away without delay to reduce the risk of washing into wetlands.
- Retain the upper 30cm of topsoil including vegetation during grubbing. This material should be stockpiled separately to other materials, kept uncontaminated, and protected with shade cloth and bunding.
- There is limited space to work along the pipeline route, and stockpiled materials must not be placed in a way that they force vehicles to move around them into sensitive wetland habitat.
- Vehicle refuelling areas must be located as far from wetlands as possible, and a spill kit must be on hand in case of fuel spills.
- Vehicles leaking fuel (diesel or oil) may not be permitted to work on site.
- No materials may be dumped into the watercourse.
- Weekly and daily checks for predicted rainfall. Proactive steps to be taken in response to predicted rainfall.
- Do not continue work during rainfall, and ensure the site is prepared to minimise erosion and sediment-laden runoff in advance of rainfall.
- The site office / vehicle should have a store of materials suitable for rapid preparation and response to rainfall such as shade-cloth (silt-fencing & check dams), wooden droppers, sand bags, hessian fabric, and fencing wire.
- All material stores should be kept on flat areas and be bunded to prevent material loss during rainfall.
- Soil from the trench for installation of the pipeline should be preferably placed on the upslope side of the trench so it washes back into it in the event of rain, and not down the slope to wetland habitat. Alternatively, short lengths of trenching must be undertaken at a time when rainfall is predicted to reduce the risk of soil washing downslope.
- Monitor the site during / following periods of rainfall, and install check dams at points where runoff collects using sand bags and haybales with hessian or shade cloth (90%).
- Following rainfall, water pumped out of trenches or other excavations must not be directed to the watercourse. A temporary coffer dam can be created using shade cloth as a filter material to contain.
- Ensure all soil surfaces are reshaped to avoid preferential flow paths and very steep gradients.
- All areas disturbed during the construction phase must have topsoil from the site mixed with indigenous grass seed (*Stenotaphrum secundatum* and *Cynodon dactylon*) replaced to a depth of 30 cm above subsoils.
- Where sloping areas occur, it will be necessary to stake a cover of soil saver matting over the grass seed / topsoil mix to prevent movement downslope until vegetation can establish.
- Alien vegetation must be removed 2 months and 6 months post replacement of the soil until the grass / indigenous vegetation is established.
- Ensure any litter from construction works or personnel is removed from the site. No litter, food scraps, or waste materials can be left at the site.
- The full length of the newly installed pipeline at each of the 4 watercourse crossing points must be inspected 6- and 12-months following completion of project by the site ECO. The purpose is to ensure disturbed areas are well vegetated with indigenous plants.
- If alien plants are present, it is necessary to appoint a contractor to remove them to ensure the pipeline footprint is clear of alien plants.

- Where the pipeline must be accessed for repairs or maintenance, the same footprint of disturbance applies as that described in the construction phase impact. i.e. 5 m either side of the pipeline.
- Any excessive sedimentation that has smothered plants in a wetland must be removed from the wetland by hand using spades, and contours must be reshaped to avoid concentrated flow paths.
- Renewed areas of disturbance must be grassed as per mitigation measures in the construction phase to ensure vegetation covers soil vulnerable to erosion or invasion with alien plants.
- Alien plants must be removed from the length of the pipeline in each watercourse while works are in progress.

Botanical & Biodiversity

Findings

- No plant SCC or protected tree species were observed within the area where the proposed pipeline will be installed (including the 10m working area) for all three (3) route alternatives. The potential for the vegetation within the project site to support SCC is LOW.
- The proposed water pipeline does not negatively affect the drainage line that are categorised as ESA2 and CBA1 and 2 areas.
- The impact of this project on CBA and ESA areas will not counter the objectives of these areas.
- The vegetation along the entire section of the R102 is currently used as agricultural fields.
- The vegetation of the drainage lines is heavily invaded.
- No remaining Garden Route Granite Fynbos exists in the project area, and the vegetation is not consistent with any Red Listed ecosystem.

Impact Management Measures and Recommendations identified by the Botanist.

- Soils excavated for the laying of the new pipes should be covered when not in use and must be re-used to fill the pipeline holes once the pipelines have been installed.
- Soil from elsewhere should be minimised for the pipeline project.
- Care should be taken during the installation process to avoid erosion of soil and a loss of vegetation, especially near the Pond / wetland area (Fig. 13 J) and other areas where the pipeline will cross drainage lines with sensitive habitat.
- Kikuyu grass may not be used to rehabilitate the road and fence line verges where the pipeline will be installed. Better grasses to use are *Cynodon dactylon* (bermuda grass) or *Stenotaphrum secundatum* (Saint Augustine grass).
- Construction materials and equipment should properly be disposed of and cleared from the area during construction and while concluding the construction phase.
- Adequate ablution facilities must be available for all construction staff working on the installation of the new pipeline (approximately one toilet per 10 construction workers).
- The construction area must be clearly defined to avoid unnecessary impacts on nearby farms, and to ensure workers are well informed about the area they are working in.

Fauna

Findings

- The project area is mostly comprised of **transformed habitat**, with little to no natural vegetation. This is largely due to agriculture (grazing). Other habitat modifications observed are due to dense alien plant invasion.
- According to the faunal specialist, animal SCC identified by the Screening Tool have a low likelihood of occurrence.

Impact Management Measures and Recommendations identified by the Fauna Specialist

- General recommendation and best practice guidelines should be followed for all animal species encountered (regardless of whether they are SCC or not) during any stage of development on a site.

Heritage

Findings

- Based on fieldwork, historic background research and the literature review undertaken as part of this assessment it is therefore our view that no heritage resources of cultural significance (i.e. built environment, cultural landscape, archaeology, or palaeontology) would be impacted through the proposed development.
- It is unlikely that any significant artefact material will be identified along the study area. Scatters of ESA and/or MSA material are possible but are likely to be of low significance. Caves/rock shelters do occur in rock outcrops along the lower reaches of the Gwayang River, near the coast and it is possible that some may be found higher up the river valleys as well. However, these are not likely to be impacted. The study area is however ±7km north of the nearest coastline and the proposed pipeline will not impact any caves/ rock shelters.
- According to SAHRIS Palaeontological sensitivity mapping, the entire study area forms part of an area highlighted as being of no palaeontological sensitivity (grey) where “no palaeontological studies are required”.

Recommendations

- If any human remains or significant archaeological materials are exposed during development activities, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned, and completed before construction continues in the affected area and will be at the expense of the developer.

Engineering Design

Findings

- The existing 200mm pipeline is past its design lifespan and needs to be upgraded to a greater capacity pipeline to meet future demands.
- Various utilities and services are located within the 1m corridor within the road reserve making it impossible to install the sections of the new water pipeline within the road reserve of the R102.
- According to the material investigation, the material on-site might be suitable as selected fill material but not as selected granular material.
- Two environmental sensitive areas have been identified.

Recommendations

- Based on the findings above, most of the pipeline must be installed within the 5m building lines of private properties.
- To minimize disturbance of the two environmentally sensitive areas (watercourses), the pipeline must be installed using horizontal direction drilling.

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr
All the impact management measures that were identified by all specialists are included in the EMPr (Section I # 1).	
3.	List the specialist investigations and the impact management measures that will not be implemented and provide an explanation as to why these measures will not be implemented.

4.	Explain how the proposed development will impact the surrounding communities.
	<ul style="list-style-type: none"> • Ensure adequate and reliable water supply to current properties and future demands. • No frequent maintenance and repair work on existing 200mm water pipeline. • Temporary noise & safety impacts during construction. • Temporary access restrictions for affected landowners when the pipeline is installed through roads/driveways.
5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.
6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.
There are no conflicting recommendations between the specialists.	
7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.
All findings and recommendations by the specialists have been incorporated into the proposal.	
8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.
<p><u>1. Avoid Impacts</u></p> <p>Several meetings were held between the engineering (SMEC) and environmental team (Cape EAPrac and Confluent) to discuss potentially sensitive areas of the pipeline route and how these could best be navigated to avoid and minimise impacts.</p> <p><u>2. Minimise Impacts</u></p> <p>By involving an aquatic specialist to advise on planning and design at an early stage.</p> <p>Appoint an ECO to oversee construction to further minimise the potential unnecessarily direct or indirect impacts.</p> <p>Implement noise control during construction to minimise the impacts on neighbouring property owners.</p> <p>Implement the Environmental Management Plan under ECO supervision.</p> <p><u>3. Rectify</u></p> <p>Ongoing removal of alien vegetation during the construction and operational phase.</p> <p><u>4. Reduce</u></p> <p>By implementing the mitigation measures provided by the specialist, all potential impacts will either be avoided or reduced.</p> <p><u>5. Off-set</u></p> <p>No off sets are deemed necessary.</p>	

SECTION J: GENERAL

1. Environmental Impact Statement

1.1.	Provide a summary of the key findings of the EIA.
	<ul style="list-style-type: none"> • The agricultural specialist confirms that the impact duration is confined to the construction period only (i.e., temporary) and the pipeline will be buried which means that agricultural activities (potential) can continue unaffected above it, once construction is completed. Therefore, no land is permanently lost to agriculture. The agricultural impact is therefore assessed as being of very low significance. • The faunal specialist disputes the high sensitivity and confirms that it should be LOW as there is very little natural vegetation and habitat and there is a low likelihood of occurrence of terrestrial animal SCC within the project footprint (including the 10m working area) for all route alternatives. No animal SCC were found on the site. • The aquatic specialist confirmed that the impacts assessed for both the construction and operational phase can be effectively mitigated to negligible negative ratings, and the Risk Matrix determined that the impacts were of a Low Risk to potentially affected watercourses. • The botanical/biodiversity specialist confirmed that no plant SCC or protected tree species were observed within the area where the proposed pipeline will be installed (including the 10m working area) for all three (3) route alternatives. The potential for the vegetation within the project site to support SCC is LOW. According to the specialist, the Terrestrial Biodiversity for the proposed pipeline is Low for the following reasons: <ul style="list-style-type: none"> ○ The proposed water pipeline does not negatively affect the drainage line that are categorised as ESA2 and CBA1 and 2 areas. ○ The impact of this project on CBA and ESA areas will not counter the objectives of these areas. ○ The vegetation along the entire section of the R102 is currently used as agricultural fields. ○ The vegetation of the drainage lines is heavily invaded. ○ No remaining Garden Route Granite Fynbos exists in the project are, and the vegetation is not consistent with any Red Listed ecosystem. • The heritage specialist confirmed that based on fieldwork, historic background research and the literature review undertaken as part of this assessment it is therefore our view that no heritage resources of cultural significance (i.e. built environment, cultural landscape, archaeology, or palaeontology) would be impacted through the proposed development. • The archaeological specialist confirmed that it is unlikely that any significant artefact material will be identified along the study area. Scatters of ESA and/or MSA material are possible but are likely to be of low significance. Caves/rock shelters do occur in rock outcrops along the lower reaches of the Gwayang River, near the coast and it is possible that some may be found higher up the river valleys as well. However, these are not likely to be impacted. The study area is however ±7km north of the nearest coastline and the proposed pipeline will not impact any caves/ rock shelters. • According to SAHRIS Palaeontological sensitivity mapping, the entire study area forms part of an area highlighted as being of no palaeontological sensitivity (grey) where “no palaeontological studies are required”.
1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)
Please refer to Appendix B2.	
1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

Positive

- Ensure adequate and reliable water supply to current properties and future demands.
- No frequent maintenance and repair work.
- No negative impacts on drainage lines within the property and site alternatives.
- No impacts on Garden Route Granite Fynbos or any Red Listed ecosystem.
- No impacts on Plant SCC, Protected Tree Species and Fauna SCC.
- No impacts on highly sensitive agricultural fields.

Negative

- Access will need to be requested from the landowners for maintenance or replacing of large fittings during the operational phase.
- Temporary noise & safety impacts during construction.
- Temporary access restrictions for affected landowners when the pipeline is installed through roads/driveways.

2. Recommendation of the Environmental Assessment Practitioner (“EAP”)

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr
<p><u>Impact Management Outcomes included in the EMPr.</u></p> <ul style="list-style-type: none"> • Minimise negative impacts of stormwater, sedimentation and erosion. • Ensure no health risk due to emission of dust to the environment. • Ensure nuisance from noise and vibration does not occur. • Manage and minimise the nuisance effect created by construction traffic. • Minimise waste discharged to the environment. • Manage stockpile materials so that dust and sediment in run-off are minimised. • Ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage. • Minimise soil lost during construction due to land-clearing. • Ensure that degradation to existing botanical/biodiversity components are minimised and that any rehabilitation is undertaken with conservation orientated approach. • Ensure that impacts to fauna species is minimised and / or avoided. • Ensure equitable, fair and safe interaction on construction sites. • Ensure efficient communication mechanisms in the implementation of environmental performance requirements. 	
2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.
Refer to section 2.1, 2.3 & 2.4.	
2.3.	Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.
<p>The current 200mm water pipeline is old and often bursts, which leads to frequent maintenance and repair work. Additionally, the growing demand in the R102 areas has prompted the George Municipality to upgrade this main pipeline. This upgrade aims to ensure an adequate and reliable water supply for current properties and to provide enough water supply to future developments along the R102 heading eastwards the N2, as well as future demands towards Herold's Bay, Oubaai, and the Airport Precinct.</p> <p>Conditions to be include in the EA:</p> <ul style="list-style-type: none"> • The mitigation measures listed in the EMPr must be implemented and monitored by an ECO and relevant regulating authorities. 	
2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.
Five(5) year period to commence with the activity from date of issue of the EA and a further five (5) years to complete the activity from date of commencement.	

3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.	
Not applicable.	

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.	
Waste must be collected and disposed of at a registered waste facility. No waste material may be left on the site.	

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
Not applicable.	

SECTION K: DECLARATIONS

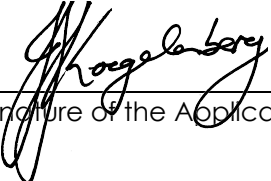
DECLARATION OF THE APPLICANT

Note: Duplicate this section where there is more than one Applicant.

I, JOHANNES FRANCISCUS KOEGELENBERG, ID number 7906085048081 ~~in my personal capacity or~~ duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
 - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
 - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
 - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
 - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
 - Legitimate costs in respect of specialist(s) reviews; and
 - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.


Signature of the Applicant:

2024-11-14
Date:

George Municipality
Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (“EAP”)

ILouise-Mari van Zyl....., EAP Registration number2019/1444..... as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;


Signature of the EAP:

15 November 2024
Date:

Cape Environmental Assessment Practitioners
Name of company (if applicable):

DECLARATION OF THE CANDIDATE ENVIRONMENTAL ASSESSMENT PRACTITIONER (“EAP”)

I**Mariska Byleveld**....., EAP Registration number**2023/6593**..... as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

M Byleveld
Signature of the EAP:

05 November 2024
Date:

Cape Environmental Assessment Practitioners
Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I _____, EAP Registration number _____ as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: _____ Date: _____

Name of company (if applicable): _____

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

Bianke Fouche

I, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature:



Date: 14 Nov. 2024

Confluent Environmental


Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Jackie Dabrowski....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature of the EAP:  Date: 6 November 2024

Confluent Environmental (Pty) Ltd
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Johann Lanz, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



8 November 2024

Signature of the EAP:

Date:

SoilZA

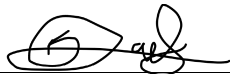
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **Kim Daniels**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



06/11/2024

Signature of the EAP:

Date:

Confluent Environmental

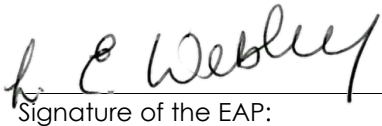
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I Lita Webley....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Signature of the EAP:

6 November 2024

Date:

n/a

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I **Stefan Ethan de Kock**....., as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
 - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
 - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



6th November 2024

Signature of the EAP:

Date:

Perception Planning

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

I, as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s);
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: _____ Date: _____

Name of company (if applicable): _____