

REMAINDER OF PORTION 4 OF THE FARM GWAYANG NO 208, DIVISION GEORGE, GEORGE MUNICIPALITY

APPLICATION FOR REZONING & SUBDIVISION



CLIENT:
PREPARED BY:

SANWIL INVESTMENTS (PTY)LTD
MARIKE VREKEN URBAN AND ENVIRONMENTAL PLANNERS



May 2025

CONTENTS

(I) TABLE OF CONTENTS

SECTION A : BACKGROUND	1
1. BACKGROUND	1
1.1. Pre-Application Consultation	2
2. THE APPLICATION	3
3. PROPERTY DESCRIPTION, SIZE AND OWNERSHIP	4
SECTION B : DEVELOPMENT PROPOSAL	5
4. DEVELOPMENT SPECIFICATIONS	5
4.1. Development Proposal	5
4.2. Size and extent of the Wastewater Treatment Works	6
4.3. Access	6
5. STATUTORY SPECIFICATIONS	7
5.1. Proposed Rezoning	7
5.2. Proposed Subdivision	7
5.3. Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)	8
6. CIVIL SERVICES	8
6.1. Waste Water Treatment Works	8
6.2. Storm Water Management	10
SECTION C : CONTEXTUAL INFORMANTS	10
7. LOCALITY	10
8. CURRENT LAND USE AND ZONING	11
8.1. Land Use	11
8.2. Zoning	11
9. SITE CHARACTERISTICS	11
10. CHARACTER OF THE AREA	12
SECTION D : SPATIAL PLANNING INFORMANTS	14
11. EXISTING POLICY FRAMEWORKS	14
11.1. Western Cape Provincial Spatial Development Framework (2014)	14
11.2. Garden Route District Spatial Development Framework (2017)	18

11.3.	George Municipal Spatial Development Framework (2023)	19
11.4.	Gwayang Local Area Spatial Development Framework (2015)	20
11.5.	George Integrated Development Plan 2025 - 2026.....	22
SECTION E : MOTIVATION.....		26
12.	ASSESSMENT OF APPLICATIONS.....	26
12.1.	The Spatial Planning and Land Use Management Act, 2013 (16 of 2013).....	26
12.2.	Land Use Planning Bylaw for George Municipality, 2023	26
13.	CONSISTENCY WITH SPATIAL POLICY DIRECTIVES.....	27
13.1.	Site Specific Circumstances	27
14.	CONSISTENCY WITH THE CHARACTER OF THE SURROUNDING AREA.....	28
15.	ACCESS	29
16.	IMPACT ON THE COMMUNITY	29
17.	NO ENVIRONMENTAL IMPACT	29
18.	NO VISUAL IMPACT	29
19.	DESIRABILITY	29
20.	WESTERN CAPE LAND USE PLANNING ACT, 2014 (ACT 3 OF 2014)	33
20.1.	Spatial Justice.....	33
20.2.	Spatial Sustainability	34
20.3.	Spatial Efficiency	35
20.4.	Spatial Resilience.....	35
20.5.	Good Administration	35
21.	CONCLUSION	36

(II) ANNEXURES

ANNEXURE A.	Copy of Rezoning & Subdivision Approval – May 2022
ANNEXURE B.	Copy of Amended Rezoning & Subdivision Approval – June 2023
ANNEXURE C.	Copy of Act 70 of 1970 Approval
ANNEXURE D.	General Plan (GP 2362/2023)
ANNEXURE E.	Environmental Authorisation for Wastewater Treatment Plant
ANNEXURE F.	Amended EA – January 2024
ANNEXURE G.	Proof of Pre-application Consultation
ANNEXURE H.	Power of Attorney & Company Resolution
ANNEXURE I.	Application Form
ANNEXURE J.	Copy of Title Deed T61675/2022
ANNEXURE K.	Conveyancer's Certificate
ANNEXURE L.	Surveyor General Diagram (SG 5385/1945)
ANNEXURE M.	SG Diagram Portion 182 (SG1848/2024)
ANNEXURE N.	Servitude Diagram SG1627-2024
ANNEXURE O.	Civil Services Report
ANNEXURE P.	ROD for Roads Master Plan 2021
ANNEXURE Q.	Draft Servitude Agreement over Portions 34 & 129
ANNEXURE R.	Approval: National Department of Agriculture, 2023
ANNEXURE S.	Wastewater Treatment Brochure
ANNEXURE T.	Agricultural potential statement
ANNEXURE U.	Visual Impact Assessment
ANNEXURE V.	George Mun 2025-04-25 - Approved Architectural Design Manual
ANNEXURE W.	Final Basic Assessment Report as Submitted

(III) PLANS

PLAN 1.	Locality Plan
PLAN 2.	Subdivision Plan

(IV) TABLE OF FIGURES

Figure 1.	Approved Layout – Portion 4 of Farm No 208.....	1
Figure 2.	The Application Area in Relation to Approved Development.....	2
Figure 3.	Proposed Access Routes to the WWTW on Remainder of Portion 4.....	7
Figure 4.	Proposed Subdivision of Remainder of Portion 4.....	8
Figure 5.	Sludge Treatment Constructed Wetland.....	10

Figure 6.	Locality	11
Figure 7.	Services installed on Portion 130 – New Light Industrial Development	12
Figure 8.	Undeveloped Agricultural Areas	12
Figure 9.	Example of Phragmifilte Wetland in the UK	13
Figure 10.	Extract - Western Cape Provincial SDF (2014)	14
Figure 11.	Eden District Composite SDF	18
Figure 12.	Extract George SDF	20
Figure 13.	Gwayang Local Spatial Development Framework	21
Figure 14.	George Municipality – IDP Strategic Objectives.....	23
Figure 15.	George Municipality Wards	24

SECTION A :**BACKGROUND****1. BACKGROUND**

George Municipality approved the rezoning and subdivision of Portion 4 of the Farm Gwayang No 208, during May 2022. A copy of this approval is attached as **ANNEXURE A**. An amended layout approval was granted by George Municipality during June 2023. A copy of this approval is attached as **ANNEXURE B**. This approval was also accompanied by an approval from the National Department of Agriculture in terms of Act 70 of 1970 (Subdivision of Agricultural Land Act), and a copy of this approval is attached as **ANNEXURE C**.

A copy of the approved layout is shown in Figure 1 below:



FIGURE 1: APPROVED LAYOUT – PORTION 4 OF FARM NO 208

Development rights were approved on the western side of the Western Bypass, and the remaining portion of Portion 4 of the Farm Gwayang No 208 is the portion of land that is covered by the Western Bypass, and the remaining portion on the eastern side of the western bypass. A General Plan (GP 2362/2023) for Phase 1 and Phase 2 for the approved development was approved by the Surveyor General and is attached as **ANNEXURE D**.

The Department of Environmental Affairs and Development Planning issued an Environmental Authorisation (EA) for the development of a waste water treatment plant on the Remainder of

Portion 4 of the Farm Gwayang No 208 during August 2023. A copy of this EA is attached as **ANNEXURE E**. An amended EA was issued during January 2024, to change the “ownership” of the EA to “Sanwill Investments(Pty)Ltd”. A copy of this amended EA is attached as **ANNEXURE F**.

This purpose of this application is to obtain land development rights (rezoning and subdivision) from George Municipality, to develop the wastewater treatment plant on the Remaining Portion of Portion 4 of the Farm Gwayang No 208, as per the Environmental Authorisation.

The application area, in relation to the western bypass and the approved “Airport Support Zone” development is shown in Figure 2 below:



FIGURE 2: THE APPLICATION AREA IN RELATION TO APPROVED DEVELOPMENT

1.1. Pre-Application Consultation

The prescribed pre-application consultation did take place with George Municipality, and the minutes / feedback from the pre-application consultation is attached as **ANNEXURE G**.

The table below contains a summary of the key points raised during the pre-application consultation:

Pre-Application Input	Application's Response
The proposed subdivision and rezoning of Portion A to develop a Wastewater Treatment Works Plant is deemed to be an appropriate land use to support the Airport Support Zone Precinct.	<i>Agreed</i>

Pre-Application Input	Application's Response
The application should indicate on the site plan how Portion A will gain access from the Provincial Road (R102 Road). The developer may be required to register a servitude right of way over Portion 96 or 139 of Farm 208. The latter to be addressed as part of the land use application.	<i>Refer Par 4.3</i>
The developer may be required to screen the wastewater treatment works plant to minimise visual impact. To illustrate and motivate as part of the land use application.	<i>Noted</i>
Access to the property is restricted to existing provincial approved access as permitted and as per the George Integrated Zoning Scheme (GISZ) 2023 regulations	<i>Refer approved Roads Master Plan attached as ANNEXURE P, as well as Par 4.3.</i>
Any additional access must be approved by the applicable Road authority.	<i>Refer approved Roads Master Plan attached as ANNEXURE P, as well as Par 4.3.</i>
Possible servitudes over portion 139 or 96 of 208 would be required.	<i>Refer draft right of way agreement over Portions 34 and 129, attached as ANNEXURE Q.</i>

2. THE APPLICATION

The owners of the Remainder of Portion 4 of the Farm Gwayang No 208 (hereafter referred to as "the application area") envisage developing wastewater treatment plant on the portion of the land to the east of the proclaimed "Western Bypass" Road.

Marika Vreken Urban and Environmental Planners were appointed by **Sanwil Investments(Pty)Ltd** (refer **ANNEXURE H**: Power of Attorney & Company Resolution) to prepare and submit the required application documentation (refer **ANNEXURE I** for completed application form) for:

- (i) The rezoning of the Remaining extent of Portion 4 of the Farm Gwayang No 208, Division George from "Agriculture Zone I" to "Subdivisional Area" in terms of Section 15(2)(a) of the George Municipality By-Law on Municipal Land Use Planning (2023).
- (ii) The subdivision of the Remaining extent of Portion 4 of the Farm Gwayang No 208, Division George into two Portions: Portion A ($\pm 1,5940$ ha) and the Remainder, in terms of Section 15(2)(d) of George Municipality's By-Law on Municipal Land Use Planning (2023).

3. PROPERTY DESCRIPTION, SIZE AND OWNERSHIP

A copy of the Title Deed & Windeed Copy which includes all the information outlined below is contained in **ANNEXURE J**, and a Conveyancer's Certificate is attached as **ANNEXURE K**. The Surveyor General Diagram (SG 5385/1945) for the application area is contained in **ANNEXURE L**.

Title Deed Number:	T61675/2022
Title Deed Description:	Remaining extent of Portion 4 of the Farm Gwayang No 208, in the Municipality and Division of George, Western Cape Province
Property Owner:	Sanwil Investments Proprietary Limited Registration No. 2021/570526/07
Title Deed Restrictions:	There are no title deed restrictions that prevent the proposed development.
Bonds:	No bond registered over the property
Property Size:	11,0433 ha (Eleven Comma Zero Four Three Three) Hectares – note that this size is the size of the application area before any deductions. Deductions of this property includes the General Plan on Portion 176 (4,3279 ha) (attached as ANNEXURE D) and Portion 182 (3,0091 ha) (attached as ANNEXURE M). Hence the remaining extent of Portion 4 is 3,7063 ha .
Servitudes:	There are no servitudes registered on the Application Area. A temporary right of way servitude is registered on Portion 182 to the west of the application area. A copy of SG Diagram SG 1627/2024, indicating this servitude, is attached as ANNEXURE N .

SECTION B :**DEVELOPMENT PROPOSAL****4. DEVELOPMENT SPECIFICATIONS***(Plan 2: Subdivision Plan)***4.1. Development Proposal**

The development proposal on the Remainder of Portion 4 of the Farm 208 is the development of an environmentally friendly wastewater treatment works, disposal of treated effluent from the Airport Support Zone (ASZ), as well as irrigation of common spaces using treated effluent. The wastewater treatment works is planned on the northern side of the planned Western Arterial on Ptn 4. This is the most suitable position for a treatment plant for the ASZ in terms of the overall planning of the node.

The technology proposed for the wastewater treatment works produces effluent quality that is suitable for discharge to a watercourse.

The proposed technology for wastewater treatment is a series of engineered wetlands using the Phragmifiltr treatment technology. The quality of treated effluent will meet General Limits. Details on the treatment system using a series of engineered wetlands are provided in the Services Report (attached as **ANNEXURE O**). The treatment system has 2 phases:- Phase 1 consists of 3x wetlands, and requires no energy and is not affected by power outages. Sludge is produced in the first stage which is retained on the surface and composts over time, with removal after 10 to 15 years. The composted sludge is suitable for agricultural use. The second stage has 2x wetlands in series, with vertical down flow reed beds. Partially treated wastewater from the Phase 1 wetlands permeates vertically down through water saturated media which typically consists of 13 mm stone, providing surface area for microbes to live. The extensive microbial growth area makes the wetlands very stable and able to cope with varying loads. The reed bed is aerated which increases the microbes' efficiency and reduces the footprint requirements of the reed bed by 10 times. The retention in each wetland is ± 20 hours which provides adequate contact time between partially treated effluent and microbes for treatment to take place. The retention time also mitigates the impact of power outages, since short periods without aeration have a limited impact on biological activity. To address risks of power outages, an off-grid system has been added to the WWTW design, including panels, and inverter and batteries, with a standby generator. The treatment system does not require highly trained personnel to operate and has low maintenance requirements because of the limited mechanical and electronic equipment, as well as the absence of complex control and instrumentation equipment.

Discharge of treated effluent will be via passive wetland areas associated with the check dams in the Aquatic Zone - i.e. no direct discharge of treated effluent to the watercourse will take place. Treated effluent will be disinfected prior to reuse in public areas.

4.2. Size and extent of the Wastewater Treatment Works

The capacity of the WWTW to treat sewage from the industrial node will be 430 m³ per day, of which $\pm 63\%$ (of treated wastewater) will be used for water supply to the industrial node. Treated wastewater will be disinfected prior to reuse in public areas. The remainder of treated wastewater will be used for irrigation or released into a minor tributary that ultimately discharges into the Gwaing River.

The site for the Wastewater Treatment works will be $\pm 1,59$ ha in extent and this site will be rezoned to "Utility Zone" in terms of the George Integrated Zoning Bylaw.

4.3. Access

Access to the proposed wastewater treatment works on Remainder 4/208 on the eastern side of planned Western Bypass (TR89) will initially be obtained from the internal road system on Ptn 4/208. A temporary right of way servitude has been registered along the western boundary of Portion 182/208, as shown in SG Diagram SG1627/2024 (refer **ANNEXURE M**) – this right of way servitude is on the alignment of Spitfire Crescent. Then, there will be a 8m wide temporary right of way servitude along the northern boundary of Portion 182, to the Expropriation of the road reserve for the TR89 George Western Bypass will 'split' the area of Ptn 139/208 north of the R102 into 2 sections, and Ptn 4/208 into an eastern and western section. A copy of the Environmental Authorisation of the Roads Master Plan, indicating the access Points off the R 404, is attached as **ANNEXURE P**.

The proposed access will be off the approved access Point on the R404, then bisecting Portions 34/208 and 129/208. Servitude roads will need to be established to provide access to these portions, once the expropriation goes ahead. There is a draft services agreement in place between the owners of Portions 34 and 129 of the of the Farm Gwaing No 208. A copy of the draft agreements is attached as **ANNEXURE Q**, and the route of the right of way servitudes are shown in the figure below:

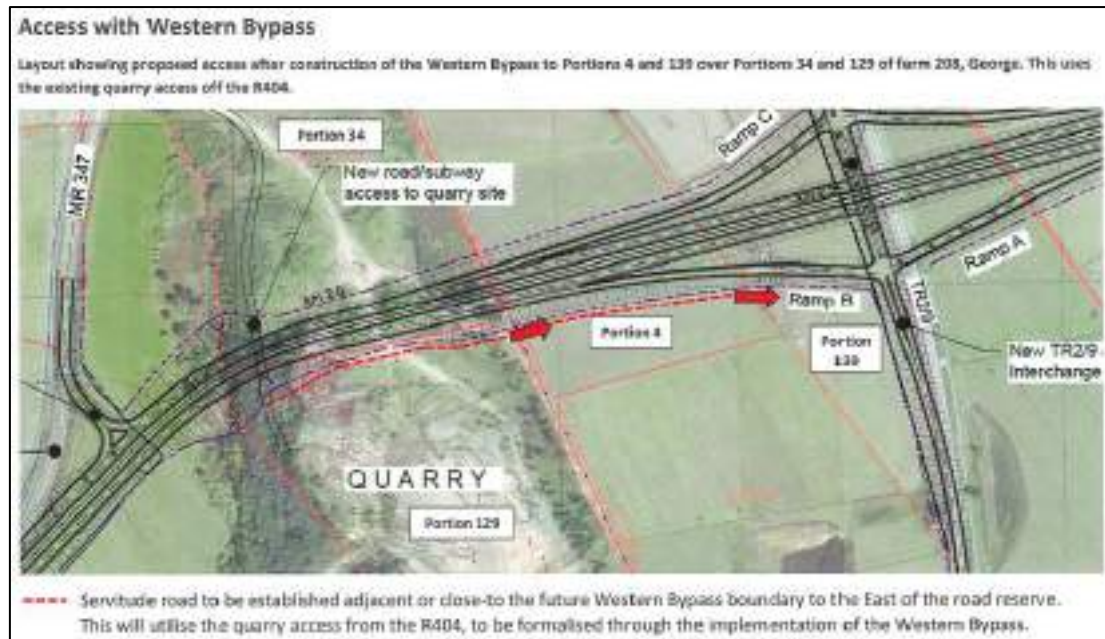


FIGURE 3: PROPOSED ACCESS ROUTES TO THE WWTW ON REMAINDER OF PORTION 4

5. STATUTORY SPECIFICATIONS

5.1. Proposed Rezoning

Remainder of Portion 4 of the Farm Gwayang No 208 is currently zoned "Agriculture Zone I". In order to allow for the subdivision that result in a change of zoning of the land, the application area has to be rezoned to "subdivisional area", in terms of Section 15(2)(a) of the Land-Use Planning By-Law for George Municipality, 2023.

A subdivisional area overlay (SAO) zoning designates land for future subdivision with development rights by providing development directives through specific conditions as approved. The SAO zoning confirms the principle of development and acceptance of future subdivision of land; but not the detailed layout, which will be determined when an actual application for subdivision is approved.

5.2. Proposed Subdivision

The proposal is to subdivide the Remainder of Portion 4 of the Farm Gwayang No 208 into two portions:

- (i) Portion A of $\pm 1,5940$ ha for a "Utility Zone" erf for a "Utility Service"; and
- (ii) a Remainder of $\pm 2,1123$ ha

in terms of Section 15(2)(d) of the Land-Use Planning By-Law for George Municipality, 2023.

The George Zoning Scheme Bylaw describes a "Utility Service" as: "...use or infrastructure that is required to provide engineering and associated services for the proper functioning of urban development and—

(a) includes a water reservoir and purification works, electricity substation, storm water retention facilities, and a waste-water pump station and treatment works, data centre, fibre optic infrastructure, rooftop base telecommunication station and freestanding base telecommunication station, renewable energy structures; and

(b) does not include transport use; and

(c) provided that a road is not regarded as a utility service..."

The proposed subdivision is shown in Figure 4 below:



FIGURE 4: PROPOSED SUBDIVISION OF REMAINDER OF PORTION 4

5.3. Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)

The National Department of Agriculture approved the subdivision of Portion 4 of the farm No 208, Gwayang during 2023 (ref Approval no 57383). A copy of this approval is attached as **ANNEXURE R**. A new approval from the National Department of Agriculture will be required in terms of the Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970). This application process will run in parallel with this rezoning and subdivision application.

6. CIVIL SERVICES

6.1. Waste Water Treatment Works

The proposed wastewater treatment system on Portion A, will be a Phragmifiltre wetland system. Phragmifiltre is a registered trade name in France. This wetland technology was developed in France over the past 30 years. Since then, more than 3 000 Phragmifiltre systems have been developed.

The benefits of the Phragmifiltre system include:

- Latest green technology to treat wastewater.
- Complete treatment including sludge and solids.
- Utilisation of composted sludge for further use.
- Robustness of the system.
- Treats domestic wastewater to meet General Standards in terms of the Water Act.
- Limited need for electricity.
- Adaptable to local conditions.
- Local construction materials.
- Limited mechanical components.
- Low maintenance.
- Create job opportunities for semi-skilled labour.
- Create opportunities for small contractors.
- Competitive life-cycle cost.

Phragmifiltre is the first reedbed technology that provides complete treatment of raw sewage in one wetland system. The system was developed by French companies. Phragmifiltre is a registered trademark in France. Phragmifiltre wastewater treatment plants require no pre-settlement of wastewater. The system is typically designed to have two stages. The first stage consists of three or more beds that dewater the solids from the raw sewage on the surface of the reedbed.

The diagram above shows the three first stage beds. Macerated/screened sewage is fed to each bed in rotation, thereby allowing all the beds to have a rest period. The filtrate passes down through the beds which act as a typical vertical flow reedbed, reducing BOD primarily but also undertaking nitrification of ammonia. First stage filters are therefore both mechanical and biological filters.



FIGURE 5: SLUDGE TREATMENT CONSTRUCTED WETLAND

The first stage of the Phragmifiltration requires no energy input and is therefore not affected by power outages. It is a passive system.

A brochure containing the design details of the proposed wastewater treatment works of Portion A is attached as **ANNEXURE S**.

6.2. Storm Water Management

The Storm water management plan for the proposed development on Portions 130; 139 Portion 4 of the Farm Gwayang no 208 is attached as **ANNEXURE O** Sustainable Urban Drainage Systems (SUDS) are proposed for the proposed development. Par 10.8 of this storm water management plan described the proposed storm water management system.

SECTION C :

CONTEXTUAL INFORMANTS

7. LOCALITY

(Plan 1: Locality Plan)

The application area is located on the eastern most portion of Portion 4 of the Farm Gwayang No 208. The application area covers the portion of Portion 4 that will be used for the future western bypass, and the remaining portion of Portion 4, to the east of the Western Bypass ($\pm 1,594$ ha).

The GPS co-ordinates for the centre of the proposed development are 33.996518°S 22.388669°E.



FIGURE 6: LOCALITY

8. CURRENT LAND USE AND ZONING

8.1. Land Use

The application area is currently vacant, with no improvements.

8.2. Zoning

The application area is currently zoned as "Agriculture Zone I" in terms of the George Integrated Zoning Scheme Bylaw, 2023.

9. SITE CHARACTERISTICS

The application area is characterised by a flat topography. The height of the application area to the north of the site is $\pm 195\text{m}$ above MSL, and it drops to a height of ± 190 to the south of the application area (over a distance of $\pm 180\text{m}$). This calculates to an average slope of 1:36.

The application area is transformed and was used for grazing in the past. The application area has limited production potential. Although the land itself (climate, terrain and soil) is suitable for crop production, it is not currently utilised for any agricultural production, and has limitations on future production potential. The limitations are due to the small size of the land parcel, which makes agriculture non economically viable, and the fact that it is already divided up by an existing roadway and will be further dissected by the planned Western By-pass, rendering the dissected property impractical for crop production and agricultural production. Furthermore, urban planning designates the area, not for agricultural use, but as part of the airport support zone, which effectively nullifies its future potential for agricultural production. Because of these constraints on its production potential, the site is assessed as being only of low agricultural sensitivity rather than high agricultural sensitivity. High agricultural sensitivity should be reserved for land that is suitable

for viable crop production, which this land has been shown above not to be. A copy of an Agricultural Potential Statement, supporting the statement above, is attached as **ANNEXURE T**

10. CHARACTER OF THE AREA

The area surrounding the application area is characterised by a newly developed light industrial park (Airport Support Zone) as shown the figure below (services installed on Portion 130).



FIGURE 7: SERVICES INSTALLED ON PORTION 130 – NEW LIGHT INDUSTRIAL DEVELOPMENT

The area outside the approved light industrial development (Airport Support Zone), is characterised by agricultural and rural tourism uses. The figure below shows the application area as seen from Portion 139 of the Farm No 208.



FIGURE 8: UNDEVELOPED AGRICULTURAL AREAS

Phragmifiltr plants can be implemented to integrate with the natural landscape. The photo below shows a Phragmifiltr that was implemented for a UK water authority. From this figure it is clear that the proposed wetland WWTW on Portion A of the Remainder of Portion 4 of the Farm Gwayang No 208, will be consistent with the “rural” character of the area on the eastern side of the future “Western Bypass”.



FIGURE 9: EXAMPLE OF PHRAGMIFILTRE WETLAND IN THE UK

SECTION D :**SPATIAL PLANNING INFORMANTS****11. EXISTING POLICY FRAMEWORKS**

This section will discuss the applicable policy frameworks that have an influence on any development proposal on the application area. These include:

11.1. Western Cape Provincial Spatial Development Framework (2014)

The Western Cape Provincial SDF was approved in 2014 by the Western Cape Parliament and serves as strategic spatial planning tool that “communicates the provinces spatial planning agenda”.

The recent shift in legislative and policy frameworks have clearly outlined the roles and responsibility of provincial and municipal spatial planning and should be integrated towards the overall spatial structuring plan for the province to create and preserve the resources of the province more effectively through sustainable urban environments for future generations. This shift in spatial planning meant that provincial inputs are in general limited to provincial scale planning.

The proposed development compliments the SDF spatial goals that aim to take the Western Cape on a path towards:

- Greater productivity, competitiveness and opportunities within the spatial economy;
- More inclusive development in the urban areas;
- Strengthening resilience and sustainable development.

However, it is important to note some of the key policies laid down by the PSDF have a bearing on the application.

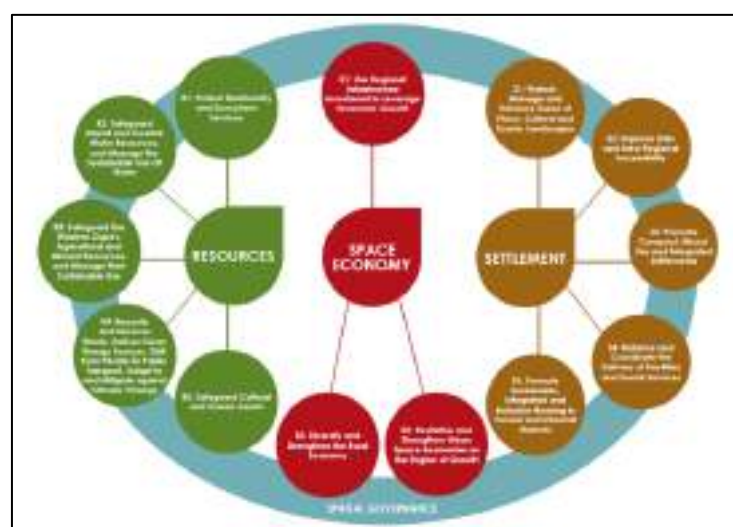


FIGURE 10: EXTRACT - WESTERN CAPE PROVINCIAL SDF (2014)

POLICY R1: PROTECT BIODIVERSITY AND ECOSYSTEM SERVICES

Policy Statement	Development's Response
1. Continue to use CBA mapping to inform spatial planning and land use management decisions in the Province.	<ul style="list-style-type: none"> ▪ <i>Application Area no earmarked as a CBA</i>

POLICY R2: SAFEGUARD INLAND AND COASTAL WATER RESOURCES, AND MANAGE THE SUSTAINABLE USE OF WATER INLAND WATER

Policy Statement	Development's Response
1. Given current water deficits, which will be accentuated by climate change, 'water wise' planning and design approach in the Western Cape's built environment	<ul style="list-style-type: none"> ▪ <i>The proposed Phragmifiltre WWTW is an environmentally friendly system, recycling water and using the water for irrigation purposes (water wise planning).</i> ▪ <i>The proposed Phragmifiltre WWTW seamlessly integrates into the natural landscape, enhancing biodiversity and ecological functions while minimising habitat disruption</i>
3. Introduce and retrofit appropriate levels of water and sanitation systems technologies, targeting informal settlements and backyard shacks in formal neighbourhoods.	<ul style="list-style-type: none"> ▪ <i>The introduction of the proposed Phragmifiltre WWTW is an environmentally friendly system, recycling water and using the water for irrigation purposes (water wise planning). This system will take the pressure off the capacity constraints of the existing George Municipal WWTW.</i>

POLICY R3: SAFEGUARD THE WESTERN CAPE'S AGRICULTURAL AND MINERAL RESOURCES, AND MANAGE THEIR SUSTAINABLE USE

Policy Statement	Development's Response
1. Record unique and high potential agricultural land (as currently being mapped by the Provincial Department of Agriculture) in municipal SDFs, demarcate urban edges to protect these assets, and adopt and apply policies to protect this resource (especially in areas where raw water is available)	<ul style="list-style-type: none"> ▪ <i>Not high potential agricultural land</i>
3. Reconcile ecosystem requirements with conflicting land development pressures through proactive spatial planning, and application of a land use management system that safeguards biodiversity, protects resources and opens up opportunities for improved livelihoods and jobs.	<ul style="list-style-type: none"> ▪ <i>The proposed Phragmifiltre WWTW on the Remaining Portion of Portion 4 (after the Western Bypass route has been expropriated) has no agricultural potential. The remaining portion of ±1,5ha cannot be productively farmed, but the irrigation generated from the purified water, and the additional compost created from the sludge,</i>

	<i>can benefit the agricultural potential of the surrounding farms.</i>
--	---

POLICY R4: RECYCLE AND RECOVER WASTE, DELIVER CLEAN SOURCES OF ENERGY TO URBAN CONSUMERS, SHIFT FROM PRIVATE TO PUBLIC TRANSPORT, AND ADAPT TO AND MITIGATE AGAINST CLIMATE CHANGE

Policy Statement	Development's Response
11. Mainstream water conservation and demand management in settlement making and upgrading	<ul style="list-style-type: none"> <i>The proposed Phragmifiltr WWTW will indeed recycle water and conserve water resources.</i>

POLICY R5: SAFEGUARD CULTURAL AND SCENIC ASSETS

Policy Statement	Development's Response
2. Protect heritage and scenic assets from inappropriate development and land use change.	<ul style="list-style-type: none"> <i>A visual impact assessment was conducted as part of the NEMA Environmental Authorisation process, and the proposed WWTW will have no negative visual impact, and will not have any negative impact on the identified scenic routes. The proposed site will barely be visible from Main Roads such as the R404 and R102.</i>

POLICY E1: USE REGIONAL INFRASTRUCTURE INVESTMENT TO LEVERAGE ECONOMIC GROWTH

Policy Statement	Development's Response
2. Use Regional or District SDF's as basis for addressing and reconciling competing and overlapping demands for regional economic infrastructure (e.g. regional airport).	<ul style="list-style-type: none"> <i>This proposed wetland WWTW will services the entire Airport Support node, which is a strategic regional development node, to support the George Airport.</i>
6. Prioritise developing the required bulk infrastructure capacity to serve the connection and compaction of existing human settlements, over developing bulk infrastructure to serve the outward growth of settlements	<ul style="list-style-type: none"> <i>This proposed wetland WWTW that will serve the Airport Support Node, as approved on Portions 130; 4 and 139 of the Farm Gwayang, will ensure compaction of this node.</i>
11. Assess biodiversity, heritage, scenic landscape and agricultural considerations in evaluating the suitability of sites for bulk infrastructure projects.	<ul style="list-style-type: none"> <i>All these aspects were evaluated when the Competent Authority issued an Environmental Authorisation for the proposed WWTW.</i>

POLICY E3: REVITALISE AND STRENGTHEN URBAN SPACE-ECONOMIES AS THE ENGINE OF GROWTH

Policy Statement	Development's Response
5. Existing economic assets (e.g. CBDs, township centres, modal interchanges, vacant and under-utilised strategically located public land parcels, fishing harbours, public squares and markets, etc.) should be targeted to lever the regeneration and revitalisation of urban economies.	<ul style="list-style-type: none"> ▪ <i>This proposed wetland WWTW will service the entire Airport Support node, which is a strategic regional development node, to support the George Airport.</i>

POLICY S1: PROTECT, MANAGE AND ENHANCE SENSE OF PLACE, CULTURAL AND SCENIC LANDSCAPES

Policy Statement	Development's Response
2. Promote smart growth ensuring the efficient use of land and infrastructure by containing urban sprawl and prioritising infill, intensification and redevelopment within settlements	<ul style="list-style-type: none"> ▪ <i>This proposed wetland WWTW on the eastern edge of the Airport Support Node will ensure the containment of this identified development node, be limiting the edge of urban development, and allowing the developers to utilise the development node to its full potential.</i> ▪ <i>The fact that the WWTW will result in no future services / sewer pipelines connecting this area to the Municipal WWTW, ensures that the development node will not "sprawl" into an eastern direction.</i>
5. Conservation strategies, detailed place-specific guidelines and explicit development parameters must supplement urban edges to ensure the effective management of settlement and landscape quality and form.	<ul style="list-style-type: none"> ▪ <i>Architectural Design Guidelines were approved for the Airport Support Node, thereby ensuring the effective management of the settlement development and the quality and form in this development.</i>

Planning Implication:

The Western Cape Spatial Development framework has a strong emphasis on revitalising urban spaces creating an urban living environment which is more convenient, efficient and aesthetically pleasing to residents, as well as protecting eco-system services.

the proposed Phragmifiltr WWTW is an environmentally friendly system, recycling water and using the water for irrigation purposes that will **seamlessly integrated into the natural landscape**, enhancing biodiversity and ecological functions while minimising habitat disruption. The proposed WWTW will service the entire Airport Support Zone development node on Portions 4; 130 and 139, thereby curtailing future urban sprawl.

The proposed development is therefore regarded as being consistent with the policies of the Western Cape PSDF.

11.2. Garden Route District Spatial Development Framework (2017)

The Garden Route District Spatial Development Framework was approved by the Garden Route District Council and therefore this is the official spatial planning guideline for the Garden Route District Municipality.

According to the Eden SDF, George is identified as the major economic / services / education hub along the N2. George is envisaged as the primary regional ACSA commercial airport with recent accreditation as an international airport.

Growth Nodes are identified as settlements that have the economic, institutional and infrastructural capacity to accommodate new growth. Where reference is made to lateral spatial growth this is specified or referred to as sprawl, which is not desirable. The rationale in the SDF is *to encourage government and private sector investment in infrastructure and new housing opportunities in places where jobs and facilities are easily accessible* rather than develop new housing projects or government facilities in places that have no economic opportunity or that have low growth potential. From a government investment and infrastructure development perspective, where funds are limited and need to be spent strategically, *capital investment should be predominantly focused on growth nodes over consolidation nodes.*

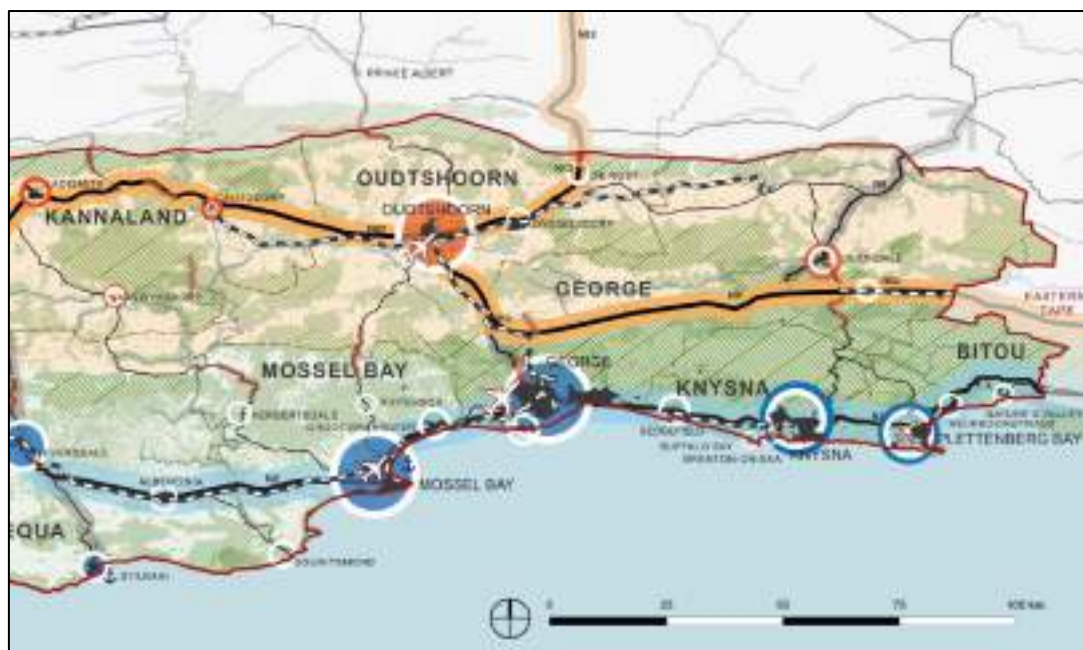


FIGURE 11: EDEN DISTRICT COMPOSITE SDF

The Eden SDF acknowledges that the George airport is serviced by most of the operating airlines in the country and receives domestically operated flights, although limited to Cape Town, Port Elizabeth, Bloemfontein, Durban and Johannesburg. It is also used to export locally produced goods e.g. fresh cut flowers, oysters, herbs and ferns. It further states

that passenger transport at the airport has increased significantly over the past few years up to 700 000 per annum (recorded in 2016). As a result, the present terminals are becoming too small and are being enlarged. The runway is 2 km long and needs to be expanded to at least 3 km in the future. The present handling of cargo presents a problem as services are required as early as 4h30 which would require additional staff.

The proposed development of a WWTW at the George Airport Support Zone, will support and strengthen the identified regional node, and therefore the proposed development is regarded as being consistent with the Eden SDF.

11.3. George Municipal Spatial Development Framework (2023)

The George Municipal Spatial Development Framework (SDF) was approved by George Municipal Council during 2023. The SDF is therefore the primary spatial tool for guiding development within the municipal area. The SDF is the spatial manifestation of the municipal development agenda. The spatial perspective provides the development context for the SDF with a planning Vision, Mission and Guiding Principles.

The George SDF acknowledges the approved airport support zone, and makes the following statements regarding the "Gwayang Node":

- The planned freight and passenger upgrades of the facilities at the George Airport is done in accordance with the airport development framework, read with the recently approved airport support zone, which strengthens this economic node.
- The George Airport Precinct (*outside the George City urban edge*) has been identified as a "Category B" node with the following role: - Sub-regional node in proximity to the N2 and airport, targeted at Southern Cape agri-processing/ related manufacturing, freight and logistics, and service industries.
- Improved and additional road linkages to the proposed Gwayang Industrial and mixed-use area and the airport precinct.
- The identified Airport precinct, includes the following uses: airport infrastructure (including terminal building), tourism related uses and accommodation, renewable energy structures, warehousing/ light industrial (logistics, cargo, and cold storage bulk freight) to support a freight facility extension and aviation related use, transport orientated development and facilities.
- The area around the airport to include uses to extend and integrate the airport uses, but implemented within context (non-urban, rural area integration, related to agri-processing, logistics, freight, and airport support uses).

The figure below is an extract from the George SDF, indicating that the application area is located within the Airport Support Precinct.



FIGURE 12: EXTRACT GEORGE SDF

Policy A5 of the George SDF states the following: "... PG a: Locate utility precincts/uses in areas where access is available, extension is possible and where urban growth and integration is not impeded..." It further explains this policy statement by: "...**Utility areas**, being support infrastructure to engineering functions, should not hinder future growth direction, nor obstruct integration of remote settlements to effect transformation..." Even though the proposed utility site is not within a spatially identified "utility precinct", in the SDF, the principle of not impeding urban growth is an important consideration why the proposed utility site should be located outside the urban edge, and not inside the demarcated development area.

The development proposal on the application area is therefore regarded as being consistent with the approved George Municipal SDF.

11.4. Gwayang Local Area Spatial Development Framework (2015)

George Municipality experienced significant developer pressure around the airport and along the R102 Corridor, between George and the Airport, hence the need to develop the Gwayang Local Spatial Development Framework (GLSDF). This LSDF was approved by the George Municipality during 2016. The "corridor" refers to the R102 road, the properties between this road and the N2 and the land situated within approximately 500m to the north of the road.

George Airport plays a significant role in the Southern Cape's tourism industry and whether directly or indirectly, creates and supports jobs and economic growth for the George area.

Efficient airports are an essential part of the transport networks that all successful modern economies rely on. The George Airport is a crucial transport hub for the Southern Cape. As

demand for travel increases, modern economies expect and demand a range of services and facilities at these transport hubs to improve their travel experience and to support their businesses. The George Airport is continuously improving on the service they render, which will also contribute to the development of the Southern Cape economy. Currently the airport functions in isolation of the town and any complimentary commercial uses such as freight and logistics.

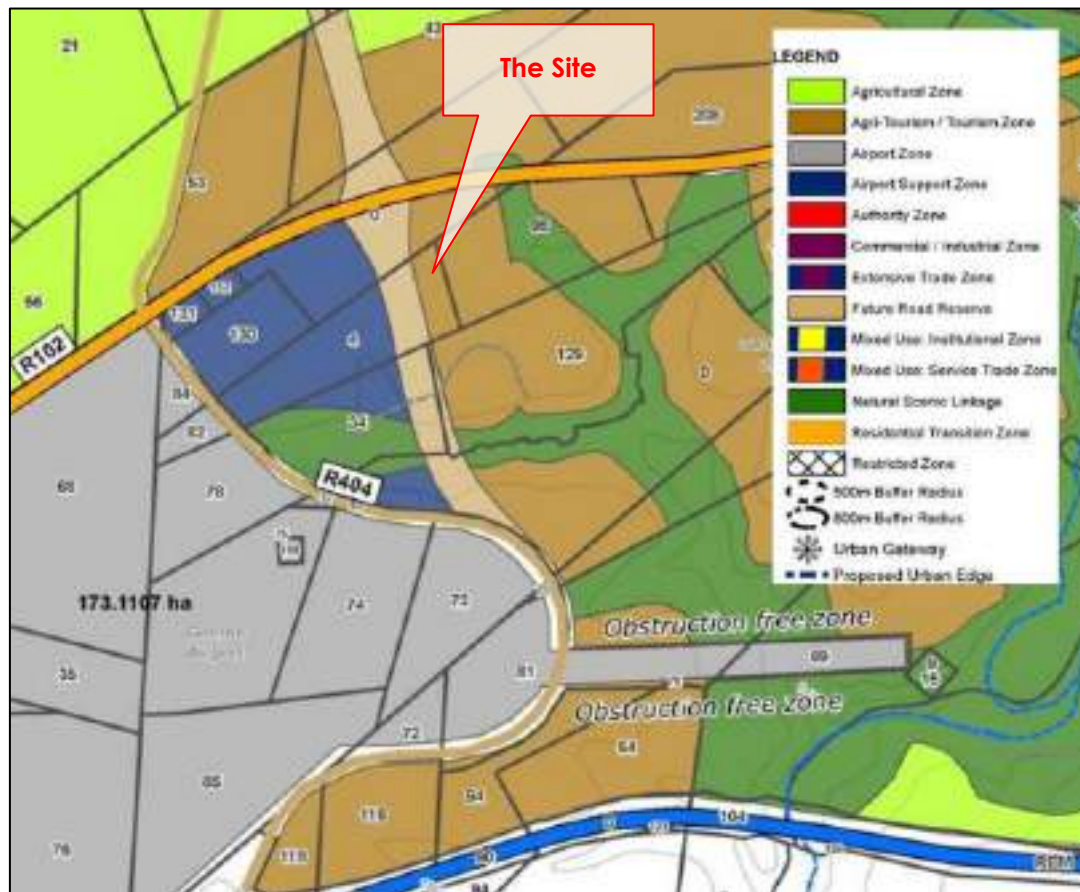


FIGURE 13: GWAYANG LOCAL SPATIAL DEVELOPMENT FRAMEWORK

The Gwayang Local Spatial Development Framework earmarks the land between the Western Bypass and the airport for **Airport Support Zone**.

The airport support zone are the properties opposite the airport with the alignment of the future bypass road as the boundary thereof. Land uses will be strictly limited to those uses that will support tourists and airport facilities that cannot be located in the town with the same practical function.

It is ideally located to provide facilities for tourism support as well and may include fuelling facilities and a hotel.

The area where the proposed WWTW is located, is not earmarked as part of the "Airport Support Zone", but for agricultural and tourism purposes. It could be argued that the proposal is not consistent with this local area SDF, and then one has to consider "Site

Specific Circumstances” when the development application is considered. The following Points have to be considered, when site specific circumstances are considered:

- The proposed WWTW will directly support and service the approved development on Portions 4; 130 and 139 of the Airport Support Zone. This WWTW enables the optimal development of this node, without having to connect to or upgrade the Municipal WWTW further East of the application area.
- Addressing wastewater treatment close to the source holds benefits considering cost and impact to pump wastewater over a vast distance to the existing municipal wastewater treatment works located more than 3km to the east. With the improvement of technology, it is not necessary to only use municipal infrastructure which is under constant pressure to expand.
- Keeping infrastructure like wastewater treatment outside the urban edge helps preserve land within urban areas for higher-value uses like housing, commerce, or recreation. It also avoids long-term complications from urban encroachment on sensitive infrastructure.
- With the expropriation of the future Western Bypass Road and the subdivision of this land off the application area, there will be a Remaining Portion of land of $\pm 1,5$ ha which is too small for productive farming, and transformed. The flat topography of this land parcel is ideal for the development of this wetland WWTW system. The proposed WWTW on this remaining portion of farm land is the best use of the land, supporting the existing approved George Airport Support node.
- The locality of the proposed WWTW infrastructure in this area outside the demarcated Airport Support Zone, on the remaining portion of agricultural land, protects it from being surrounded by urban growth in the future. This ensures long-term **functionality, accessibility, and ease of maintenance**, avoiding costly relocations or upgrades due to encroachment.
- **Sunlight and Ventilation** are required for the optimal functioning if the Phragmifiltre WWTW. The remaining portion of farmland is transformed, flat and receives adequate sunlight. This application area is ideally located for the WWTW as it received adequate sunlight and ventilation, without having to clear any additional trees.

From the above discussion regarding the Gwayang Local Area Spatial Development Framework; it can be argued that the proposal is consistent with the local area SDF, as it supports the demarcated Airport Support Zone, and no additional airport related development is proposed on this site. Should it be argued that the proposal is not consistent with this local area SDF, there is adequate “site specific” reasons why this proposed Phragmifiltre WWTW is desirable in this location.

11.5. George Integrated Development Plan 2025 - 2026

The IDP is a municipal planning instrument that drives the process to address the socio-economic challenges as well as the service delivery and infrastructure backlogs experienced by communities in the municipality’s area of jurisdiction. The IDP is the municipality’s

principal five-year strategic plan that deals with the most critical development needs of the municipal area (external focus) as well as the most critical governance needs of the organisation (internal focus).

The adopted vision for the George IDP is

A City for a Sustainable Future

To deliver affordable quality services, develop and grow George, keep George clean, safe and green; ensure good governance and human capital in George and to participate in George.

The George IDP identified five strategic objectives for the Municipal Area. These agreed-upon strategic objectives are:



FIGURE 14: GEORGE MUNICIPALITY – IDP STRATEGIC OBJECTIVES

The application area is located within Ward 23 of the George Municipality. None of the identified ward-based needs and priorities has a direct bearing or any reference to the proposed development on the subject property.



FIGURE 15: GEORGE MUNICIPALITY WARDS

The George IDP identified the following economic opportunities for George:

- The promotion of intensive agriculture practices, agri-processing and small farmer development.
- Enhance resilience in the land use management system to provide and **enabling environment for agricultural and economic** development.
- Significant uptake of industrial lands an indication of demand and points to the possible increase in job opportunities.
- The agglomeration of tertiary uses in well-located positions not only facilitates economic sustainability and coordinated infrastructure planning, but also benefits the majority of the users. A system of nodes, precincts, corridors and specialized activity areas guide the coordinated allocation of area for economic activity.
- The role of George as an administrative centre (government offices, regional business locality) must be supported.
- ***The emerging airport support zone renders economic- and job creation opportunity.***
- George is identified as a Regional Development Anchor in the Provincial Development Framework is an opportunity to attract investment (public and private).

Planning Implication:

The IDP is a municipal planning tool to integrate municipal planning and allocates municipal funding to achieve strategic objectives that will contribute to the overall municipal vision. The proposal will provide new and additional economic growth prospects.

The proposed land development application will not directly contribute to any of the Ward-based issues/priorities but is important to note that the proposal does not contradict any of them or the desired outcome for this ward. Although this application is regarded as being consistent with one of the strategic development interventions for the George Municipal Area.

SECTION E :**MOTIVATION****12. ASSESSMENT OF APPLICATIONS****12.1. The Spatial Planning and Land Use Management Act, 2013 (16 of 2013)**

The Spatial Planning and Land Use Management Act (SPLUMA) came into effect on 1 September 2014. One of the main objectives of this act is to provide a framework for spatial planning and land use management to address past spatial and regulatory imbalances.

Section 42 of SPLUMA prescribe certain aspects that have to be taken into consideration when deciding on an application. These are:

- development principles set out in Chapter 2 of SPLUMA
- protect and promote the sustainable use of agricultural land
- national and provincial government policies
- the municipal spatial development framework; and
- take into account—
 - a. the public interest;
 - b. the constitutional transformation imperatives and the related duties of the State;
 - c. the facts and circumstances relevant to the application;
 - d. the respective rights and obligations of all those affected;
 - e. the state and impact of engineering services, social infrastructure and open space requirements; and
 - f. any factors that may be prescribed, including timeframes for making decisions.

12.2. Land Use Planning Bylaw for George Municipality, 2023

George Municipality adopted its new Land Use Planning By-law and it came into effect on 21 April 2023. All land use applications are now being processed and assessed in terms of this by-law. This by-law states that the following aspects will be considered when the decision are made:

- desirability of the proposed utilisation of land
- the impact of the proposed land development on municipal engineering services
- the integrated development plan, including the municipal spatial development framework
- provincial spatial development framework
- policies, principles and the planning and development norms and criteria set by the national and provincial government
- the matters referred to in section 42 of the Spatial Planning and Land Use Management Act

- principles referred to in Chapter VI of the Land Use Planning Act
- applicable provisions of the zoning scheme

13. CONSISTENCY WITH SPATIAL POLICY DIRECTIVES

This application is consistent with all the approved spatial policy frameworks that apply to the area. Refer to Paragraph 11 for a detailed discussion on the consistency of the proposal with current spatial policy frameworks for the area.

- i. This development application is consistent with the approved statutory spatial policy framework for the area.
- ii. The proposal is consistent with the strategic objectives as set out by the Western Cape Spatial Development Framework.
- iii. The proposal is consistent with the Garden Route District SDF.
- iv. The George SDF indicate that the application area is situated within an Intensive Agriculture area.
- v. Even though outside the urban edge and the subject property is within an Intensive Agriculture area, one has to consider the Gwayang Local Spatial Development Framework, which focuses on the area specifically around the George Airport, where the subject property is located.
- vi. The proposal is consistent with the Gwayang Local Spatial Development Framework.
- vii. The IDP was reviewed, and the ward was identified wherein the proposed development is located. Part from what is discussed above there is no relevant legislation in the IDP applicable to the specific location of the proposed development.

13.1. Site Specific Circumstances

Section 22 (2) of the Spatial Planning and Land Use Management Act, 2013 (Act 13 of 2013) states that: "...*Subject to section 42, Municipal Planning Tribunal or any other authority required or mandated to make a land development decision, may depart from the provisions of a **municipal spatial development framework** only if site-specific circumstances justify a departure from the provisions of such municipal spatial development framework...*"

As described in Par 11.3 of this motivation report, it is the considered opinion that the proposal is consistent with the George Municipal SDF. However, although the proposal is generally consistent with the Gwayang Local Area Structure, Plan, it could be argued, that the proposal requires "site specific circumstances" to allow the approval of the proposal.

The following points have to be taken into consideration when the "site specific circumstances" for this proposed WWTW is considered:

- The proposed WWTW will directly support and service the approved development on Portions 4; 130 and 139 of the Airport Support Zone. This WWTW enables the optimal development of this node, without having to connect to or upgrade the Municipal WWTW further East of the application area.

- Addressing wastewater treatment close to the source holds benefits considering cost and impact to pump wastewater over a vast distance to the existing municipal wastewater treatment works located more than 3km to the east. With the improvement of technology, it is not necessary to only use municipal infrastructure which is under constant pressure to expand.
- Keeping infrastructure like wastewater treatment outside the urban edge helps preserve land within urban areas for higher-value uses like housing, commerce, or recreation. It also avoids long-term complications from urban encroachment on sensitive infrastructure.
- With the expropriation of the future Western Bypass Road and the subdivision of this land off the application area, there will be a Remaining Portion of land of $\pm 1,5$ ha which is too small for productive farming, and transformed. The flat topography of this land parcel is ideal for the development of this wetland WWTW system. The proposed WWTW on this remaining portion of farm land is the best use of the land, supporting the existing approved George Airport Support node.
- The locality of the proposed WWTW infrastructure in this area outside the demarcated Airport Support Zone, on the remaining portion of agricultural land, protects it from being surrounded by urban growth in the future. This ensures long-term **functionality, accessibility, and ease of maintenance**, avoiding costly relocations or upgrades due to encroachment.
- **Sunlight and Ventilation** are required for the optimal functioning if the Phragmifiltre WWTW. The remaining portion of farmland is transformed, flat and receives adequate sunlight. This application area is ideally located for the WWTW as it received adequate sunlight and ventilation, without having to clear any additional trees.

From the above discussion regarding the Gwayang Local Area Spatial Development Framework; it can be argued that the proposal is consistent with the local area SDF, as it supports the demarcated Airport Support Zone, and no additional airport related development is proposed on this site. Should it be argued that the proposal is not consistent with this local area SDF, there is adequate "site specific" reasons why this proposed Phragmifiltre WWTW is desirable in this location.

14. CONSISTENCY WITH THE CHARACTER OF THE SURROUNDING AREA

The area is characterised by various agricultural, tourism and airport related land uses. The infrastructure services for the approved development on Portions 4; 130 & 139 have been installed, and therefore the "Airport Support Zone" node is taking form. As mentioned in Par 10 of this motivation report, it was clearly shown that the proposed WWTW on the Remainder of Portion 4 is consistent with the existing character of the area, and an ideal use for the area in transition between "light industrial" and rural / agriculture.

15. ACCESS

As described in Par 4.3 of this Motivation report, ample access is provided for this proposed WWTW. Access is provided via a temporary right of way access across Portion 182 of Farm No 208, until such time as when the western bypass is expropriated, and then once the western bypass is expropriated and constructed, access will be provided via a right of way servitude access Portion 34, for which there is already a draft servitude agreement in place (refer **ANNEXURE Q**).

16. IMPACT ON THE COMMUNITY

The proposed development as approved, will have several positive socio-economic impacts on the surrounding community. The proposed amendments as applied for will not affect these positive impacts.

17. NO ENVIRONMENTAL IMPACT

As mentioned, the Department of Environmental Affairs and Development Planning, has already granted Environmental Authorisation (EA) for the proposed WWTW. A copy of this EA is attached as **ANNEXURE E**. A copy of the Final Basic Environmental Report as submitted to the Department of Environmental Affairs, is attached as **ANNEXURE W**.

18. NO VISUAL IMPACT

The proposed WWTW that will consist of a series of wetlands will have insignificant visual impact. A Visual Impact Assessment (refer **ANNEXURE U**) was conducted for the Environmental Authorisation (EA) Application process, and an EA was granted. As shown in **Figure 9**, the appearance of the WWTW will look like wetlands, and not like a conventional WWTW consisting of large concrete structures and dams.

Additional visual mitigation could include:

- Screening through the planing of indigenous and waterwise trees;
- Screening of any structures that does not appear like the natural environment.

19. DESIRABILITY

Section 65(c) of the George Land Use Planning Bylaw, states that the “desirability” of a land development proposal must be considered during the decision-making process.

A defining factor when considering the desirability specifically for the proposal is whether the proposal is “in the public interest”. The criteria as set out in the Relevant Considerations: Provincial Support Document covers the aspects to consider when determining desirability and whether a proposal is in the public interest or not, and is summarised in the table below:

Elements for Consideration	Key Questions to Ask	Desirability of Development Proposal
Economic impact	Positive or Negative impact on neighbourhood / settlement?	<p>(i) <i>Positive economic impact. No negative impact on surrounding property owners or their rights.</i></p> <p>(ii) <i>A more affordable manner for the treatment of sewer, than developing new infrastructure to connect to the existing George WWTW that is already on capacity.</i></p>
Social impact	Greater social justice, equity of access to opportunity	<p>(i) <i>The proposal will create employment opportunities for semi-skilled labour.</i></p> <p>(ii) <i>The efficient and environmentally friendly manner of treatment of sewer, will result in less pollution and a safer and healthier environment.</i></p>
Scale of capital investment	> capital investment - > positive impact	<p>(i) <i>Private investment. No Municipal funding is required.</i></p> <p>(ii) <i>Relieves the pressure on the municipality to upgrade the existing George WWTW.</i></p>
Compatibility with surrounding land uses		<p>(i) <i>The proposal is indeed compatible with the surrounding land uses – refer to Par 10 & Par 14.</i></p>
Impact on external engineering services	How much must the developer contribute to municipal costs incurred?	<p>(i) <i>The developer will carry all costs for the development of the WWTW and the WWTW will be managed and maintained by the Airport Support Zone Property Owners Association (POA)</i></p>
Impact on safety, health & well-being of the surrounding community		<p>(i) <i>Increased movement in the area increases security in the area.</i></p> <p>(ii) <i>The development of a beauty treatment salon, a registered beauty school to provide education in various beauty treatments, and a spa in urban areas can improve access to essential services and resources, such as healthcare facilities, educational institutions, and retail establishments, enhancing residents' quality of life and convenience.</i></p>

Elements for Consideration	Key Questions to Ask	Desirability of Development Proposal
		(iii) <i>The proposed WWTW will play a vital service / role for the approved Airport Support Zone developments on Portions 3; 130 and 139 of the Farm Gwayang.</i>
Impact on heritage		(i) <i>No heritage impacts.</i> (ii) <i>A Heritage approval was issued for all developments within the approved Airport Support Zone Precinct.</i>
Impact on the biophysical environment	Are there negative impacts? Are they adequately mitigated?	(iii) <i>No impact on the biophysical environment. This statement is supported by the fact that an Environmental Authorisation was granted for the proposed WWTW.</i> (iv) <i>The proposed WWTW supports conservation goals and allows the treatment system to act as a functional part of a larger green corridor.</i>
Traffic impacts, parking access, other transport considerations	Support for densification & functional public transport system?	(i) <i>Ample access is provided for the proposed WWTW.</i>
Impact on quality of life (incl. views, sunlight, privacy, visual impact, character)		(i) <i>The development of a WWTW in this area, where it supports the approved development on Portions 4; 130 and 139, is consistent with the guidelines and policies as set out in the George SDF and IDP.</i> (ii) <i>Given the technology of the proposed WWTW system, the system is environmentally friendly, does not require high skilled labour for maintenance, and assists in recycling, purification and reuse of waste water for irrigation purposes.</i>

Elements for Consideration	Key Questions to Ask	Desirability of Development Proposal
		<p>(iii) <i>The long term benefits of the proposed WWTW is water saving and water recycling as well as the production of compost from the silt, that can be reused in the surrounding agricultural areas.</i></p> <p>(iv) <i>The proposed WWTW will play a vital service / role for the approved Airport Support Zone developments on Portions 3; 130 and 139 of the Farm Gwaying.</i></p>
Timing – need to densify or protect urban edges	The best option for the site at this point?	<p>(i) <i>The proposed WWTW is an ideal use for the area in transition between "light industrial" and rural / agriculture.</i></p> <p>(ii) <i>With the expropriation of the future Western Bypass Road and the subdivision of this land off the application area, there will be a Remaining Portion of land of $\pm 1,5$ ha which is too small for productive farming, and transformed.</i></p> <p>(iii) <i>The flat topography of this land parcel is ideal for the development of this wetland WWTW system. The proposed WWTW on this remaining portion of farm land is the best use of the land, supporting the existing approved George Airport Support node.</i></p>
Cumulative impacts	Unacceptable cumulative impacts?	(i) <i>Only positive impacts. No negative impact on any of the surrounding property owners.</i>
Opportunity costs	Any unacceptable opportunity costs?	<p>(i) <i>Private investment</i></p> <p>(ii) <i>No municipal funding required</i></p>
Alignment with SDF's		<i>The proposal is consistent with all relevant spatial planning policy documents.</i>

From the above summary it is clear that the proposed development of the WWTW on the Remaining Portion of Portion 4 of the Farm Gwayang No 208 meets the desirability criteria, and can be considered as being “desirable”.

20. WESTERN CAPE LAND USE PLANNING ACT, 2014 (ACT 3 OF 2014)

The purpose of this Provincial legislation is to consolidate legislation in the Province pertaining to provincial planning, regional planning and development, urban and rural development, regulation, support and monitoring of municipal planning and regulation of public places and municipal roads arising from subdivisions; to make provision for provincial spatial development frameworks; to provide for minimum standards for, and the efficient coordination of, spatial development frameworks; to provide for minimum norms and standards for effective municipal development management; to regulate provincial development management; to regulate the effect of land development on agriculture; to provide for land use planning principles; to repeal certain old-order laws; and to provide for matters incidental thereto.

Section 59 of this Act prescribe the Land Use Planning Principles that are applicable to all land development in the Province. These are summarised in the tables below.

20.1. Spatial Justice

Criteria	Compliance	Planning Implication
Past spatial and other development imbalances must be redressed through improved access to and use of land.	Not applicable	This policy is not applicable to the application area.
Spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterised by widespread poverty and deprivation.	Not applicable	This policy is not applicable to the application area.
Spatial planning mechanisms, including land use schemes, must incorporate provisions that enable redress in access to land by disadvantaged communities and persons.	Not applicable	This policy is not applicable to the application area.

20.2. Spatial Sustainability

Criteria	Compliance	Planning Implication
Promote land development that is within the fiscal, institutional and administrative means of the Republic.	Comply	<p>(i) <i>The development of the proposed WWTW will be privately funded, and will service all development on Portions 4; 130 and 139.</i></p> <p>(ii) <i>The development of the WWTW on the application area, results in a relief in the pressure to upgrade the existing George Municipal WWTW.</i></p>
Ensure that special consideration is given to the protection of prime and unique agricultural land.	Comply	<p>(i) <i>Although the property is zoned for agricultural purposes, it is not regarded as high potential agricultural land.</i></p> <p>(ii) <i>The proposal is subject to the provisions of Act 70 of 1970.</i></p> <p>(iii) <i>The Agricultural potential report confirmed that the proposed development will not result in a loss of food security, and that the additional irrigation for the wetland system can enhance the agricultural potential of the remainder of the farm.</i></p>
Uphold consistency of land use measures in accordance with environmental management instruments.	Comply	<p>(i) <i>The Department of Environmental Affairs has already granted an Environmental Authorisation for the approved development, including the WWTW.</i></p>
Promote and stimulate the effective and equitable functioning of land markets.	Comply	<p>(i) <i>The proposed amendment will have no negative impact on the functioning of the land markets and will not result in undesirable speculation of rural land.</i></p>
Consider all current and future costs to all parties for the provision of infrastructure and social services in land developments.	Comply	<p>(i) <i>The applicant proposes an off-grid, eco-friendly waste water treatment works, that will relief the pressure of bulk services provision from the local authority.</i></p> <p>(ii) <i>Proposal will create a significant economic investment, without increasing the need for the provision of additional social services.</i></p>
Promote land development in locations that are sustainable and limit urban sprawl; and result in communities that are viable.	Comply	<p>(i) <i>The application area is located within the identified George Airport Support Zone development precinct.</i></p> <p>(ii) <i>No undesirable urban sprawl – the wetland waste water treatment system will prevent urban expansion further east of the western bypass.</i></p>

20.3. Spatial Efficiency

Criteria	Compliance	Planning Implication
Land development optimises the use of existing resources and infrastructure.	Comply	(i) <i>The raw sewer from the approved development on Portions 4; 130 & 139 will be the source of the WWTW. The sewer will be treated through environmentally friendly processes and purified water, suitable for irrigation purposes, will be utilised for irrigation within the approved development.</i>
Decision-making procedures are designed to minimise negative financial, social, economic or environmental impacts.	Comply	(i) <i>The municipality should process this application within the prescribed time frames of the George Municipality By-law on Municipal Land Use Planning (2023), taking into account that an EA has already been granted for the proposed WWTW</i>
Development application procedures are efficient and streamlined and timeframes are adhered to by all parties.	Not Applicable	<i>The municipality should process this application within the prescribed time frames of the George Municipality By-law on Municipal Land Use Planning (2023).</i>

20.4. Spatial Resilience

Criteria	Compliance	Planning Implication
Flexibility in spatial plans, policies and land use management systems are accommodated to ensure sustainable livelihoods in communities most likely to suffer the impacts of economic and environmental shocks	Comply	(i) <i>The proposal is in line with the various spatial plans, zoning scheme and policies, as motivated in this report.</i> (ii) <i>The proposed WWTW will ensure additional employment opportunities for semi-skilled workers, it will ensure environmental friendly treatment of sewer, without adding additional load to the existing George Municipal WWTW.</i>

20.5. Good Administration

Criteria	Compliance	Planning Implication
All spheres of government ensure an integrated approach to land use and land development that is guided by the spatial planning and land use management systems as embodied in this Act.	Applicable to George Municipality	This principle has no direct bearing on the application, however, the George municipality is obligated to consider the application fairly and within the timeframes provided in terms of the municipal planning bylaw.

Criteria	Compliance	Planning Implication
All government departments must provide their sector inputs and comply with any other prescribed requirements during the preparation or amendment of spatial development frameworks.		What is however important is that all decision making is aligned with sound policies based on nation, provincial and local development policies.
The requirements of any law relating to land development and land use are met timeously.		
The preparation and amendment of spatial plans, policies, land use schemes as well as procedures for development applications, include transparent processes of public participation that afford all parties the opportunity to provide inputs on matters affecting them.		
Policies, legislation and procedures must be clearly set in order to inform and empower members of the public.		

21. CONCLUSION

The proposed development as envisaged is consistent with the various policy guidelines of this area. It is the considered opinion that the proposed development will achieve a sensitive balance between, the built environment and the socio-economic environment, that is imperative to ensure sustainable development.

In light of this motivation, it is clear from the foregoing report that the application for:

- (i) The rezoning of the Remaining extent of Portion 4 of the Farm Gwayang No 208, Division George from "Agriculture Zone I" to "Subdivisional Area" in terms of Section 15(2)(a) of the George Municipality By-Law on Municipal Land Use Planning (2023).
- (ii) The subdivision of the Remaining extent of Portion 4 of the Farm Gwayang No 208, Division George into two Portions: Portion A ($\pm 1,5940$ ha) and the Remainder, in terms of Section 15(2)(d) of George Municipality's By-Law on Municipal Land Use Planning (2023).

Meets the criteria as set out in The Spatial Planning and Land Use Management Act (SPLUMA) and the George Land Use Planning Bylaw, is desirable and it is therefore recommended that the application be supported by the relevant authorities and approved by George Municipality.

Marika Vreken Urban and Environmental Planners
May 2025

ANNEXURE A:

*Copy of Rezoning & Subdivision Approval –
May 2022*

Beplanning en Ontwikkeling
Planning and Development

Collaborator No.: 1874539
Reference / Verwysing: Gwayang 208/4, Division George
Date / Datum: 6 May 2022
Enquiries / Navraag: Kelth Meyer

Marika@vreken.co.za

Marika Vreken Townplanners cc

REZONING AND SUBDIVISION : GWAYANG 208/4, DIVISION GEORGE

Your application in the above refers.

The Eden Joint Municipal Planning Tribunal – George Municipality, meeting held on 26 April 2022 resolved:

That the following applications applicable to Remainder Portion 4 of the Farm Gwayang No 208, Division George; namely:

- (a) Rezoning in terms of Section 15(2)(a) of the Land Use Planning By-Law for George Municipality (2015), of Remainder Portion 4 of the Farm Gwayang No 208, Division George from Agricultural Zone I to a Subdivisional Area; and
- (b) Subdivision in terms of Section 15(2)(d) of the Land Use Planning By-Law for the George Municipality (2015), of Portion 4 of the Farm Gwayang No 208 the Subdivisional Area in accordance with Plan No 5 dated 2 August 2021 (attached as **Annexure A**), to create the following phases and land uses:

(1) PHASE 1:

- (i) Open Space Zone II: 1 erf (±0.34ha)
- (ii) Business Zone VI: 1 erf (±0.99ha)
- (iii) Transport Zone II: 1 erf (±0.30ha)

(2) PHASE 2:

- (i) Industrial Zone I: 3 erven (±2.54ha)
- (ii) Transport Zone II: 1 erf (±0.15ha)

(3) PHASE 3:

- (i) Industrial Zone I: 2 erven (±2.07ha)
- (ii) Open Space Zone II: 2 erven (±0.59ha)
- (iii) Transport Zone II: 2 erven (±0.36ha)

(4) PHASE 4:

- (i) Agricultural Zone I: 1 erf (±3.6ha)

BE APPROVED in terms of Section 60 of said By-law for the following reasons:

- (i). The proposal will not detract from the surrounding character of the area or the built environment.
- (ii). The properties to be developed will complement the land uses which form part of the George Airport precinct.
- (iii). The proposal aligns with the development principles of SPLUMA and LUPA.
- (iv). The proposal is consistent with the objectives of the spatial planning policies (Provincial Spatial Development Framework, George Municipal Spatial Development Framework and Gwayang Local Spatial Development Framework).
- (v). The proposed development is in line with the Environmental Authorisation.
- (vi). Bulk engineering infrastructure is available to accommodate the proposed development.
- (vii). The proposed development will render positive socio-economic impact for the community and enable much needed support facilities for the local agricultural import and export market.

Subject to the following conditions imposed in terms of Section 66 of the said Planning By-Law:

CONDITIONS OF THE DIRECTORATE: PLANNING AND DEVELOPMENT:

General Conditions

1. That in terms of Section 43 of the Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013) read with Sections 17(5) and 22(1) of the Land Use Planning By-law for the George Municipality, 2015, the approval shall lapse if not implemented within a period of five (5) years from the date thereof.

Conditions applicable to the Subdivision

2. The subdivision of Remainder Portion 4 of the Farm Gwayang No 208 shall be as approved as indicated on the Phasing diagram drawn by Marike Vreken Urban and Environmental Planners, Drawing Number: Pr16/48F208Ptn4Sub10 dated 2 August 2021 attached as "Annexure A" which bears Council's stamp and shall not be construed as to depart from any other Council requirements or legal provision.
3. The developer must submit the Surveyor General approved, subdivision diagram to the GIS Department of the Directorate of information purposes.
4. That all public roads be transferred to the municipality at the developers cost to the satisfaction of the Department: Civil Engineering Services.
5. That the necessary environmental servitudes be registered, in accordance with Phasing diagram drawn by Marike Vreken Urban and Environmental Planners, Drawing Number: Pr16/48F208Ptn4Sub10 dated 2 August 2021.
6. A Property Owners' Association (POA), including its Constitution, is to be established and approved by the Directorate. The private roads, infrastructure and private open spaces within the development will be transferred by the developer to the POA who will assume responsibility for the maintenance

thereof. The POA will also be responsible for the enforcement of a set of Architectural Guidelines (condition 8 applicable).

7. The subdivision approval will be considered implemented on the submission of proof that one of the respective portions have been registered at the Deeds Office.

Conditions applicable to the implementation of the development (Rezoning)

8. That an overarching set of Architectural Design Guidelines and visual impact assessment document(s) be compiled and submitted for the implementation of the proposed development, to the satisfaction of the Directorate for consideration and approval. The Guideline must be compatible with that of the adjoining development on Portions 130 to 132 of Gwayang No.208, Division George;
9. A Site Development Plan (SDP) in accordance with Section 23 of the George Integrated Zoning Scheme Bylaw, 2017 must be submitted for the development of each newly created land unit, to the satisfaction of the Directorate for consideration and approval, prior to the submission of building plans. The recommended setbacks from all water courses and stormwater runoff mitigation must be illustrated in the site development plans.
10. A Landscaping Plan for the development must be submitted to the satisfaction of the Directorate for consideration and approval. The list of acceptable plants, shrubs and trees that may be used in the development shall be obtained from the Directorate's Environmental Officer.
11. The developer must provide the Directorate with the necessary proof of compliance with the Environmental Authorisation (EA). The owner must provide proof of the appointment of the Environmental Control Officer (ECO) who will manage the Implementation of the EA as well as the mitigations and recommendations made in the Freshwater Impact Assessment dated May 2018 during construction and operational phase. The latter will be for the owner's cost. The ECO must confirm in writing that the SDPs for the sites (condition 8) comply with all environmental requirements.
12. The Industrial Zone I erven shall be limited to airport support services or uses and may not include an industrial hive, service trade, service station and open-air motor vehicle display. This condition must be imposed against the title deed of the respective portions.
13. The following development parameters shall apply to the Industrial Zone I erven:
 - a. Floor Factor: 0.75
 - b. Coverage: 75%
 - c. Height: 8m above Natural Ground Level
 - d. Street Building Line: 5m
 - e. Side and Rear Building Lines: 3m
 - f. Parking: 2 Parking Bays per 100m² GLA
14. Building plans for the development may only be submitted for approval in accordance with the National Building Regulations (NBR) after approval of the SDP.

CONDITIONS OF THE DIRECTORATE: CIVIL ENGINEERING SERVICES:

15. The amount of Development Charges (DCs) to be paid by the developer are calculated in terms of the George Municipality Land Use Planning By-Law (as amended) and the approved DC Guidelines. With reference to clause above, with regards to the proposed development, the developer will be required to make development contribution, as follows:
16. The amounts of the development contributions are reflected on the attached calculation sheet (refer Annexure T) dated 04/10/2021 and are as follows:

Roads: R 4 467 507,60	Excluding VAT (Refer to attached DC calculation sheet)
Sewer: R 6 116 989,11	Excluding VAT (Refer to attached DC calculation sheet)
Water: R 6 387 097,56	Excluding VAT (Refer to attached DC calculation sheet)
Total: R16 971 594,27	Excluding VAT

17. The total amount of the development charges of R16 971 594,27 (excluding VAT) shall be paid prior to the first transfer of a land unit pursuant to the application or upon the approval of building plans, whichever occurs first, unless otherwise provided in an engineering services agreement or, in the case of a phased development, in these or any other relevant conditions of approval.
18. Any amendments or additions to the proposed development which is not contained within the calculation sheet as dated in condition 16 above, which may lead to an increase in the proportional contribution to municipal public expenditure will result in the recalculation of the development charges and the amendment of these conditions of approval or the imposition of other relevant conditions of approval.
19. As provided in section 66(5B) (b) of the Planning By-Law (as amended), using the date of approval as the base month the amount of R16 971 594,27 (excluding VAT) shall be adjusted in line with the consumer price index published by Statistic South Africa up to the date when payment is made in terms of condition 17 above.
20. Development charges are to be paid to the Municipality in cash or by electronic funds transfer or such other method of payment as may be accepted by the Municipality at the time when payment is made.
21. All services -internal, link and relocation of or upgrades to existing - are to be designed by a registered consulting engineer in accordance with Council specifications. This may include bulk services outside the development area but that must be upgraded to specifically cater for the development. All drawings and plans are to be submitted to the applicable department, or any other relevant authority, (hard copy and electronically) for approval prior to any construction work taking place. All work is to be carried out by a suitable qualified/registered civil contractor under the supervision of the consulting engineer who is to provide the relevant authority with a certificate of completion, and as-built plans in electronic format. All costs will be for the developer. No transfers will be approved before all the municipal services have been satisfactorily installed and as-builts submitted electronically, as well as the surveyor's plan, geotechnical and other reports, and a full close-out report.

22. Should more than two developments/properties be party to or share any service, the Dir: CES will in conjunction with the parties determine the pro-rata contributions payable.
23. Any, and all, costs directly related to the development remain the developers' responsibility.
24. Only one connection is permitted per registered erf (Water and sewer connections), should municipal service be available (condition 21 applicable).
25. Any services from the development that must be accommodated across another erf must be negotiated between the developer and the owner of the relevant erf. Any costs resulting from the accommodation of such services or the incorporation of these services into the network of another development are to be determined by the developer and the owner of the other erf (condition 21 applicable).
26. Any service from another erf that must be accommodated across the development or incorporated into the services of the development: all negotiations will be between the owner/developer of the relevant erf and the developer. Costs for the accommodation of these services or the upgrade of the developments services to incorporate such services are to be determined by the developers/owners concerned (condition 21 applicable).
27. Any existing municipal or private service damaged during the development will be repaired at the developers cost and to the satisfaction of the George Municipality (condition 21 applicable).
28. No development may take place within the 1:100-year flood line or on slopes steeper than 1:4.
29. Should it be required, a services agreement is to be drawn up between the developer and the George Municipality, by an attorney acceptable to the Municipal Manager. All expenses will be for the developer.
30. The developer is to adhere to the requirements of the Environmental Authorisation (EA). The onus is on the developer to provide the Dir: CES with the necessary proof of compliance with the EA.
31. Appropriate servitudes must be registered for any municipal service not positioned within the standard building lines.
32. The applicant is to comply with the National Forestry Act, Act No 84 of 1998, should it be required.
33. Provisions for the removal of solid waste is to be addressed in conjunction with the Dir: Environmental Services.
34. The developer is to adhere to the requirements of all relevant Acts, as well as all conditions stipulated by any other authority whose approval is required and obtained for this proposed development.
35. The POA shall see to it that the officials and contractors of the Municipality shall always have access to any portion of the development that may otherwise not be generally accessible to the general public due to security measures, including guarded entrances, electronic gates or booms. For the avoidance of doubt, it is agreed that this requirement relates to the Municipality's emergency services, entry for normal maintenance and replacement, meter reading and inspection and refuse removal. If access to the development is denied to the Municipality or a contractor appointed by the Municipality, the developer and the POA will jointly and severally be liable for the full cost of the municipal infrastructure repairs and any damages the Municipality may suffer as a result

thereof and will be billed for any water losses or loss in electrical sales from the system.

36. Transfers, building plan approvals and occupation certificates may be withheld if any sums of money owing to the George Municipality are not paid in full, or if any services have not been completed to the satisfaction of the Dir: CES & ETS, or any condition of any authority has not been satisfactorily complied with.
37. The Developer is responsible to obtain the necessary approval / way leaves from third parties which include, but is not limited to the George Municipality, Telkom & Fibre optic service provider, the Department Transport and Public Works.
38. No construction activity may take place until all approvals, including way leave approval, are in place, all drawings and material have been approved by the Technical Directorates.
39. Municipal water is provided for potable use only. No irrigation water will be provided.
40. A water meter must be installed by the developer prior to construction to monitor water usage during the construction phase. The Dir: CES (Water section) is to be consulted by the developer, prior to installation, regarding the required specifications. Failure to complying with the water meter application process, will result in the developer being responsible for payment of penalties and/or an estimated non-metered water consumption at a rate as per the applicable annual Tariff List. In this regard, transfers, building plan approval and occupation certificates may be withheld if any sums of money owing to the George Municipality are not paid in full. The water meter is to be removed on completion of construction if required by the Dir: CES.
41. The developer / erf owner is to apply to the George Municipality for the installation of an individual erf water meter prior to any building work commencing on an erf.
42. The development, in its entirety or in phases, is subject to confirmation by the Dir: CES of the availability of Water and Sanitation bulk treatment capacity at the time of the development implementation, or if developed in phases before the commencement of each phase. A development/implementation program is to be provided by the Developer when requesting confirmation of this capacity from the Dir: CES. If the Developer does not adhere to the program the Dir: CES will be entitled to revise the availability of such bulk capacity.
43. No municipal road network is currently available. Should a municipal network in future be extended to this area, the owner will be compelled, at own cost, to link to the road network. A Development Charge for roads will then become payable in accordance with the approved DC Guidelines at the time of connection.
44. Public and private roads are to be clearly indicated on all layout plans submitted. The road reserves must be clearly indicated on all plans submitted for approval. The cadastral layout can only be approved if the road reserves have been included on plans and approved by the Dir: CES.
45. The private roads and the associated stormwater and private open spaces are to be registered as private and transferred to the POA/BC, or other relevant governing or controlling body. Public roads must be transferred to the George Municipality.
46. The developer is to have a Traffic Impact Assessment (TIA) conducted by a registered traffic engineer. The terms of reference of the TIA are to be finalised with the Dir: CES together with any other approving authority, who must also approve the TIA. All recommendations stipulated in the TIA report and as

approved by the relevant authority, are to be implemented by the developer and prior to any transfer being approved or an occupation certificate being issued. All costs involved will be for the developer.

47. The developer is to provide the Dir: CES with a DRE approval of the TIA. The comments and conditions in the approved TIA must be implemented by the developer. The Dir: CES reserve the right to enforce additional conditions and requirements to be implemented by the developer.
48. Maintenance and/or upgrading of all private / servitude roads are the responsibility of all the owners who make use thereof.
49. A Stormwater Management Plan is to be submitted and approved by the relevant departments/authority. All approved measures are to be implemented by the developer. The approved management plans must be incorporated into the constitution and rules of all homeowner's constitutions/body corporate/any such governing or controlling body.
50. The discharge of surface stormwater is to be addressed by the developer. Condition 21 applies. All related costs are for the developer. The developer is to consult with the Dir: CES to ensure that stormwater planning is done in line with the stormwater management plan for the GANEP area.
51. A layout plan indicating the proposed storm water drainage must be submitted to the Dir: CES for prior approval. Condition 21 applies.
52. Internal parking requirements (i.e. within the development area), position of accesses, provision for pedestrians and non-motorised transport, and other issues related to traffic must be addressed and all measures indicated on plans and drawings submitted for approval.
53. Adequate parking with a hardened surface must be provided on the premises of the proposed development.
54. No private parking will be allowed in the road reserve.
55. A dimensioned layout plan indicating the proposed accesses onto private / servitude roads, must be submitted to the relevant departments for approval (condition 21 applicable).
56. The approval of the layout of the development and accesses is subject to the final Roads Master Plan for the GANEP area and approved by the Dir: CES. A site development plan is to be submitted to the Dir: CES, or any other relevant authority for approval prior to any construction work taking place.
57. The developer may be required to construct certain roads in lieu of a financial contribution towards the GANEP Roads Master Plan. All roads required for access to the development will have to be fully completed prior to the approval of any transfers/rates clearances. The developer's financial contribution towards the roads in the GANEP Roads Master Plan will be determined in accordance with the applicable financial cost sharing model.
58. The District Roads Engineer (DRE) is to comment on the development application and/or approve any external TIA.
59. Should it be required, the developer is to cede any portion of property required for public road reserve, free of charge, to the relevant authority where such road reserve is not included in the cost sharing model for the GANEP Roads Master Plan.
60. Permission for access onto municipal, provincial or national roads must be obtained from the relevant authorities.
61. The municipality, or contractors representing George Municipality to have unrestricted access to all new or existing municipal infrastructure. This includes suitable access to any pump stations which access must be in accordance

with municipal standards. Developer to indicated proposed access on the development's Site Development Plan (SDP) for approval

CONDITIONS OF THE DIRECTORATE: ELECTROTECHNICAL SERVICES

62. The amount of Development Charges (DCs) to be paid by the developer are calculated in terms of the George Municipality Land Use Planning By-Law (as amended) and the approved DC Guidelines. With reference to clause above, with regards to the proposed development, the developer will be required to make development contribution, as follows:
63. The amounts of the development contributions are reflected on the attached calculation sheet (refer Annexure T) dated 06/10/2021 and are as follows:

Electricity:	R \$ 844 033,49	Excluding VAT
--------------	-----------------	---------------

64. The total amount of the development charges of R5 844 033,49 Excluding VAT shall be paid prior to the first transfer of a land unit pursuant to the application or upon the approval of building plans, whichever occurs first, unless otherwise provided in an engineering services agreement or, in the case of a phased development, in these or any other relevant conditions of approval.
65. Any amendments or additions to the proposed development which is not contained within the calculation sheet as dated in condition 63 above, which may lead to an increase in the proportional contribution to municipal public expenditure will result in the recalculation of the development charges and the amendment of these conditions of approval or the imposition of other relevant conditions of approval.
66. As provided in section 66(5B)(b) of the Planning By-Law (as amended), using the date of approval as the base month the amount of R5 844 033,49 Excluding VAT shall be adjusted in line with the consumer price index published by Statistic South Africa up to the date when payment is made in terms of condition 64 above.
67. Development charges are to be paid to the Municipality in cash or by electronic funds transfer or such other method of payment as may be accepted by the Municipality at the time when payment is made.
68. All services -internal, link and relocation of or upgrades to existing - are to be designed by a registered consulting engineer in accordance with Council specifications. This may include bulk services outside the development area but that must be upgraded to specifically cater for the development. All drawings and plans are to be submitted to the applicable department, or any other relevant authority, (hard copy and electronically) for approval prior to any construction work taking place. All work is to be carried out by a suitable qualified/registered electrical contractor under the supervision of the consulting engineer who is to provide the relevant authority with a certificate of completion, and as-built plans in electronic format. All costs will be for the developer. No transfers will be approved before all the municipal services have been satisfactorily installed and as-builts submitted electronically as well as the surveyor's plan.
69. Consent use approval with regards to Guest houses, School or Hotels are subject to the submission and approval of building plans, which shall include a detailed Site Development Plan (SDP), indicating proposed land use changes to the erf/erven. The SDP should, but not limited to, address all internal parking requirements (i.e. within the development area), position of accesses, provision for pedestrians and non-motorised transport, and other issues related to traffic.

70. Any, and all, costs directly related to the development remain the developers' responsibility.
71. Only one connection permitted per registered erf (Electrical, water and sewer connections). Condition 68 applies.
72. Any services from the development that must be accommodated across another erf must be negotiated between the developer and the owner of the relevant erf. Any costs resulting from the accommodation of such services or the incorporation of these services into the network of another development are to be determined by the developer and the owner of the other erf. Condition 68 applies.
73. Any service from another erf that must be accommodated across the development or incorporated into the services of the development; all negotiations will be between the owner/developer of the relevant erf and the developer. Costs for the accommodation of these services or the upgrade of the developments services to incorporate such services are to be determined by the developers/owners concerned. Condition 68 applies.
74. Any existing municipal or private service damaged during the development will be repaired at the developers cost and to the satisfaction of the George Municipality. Condition 68 applies.
75. Suitable servitudes must be registered for any municipal service not positioned within the normal building lines.
76. The applicant is to comply with the National Forestry Act, Act No 84 of 1998, should it be required.
77. Provisions for the removal of solid waste is to be addressed in conjunction with the Dir: Environmental Services.
78. The developer is to adhere to the requirements of all relevant Acts, as well as all conditions stipulated by any other authority whose approval is required and obtained for this proposed development.
79. Transfers, building plan approvals and occupation certificates may be withheld if any sums of money owing to the George Municipality are not paid in full, or if any services have not been completed to the satisfaction of the Dir: CES & ETS, or any condition of any authority has not been satisfactorily complied with.
80. The Developer is responsible to obtain the necessary approval / way leaves from third parties which include, but is not limited to the George Municipality, Telkom & Fibre optic service provider.
81. No construction activity may take place until all approvals, including way leave approval, are in place, all drawings and material have been approved by the Technical Directorates.
82. The developer will be responsible to submit an Electrical Services Report for the development for the approval by the ETS. All the required electrical upgrades required on the Municipal electrical distribution network must be listed within the Electrical Services Report and will be for the cost of the developer. The developer will have to adhere to the Electrical Services Report. However, the preliminary designs, followed by the detailed designs, will only be finalised once the site development plan is approved. Condition 68 applies.
83. No electricity may be consumed within, or by any part of the development, without the consumption of the supply being metered and billed by a municipal meter (prepaid or credit). All cost, installation and consumption, will be for the cost of the developer. Standard application process will apply.
84. A temporary municipal metered construction supply can be installed, at a cost to be determined, prior to construction to monitor electrical consumption during the

construction phase. All cost, installation and consumption, will be for the cost of the developer. No electricity may be consumed without it being metered by a registered municipal electrical meter. Standard application process will apply. Temporary supplies will only be made available on full payment of the DCs for the whole development.

85. All pump stations constructed as part of this development and associated works, must be equipped with an approved and registered electrical meter. All cost, installation and consumption, will be for the cost of the developer. No electricity may be consumed without it being metered by a registered municipal electrical meter. Standard application process will apply. It will be the responsibility of the developer to install the relevant electrical meters.
86. Rural connection: Capital contributions will be payable by the applicant as part of the electrical connection on application for an electrical connection. The Capital contribution will be determined by the department ETS, based on the size of the connection at the standard prevailing DCs calculation methodology for rural connections.
87. Each new portion created must have separate electrical connection and it may not cross any other portion. Each consumer will have to enter into a separate supply agreement with the Municipality. For new consolidated erven it will be the responsibility of the owner/developer to make the necessary arrangements with the Electrotechnical Services Department to remove all the unused electrical services. All costs will be for the owner/developer.
88. The Electrotechnical Services will not be responsible for the installation, maintenance, energy consumption or any other costs related to streetlights, or other lighting, within the development or along any other private road.
89. All streetlights along municipal public roads are to be designed by a registered consulting engineer in accordance with Council specifications. All drawings and plans are to be submitted to the applicable department, or any other relevant authority, (hard copy and electronically) for approval prior to any construction work taking place. All work is to be carried out by a suitable qualified/registered electrical contractor under the supervision of the consulting engineer who is to provide the relevant authority with a certificate of completion, and as-built plans in electronic format. All costs will be for the developer.
90. Owner to ensure compliance with Regulation XA of SANS 10400 (building plans).
91. Owner to ensure compliance with Regulation XA of SANS 10142 (wiring) and any other applicable national standards.
92. A detailed energy efficiency and demand side management plan to be implemented in the development to provide to the municipality.
93. A dimensioned layout plan indicating the proposed accesses to the municipal substations and other electrical infrastructure must be submitted to and approved by the Dir. ETS and Dir. CES to allow the municipality access with their LUVs and/or Crane Truck to their infrastructure for the purposes of maintenance and/or upgrading. The access should allow for internal link roads in the development to enable the ETS unhindered access to their internal infrastructure.
94. The developer the POA, and/or an owner of an erf shall see to it that no Small-Scale Embedded Generation (SSEG) are installed on an erf, any portion of an erf or the development, without prior approval from the ETS. Should any SSEG be installed within any part of the development the Electrotechnical Services will within their discretion either implement applicable penalties and/or disconnect the relevant point of supply.

95. Neither the Developer or the POA or a property owner are allowed to distribute electricity across property boundaries.
96. It will not be the responsibility of the Municipality to maintain and protect any service cables installed by the developer, but not used, i.e. not being metered and not consuming electricity. Should a future owner purchase an erf within the development, the installation and connection of the service cable will be for the cost of the developer or new owner. The connection fee paid to the municipality will be solely for provision of the electrical meter and the cost associated with opening the customer account.
97. The installed bulk supply for each erf will have to adhere to the minimum load requirements for light industrial ADMD kVA values as per NRS 069.
98. All the MV/LV work must be installed and be funded by the developer as no DCs are levied for this network.
99. Where DCs have been applied for a particular section of the network, but the developer is requested to install and fund a part of the section of network, such work will be credited against DCs calculated.
100. Developer indicated that no grid electricity will be required for the development as renewable energy supplies will be provided for the whole development. It must be clear that no electricity will be provided by the municipality and if later required the developer will be responsible for any costs incurred including standard DCs applicable at the time.

You have the right to appeal to the Appeal Authority against the decision/conditions of approval of the Eden Joint Municipal Planning Tribunal – George Municipality, in terms of Section 79(2) of the George Municipality's By-law on Municipal Land Use Planning.

A detailed motivated appeal with reasons should be directed to the Appeal Authority and received by the Municipal Manager, P O Box 19, George, 6530 or Directorate: Planning, 5th floor, Civic Centre, York Street, George **on or before 27 May 2022** and simultaneously submit a copy of the appeal on any person who commented, made representations or objected to the application in the above regard. Please also note that the appeal must be e-mailed to the administrative officer mentioned above.

The notice must be served in accordance with section 115 of the Municipal Systems Act and in accordance with the additional requirements as may be determined by the Municipality. The notice must allow persons 21 days from date of notification of the appeal to comment on the appeal. Proof of the notification must be submitted to the Municipality, within 14 days of the date of notification.

An appeal that is not lodged within the timeframe or that does not comply with Section 80 of the George Municipality's By-law on Municipal Land Use Planning will be deemed invalid.

Kindly note that no appeal right exists in terms of Section 62 of the Local Government Municipal Systems Act, No 32 of 2000.

Please also note that in terms of Section 80(14) of the George Municipality's By-law on Municipal Land Use Planning, the above decision is suspended until such time as

the period for lodging an/appeal(s) has lapsed, any appeal(s) has been finalised and you have been advised accordingly.

Yours faithfully



C PETERSEN

SENIOR MANAGER: TOWNPLANNING

C:\Users\Abmeyer\Desktop\Access to folders\New By Law Approvals\Gwayang 208_4 (rez, sub approval) marike vreeken cc.docx

CC. 1. Cor van der Walt

Dept. Agriculture:Western Cape
Private Bag X1
ELSENBURG
7607

Email: LandUse.Elsenburg@elsenburg.com

2. Dept. Transport and Public Works

Road Network Management
P O Box 2603
CAPE TOWN
8000

Email: Lyle.Martin@westerncape.gov.za

Annexure "A"

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 60, of the George Municipality:
Land Use Planning By-Law (2015) subject to the conditions
contained in the covering letter

DATE
DATUM

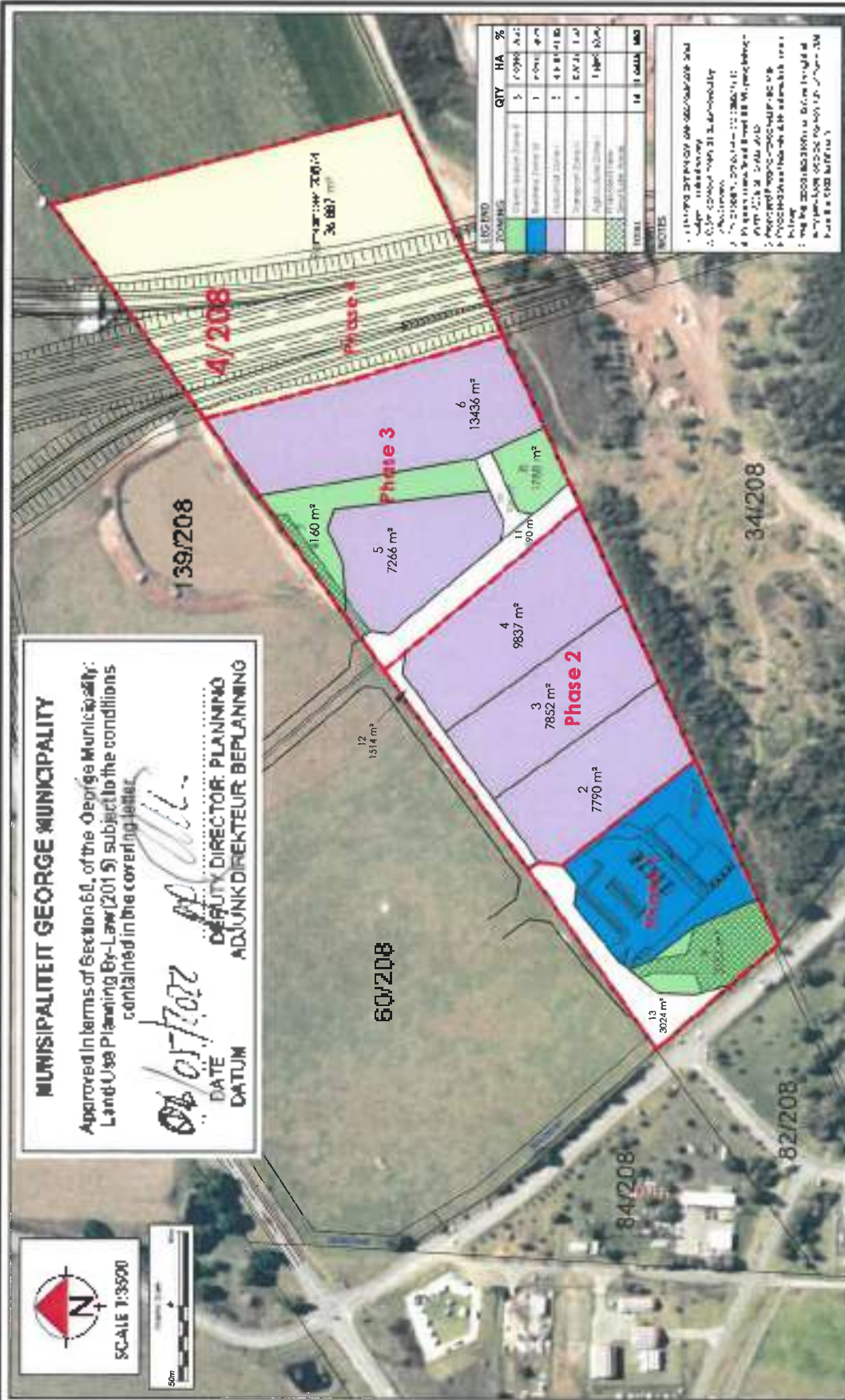
DEPUTY DIRECTOR: PLANNING
ADJUNKT DIREKTOR: BEPLANNING



SCALE 1:35000



50m



DATE: 04/01/2022
CHECKED: [Signature]
DRAWN: [Signature]
SCALE: 1:35000
SHEET: 1 OF 1

APPROVED: [Signature]
MUNICIPALITY OF GEORGE
MUNICIPAL MANAGER
DATE: 04/01/2022

Portion 4 of the Farm
Gwayang No 208,
Division George

PLAN 5
PHASING PLAN

ANNEXURE B:

*Copy of Amended Rezoning & Subdivision
Approval – June 2023*

**Menslike Nedersettings, Beplanning en Ontwikkeling
Human Settlements, Planning and Development**

Collaborator No.: 2462787
Reference / Verwysing: Gwayang 208 Portion 4, Division George
Date / Datum: 23 June 2023
Enquiries / Navrae: Marisa Arries

Email: info@vreken.co.za

MARIKE VREKEN TOWN PLANNERS CC
PO BOX 2180
KNYSNA
6570

**APPLICATION FOR AMENDMENT OF SUBDIVISION PLAN AND CONDITIONS OF APPROVAL:
GWAYANG 208 PORTION 4, DIVISION GEORGE**

Your application in the above refers.

The Deputy Director: Town Planning (Authorised Official) has, under delegated authority, 4.16.18.1 of 30 June 2022 decided that the following applications applicable to Remaining extent of Portion 4 of Farm Gwayang 208, Division George:

- a) Amendment, in terms of Section 15(2)(k) of the Land Use Planning By-law for George Municipality (2023), of the approved Subdivision Plan for the Remaining extent of Portion 4 of Farm Gwayang 208, Division George in accordance with Plan No Pr16/48F208Ptn4Sub12 dated 8 September 2022 (attached as **Annexure A**), to create the following land uses:

(1) PHASE 1:

- | | | |
|--|-------|-----------|
| (i) Open Space Zone II (private open space): | 1 erf | (±0.34ha) |
| (ii) Business Zone VI (service station): | 1 erf | (±0.99ha) |
| (iii) Transport Zone III (private road): | 1 erf | (±0.14ha) |
| (iv) Transport Zone II (public street): | 1 erf | (±0.16ha) |

(2) PHASE 2:

- | | | |
|---|---------|-----------|
| (i) Industrial Zone I (light industry): | 3 erven | (±2.54ha) |
| (ii) Transport Zone III (private road): | 1 erf | (±0.15ha) |

(3) PHASE 3:

- | | | |
|---|---------|-----------|
| (i) Industrial Zone I (light industry): | 2 erven | (±2.07ha) |
| (ii) Open Space Zone II (private open space): | 2 erven | (±0.59ha) |
| (iii) Transport Zone III (private road): | 2 erven | (±0.36ha) |

(4) PHASE 4:

- | | | |
|--|-------|----------|
| (i) Agricultural Zone I (agriculture): | 1 erf | (±3.6ha) |
|--|-------|----------|

- b) Amendment, in terms of Section 15(2)(h) of the Land Use Planning By-law for George Municipality (2023), of condition 63 of the approval letter dated 6 May 2022 applicable to the Remaining extent of Portion 4 of Farm Gwayang 208, Division George which reads as follows:

The amounts of the development contributions are reflected on the attached calculation sheet (refer Annexure T) dated 06/10/2021 and are as follows:

Electricity: R 5 844 033,49 Excluding VAT

To read as follows:

The amounts of the development contributions are reflected on the attached calculation sheet (refer Annexure B) dated 02/06/2022 and are as follows:

Electricity: R 3 568 902,49 Excluding VAT

- c) Amendment, in terms of Section 15(2)(h) of the Land Use Planning By-law for George Municipality (2023), of condition 64 of the approval letter dated 6 May 2022 applicable to the Remaining extent of Portion 4 of Farm Gwayang 208, Division George which reads as follows:

The total amount of the development charges of R5 844 033,49 Excluding VAT shall be paid prior to the first transfer of a land unit pursuant to the application or upon the approval of building plans, whichever occurs first, unless otherwise provided in an engineering services agreement or, in the case of a phased development, in these or any other relevant conditions of approval.

To read as follows:

The total amount of the development charges of R3 568 902,49 Excluding VAT shall be paid prior to the first transfer of a land unit pursuant to the application or upon the approval of building plans, whichever occurs first, unless otherwise provided in an engineering services agreement or, in the case of a phased development, in these or any other relevant conditions of approval.

- d) Amendment, in terms of Section 15(2)(h) of the Land Use Planning By-law for George Municipality (2023), of condition 66 of the approval letter dated 6 May 2022 applicable to the Remaining extent of Portion 4 of Farm Gwayang 208, Division George which reads as follows:

As provided in section 66(5B)(b) of the Planning By-Law (as amended), using the date of approval as the base month the amount of R5 844 033,49 Excluding VAT shall be adjusted in line with the consumer price index published by Statistic South Africa up to the date when payment is made in terms of condition 64 above.

To read as follows:

As provided in section 66(5B)(b) of the Planning By-Law (as amended), using the date of approval as the base month the amount of R3 568 902,49 Excluding VAT shall be adjusted in line with the consumer price index published by Statistic South Africa up to the date when payment is made in terms of condition 64 above.

- e) Amendment, in terms of Section 15(2)(h) of the Land Use Planning By-law for George Municipality (2023), of condition 18 of the approval letter dated 6 May 2022 applicable to the Remaining extent of Portion 4 of Farm Gwayang 208, Division George which reads as follows:

Any amendments or additions to the proposed development which is not contained within the calculation sheet as dated in condition 16 above, which may lead to an increase in the proportional contribution to

municipal public expenditure will result in the recalculation of the development charges and the amendment of these conditions of approval or the imposition of other relevant conditions of approval.

To read as follows:

Any amendments or additions to the proposed development which is not contained within the calculation sheet as dated in condition 16 above (of the approval letter dated 6 May 2022), which might lead to an increase or decrease in the proportional contribution to municipal public expenditure, will result in the recalculation of the development charges and the amendment of these conditions of approval or the imposition of other relevant conditions of approval.

Note: The Development Charges indicated above are based on the information available to the respective engineering departments at the time of approval. It is advised that the owners consult with these departments prior to transfer of a portion for a final calculation.

BE APPROVED in terms of Section 60 of the said By-law for the following reasons:

REASONS

- (i). No negative impacts on bulk engineering services are foreseen;
- (ii). There will be no negative impact on traffic in the area;
- (iii). The development proposal will not result in any changes to the bio-physical characteristics of the property;
- (iv). There have been no material changes to the circumstances prevailing at the time of the original approval; and
- (v). There will be no negative impacts on surrounding property rights, whatsoever.

Subject to the following conditions imposed in terms of Sections 66 of the said By-law, namely (to replace previous conditions of approval, where applicable):

CONDITIONS OF THE DIRECTORATE: HUMAN SETTLEMENTS, PLANNING AND DEVELOPMENT

General:

1. The subdivision of Remaining extent of Portion 4 of Farm Gwayang 208 shall be as approved as indicated on the Phasing diagram drawn by Marike Vreken Urban and Environmental Planners, Drawing Number: Pr16/48F208Ptn4Sub12 dated 8 September 2022 attached as "Annexure A" which bears Council's stamp and shall not be construed as to depart from any other Council requirements or legal provision.
2. A temporary servitude right of way be registered in favour of Portions 130 & 139 of Remaining extent of Farm Gwayang 208, Division George over the portion of private roads (Concorde Way & Spitfire Crescent) to provide access to said properties until such time as the development of the said properties form part of the Property Association for the Airport Support Zone Precinct.
3. A servitude right of way must be registered in favour of Portion 129 the Farm Gwayang No 208, Division George over the portion of private roads (Concorde Way & Spitfire Crescent) to provide access to said property.

Notes:

1. The remainder of the conditions, as contained in the approval letter dated 6 May 2022, are still applicable to the proposed development.
2. The developer must comply with the conditions set by the WC: Department of Infrastructure – in particular the Directorate will require that the owner presents proof of registration of the servitude right of way in favour of Phase 4 (the Remainder) prior to any transfer being granted in Phase 3.

You have the right to appeal to the Appeal Authority against the decision of the Authorised Employee in terms of Section 79(2) of the Land Use Planning By-Law for George Municipality, 2023.

A detailed motivated appeal with reasons should be directed to the Appeal Authority and received by the Director: Human Settlements, Planning and Development, P O Box 19, George, 6530 or Directorate: Human Settlements, Planning and Development, 5th floor, Civic Centre, York Street, George **on or before 14 JULY 2023** and simultaneously submit a copy of the appeal on any person who commented, made representations or objected to the application in the above regard. Please also note that the appeal must be e-mailed to the administrative officer mentioned above.

An appeal that is not lodged within the applicable period mentioned above or that does not comply with Section 79 of the Land Use Planning By-Law for George Municipality, 2023, will be deemed invalid in terms of Section 80 of said By-Law.

Kindly note that no appeal right exists in terms of Section 62 of the Local Government Municipal Systems Act, No 32 of 2000.

Please also note that in terms of Section 80(14) of the Land Use Planning By-Law for George Municipality, 2023, the above decision is suspended until such time as the period for lodging an/appeal(s) has lapsed, any appeal(s) has been finalised and you have been advised accordingly.

Yours faithfully



C. PETERSEN

SENIOR MANAGER: TOWN PLANNING

C:\Marisa\Decisions_New By-Law Pro formas_(applicant)\Kleinkrantz 192 portion 285, Division George _ approval\delplan.docx

ANNEXURE C:

Copy of Act 70 of 1970 Approval



agriculture, land reform & rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA



Private Bag X120, Pretoria, 0001
Delpen Building, C/o Annie Botha & Union Street, Riviera, 0084

From: Directorate Land and Soil Management
Tel: 012-319-7451 Fax: 012-329-5938 Email: Annettes@dalrrd.gov.za/Francinano@dalrrd.gov.za
Website: www.dalrrd.gov.za
Enquiries: Helpdesk Ref: 2023_05_0072

Marike Vreken Town Planners CC
P. O. Box 2180
KNYSNA
6570

Email: info@vreken.co.za

Attention: Marike Vreken

APPLICATION IN TERMS OF THE SUBDIVISION OF AGRICULTURAL LAND ACT, ACT 70 OF 1970: SUBDIVISION OF THE REMAINDER OF PORTION 4 OF THE FARM GWAYANG NO. 208, DIVISION GEORGE, WESTERN CAPE PROVINCE


Your email dated 12 May 2023 refers.

With reference to the above-mentioned subject, the Department wishes to inform you that the application has been granted.

Consent No. 57333 Issued in terms of section 4 of the Act is enclosed.

The Conveyancer must lodge the signed copy of the Consent with the Registrar of Deeds together with the documents for registration.

Yours faithfully


MR D SERAGE
DEPUTY DIRECTOR GENERAL:
AGRICULTURAL PRODUCTION,
BIOSECURITY AND NATURAL RESOURCES MANAGEMENT
DELEGATE OF THE MINISTER:
DATE: 20230622

CC: The Surveyor-General Private Bag X 9028 CAPE TOWN 8000
CC: Mr Brandon Layman Landuse Management Department of Agriculture: Western Cape Private Bag x 1 ELSenburg 760





**agriculture, land reform
& rural development**

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

VERW/REF.

2023_05_0072

CONSENT

*IN TERMS OF THE SUBDIVISION OF
AGRICULTURAL LAND ACT, 1970*

57383

By virtue of the powers delegated to me by the Minister of Agriculture, Land Reform and Rural Development, consent is hereby granted in terms of section 4(2) of the Subdivision of Agricultural Land Act, 1970, for the subdivision of the agricultural land described in paragraph 1, into units as indicated in paragraph 2, subject to the conditions set out in paragraph 3.

PARAGRAPH 1: THE AGRICULTURAL LAND TO WHICH THIS CONSENT APPLIES

REMAINDER OF PORTION 4 OF THE FARM GWAYANG NO. 208, IN EXTENT 11,0433 HECTARES, DIVISION GEORGE, WESTERN CAPE PROVINCE

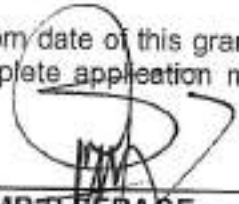
PARAGRAPH 2: CONSENT GRANTED

The subdivision of the above-mentioned agricultural land into fifteen portions measuring approximately 0,9930 hectares, 0,7790 hectares, 0,7885 hectares, 0,9837 hectares, 0,8719 ha, 1,3436 hectares, 0,2707 hectares, 0,1788 hectares, 0,3351 hectares, 0,0706 hectares, 0,0890 hectares, 0,1514 hectares, 0,1378 hectares, 0,1645 hectares and 3,6889 hectares represented by the figures marked Portions 1-14 and Remainder No. 208/4 as shown on the sketch plan attached.

PARAGRAPH 3: CONDITIONS PERTAINING TO THIS CONSENT

- 3.1 Simultaneously with registration of transfer written proof must be submitted that all the conditions imposed by the George Municipality: Department Development Services have been complied with.
- 3.2 This consent does not imply that the above-mentioned subdivisions are assured of a permanent water supply.
- 3.3 This consent does not exempt the property from the provisions of any other law and does not purport to interfere with the rights of any person who may have an interest in the agricultural land.
- 3.4 This consent is valid for 5 years from date of this grant. Should it not be registered within the time frame, a new complete application must be lodged which will be considered on its own merits.

20230622
DATE


MR D SERAGE
DEPUTY DIRECTOR GENERAL:
AGRICULTURAL PRODUCTION,
BIOSECURITY AND NATURAL RESOURCE,
MANAGEMENT
DELEGATE OF THE MINISTER

SKETSKAART WAARNA VER-
SKETCHPLAN TO WHICH IS
WYS WORD IN TOESTEMMING

57383

23 Tredan Road, PO Box 2100
KOPPEL ETOH

Mr. DAB SE DAB
At 300 400 500
1:1000 1:2000 1:3000 1:4000 1:5000 1:6000 1:7000 1:8000 1:9000 1:10000

Mr. DAB SE DAB
At 300 400 500
1:1000 1:2000 1:3000 1:4000 1:5000 1:6000 1:7000 1:8000 1:9000 1:10000

DATE	BY	CHECKED	BY
10/09/2015	10/09/2015	10/09/2015	10/09/2015
10/09/2015	10/09/2015	10/09/2015	10/09/2015
10/09/2015	10/09/2015	10/09/2015	10/09/2015

APPROVED IN TERMS OF SECTION 21(1) OF THE
GEORGE MUNICIPALITY'S BY-LAW ON
MUNICIPAL PLANNING AS PUBLISHED IN
P.A. 7481/2015 ON 1 SEPTEMBER 2015

MUNICIPAL MANAGER
DATE:

Portion 4 of the Farm
Gwayang No 208,
Division George

PLAN 5
PHASING PLAN



USE/END	ZONE	QTY	HA	%
Open Space Zone A	1	1	0.194	7.00
Business Zone B	2	1	0.194	8.79
Industrial Zone C	3	1	47.124	92.12
Residential Zone D	4	1	0.145	1.49
Public Use Zone E	5	1	0.145	8.99
Agricultural Zone F	6	1	3.000	21.41
Recreational Zone G	7	1	3.000	21.41
Service Area	8	1	3.000	21.41
TOTAL		18	13.443	100

NOTES

1. All use and development are approved.
2. All use and development are approved.
3. All use and development are approved.
4. All use and development are approved.
5. All use and development are approved.
6. All use and development are approved.
7. All use and development are approved.
8. All use and development are approved.

ANNEXURE D:

General Plan (GP 2362/2023)

MAIN FIGURE

C O - O R D I N A T E S	
SIDES	System: WGS 23
Metres	Constant: 0.00 -3 700 000.00
ANGLES OF DIRECTION	Y Metres X
A B	372.60
B C	170.80
C D	221.69
D A	108.23

INTERNAL BEACONS

1	+56 970.46	+63 733.35
2	+56 978.23	+63 708.78
3	+56 977.17	+63 684.99
4	+56 961.02	+63 664.87
5	+56 956.33	+63 680.60
6	+56 932.72	+63 708.47
7	+56 913.47	+63 705.43
8	+56 955.83	+63 657.39
9	+56 878.82	+63 627.47
10	+56 803.76	+63 628.13
11	+56 820.76	+63 619.21
12	+56 808.93	+63 603.20
13	+56 847.21	+63 573.46
14	+56 767.02	+63 664.13
15	+56 802.14	+63 541.33
16	+56 716.28	+63 660.72
17	+56 703.02	+63 513.45
18	+56 746.41	+63 515.28
19	+56 894.35	+63 596.34
20	+56 971.95	+63 652.16

REFERENCE MARKS

RM1	+57 034.06	+63 369.81
RM2	+56 942.85	+63 776.40
TRIANGONOMETRICAL BEACONS		
Δ 125	+56 899.73	+60 921.64
ED 12		
Δ 127	+59 635.81	+64 446.01
ED 14		

AREAS	
PORTION NUMBERS	SQUARE METRES
177	3345
178	9910
179	7779
180	7841
181	9823
183	1542
184	1417
185	1622

BEACON DESCRIPTIONS:

0 Iron iron peg
1 All other beacons
2 25mm iron peg
REFERENCE MARKS:
RM1 Hole in concrete
RM2 Hole in iron peg in tar

SERVICE NOTE:

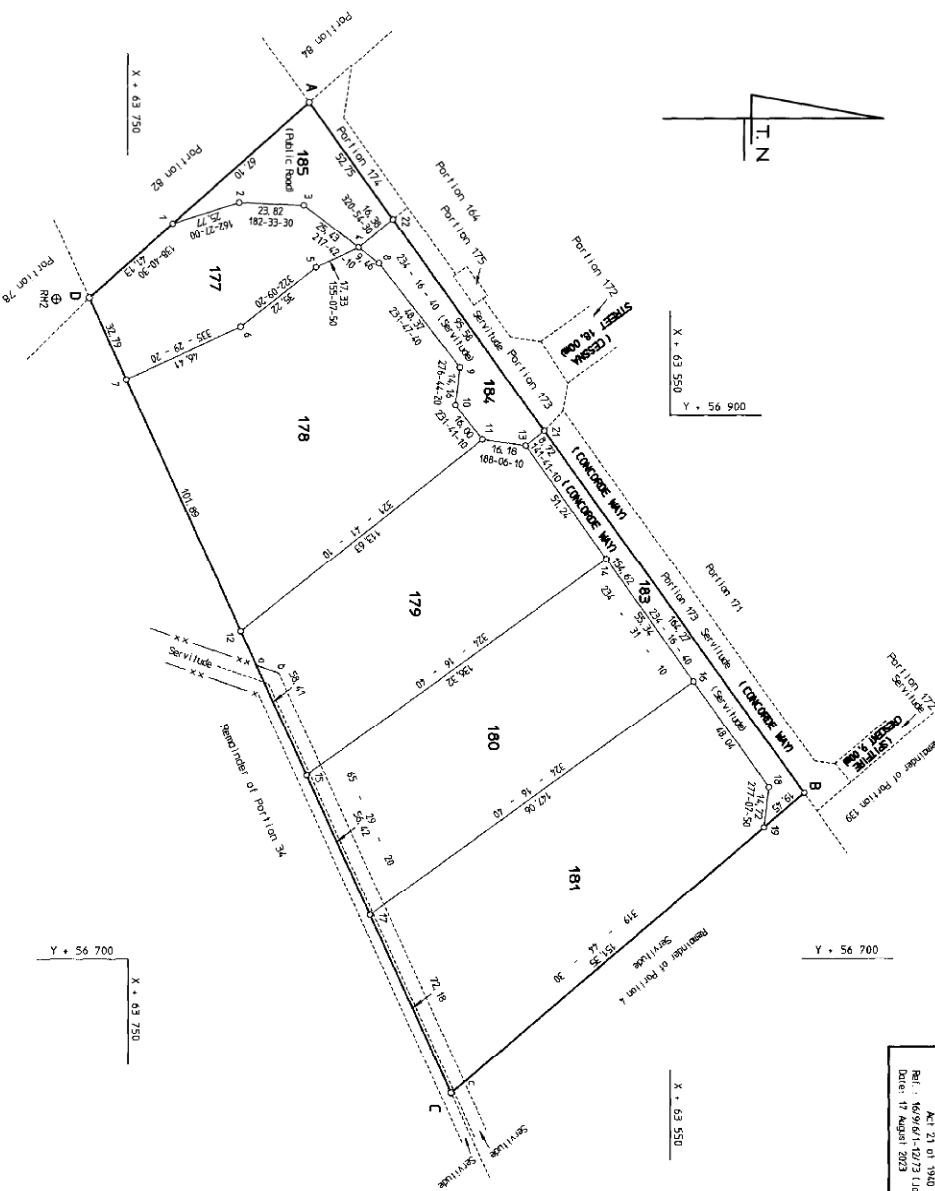
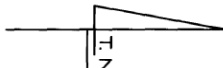
- The figure a b c d represents an Electric Power Service Area.
- Vice Diagram S.G. No. 913/1979, Date of Service No.
- The whole of Portion 182 and 184 are subject to Right of Way Servitudes.

GENERAL PLAN No. 2362/2023 OF THE SUBDIVISION OF PORTION 176 OF THE FARM GUANYANG No. 208 VICE DIAGON S.G. No. 2359/2023 ANNEXED TO DEED OF TRANSFER No. COMPRISING 7 PORTIONS NUMBERED 177 TO 181 AND 183 TO 184 AND A PUBLIC ROAD NUMBERED 185 SITUATED IN THE MUNICIPALITY AND ADMINISTRATIVE DISTRICT OF GEORGE PROVINCE: WESTERN CAPE SCALE 1 : 1 000

CDR

SURVEYED IN JUNE AND AUGUST 2023 BY ME

J.D. CONRADIE PLS 0973-D
PROFESSIONAL LAND SURVEYOR



S.G. No. 2362/2023
APPROVED:
DATE: 08-08-2024
BY: [Signature]
Mr. SURVEYOR: GENERAL
DATE: 22 June 2023
APPROVED IN TERMS OF SECTION 62 OF THE MUNICIPAL LAND USE ZONING BYLAW No. 100-00-0000-2022
Date: 24 June 2023 and 17 July 2023
Ref.: 166/9/1-10/73 (Lid 2522)
Date: 17 August 2023

ENDORSEMENTS

No.	AMENDMENTS	ADDITIONS	AUTHORITY	SIGNED	DATE

S. G. OFFICE NOTES

FILE NO.: GEORGE 208 (V.3)
SURVEY RECORDS NO.: 1449/2023
COMPILED BY: BL-700C (473K)
JPI: C0270000

ANNEXURE E:

*Environmental Authorisation for Wastewater
Treatment Plant*



EIA REFERENCE NUMBER: 16/3/3/1/D2/19/0031/22
NEAS REFERENCE NUMBER: WCP/EIA/0001198/2022
DATE OF ISSUE: 10 AUGUST 2023

ENVIRONMENTAL AUTHORISATION

APPLICATION FOR ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014: THE PROPOSED DEVELOPMENT OF A LIGHT INDUSTRIAL PARK AND 9-MEGAWATT PHOTOVOLTAIC SOLAR PLANT ON PORTION 139 OF THE FARM GWAYANG NO. 208 AND A WASTEWATER TREATMENT PLANT ON PORTION 4 OF THE FARM GWAYANG NO. 208, GEORGE

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") and the Environmental Impact Assessment ("EIA") Regulations, 2014, the Competent Authority herewith **grants Environmental Authorisation** to the applicant to undertake the listed activities specified in section B below in respect of **the preferred alternative**, described in the Final Basic Assessment Report ("FBAR"), dated 21 April 2023, as prepared and submitted by the appointed environmental assessment practitioner ("EAP"), Ms. Belinda Clark (EAPASA No: 2019/1336) of *CEN Integrated Environmental Management Unit*.

The applicant for this Environmental Authorisation is required to comply with the conditions set out in Section E below.

A. SITE DESCRIPTION AND LOCATION

The Managing Director
HARK PROPERTIES (PTY) LTD
PO Box 12654
Garden Route Mall
GEORGE
6546

E-mail: jw@synnpro.com

The abovementioned applicant is the holder of this Environmental Authorisation (hereinafter referred to as "**the Holder**").

B. SITE DESCRIPTION AND LOCATION

Listed Activities	Activity/Project Description
Environmental Impact Assessment Regulations Listing Notice 1 of 2014, Government Notice No. 983 of 4 December 2014 (as amended)	
<p>Activity Number: 1 Activity Description:</p> <p>The development of facilities or infrastructure for the generation of electricity from a renewable resource where—</p> <ul style="list-style-type: none"> (i) the electricity output is more than 10 megawatts but less than 20 megawatts; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare; <p>excluding where such development of facilities or infrastructure is for photovoltaic installations and occurs—</p> <ul style="list-style-type: none"> (a) within an urban area; or (b) on existing infrastructure. 	<p>The proposed development of a 9-Megawatt photovoltaic solar plant approximately 8ha in extent on Portion 139 of the Farm Gwayang No. 208</p>
<p>Activity Number: 12 Activity Description:</p> <p>The development of—</p> <ul style="list-style-type: none"> (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; <p>where such development occurs—</p> <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; <p>excluding—</p> <ul style="list-style-type: none"> (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (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; (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>The proposed development will require the installation of service infrastructure and check dams in and within 32m of a non-perennial watercourse that drains to the Gwaiing River to the south of the Portion 4 of the Farm Gwayang No. 208</p>

<p>(dd) where such development occurs within an urban area;</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 development and where indigenous vegetation will not be cleared.</p>	
<p>Activity Number: 19 Activity Description:</p> <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> <ul style="list-style-type: none"> (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies. 	<p>The proposal will require the establishment of check dams within the drainage corridor as well as the infilling of an existing instream farm dam.</p>
<p>Activity Number: 27 Activity Description:</p> <p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for—</p> <ul style="list-style-type: none"> (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan. 	<p>The proposal will require the clearance of approximately 7ha of indigenous vegetation as defined in the EIA Regulations, 2014 (as amended). The area has historically been farmed and the vegetation transformed.</p>
<p>Activity Number: 28 Activity Description:</p> <p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development—</p> <ul style="list-style-type: none"> (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or 	<p>The proposal entails the development of a commercial / light industrial development of approximately 7ha outside the urban area.</p>

<p>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;</p> <p>excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.</p>	
Environmental Impact Assessment Regulations Listing Notice 3 of 2014, Government Notice No. 985 of 4 December 2014 (as amended)	
<p>Activity Number: 4 Activity Description:</p> <p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>i. Western Cape</p> <ul style="list-style-type: none"> i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; <ul style="list-style-type: none"> (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: <ul style="list-style-type: none"> (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority. 	<p>The proposal will require the development of internal roads which will be wider than four metres.</p>
<p>Activity Number: 12 Activity Description:</p> <p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>i. Western Cape</p> <ul style="list-style-type: none"> i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004 ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on even in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or 	<p>The proposal will require the clearance of approximately 70 000m² of indigenous vegetation as defined in the EIA Regulations, 2014 (as amended). The ecosystem mapped on the proposed site has been mapped as Garden Route Granite Fynbos which has a gazetted conservation status of Critically Endangered.</p>

v. <i>On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.</i>	
--	--

The abovementioned list is hereinafter referred to as “**the listed activities**”.

The Holder is herein authorised to undertake the following alternative that includes the listed activity as it relates to the development:

The proposed development entails the establishment of a light industrial park on Portion 139 of the Farm Gwayang No. 208 and the development of a wastewater treatment plant on Portion 4 of the Farm Gwayang No. 208 near George. The proposed light industrial component will primarily consist of warehousing and storage facilities, with no planned noxious uses and will cover an area of approximately 5ha on the southern side of the R102 Road. The proposed WWTW will have a capacity to treat approximately 430m³ per day and will cover an area of approximately one hectare (1ha).

The proposal also includes the development of a 9-Megawatt photovoltaic (“PV”) solar plant on a portion of Portion 139 of the Farm Gwayang No. 208 north of the R102 Provincial Road, which bisects the property. The solar plant forms part of a wheeling agreement with the George Municipality to put electricity into the municipal electrical grid. The proposed solar plant will be implemented in accordance with Drawing No. GRG-376/PV/02 (Rev 0.2), drafted by BDE Consulting Electrical Engineers. See Annexure 3 of the environmental authorisation.

The proposed development forms part of the Airport Support Zone (“ASZ”) which has been identified in the Gwayang Local Spatial Development Framework (2015). The Airport Support Zone consists of Portions 4, 130, 131 and 132, as well as Portion 139 of the Farm Gwayang No. 208. The proposed WWTW will service the entire ASZ.

The service infrastructure for the proposed development is being co-ordinated by the landowners / developers of the ASZ. The proposed subdivision of Portion 139 (this application) is depicted in Subdivision Plan drafted by Marlize de Bruyn Planning (Project No: 339/G21; Drawing: Annexure B; Date: September 2022) attached as Appendix B1 of the Basic Assessment Report.

C. SITE DESCRIPTION AND LOCATION

The proposed light industrial park and photovoltaic solar plant will be located on Portion 139 of the Farm Gwayang No. 208; and the proposed WWTW on Portion 4 of the Farm Gwayang No. 208 on the eastern side of the proposed western bypass road. The proposed development form part of the Airport Support Zone, situated directly opposite (east) of the Airports Company South Africa: George Airport. Access to the development will be obtained via the Municipal Service Access Road off the R404 Provincial Road.

Coordinates of the site:

Property	Latitude (S)			Longitude (E)		
Portion 139 of Gwayang No. 208	33°	59'	43.80"	22°	23'	8.22"
Portion 4 of Gwayang No. 208	33°	59'	47.53"	22°	23'	21.48"

SG digit codes:

Property	Surveyor General 21-digit Code
Portion 139 of Gwayang No. 208	C02700000000020800139
Portion 4 of Gwayang No. 208	C02700000000020800004

Refer to Annexure 1 for the Locality Plan of this Environmental Authorisation.

The above is hereinafter referred to as "**the site**".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Ms. Belinda Clark

EAPASA No: 2019/1336

CEN INTEGRATED ENVIRONMENTAL MANAGEMENT UNIT

43 Rhodes Street

Mount Pleasant

GQEBERHA

6070

Tel: 073 500 1235

Fax: 086 590 2032

E-mail: bclark@telkomsa.net | steenbok@aerosat.co.za

Web: <https://environmentcen.co.za/>

E. CONDITIONS OF AUTHORISATION

Scope and Validity Period of authorisation

1. This Environmental Authorisation is granted for the period from date of issue until **31 August 2033** (validity period), during which period the Holder must ensure that the—
 - (a) physical implementation of all the authorised listed activities is started with and concluded;
 - (b) construction monitoring and reporting requirements are undertaken and submitted to the Competent Authority in time to allow said authority to process such documents timeously;
 - (c) post construction rehabilitation and monitoring requirements is undertaken and completed; and
 - (d) environmental auditing requirements are complied with; and that such auditing is finalised in time to allow the competent authority to be able to process the environmental audits timeously within the specified validity period.

Failing which, this Environmental Authorisation shall lapse, unless the environmental authorisation is amended in accordance with the relevant process contemplated in the Environmental Impact Assessment Regulations promulgated under the National Environmental Management Act, 1998 (Act no. 107 of 1998).

2. The Holder is authorised to undertake the listed activities specified in Section B above in respect of a part of the preferred alternative described in the FBAR, dated 21 April 2023, on the site as described in Section C above.

This Environmental Authorisation is for the implementation of **the preferred alternative** which entails:

The establishment of a light industrial park and photovoltaic solar plant on Portion 139 of the Farm Gwayang No. 208 and the development of a wastewater treatment plant on Portion 4 of the Farm Gwayang No. 208 near George. The proposed light industrial component will primarily consist of warehousing and storage facilities, with no planned noxious uses and will cover an area of approximately 5ha on the southern side of the R102 Road. The proposed WWTW will have a capacity to treat approximately 430m³ per day and will cover an area of approximately 1ha. The proposed 9-Megawatt photovoltaic solar plant on a portion of Portion 139 of the Farm Gwayang No. 208 north of the R102 Provincial Road, which bisects the property, forms part of a wheeling agreement with the George Municipality to put electricity into the municipal electrical grid. The proposed solar plant will be implemented in accordance with Drawing No. GRG-376/PV/02 (Rev 0.2), drafted by BDE Consulting Electrical Engineers. See Annexure 3 of the environmental authorisation.

The proposed development forms part of the Airport Support Zone ("ASZ") which has been identified in the Gwayang Local Spatial Development Framework (2015). The Airport Support Zone consists of Portions 4, 130, 131 and 132, as well as Portion 139 of the Farm Gwayang No. 208. The proposed WWTW will service the entire ASZ.

The service infrastructure for the proposed development is being co-ordinated by the landowners / developers of the ASZ. The proposed subdivision of Portion 139 (this application) is depicted in Subdivision Plan drafted by Marlize de Bruyn Planning (Project No: 339/G21; Drawing: Annexure B; Date: September 2022). Please refer to Annexure 2 of this environmental authorisation for the proposed subdivision plan.

3. This Environmental Authorisation may only be implemented in accordance with the approved Environmental Management Programme ("EMPr").
4. The Holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the Holder.
5. Any changes to, or deviations from the scope of the alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.

Notification and administration of appeal

6. The Holder must in writing, within 14 (fourteen) calendar days of the date of this decision—
 - 6.1. notify all registered Interested and Affected Parties ("I&APs") of –
 - 6.1.1. the decision reached on the application;
 - 6.1.2. the reasons for the decision as included in Annexure 3;
 - 6.1.3. the date of the decision; and

- 6.1.4. the date when the decision was issued.
- 6.2. draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended) detailed in Section G below;
- 6.3. draw the attention of all registered I&APs to the manner in which they may access the decision;
- 6.4. provide the registered I&APs with the:
 - 6.4.1. name of the Holder (entity) of this Environmental Authorisation,
 - 6.4.2. name of the responsible person for this Environmental Authorisation,
 - 6.4.3. postal address of the Holder,
 - 6.4.4. telephonic and fax details of the Holder,
 - 6.4.5. e-mail address, if any, of the Holder,
 - 6.4.6. contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations (as amended).
- 6.5. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the holder notifies the registered I&APs of this decision.
- 6.6. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided i.e., the listed activities, including site preparation, must not commence until the appeal is decided.

Written notice to the Competent Authority

- 7. Seven calendar days' notice, in writing, must be given to the Competent Authority before commencement of any activities on site.
 - 7.1. The notice must make clear reference to the site details and EIA Reference number given above.
 - 7.2. The notice must also include proof of compliance with the following conditions described herein:
Condition no.: 6, 9 and 10
- 8. Seven calendar days' notice, in writing, must be given to the Competent Authority on completion of the construction activities.

Management of activity/activities

- 9. The draft or Environmental Management Programme ("EMPr") submitted as part of the application for Environmental Authorisation must be amended and submitted for approval to the Competent Authority prior to commencing with the activities on site.
 - 9.1. The amended EMPr must —
 - 9.1.1. incorporate all the conditions given in this environmental authorisation;
 - 9.1.2. include a detailed Site Layout Plan of the proposed development including aquatic zone with 20m buffer, stormwater management features and service infrastructure to the WWTW;
 - 9.1.3. clearly differentiate between the compliance monitoring reports to be compiled by the Environmental Control Officer and external audit reports as required in conditions 15 and 16 of this environmental authorisation.
 - 9.1.4. be submitted to the Competent Authority at least 60 days prior to the commencement of any activities on site.

Note: The EMPr must be included in all contract documentation for all phases of implementation.

Monitoring

10. The Holder must appoint a suitably experienced environmental control officer ("ECO"), for the duration of the construction and rehabilitation phases of implementation contained herein.
11. The ECO must–
 - 11.1. be appointed prior to commencement of any works (i.e., removal and movement of soil and / or rubble or construction activities commencing;
 - 11.2. ensure compliance with the EMPr and the conditions contained herein;
 - 11.3. keep record of all activities on the site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO;
 - 11.4. remain employed until all development activities are concluded, and the post construction rehabilitation and monitoring requirements are finalised.
12. A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities and be made available to anyone on request, and where the Holder has website, such documents must be made available on such publicly accessible website.
13. Access to the site (referred to in Section C) must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.

Environmental Auditing

14. The Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited.
15. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme:
 - 15.1. Auditing during the non-operational phase (construction activities):
 - 15.1.1. During the period which the development activities have been commenced with on the site, the Holder must ensure annual environmental audit(s) are undertaken and the Environmental Audit Report(s) submitted annually to the Competent Authority.
 - 15.1.2. A final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within **three (3) months** of completion of the construction phase.
16. The Environmental Audit Report, must –
 - 16.1. be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process;

- 16.2. provide verifiable findings, in a structured and systematic manner, on–
 - 16.2.1. the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and
 - 16.2.2. the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
 - 16.3. identify and assess any new impacts and risks as a result of undertaking the activity;
 - 16.4. evaluate the effectiveness of the EMPr;
 - 16.5. identify shortcomings in the EMPr;
 - 16.6. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
 - 16.7. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
 - 16.8. indicate the date on which the operational phase was commenced with and the progress of the rehabilitation;
 - 16.9. include a photographic record of the site applicable to the audit; and
 - 16.10. be informed by the ECO reports.
17. The Holder must, within 7 calendar days of the submission of the audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

Specific Conditions

- 18. An aquatic zone with a 20m buffer area must be established along the non-perennial drainage line to attenuate to flow and filtration of stormwater.
- 19. When required stormwater and excess treated effluent must be discharged via the aquatic zone to the nearby watercourse.
- 20. Should any heritage remains be exposed during excavations or any other actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape. Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority.

Heritage remains include: meteorites, archaeological and/or paleontological remains (including fossil shells and trace fossils); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; shipwrecks; and/or graves or unmarked human burials including grave goods and/or associated burial material.

F. GENERAL MATTERS

1. Notwithstanding this Environmental Authorisation, the Holder must comply with any other statutory requirements that may be applicable when undertaking the listed activity.

Amendment of Environmental Authorisation and EMPr

2. If the Holder does not start with the listed activities and exceed the thresholds of the listed activities within the period referred to in Section G, this Environmental Authorisation shall lapse for those activities, and a new application for Environmental Authorisation must be submitted to the relevant Competent Authority.

If the Holder wishes to extend a validity period specified in the Environmental Authorisation, an application for amendment in this regard must be made to the relevant Competent Authority prior to the expiry date of such a period.

Note:

- (a) Failure to lodge an application for amendment prior to the expiry of the validity period of the Environmental Authorisation will result in the lapsing of the Environmental Authorisation.
 - (b) It is an offence in terms of Section 49A(1)(a) of NEMA for a person to commence with a listed activity if the competent authority has not granted an Environmental Authorisation for the undertaking of the activity.
3. The Holder is required to notify the Competent Authority where any detail with respect to the Environmental Authorisation must be amended, added, substituted, corrected, removed or updated.

In assessing whether to amend or correct the EA, the Competent Authority may request information to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.

The onus is on the Holder to verify whether such changes to the environmental authorisation must be approved in writing by the relevant competent authority prior to the implementation thereof.

Note: An environmental authorisation may be amended or replaced without following a procedural requirement contained in the Regulations if the purpose is to correct an error and the correction does not change the rights and duties of any person materially

4. The manner and frequency for updating the EMPr is as follows:
 - (a) Any further amendments to the EMPr, other than those mentioned above, must be approved in writing by the relevant competent authority.
 - (b) An application for amendment to the EMPr must be submitted to the Competent Authority if any amendments are to be made to the impact management outcomes of the EMPr. Such amendment(s) may only be implemented once the amended EMPr has been approved by the competent authority.

The onus is however on the Holder to confirm the legislative process requirements for the above scenarios at that time.

5. Where an amendment to the impact management outcomes of an EMPr is required before an environmental audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the Holder of the environmental authorisation.

Compliance with Environmental Authorisation and EMPr

6. Non-compliance with a condition of this environmental authorisation or EMPr is an offence in terms of Section 49A(1)(c) of the National Environmental Management Act, 1998 (Act no. 107 of 1998, as amended).
7. This Environmental Authorisation is subject to compliance with all the peremptory conditions (6, 9 and 10). Failure to comply with all the peremptory conditions prior to the physical implementation of the activities (including site preparation) will render the entire EA null and void. Such physical activities shall be regarded to fall outside the scope of the Environmental Authorisation and shall be viewed as an offence in terms of Section 49A(1)(a) of NEMA.
8. In the event that the Environmental Authorisation should lapse, it is an offence in terms of Section 49A(1)(a) of NEMA for a person to commence with a listed activity, unless the competent authority has granted an Environmental Authorisation for the undertaking of the activity.
9. Offences in terms of the NEMA and the Environmental Impact Assessment Regulations, 2014, will render the offender liable for criminal prosecution.

G. APPEALS

1. An appellant (if the holder of the decision) must, within 20 (twenty) calendar days from the date the notification of the decision was sent to the holder by the Competent Authority –
 - 1.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator;
 - 1.2. Submit a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision-maker *i.e.* the Competent Authority that issued the decision; and
 - 1.3. Submit a copy of the appeal to the decision-maker (*i.e.*, the Competent Authority that issued the decision) at:
Zaahir.Toefy@westerncape.gov.za;
Gavin.Benjamin@westerncape.gov.za; and copied to
DEADPEIAadmin.George@westerncape.gov.za
2. An appellant (if NOT the holder of the decision) must, within 20 (twenty) calendar days from the date the holder of the decision sent notification of the decision to the registered I&APs–
 - 2.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator; and
 - 2.2. Submit a copy of the appeal to the holder of the decision, any registered I&AP, any Organ of State with interest in the matter and the decision-maker *i.e.*, the Competent Authority that issued the decision.
 - 2.3. Submit a copy of the appeal to the decision-maker (*i.e.*, the Competent Authority that issued the decision) at:
Zaahir.Toefy@westerncape.gov.za; and copied to
Gavin.Benjamin@westerncape.gov.za;
DEADPEIAadmin.George@westerncape.gov.za
3. The holder of the decision (if not the appellant), the decision-maker that issued the decision, the registered I&AP and the Organ of State must submit their responding statements, if any,

to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.

4. The appeal and the responding statement must be submitted to the Appeal Administrator at the address listed below:

By post: Western Cape Ministry of Local Government, Environmental Affairs and Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or
By hand: Appeal Administrator
Attention: Mr Marius Venter (Tel: 021 483 3721)
Room 809
8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: For purposes of electronic database management, you are also requested to submit electronic copies (Microsoft Word format) of the appeal, responding statement and any supporting documents to the Appeal Authority to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from the Appeal Administrator at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

H. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this Environmental Authorisation shall not be responsible for any damages or losses suffered by the Holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

DIRECTOR: DEVELOPMENT MANAGEMENT

WESTERN CAPE GOVERNMENT: DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

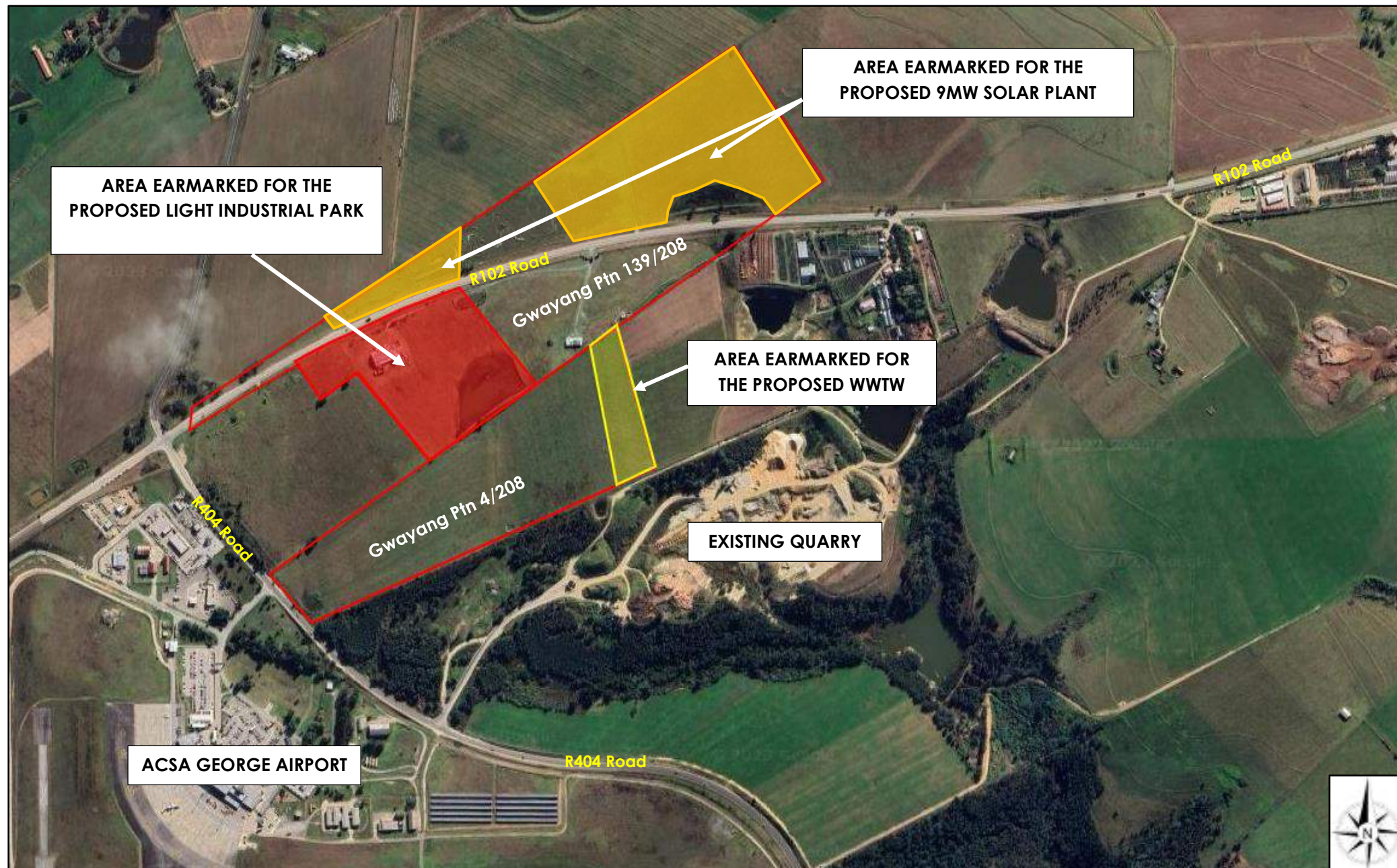
DATE OF DECISION: 10 AUGUST 2023

FOR OFFICIAL USE ONLY:

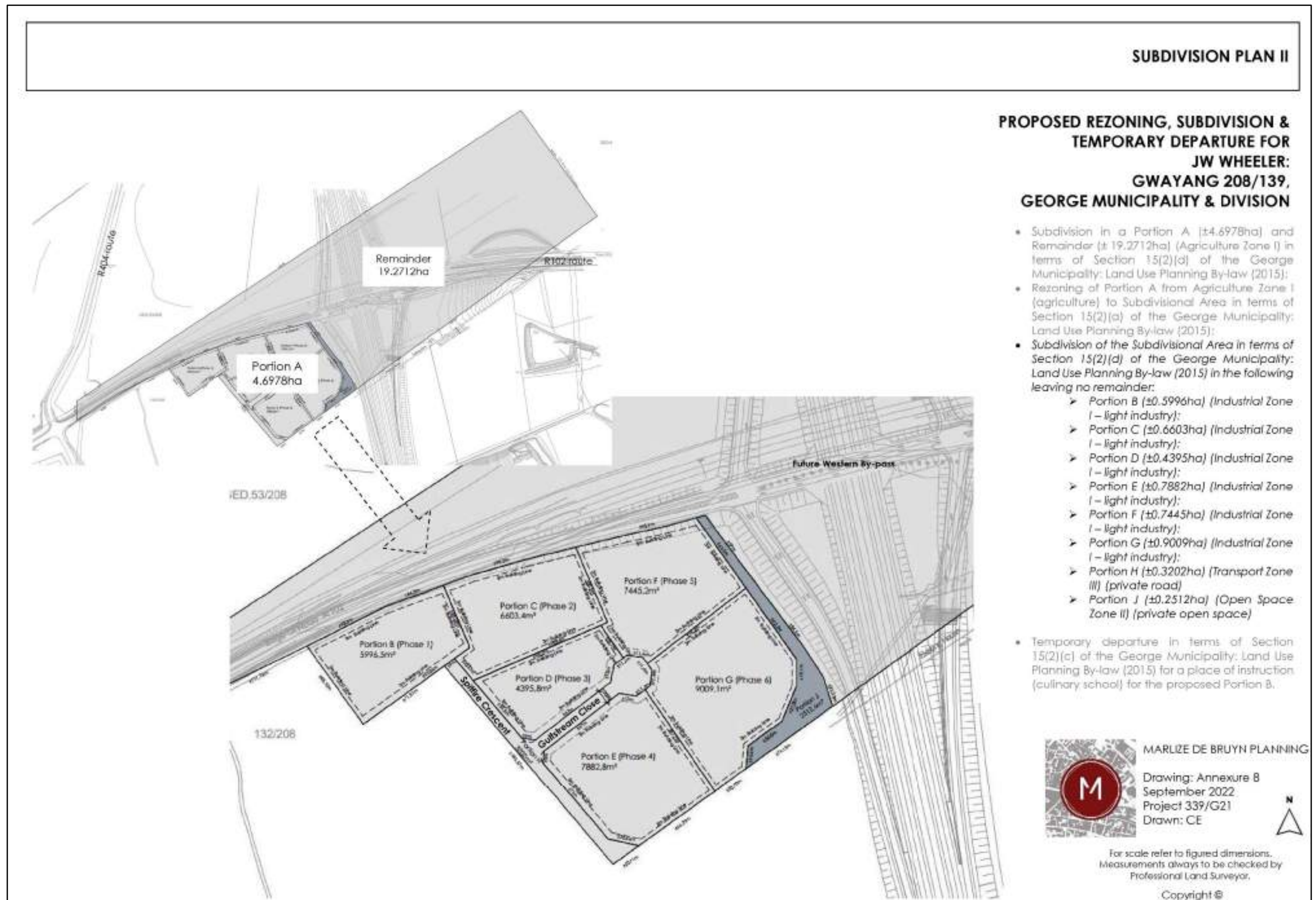
EIA REFERENCE NUMBER: 16/3/3/1/D2/19/0031/22

NEAS REFERENCE NUMBER: WCP/EIA/0001198/2022

ANNEXURE 1: LOCALITY MAP



ANNEXURE 2: PROPOSED SUBDIVISION PLAN FOR THE PROPOSED LIGHT INDUSTRIAL PARK ON PORTION 139 OF THE FARM GWAYANG NO. 208



ANNEXURE 3: PROPOSED 9-MEGAWATT PHOTOVOLTAIC SOLAR PLANT ON PORTION 139 OF THE FARM GWAYANG NO. 208



ANNEXURE 3: REASONS FOR THE DECISION

In reaching its decision, the Competent Authority considered, inter alia, the following:

- a) The information contained in the Application Form, received on 8 November 2022, the Basic Assessment Report (FBAR) and EMPr submitted together with the FBAR on 21 April 2023;
- b) Relevant information contained in the Departmental information base, including the Guidelines on Public Participation, Alternatives (dated March 2013);
- c) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- d) The comments received from I&APs and responses to these, included in the FBAR submitted on 21 April 2023;
- e) The balancing of negative and positive impacts and proposed mitigation measures; and
- f) Appropriate information was made available in the report to understand the environmental and spatial context.

No site visits were conducted during the course of this application process. The relevant officials are familiar with the property and surrounding area. The Competent Authority had sufficient information before it to make an informed decision without conducting a site visit.

All information presented to the Competent Authority was taken into account in the consideration of the application for Environmental Authorisation. A summary of the issues that were considered to be the most significant for the decision is set out below.

1. Other relevant legislative considerations

■ *National Water Act, 1998 (Act No. 36 of 1998)*

The proposed WWTW on Portion 4 of the Farm Gwayang No. 208 for the treatment of sewage from the Airport Support Zone and the use of treated effluent for irrigation requires water use authorisation in terms of Sections 21(e), (g) and (f) of the National Water Act, Act No. 36 of 1998 ("NWA"). Furthermore, the establishment of an aquatic zone and removal of an existing farm dam also requires authorisation in terms of Section 21(c) and (i) of the NWA. In this regard the Department is satisfied that the information that has been submitted to the relevant authority *i.e.*, Breede-Olifants Catchment Management Agency ("BOCMA") had been adequately incorporated in the BAR.

2. Public Participation

The public participation process included:

- identification of and engagement with interested and affected parties (I&APs) including organs of state which have jurisdiction in respect of the activity to which the application relates;
- fixing a notice board at the site along the R102 and R404 Provincial Roads for the period 24 November 2022 to 16 January 2023;
- giving written notice to the owners and occupiers of land adjacent to the site and any alternative site where the listed activities are to be undertaken, the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities on 23 November 2023;
- the placing of a newspaper advertisement in the "George Herald" on 24 November 2022; and
- making the Draft Basic Assessment Report available to I&APs for public review and comment from 24 November 2022 to 16 January 2023, and a revised Draft Basic Assessment Report available to I&APs for public review and comment from 16 March to 19 April 2023. The reports were made available on the EAP's website at <https://environmentcen.co.za/projects/>

All the comments and issues raised by the respective *Organs of State and Interested and Affected Parties (I&APs)* that were captured in the Basic Assessment Report were responded to by the EAP. The Competent Authority is satisfied with the responses provided by the EAP to these other organs of state and I&APs.

3. Alternatives

Preferred Alternative ("Herewith Approved")

This applicant's preferred alternative entails the establishment of a light industrial park on Portion 139 of the Farm Gwayang No. 208 and the development of a wastewater treatment plant on Portion 4 of the Farm Gwayang No. 208 near George. The proposed light industrial component will primarily consist of warehousing and storage facilities, with no planned noxious uses and will cover an area of approximately 5ha on the southern side of the R102 Road. The proposed WWTW will have a capacity to treat approximately 430m³ per day and will cover an area of approximately 1ha.

The preferred alternative also includes the development of a 9-Megawatt photovoltaic ("PV") solar plant on an approximately 8ha portion of Portion 139 of the Farm Gwayang No. 208 north of the R102 Provincial Road, which bisects the property. The solar plant forms part of a wheeling agreement with the George Municipality to put electricity into the municipal electrical grid. The proposed solar plant will be implemented in accordance with Drawing No. GRG-376/PV/02 (Rev 0.2), drafted by BDE Consulting Electrical Engineers.

The proposed development forms part of the Airport Support Zone ("ASZ") which has been identified in the Gwayang Local Spatial Development Framework (2015). The Airport Support Zone consists of Portions 4, 130, 131 and 132, as well as Portion 139 of the Farm Gwayang No. 208. The proposed WWTW will service the entire ASZ.

The service infrastructure for the proposed development is being co-ordinated by the landowners / developers of the ASZ. The proposed subdivision of Portion 139 (this application) is depicted in Subdivision Plan drafted by Marlize de Bruyn Planning (Project No: 339/G21; Drawing: Annexure B; Date: September 2022). Please refer to Annexure 2 of this environmental authorisation for the proposed subdivision plan.

No other feasible layout alternatives were considered / assessed in the BAR.

"No-Go" Alternative

This alternative implies that the current agricultural activities (mainly grazing) will continue on the property. The property has historically been used for agricultural activities. However, according to the BAR the George Municipality approved a land use application for consent use for a tourist facility and function venue in an existing store building. Furthermore, this alternative will also mean that the proposed WWTW will not be developed, which is required to service the entire Airport Support Zone as identified in the Gwayang Local Spatial Development Framework (2015).

4. Impact Assessment and Mitigation Measures

4.1 Activity need and desirability

The proposed development entails the development of a light industrial park on Portion 139 of the Farm Gwayang No. 208. The portion of the property south of the proposed Western Bypass Road and on which the light industrial park is proposed, forms part of the Airport Support Zone which has been identified to accommodate land uses supporting the airport facilities and provide a direct service to

tourists. The properties identified in the Airport Support Zone are Portions 4, 130, 131, 132 and 139. In this regard, the development on Portion 4 (Ref: 16/3/3/1/D2/19/0024/19); and Portions 130, 131 and 132 (Ref: 14/3/10/D2/19/0543/21) have been approved on 31 January 2022 and 27 June 2022 (appeal EA amendment), respectively.

Furthermore, the Airport Support Zone has been identified in the George Municipality Spatial Development Framework as part of a secondary node – referred to as the Western / Gwayang Industrial Node which is directed at manufacturing, freight and logistics in the Southern Cape.

With due consideration of the above, the Department agrees that the proposed development is in line with the relevant planning policies of the George Municipality.

According to the applicant the construction phase will contribute investment of approximately R297 387 000. Furthermore, the construction phase will create 487 direct employment opportunities, mostly in the semi-skilled category and 522 indirect and induced employment opportunities.

4.2 Service infrastructure

The property owners of the various properties within the Airport Support Zone ("ASZ") are co-ordinating the development planning within the ASZ. In this regard a Property Owners Association ("POA") has been established which will to plan and develop services for the full ASZ as an integrated infrastructure development project.

Provision of water

According to the BAR the bulk water infrastructure from the George Municipality runs along the R102 and R404 Provincial Roads. However, according to the information the George Municipality does not have adequate water supply to the entire ASZ. The George Municipality has indicated that the full ASZ shall not be entitled to receive more than 20% of the potable water demand for the full development, apart from the first phase which will receive the full 20% potable water demand available for the full development. This 20% potable water will then be divided between the various phases within the ASZ.

In order to address the remaining 80%, the ASZ is proposing to implement rainwater harvesting and the secondary use of treated wastewater. The information in the BAR indicates that 41% of the water demand of the ASZ can be met through harvesting rainwater in an average rainfall year and 29% can be met if the lowest annual rainfall over the past 40 years (2019) is used. According to the BAR the lowest annual rainfall has been used to estimate the available yields to meet the ASZ's water demand.

The BAR considers the impact of climate change; the increase of drought and the impact on water availability with reference to rainwater harvesting and the reliance of the development on this water source. In this regard the BAR indicates that a conservative approach was used to determine the 30% yield of the water demand through rainwater harvesting i.e., the data from the lowest annual rainfall year in the past 40 years (2019) was used - 426mm rainfall was recorded. This conservative used a water demand of 440 litres per 100m² but according to the BAR the demand will be significantly less than this demand as the ASZ will predominantly consists of warehousing. Applying the guidance of the National Building Regulations the water demand for warehousing is 110 litres per 100m². Allowance of 100 litres per 100m² is made for washing of surfaces, water losses and irrigation of gardens. Washing of surfaces and irrigation will be limited during prolonged drought.

At least 80% of the demand by the application of the National Building Regulations will be used for the flushing of toilets and urinals, gardening and washing of surfaces. According to the BAR this portion of the demand can be satisfied using treated wastewater. Therefore, the applicant is

of the opinion that the industrial park will be able to operate using only the 20% municipal water allocation and treated wastewater in the case of the “worst case scenario” over the past 40 years.

■ Sewage treatment and reuse of treated wastewater

According to the BAR the capacity of the Gwaiing Wastewater Treatment Works (WWTW) is inadequate to treat the projected sewage volume of the entire ASZ and the required upgrades will take several years to be implemented by the service provider. The George Municipality has however indicated that the first phase of the ASZ can be accommodated in the existing municipal network. Phase 1 of the completed ASZ will drain towards Airport Pumpstation 1. According to the information the rising main from this pumpstation to the Gwaiing WWTW has an 8 litre per second capacity available and can therefore accommodate the sewage flow from phase 1 of the ASZ.

In order to address the sewage treatment of the entire ASZ, the applicant investigated the development of a WWTW on Portion 4 of the Farm Gwayang No. 208, located on the eastern side of the proposed Western Bypass. Once operational, the WWTW will treat the sewage of the entire ASZ, including Phase 1.

The Peak Day Dry Weather sewage flow for the ASZ is estimated as 431m³ (i.e. 80% of the Annual Average Daily Demand of 538m³). The capacity of the system is therefore design for 430m³ per day, of which 63% will be used for the irrigation of common areas, washing of surfaces and flushing of toilets. Surplus treated effluent will be discharged via the aquatic zone to the drainage line.

The applicant has applied to the relevant authority for a water use authorisation for the development of the proposed WWTW. While the WWTW on its own does not trigger a listed activity, it forms an integral part of the development of the ASZ as the George Municipality currently does not have capacity to service the ASZ's entire wastewater treatment requirements. The proposed WWTW will use a Phragmifiltre system (constructed wetland) technology which filters the sewage in two stages. According to the BAR the effluent will be treated to General Limits.

The Water Use Authorisation process ran in parallel with the Basic Assessment Process and the applications is currently being assessed by the relevant authority i.e. the Breede-Olifants Catchment Management Area (“BOCMA”). According to the BOCMA the specialist studies prepared by the applicant are adequate to meet the requirements of the water use application. In this regard a water balance study was undertaken by the applicant, and which was accepted by the George Municipality. The study indicated that the total Demand and Supply is 538.11m³ based on the George Municipality guideline and 249.29m³ based on the National Building Regulations. Therefore, there is an oversupply of 288.82m³ recorded for the fully developed ASZ. This oversupply can be used during extreme drought.

■ Stormwater Management

According to the applicant the design of the stormwater management plan for the ASZ is based on the national Climate Change Response White paper which proposes “implementing best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, invest in water conservation and water demand management. In this regard, the proposal is to harvest rainwater from the roofs of the warehouses for use within the ASZ (see discussion on water provision above). Any overland flows will be managed in accordance with the relevant design guidelines for industrial and business units. Furthermore, it is proposed implement bioswales along roads, the establishment of an aquatic zone (with 20m buffer) with check dams for flood attenuation and to aid filtration of stormwater.

The applicant consulted the George Municipality on the above proposals, and the Municipality has confirmed its support of the development and the services proposed to support the development, stating that the internal services incorporate the principles of resource sustainability. However, the George Municipality indicated that as the Water Services Authority that the municipality will ultimately remain responsible for the provision of basic water, and that potable water for human consumption will only be available for collection should this ever become a necessity in the future.

4.3 The proposed 9-Megawatt renewable energy generation facility

The applicant applied for a 9-Megawatt photovoltaic ("PV") solar plant on a portion of Portion 139 of the Farm Gwayang No. 208, on the northern side of the R102 Provincial Road which bisects the property. According to the Gwayang Local Spatial Development Framework this area falls outside the ASZ. Furthermore, according to the applicant, the proposed solar plant is based on a wheeling agreement for power back into the grid.

According to the applicant the proposed solar plant will contribute clean energy and reduce the reliance on coal-based energy generation, which is especially important in the current scenario of ongoing load shedding in an area where there is potential for growth.

The applicant proposes to develop the proposed solar plant in two phases i.e. Phase 1 entails the development of approximately 1-Megawatt energy generation capacity on 1ha of land and Phase 2 the balance. According to the applicant, the George Municipality is in support of the 1MW plant with the expansion with a further 8MW to a total of 9MW to be addressed following load flow and grid impact studies.

Notwithstanding the above, the ASZ will receive electricity from the existing grid, in line with the requirements of the electrical services report. The ASZ will not be directly reliant on the solar plant for the generation of its electricity. Furthermore, the POA will encourage individual property owners within the ASZ to incorporate the facilities for generation of electricity from a renewable resource on roof tops (i.e. solar panels).

With due consideration of the above, the Department is satisfied that the development of the PV solar plant will not result in significant impacts if the proposed mitigation measures and recommendations of the EMPr are implemented and adhered to.

4.4 Civil Aviation Assessment

Due to the proximity of the proposed light industrial park and solar plant to the Airports Company South Africa: George Airport, a Civil Aviation Assessment was undertaken to inform the application. The assessment also specifically looked at the proposed solar plant and the effect of glint and glare on aircraft. The assessment considered primary receptors including the 2-mile receptor on the approach to the various runways and the air traffic control tower. The assessment concludes that the aforementioned receptors will not experience any glint and glare throughout the year.

Furthermore, additional three-point receptors in the "northern circuit" (i.e. Left of Base for runway 11 (OP 2), Right of Base for runway 29 (OP 4) and Downwind (OP 3)) were assessed at a height of 304m (1000 feet), which showed that the additional receptors will be exposed to green glare when the sun is rising in the east (Op 2 and OP 3) and when the sun is setting in the west (OP 4) for a period of 25 to 50 minutes.

From a glint and glare perspective, the assessment recommends approval from the South African Civil Aviation Authority.

4.5 Biodiversity aspects

A description of the biodiversity issues and risks that were identified during the environmental impact assessment process, as well as an assessment of the significance of each issue and risk, cumulative impacts of the proposed development and levels of acceptable change have been considered.

In this regard the BAR, supported by a Terrestrial Biodiversity, Plant and Animal Species Report, indicates that the properties associated with the proposed development has historically been used for agricultural activities (mainly grazing). As a result, the vegetation has been completely transformed and does not contain any natural elements of Critically Endangered Garden Route Granite Fynbos.

Furthermore, a description of the aquatic features has also been provided in the BAR and supported by an aquatic assessment. According to the BAR two non-perennial watercourses cross the property towards a tributary of the Gwaiing River. The larger of the two watercourses is affected by the proposed development. This watercourse is considered to be in a seriously to critically modified condition with extensive loss of ecological functionality as a result of cultivation of the area as well as instream dams created within the watercourse. Furthermore, the watercourse is considered to be of low ecological importance and sensitivity. Therefore, the assessment concludes that the watercourse does not pose a significant constraint to the proposed development of the site. However, the functionality of the watercourse as a corridor for the movement of water through the landscape is recognised in the Western Cape Biodiversity Spatial Plan (2017). Therefore, it is important that this functionality is maintained within the development as far as possible. The assessment indicates that the realignment and recreation of the watercourse and corridor would be acceptable provided that the corridor between the areas upstream and downstream of the site are maintained that connect to the downstream aquatic ecosystems. This has been addressed in the BAR which indicates the dam will be decommissioned / closed by removing the dam wall and filling the dam. A series of check dams will then be established within the aquatic corridor for the purposes of flood attenuation (and not detention). Furthermore, a 20m buffer area is to be established for the proposed aquatic zone. Apart from the check dams that are to be planted with indigenous aquatic vegetation to assist with the attenuation and filtration of stormwater, no other works are proposed in the aquatic zone.

With due consideration of the above, the Department is satisfied that the aquatic aspects assessed within the ASZ have been adequately reported on and assessed in the BAR and no significant impacts are expected if the proposed mitigation measures and recommendations of the EMPr are implemented and adhered to.

The assessment of the biodiversity aspects by the respective specialists, have not demonstrated that the infrastructure associated with the solar plant, have been adequately assessed.

4.6 Traffic aspects

Due to the nature of the proposed development it is expected that traffic will be generated to and from the proposed development. Furthermore, the proposed development forms part of the Airport Support which is earmarked to support the airport facilities and provide a direct service to tourists. In order to gain an understanding of the impact a Traffic Impact Assessments ("TIA") were undertaken to inform the BAR. In this regard, the TIA was undertaken for the development of Portion 139 as a standalone (August 2022) and the fully developed ASZ (October 2021).

It must be noted that a George Airport Road Master Plan was developed which was to guide the upgrade of the roads around the airport, specifically the R404 and the R102 Provincial Roads. The Master Plan specifically addressed the entrance to the ASZ, located opposite to the entrance to the

George Airport, to accommodate the traffic to and from the George Airport and fully developed ASZ. An environmental authorisation (Ref: 16/3/3/1/D2/19/0012/20) was issued on 28 April 2021 for the Master Plan. Furthermore, the Department is aware that the POA has undertaken to integrate the implementation of abovementioned environmental authorisation with the development of the ASZ.

In light of the above, the Department is satisfied that the traffic generated as a result of the proposed development of Portion 139 of the Farm Gwayang No. 208, can be accommodated within the approved road network.

4.7 Heritage / Archaeological Aspects

No significant impacts on heritage / archaeological resources are expected as a result of the proposed development. This was confirmed in the response to the Notice of Intent to Develop (Case No: 21092709AM0930E) issued by Heritage Western Cape, dated 22 October 2021. The competent authority is satisfied that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of the National Heritage Resources Act, 1999 and the comments and recommendations of the relevant heritage resources authority with regard to the proposed development have been taken into account.

4.8 Other impacts

No other significant visual dust, noise and odour impacts have been identified.

5. Scope and Validity of the Environmental Authorisation

This environmental authorisation does not define specific operational aspects. The environmental authorisation's validity period has been granted for a period of ten (10) years, during which period the construction activities must commence and be concluded, including the post-construction rehabilitation and monitoring and submission of the final environmental audit reports for the construction phase. In light of the proposed implementation programme, the monitoring and post-construction rehabilitation can be adequately incorporated in the construction phase.

Where the activity has been commenced with, the EIA Regulations, 2014 allow that (upon application) the period for which the environmental authorisation is granted may be extended for a further period of 5-years.

6. National Environmental Management Act Principles

The National Environmental Management Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

7. Conclusion

In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with an approved EMPr, the Competent Authority is satisfied that, except for the activity that has been refused, the proposed listed activities, will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

----- **END** -----

ANNEXURE F:

Amended EA – January 2024



REFERENCE: 16/3/3/5/D2/19/0020/23
ENQUIRIES: Shireen Pullen
DATE OF ISSUE: **26 JANUARY 2024**

The Director
SANWILL INVESTMENTS PTY LTD
PO Box 186
Persquor Park
PRETORIA
0020

Attention: Mr. du Bruyn Joubert

Tel: 079 874 2048

Email: debruyn@iceisp.co.za

Dear Sir

APPLICATION FOR AMENDMENT OF THE ENVIRONMENTAL AUTHORISATION REFERENCED 16/3/3/1/D2/19/0024/19 AND ISSUED ON 31 JANUARY 2022 FOR THE ESTABLISHMENT OF A FILLING STATION, WAREHOUSING AND AIRPORT SUPPORT SERVICES ("GEORGE AIRPORT SUPPORT ZONE") ON PORTION 4 OF FARM GWAYANG NO. 208, GEORGE.

With reference to your application for the amendment of the Environmental Authorisation issued on 31 January 2022, Reference Number: 16/3/3/1/D2/19/0024/19, find below the amendment to the Environmental Authorisation in respect of this application.

ADDENDUM TO ENVIRONMENTAL AUTHORISATION

A. DECISION

1. By virtue of the powers conferred on it in terms of Regulation 30 of the Environmental Impact Assessment Regulations, 2014 (as amended), the Department has decided to amend the Environmental Authorisation issued on 31 January 2022, Reference Number: 16/3/3/1/D2/19/0024/19, as follows –

1.1 Section A is amended to read as follows:

The Director:
SANWILL INVESTMENTS PTY LTD
% Mr De Bruyn Joubert
PO Box 186
Persquor Park
PRETORIA
0020

Cell: 079 874 2048

Email: debruyn@iceisp.co.za

2. All other information contained in the Environmental Authorisation issued on 31 January 2022, Reference Number: 16/3/3/1/D2/19/0024/19, remains unchanged and is still in force.

B. REASONS FOR THE DECISION:

In reaching its decision, the Department took, *inter alia*, the following into consideration:

1. The application is for a non-substantive amendment to the Environmental Authorisation.
2. The environment and the rights and interests of other parties are not likely to be adversely affected by this decision to amend the Environmental Authorisation.
3. The application for amendment is only for the change of ownership and will not not affect the scope of the assessment or change the level or nature of the impacts already assessed.
4. All the relevant information presented to this Department, which formed part of the application for amendment.

C. CONDITIONS

1. The applicant must, in writing, within **14 (fourteen)** calendar days from the date of the Department's decision –
 - 1.1 notify all registered interested and affected parties registered in the previous EIA process of –
 - 1.1.1 the outcome of the application;
 - 1.1.2 the reasons for the decision;
 - 1.1.3 the date of the decision; and
 - 1.1.4 the date of issue of the decision;
 - 1.2 draw the attention of all registered interested and affected parties registered in the previous EIA process to the fact that an appeal may be lodged against the decision in terms of the National Appeals Regulations, 2014 (as amended) in section D below;
 - 1.3 draw the attention of all registered interested and affected parties registered in the previous EIA process to the manner in which they may access the decision.
2. The holder of the environmental authorisation must within thirty (30) calendar days of the issue of this amendment decision, provide the competent authority with written proof of compliance with Condition 1 above.

D. APPEALS

Appeals must comply with the provisions contained in the National Appeal Regulations 2014 (as amended).

1. An appellant (if the holder of the decision) must, within 20 (twenty) calendar days from the date the notification of the decision was sent to the holder by the Competent Authority –
 - 1.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator; and
 - 1.2. Submit a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision-maker i.e. the Competent Authority that issued the decision.
2. An appellant (if NOT the holder of the decision) must, within 20 (twenty) calendar days from the date the holder of the decision sent notification of the decision to the registered I&APs–

- 2.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator; and
- 2.2 Submit a copy of the appeal to the holder of the decision, any registered I&AP, any Organ of State with interest in the matter and the decision-maker i.e. the Competent Authority that issued the decision.
3. The holder of the decision (if not the appellant), the decision-maker that issued the decision, the registered I&AP and the Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.
4. The appeal and the responding statement must be submitted to the address listed below:

By post: Western Cape Ministry of Local Government, Environmental Affairs and Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or

By hand: Attention: Mr Marius Venter (Tel: 021 483 3721)
Room 809
8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: For purposes of electronic database management, you are also requested to submit electronic copies (Microsoft Word format) of the appeal, responding statement and any supporting documents to the Appeal Authority to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from Appeal Authority at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

E. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this Addendum to Environmental Authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

MR. ZAAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT
DATE OF DECISION: 26 JANUARY 2024

Copies to:

Ms. Belinda Clarke
Mr. Mike. Cohen
Mr. Clinton Pietersen

CEN Environmental
CEN Environmental
George Municipality

Tikkapox1@gmail.com
steenbok@isat.co.za
clinton@george.org.za

ANNEXURE G:

Proof of Pre-application Consultation

LAND USE PLANNING PRE-APPLICATION CONSULTATION FORM

PLEASE NOTE:

Pre-application consultation is an advisory session and is required prior to submission of an application for rezoning, consent use, temporary departure and subdivision. It does not in any way pre-empt the outcome of any future application which may be submitted to the Municipality.

PART A: PARTICULARS	
Reference number:	Collab Ref No.: 3489427
Purpose of consultation:	To discuss an application for the rezoning and subdivision of the Remainder of Portion 4 of the Farm Gwayang No 208, Division George
Brief proposal:	Marike Vreken Town Planners
Property(ies) description:	Remainder of Portion 4 of the Farm Gwayang No 208, Division George
Date:	13 November 2024

Attendees:

	Name & Surname	Organisation	Contact Number	E-mail
Official	Khuliso Mukhovha	George Municipality	0448019477	kjmukhovha@george.gov.za
	Ilane Huyser	George Municipality	0448019477	ihuyser@george.gov.za
Pre-applicant	Marike Vreken	MV TRP	044-382-0420	marike@vreken.co.za

Documentation provided for discussion:

(Include document reference, document/plan dates and plan numbers where possible and attach to this form)

	Description	Plan No / Reference	Date
A	Locality Plan		
B	Subdivision Plan	Pr2433-F208Ptn110Sub01	
C	Copy of Previous Approval	Pr2433-F208Ptn110L03	
D	Copy of Environmental Authorisation	Pr2433-F208Ptn110L03	
E	Site Development Plan	GASZ-SC1-010-020	
F	Copy of Title Deed	Pr22/37 GEO27668Ph4Layout04	

Has pre-application been undertaken for a Land Development application with the Department of Environmental Affairs & Development Planning (DEA&DP)?

(If so, please provide a copy of the minutes)

YES	NO
-----	----

Comprehensive overview of proposal:**Current Approval:**

George Municipality approved an industrial / warehousing development on the western side of the bypass, and the Remaining extent (Portion 4) is zoned "Agriculture Zone I".



FIGURE 1: LOCALITY

George Municipality approved an industrial / warehousing development on the western side of the bypass, and the Remaining extent (Portion 4) is zoned “Agriculture Zone I”. A copy of the development approval on Portion 4 is attached for ease of reference. A copy of the development approval on Portion 4 is attached for ease of reference.



FIGURE 2: CURRENT APPROVAL ON PORTION 4

Development Proposal:

The approved Western Bypass road bisects the Remainder of Portion 4 of the Farm 208, in a north south direction.

The Department of Environmental Affairs and Development Planning issued an Environmental Authorisation to develop a Wastewater Treatment Works on the Remainder of Portion 4 of the farm No 208. A copy of the ROD is attached. The proposed WWTW will have a capacity to treat approximately 430m³ per day and will cover an area of approximately one hectare (1ha).

A wastewater and water treatment and storage facility for the George Airport Support Zone on the Remainder of Ptn 4/208 to the east of the planned Western Bypass Arterial. Treated effluent from the WWTW will be used for flushing toilets, washing of surfaces, and irrigation of common areas (e.g. landscaped areas along roadsides) in the ASZ. Any excess effluent will be discharged to the watercourse.

Treated effluent from the WWTW that cannot be re-used on site must be discharged via the Aquatic Zone (i.e. no direct discharge to the drainage area). The Aquatic Zone will benefit from additional flow, and the vegetated areas and check dams will assist with attenuation and filtration. An off-grid solar system and stand-by generator will be used at the WWTW in case of power outages.

In order to develop the WWTW on its own cadastral property, the proposal is to subdivide the Remainder of Portion 4 of the Farm Gwayang No 208 into two portions: Portion A ($\pm 1,5940$ ha) and a Remainder, as shown in the figure below:

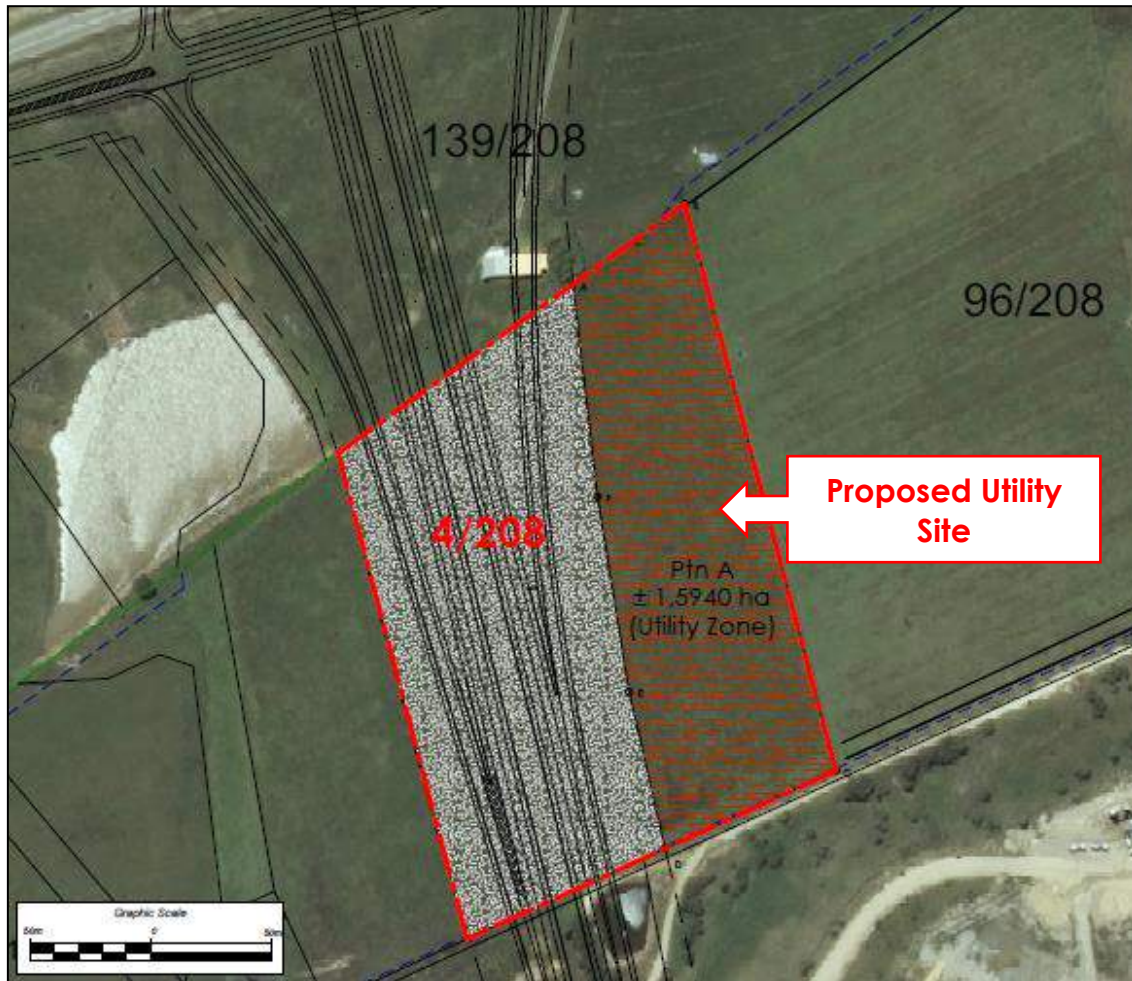


FIGURE 3: PROPOSED ACCESS

Portion A of the Remainder of Portion 4 will be rezoned to “Utility Zone” for the Wastewater Treatment Works.

NEMA Environmental Authorisation & Other Legislation

Environmental Authorisation was granted, and a copy of the EA is attached. Also, other requirements such as Heritage approvals, and Act 70 of 1970 approvals will be attended to.

Gwayang Local Spatial Development Framework (2015)

The Gwayang Local Spatial Development Framework earmarks the land between the Western Bypass and the airport for Airport Support Zone.

The proposed Wastewater Treatment works falls just outside the earmarked airport support zone.

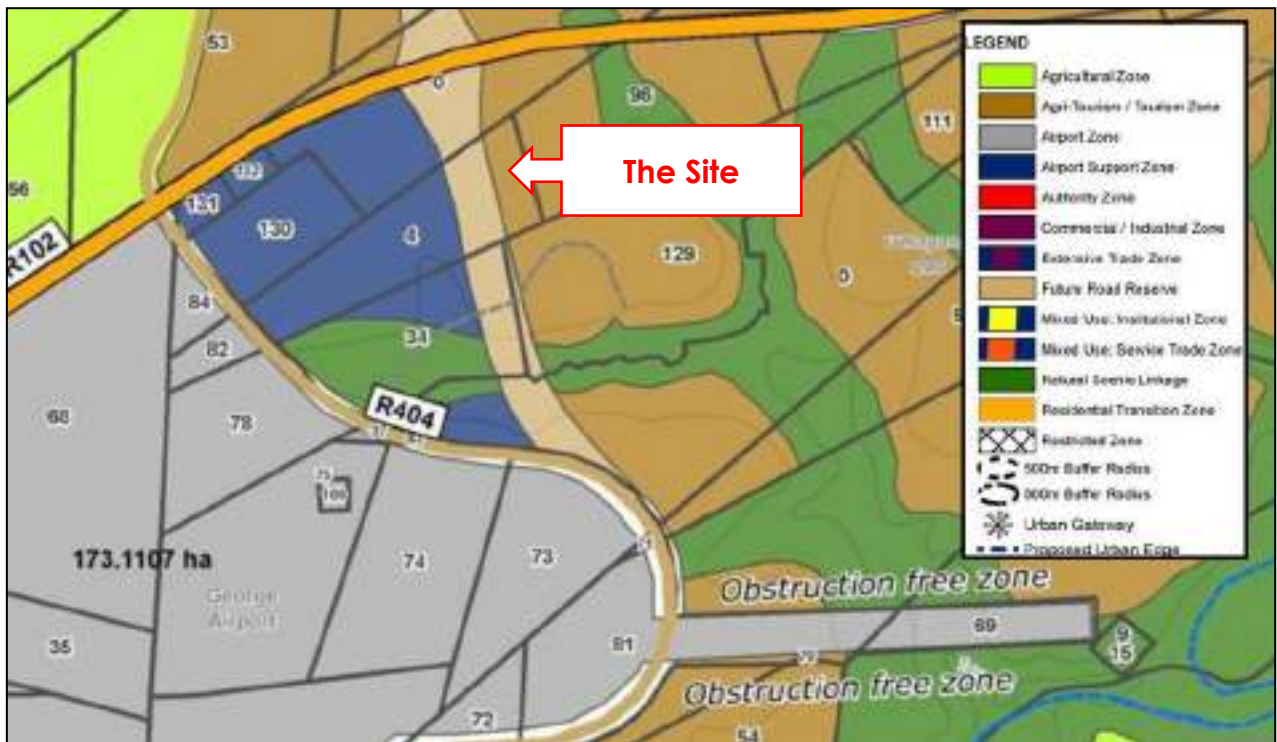


FIGURE 4: EXTRACT GWAYANG LOCAL SDF

(WILL FULLY APPLY ONLY ONCE LUPA REGULATIONS ARE IN FORCE)



PART C: QUESTIONNAIRES
SECTION A:
DETERMINATION OF APPLICATION TYPES, PRESCRIBED NOTICE AND ADVERTISEMENT PROCEDURES

Tick if relevant		What land use planning applications are required?	Application fees payable
<input checked="" type="checkbox"/>	2(a)	a rezoning of land;	R 10 710, 00
<input type="checkbox"/>	2(b)	a permanent departure from the development parameters of the zoning scheme;	R
<input type="checkbox"/>	2(c)	a departure granted on a temporary basis to utilise land for a purpose not permitted in terms of the primary rights of the zoning applicable to the land;	R
<input checked="" type="checkbox"/>	2(d)	a subdivision of land that is not exempted in terms of section 24, including the registration of a servitude or lease agreement;	R 6 144, 00
<input type="checkbox"/>	2(e)	a consolidation of land that is not exempted in terms of section 24;	R
<input type="checkbox"/>	2(f)	a removal, suspension or amendment of restrictive conditions in respect of a land unit;	R
<input type="checkbox"/>	2(g)	a permission required in terms of the zoning scheme;	R
<input type="checkbox"/>	2(h)	an amendment, deletion or imposition of conditions in respect of an existing approval;	R
<input type="checkbox"/>	2(i)	an extension of the validity period of an approval;	R
<input type="checkbox"/>	2(j)	an approval of an overlay zone as contemplated in the zoning scheme;	R
<input type="checkbox"/>	2(k)	an amendment or cancellation of an approved subdivision plan or part thereof, including a general plan or diagram;	R
<input type="checkbox"/>	2(l)	a permission required in terms of a condition of approval;	R
<input type="checkbox"/>	2(m)	A determination of a zoning;	R
<input type="checkbox"/>	2(n)	A closure of a public place or part thereof;	R
<input type="checkbox"/>	2(o)	a consent use contemplated in the zoning scheme;	R
<input type="checkbox"/>	2(p)	an occasional use of land;	R
<input type="checkbox"/>	2(q)	to disestablish a home owner's association;	R
<input type="checkbox"/>	2(r)	to rectify a failure by a home owner's association to meet its obligations in respect of the control over or maintenance of services;	R
<input type="checkbox"/>	2(s)	a permission required for the reconstruction of an existing building that constitutes a non-conforming use that is destroyed or damaged to the extent that it is necessary to demolish a substantial part of the building	R
Tick if relevant		What prescribed notice and advertisement procedures will be required?	Advertising fees payable
<input type="checkbox"/>	N	Serving of notices (i.e. registered letters etc.)	R
<input type="checkbox"/>	N	Publication of notices (i.e. Provincial Gazette, Local Newspaper(s) etc.)	R
<input type="checkbox"/>	N	Additional publication of notices (i.e. Site notice, public meeting, local radio, website, letters of consent etc.)	R
<input type="checkbox"/>	N	Placing of final notice (i.e. Provincial Gazette etc.)	R

TOTAL APPLICATION FEE* (VAT excluded):	TBC
---	------------

PLEASE NOTE: * Application fees are estimated on the information discussed and are subject to change with submission of the formal application and/or yearly application fee increase.

SECTION B:

PROVISIONS IN TERMS OF THE RELEVANT PLANNING LEGISLATION / POLICIES / GUIDELINES

QUESTIONS REGARDING PLANNING POLICY CONTEXT	YES	NO	TO BE DETERMINED	COMMENT
Is any Municipal Integrated Development Plan (IDP)/Spatial Development Framework (SDF) and/or any other Municipal policies/guidelines applicable? If yes, is the proposal in line with the aforementioned documentation/plans?			X	Motivate George Municipal Spatial Development Framework, 2023
Any applicable restrictive condition(s) prohibiting the proposal? If yes, is/are the condition(s) in favour of a third party(ies)? [List condition numbers and third party(ies)]			X	Conveyancer certificate required to confirm
Any other Municipal by-law that may be relevant to application? (If yes, specify)			X	
Zoning Scheme Regulation considerations:				
Which zoning scheme regulations apply to this site?				
George Integrated Zoning Scheme Bylaw, 2023				
What is the current zoning of the property?				
Agriculture Zone I				
What is the proposed zoning of the property?				
Utility Zone				
Does the proposal fall within the provisions/parameters of the zoning scheme?				
No				
Are additional applications required to deviate from the zoning scheme? (if yes, specify)				
No				

QUESTIONS REGARDING OTHER PLANNING CONSIDERATIONS	YES	NO	TO BE DETERMINED	COMMENT
Is the proposal in line with the Provincial Spatial Development Framework (PSDF) and/or any other Provincial bylaws/policies/guidelines/documents?			X	Motivate Provincial Spatial Development Framework, 2024
Are any regional/district spatial plans relevant? If yes, is the proposal in line with the document/plans?		X		

SECTION C:

CONSENT / COMMENT REQUIRED FROM OTHER ORGANS OF STATE

QUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
Is/was the property(ies) utilised for agricultural purposes?	X			Western Cape Provincial Department of Agriculture
Will the proposal require approval in terms of Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)?	X			National Department of Agriculture
Will the proposal trigger a listed activity in terms of National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA)?			X	Western Cape Provincial Department of Environmental Affairs & Development Planning (DEA&DP)
Will the proposal require authorisation in terms of Specific Environmental Management Act(s) (SEMA)? (National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003) (NEM:PAA) / National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) (NEM:BA) / National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA) / National Environmental Management: Integrated Coastal Management Act, 2008 (Act 24 of 2008) (NEM:ICM) / National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEM:WA) (strikethrough irrelevant)		X		National Department of Environmental Affairs (DEA) & DEA&DP
Will the proposal require authorisation in terms of the National Water Act, 1998 (Act 36 of 1998)?	X			National Department of Water & Sanitation (DWS)
Will the proposal trigger a listed activity in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	X			South African Heritage Resources Agency (SAHRA) & Heritage Western Cape (HWC)

QUESTIONS REGARDING CONSENT / COMMENT REQUIRED	YES	NO	TO BE DETERMINED	OBTAIN APPROVAL / CONSENT / COMMENT FROM:
Will the proposal have an impact on any National or Provincial roads?	X			National Department of Transport / South Africa National Roads Agency Ltd. (SANRAL) & Western Cape Provincial Department of Transport and Public Works (DTPW)
Will the proposal trigger a listed activity in terms of the Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations		X		National Department of Labour (DL)
Will the proposal affect any Eskom owned land and/or servitudes?		X		Eskom
Will the proposal affect any Telkom owned land and/or servitudes?		X		Telkom
Will the proposal affect any Transnet owned land and/or servitudes?		X		Transnet
Is the property subject to a land / restitution claims?		X		National Department of Rural Development & Land Reform
Will the proposal require comments from SANParks and/or CapeNature?		X		SANParks / CapeNature
Will the proposal require comments from DEFF?		X		Department of Environment, Forestry and Fishery
Is the property subject to any existing mineral rights?		X		National Department of Mineral Resources
Does the proposal lead to densification to such an extent that the number of schools, healthcare facilities, libraries, safety services, etc. In the area may be impacted on? (strikethrough irrelevant)		X		Western Cape Provincial Departments of Cultural Affairs & Sport (DCAS), Education, Social Development, Health and Community Safety

SECTION D:

SERVICE REQUIREMENTS

DOES THE PROPOSAL REQUIRE THE FOLLOWING ADDITIONAL INFRASTRUCTURE / SERVICES?	YES	NO	TO BE DETERMINED	OBTAIN COMMENT FROM: (list internal department)
Electricity supply:			X	Directorate: Electro-technical Services
Water supply:			X	Directorate: Civil Engineering Services
Sewerage and waste water:			X	Directorate: Civil Engineering Services
Stormwater:			X	Directorate: Civil Engineering Services
Road network:			X	Directorate: Civil Engineering Services
Telecommunication services:			X	
Other services required? Please specify.			X	
Development charges:			X	

PART D: COPIES OF PLANS / DOCUMENTS TO BE SUBMITTED AS PART OF THE APPLICATION

COMPULSORY INFORMATION REQUIRED:

Y	N	Power of Attorney / Owner's consent if applicant is not owner (if applicable)	Y	N	S.G. noting sheet extract / Erf diagram / General Plan
Y	N	Motivation report / letter	Y	N	Full copy of the Title Deed
Y	N	Locality Plan	Y	N	Site Layout Plan
Y	N	Proof of payment of fees	Y	N	Bondholder's consent

MINIMUM AND ADDITIONAL REQUIREMENTS:

Y	N	Site Development Plan	Y	N	Conveyancer's Certificate
Y	N	Land Use Plan	Y	N	Proposed Zoning plan
Y	N	Phasing Plan	Y	N	Consolidation Plan
Y	N	Abutting owner's consent	Y	N	Landscaping / Tree Plan
Y	N	Proposed Subdivision Plan (including street names and numbers)	Y	N	Copy of original approval letter
Y	N	Services Report or indication of all municipal services / registered servitudes	Y	N	Home Owners' Association consent
Y	N	Copy of Environmental Impact Assessment (EIA) / Heritage Impact Assessment (HIA) / Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) / Major Hazard Impact Assessment (MHIA) / Environmental Authorisation (EA) / Record of Decision (ROD) (strikethrough irrelevant)	Y	N	1 : 50 / 1:100 Flood line determination (plan / report)
Y	N	Other (specify)	Y	N	Required number of documentation copies

PART E: DISCUSSION

- The pre-application was submitted with a proposed subdivision plan and locality plan diagram as indicated below. Pre application meeting was held on 13 November 2024.



Town Planning

- The proposed subdivision and rezoning of Portion A to develop a Wastewater Treatment Works Plant is deemed to be an appropriate land use to support the Airport Support Zone Precinct.
- The application should indicate on the site plan how Portion A will gain access from the Provincial Road (R102 Road). The developer may be required to register a servitude right of way over Portion 96 or 139 of Farm 208. The latter to be addressed as part of the land use application.
- The applicant will be required to submit another pre-application should the proposed wastewater treatment works be constructed on a different Portion.
- The developer may be required to screen the wastewater treatment works plant to minimise visual impact. To illustrate and motivate as part of the land use application.
- The applicant will be required to notify the Department of Infrastructure (WC), ACSA, SACAA, Department of Agriculture (WC & National) and DEADP as part of the public participation process.

Comments from Civil Engineering Services

Access:

- Access to the property is restricted to existing provincial approved access as permitted and as per the George Integrated Zoning Scheme (GISZ) 2023 regulations.
- Any additional access must be approved by the applicable Road authority.
- Possible servitudes over portion 139 or 96 of 208 would be required.

Parking:

- All parking must be provided on-site, in accordance with the parking requirements specified in the GIZS 2023 parking tables. (Note normal PT ratio current applies).
- No parking is allowed within the road reserve, and the owner may be held liable for any costs associated with preventing parking in the road reserve.

Development charges:

- Normal Development Charges (DCs) will apply in accordance with the DC policy and the Town Planning By-law.

Water and sewer:

- Water and sewer services are available, but they are subject to confirmation of capacity through a service capacity confirmation and/or any other approved engineering reports and SLA.

Stormwater:

- The developer must comply with the relevant Stormwater By-law.

PART F: SUMMARY / WAY FORWARD

- The applicant may proceed to submit the application as per the above discussion.

OFFICIAL:	KHULISO MUKHOVHA	PRE-APPLICANT:	MARIKE VREKEN
	(FULL NAME)		(FULL NAME)
SIGNED:		SIGNED:	
DATE:	19 NOVEMBER 2024	DATE:	2024-11-13
OFFICIAL	ILANE HUYSER		
SIGNED:			
DATE	2024.11.28		

**Please note that the above comments are subject to the documents and information available to us at the time of the pre-application meeting and we reserve our rights to elaborate on this matter further and/or request more information/documents should it deemed necessary.*

ANNEXURE H:

Power of Attorney & Company Resolution

SANWIL INVESTMENTS PROPRIETARY LIMITED

(Name of Company, Partnership, Trust or Close Corporation)

RESOLUTION

Resolution passed at the meeting of the Shareholders/ Partners/ Trustees/ Members held in Pretoria on the 15th day of May 2025.

Resolved that Jacob Daniël De Bruyn Joubert in his capacity as Director , be and is hereby authorized to do whatever may be necessary to give effect to this resolution and to enter into and to sign such documents necessary to proceed with the applications as specified hereunder on behalf of the Company/ Partnership/ Trust/ Close Corporation with such modification as he/ she in his/ her sole discretion shall deem fit, his/ her signature to be conclusive proof that the documents which bear it are authorised in terms hereof.

DESCRIPTION OF PROPERTY:

REMAINING EXTENT OF PORTION 4 OF THE FARM GWAYANG NO 208, GEORGE

NATURE OF APPLICATION:

REZONING & SUBDIVISION

SIGNATURE OF SHAREHOLDERS/ PARTNERS/ TRUSTEES/ MEMBERS:

NAME:

Jacob Daniël De Bruyn Joubert

Ryno de Leeuw

SIGNATURE:



SPECIAL POWER OF ATTORNEY

I, Jacob Daniël De Bruyn Joubert

the undersigned,

do hereby nominate, constitute and appoint
THE AUTHORISED AGENTS OF MARIKE VREKEN TOWN & REGIONAL PLANNERS CC and duly
authorised employees of Marike Vreken Town Planners CC
with power of Substitution to be *my/our lawful representatives in *my/our application for:

REZONING & SUBDIVISION

on

REMAINING EXTENT OF PORTION 4 OF THE FARM GWAYANG NO 208, GEORGE

In addition to apply for such amendments of any zoning schemes / structure plans / Removal of Title Deed Restrictions as may be deemed necessary and to make other necessary application and further to represent *me/us at any inquiry in relation to the abovementioned matters and generally do whatever may be necessary or desirable to procure the approval of the application, by virtue of those present and whatever our said representative have to date done herein.

Signed at Pretoria on this 15th day of May 2025

SIGNED:



SIGNED:

SIGNED:

In the presence of the undersigned witnesses:

AS WITNESSES:

1.



2

ANNEXURE I:

Application Form



Application Form for Application(s) Submitted in terms of the Land Use Planning By-Law for George Municipality

NOTE: Please complete this form by using: Font: Calibri; Size: 11

PART A: APPLICANT DETAILS

First name(s)	Marike		
Surname	Vreken		
SACPLAN Reg No. (if applicable)	Pr. Pln A/1101/1999		
Company name (if applicable)	Marike Vreken Town Planners CC		
Postal Address	P.O. Box 2180		
	Knysna	Postal Code	6570
Email	info@vreken.co.za / marike@vreken.co.za		
Tel	044-382-0420	Fax	
Cell	082-927-5310		

PART B: REGISTERED OWNER(S) DETAILS (if different from applicant)

Registered owner	Sanwil Investments Proprietary Limited		
Address			
		Postal code	
E-mail	michael@mdaprojects.co.za / sam@spearprop.co.za		
Tel		Fax	
Cell			

PART C: PROPERTY DETAILS (in accordance with Title Deed)

Property Description [Erf / Erven / Portion(s) and Farm number(s), allotment area.]	Remaining extent of Portion 4 of the Farm Gwayang No 208, in the Municipality and Division of George, Western Cape Province										
Physical Address	Portion 4 of Farm 208,										
GPS Coordinates	33.996518°S 22.388669°E				Town/City		George				
Current Zoning	Agriculture Zone I			Extent		remaining extent of Portion 4 is 3,7063 ha.		Are there existing buildings?		Y	N
Current Land Use	Vacant										
Title Deed number & date	T61675/2022										
Any restrictive conditions prohibiting application?	Y	N	If Yes, list condition number(s).								
Are the restrictive conditions in favour of a third party(ies)?	Y	N	If Yes, list the party(ies).								
Is the property encumbered by a bond?	Y	N	If Yes, list Bondholder(s)?								
Has the Municipality already decided on the application(s)?	Y	N	If yes, list reference number(s)?								
Any existing unauthorized buildings and/or land use on the subject property(ies)?					Y	N	If yes, is this application to legalize the building / land use?			Y	N
Are there any pending court case / order relating to the subject property(ies)?					Y	N	Are there any land claim(s) registered on the subject property(ies)?			Y	N

PART D: PRE-APPLICATION CONSULTATION

Has there been any pre-application consultation?		Y	N	If Yes, please complete the information below and attach the minutes.			
Official's name	Khuliso Mukhovha Ilane Huyser	Reference number	3489427	Date of consultation	28 November 2024		

PART E: LAND USE APPLICATIONS IN TERMS OF SECTION 15 OF THE LAND USE PLANNING BY-LAW FOR GEORGE MUNICIPALITY & APPLICATION FEES PAYABLE

***Application fees that are paid to the Municipality are non-refundable and proof of payment of the application fees must accompany the application.**

BANKING DETAILS

Name: **George Municipality**
 Bank: **First National Bank (FNB)**
 Branch no.: **210554**
 Account no.: **62869623150**
 Type: **Public Sector Cheque Account**
 Swift Code: **FIRNZAJJ**
 VAT Registration Nr: **4630193664**
 E-MAIL: **msbrits@george.gov.za**
 *Payment reference: Erven ____, George/Wilderness/Hoekwil...

PART F: DETAILS OF PROPOSAL

Brief description of proposed development / intent of application:

See attached Motivation report

PART G: ATTACHMENTS & SUPPORTING INFORMATION FOR LAND USE PLANNING APPLICATIONS

Please complete the following checklist and attach all the information relevant to the proposal. Failure to submit all information required will result in the application being deemed incomplete.

Is the following compulsory information attached?

Y	N	Completed application form	Y	N	Pre-application Checklist (where applicable)
Y	N	Power of Attorney / Owner's consent if applicant is not owner	Y	N/A	Bondholder's consent
Y	N	Motivation report / letter	Y	N	Proof of payment of fees
Y	N	Full copy of the Title Deed	Y	N	S.G. noting sheet extract / Erf diagram / General Plan
Y	N	Locality Plan	Y	N	Site layout plan

Minimum and additional requirements:

Y	N	N/A	Conveyancer's Certificate	Y	N	N/A	Land Use Plan / Zoning plan
Y	N	N/A	Proposed Subdivision Plan (including street names and numbers)	Y	N	N/A	Phasing Plan
Y	N	N/A	Consolidation Plan	Y	N	N/A	Copy of original approval letter (if applicable)
Y	N	N/A	Site Development Plan	Y	N	N/A	Landscaping / Tree Plan

Y	N	N/A	Abutting owner's consent		Y	N	N/A	Home Owners' Association consent
Y	N	N/A	Copy of Environmental Impact Assessment (EIA) / Heritage Impact Assessment (HIA) / Traffic Impact Assessment (TIA) / Traffic Impact Statement (TIS) / Major Hazard Impact Assessment (MHIA) / Environmental Authorisation (EA) / Record of Decision (ROD) (strikethrough irrelevant)		Y	N	N/A	1 : 50 / 1:100 Flood line determination (plan / report)
Y	N	N/A	Services Report or indication of all municipal services / registered servitudes		Y	N	N/A	Required number of documentation copies 2 copies
Y	N	N/A	Any additional documents or information required as listed in the pre-application consultation form / minutes		Y	N	N/A	Other (specify)

PART H: AUTHORISATION(S) IN TERMS OF OTHER LEGISLATION

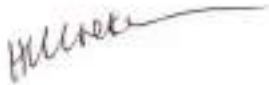
Y	N/A	National Heritage Resources Act, 1999 (Act 25 of 1999)		Y	N	Specific Environmental Management Act(s) (SEMA) (e.g. Environmental Conservation Act, 1989 (Act 73 of 1989), National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004), National Environmental Integrated Coastal Management Act, 2008 (Act 24 of 2008), National Environmental Management: Waste Act, 2008 (Act 59 of 2008), National Water Act, 1998 (Act 36 of 1998) (strikethrough irrelevant)
Y	N	National Environmental Management Act, 1998 (Act 107 of 1998)				
Y	N	Subdivision of Agricultural Land Act, 1970 (Act 70 of 1970)				
Y	N/A	Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)(SPLUMA)				
Y	N/A	Occupational Health and Safety Act, 1993 (Act 85 of 1993): Major Hazard Installations Regulations				
Y	N/A	Land Use Planning Act, 2014 (Act 3 of 2014) (LUPA)		Y	N/A	Other (specify)
Y	N	If required, has application for EIA / HIA / TIA / TIS / MHIA approval been made? If yes, attach documents / plans / proof of submission etc. N/A				
Y	N	If required, do you want to follow an integrated application procedure in terms of section 44(1) of the Land-Use Planning By-law for George Municipality?				

SECTION I: DECLARATION

I hereby wish to confirm the following:

- 1. That the information contained in this application form and accompanying documentation is complete and correct.*
- 2. The Municipality has not already decided on the application.*
- 3. I'm aware that it is an offense in terms of section 86(1)(d) to supply particulars, information or answers in an application, knowing it to be false, incorrect or misleading or not believing them to be correct.*
- 4. I am properly authorized to make this application on behalf of the owner and (where applicable) copies of such full relevant Powers of Attorney/Consent are attached hereto.*
- 5. I have been appointed to submit this application on behalf of the owner and it is accepted that correspondence from and notifications by the Municipality in terms of the by-law will be sent only to me as the authorised agent and the owner will regularly consult with the agent in this regard (where applicable).*
- 6. That this submission includes all necessary land use planning applications required to enable the development proposed herein.*
- 7. I confirm that the relevant title deed(s) have been read and that there are no restrictive title deed restrictions, which impact on this application, or alternatively an application for removal/amendment/suspension forms part of this submission.*
- 8. I am aware of the status of the existing bulk services and infrastructure in the subject area and that I am liable for any possible development charges which may be payable as a result of the proposed development.*
- 9. I acknowledge that in terms of the Protection of Personal Information Act (POPIA) all correspondence will be communicated directly and only to myself (the applicant). No information will be given to any third party and/or landowner (if the landowner is not the applicant). I herewith take responsibility to convey all correspondence to the relevant parties.*

Applicant's signature:



Date:

2025-06-10

Full name:

Hendrika Maria Vreken

Professional capacity:

Town Planner

SACPLAN Reg. Nr:

Pr. Pln A/1101/1999

ANNEXURE J:

Copy of Title Deed T61675/2022

BRITS MULLER ATTORNEYS
115A PANORAMA DRIVE
NORTHCLIFF

Prepared by me



CONVEYANCER
ANGELENA BRITS (M15447)

Deeds Office Registration fees as per Act 47 of 1937		
	Amount	Office Fee
Purchase Price	R 31 625 000,00	R 6 111,00
Reason for exemption	Category Exemption	Exemption i t o. Sec/Reg Act/Proc

DATA / CAPTURE
20-12-2022
FATGEYAH LARNEY

T 000061675 / 2022

DEED OF TRANSFER

BE IT HEREBY MADE KNOWN THAT

GRAHAM JOHN SONNENBERG (79408)

appeared before me, REGISTRAR OF DEEDS at CAPE TOWN, the said appearer being duly authorised thereto by a Power of Attorney granted to him/her by

8 MILE INVESTMENTS 236 PROPRIETARY LIMITED
Registration Number 2004/029922/07

which said Power of Attorney was signed at Hermanus on 8 November 2022

DATA / VERIFY
20-12-2022
VUYELWA LAMANI



And the appearer declared that his/her said principal had, on 21 September 2022, truly and legally sold by Private Treaty, and that he/she, the said Appearer, in his/her capacity aforesaid, did, by virtue of these presents, cede and transfer to and on behalf of:

SANWIL INVESTMENTS PROPRIETARY LIMITED
Registration Number 2021/570526/07

or its Successors in Title or assigns, in full and free property

REMAINING EXTENT OF PORTION 4 OF FARM GWAYANG 208, IN THE
MUNICIPALITY AND DIVISION OF GEORGE, WESTERN CAPE PROVINCE

IN EXTENT 11,0433 (ELEVEN COMMA ZERO FOUR THREE THREE)
Hectares

FIRST TRANSFERRED by Deed of Partition Transfer Number T4985/1912
with Diagram No. 5385/1945 relating thereto and held by Deed of Transfer
Number T10434/2010

- A. ONDERHEWIG aan die voorwaardes waarna verwys word in Transportkakte Nr T14905/1950
- B. VERDER ONDERHEWIG aan die voorwaardes, in sover hulle nog van toepassing is soos uiteengesit in Akte van Verdeling gedateer 27 Oktober 1911 en 17 November 1911, gemerk "A" geheg aan Verdelingstransportakte Nr T4985/1912.
- C. VERDER ONDERHEWIG aan die volgende voorwaarde vervat Transportakte Nr T2617/1947, naamlik:

"Die Transportnemer en sy Opvolgers in Titel van die eiendom wat hiermee getranspoteer word die reg van sulping sal he in die Norga Rivier soos aangemerk op Kaart nr 5381/45 van Gedeelte 44 (’n Gedeelte van Lot D) van die plaas Gwayang hierdie dag getranspoteer aan Petrus Willem Barnard Nr 2613, net reg van toegang vanaf die Nasionale Pad en uitgang".

D.

WHEREFORE the said Appearer, renouncing all rights and title which the said

8 MILE INVESTMENTS 236 PROPRIETARY LIMITED
Registration Number 2004/029922/07

heretofore had to the premises, did in consequence also acknowledge it to be entirely dispossessed of, and disentitled to the same, and that by virtue of these presents, the said



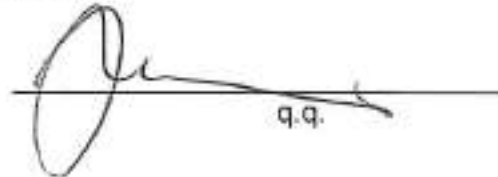
Lexis® Convey 18.1.14.6

SANWIL INVESTMENTS PROPRIETARY LIMITED
Registration Number 2021/570526/07

or its Successors in Title or assigns, now is and henceforth shall be entitled thereto, conformably to local custom, the State, however reserving its rights, and finally acknowledging the purchase price to be the sum of R27 500 000,00 (Twenty Seven Million Five Hundred Thousand Rand) plus VAT in the sum of R4 125 000,00 (Four Million One Hundred and Twenty Five Thousand Rand) totalling the sum of 31 625 000,00 (Thirty One Million Six Hundred and Twenty Five Thousand Rand).

IN WITNESS WHEREOF, I the said Registrar, together with the Appearer, have subscribed to these presents, and have caused the Seal of Office to be affixed thereto.

THUS DONE and EXECUTED at the Office of the REGISTRAR OF DEEDS at CAPE TOWN on 6th December 2022


q.q.

In my presence



REGISTRAR OF DEEDS



ANNEXURE K:

Conveyancer's Certificate

- [illegible]

I, the undersigned WILLEM JACOBUS THEUNISSEN LPCM 94028

a duly qualified and admitted Conveyancer,
practicing at:

SUITE 302 BUITENKLOOF STUDIOS, 8 KLOOF STREET, GARDENS, CAPE TOWN AS A
DIRECTOR OF BOSHOF CAPE TOWN INCORPORATED

[Firm name and Address]

do hereby certify as follows:

1. I have perused the following Title Deed/s and conducted a search behind the pivot of the said title deed/s at the Deeds Office, Cape Town:
T 10434/2010 [Current Title Deed], T14905/1950 AND T4985/1912

In respect of:

Remainder of Portion 4 of the Farm Gwayang No 208, in the Municipality and Division
of George, Western Cape Province

In extent: 11.0433 (Eleven Comma Zero Four Three Three) hectares

Held by Deed of Transfer No: T10434/2010

Registered in the Name of:

8 MILE INVESTMENTS 236 (PTY) LTD

Registration / Identity No: 2004/029922/07

2. I have appraised myself with the details of the abovementioned Land Development Application.
3. The abovementioned Title Deed/s contains no conditions restricting the contemplated Land Uses in terms of the abovementioned Land Development Application.

SIGNED at CAPE TOWN on this 4TH day of JUNE 2021



CONVEYANCER

WJ THEUNISSEN

ANNEXURE L:

Surveyor General Diagram (SG 5385/1945)

SIDES Cape Feet		ANGLES OF DIRECTION	SYSTEM L ^o 23° CO-ORDINATES y x	
AB	2803.5	234.17.20	A	+181410.6 +11953088.0
BC	769.5	345.9.0	B	+179134.2 +11951451.7
CD	2733.5	65.29.20	C	+178937.0 +11952195.5
DA	241.9	183.13.30	D	+181424.2 +11953329.5

S. G. No.

5385/45

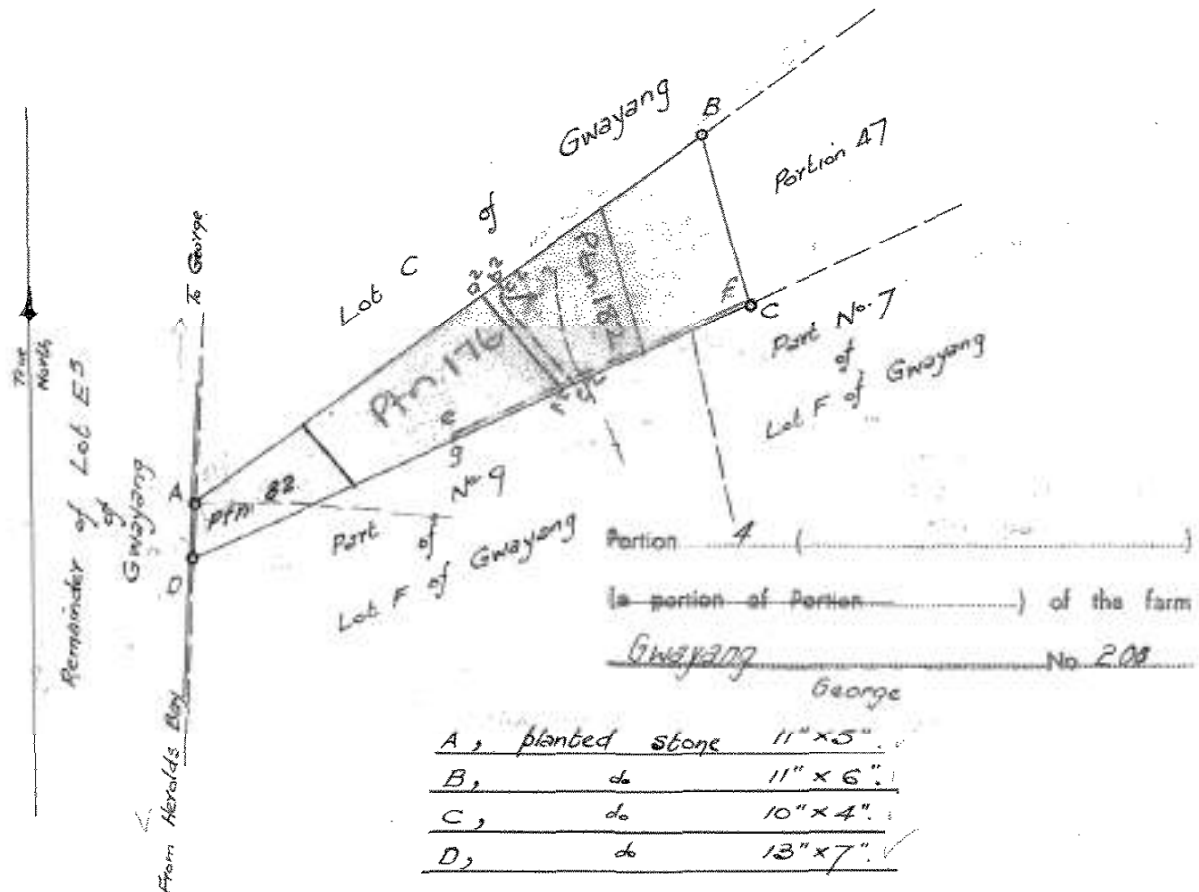
5385/45

Approved

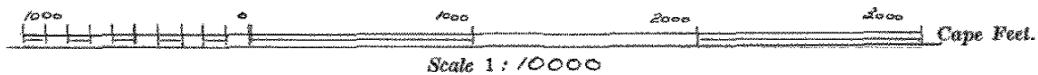
Ken C. Lomberg

Surveyor-General.

15 APR 1946



A,	planted stone	11" x 5"
B,	do	11" x 6"
C,	do	10" x 4"
D,	do	13" x 7"



The figure ABCD

represents 15.0527 Morgen of land being

~~Part No. 48~~ ^{Remainder} (part of Lot D) of the farm Gwayang

situate in the Division of George Province of Cape of Good Hope.

Surveyed in June 1945 by me

T. J. Lomberg

Land Surveyor.

B

This diagram is annexed to D/T No. 2017 dd. 17.2.47 i/o J.C. Barnard
D/T 1912.77.4985

The original diagram for which this is substituted is No. 1156/1911 annexed to D/T. No. 4985 dated 26th June 1912 i/o J.C. Barnard.

S. G. File No. 5/1926 vi
S.R. No. E. 1364/45
BL 7 D^d Geo. Q 15-9
LPI 00210000

DIE VOLGENDE AFTREKKINGEN IS VAN ALLEDE KANT GEBOEN						
MEET- STUKE	KARTE:	ONDER- DEKKE	GEBOETE IN/VK. N.	ALTEK.	GEBOET- PEER	REKANT
E 1156/12	243/74	PE. SE	1,8498 ha	24587/72	JNL	40433ha
1449/2023	2359/2023	Botom 176	4,3279 ha			57194ha
SR 1449	1848					3,7068ha
2023	2024	PE. 182	3,0091ha			

SEKUNTUES/SAASHOUD AREAS			
SOUREY RECORD	DIAGRAM NO.	DESCRIPTION	DEED INITIALED
E2075/78	913/79	The figure of 69 represents an electric power transmission servitude area.	
SR. 1449/2023	1627/2024	The figure of 2359 represents a temporary right of way servitude area of 2359m ² .	

ANNEXURE M:

SG Diagram Portion 182 (SG1848/2024)

SUBDIVISIONAL DIAGRAM

SIDES Metres		ANGLES OF DIRECTION	CO-ORDINATES Y System: NG 23° X		S. G. No.
		CONSTANTS		+0.00	+3700 000.00
AB	206.96	234-16-30	A	+56 760.99	+63 500.43
BC	207.58	345-07-50	B	+56 592.98	+63 379.58
CD	121.87	65-29-20	C	+56 539.71	+63 580.22
DA	170.80	139-44-30	D	+56 650.60	+63 630.78
GEO 12		125	Δ	+56 899.73	+60 921.64
GEO 14		127	Δ	+59 635.81	+64 646.01
					1848/2024
					Approved
					<i>[Signature]</i>
					For SURVEYOR- GENERAL
					12-09-2024

Description of Beacons:

- A : 20mm Iron peg
B, C, D : 16mm Iron peg

Servitude Notes:

- The figure A a b c d D represents a Temporary Right of Way Servitude.
Vide Diagram S. G. No. 1627/2024, Deed of Servitude No.
- The figure e f C D represents an Electric Power Servitude Area.
Vide Diagram S. G. No. 913/1979, Deed of Servitude No.

SHEET 1 OF 2 SHEETS

The figure
represents

A B C D

3.0091 hectares

of land being

Portion 182 to portion of Portion 4t of the farm

GWAYANG No. 208

Situated in the Municipality and Administrative District of George
Province: Western Cape

Surveyed in June and August 2023 by me

[Signature]

J. D. Conradie PLS 0973-D
Professional Land Surveyor

This diagram is
annexed to
No.
d d
i. f. □

Registrar of Deeds

The original diagram is
S. G. No. 5385/1945
Transfer No 1912.77.4985

File: GEOR 208 (V. 3)
S. R. No. 1449/2023
Comp. BL-7DDC (4134)
LPI: C0270000

SUBDIVISIONAL DIAGRAM

Portion 182 is a portion of Portion 40 at the farm

GWAYANG No. 208

SHEET 2 OF 2 SHEETS

S G No.

1848/2024

Approved

[Signature]

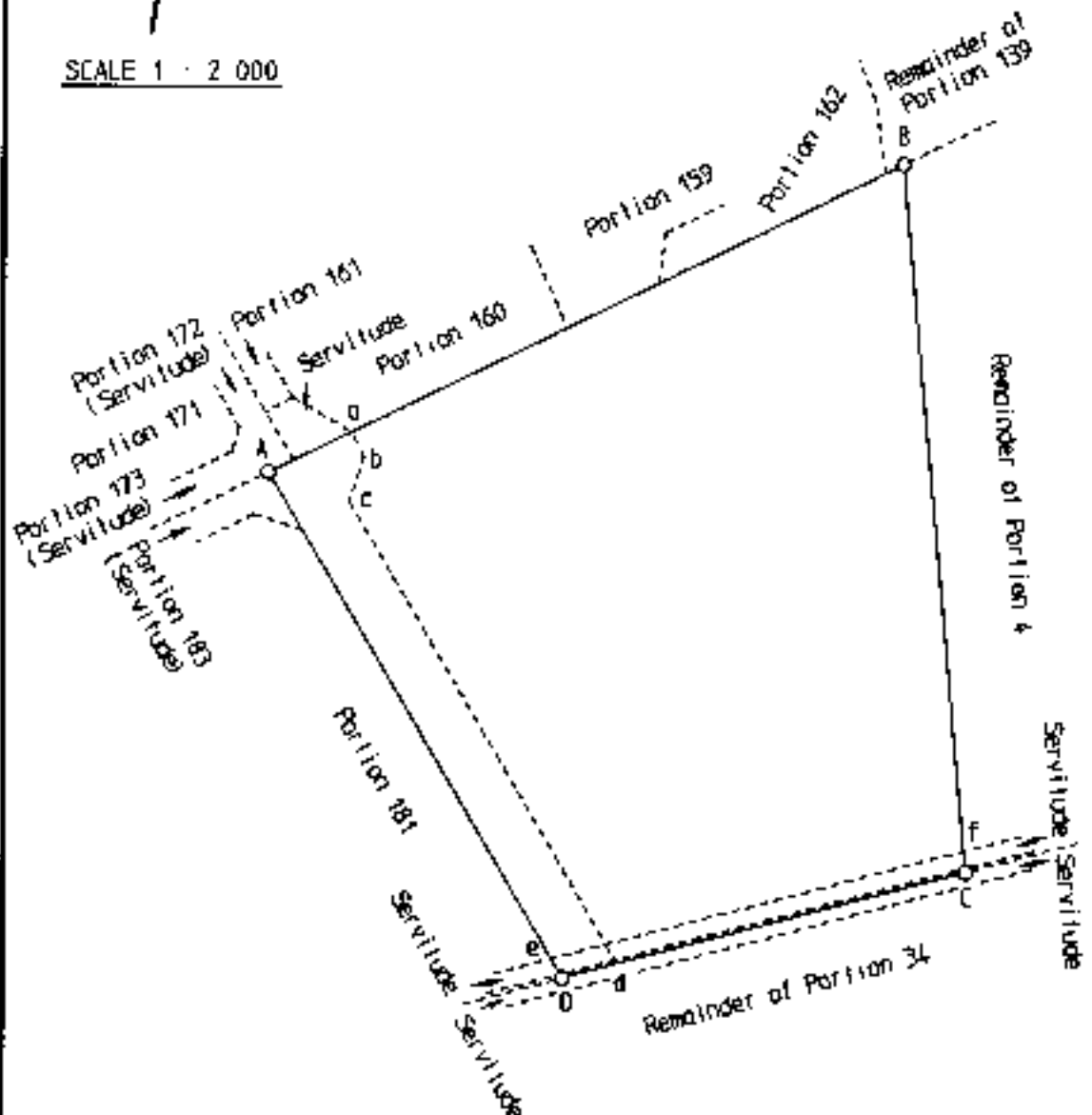
For
SURVEYOR-
GENERAL

12-09-2024

FOR SUBDIVISION OF THIS
PROPERTY VIDE GENERAL
PLAN 1849/2024



SCALE 1 : 2 000



Surveyed in June and August 2023 by me

[Signature]

J. D. Conradie PLS 0973-D
Professional Land Surveyor

ANNEXURE N:

Servitude Diagram SG1627-2024

SERVITUDE DIAGRAM

SIDES Metres		ANGLES OF DIRECTION	CO-ORDINATES Y System: WG 23° X		S G No. 1627 / 2024
		CONSTANTS:		+0, 00 +3700 000, 00	Approved <i>BC Watson</i> for SURVEYOR- GENERAL 08-08-2024
AB	26, 95	234-16-40	A	+56 760, 99	
BC	8, 00	324-16-30	B	+56 739, 11	
CD	13, 85	7-02-20	C	+56 734, 43	
DE	155, 81	319-47-10	D	+56 736, 13	
EF	16, 56	65-29-20	E	+56 635, 54	
FA	170, 80	139-44-30	F	+56 650, 60	
	GEO 12	125	△	+56 899, 73	
	GEO 14	127	△	+59 635, 81	
				+60 921, 64	
				+64 646, 01	

Description of Beacons:

A B, C, D, E : 20mm Iron peg
F : 16mm Iron peg

SHEET 1 OF 2 SHEETS

THIS PORTION IS SUBJECT TO
ACT 21/1940

APPROVED IN TERMS OF SECT. 4
OF ACT 70/1970
REF 57383
DATE 2023/06/22

The figure A B C D E F
represents 2896 square metres of land being
a temporary Right of Way Servitude over the Remainder of Portion 4 of the farm

GWAYANG No. 208

Situated in the Municipality and Administrative District of George

Province: Western Cape

Surveyed in June and August 2023 by me

J.D. Conradie
J. D. Conradie PLS 0973-D
Professional Land Surveyor

This diagram is
annexed to
No.
d d
i. f. o

Registrar of Deeds

The original diagram is
S. G. No. 5385/1945
Transfer No. 1912. 77. 4985

File: GEORGE 208 (V. 3)
S. R. No. 1449/2023
Comp. BL-7DDC (4134)
LPI: C0270000

Approved i.o. Section 60 of Municipal Land Use Planning Bylaw
Ref: Gwayang 208 Portion 4, Division George
Date: 17 July 2023 30-05-2022

SERVITUDE DIAGRAM

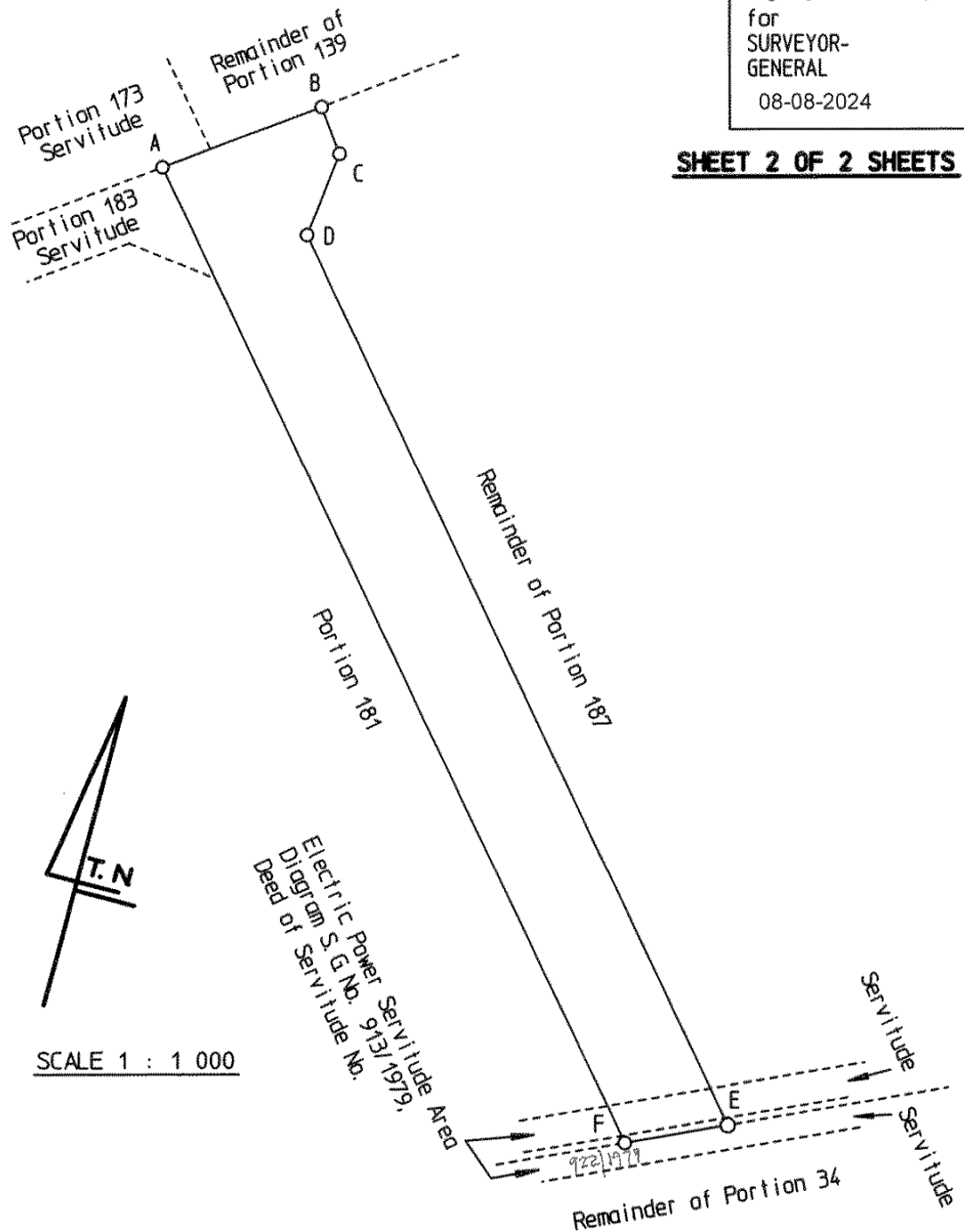
temporary Right of Way Servitude over the Remainder of
Portion 4 of the farm
GWAYANG No. 208

S G No.
1627/2024

Approved

BC Watson
for
SURVEYOR-
GENERAL
08-08-2024

SHEET 2 OF 2 SHEETS



Surveyed in June and August 2023 by me

J.D. Conradie
J.D. Conradie PLS 0973-D
Professional Land Surveyor

Servitude Diagram 1627/2024

ANNEXURE O:

Civil Services Report

**APPENDIX G10: SERVICES REPORT AND STORMWATER
MANAGEMENT PLAN**

**Portions 4, 130, 131, 132, and 139
of the Farm Gwayang 208**

SERVICES REPORT

FEBRUARY 2022



Prepared by : PG Joubert Pr Eng
PO Box 186
Persequor Park
PRETORIA, 0020
Tel: +27 (012) 3492022
E-mail: flip@iceisp.co.za

Infrastructure Consulting Engineers cc

SUMMARY SHEET

Report type	:	Civil Engineering Services Report
Title	:	George Airport Support Zone
Location	:	George
Client	:	Eight Mile Investments 236 (Pty) Ltd George Aerotropolis (Pty) Ltd (GAT) JD Wheeler
Project team	:	PG Joubert Pr Eng Rhonwen Steyn Erica Bergman
Contact details	:	+27 0123492022
Date	:	February 2022
Report status	:	Final

TABLE OF CONTENTS

1	Background and purpose	1
2	Structure of the report	2
3	Gwayang Local Spatial Development Framework.....	3
4	Zoning	3
5	National Climate Change Response White Paper	4
6	GLM Services master plan	5
7	Development of an off-grid industrial precinct	6
7.1	General.....	6
7.2	Ownership and operation of engineering infrastructure.....	6
8	Water supply	6
8.1	General.....	6
8.2	Applicable guiding documents.....	6
8.3	Existing bulk infrastructure	7
8.4	Internal water infrastructure	7
8.5	The Average Annual Daily Demand	8
8.6	Peak factor	8
8.7	Provision of water for firefighting	8
8.8	Water supply	9
8.9	Preliminary network layout	11
8.10	Development contributions	12
9	Sanitation	13
9.1	General.....	13
9.2	Applicable guiding documents.....	13
9.3	Existing and proposed bulk infrastructure	14
9.4	Peak day dry weather sewage flow	15
9.5	Preliminary network design	15
9.6	Wastewater treatment.....	15
9.7	Development contributions	16
10	Stormwater management plan.....	16
10.1	General.....	16
10.2	National Climate Change Response White Paper	16
10.3	Fresh water studies	16
10.4	Existing drainage system	17

10.5	Design guideline and rainfall data source	20
10.6	Impact of urbanisation of runoff hydrograph	21
10.7	International best practice.....	22
10.8	Proposed drainage system	24
10.9	Proposed stormwater layout	27
11	Roads and access	29
11.1	General.....	29
11.2	Applicable guiding documents.....	29
11.3	Access to ASZ and the George Airport.....	29
11.4	Cost apportionment of upgrades to the road system.....	30
11.5	Internal road network details	31
11.6	Environmental and socio-economic considerations	32
11.7	Road pavement for internal roads.....	33
12	Summary.....	33
	Annexure A: Development proposals	35
	Annexure B: Report by GLS Consulting	39
	Annexure C: Report by Hollard Insurance Company Limited on appropriate fire protection infrastructure	61
	Annexure D: Preliminary design drawings.....	76
	Annexure E: George Airport North Eastern Precinct Transport Study dated October 2021 by ITS	82

Project Name	Civil Engineering Services and Roads for George Airport Support Zone
Project Number	NA
Report for	<ul style="list-style-type: none"> • Eight Mile Investments 236 (Pty) Ltd • George Aerotropolis (Pty) Ltd (GAT) • JD Wheeler

REVISION

Revision #	Date	Change Overview	Prepared by	Reviewed by

ISSUE REGISTER

DISTRIBUTION LIST	DATE ISSUED	NUMBER OF COPIES

INFRASTRUCTURE CONSULTING ENGINEERS CC

Tel: 012 349-2022

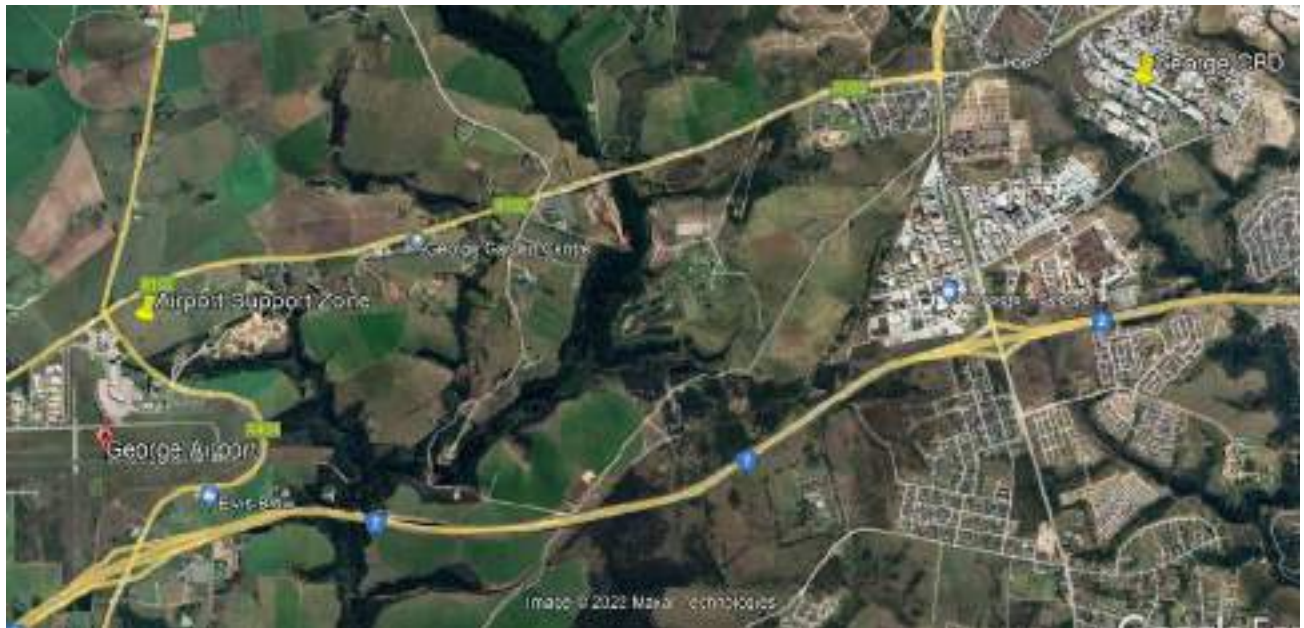
Email: flip@iceisp.co.za

The information within this document is and shall remain the property of Infrastructure Consulting Engineers cc

1. Background and purpose

The owners of Portions 4, 130, 131, 132, and 139 of the Farm Gwayang 208, propose the development of a precinct aimed at supporting the George Airport. This area is referred to as the Airport Support Zone (ASZ) in the Gwayang Local Spatial Development Framework. These portions are currently zoned for agricultural purposes.

The locality plan below shows the position of the ASZ directly opposite the George Airport at the intersection of the R102 and R404.



The owners of the different portions are as follows:

- Portion 4 is owned by Eight Mile Investments 236 (Pty) Ltd;
- Portions 130, 131 and 132 are owned by George Aerotropolis (Pty) Ltd (GAT);
- Portion 139 is owned by JD Wheeler.

The owners will also be the Developers of the ASZ.

The objective of the three owners is to coordinate the development of infrastructure for the Airport Support Zone. The development proposals for the land mentioned above are attached in Annexure A. The drawing below combines the three development proposals. Proposed portions market GAT form part of the proposed development of Portions 130, 131 and 132. Portion 139 is proposed to be subdivided into 6 portions marked A to F. Portion 4 is proposed to be subdivided into 12 sub-portions as indicated on the drawing below. The street names Gwayang Avenue and Van Ryneveld Street are indicated on the layout of Portion 4 and are also indicated on the drawing below. These names are subject to final approval.

In order to develop the precinct, it is required to subdivide and rezone the properties. It will furthermore require the servicing of the properties with roads, stormwater systems, electrical supply, water supply and sanitation. Once the mentioned services have been installed the development of buildings on the stands can commence.



Drawing 1: Layout of proposed Airport Support Zone

Resulting from the layout of the proposed ASZ the provision of services for the different land portions is interrelated to such an extent that it is feasible to develop the infrastructure for the portions as one development as far as possible.

The purpose of this document is to report on the provision of access and civil engineering services to support the proposed zoning of the ASZ. It forms the base for services agreements to be concluded between the George Local Municipality (GLM) and the Developers of the mentioned properties.

2. Structure of the report

The report is structured as following:

- In Chapters 3 to 6, general background is provided on the proposed subdivision and zoning. These chapters refer to critical documents and guidelines that give context to the proposed development. These documents include the National Climate Change Response White Paper. The development context, proposed by these documents, is discussed in these chapters;
- Chapter 7 introduces the concept of an off-grid industrial town.
- Chapters 8 to 11 discuss the provision of water, sanitation, stormwater master plan and the provision of access;
- Chapter 12 is a summary of the conclusions of this report.

In some reference documentation, the ASZ is referred to as the George Airport North Eastern Precinct or GANEP. In this report the acronym refers ASZ refers to the development of Portions 4, 130, 131, 132, and 139 of the Farm Gwayang 208 (unless otherwise indicated). Portions 34 and 110 is located to the south of the ASZ and is not included when reference is made to ASZ.

3. Gwayang Local Spatial Development Framework

The Gwayang Local Spatial Development Framework (GLSDF) guides the future development of the Gwayang area and the George Airport. The GLSDF states its objective as following:

" The objective of the GLSDF is to compile a Local Spatial Development Framework with development guidelines for the orderly utilization of land and management of land uses along the airport corridor, with due regard to the current spatial development policies and the Council's Economic Revitalization Policy."

With specific reference to the Airport, the GLSDF emphasises the significant role of the George Airport in the development of the Southern Cape. *"As demand for travel increases, modern economies expect and demand a range of services and facilities at these transport hubs to improve their travel experience and to support their businesses."* It also refers to the Airport as an urban gateway.

With reference to the provision of municipal services the GLSDF states that existing services in this area are not adequate to support new developments. All proposed developments must be taken into consideration in the water and sewer master planning.

The GLSDF includes for the development of the major road system. The George Western Bypass forms part of the future road masterplan. This road is planned to pass to the east of the ASZ. It bisects Portion 4 and Portion 139. An interchange is proposed to link the Western Bypass and the R102. Due to the grade separation, significant earthworks form part of the proposed road scheme in the vicinity of the interchange. These earthworks will impact on the natural drainage patterns of the eastern part of the ASZ.

The preliminary design of the Western Bypass was completed by consulting engineers Kantey and Templer. Implementation of the road scheme is currently expected to commence within 3 to 5 years. The detail design is expected to commence soon.

The GLSDF provides the spatial context within which the ASZ must be developed.

4. Zoning

In response to the GLSDF, the ASZ development is proposed. The land use proposed is primarily for light industrial. A fuel service station, convenience store, coffee shop and quick service restaurants are proposed on one stand at the entrance to the precinct (Portion 1 of Portion 4). The proposed zoning for Portion 1 of Portion 130 allows for a restaurant and take-away by consent.

The proposed zoning and portion details are shown in the table below. The proposed layout of the development is indicated on the attached drawings. The layout shows a cul-de-sac across Portions C, D, E and F of Portion 139. This is not a proposed road reserve but the extent of servitudes of access proposed by the Developer of Portion 139.

LAND UNIT	ERF SIZE: m ²	PROPOSED ZONING	BULK	COVE- RAGE	FLOOR AREA m ²
Portion 1 of George Aerotropolis (GAT)	20 070	industrial zone 1	0,75	75%	15 053
Portion 2 of GAT	7 906	industrial zone 1	0,75	75%	5 930
Portion 3 of GAT	6 063	industrial zone 1	0,75	75%	4 547
Portion 4 of GAT	5 519	industrial zone 1	0,75	75%	4 139
Portion 5 of GAT	6 479	industrial zone 1	0,75	75%	4 859
Portion 6 of GAT	5 015	industrial zone 1	0,75	75%	3 761
Portion 7 of GAT	5 404	industrial zone 1	0,75	75%	4 053
Portion 8 of GAT	9 157	industrial zone 1	0,75	75%	6 868
Portion 1 of 4	9 930	business zone	0,25	25%	2 483
Portion 3 of 4	7 790	industrial zone 1	0,75	75%	5 843
Portion 4 of 4	7 852	industrial zone 1	0,75	75%	5 889
Portion 5 of 4	9 837	industrial zone 1	0,75	75%	7 378
Portion 6 of 4	7 266	industrial zone 1	0,75	75%	5 450
Portion 7 of 4	13 436	industrial zone 1	0,75	75%	10 077
PORTION A of 139	5 943	industrial zone 1	0,75	75%	4 457
PORTION B of 139	6 613	industrial zone 1	0,75	75%	4 960
PORTION C of 139	5 030	industrial zone 1	0,75	75%	3 772
PORTION D of 139	7 600	industrial zone 1	0,75	75%	5 700
PORTION E of 139	7 977	industrial zone 1	0,75	75%	5 982
PORTION F of 139	10 011	industrial zone 1	0,75	75%	7 509

Table 1: Proposed erf detail of the ASZ

5. National Climate Change Response White Paper

The National Climate Change Response White Paper is the national response to the threat of climate change. The Paper specifically refers to water scarcity. The Paper promotes medium and long term measures to limit the impact of climate change on the availability of water. It calls for “*Implementing best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, investment in water conservation and water demand management*”.

This aim of implementing best practice related to water management has to be integrated into the planning and design of engineering infrastructure for the ASZ. In particular, it requires new thinking about stormwater management, sustainable use of water resources and secondary use of treated wastewater.

Roads form an integral part of the stormwater system in an urbanised environment such as the ASZ. It therefore requires a new and innovative approach to the planning and design of roads and stormwater systems.

6. GLM Services master plan

George Local Municipality (GLM) developed a scheme of master planning for roads, provision of water and sanitation for the next 40 to 50 years. This scheme is proposed to support the proposed spatial development framework for George. Developers of new projects that are in accordance with the spatial development framework, contribute in a fair way to the development of the relevant infrastructure master plans.

The following is a high-level description of the development contribution (DC) calculation methodology:

- A model of the **existing system** is compiled, with actual current loads.
- **Backlog** areas (with suppressed loads) and areas with spare capacities are identified.
- A **model of the future system is compiled, based on the SDF**, probable land uses, and probable loads in accordance with norms and standards. (Which norms are based on the “Red Book” but with specific adjustments based on the experiences in and statistics for George Local Municipality (GLM))
- A master plan for the future system is compiled, that in accordance with norms and standards will eliminate backlogs, uses spare capacity, and creates additional future capacity for the SDF developments.
- The **increase in load** from the current situation to the future SDF scenario is **calculated** – this includes the increase of suppressed loads in current backlogged areas.
- A master plan **total capex** over the horizon of the SDF is determined – based on current construction unit prices.
- The **total increase in load is divided into the master plan capex** to result in a unit master plan cost – this is the average cost for the Municipality to create additional capacity for future developments and restore capacity in backlog areas.
- The master plan unit cost is used as the basis for the DC’s – e.g. Rand per kL/d water load (Annual Average Daily Demand - AADD)
- Over and/or under expenditure in the past is taken into consideration since the master plan eliminates the backlogs (past underspending) and utilises any existing spare capacity (past overspending).

Escalation related to construction is possible by every year updating the construction unit prices. The development contributions of the Developers of the ASZ are calculated in accordance with this framework, since it follows a transparent and logical approach.

The intention of the master plan is to have bulk services available to support any development proposed within the Spatial Development Framework. The services master planning is done by GLS Consulting on behalf of the GLM.

This document shows what elements of the master plan will form part of the internal network required to serve each stand. It also calculates the additional demand on the municipal systems, resulting from the development of the ASZ and how that impacts on the infrastructure master-planning of the GLM.

7. Development of an off-grid industrial precinct

7.1. General

The long term water and wastewater municipal bulk master planning makes provision for the bulk supply to the ASZ. The GLM however noted that there are currently capacity constraints on both the water treatment and WWTW systems. Implementation of the required bulk infrastructure will however delay the implementation the ASZ.

The owners of the land comprising the ASZ, propose to develop an off-grid industrial town. The primary purpose of the development proposed is to support George Airport, in accordance with the GLSDF. The engineering infrastructure required to support the precinct is of critical importance. The development of the infrastructure required for the ASZ is guided by the National Climate Response White Paper. It aims to limit the impact of the ASZ, during the developmental as well as operational phases, on the environment and on climate change.

In order to meet this objective, cooperation between the GLM and the Developers, is essential. The ASZ will depend on the municipal bulk infrastructure in a limited but important way. This report shows how a combination of private and municipal infrastructure assists in distributes the risk associated with the availability of services to an extent.

7.2. Ownership and operation of engineering infrastructure

The basis of the concept of the proposed off-grid town, is to establish a property owner's association (POA) to manage the maintenance and operations of the engineering infrastructure. This report addresses the civil engineering and roads infrastructure. Electrical infrastructure is dealt with in a separate report.

The three development plans for the ASZ propose that all areas for roads be zoned Transportation Zone II. After rezoning, the road areas will be transferred to the POA.

All internal roads and services of the precinct will be developed by the Developers and then be transferred to the POA. The owners of the individual stands will be members of the POA. The POA will have its own constitution. This constitution will guide the management of infrastructure as well as the relationship of the POA with the GLM.

The proposed schemes for the provision of the different services are documented in the following chapters.

8. Water supply

8.1. General

In this Chapter proposals for the provision of water to the ASZ is discussed.

8.2. Applicable guiding documents

The planning of water supply to the precinct is informed by the following documents:

- Guidelines – Development Contributions for Water.
The guidelines explain the methodology related to the calculation of Development Contributions as mentioned above. (This document is referred to as the George Guidelines later in this document.)

- A letter from GLS Consulting to Ms Lindsay Mooiman, dated 25 November 2021. The purpose of this letter is to report on the impact of the proposed ASZ on the upgrades required in the water and sewer networks in the vicinity of the ASZ. The drawing below was obtained from GLS. The report addresses the part of the masterplan that impacts on the development of the ASZ. The report is attached in Annexure B.



Extract from the current water master plan (obtained from GLS)

- The Neighbourhood Planning and Design Guide, Section J, Water Supply;
- Guidelines for the Provision of Engineering Services in Residential Townships;
- SANS 10400-W:2011 (Edition 3) South African National Standard, Part W: Fire installation;
- A letter from Hollard Insurance Company Limited dated 25 November 2021 that gives guidance on adequate fire protection measures for the ASZ. The letter is attached in Annexure C.

8.3. Existing bulk infrastructure

The existing and proposed bulk municipal water infrastructure, relating to the ASZ, is indicated on the GLS drawing above. It shows an existing 200 mm dia. supply line, indicated in brown, that runs along the R102 and the R404 (not titled on the drawing).

GLS revised the water master plan with the benefit of information of the proposed layout and zoning of the ASZ. There is no local expansion of the network proposed by the master plan.

8.4. Internal water infrastructure

All water infrastructure within the boundaries of the mentioned properties comprising the ASZ, will remain the ownership of the proposed POA. A bulk water connection between the GLM's bulk supply

system and the internal reticulation is proposed. The supply by the GLM will be limited as discussed below.

8.5. The Average Annual Daily Demand

The Average Annual Daily Demand (AADD) refers to the average annual daily water requirement by the user at the point of connection. The Neighbourhood Planning and Design Guide does not give any specific AADD for industrial land use. The George Guidelines propose an AADD of 400 litre per 100 m² of light industrial building size. It allows for a further 10% for water loss. The total demand is therefore 440 litre per 100 m².

The AADD for the service station stand (Portion 1 of Portion 4) is based on its zoning of Business VI. The George Guidelines do not specifically refer to this zoning. The unit demand for businesses is however 800 litres per 100 m² or 889 if allowance for pipe losses is added. The total proposed floor area for Portion 1 of Portion 4 is 2 483 m². This equates to an AADD of 22 m³.

The total average annual daily demand for the ASZ is calculated at 538 m³.

8.6. Peak factor

The Neighbourhood Planning and Design Guide proposes a peak factor for hourly flow of 3,3 for business and industrial stands with size ranging between 5 000 and 10 000 m². Likewise, the peak day factor proposed is 1,6.

The George Guideline proposes a peak hour factor of 3 and a peak day factor of 1,7. The peak factors as proposed by The Neighbourhood Planning and Design Guide is accepted for use in the design of the water supply system of the ASZ.

8.7. Provision of water for firefighting

The criteria for the provision of fire flow is related to the risk classification. ICE discussed the risk of fire with insurance companies. This led to the understanding that risk of loss is not only related to the building structures erected on the stands but also depends on the activities that may take place inside the buildings. The loss associated with damage to equipment and stored material inside buildings often exceeds the potential damage to buildings. It can be expected that many of the buildings erected within the precinct will be used for packaging and storage of goods. This increases the risk related to fire considerably.

The George Guidelines propose that the fire flow demand be treated in accordance with The Neighbourhood Planning and Design Guide.

The supply of fire water is limited by the capacity of the major supply system. GLS confirmed that a maximum of 50 l/s fire flow will be available.

This will support a moderate risk 1 as proposed by the Neighbourhood Planning and Design guide. Moderate risk 1 is relevant to Industrial and Business developments. This risk classification requires a total fire flow of 50 l/s.

In cases where the fire flow exceeds moderate risk 1, additional on-site storage facilities will be required. The guidance from Hollard Insurance Company Limited is that all light industrial buildings as proposed for the ASZ, be provided with on-site storage and pump systems for the purpose of fire protection. Under these circumstances the 50 l/s supply by the bulk system of the GLM should suffice. Officials of the GLM specifically pointed out that the GLM cannot guarantee the mentioned fire flow

under all circumstances. Breaks of bulk supply mains as well as electrical power supply failures may limit the available fire flow. For this reason, the constitution of the POA will require that all buildings in the ASZ be supplied with independent water storage for the purpose of fire flow.

8.8. Water supply

The estimated AADD for the ASZ is reported above. The water supply sources available are the following:

- Municipal supply;
- Rainwater harvesting;
- Secondary use of treated wastewater.

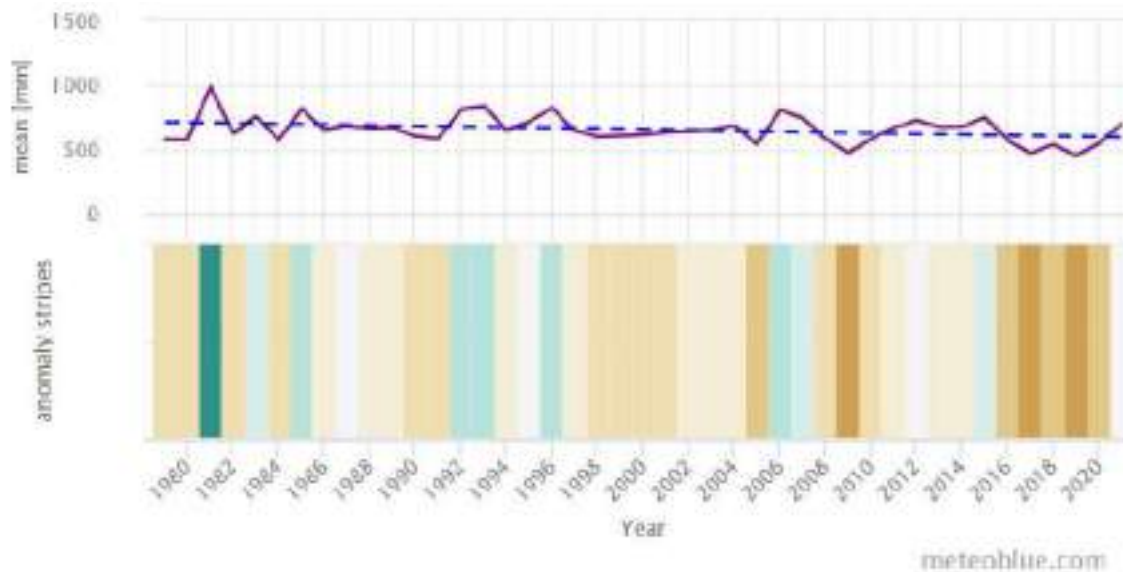
Due to the fair annual rainfall of George and the distribution of this rainfall fairly evenly throughout the year (see graph below), rainwater harvesting is a suitable proposition to supply water.

The nature of the development of the ASZ renders the harvesting of a fair portion of rainwater feasible. Roofs will cover 75% of the surfaces of stands in accordance with the proposed zoning of all light industrial stands. Parking and circulation areas will cover most of the remainder of stands.



Typical rainfall distribution for George

Annual rainfall figures for George are available on the website of Meteoblue. The graph below shows the mean annual rainfall for the past 40 years. The lowest recorded rainfall was 453 mm in 2019. The current value of the trend line, shown in dotted blue, is 596 mm.



Rainfall data for the past 10 years was also obtained for George from the South African Weather Services. The lowest rainfall was also in 2019 when 426 mm was recorded at the George Airport. The average annual rainfall over 10 years was 600 mm.

The Neighbourhood Planning and Design Guide proposes that a ratio of 85% of rainfall can be harvested from roof areas. The potential yield of rainwater through harvesting from building roofs is therefore calculated by the product roof area, rainfall and the ratio of 85%.

An analysis of the rainfall data at George Airport shows that 41% of the water demand of the ASZ can be met through water harvesting in an average rainfall year. 29% can be met if the rainfall of 2019 is assumed (the lowest annual rainfall the past 40 years).

Based on this analysis it is proposed that the water supply system for the ASZ be 30% from water harvesting. In order to rely on this, adequate water storage must be provided. The analysis shows that 7 000 m³ water storage capacity should be available in order to supply at least 30% of the water demand throughout the year. This allows for utilisation of more harvested water during wet years. If the 2015 rainfall data, when it rained 782 mm, is used as an example, it will be possible to supply 53% of the water demand of the ASZ.

The AADD of 400 litre per 100 m² per day is primarily made up by the following uses:

- Flushing of toilets and urinals;
- Cooking and drinking;
- Hand and body washing;
- Gardening;
- Typical light industrial uses such as washing of surfaces;
- Gardening.

It is estimated that between 65 and 85% of all water consumed will be for flushing of toilets and urinals, gardening and washing of surfaces. All these uses can be supplied by treated and disinfected wastewater. A small ratio of the 400 litre per day will be used for cooking, drinking and hand washing.

This report proposes the development of a wastewater treatment works on the remainder of Portion 4 on the eastern side of the future Western Bypass. Treated and disinfected wastewater will be available for secondary use.

Based on the above the following arrangement is proposed;

- Water from roofs is harvested and drained to a centralised storage facility on Portion 4 on the eastern side of the proposed Western Bypass. Refer to drawing GASZ-RWH-01 in Annexure D for detail on the layout of the drainage and storage system.
- Harvested water is stored, treated and disinfected for re-use.
- Wastewater is drained through a gravity system to a low point on Portion 9 of Portion 4. From there it is pumped to the Remainder of Portion 4 on the eastern side of the proposed Western Bypass. At that position the water is treated and disinfected for secondary use. Excess treated wastewater is used for irrigation of common areas or discharged into the natural drainage channel. The quality of the treated wastewater must comply with general limits in accordance with the Water Act.
- There will be three separate water supply networks to each stand. These are:
 - A water supply network with harvested and treated water. This will include a pump station on the Remainder of Portion 4 and a pipe system to each stand of the ASZ.
 - A water supply network with treated and disinfected wastewater. This will also include a pump station on the Remainder of Portion 4 and a pipe system to each stand of the ASZ.
 - A water reticulation system to transport municipal water from the bulk supply to each stand. The POA will have a municipal bulk water connection.
 - Each stand will be connected to three separate water classes, being: municipal water, treated and disinfected harvested rainwater and treated and disinfected wastewater. Each stand will have three different water meters to measure consumption of each class of water separately.
- Harvested water will be fit for human consumption.
- Municipal water supply will be connected to on site fire water storage tanks.
- A maximum of 20% of the water consumption will be allowed from the municipal bulk supply. The remaining 80% (minimum) will be a combination of treated wastewater and harvested rainwater. Harvested water will make up at least 29% of the total consumption.
- All three distribution systems will be managed by the POA. The rainwater collection, storage, treatment and redistribution of harvested water will be managed by the POA. Likewise, will the drainage, treatment and re-distribution of wastewater be managed by the POA.
- The POA may appoint reputable service providers to assist with the mentioned functions.
- The detail of the layout of the systems is shown on the drawings attached in Annexure D.

8.9. Preliminary network layout

The George Guideline proposes that the network design be based on the fire flow plus 2 times the AADD. The Guideline proposes maximum allowed flow velocity of 1,8 m/s, but an absolute maximum of 2,2 m/s.

Based on the proposed design flows, minimum pressure at the fire node and the limitation on flow velocity, the three water distribution systems were designed. The connection to the external municipal bulk supply system up to the main ring supply pipe is a 200 mm diameter uPVC Class 10 pipes. The ring main that distributes municipal water is 160 mm dia uPVC class 10.

The size of the pipe along Gwayang Avenue to the south of Van Ryneveld Street intersection, required to serve the ASZ is 110 mm. This pipe will however form part of a future ring main that will serve the proposed industrial development on Portion 34, located to the south of Portion 4. This industrial

development is in accordance with the GLSDF. For this purpose, the pipe diameter is increased to 160 mm dia. See the extract of the GLSDF below for position of Portion 34.



Extract from GLSDF

Due to the larger network function of this pipe that runs along Van Ryneveld Street and Gwayang Avenue, serving not only the ASZ, it forms part of the George water master plan as proposed by GLS.

8.10. Development contributions

The policy of the George Local Municipality is that Developers have to contribute to the provision and development of the bulk master plan for services. The George Guideline document stipulates the estimation of these contributions. The table below shows the calculation of development contributions for water. The total amount for water is **R 3 908 947**. This is based on the principle that the POA will take a bulk water supply of a maximum of 20% of the AADD of the ASZ.

LAND UNIT	ERF SIZE: m2	PROPOSED ZONING	BULK	COVE- RAGE	FLOOR AREA	UNIT OF MEASURE	WATER DEMAND kl/unit/day	WATER DEMAND INCLUDING LOSS (kl/unit/day)	WATER AADD	WATER FROM GLM (20%)	DC WATER
Portion 1 of Portion 60	20 070	INDUSTRIAL 2	0,75	75%	15 053	100 m ²	0,40	0,444	66,83	13,37	R 485 489
Portion 2 of Portion 60	7 906	INDUSTRIAL 2	0,75	75%	5 930	100 m ²	0,40	0,444	26,33	5,27	R 191 244
Portion 3 of Portion 60	6 063	INDUSTRIAL 2	0,75	75%	4 547	100 m ²	0,40	0,444	20,19	4,04	R 146 663
Portion 4 of Portion 60	5 519	INDUSTRIAL 2	0,75	75%	4 139	100 m ²	0,40	0,444	18,38	3,68	R 133 503
Portion 5 of Portion 60	6 479	INDUSTRIAL 2	0,75	75%	4 859	100 m ²	0,40	0,444	21,58	4,32	R 156 726
Portion 6 of Portion 60	5 015	INDUSTRIAL 2	0,75	75%	3 761	100 m ²	0,40	0,444	16,70	3,34	R 121 312
Portion 7 of Portion 60	5 404	INDUSTRIAL 2	0,75	75%	4 053	100 m ²	0,40	0,444	18,00	3,60	R 130 722
Portion 8 of Portion 60	9 157	INDUSTRIAL 2	0,75	75%	6 868	100 m ²	0,40	0,444	30,49	6,10	R 221 506
Portion 4 Erf 1	9 930	business zone	0,25	25%	2 483	100 m ²	0,80	0,889	22,07	4,41	R 160 317
Portion 4 Erf 3	7 790	industrial zone 1	0,75	75%	5 843	100 m ²	0,40	0,444	25,94	5,19	R 188 438
Portion 4 Erf 4	7 852	industrial zone 1	0,75	75%	5 889	100 m ²	0,40	0,444	26,15	5,23	R 189 938
Portion 4 Erf 5	9 837	industrial zone 1	0,75	75%	7 378	100 m ²	0,40	0,444	32,76	6,55	R 237 955
Portion 4 Erf 6	7 266	industrial zone 1	0,75	75%	5 450	100 m ²	0,40	0,444	24,20	4,84	R 175 763
Portion 4 Erf 7	13 436	industrial zone 1	0,75	75%	10 077	100 m ²	0,40	0,444	44,74	8,95	R 325 014
PORTION A of 139	5943	Industrial Zone 1 (light industry)	0,75	75%	4 457	100 m ²	0,40	0,444	19,79	3,96	R 143 760
PORTION B of 139	6613,1	Industrial Zone 1 (light industry)	0,75	75%	4 960	100 m ²	0,40	0,444	22,02	4,40	R 159 969
PORTION C of 139	5029,8	Industrial Zone 1 (light industry)	0,75	75%	3 772	100 m ²	0,40	0,444	16,75	3,35	R 121 670
PORTION D of 139	7599,6	Industrial Zone 1 (light industry)	0,75	75%	5 700	100 m ²	0,40	0,444	25,31	5,06	R 183 833
PORTION E of 139	7976,6	Industrial Zone 1 (light industry)	0,75	75%	5 982	100 m ²	0,40	0,444	26,56	5,31	R 192 952
PORTION F of 139	10011,4	Industrial Zone 1 (light industry)	0,75	75%	7 509	100 m ²	0,40	0,444	33,34	6,67	R 242 174
									538	108	R 3 908 947

Due to the water main along Van Ryneveld Street and Gwayang Avenue forming part of the George Water Master Plan, the development cost of the mentioned infrastructure must be off-set against development contributions for Water. The fair and reasonable way of calculating this cost is to base it on the unit rates used by GLS in the calculation of the implementation cost of the George Water Master Plan.

9. Sanitation

9.1. General

This Chapter discusses the provision of sanitation for the proposed development of the ASZ.

9.2. Applicable guiding documents

The planning of the wastewater drainage system for the ASZ precinct is informed by the following documents:

- Guidelines – Development Contributions for Sewer (George Guidelines).
As in the case of water, the guidelines explain the methodology related to the calculation of Development Contributions. These contributions are towards the development of sewer infrastructure external to the ASZ Precinct. The development contributions are based on the expected cost of external infrastructure required to serve George Municipal area for the next

40 to 50 years. A sewer masterplan was developed by GLS Consulting Engineers to guide the development of the infrastructure required to serve future sanitation requirements over the next 40 to 50 years.

- A letter from GLS Consulting to Ms Lindsay Mooiman, dated 25 November 2021. The purpose of this letter is to report on the impact of the proposed ASZ on the upgrades required in the water and sewer networks in the vicinity of the ASZ. The drawing below was obtained from GLS.
- The Neighbourhood Planning and Design Guide, Section K, Sanitation;



9.3. Existing and proposed bulk infrastructure

The existing and proposed bulk municipal sewer infrastructure (master plan) is indicated on the GLS drawing above and in the GLS report in Annexure B. Wastewater from the Airport drains towards the Airport Pump Station (Airport PS 1). From there the wastewater is pumped towards the R102. The dotted grey line marked GW_15.02 represents this rising main. The main runs to the east along the R102 and eventually leads to the Gwayang Wastewater Treatment Works.

The proposed bulk network in the immediate vicinity of the ASZ is indicated in blue. A main sewer is proposed to run from the north of the R102 along the eastern side of the R404. See GW_40.02 and GW_40.03. This main then runs along a tributary of the Gwayang River to a proposed pump station at a point directly to the north of the N2. See GW_F24.02 to GW_F24.04.

From that point it joins with a rising main from Herolds Bay (not indicated on drawing). The proposed system will then pump wastewater from Herolds Bay and the Airport to the Gwayang Wastewater Treatment Works. The pump station at the Airport will then be de-commissioned. The proposed system will also serve areas to the north of the R102.

GLS confirmed that the capacity of the existing pump station (PS1) is 20 l per second of which 8 l per second is available for use by the ASZ.

The capacity of the Gwayang Wastewater Treatment Plant is currently not capable to treat all wastewater from the ASZ. The implementation of the upgrades required to service the ASZ is expected to take several years. This will delay the development of the ASZ for several years.

9.4. Peak day dry weather sewage flow

The peak day dry weather flow (PDDWF) is estimated as a factor of the AADD for water. In the case of industrial and business zonings the ratio stipulated by the George Guideline is 80%. This figure estimates the volume of wastewater discharged as a ratio of water supplied. The AADD for water is 538 m³ as indicated in the table above. The peak day dry weather sewage flow is therefore 431 m³.

Sizing of the sewer reticulation is based on the peak hourly flow. The George Guideline proposes the use of an Instantaneous Peak Dry Weather Flow (IPDWF). Pipes are then sized to cope with the instantaneous flow when running 70% full. The remaining 30% of the pipe cross section is allowed for stormwater ingress. The George Guideline however do not specify the ratio between peak day dry weather flow and instantaneous peak dry weather flow. The Neighbourhood Planning and Design Guide however addresses this matter. It proposes a peak factor of between 2.5 and 4 for light industrial land uses. In this case a conservative peak factor of 4 is allowed in the design of local pipes.

9.5. Preliminary network design

The instantaneous peak dry weather flow is calculated by applying a peak factor of 4 as discussed above. Flow rates in all pipes at 70% of flow depth, are low enough to be accommodated in a 110 mm dia pipe. For ease of maintenance all pipes are sized at 160 mm diameter.

GLS indicated that 8 litre per second capacity is available in the existing rising main (GW_15.02) that leads from the Airport Pump Station 1. The peak hourly flow from the western part of the ASZ, that is proposed to temporarily drain to the Airport Pump Station 1, is less than 8 litre per second.

The preliminary design layout, for the sewer scheme, is attached in Annexure A. The average depth of sewer pipes is between 1,3 and 1,7 m.

9.6. Wastewater treatment

This report proposes that wastewater from the ASZ be treated in a purpose made facility on the Remainder of Portion 4 on the eastern side of the Western Bypass. Refer to drawing GASZ-RLP-01 in Annexure D for the layout of the proposed wastewater drainage system as well as the layout of the treatment works.

The target consent water quality that the wastewater treatment system must meet is general limits in terms of the National Water Act. Water of this quality can be discharged into a river in terms of the Water Act.

The capacity of the system will be 430 m³ per day, that is 80% of the AADD for fresh water. A portion of the treated water will be recirculated for secondary use. The target is to supply at least 50% of

water consumed from treated wastewater as discussed in the previous chapter. This is 63% of the treated wastewater. The remainder of treated wastewater will be used for irrigation or released into the drainage line along the eastern side of the ASZ.

Officials from GLM indicated that the western part of the ASZ may drain temporarily towards PS1 until the wastewater treatment works, mentioned above has been completed, should that be necessary due to delays in the completion of the mentioned scheme.

9.7. Development contributions

As in the case of the supply of water, the policy of the George Municipality is that developers have to contribute to the provision and development of bulk master plan for services. The George Guideline document stipulates the estimation of these contributions. Due to the fact that all wastewater will be treated at the local works, no developmental contributions will apply.

10. Stormwater management plan

10.1. General

This Chapter discusses the proposed stormwater master plan for the proposed development of Portions 4, 130 to 132 and 139 of the Farm Gwayang 208 (ASZ).

10.2. National Climate Change Response White Paper

The White Paper proposes: *“Implementing best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, investment in water conservation and water demand management”*. This compels designers to investigate international best practice and to apply it within the South African context. It therefore impacts on the design philosophy of the stormwater master plan for the ASZ.

10.3. Fresh water studies

Confluent Environmental was appointed by George Aerotropolis (Pty) Ltd to undertake a site verification for the development of the proposed George Aerotropolis, near George Airport. The development will cover Portions 130, 131 and 132 of the Farm 208. The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA) and the National Water Act (NWA). The report is titled *Freshwater Compliance Statement*. The author is Dr. James M. Dabrowski. Dr. Dabrowski reaches the following conclusions:

“The main factors influencing the statement include the following:

- *No freshwater features were identified within the footprint area of the site or in close proximity to the site; and George Aerotropolis Freshwater Compliance Statement August 2021*
- *While the development falls within a SWSA, it will in no way affect the supply of water or the ecological condition of any watercourses responsible for supplying water from this SWSA.”*

He proposes compliance with industry best practice standards related to storm water management as impact management action.

A further study report titled *Aquatic Assessment for The Proposed Light Industrial Development On Portion 139 Of Farm 208 Gwayang, George* by Ms Toni Belcher, refers to the eastern part of the ASZ. Toni Belcher concludes that *“the watercourses within the site are considered to be in a seriously to*

critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams". She recommends that a 20 m wide strip be allowed in the planning of the layout of the site to accommodate stormwater runoff. This area can be incorporated into the stormwater master plan.

The conclusions of these reports are integrated in the stormwater management plan.

10.4. Existing drainage system

The extract from Cape Farm Mapper below shows the topography in the immediate vicinity of the ASZ. The blue lines indicate the drainage lines and the yellow dotted line the proposed Western Bypass. The drainage system of the Western Bypass will impact on the drainage of the area.

It is clear that the ASZ is situated in close proximity of the crest of the drainage area. Only a small area to the north of the R102 drains towards the ASZ. The dotted blue line is the watercourse referred to in the report of Toni Belcher.



General arrangement of current drainage system

Rainwater runoff from the area to the north of the R102, drains into the side drain on the northern side of the R102. The R102 has side drains on either side of the paved area of the road.



Side drains on both sides of R102

The road reaches a crest at a position approximately 150 m from (to the east) the R102/ R404 intersection. To the west of that point, runoff drains towards the west. It crosses the R404 via a culvert.



Inlet of culvert draining underneath R102



Culvert inlet draining from east to west under R404

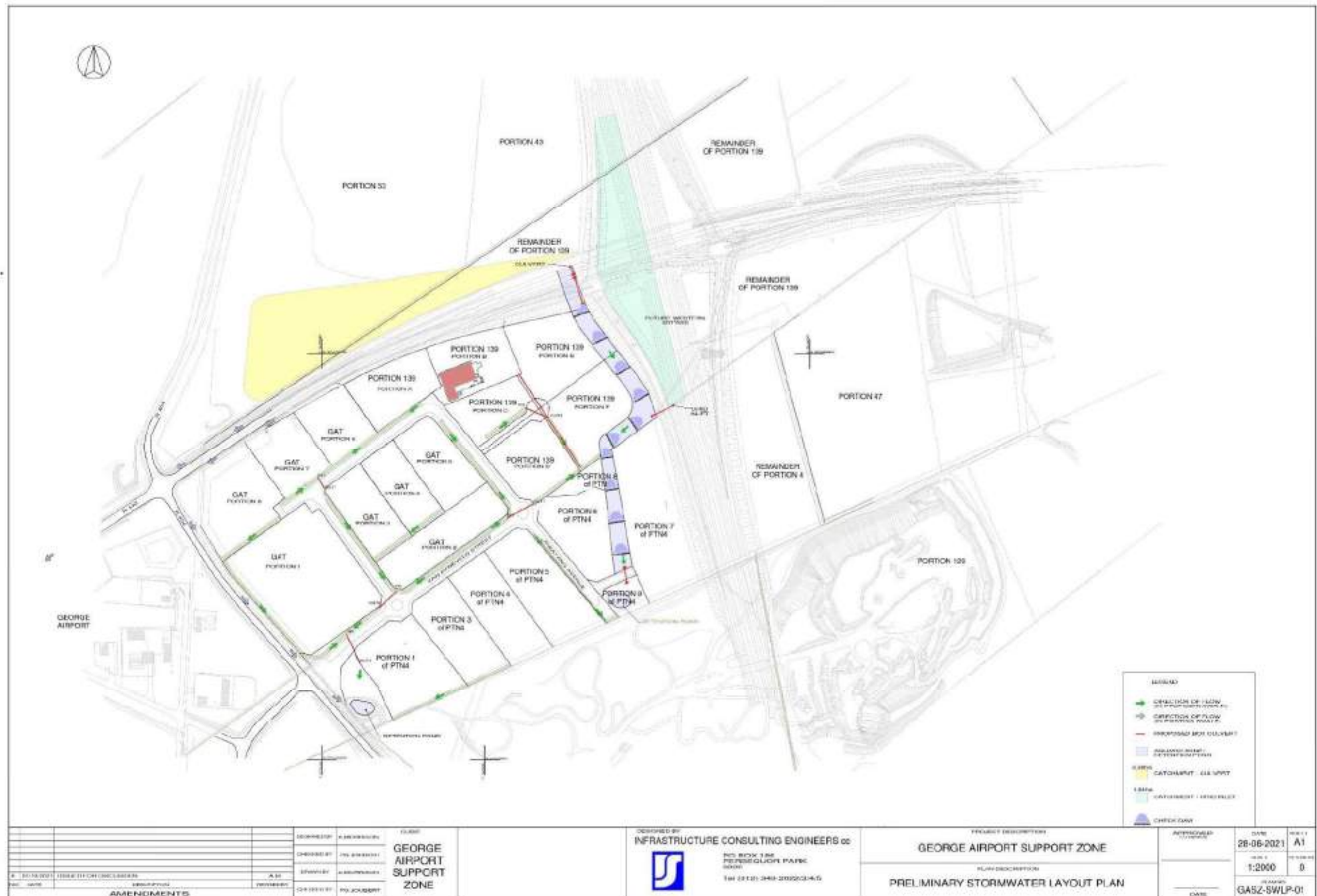
To the east of the crest, runoff drains to the east and eventually crosses from north to south via a culvert underneath the R102. See drawing of Preliminary Stormwater Layout Plan below.

To the south of the culvert outlet, runoff drains along a natural drainage line to an existing small dam on the southern boundary of Portion 4. This aquatic zone is protected by the development measures limiting the development of the drainage line.



Small dam in the drainage channel

The total size of the ASZ catchment area is approximately 24 ha. The freshwater studies reported on the disturbed nature of the natural vegetation of the catchment area. It however remains important to protect the quality of water flowing down the drainage lines.



The catchment of the ASZ is subdivided into two areas. The eastern area drains along the drainage line from the culvert passing underneath the R102 southwards. This area also receives runoff from the Western Bypass. This catchment area measures approximately 14 ha.

The western part of the catchment area drains toward the existing dam situated directly to the east of R404 on Portion 1 of Portion 4. This area measures approximately 10 ha.

10.5. Design guideline and rainfall data source

The planning and design of the stormwater master plan is guided by the following documents:

- The Neighbourhood Planning and design Guide, Section L, Stormwater;
- Drainage Manual of the National Road Agency Limited.

The *Drainage Manual* provides detail on storm events. A further source of rainfall data is a document titled *Design Rainfall and Flood Estimation in South Africa* by JC Smithers and RE Schulze. The latter document was used in the design of the stormwater system.

The Neighbourhood Planning and Design Guide proposes that stormwater designs accommodate minor as well as major storms. The objectives of the minor and the major systems differ. The minor incident design objective is associated with convenience whereas the objective of the major storm design is protection of property and life. The Guide proposes a minor storm design flood recurrence interval of 5 years for industrial and business zoning. Likewise, a recurrence interval of 100 year is proposed for major storms.

Design Rainfall and Flood Estimation in South Africa was used to select appropriate rain storm intensities for different storm durations. This was verified with data from the Drainage Manual. The following results are applicable:

- 15 minute storm duration based on *Design Rainfall and Flood Estimation in South Africa*:
 - 1 in 5 year storm recurrence interval – 50 mm per hour;
 - 1 in 100 year storm recurrence interval – 100 mm per hour.
- 15 minute storm duration based on data obtained from the Drainage Manual:
 - 1 in 5 year storm recurrence interval – 44 mm per hour;
 - 1 in 100 year storm recurrence interval – 80 mm per hour.

For the purpose of the design of the minor and major systems the higher values of the *Design Rainfall and Flood Estimation in South Africa* are used.

The *National Climate Change Response White Paper* is a high level response document that guides development in South Africa. It proposes that best practice be applied in the search of more sustainable systems with specific reference to water quality. Water as a resource must be protected. *The Neighbourhood Planning and Design Guide* is aligned with this approach. This document states the key objectives of a stormwater management system as follows:

- Minimise the threat of flooding to the area;
- Protect the receiving water bodies in the area;
- Preserve biodiversity in the area;
- Promote the multi-functional use of stormwater management systems;
- Promote the use of the stormwater itself as a water resource;
- Develop sustainable stormwater systems.

The document furthermore promotes water sensitive urban design. This is an approach to urban water management with the aim to manage the urban water cycle in a sustainable manner. The document promotes water harvesting and secondary use of treated wastewater.

10.6. Impact of urbanisation of runoff hydrograph

There are two critical consequences that result from urbanisation with specific reference to the runoff hydrograph. These are:

- The runoff characteristics of the catchment area change. This is due to surfaces becoming less pervious due to roofs and surfacing of parking and circulation areas as well as roads. In the case of the ASZ the ratio of runoff increases from pre-development of approximately 53 % to post development of approximately 75%.
- The second impact is that the hydrological response time reduces due to quicker runoff of the catchment area. This results in the reduction in the critical storm duration which in return increases the design storm intensity.

The combined impact of these two consequences can be seen on the schematic diagram below. It shows how the peak flow increases significantly from pre-development levels to post-development levels.

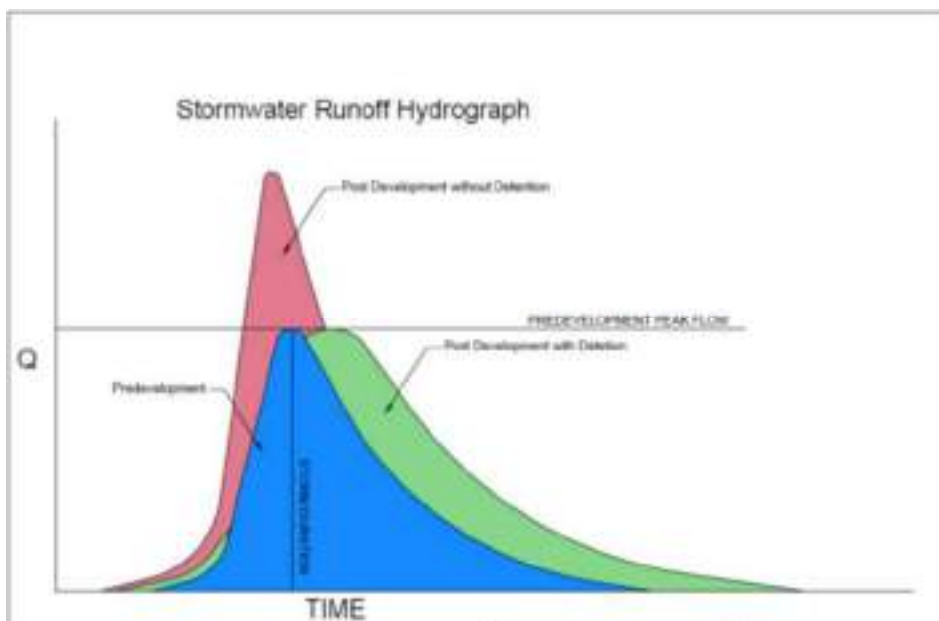


Diagram showing the impact of development on the runoff hydrograph of a catchment

The increased peak flows result in flooding of downstream areas with potential damage to property and risk of loss of life in extreme cases. The stability and biodiversity of the receiving water bodies are also at risk.

In order to meet the objectives of the stormwater master plan as stated above, the impacts of urbanisation must be mitigated. A common way to cope with this is the introduction of detention structures.

10.7. International best practice

A literature study of international best practice resulted in an understanding of feasible alternatives to conventional urban drainage systems. Conventional systems refer to the conveyance of runoff on road surfaces and then into a subsurface culvert system, also referred to as the curb-and-gutter system.

The utilization of stormwater detention structures to mitigate the impact of urbanisation on stormwater runoff, has been implemented in South Africa over the past 40 to 50 years, with great success. Detention dams have a limited impact on the quality of runoff. The photo below shows the difference between typical stormwater runoff on the left and clean stormwater runoff. The literature study draws attention to tested stormwater management measures to protect the quality of runoff.



Turbid and Clean Storm Water

Turbidity is complex and expensive to remove from runoff. Turbidity should therefore be prevented from accumulating in runoff from the point of source – where rainwater falls on the surface.

The literature study showed how bio-swales are commonly being used to transport water from point of source. The photos below are examples of bio-swales implemented as best practice measures of stormwater management.



Examples of swales in City of Duluth and Wisconsin USA

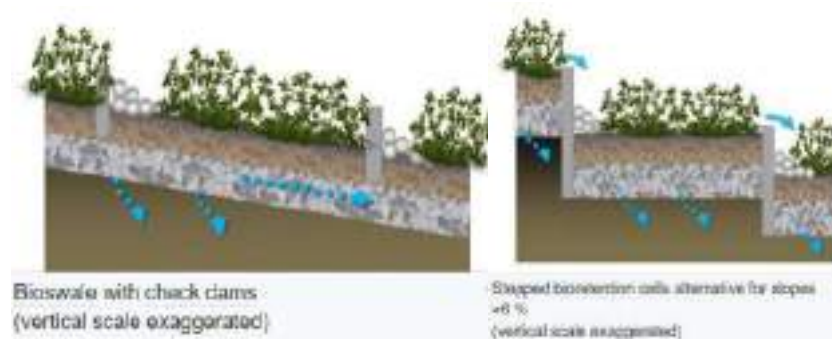
Bio-swales are however not new to South Africa. The photos below shows bio-swales along the main road running through Franschhoek.



Bio-swales in Franschhoek

Research in the USA showed that: *“The regular maintenance costs for swales can be higher than a traditional curb-and-gutter system. However, the greater environmental benefits, lower initial capital costs, and positive aesthetic components of grass swales, make them an attractive alternative. (Elsevier Journal of Environmental Management).”*

The research on best practice worldwide reveals practical measures to mitigate any possible impacts that the swales could have. The drawings below show measures to mitigate the risk of erosion in swales where roads have steep grades, through energy dissipation structures.



In order to limit flow velocity in swales the following measures are proposed in the literature. Check dams in swales limit flow velocity and can be used for flood attenuation.



Lake Superior Duluth Streams

Research by the University of Maryland, Department of Civil and Environmental Engineering shows that grass swales significantly reduce pollutant mass and mean concentrations for several of the water quality constituents considered, including TSS and the metals lead, copper, zinc, and cadmium.

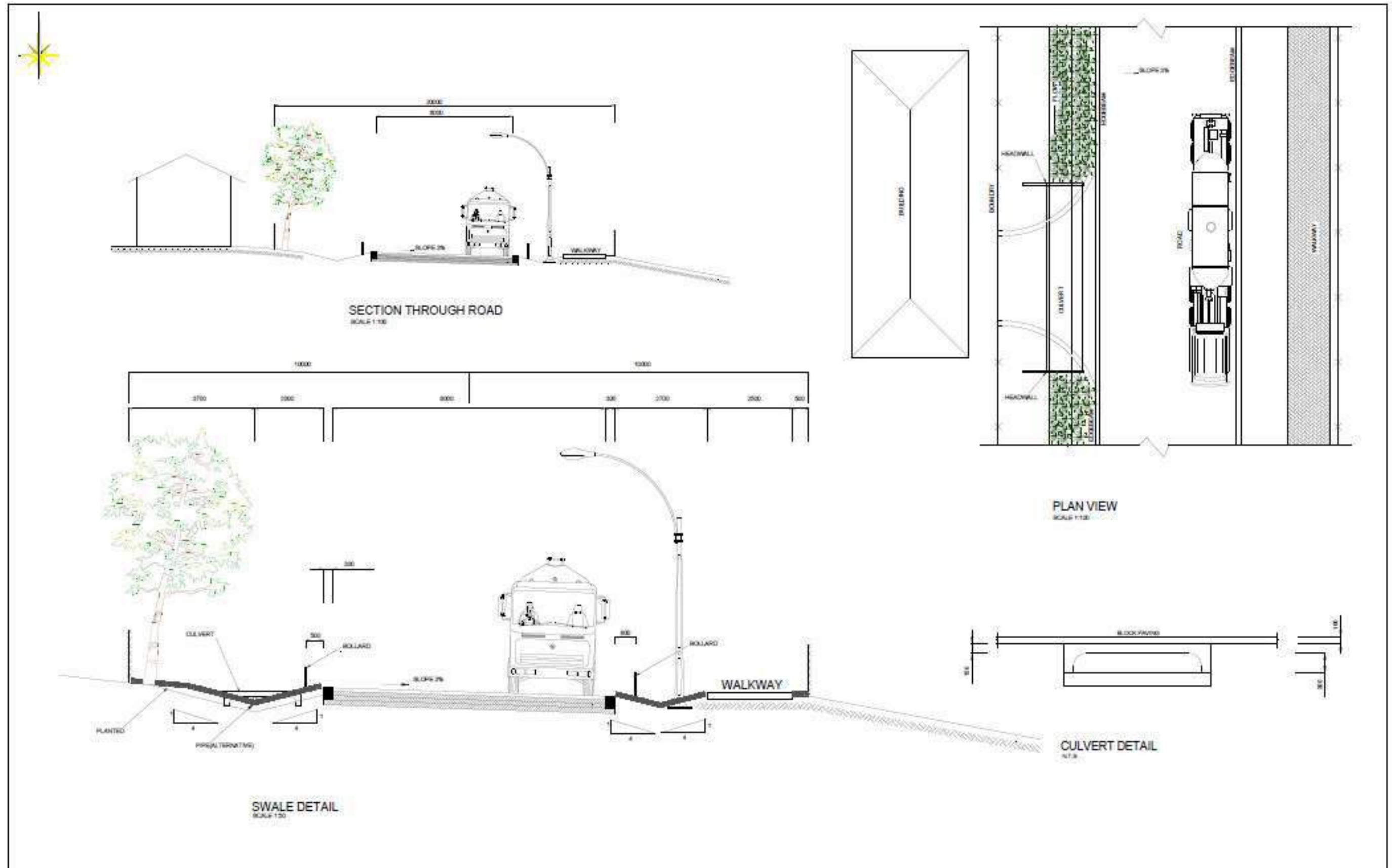
10.8. Proposed drainage system


Resulting from research into international best practice as well as applying principles proposed in national design guidelines such as Guidelines for Human Settlement Planning and Design, the following measures are proposed to form part of the stormwater management system for the ASZ:

- Runoff accumulating on properties through on site bio swales. These swales can be incorporated in parking and circulation areas;
- Runoff along on-site swales to drain into a debris trap before discharging into the communal system, thereby treating pollutants at the source;
- Bio swales to be positioned adjacent to roads in the form of shallow V- drains;
- Runoff drains via bio swales to detention dams at the low ends of the ASZ;
- At road crossings bio swales are channelled into culverts to pass underneath the road surface;

- Outlet structures from culverts to be treated to dissipate energy, where necessary, in order to protect the downstream swale;
- Vehicle access to stands is the responsibility of property owners. This can be effected through culverts or low water crossings to be approved by POA;
- Detention dams to be utilized to limit runoff onto adjacent properties to pre-development levels;
- Swales to be vegetated with appropriate indigenous plants to promote trapping of contaminants;
- Flow velocities to be retained at levels that will prevent turbidity in runoff;
- Subsurface soil drainage system to be installed below grass swales where swales are located along roads. The objective of this drainage is to protect the road pavement from water.
- Aquatic zones along the eastern edge of the ASZ to be protected and redeveloped. Protection will be through the use of check dams to limit flow velocity to levels that can be sustained by vegetation;
- Natural vegetation to be introduced in aquatic zones. The objective of this is also to integrate aquatic zones into the industrial space for recreational uses of workers;
- Check dams to be used as detention structures to mitigate the impact of the industrial development on runoff intensity;
- Aquatic zones and bio-swales to lead to existing detention dams along the southern boundary of Portion 4;
- Outlet structures of existing detention dams to be upgraded to cope with 1 in 100 year flood conditions;
- The complete stormwater system, including detention ponds, to be managed by the POA.

The typical cross section below shows the positioning of swales and culvert crossings within the context of the road.



				DESIGNED	PL	<div>INFRASTRUCTURE CONSULTING ENGINEERS</div> <div></div> <div>PO BOX 108 PARROQUIN PARK QLD 4870 (07) 349-3022/3495</div>	PROJECT NO:	REF-PAVING NO:	TOTAL	CREATION DATE: 24/03/2021	A1
				CHECKED	PL		---	---		SCALE: 1:100	REVISION: 0
				DRAWN	BAH		PROJECT DESCRIPTION:	DRAWING STATUS:		SHEET	1 OF 1
A	24/03/2021	ISSUED FOR COMMENT									PLAN NO.
REV	DATE	DESCRIPTION			BY	CHECKED	PL	---	---		
		AMENDMENT S									

10.9. Proposed stormwater layout

The concepts referred to in the above paragraph, were integrated into the design of the stormwater system for the ASZ. The Preliminary Stormwater Layout Plan attached in Annexure D, shows the outcome of this. The major features of the drainage system are the following:

- Due to the topography of the ASZ, it can be divided into two sub catchments. The eastern side of the ASZ drains via the aquatic zone on the eastern side of the development. The mentioned aquatic zone drains to a dam at the low point on Erf 9 of Portion 4.
- The western part of the drainage system drain down to the existing small dam located on Erf 1 of Portion 4.



Stormwater dam on Erf 1 of Portion 4

- The proposed **George Western Bypass** is shown on the Preliminary Stormwater Layout Plan, passing along the eastern edge of the ASZ. The road is planned in a position more or less on the watershed. Areas to the east of the freeway drains primarily to the east and likewise for areas to the west of the freeway.

ICE requested information from Provincial Roads Department regarding the proposed drainage design for the freeway in the vicinity of the ASZ. This information is currently not available. The basic planning of the geometry of the road is however available and many fair deductions can be made about the future drainage of the freeway by studying the geometric design drawings.

Where the Western Bypass borders Portion 4, the Bypass is in cut. For that reason, runoff from the road surface will probably not drain onto Portion 4.

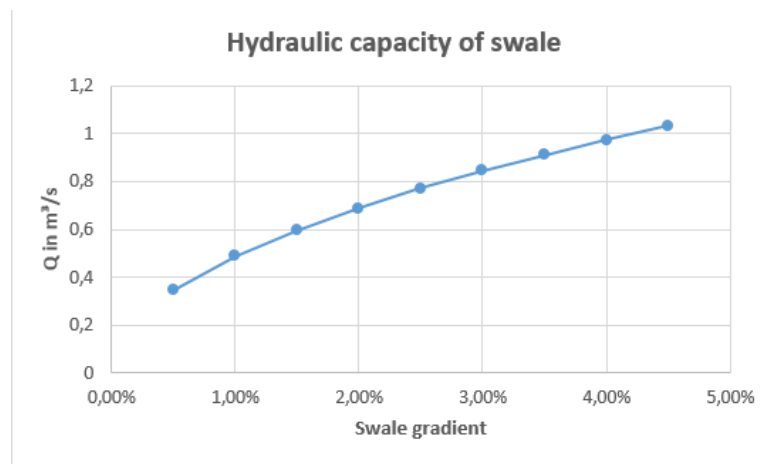
The area marked in green inside the proposed interchange is expected to drain via a culvert at the gore area of the interchange. This culvert is indicated on the drawing above. The runoff from this area of the interchange is accommodated in the aquatic zone. This culvert will be constructed as part of the development of the Western Bypass.

- The **area to the north of the R102** (marked in yellow) drains along existing side drains (grass swales) on the northern side of the R102. This area drains via an existing culvert as indicated on the Layout Plan. This culvert will be extended to pass underneath the new R102 alignment as proposed for the Western Bypass interchange.

This runoff is also received by the aquatic zone along the eastern edge of the ASZ. Energy dissipation structures will be required at the outlet of the culvert in order to protect the downstream aquatic zone.

- The layout plan shows a network of bio-swales mostly alongside roads but also inside properties, where required. The typical cross section shows swales with a side slope of 1:4 and a maximum depth of 500 mm. At a depth of 500 mm below the invert level of swales, a subsurface drain will be installed to limit moisture ingress into the pavement layers of the road.

The graph below shows the hydraulic capacity of swale.



One must obviously consider the velocity of water in swales. If the swales are too steep, scouring will occur and if too flat, water will pond and the risk of damage to the road pavement could be significant. Scouring can be mitigated by using appropriate vegetation with root systems that cope with higher velocities and with plant structure that limits the velocity of the flow of water. This will be developed in cooperation with a horticulturist. In general, flow velocities will be kept to less than 2m/s.

Flow velocities in excess of 2 m/s may occur in cases where grades are steeper than 2% and under full flow conditions. These conditions are expected to only occur for a short section of the swale alongside Van Ryneveld Street along the southern boundary of Portion 1 of GAT. This is also just expected during major storm events. In this case special measures such as placing of riprap surfacing inside the swale, will be implemented to protect the stability of the swale.

- The detail of the aquatic zone is of importance in order to meet the objectives of the Aquatic Assessment Report by Ms Toni Belcher. She found "watercourses to be in a seriously to critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams". In order to address this, the aquatic zones will be revegetated with the assistance of a horticulturist.

Portions E and F of Portion 139 and Erven 4 and 7 of Portion 4, drain directly into the aquatic zone.

The natural flow regime of runoff flowing via the aquatic zone will be adjusted by the introduction of check dams. The check dams will limit flow velocity to below 2 m/s. It will also act as detention facilities to mitigate the impact of the industrial development on runoff.

Check dams will be spaced between 20 and 40 m. This close spacing is proposed to enhance infiltration of runoff.

Indigenous trees will be planted along this zone so that the zone can be utilised for recreational purposes by employees at the proposed industrial buildings.

- The existing dam on Portion 1 of Portion 4 will be utilised as a detention facility. Approximately 9,5 ha of the total catchment of the ASZ drains towards this dam. The dam has adequate capacity to attenuate sufficient runoff to reduce post development runoff to pre-development runoff, in case of a major storm. The outlet structure of the dam will be upgraded to ensure the stability of the wall in case of a major storm.
- The existing dam on Portion 9 of Portion 4 will be used for the purpose of detention to a limited extent, due to the significant contribution of the check dams in this regard. The outlet of the dam will however be upgraded as in the case of the dam on Portion 1 as mentioned above.

This stormwater master plan responds to the objectives of the National Climate Change Response White Paper. It follows international best practice as proposed by the White Paper and as included in national guideline documents.

11. Roads and access

11.1. General

This chapter reports on the provision of access to the Airport Support Zone.

11.2. Applicable guiding documents

The planning of roads to the precinct is informed by the following documents:

- The Neighbourhood Planning and Design Guide – Transportation and road pavements;
- George Airport North Eastern Precinct, Transport Study, George, October 2021 (Annexure E)
- UTG 5 - Geometric Design of Urban Collector Roads;
- UTG 2 – Structural Design of Segmental Block Pavements for Southern Africa;
- Guidelines for the Provision of Engineering Services in Residential Townships.

11.3. Access to ASZ and the George Airport

Attached in Annexure E is the mentioned Transport Study on access to the George Airport North Eastern Precinct. The purpose of the study is to investigate the transport impact of the GANEP and steer the phased implementation of the road infrastructure required to accommodate the expected development of traffic. The document reports on the impact of the development of the ASZ, the future growth of the Airport and the construction of the George Western Bypass on the required access arrangement to the Airport as well as the ASZ.

The report proposes road upgrades along the R404, upgrades of the R404/R102 intersection, internal roads for the ASZ as well as road upgrades required for the development of the southern part of the ASZ (Portion 34).

The report considers different development growth scenarios. The conclusions and recommendations of the report are as follows:

- The main access road to the ASZ to be constructed with stop control at the intersection of the R404/Airport Access Road and that the total trips out of GANEP be capped at 25% unless the recovery of the airport is slow and the general growth in background traffic is low due to slow economic recovery. Then the ceiling can be raised to 40%. This will have to be confirmed with an updated traffic study.
- To develop beyond the ceiling of 25% or 40% trips (Depending on Airport Recovery) will require the following:
 - o A roundabout/traffic signal at the R102/R404 intersection.
 - o As a minimum, 4-way stop control at the intersection of the R404/Airport Access if the Western Bypass is built or imminent.
 - o A single lane roundabout at the intersection of the R404/Airport Access.
- The requirements related to PT, NMT and parking, as proposed by the report, are adhered to.
- That a capital contribution of R21 254 per peak hour trip be used to apportion the costs of the required bulk road infrastructure in and around the precinct.

11.4. Cost apportionment of upgrades to the road system

The report discusses the apportionment of costs for the upgrade of the provincial road system, consisting of the R404, the R102/R404 intersection and the class 4 internal roads of the ASZ. The last mentioned roads are Van Ryneveld Street and Gwayang Avenue. These two roads form part of the GANEP road masterplan. They give access to the southern part of the area to the east of the R404 that is allocated for airport support functions in terms of the GLSDF. The area to the south mentioned above, consists primarily of Portions 34 and 110 of the Farm Gwayang. Portion 34 is owned by ACSA. The ACSA masterplan for the development of the Airport, proposes the extent of Portion 34 to be allocated for parking purposes.

Portion 34, Portion 110 and the Quarry will have an alternative access via the existing access intersection along the R404 to the Quarry, located on the eastern side of the Airport. Van Ryneveld Street, Gwayang Avenue and the mentioned access to the R404, from Portion 34, will form an access loop through the area allocated for airport support purposes.

ITS calculated the total cost of road upgrades required in terms of the GANEP road master plan. This estimated cost is R 38 m. Based on the capital cost and the trip generation, ITS calculated a cost per trip of R21 254. Applying this rate per trip, ITS proposes the following cost apportionment:

- ACSA pays for the upgrading of the R404, including the upgrading of the R102/R404 intersection and the main airport access intersection;
- The Developers of the ASZ (Portions 4, 130, 131, 132 and 139) pay for Van Ryneveld Street;
- The Developers of the ASZ and the owners of the Quarry pay for Gwayang Avenue to the south of Van Ryneveld Street;

- ACSA, the Quarry and the owners of Portions 34 and 110, pay for the upgrading of the existing Quarry Access intersection.

The Developers of the ASZ approached ACSA in order to discuss the joint implementation of the GANEP road master plan. ACSA indicated that due to the current economic climate, ACSA is not in a position to contribute to the road upgrade cost. The Developers of the ASZ considered this position of ACSA and indicated their preparedness to fund the upgrading of the main Airport access intersection with the R404, until such time as ACSA is in a position to make its due contribution. At that stage the mentioned Developers will be refunded in accordance with the proposed stipulations of the Services Agreement between GLM and the owners of the ASZ.

In accordance with the recommendations of ITS, the mentioned intersection will be upgraded to a single lane roundabout. The Developers will also finance the development of Van Ryneveld Street and Gwayang Avenue.

Development cost of roads will include professional fees, construction cost, escalation and the fair cost of land. The Services Agreement between GLM and the Developers of the ASZ will allow for the refunding of the total development cost as proposed above.

11.5. Internal road network details

As mentioned above, Van Ryneveld Street and Gwayang Avenue are classified as a class 4 roads in terms of the GANEP road master plan. All the other roads are classified as class 5 roads.

The proposed road network for the ASZ consist of a square layout as seen on the attached Preliminary Road Layout Plan. Road lengths are in general short and limited to below 330 m. Links are typically shorter than 180 m. Operating speeds are therefore expected to be low. A speed of 60 km/h was accepted for the design of the roads.

The proposed intersection control at the intersections along Van Ryneveld Street is traffic circle control. The inscribed circle radius of these circles is proposed to be 18 m to accommodate heavy vehicle movement.

Approaches to intersections are flared in order to cope with the turning movements of heavy vehicles.

The proposed minimum road reserve is 18 m. Due to its link function as a class 4 road, the reserve of Van Ryneveld Street is proposed to be 20 m. Likewise, the reserve of Gwayang Avenue to the south of the intersection with Van Ryneveld Street is also proposed as 20 m.

The minimum road width proposed for industrial townships is 8 m. This, in combination with 300 mm wide cast in situ edge beams, makes for generous space for movement of heavy vehicles. Experience has however shown that heavy vehicle drivers require guidance to remain on the paved section of the roadway even in cases where generous allowance is made for road surfacing. For this reason, bollards are proposed alongside all roads. An alternative will be to provide planter boxes to guide drivers. See photo below.



Planters used to guide traffic in Cape Town

11.6. Environmental and socio-economic considerations

The impact on the development of the road system on the environment must be considered. For that purpose, it is important to make due allowance for non-motorised transport modes and public transport.

The selection of road building materials also has an impact on the environment. Research shows that block paved roads have a lessor impact on the environment than bitumen asphalt roads. For that and other reasons segmental concrete block pavement technology is proposed for all internal roads, including Gwayang Avenue and Van Ryneveld Street. The detail of the road pavement is discussed in following paragraphs.

A critical consideration in the selection of road design is generating job opportunities. This is currently a matter of national priority in South Africa. This also leads to the selection of segmental block pavements as the preferred technology for internal roads. 80 mm, 45 MPa blocks will be used.

This consideration also determined the choice of in situ cast concrete edge beams to contain block movement. The construction of edge beams is to a large extent labour based. The reinforced concrete edge beams are 300 mm wide. The depth of beams extends to the bottom of the subbase layers. It is therefore 350 mm deep. Edge beams are constructed before commencement of the construction of subbase layers.

The reason for this depth of edge beams is that it allows for the construction of stabilised subbase layers utilising unskilled and semi-skilled labour. Labourers use the edge beams as a guide to level the top of subbase layers. Compaction of two 125 mm subbase layers is achieved using walk behind compaction equipment.

Culverts are commonly constructed using pre-cast concrete units. A feasible alternative is to construct box culverts using reinforced brick walls and cast in situ reinforced concrete floors and cover slabs. ICE made use of this alternative method of construction with good results in terms of cost as well as labour content. This will be the preferred technology in the case of the development of the ASZ infrastructure.

Sidewalks are proposed for the convenience of non-motorised transport modes. The width will vary between 2 and 2,5 m depending on the location. Some sections along Van Ryneveld Street may be 2,5 m wide. The typical cross section shows the sidewalks separated from the road by a swale. This separation of vehicles and pedestrians and cyclists is critical in the prevention of road deaths. Lateral or vertical separation in the interest of road safety, is widely supported by international research to protect NMT road users.

Sidewalks and pedestrian crossings will be constructed in accordance with GLM standards for universal access.

11.7. Road pavement for internal roads

The geotechnical report by **Outeniqua Geotechnical Services** investigated the geotechnical conditions of Portion 4. The report proposes pavements as shown in the table below.

The road classification for purposes of structural design is U3-B in terms of The Neighbourhood Planning and Design Guide. Due to the expected high ratio of heavy vehicles, ICE propose the following pavement;

- 80 mm Segmental concrete interlocking blocks 45 MPa on 20 mm sand;
- 125 mm C3 layer;
- 125 mm C4 layer;
- 150 mm upper selected G7;
- 150 mm lower selected G9 layer. This layer to be omitted in locations where in situ material yields CBR values higher than 7 % at compaction of 90% Modified AASHTO density.

The proposed pavement is therefore heavier than the pavement in the table below. The geotechnical report indicates that G7 quality material can be expected in bulk excavations for use of road construction. All efforts will be made to utilize selected cut material for the lower and upper selected layers.

Layer	Material	Thickness	Required Compaction
Pavers*	Cement interlock paving on 25mm sand bedding	60 / 80 mm	25 / 35 MPa
Subbase	Imported G4/5 gravel	150mm	95% Mod AASHTO
SSG	Imported G7 gravel	300mm	93% Mod AASHTO
OR			
Seal	13.2mm Cape Seal or 40mm HMA		
Base course	Imported G2/4	150mm	98% Mod AASHTO
Subbase	Imported G4/5 gravel	150mm	95% Mod AASHTO
SSG	Imported G7 gravel	300mm	93% Mod AASHTO

Road pavement proposed by Outeniqua Geotechnical Services

The typical cross section shows the road with a 3% cross fall away from the main bio-swale. This swale is located on the higher side of the road in order to collect runoff from adjacent stands, thereby preventing it from running onto the roads. The higher than normal (2%) cross fall ensures the proper draining of the surface of the segmental block pavement. It also coordinates well with the drainage of intersections and traffic circles.

12. Summary

The owners of Portions 4, 130, 131, 132 and 139 of the Farm Gwayang 208, propose the development of the land in accordance with the guidance of the Gwayang Local Spatial Development Framework. The proposed zoning is Industrial Zone 1. One stand will be zoned Business VI and will be used for the development of a service station.

The development is guided by the National Climate Change Response White Paper. It impacts specifically on the stormwater management plan. Innovative measures are proposed to enhance the

quality of rainwater runoff through the introduction of bio-swales for the conveyance of stormwater from the point of source.

George Local Municipality developed services master plans to cope with the demand for municipal services over the next 40 to 50 years. These master plans aim to support the Spatial Development Framework of George. Developers contribute towards the implementation of these master plans. For that purpose, development contributions become payable for the provision of 20% of the water demand of the ASZ.

The ASZ will be developed as an off-grid industrial town. It will utilize the municipal bulk supply systems in a limited way.

A maximum of 20% of the water supply will be for the municipal system. The remaining 80% will be from harvested water and treated wastewater.

All wastewater will be treated in an on-site treatment works to be located on the eastern side of the Western Bypass on Portion 4.

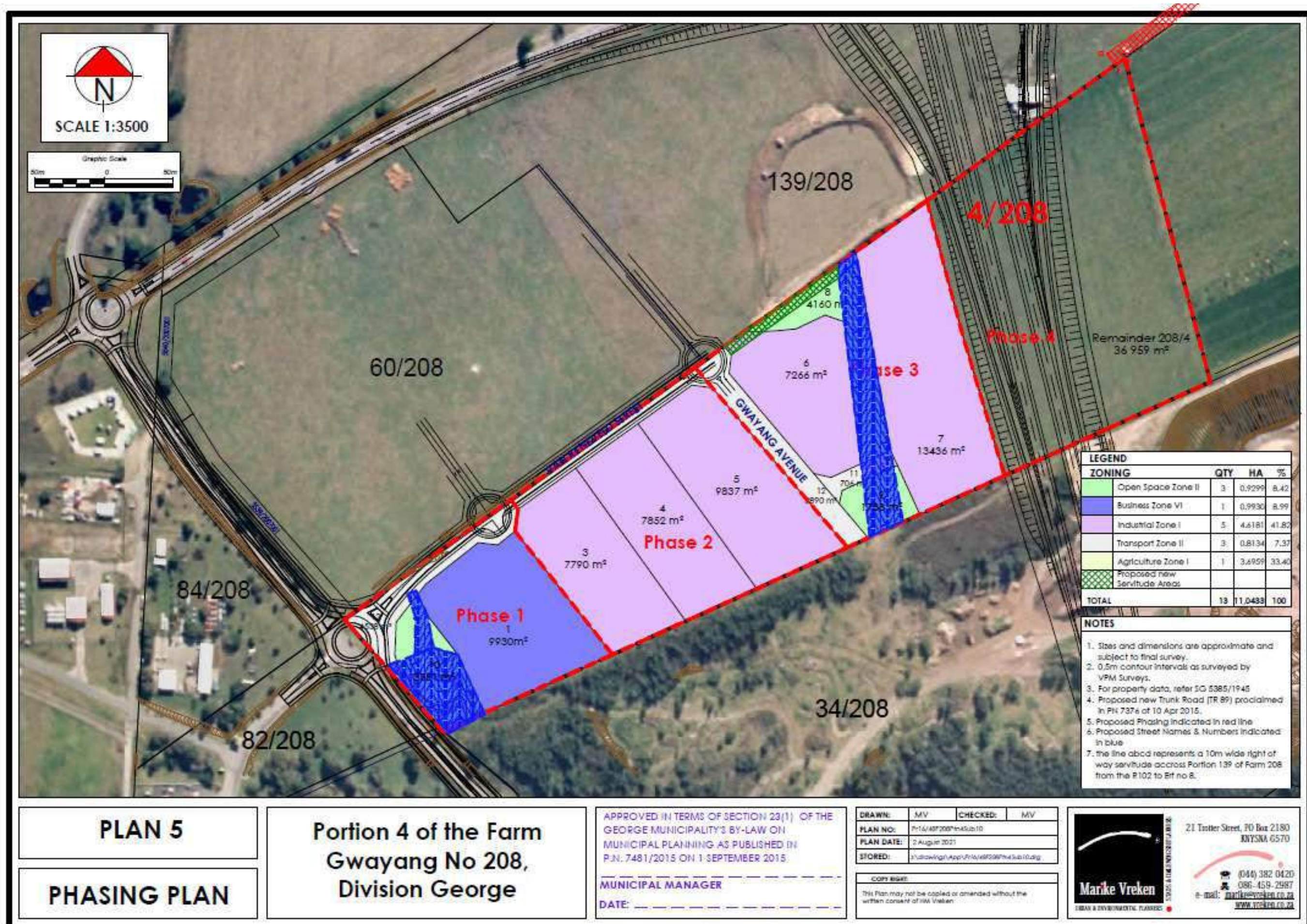
Access to the ASZ will be in accordance with GANEP road master plan. The main access road into the ASZ is Van Ryneveld Street. This road and the southern part of Gwayang Avenue form part of the GANEP road master plan. In terms of the ITS report this is the extent of the responsibility of the Developers of the ASZ with regards to the implementation of the GANEP road master plan. The remainder of the implementation of the GANEP road master plan is the responsibility of ACSA, the Quarry and Portions 34 and 110.

Due to lack of funding available to ACSA, the Developers of the ASZ is prepared to fund the development of a single lane roundabout at the main access intersection to the Airport and the ASZ from the R404. This cost will be refunded at a stage when further development takes place at the Airport. This arrangement will be included in the Services Agreement to be concluded between the GLM and the Developers of the ASZ.

The Developers are ready to proceed with the implementation of the infrastructure required to support the proposed land uses. In order to facilitate this a services agreement must be concluded between the GLM and the Developers.

ANNEXURE A – DEVELOPMENT PROPOSALS

- a) Portion 4 of the Farm Gwayang No 208, Division George – Marike Vreken Town Planners
- b) Proposed Subdivision Layout – BAM Architects
- c) Proposed layout division 139 (the drawing in untitled) – Marlize de Bruyn Consulting Town & Regional Planner



Annexure B

Report by GLS Consulting



25 November 2021

Director: Civil and Technical
Services George Municipality
PO Box
19
GEORGE
6530

ATTENTION: Ms Lindsay Mooiman

Ma'am,

**WATER AND SEWER MASTER PLANS: DEVELOPMENT OF PROPOSED TOWNSHIP –
GWAYANG AIRPORT SUPPORT ZONE**

The request from Infrastructure Consulting Engineers (Flip Joubert) dated 27 October 2021 with regards to accommodating the proposed development in the George water and sewer systems has reference.

This report is a technical report stating upgrades required in the water and sewer networks in the vicinity of the proposed development. The George Municipal engineering professional (yourself) will make a final decision on works to be implemented by the proposed development.

GLS Consulting (Pty) Ltd

T +27 21 880 0388 | Stellenpark Block D c/o R44 and School Rd, Jamestown | PO Box 814, Stellenbosch, 7599
Reg no: **2007/003039/07**

www.gls.co.za

Directors: HA Baartman, AG Hingeston

1 INTRODUCTION

1.1 Brief

This report is a technical report stating upgrades required in the water and/or sewer networks in the vicinity of the proposed development. The George Municipal engineering professional (yourself) will make a final decision on works to be implemented by the proposed development.

The latest master plans used in this analysis were the m2021-09 master plans.

1.2 Disclaimer

GLS hereby confirms that any contributions of the developer to the required construction of infrastructure and/or the upgrading of existing infrastructure, whether it be in the form of a capital contribution or in the form of constructing sections of new infrastructure, is a matter to be discussed and agreed upon between the developer and the George Municipality.

All costs shown in this report are year 2021/22 Rand value estimates and include 50% surcharge for P&Gs, contingencies and fees but exclude VAT

1.3 Version control

<i>Issue Date</i>	<i>Type</i>	<i>Version</i>	<i>Remarks</i>
2021/11/25	Draft	1	Issued for comments and approval

2 WATER DEMAND & SEWER FLOWS

2.1 Impact of the proposed development

The proposed development was taken into consideration in the water master plan as part of the Gwayang 208 Ptns 130-132, Ptn 139a and Ptn 4a future development areas.

The water demand and sewer return flow contribution of the proposed development is outlined in the table below:

Land Use	Unit of measure (No/100m ² /ha...)	No. Units (No/100m ² /ha...)	UWD/unit (kL/unit/d)	Sewer ratio (% x UWD)	AADD Inc. UAW (kL/d)	PDDWF Excl. Infiltr. (kL/d)
Industrial/Warehousing - Industrial (dry)	100m ²	492	0.444	80%	218.7	174.9
Business/Commercial - Business 1 - Business 4 (excluding residential)	100m ²	25	0.889	80%	22.2	17.8
Industrial/Warehousing - Industrial (dry)	100m ²	346	0.444	80%	153.8	123.0
Industrial/Warehousing - Industrial (dry)	100m ²	324	0.444	80%	144.0	115.2
		1187			538.7	430.9

2.2 Revised Water Demand

The revised AADD, peak flow and fire flow calculated for the proposed development and used in this analysis of the water distribution network is 86.7 kL/d.

- Peak flow using a zone peak hour factor of: 3.00[‡] = 18.7 L/s
- Fire flow for type: Industrial/business - Moderate risk 1 (Business) = 50 L/s @ 15 m
- Fire flow for type: Industrial/business - Moderate risk 2 (Industrial) = 25 L/s @ 15 m

2.3 Revised Sewer Flow

The revised PDDWF (excluding infiltration) calculated for the proposed development and used in this analysis of the sewer system is 430.9 kL/d. The design flow, or instantaneous peak wet weather flow (IPWWF), is 10.2 L/s.

[‡] Higher peak flow factors might be applicable for internal networks.

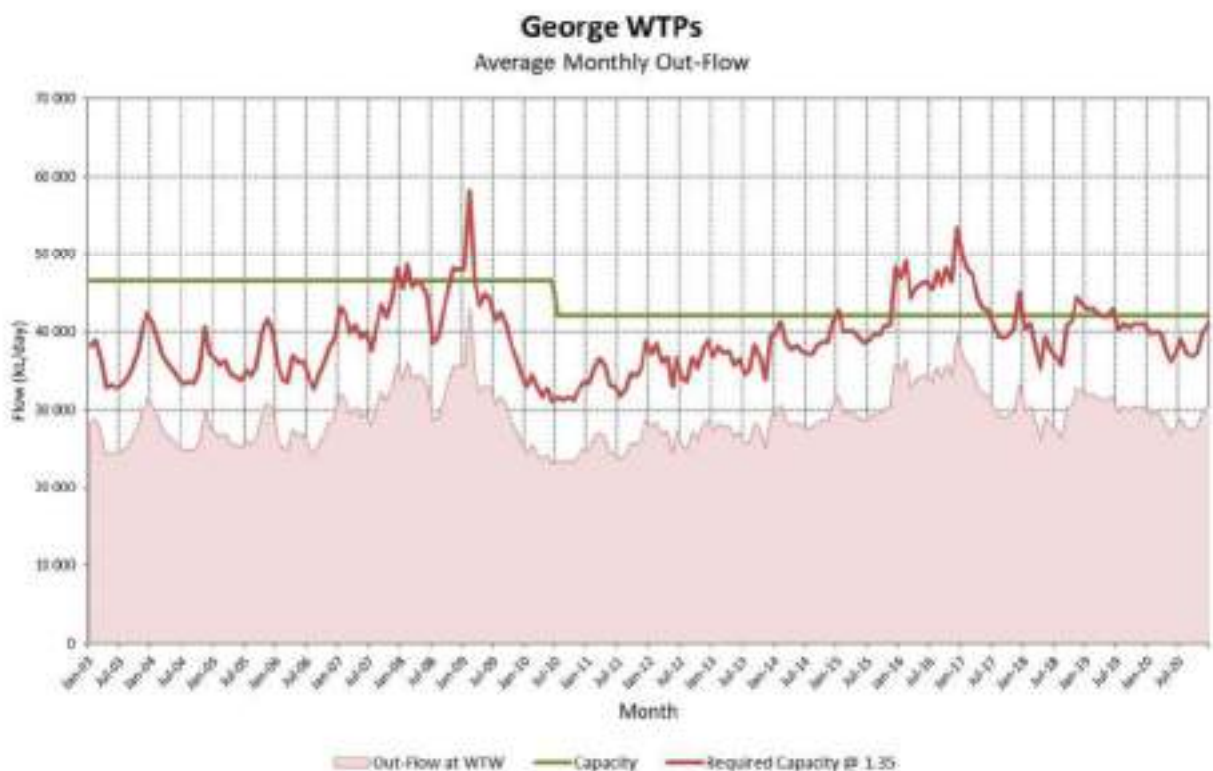
3 WATER DISTRIBUTION NETWORK

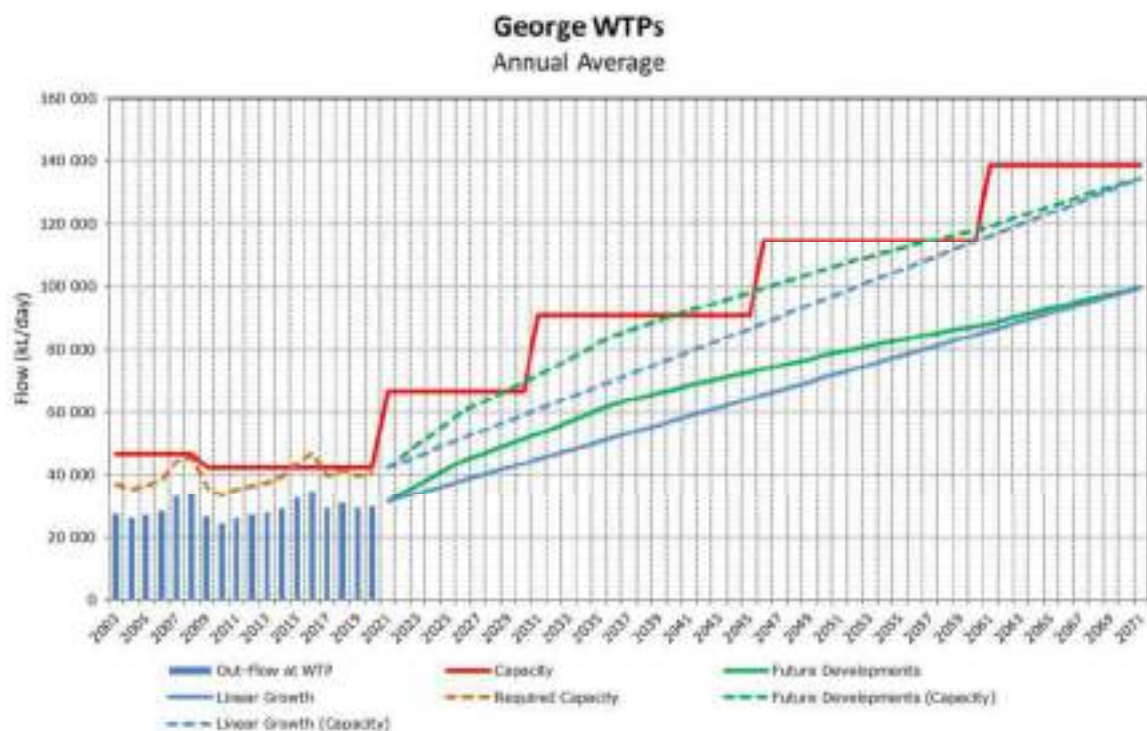
3.1 Water Resources

Water Treatment Plant capacity

The Master Plan indicates that the Reservoirs @ Old WTP Site in section 3.2 below is supplied from the Old and New George WTPs.

The two graph overleaf shows that the design capacity of the Old and New George WTPs (green line) has been exceeded by the average monthly required capacity (dark red line) a few times in the last decade. The WTPs are thus operating at risk and needs to be extended.





Based on available information the capacity, present flow and projected short-term flow are as follows:

George WTPs	Capacity	Comment
Existing Capacity	42 200 kL/d	Design capacity 46 700 kL/d
Measured Flow (incl. 1.35 factor)		
Annual Average	46 894 kL/d	Maximum 2016/17
	-4 694 kL/d	Spare capacity available
Monthly Average	58 176 kL/d	February 2009
	-15 976 kL/d	Spare capacity available
Modelled Flow (incl. 1.35 factor)		
T_AADD (existing)	42 398 kL/d	
	-198 kL/d	Spare capacity available
3yr Projection	47 932 kL/d	
	-5 732 kL/d	No spare capacity available
5yr Projection	51 621 kL/d	
	-9 421 kL/d	No spare capacity available

Note: T_AADD: Theoretical Annual Average Daily Demand

The flow projections include all stands that are presently vacant but expected to be occupied over the next 5 years as well as all future areas likely to develop within the next 5 years

3.2 Distribution Zone

The master plan indicates that the proposed development falls in the George Main zone as shown in **Figure 1 (Water)** attached.

3.3 Categorisation of required upgrades

The items are categorised as follows:

- General system specific MP Items – required to address capacity issues and backlogs in the bulk and reticulation systems serving the proposed development, but not specifically required for the development per sé.
- Development specific MP Items – new additions to (or deviations from) the existing Master Plan, required specifically for the proposed development, as a result of more accurate information relative to the original estimate of future development.

It is important to note that all proposed items are schematic in nature, final size and location is subject to a complete design by a suitably qualified engineer. The final locality in particular is subject to legislative requirements including but not limited to pipes not crossing private stands, no servitudes registered in private stands and no pipes in stands with an area less than 400m².

3.4 Bulk Water Supply

Reservoir storage capacity

One of the main considerations in bulk water supply is reservoir storage capacity and in the assessment of storage capacity, two demand scenarios are considered.

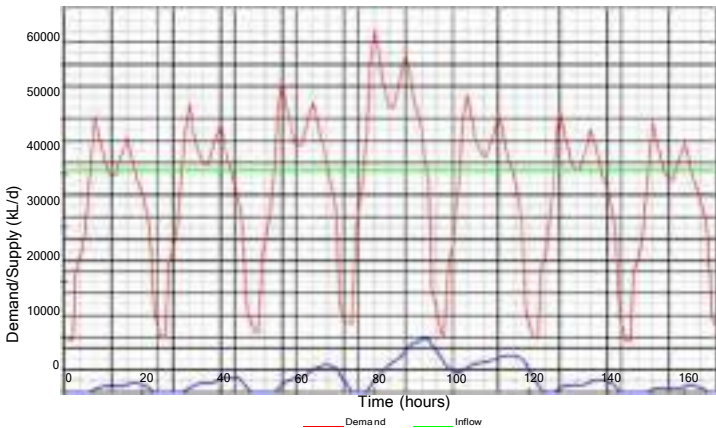
The first (Theoretical Current Demand) scenario represents the demand in the system as it is currently experienced, i.e. it only includes the demand for stands that are developed (vacant stands are ignored), and only due to land use rights currently being exercised. An allowance for 10% water losses is also included in the scenario.

The second (Theoretical Fully Occupied Demand) scenario is the planning scenario and represents the demand of all the existing stands, irrespective of whether they are developed or vacant. Most importantly, the demand is based on the zoning of each stand i.e. the maximum demand allowed for under existing land use rights (known as zoning rights). Ideally the existing system should have sufficient capacity for this scenario which represents all existing development rights. An allowance for 10% water losses is also included in this scenario.

The difference between the two demand scenarios becomes relevant when there is “perceived” spare storage capacity in the Theoretical Current Demand scenario and no storage capacity in the Theoretical Fully Occupied Demand scenario. This means that the storage capacity allotted to all existing stands (in the Theoretical Fully Occupied Demand scenario) is currently not utilised in the Theoretical Current Demand scenario, it is however still committed to the water demands derived from the zoning rights.

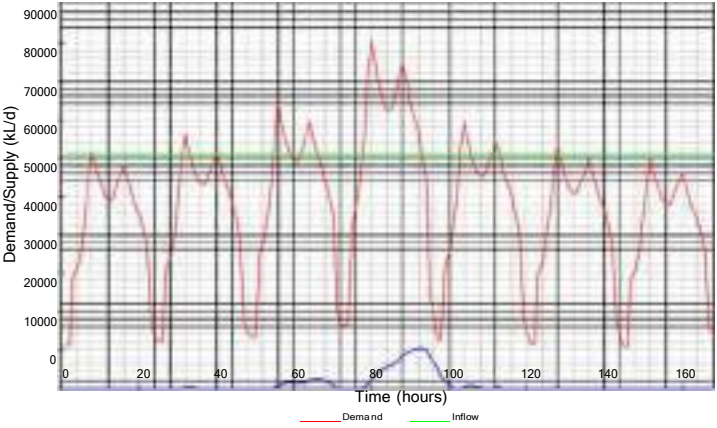
Reservoir capacity assessment (Theoretical Current Demand)

The current George Main zone AADD plus UAW (Theoretical Current Demand) in the m2021-09 water model is 26 354 kL/d. The capacity of the existing Reservoirs @ Old WTP Site is 36 120 kL. The existing FCV is set at 469 L/s. Using these three input variables in a reservoir sizing analysis, it shows that the remaining spare capacity is 8 427 kL.

DETERMINATION OF RESERVOIR BALANCING VOLUME and/or REQUIRED SUPPLY RATE (Theoretical Current Demand)									
Type in values in shaded cells				Res @ Old WTP Site					
Full zone	26 354 kL/d			<div>Peak Week Determination of Balancing Volume</div> 					
Direct zone	18 096 kL/d								
AADD	26 354 kL/d								
PDF	1.70 * AADD								
PWF	1.40 * AADD								
P3DF	1.51 * AADD								
Supply	1.54 * AADD		By Hand						
=	40 500 kL/d								
=	469 L/s		Pipe @ 1.8 m/s						
			576 mm						
Bal.Vol.	9 598 kL/d								
=	8.7 h*AADD								
			%						
Pattern 1	Large zone	Large	68.7%						
Pattern 2	Small zone	Medium	0.0%						
Pattern 3	LC Housing	Small	0.0%						
Pattern 4			0.0%						
Pattern 5			0.0%						
Pattern 6			0.0%						
Pattern 7	Even	To a res.	31.3%						
Must add up to 100 --> check			100.0%						
VOLUME ANALYSIS (applies only to area directly supplied, i.e. not to the Pattern 7 supply)									
Capacity	36 120 kL		=	47.9 h x AADD					
Required balancing	9 598 kL		=	12.7 h x AADD					
Available volume	26 522 kL		=	35.2 h x AADD					
Required emergency	18 096 kL		=	24.0 h x AADD					
Spare capacity	8 427 kL		=	11.2 h x AADD					

Reservoir capacity assessment (Theoretical Fully Occupied Demand)

The current George Main zone AADD (Theoretical Fully Occupied Demand) in the m2021-09 water model is 36 507 kL/d. The capacity of the existing Reservoirs @ Old WTP Site is 36 120 kL. The future FCV is set at 700 L/s. Using these three input variables in a reservoir sizing analysis, it shows that the remaining spare capacity of 2 176 kL is sufficient to cater for the proposed development with the implementation of the proposed WTP upgrade.

DETERMINATION OF RESERVOIR BALANCING VOLUME and/or REQUIRED SUPPLY RATE (Theoretical Fully Occupied Demand)									
Type in values in shaded cells				Res @ Old WTP Site					
Full zone	36 507 kL/d			<p style="text-align: center;">Peak Week Determination of Balancing Volume</p>  <p style="text-align: center;">— Demand — Inflow</p>					
Direct zone	23 636 kL/d								
AADD	36 507 kL/d								
PDF	1.70 * AADD								
PWF	1.30 * AADD								
P3DF	1.42 * AADD								
Supply	1.66 * AADD		By Hand						
=	60 500 kL/d								
=	700 L/s		Pipe @ 1.8 m/s 704 mm						
Bal.Vol.	10 308 kL/d								
=	6.8 h*AADD								
			%						
Pattern 1	Large zone	Large	64.7%						
Pattern 2	Small zone	Medium	0.0%						
Pattern 3	LC Housing	Small	0.0%						
Pattern 4			0.0%						
Pattern 5			0.0%						
Pattern 6			0.0%						
Pattern 7	Even	To a res.	35.3%						
Must add up to 100 --> check			100.0%						
VOLUME ANALYSIS (applies only to area directly supplied, i.e. not to the Pattern 7 supply)									
Capacity	36 120 kL		=	36.7	h x AADD				
Required balancing	10 308 kL		=	10.5	h x AADD				
Available volume	25 812 kL		=	26.2	h x AADD				
Required emergency	23 636 kL		=	24.0	h x AADD				
Spare capacity	2 176 kL		=	2.2	h x AADD				

3.4.1 Existing bulk water system considerations

Items presented here are for the attention of the George Municipal engineering professional (yourself) so as to highlight existing shortfalls or the imminent potential thereof.

General items required to alleviate existing problems in the bulk water system:

Item No	Description	Extent	Size	Cost
GMR_B15.01	Water Treatment Facility to install: Old WTP	4 500 m ³ /d @	306 m EGL	R 66 505 000 # ¹
GMR_B01.01	Water Treatment Facility to install:	20 000 m ³ /d @	254 m EGL	R 235 500 000
GMR_B01.06	Pipe to install	7 m x	500 mm Ø	R 543 000
GMR_B01.07	Pump Only to install: New WTP PS	160 L/s @	50 m	R 1 298 000
Total				R 303 846 000

Note: #¹ - Refurbish WTP to original design capacity of 25 000 m³/d.

3.4.2 Accommodation of the proposed development in the bulk water system

Development specific items required in the bulk water system:

None

3.5 Water Reticulation System

Accommodation of the proposed development, with its revised AADD, requires implementation of the following additions and adjustments to the *existing* water system as indicated in **Figure 1 (Water)**.

3.5.1 Existing water reticulation system considerations

Items presented here are for the attention of the George Municipal engineering professional (yourself) so as to highlight existing shortfalls or the imminent potential thereof.

General items required to alleviate existing problems in the water distribution system:

Item No	Description	Extent	Size	Cost
Existing external system (required for supply Oubaai / Herold's Bay reservoirs zones)				
GMR_05.01a	Pipe to install	334 m x	400 mm Ø	R 2 537 000
GMR_05.01b	Pipe to install	2 m x	400 mm Ø	R 321 000
GMR_05.01c	Pipe to install	9 m x	110 mm Ø	R 28 000
GMR_05.01d	Pipe to install	31 m x	110 mm Ø	R 51 000
GMR_05.01e	Pipe to abandon	264 m x	200 mm Ø	R -
GMR_05.01f	Pipe to abandon	66 m x	200 mm Ø	R -
GMR_05.02a	Pipe to install	309 m x	400 mm Ø	R 2 368 000
GMR_05.02b	Pipe to install	207 m x	400 mm Ø	R 1 690 000
GMR_05.02c	Pipe to install	254 m x	400 mm Ø	R 2 000 000
GMR_05.02d	Pipe to install	13 m x	400 mm Ø	R 395 000
GMR_05.02e	Pipe to install	9 m x	90 mm Ø	R 27 000
GMR_05.02f	Pipe to install	70 m x	90 mm Ø	R 87 000
GMR_05.02g	Pipe to install	9 m x	110 mm Ø	R 28 000 # ²
GMR_05.02h	Pipe to install	47 m x	110 mm Ø	R 68 000
GMR_05.02i	Valve to insert and close	1 x	400 mm Ø	no cost
GMR_05.02k	Pipe to abandon	211 m x	200 mm Ø	R -
GMR_05.02l	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.02m	Pipe to abandon	141 m x	200 mm Ø	R -
GMR_05.02n	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.02o	Pipe to abandon	211 m x	200 mm Ø	R no cost # ²
GMR_05.02p	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.03	Pressure Reducing Valve to install	250 m EGL	500 mm Ø	R 9 600 000

Note: #² - Future Regional PRV (not required for the interim period).

3.5.2 Accommodation of the proposed development in the water reticulation system.

Development specific items required in the water distribution system (excluding fire flow requirements):

None

Development specific items required in the water distribution system (**including** fire flow requirements):

Item No	Description	Extent	Size	Cost
Existing external system (required to accommodate the development)				
GMR_05.04a	Pipe to install	826 m x	400 mm Ø	R 5 817 000
GMR_05.04b	Pipe to install	47 m x	400 mm Ø	R 625 000
GMR_05.04c	Pipe to abandon	774 m x	200 mm Ø	R -
GMR_05.04d	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.05a	Pipe to install	326 m x	400 mm Ø	R 2 482 000
GMR_05.05b	Pipe to abandon	281 m x	200 mm Ø	R -
GMR_05.05c	Pipe to abandon	37 m x	200 mm Ø	R -
GMR_05.06a	Pipe to install	190 m x	400 mm Ø	R 4 109 000
GMR_05.06b	Pipe to abandon	114 m x	200 mm Ø	R -
GMR_05.06c	Pipe to abandon	99 m x	200 mm Ø	R -
GMR_05.07a	Pipe to install	288 m x	400 mm Ø	R 2 227 000
GMR_05.07b	Pipe to abandon	211 m x	200 mm Ø	R -
GMR_05.07c	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.08a	Pipe to install	146 m x	400 mm Ø	R 1 280 000
GMR_05.08b	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.08c	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.09a	Pipe to install	497 m x	315 mm Ø	R 2 451 000
GMR_05.09b	Pipe to abandon	421 m x	200 mm Ø	R -
GMR_05.09c	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.10a	Pipe to install	711 m x	315 mm Ø	R 3 474 000
GMR_05.10b	Pipe to abandon	632 m x	200 mm Ø	R -
GMR_05.10c	Pipe to abandon	70 m x	200 mm Ø	R -

Sub-Total R 22 465 000 T¹

Existing external system (required pipe replacement for maintenance)				
GMR_05.11a	Pipe to install	638 m x	315 mm Ø	R 3 126 000
GMR_05.11b	Pipe to abandon	562 m x	200 mm Ø	R -
GMR_05.11c	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.12a	Pipe to install	358 m x	315 mm Ø	R 1 785 000
GMR_05.12b	Pipe to abandon	281 m x	200 mm Ø	R -
GMR_05.12c	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.13a	Pipe to install	214 m x	250 mm Ø	R 766 000
GMR_05.13b	Pipe to abandon	70 m x	200 mm Ø	R -
GMR_05.13c	Pipe to abandon	141 m x	200 mm Ø	R -
GMR_05.14a	Pipe to install	527 m x	250 mm Ø	R 1 773 000
GMR_05.14b	Pipe to abandon	448 m x	200 mm Ø	R -
GMR_05.14c	Pipe to abandon	74 m x	200 mm Ø	R -

Sub-Total R 7 450 000 T²

Future internal network				
GMR_F37.01	Pipe to install	5 m x	200 mm Ø	R 58 000
GMR_F37.02a	Pipe to install	8 m x	200 mm Ø	R 64 000
GMR_F37.02b	Pressure Reducing Valve to install	250 m EGL	150 mm Ø	R 344 000 # ³
GMR_F37.03	Pipe to install	147 m x	200 mm Ø	R 333 000 # ³
GMR_F37.04	Pipe to install	194 m x	200 mm Ø	R 424 000
GMR_F37.05	Pipe to install	201 m x	200 mm Ø	R 404 000
GMR_F37.06	Pipe to install	322 m x	200 mm Ø	

no cost #⁴

Sub-Total R 1 627 000 T³

MP implementation cost to accommodate the proposed development

Total (T¹ & T³) R 24 092 000

MP implementation cost (included pipe replacement for maintenance)

Total (T¹, T² & T³) R 31 542 000

Note: #³ - Interim PRV prior to the implementation of future Regional PRV (Item GMR_05.03).
#⁴ - Future connection.

The proposed connection points to the existing water distribution system are shown in **Figure 1 (Water)**.

3.6 Internal Reticulation

The internal network design on the property of the proposed development is beyond the scope of this report. However, the consulting engineer for the development is required to allow for the fire flow demand as listed in 2.2 above on the internal networks.

For internal network design purposes the water distribution network provides the following energygradelines (EGLs) at the proposed connection points (see **Figure 1 (Water)**).

Connection Point	Static		Residual		Fire Flow		Ground Level (m a.s.l.)
	EGL (m a.s.l.)	Head (m)	EGL (m a.s.l.)	Head (m)	EGL (m a.s.l.)	Head (m)	
Point A	295.0	105.9	232.9	43.8	214.8	25.7	189.1

3.7 Adjustments to the Master Plan

The revised AADD of the proposed development and/or existing issues require the following additions and adjustments to the *master plan*:

3.7.1 Bulk Items

Adjustments to the Master plan:

None

3.7.2 Reticulation Items

Adjustments to the Master plan (**excluding** fire flow):

None

Adjustments to the Master plan (**including** fire flow):

None

4 SEWER CONVEYANCE NETWORK

4.1 Sewer Drainage Area

The master plan indicates that the proposed development falls in the proposed Groeneweide Ext. PS F2 drainage area as shown in **Figure 2 (Sewer)** attached. This drainage area drains to the Gwaiing WWTW.

4.2 Categorisation of required upgrades

The items are categorised as follows:

- General system specific MP Items – required to address capacity issues and backlogs in the bulk and reticulation systems serving the proposed development, but not specifically required for the development per sé.
- Development specific MP Items – new additions to (or deviations from) the existing Master Plan, required specifically for the proposed development, as a result of more accurate information relative to the original estimate of future development.

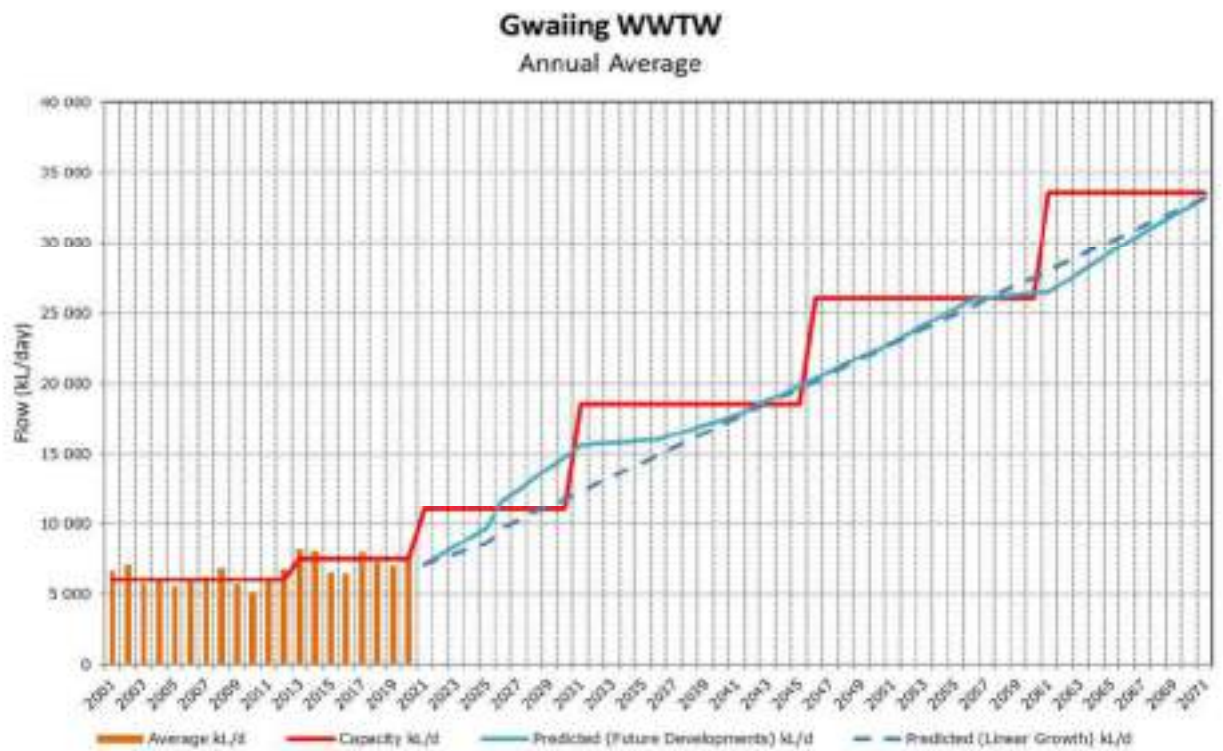
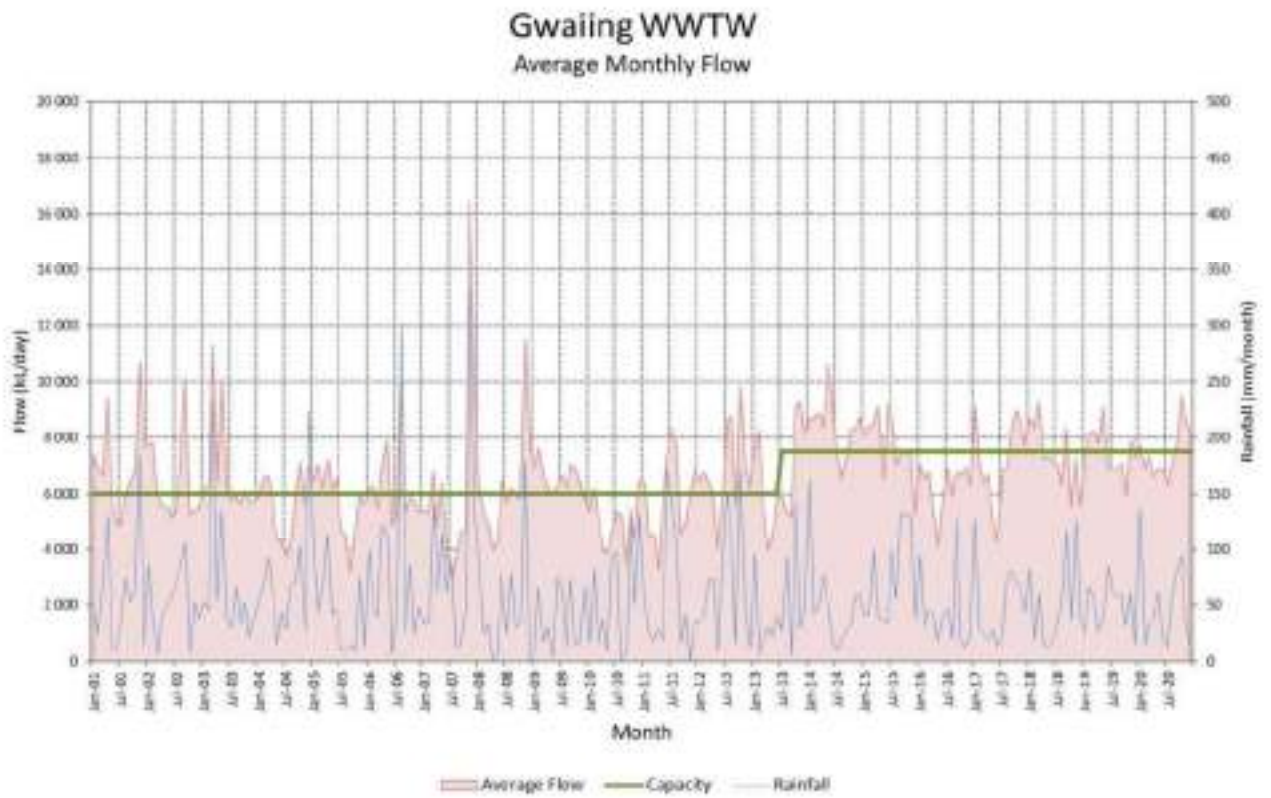
It is important to note that all proposed items are schematic in nature, final size and location is subject to a complete design by a suitably qualified engineer. The final locality in particular is subject to legislative requirements including but not limited to pipes not crossing private stands, no servitudes registered in private stands and no pipes in stands with an area less than 400m².

4.3 Bulk Sewer Drainage

Accommodation of the proposed development, with its revised PDDWF, requires implementation of the following additions and adjustments to the existing sewer system as indicated in **Figure 2 (Sewer)**.

Wastewater Treatment Works capacity

The graph overleaf shows that the design capacity of the Gwaiing WWTW (green line) has been exceeded by the Average Monthly Flow (light red shaded area) a few times in the last decade. The WWTW is thus operating at risk and needs to be extended.



Based on available information the capacity, present flow and projected short-term flow are as follows:

Gwaing WWTW	Capacity	Comment
Existing Capacity	11 000 kL/d	
Measured Flow		
Annual Average	8 117 kL/d	Maximum 2013/14
	2 883 kL/d	Spare capacity available
Monthly Average	16 467 kL/d	November 2007
	-5 467 kL/d	Spare capacity available
Modelled Flow		
T_PDDWF (existing)	7 095 kL/d	
	3 905 kL/d	Spare capacity available
3yr Projection	8 663 kL/d	
	2 337 kL/d	No spare capacity available
5yr Projection	9 709 kL/d	
	1 291 kL/d	No spare capacity available

Note: T_PDDWF: Theoretical Peak Daily Dry Weather Flow (Total Wastewater Flow, Peak day in week)

The flow projections include all stands that are presently vacant but expected to be occupied over the next 5 years as well as all future areas likely to develop within the next 5 years

4.3.1 Existing bulk sewer system considerations

Items presented here are for the attention of the George Municipal engineering professional (yourself) so as to highlight existing shortfalls or the imminent potential thereof.

General items required to alleviate existing problems in the bulk sewer system:

Item No	Description	Existing Diam (mm)	New Diam (mm)	Length (m)	Design Flow	Cost
GW_17.00	Upgrade existing Treatment Plant: Gwaing WWTW	-	-	-	3.5 ML/d	R 79 513 000
Total						R 79 513 000

Note: #¹ - Refurbish WWTP to original design capacity of 11.0 ML/d.

4.3.2 Accommodation of the proposed development in the bulk sewer system.

Development specific items required in the bulk sewer system:

Item No	Description	Existing Diam (mm)	New Diam (mm)	Length (m)	Design Flow	Cost
Future external system (not required for the interim option)						
GW_F17.10	New Gravity	-	400	44	595.7 L/s	R 265 000
GW_F30.01	New Pump Station: Groeneweide Ext. PS F2	-	-	-	595.7 L/s	R 18 021 000
GW_F30.02	New Rising	-	700	2 980	595.7 L/s	R 38 273 000
Total						R 56 559 000

4.4 Sewer reticulation system

Accommodation of the proposed development, with its revised PDDWF, requires implementation of the following additions and adjustments to the *existing* sewer system as indicated in **Figure 2 (Sewer)**.

4.4.1 Existing sewer reticulation system considerations.

Items presented here are for the attention of the George Municipal engineering professional (yourself) so as to highlight existing shortfalls or the imminent potential thereof.

General items required to alleviate existing problems in the existing sewer system:

None

4.4.2 Accommodation of the proposed development in the sewer reticulation system.

Development specific items required in the existing sewer system:

Item No	Description	Existing Diam (mm)	New Diam (mm)	Length (m)	Design Flow	Cost
Future internal system (both options)						
GW_F40.03	New Gravity	-	160	268	10.7 L/s	R 512 000
GW_F68.01	New Gravity	-	160	188	2.9 L/s	R 373 000
Sub-Total						R 885 000 T¹
Future external system (both option)						
GW_F68.02	New Gravity	-	160	279	5.9 L/s	R 531 000
GW_F40.02	New Gravity	-	160	147	7.8 L/s	no cost # ²
GW_F69.02	New Gravity	-	160	162	1.0 L/s	no cost # ²
Sub-Total						R 531 000 T¹
Future external system (not required for the interim option)						
GW_F40.04	New Gravity	-	160	71	13.5 L/s	R 169 000
GW_F24.03	New Gravity	-	160	393	20.7 L/s	R 730 000
GW_F24.04	New Gravity	-	200	474	27.2 L/s	R 991 000
GW_F24.05	New Gravity	-	250	455	30.6 L/s	R 1 138 000
GW_F24.06	New Gravity	-	200	731	32.3 L/s	R 1 503 000
GW_F23.02	New Gravity	-	200	168	39.0 L/s	R 713 000
Sub-Total						R 5 244 000 T²
Existing external system (both option)						
GW_34.01	Downsize existing Pumps (Investigate first): Airport PS 2	-	-	-	5.0 L/s	R 26 000
Sub-Total						R 26 000 T¹
Existing external system (not required for the interim option)						
GW_F24.01	New Flow Diversion	-	-	-	6.5 L/s	R -
GW_F24.02	New Gravity	-	160	72	6.5 L/s	R 170 000
GW_15.01	Abandon existing Pump Station: Airport PS 1	-	-	-	- L/s	R 240 000
GW_15.02	Abandon existing Rising	160	200	4 274	- L/s	R 98 000
GW_15.03	Abandon existing Gravity	100	160	8	- L/s	R 17 000
GW_15.04	Abandon existing Sump: Airport PS 1 Storage Tank	-	-	-	- kL/d	R -
GW_15.05	Abandon existing Gravity	160	160	12	- L/s	R 17 000
Sub-Total						R 542 000 T²

Item No	Description	Existing Diam (mm)	New Diam (mm)	Length (m)	Design Flow	Cost
Future external system (only required for the interim option)						
GW_F40.05	New Gravity (Alternative)	-	160	115	5.6 L/s	R 246 000
GW_F70.01	New Flow Diversion (Alternative)	-	-	-	7.0 L/s	R -
GW_F70.02	New Gravity (Alternative)	-	160	54	7.0 L/s	R 139 000
GW_F71.01	New Pump Station (Alternative): Airport PS F1	-	-	-	7.5 L/s	R 2 669 000
GW_F71.02	New Rising (Alternative)	-	110	512	7.5 L/s	<u>R 516 000</u>

Sub-Total R 3 570 000 T³

MP implementation cost for the interim period

Total (T¹ & T³) R 5 012 000

MP implementation cost

Total (T¹ & T²) R 7 228 000

Note: #² - Future connection.

The proposed connection points to the future sewer system are shown in **Figure 2 (Sewer)**.

Connection Point	Design Flow (L/s)
Point A	2.9
Point B	2.8
Point C	2.9
Point D	1.6

In **Figure 2 (Sewer)** pipes in future development areas are indicated schematically.

The above Design Flows (or IPWWF) and thus pipe sizes were calculated taking cognizance of future developments upstream of the proposed development. In this regard, sewer pipes within the proposed development must be designed (layout and sizing) to receive a Design Flow from the following future connections (see **Figure 2 (Sewer)**).

Connection Point	Design Flow (L/s)
GW_F40.02	7.9

As the Design Flow already accommodates stormwater ingress, the pipes can be designed to flow 100% full with the Design Flows provided above.

4.5 Adjustments to the Master Plan

The revised PDDWF of the proposed development and/or existing issues require the following additions and adjustments to the *master plan* as indicated in **Figure 2 (Sewer)**.

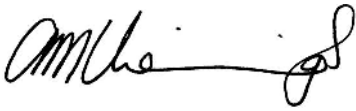
4.5.1 Bulk Items

Adjustments to the Master plan:
None

4.5.2 Reticulation Items

Adjustments to the Master plan:
None

Yours sincerely,



Per: A Vienings (Pr. Eng.)
GLS Consulting

(Report done by: JJ van der Merwe)

REQUEST FROM CONSULTANT TO GLS

RE: GeorgeIMQS – George Lughawe ontwikkeling



Flip Joubert <flip@iceisp.co.za>

To: Julie van der Merwe

Cc: Lindsey Molesley; Ricus Fivaz; Michael Eitton; Marius Swart

Reply

Reply All

Forward

Thu 30/09/2021 14:54

sewer-layout.pdf
397 KBsewer-layout.dwg
2 MBLand use table.xlsx
19 KB

Action Items

Get more actions

Hallo Julie,

Attached please find the information as requested.

Thank you for the proposed masterplan for water and sewer, it is very helpful. I got the DC Guidelines for water and sewer from Ricus. I am impressed with the planning of George. I'm sure GLS made a major contribution.

You will find the proposed development layout on the sewer layout drawing. I attached it in pdf and dwg format. The proposed zoning and erf data are indicated in the Land use table.

We included the sewer master planning as provided by you in our planning. GW_F40.02 runs through the development along the western edge. From the master plan it is clear that the existing sewage from the Airport is pumped via a rising main that runs along the R102 (GW_15.02). We propose to drain the western part of the Airport Support Zone (ASZ) via GW_F40.02 to the existing Airport Pump Station. You will see on the sewer layout plan how we drain the western stands to GW_F40.02. Please confirm if this is feasible.

The eastern part of the ASZ will drain via GW_F68.02 to the south. Do you have any information on the planning of this route. Will it be feasible to pump this sewage emanating from the eastern stands of the ASZ to GW_F40.02 in the interim?

I have done the calculation of both the sewer and water DC amounts. Please confirm that my methodology is correct.

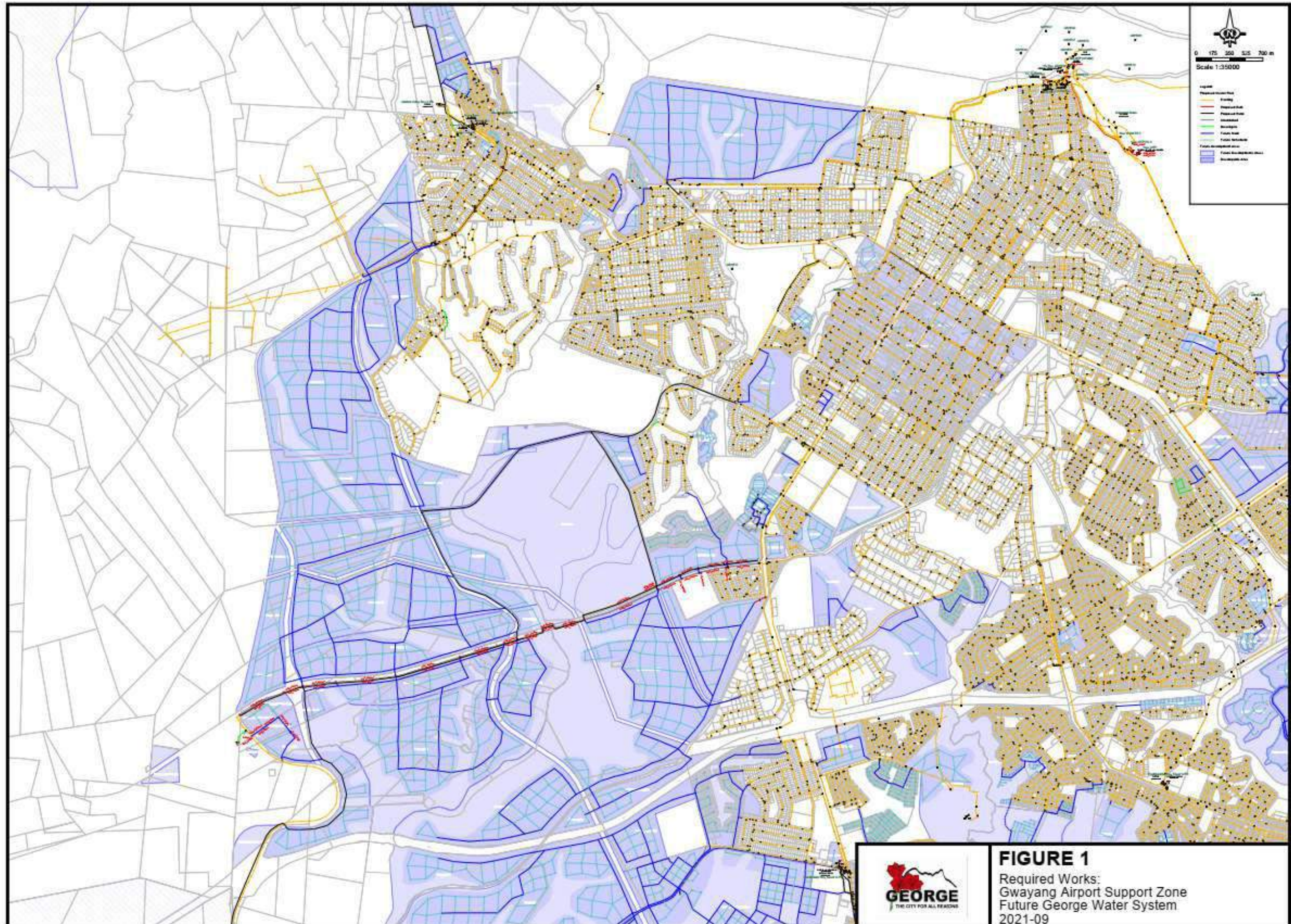
Please provide me with your quotation for the assistance required.

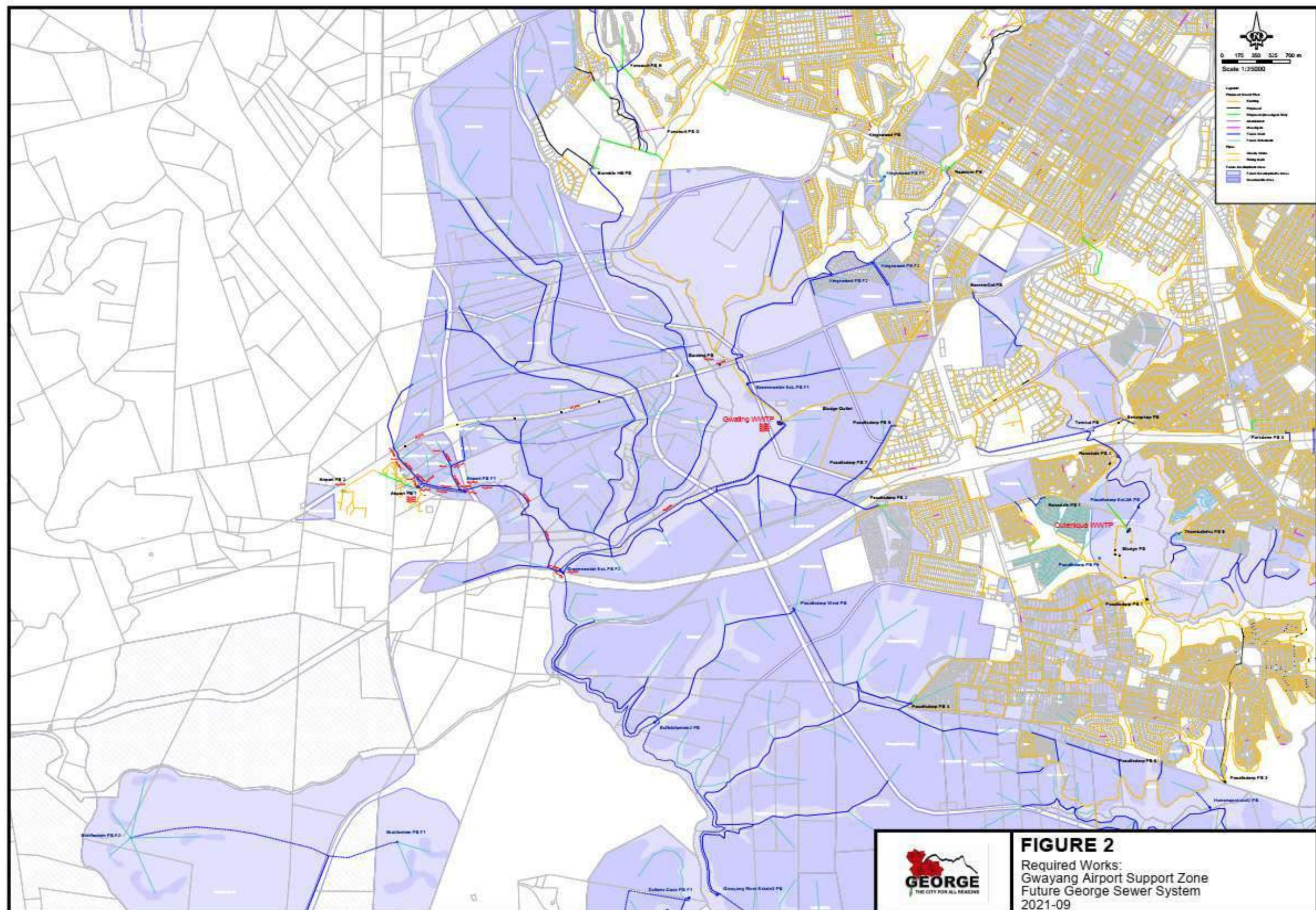
Your assistance is highly appreciated.

Regards

Flip Joubert Pr Eng







Annexure C

Report by Hollard Insurance Company Limited on appropriate fire protection infrastructure



Pretoria Hollard Insurance
Walker Creek Office Park
Building 3 Ground Floor 90
Florence Ribeiro Street 0075
A Licensed Financial Services Provider

HOLLARD INSURANCE COMPANY LIMITED

Letters:
P O Box 2039
Brooklyn
Pretoria
0075
Tel: 012 460 1030
Fax: 012 460 3582
Web: www.hollard.co.za

25th November 2021

To Whom it may concern

Dear Sir/Madam

INFORMATIVE INFORMATION

From the e-mail there is a concern regarding a stable water and electricity supply to the new George Airport Zone to be erected in the new future. Much confusion exists as to what is an acceptable water supply for firefighting.

Historically, water supply was tied to the 'fire risk'.

Fire risk can be defined as the product of the frequency of a fire and the consequences resulting therefrom. This requires integration over the range of possible fires and the resulting impacts.

The fire risk may often be confined to a single building. However, on the industrial and commercial scale of risks, all other risks need to be considered in assessing the need for water and logistical resources to fight fires/facilitate rescue.

Although these are not specifically included in the fire flow calculations it does illustrate why the commercial and industrial parks demand must account for risks on a larger scale than the typical building. Consequently, the definition of a water supply in these situations is typically not confined to a building but rather reflects the 'risk spectrum' in the business area. In fact, engineers designing water supply infrastructure must assume that fire will spread beyond the building.

In the case of industrial and commercial sites, more reliability is required due to the industrial processes and insurer requirements based on the exposure to loss. Design of water supplies in these situations would involve at least two supplies (municipal supply and on-site water-tanks).

During your discussions with the Local Municipality, it has been confirmed that the Municipality cannot be held responsible for any damages resulting from consequences related to the temporary termination of water supply or to the availability of water supply.

In supporting this statement, see Point 4 "Requirements", NOTE 3, as taken from SANS 10400-Part W, Fire Installations.

NOTE: - 3 "...The local authority cannot guarantee the pressure or supply of water and can only indicate what the residual pressure at a water connection should be. Accordingly, the owner should assess the risk or secure his water supply by means of on-site storage facilities..."

Due to the current water and electricity situation in South Africa, Hollard, as an insurance company is very much in favour of own water on-site storage facilities.

hollard.co.za

The Hollard Insurance Co. Ltd (Reg No. 1952/001004/06),
a Licensed Non-Life insurer and an authorized Financial Services Provider

Hollard Villa Arcadia, 22 Oxford Road, Parktown, Gauteng, 2195
PO Box 87419, Houghton, 2041

T: 011 351 3000
F: 011 351 3001

This letter and attachments are confidential. Do not keep, copy or distribute it if you are not the intended recipient. Please destroy it and notify us on sopa@hollard.co.za.

NOTE: - We are aware of the cost implications however, all buildings must comply with certain minimum building standards as requirement by law, more specific SANS10400:2020, The Application of the National Building Regulations. In this instance we refer to, Part A: General principles and requirements; Part B Structural Design; Part T: Fire protection and Part W: Fire installations.

AIM

The aim of the document is to explain why it is important of having a reliable water source, for domestic use as well as for firefighting purposes, more so ever feeding sprinkler systems that might have to be installed within the warehouses as part of the scope of the George Airport Zone.

LEGISLATION

Part of the answer can be found in the regulations pertaining to the use of sprinkler systems, and the framework of criteria for the buildings and the goods that may be stored there. These regulations have usually been drawn up based on input from the insurance sector and are largely based on fire tests, since it is not yet possible to create sufficiently detailed models of fire behaviour. Such fire tests are also used as the basis for defining the criteria that sprinkler systems must meet to comply with the regulations.

For instance, if a fire test has been carried out successfully in a situation in which pallets are stored back-to-back in racking with a 150mm gap between them, there is a reasonable chance that 150mm will become the distance stipulated in the regulations – not because there is proof that a gap of 149mm is insufficient, but because 150mm has been proven to be sufficient. Indeed, the regulations applying to the use of sprinkler systems are weighty tomes.

INSPECTIONS

Another development in recent years has been that inspection agencies are paying greater attention to the degree of compliance with the regulations. Insurance companies' margins have been under pressure for some time, and this is slowly but surely having an impact on how the rules are applied. After all, from an insurer's point of view, better compliance means reduced risk.

While it is not so that insurers are making demands that go above and beyond the regulations, they do seem to expect their customers to follow the rules more closely.

In the case of a sprinkler system that has been designed based on a complex set of rules, such as an Early Suppression Fast Response (ESFR) sprinkler, stricter compliance can lead to a few surprises.

BACKGROUND

It's an unfortunate fact that fires in warehouses and large single storey buildings are far more frequent than is generally thought. Warehouse fires are both costly and disruptive – damage to property added to loss of stock and business interruption mean that the fires have economic, social, and environmental impact on the local area, the wider community and in many cases on the associated industry.

The single, largest cause of fires in warehouses is defective electrical installations or equipment. Twenty-five (25%) of warehouse fires are started deliberately and one third of these fires occur between midnight and 6:00am, when there are few staff available to provide any sort of effective response.

Advantages of a reliable water source

- Water security for continued business operations, counter municipal water supply outages, and prevent operational interruptions. Rapid urbanization and industrial in development often outstripped municipal infrastructure and challenge resources. The lack of water supply poses a major challenge for business growth and daily operation in the manufacturing sector, impacting the bottom line and the economy.
- Cost-Effective Solution
 - Rapid installation - The modular nature of the system (tank) enables quick, cost-effective installation even in locations, on a limited footprint, making the system ideal for commercial and industrial based installations.

- Cost effective installation. The panels are installed from the ground up, using a jacking system. No heavy lifting machinery or scaffolding is required on site for installation. Installation can be done in a matter of days following construction of ring beam and approved site compaction. Commissioning can begin immediately, following completion of installation, the tanks are immediately ready for full operational use.
- Corrosion resistant. The internal liner, made from durable and woven PVC, prevent the liquid making direct contact with steel, eliminating corrosion. Tanks and liners come with warranty protection.

Note: - The town of George and the airport is ± 5 km from each other. Costs for your account may be involved installing a dedicated pipeline for fire fighting from the town to the new development area whereas tanks can be filled from the already installed water supply line at the George Airport. (Shorten distance).

- Dual-Purpose Water Storage Options. The tanks are suited to the storage of potable (drinking) water as well as water for firefighting.
 - Durable and Reusable. Easy to relocate. The panel design allows for ease of relocation if needed.
- Large Storage Capacities - Typically, steel tank sizing will go up from 120 000 litres to 330 000 litres in either vertical or horizontal tank models and are specifically designed, tested, and inspected in accordance with National Fire Protection Association (NFPA) Standard No. 22.
 - Continuous water flow and water pressure guaranteed by the installation of fire pump, electrical pump, backed with a diesel driven pump.

Note: - Sprinkler design area, example: -

- Area- 232m² - 20 sprinkler heads
- Water needed - 2840 l/m or 142l/m per sprinkler head
- Pressure – 151.5Kpa
- Water tank capacity – 330 000 litres
- Time of operation – 116 minutes

Advantages of a sprinkler system

1. You're protected 24/7

A sprinkler provides reliable detection, alarm (local and remote), and fire suppression at all hours of the day and night, 365 days a year. International statistics show that 97-99% of fires in sprinkler-protected buildings are controlled or extinguished by the systems. The success is in part due to the simplicity of the sprinkler system: there are no computers or wiring – which also means no false alarms.

In addition to reducing the risk of fire, a certified sprinkler system also offers the opportunity to create considerably larger fire compartments. Since compartmentation not only limits the flexibility of a logistics operation but also increases the distances in a warehouse, larger compartments mean greater efficiency.

2. It's an investment that lasts a lifetime

A further benefit of fitting a properly certified sprinkler system is that it will have a very long service life, Fifty (50) years is common. This is thanks to strict adherence to standards for components, design, and installation. Systems in the South Africa are most often installed to ASIB Standards, SANS10278, and NFPA 13. The cost-of-service inspections once systems are installed is extremely low - running to less than R15 000 per year for the average system.

3. Lower insurance premiums

The fire insurance industry could offer significant premium discounts and or lower policy excesses for premises protected by automatic fire sprinklers. This is again thanks to the strict standards in place for sprinkler components, design, installation, and third-party certification, which add to up a reliable and trusted protection against fire.

4. Cost benefits and Return on Investment (ROI) are higher

The installation of sprinklers should ideally be considered at the start of any building project. Doing so means that developer and business owners can gain a significant return on investment.

Sprinklers allow for more freedom of design, more open space, extended fire escape travel distance, and increased density of the overall development.

By installing sprinklers, it's also possible to reduce building costs due to a reduction in the requirement for passive fire protection elements.

These benefits, combined with the potential savings on insurance premiums and possibility of increasing the sustainability credentials of the building through innovative (and more marketable) design features, could mean a real cost benefit that truly justifies the initial investment in sprinklers.

5. Protecting lives

Fighting a fire can be difficult in a large, open plan single storey building - particularly where high-risk materials, such as flammables and toxic chemicals or substances create an added danger beyond the risks usually involved in putting out a fire. The presence of sprinklers ensures that the growth of any fire will be contained (or even extinguished) prior to the arrival of the fire service, allowing safer access for our firefighters.

SPRINKLER MYTHS

A question also raised - What about unnecessary water damage?

Most common myths surrounding sprinklers.

i. **Myth:** Water damage from a sprinkler system will be more extensive than fire damage

- **FACT:** There is no denying that high volumes of water cause damage to property. However, the water damage from a sprinkler system will always be much less severe than the damage caused by either water from firefighting hose-lines, or smoke and fire damage if the fire goes unabated.

Quick response sprinklers release 30 to 91 litres of water per minute compared to the 190 to 473 litres per minute released by a firehose.

ii. **Myth:** Sprinklers can be activated unnecessarily

- **FACT:** Sprinklers are highly reliable devices that are activated by intense heat. They will only go off if there is a fire which increases the heat beyond the defined sprinkler trigger point (typically 135 to 165°F (57.2 to 73.9°C)).

iii. **Myth:** When a fire occurs, every sprinkler head goes off.

- **FACT:** Sprinkler heads are individually activated by fire. Residential fires are usually controlled with one sprinkler head, and 90 percent of all fires are controlled with six or fewer heads.

A study conducted in Australia and New Zealand covering 82 years of automatic sprinkler use found that 82 percent of the fires that occurred were controlled by two or fewer sprinklers.

iv. **Myth:** Smoke Alarms set fire sprinklers off.

- **FACT:** Fire sprinklers and smoke alarm systems are designed to activate according to different conditions. Smoke alarms, give only an audible warning sound when activated; they do not cause sprinklers to flow water.

However, in commercial applications where flooding volumes of water are needed to control hazardous areas, pre-action and deluge systems may use smoke detection for early notification and operation.

v. **Myth:** Sprinkler systems are not practical in a cold climate (cold rooms/freezers) because the pipes will freeze and cause water damage.

- **FACT:** In commercial applications, dry pipe (system without water until the system operates) and pre-action sprinklers (system charged with pressurized air) provide an alternative to water-filled pipes.

vi. **Myth:** Sprinklers are designed to protect property but are not effective for life safety.

- **FACT:** Statistics demonstrate that there has never been any multiple loss of life in a building that is fully equipped with sprinklers. The combination of automatic sprinklers and early warning systems in all buildings and residences could reduce overall injuries, loss of life, and property damage by at least 50 percent.

vii. **Myth:** If you press the fire alarm, the fire sprinkler is activated.

- **FACT:** If a fire alarm station is activated, the fire sprinklers will not go off. A fire alarm is designed to send a signal to the fire alarm panel - activating the alarm so that occupants of the building know to get to safety.

SCOPE OF DEVELOPMENT

The scope of the George Airport Zone development is approximately 120 000m² of light industrial buildings on approximately 20 stands which will be used for airport support services. We, therefore, assume that most of the buildings will exceed 2500m² and if they do it might be subdivided into smaller lettable units. Some units might be much bigger.

By the scope of the development, we are of opinion that two types of buildings will be erected which will vary in building costs, namely: -

Description	Area	R/m ² 1	R/m ² 2	Value 1	Value 2
Industrial warehouse, including office and change facilities within structure area (architect/engineer designed): - Steel frame, steel cladding and roof sheeting (light-duty)	120000	4 300	6 400	R 516 000 000	R 768 000 000
Steel frame, brickwork to ceiling, steel cladding above and roof sheeting (heavy-duty)	120000	5 000	7 200	R 600 000 000	R 864 000 000

Take note that no service installations, for example electrical installations and sprinklers system have been included in the calculations.

BUILDING CLASSIFICATION

By nature of the scope of development the buildings will be classified as: -B1

- High risk commercial service

Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.

B2 - Moderate risk commercial service

Occupancy where a non-industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.

B3 - Low risk commercial service

Occupancy where a non-industrial process is carried out and where neither the material handled, nor the process carried out falls into the high or moderate risk category.

D1 - High risk industrial

Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.

D2 Moderate risk industrial

Occupancy where an industrial process is carried out and where either the material handled or the process carried out is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.

D3 Low risk industrial

Occupancy where an industrial process is carried out and where neither the material handled, nor the process carried out falls into the high or moderate risk category.

D4 - Plant room

Occupancy comprising usually unattended mechanical or electrical services necessary for the running of a building. J1 -

High risk storage

Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion with extreme rapidity or give rise to poisonous fumes, or cause explosions.

J2 - Moderate risk storage

Occupancy where material is stored and where the stored material is liable, in the event of fire, to cause combustion with moderate rapidity but is not likely to give rise to poisonous fumes, or cause explosions.

J3- Low risk storage

Occupancy where the material stored does not fall into the high or moderate risk category.

If the above is true, the buildings must comply with various other rules and regulations as stipulated in SANS 10400:2020, Part T- Fire Prevention, The Application of the Building Regulations.

RISK CONSIDERATION

Investors such as Businessmen, Groups of People, Financial Institutions, or other persons invest in properties with the sole purpose of making a profit or making provision for their retirement. Other considerations might include uplifting of the community and job creation.

In reaching this goal the buildings must be sold or leased to make a profit.

To ensure this goal guarantees must be in place otherwise investors will not be very keen investing in property.

The owners/investors have two options: -

1. Taking on the risk by themselves and hope for the best that nothing unforeseen will happen to their investment or taking the viewpoint of.

OR

- Investors see insurance is a form of risk management meant to protect oneself from financial loss through transferring risk to another entity by paying them a regular premium.

Logic of Insurance

Insurance is “cheap” in relation with the value of “what” must be insured.

And

It must be beneficial for both parties.

Food for thought. An insurance company is the only business that takes on risk for a fraction of the cost the business is worth with the aim of showing a profit at the end of the year

INSURANCE PREMIUM

Achieving the goal any insurer will charge different rate for different classes of occupations to be insured, for example:

- Business A (Wildlife Estate) has a value of R91 579 932 – Premium R18 423. The year premium represents only 0.020% of the insured value.
- Business B (Body Corporate) has a value of R241 801 280 – Premium - R138 789. The year premium represents only 0.057% of the insured value.

In this instance Airport Companies are rated at a different rate, see below.

- Business C (Airports Company) Type 1 Buildings, with a value of R768 000 000 - Premium - R2 227 200. The year premium represents only 0.295% of the insured value.
- Business C (Airport Company) Type 2 Buildings, with a value of R864 000 000 – Premium - R2 505 600. The year premium represents only 0.295% of the insured value.

INSURANCE COMPLIANCE

Insurance companies are businesses just like other businesses. For any insurance company and partners (Re-Insurers) taking on a risk, the risk must comply with certain minimum standards, not only from the local insurer, but also from the Re-insurer, which are mostly overseas companies.

These standards are determined by Business Practices, Law, Local or other Legal Authorities, Applicable legislated requirements governing your operation, The Occupational Health and Safety Act, and SAN10400: 2020, The Application of the National Building Regulations to name a few.

MINIMUM REQUIREMENTS

Due the complexity of insuring risks, we have highlighted only a few requirements, you as client will have to comply ensuring that any Insurance Company will take on the risk as described in the document.

- Annex A (informative) National Building Regulations — Part T: Fire Protection; T1 General requirement.
- Annex B - (normative) Rational designs; B.1 Design requirements.
- Annex C - (informative) Appointment of competent persons.

MOST IMPORTANT

- REGULATION 4; Part T: Fire Protection.
- Part W- Fire Installation
 - 4.2 - Safety distances (Table 2)
 - 4.2.2 - Fire resistance of external walls (Table 1).

- 4.2.5 - ...“two or more buildings on the same site, or where any building has two or more divisions...”.
- 4.3 - Different occupancies in a building.
- 4.4 - Division area. This section of the Application of the National Building Regulations is one of the key areas to comply with insurance requirement with the emphasis on **storage heights**.

b) where storage of goods is to a height which exceeds the requirements of ordinary hazards in SANS 10287, a fixed installation of automatic fire extinguishment designed, installed, and maintained by competent persons in accordance with the requirements of SANS 10287 shall be provided.

- Table 3 — Maximum division areas and fire resistance of division separating element.
- 4.5 - Fire performance - fire resistance of elements or components of a building.
- 4.6 - Fire resistance of occupancy-separating and division-separating elements (Table 4).
- 4.7 - Fire stability of structural elements or components (Table 5 — Stability of structural elements or components).

NOTE: - For roof construction components, structural elements or roof assembly see 4.12.

- 4.8 Tenancy-separating elements - Any separating element between tenancies shall have a fire resistance of not less than - 30 min..”.
- 4.9 Partition walls and partitions

NOTE: - A partition wall is defined as a non-structural internal wall that extends to the ceiling and is constructed for the purpose of subdividing a space in the same tenancy or occupancy within a building.

- 4.10 - Protection of openings (Table 6 — Class of fire doors or fire shutters).
- 4.12.3 - Fire stability of roof assembly or components.
- 4.31 - Fire detection and alarm systems (Table 10 — Fire detection requirements).
- 4.32 - Provision and maintenance of fire-fighting equipment, installations, and fire protection systems.
- 4.33 - **Water reticulation for fire-fighting purposes. Installations, which convey water solely for fire-fighting purposes, shall be in accordance with SANS 10400-W.**
- 4.34 Hose reels. 4.34.1 Hose reels for the purposes of firefighting shall be installed in any building of two or more storeys in height or in any single storey building of more than 250m² in floor area, at a rate of one hose reel for every 500m² or part thereof of floor area in any storey.
- 4.35 – Hydrants
- 4.36 - **Fixed fire extinguishing and fire suppression systems.** In addition to the requirements in **4.4, 4.26.1(b) and 4.42**, a fixed automatic fire-fighting system that is designed, installed, and maintained in accordance with SANS 306-4, **SANS 10287**, or SANS 14520-1, as appropriate, shall be provided.
- 4.37 - Portable fire extinguishers (Table 10 - Provision of portable fire extinguishers).
- 4.42 - Smoke control - 4.42.1 Notwithstanding the requirements of SANS 10400-O, where any division has a floor area of more than 500m² it shall be provided with

- a) a system of mechanical or natural smoke ventilation designed in accordance with the relevant part of EN 12101; or
- b) in the case of a single storey building or division that has a floor area of up to 2 500m² and that is not fitted with a sprinkler protection system.
- 4.53.2 - Warehousing of dangerous goods. Dangerous goods shall be warehoused in accordance with SANS 10263-0.
- 4.55 - Presumed fire resistance of building materials and components. (Table 11 - 15 — Fire resistance of structural walls).
- 4.57.1 - The minimum distances from an external wall of attached and detached single-storey category 1 buildings. (Table 18 — Minimum boundary distances).

As part of the solution, we refer you to, SANS 10400-Part W Fire installations, SANS 10278 Sprinkler Code.

To illustrate that Hollard is willing ensuring this business, photos of commercial and industrial parks are included of risks that are already on Hollard's Books.

Photo 1



Warehouse ± 18000m². Building is divided into eight (8) almost equal Units 2 250m². Units are separated by means of brick walls to the horizontal above the roller shutter doors thereafter clad with non-combustible materials (dry wall) to the roof top. Only one of the units are covered by a sprinkler system. This is due to the occupant's fire prevention policy that stock with a certain value must be protected by means of a sprinkler system.

Photo 2



The warehouse on the right-hand side is fully sprinkler protected. Both the warehouses are covered by the same water supply and sprinkler pumps as indicated. Hollard is willing to ensure the buildings due the (Maximum Possible Loss (MPL) risk falls within Hollard's capacity without seeking for partners in the form of a Re-insurance Company.

Photo 3



The top three buildings differ in sizes and exceed Hollard's capacity and had to be re-insured. The re-insurer is happy that these buildings are fitted with sprinklers; however, although the occupants are not insured with Hollard have installed in-rack sprinklers for stock and business cover as per their insurer's risk requirements. By implication all five buildings are cover by one sprinkler pump and water supply system.

Photo 4



The largest warehouses to date is insured with Hollard. The building is fully sprinkler protected. The sprinklers are fed from a central water supply and fire pump specially designed covering the entire business park.

Photo 5



The water supply tanks, and fire pump system is designed to cover all the building exceeding 2500m², depending on the building and risk classification. Diesel pump is installed that is linked to a one (1) million litre water supply tank.

Photo 6



Diesel driven fire pump.

Photo 7



Water supply tank.

Photo 8



Pump house.

Photo 9



The two smaller building occupants (Stock & Business Interruption) are insured with Hollard. Both buildings are sprinkler protected. The buildings are fed from a central fire pump and water supply. As part of the occupant's fire prevention policy all goods are kept on steel racks – back-to-back. Due storage heights exceed five meters cover is granted on the basis that in-rack sprinklers are installed.

The insured is part of an international company and has to comply with their Occupational Health and Safety as well as fire prevention which forms part of their company's internal fire prevention programme and requirements.

We entrust that you will find the information helpful making final decisions going forward with the project.

Regards,

Willem de Wet

Risk Consultant: Risk Improvement Services | Hollard Insure | South Africa

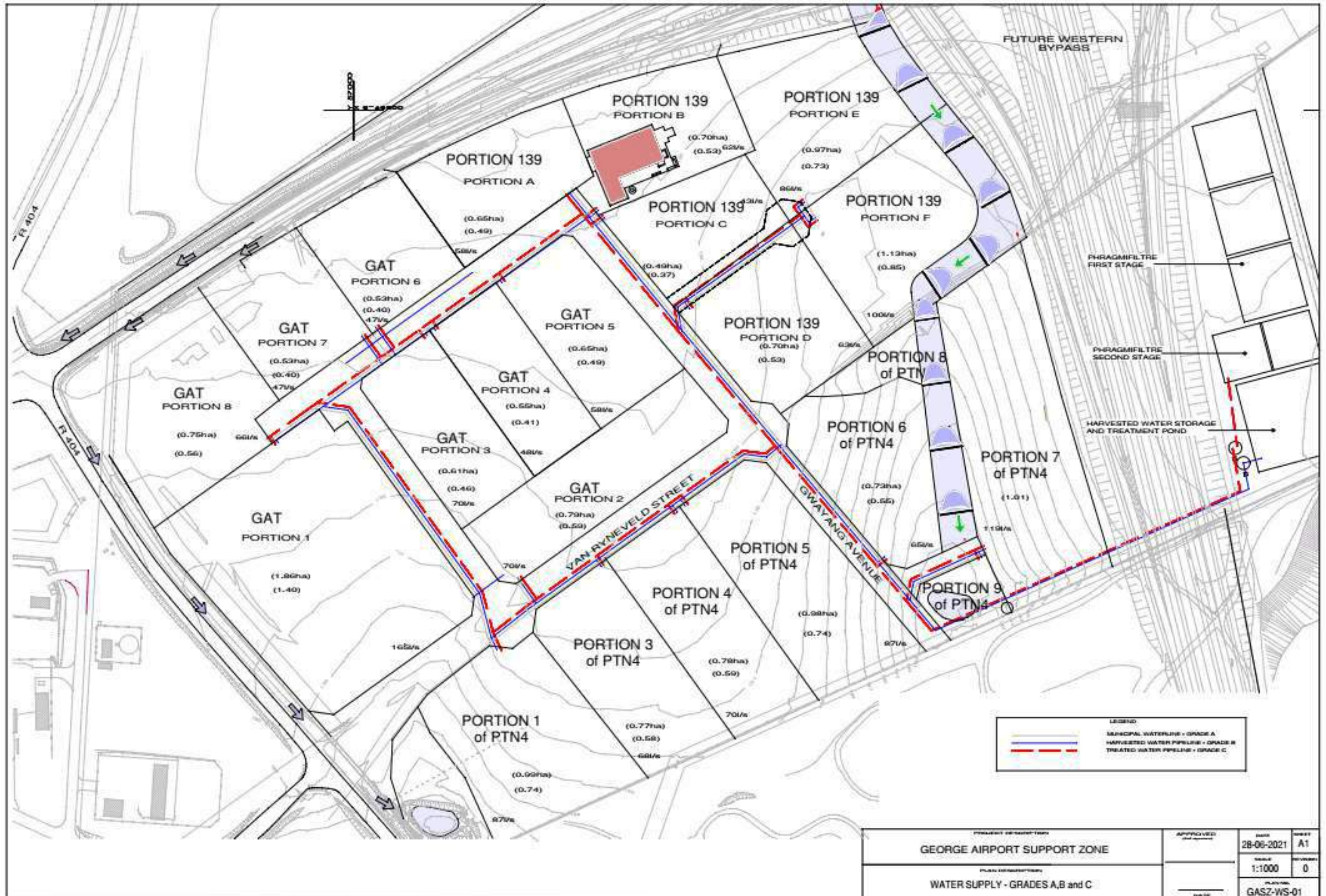
T: +27 11 351 5899 | **F:** | **C:** +27 82 342 3749 | **E:** willemd@hollard.co.za | **W:** www.hollard.co.za

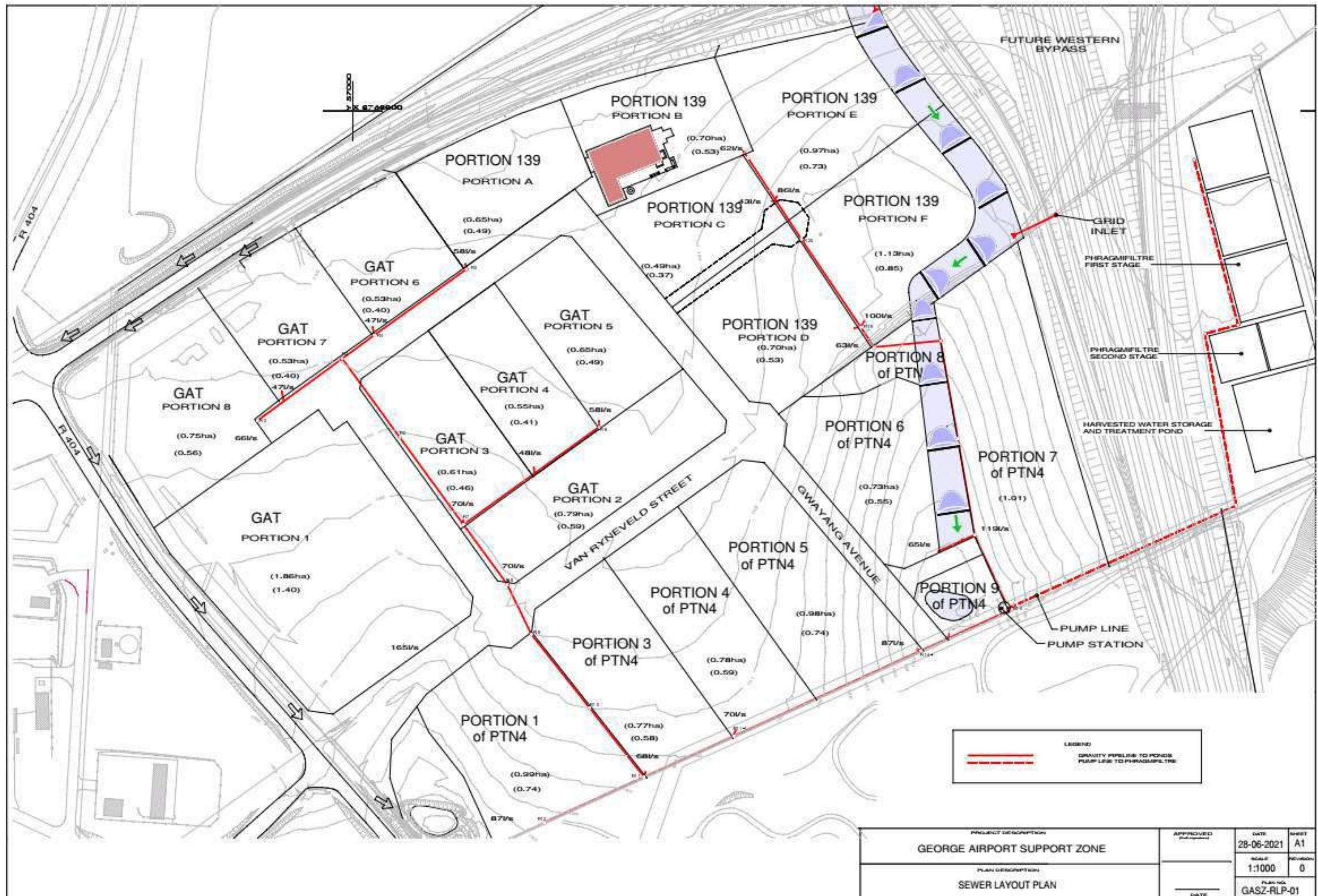


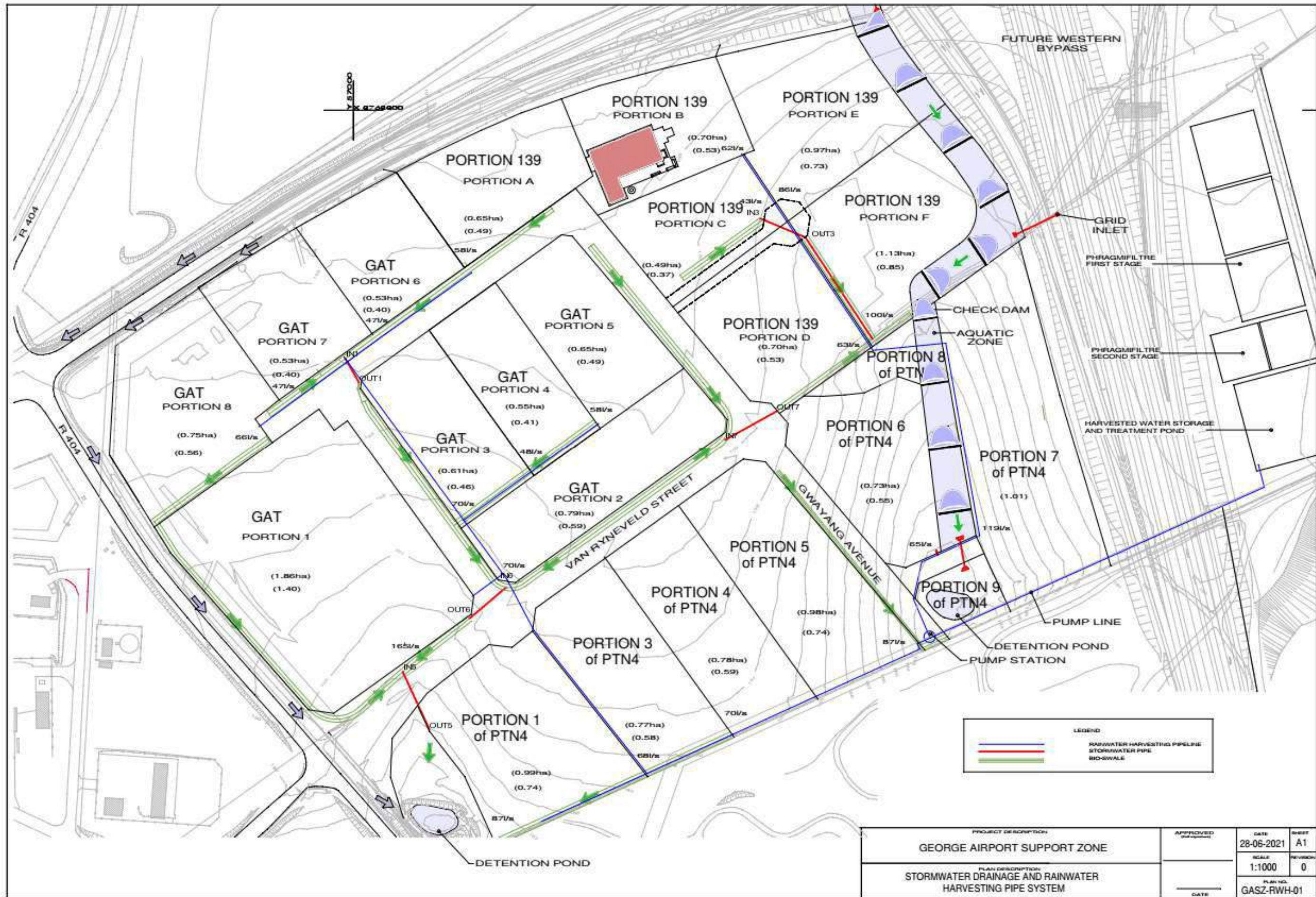
Annexure D – Preliminary design drawings

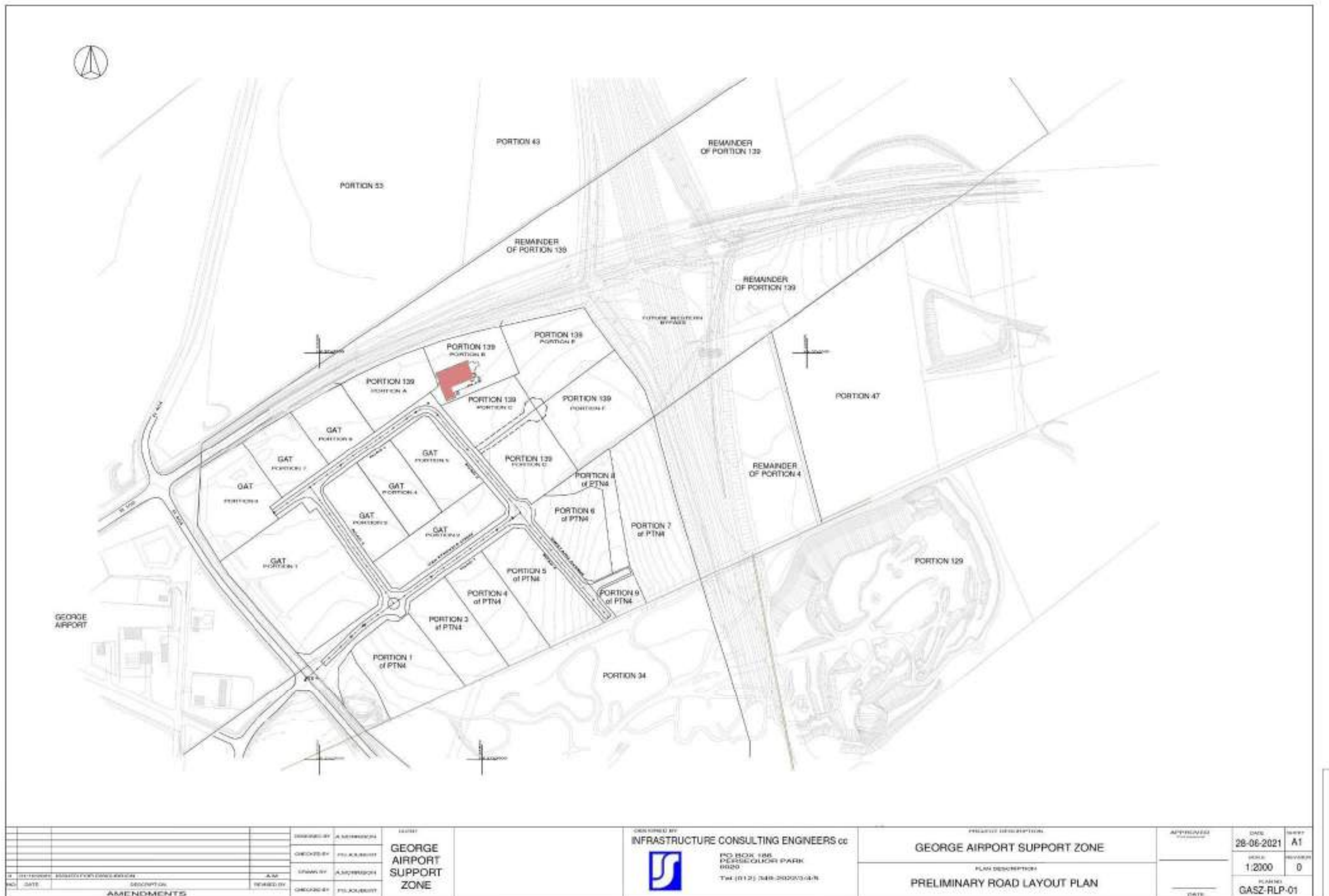
- a) Water Supply – Grades A, B and C
- b) Sewer Layout Plan
- c) Stormwater Drainage and Rainwater Harvesting pipe system
- d) Preliminary Road Layout Plan
- e) Preliminary Road Longitudinal Sections

The preliminary design drawings for the roads and civil engineering services are reduced from A1 to A3 size. Some of the details on the drawings may therefore be lost.









Annexure E

George Airport North Eastern Precinct Transport Study dated October 2021 by ITS.

George Airport North Eastern Precinct Transport Study

George

October 2021



SUMMARY SHEET

Report Type	Transport Study
Title	George Airport North Eastern Precinct
Location	George
Client	George Aerotropolis (Pty) Ltd
Reference Number	ITS 4404
Project Team	Christoff Krogscheepers Carla Kleynhans
Contact Details	Tel: 021 914 6211
Date	October 2021
Report Status	Draft version 2
File Name	G:\4404 TIA George Airport\12 Report\Review\4404 George Airport_Draft_CK_2021-10-22.docx

TABLE OF CONTENTS

1	INTRODUCTION	4
2	STUDY AREA.....	4
3	LAND USE.....	5
3.1	Airport Planning.....	5
3.2	Portion 4 of Farm Gwayang No 208	5
3.3	Portion 130, 131 and 132 of Farm Gwayang No 208.....	6
3.4	Portion 139 of Farm Gwayang No 208	7
3.5	Portion 34 of Farm Gwayang No 208	8
4	SCENARIOS ANALYSED.....	8
5	STATUS QUO EVALUATION.....	9
5.1	Existing Roadways	9
5.2	Existing Intersection Analyses	9
6	BACKGROUND SCENARIO	10
6.1	Future Road Network	10
6.2	Background Traffic Growth	11
6.3	Background Intersection Analyses	11
7	ACCESS.....	12
8	TRIP GENERATION AND DISTRIBUTION	12
8.1	Trip Generation	12
8.2	TRIP DISTRIBUTION.....	13
9	FUTURE - TOTAL TRAFFIC SCENARIOS	14
9.1	Without Western Bypass.....	14
9.2	With Western Bypass	16
9.3	Future Scenario Conclusion	17
10	PUBLIC TRANSPORT	18
11	NON-MOTORISED TRANSPORT.....	18
12	PARKING	18
13	LONG TERM ROAD RESERVE OF R404	19
14	COST APPORTIONMENT	20
14.1	Cost Estimate of the Roads.....	20
14.2	Cost Apportionment.....	20
15	SUMMARY AND RECOMMENDATIONS	21
15.1	Summary.....	21
15.2	Recommendations.....	22
	REFERENCES	23

LIST OF FIGURES

Figure 1: Extract of Gwayang Local Spatial Development Framework (GLSDF, Nov 2015)	4
Figure 2: Farm Portion 4/208 proposed development access and access road to surrounding erven 6.....	6
Figure 3: Portions 130 to 132 of Farm 208 proposed concept plan	7
Figure 4: Portion 139 of Farm 208 proposed site plan	8
Figure 5: Western Bypass	10

LIST OF TABLES

Table 1: Total Trips after pass-by, diverted and internal trips deducted 13

Table 2: Construction Cost Estimate 20

1 INTRODUCTION

The George Airport North Eastern Precinct (GANEP) has several proposed developments, which will lead to an increase in traffic volumes in the area. As a result, the surrounding road network will need to be upgraded to accommodate the expected development trips. The purpose of this Traffic Study is to investigate the transport impact of the GANEP in George and steer the phased implementation of the required road infrastructure to accommodate the expected development traffic.

In 2019, a Road Master Plan was developed for the GANEP (Innovative Transport Solutions (ITS), 2019). This Road Master Plan was requested by the George Municipality. This traffic study evaluates the traffic impact of the proposed GANEP within the context of the master plan and based on new and updated development proposals as well as an adjusted timeline of the Western Bypass.

2 STUDY AREA

The study GANEP area is triangular shape and is bound by the R102 to the north, the R404 to the west and the future George Western Bypass to the east. This area is illustrated in Figure 1 which is an extract of the GANEP as it appears in the Gwayang Local Spatial Development Framework (GLSDF, Nov 2015). Refer to Figure A1 in Appendix A for the GLSDF.

Figure 1: Extract of Gwayang Local Spatial Development Framework (GLSDF, Nov 2015)



3 LAND USE

The GANEP covers approximately 26 hectares of developable land which is represented by the blue area in Figure 1. The blue area is designated for use defined as Airport Support Zone which is further defined in the GLSDF as follows:

“As explained in par 9.3 it is proposed that an airport support zone be permitted opposite the airport. The intent and context of this node must be noted when considering proposals for development. Only land uses that are supporting the airport facilities or that providing a direct service to tourists must be permitted.”

The GANEP currently consist of eight properties, each with certain land use rights and proposed development plans.

3.1 Airport Planning

ACSA was planning to expand the George Airport and specifically the commercial side of the airport in the light of more commercial flights. In the GANEP Roads Master Plan it was assumed that the airport activities would double within the 20-year planning horizon. However, due to the Covid-19 pandemic and the weakened economy, passenger numbers have declined to 50% of the pre-Covid levels. The airport passenger numbers are based on data received from ACSA for the Cape Town International Airport, the data for the George Airport could not be obtained. It is unlikely that the pre-Covid planning levels will materialize in the next 20 years. In fact, it may take several years to just get back to the pre-Covid levels. Therefore, in this study the traffic demand due to the airport expansion was adjusted down.

3.2 Portion 4 of Farm Gwayang No 208

An industrial development is proposed on Portion 4 of Farm Gwayang No 208. The site is located east of the R404 at the R404/Airport Main Access intersection. The development will consist of a Filling Station and Warehousing. Portion 4 of Farm Gwayang No 208 is zoned Agricultural Zone I and the proposed land uses have not yet been approved by the Council.

The proposed development will comprise of six erven. One erf will be zoned Business Zone VI with consent use for a Filling Station, while the other five erven will be zoned Industrial Zone I with consent for warehouses. Refer to Figure 2 for the Subdivision Plan.



Figure 2: Farm Portion 4/208 proposed development access and access road to surrounding erven

3.3 Portion 130, 131 and 132 of Farm Gwayang No 208

These erven were subdivided and re-zoned from agricultural use in the recent past. The previously proposed zoning for each portion was as follows:

Farm Portion 130/208:

- Zoned: General Residential Zone VI
- Limited to a hotel
- Zoned: Agricultural Zone I
- Consent for tourist facilities

Farm Portion 131/208:

- Zoned: Business Zone V
- Limited to a filling station, excluding vehicle sales and repairs

Farm Portion 132/208:

- Zoned: Agricultural Zone II
- Consent for tourist facilities (theatre, crafts market, curio (gifts) shop, micro-brewery, museum and info centre)

Currently it is proposed that these erven be re-zoned as Industrial 1. The permitted use for Industrial 2 is light industry which include industrial hives, warehousing, service trade, restaurants, and car lots. This proposed development has consent for convenience shops, liquor stores and offices. The most recent proposed site development plan for all three the abovementioned portions, as obtained from the landowner, is illustrated in Figure 3.



Figure 3: Portions 130 to 132 of Farm 208 proposed concept plan

3.4 Portion 139 of Farm Gwayang No 208

This farm portion is zoned Agricultural Zone I, which allows for a shed to be constructed. Previously, the landowner was planning on obtaining land use rights for tourist activity. However, this has now changed, and the landowner is now applying for warehousing land use rights. The site development plan for this portion, as obtained from the landowner, is illustrated in Figure 4. A traffic impact assessment (TIA) (RTS, 2021) was conducted for Portion 139. There are minor differences between the TIA and this traffic study in terms of GLA and trip generation, however the upgrades proposed for the R404/George Airport Main Access are similar.



Figure 4: Portion 139 of Farm 208 proposed site plan

3.5 Portion 34 of Farm Gwayang No 208

It is currently still uncertain how, if and when Portion 34 will develop. To ensure that the whole GANEP area is considered in this study it is assumed that Portion 34 will develop with light industrial land uses, similar to the other portions of the GANEP. It is also assumed that an internal circular route will be constructed within the GANEP, providing two access locations to the R404. One opposite the George Airport Main Access intersection and the second opposite the George Airport secondary access.

4 SCENARIOS ANALYSED

To understand and evaluated the transport impact of the GANEP, the following scenarios were developed:

1. 2021 Existing Scenario (Section 5)
2. 2026 Background Scenario (Section 6)
 - a. Without the Bypass
 - b. With the Bypass
3. 2026 Future Scenario (Section 9)
 - a. Low ACSA and GANEP Trips – without bypass
 - b. High ACSA and GANEP Trips – without bypass
 - c. Low ACSA and GANEP Trips – with bypass
 - d. High ACSA and GANEP Trips – with bypass

5 STATUS QUO EVALUATION

5.1 Existing Roadways

The R102 is a trunk road (TR209). It is classified as a Class 2 road with a lane width of 3.5m and a 1m shoulder on both sides. The speed limit is 100km/h.

The R404 (MR 347) is a provincial main road and a Class 3 road with a lane width of 3.4m and gravel shoulders on both sides. The speed limit varies between 60km/h to 100km/h.

5.2 Existing Intersection Analyses

The intersection operational analyses were conducted to assess the following three intersections. All three these intersections are priority stop-controlled intersections. These intersections are:

- R102/R404
- R404/Airport Main Access
- R404/Airport Second Access

Due to the Covid-19 pandemic, current traffic surveys were not conducted. Instead, historical 2017 and 2019 traffic volumes were used. The 2019 traffic volumes were obtained from the Western Cape Government (WCG) Road Network Information System (RNIS) website (WCG, 2019). The 2017 traffic volumes were mainly used to determine the directional split and movement percentages at the various intersections.

SANRAL's permanent counting station data along the N2 was used to determine the reduction in the traffic volumes due to the Covid-19 pandemic. The data from the permanent counting station situated at the N2 interchange east of the George Airport was used. The 2019 and 2020 ADT were compared and there was a reduction in the traffic volumes of 25%, due to the Covid-19 pandemic. The historical 2019 traffic volumes were therefore used as the existing 2021 scenario volumes as these are pre-covid volumes.

The intersections in the study area were analyzed based on the methods as described by the Highway Capacity Manual (HCM) as coded in the Traffix Software to determine the level of service (LOS), delay per vehicle (in seconds) and volume per capacity (v/c) for each intersection in the peak hour. Refer to Figure B1 for the existing weekday peak hour traffic demand and intersection operations. Based on the existing traffic analyses, all the intersections are operating acceptably with no capacity conditions being experienced.

6 BACKGROUND SCENARIO

6.1 Future Road Network

The *Western Bypass* will link the Outeniqua Pass with the N2. The northern section of the route will go through the farming and peri-urban area of Blanco to the north of the Geelhoutboom intersection, while the southern section will run from the N2/Herold's Bay interchange past the airport to the Geelhoutboom intersection. The approved route in the northern section is known as the Gwaing Blanco Alignment and the southern section as the Quarry Alternative 3 Alignment. This is illustrated in Figure 5. Refer to Figure A2 in Appendix A for the Preliminary Design drawings of the section passing the airport.

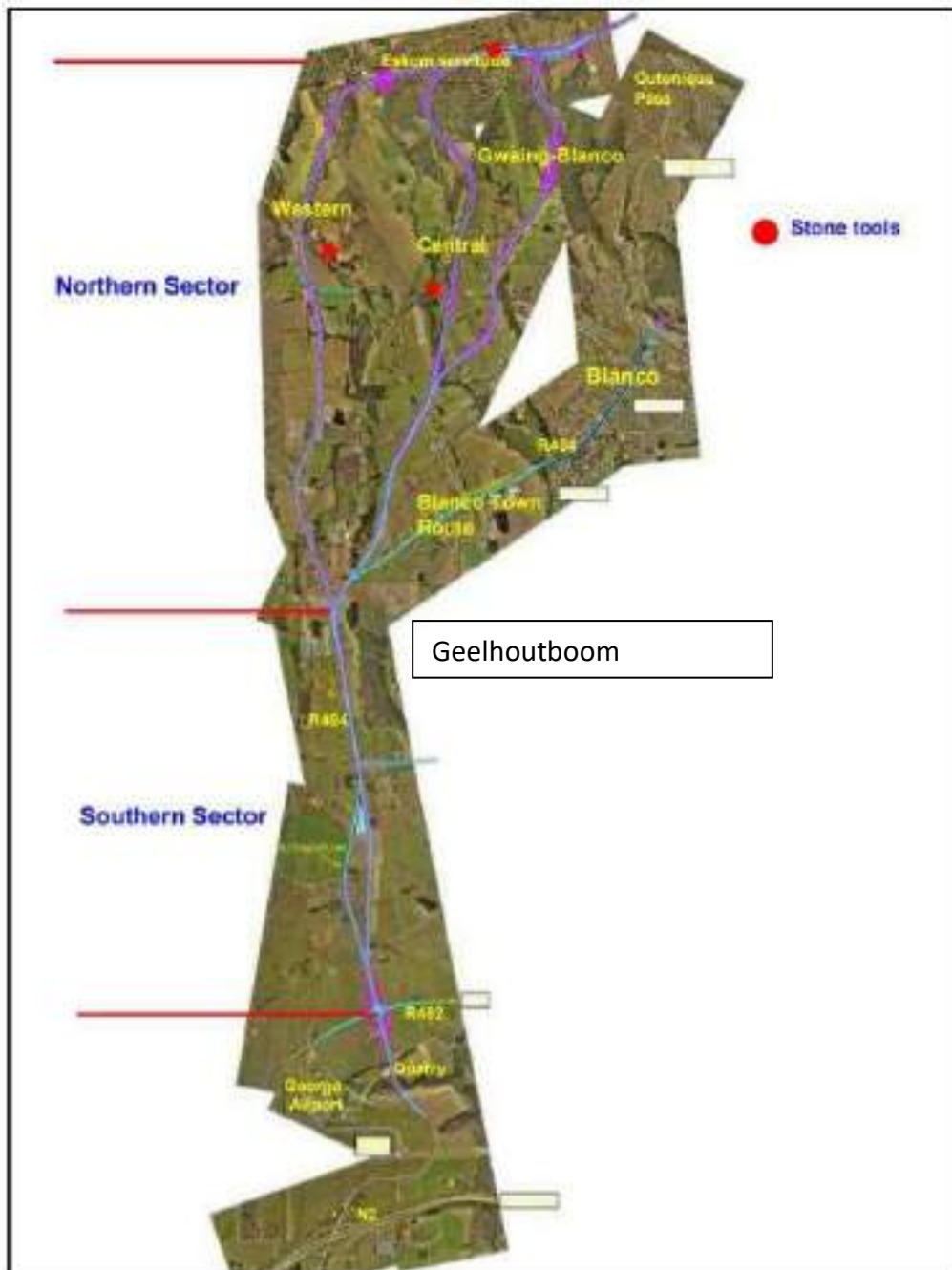


Figure 5: Western Bypass

Due to the bypass, a new access road needs to be constructed to the Quarry. The proposed access road to the Quarry is approximately 30 metres away from the watercourse. The overpass is designed as a means of a continued operational access to the eastern extremity of the Quarry. Refer to Figure A3 in Appendix A for the proposed overpass to the Quarry.

In the GANEP Road Master Plan (ITS, 2019) it was assumed that the bypass will be constructed in the distant future. However, according to the latest information obtained from the Western Cape Government relating to the timing of the bypass, it would now seem as if the bypass construction could be much sooner. For the purposes of this study, some of the scenarios included the bypass being in place in the next five years. Refer to Appendix C for the road network layouts with and without the bypass in place.

6.2 Background Traffic Growth

An average growth rate of 3% per annum was applied to the existing traffic volumes over a five-year horizon period. This is according to historical growth rates as recorded on the WCG RNIS website (WCG, 2021). This growth rate was applied to the entire road network for the scenarios where the bypass is in place. For the scenarios without the bypass, the growth rate was only applied to the R102/R404 intersection, specifically to the movements along the R102. If the bypass is in place the R404 will be reduced to a local access road and the growth will only be due to either development on the GANEP or the airport.

6.3 Background Intersection Analyses

Two background scenarios were investigated, these scenarios are discussed below:

- a) Excluding the Western Bypass – This scenario analyses the network conditions based on existing traffic volumes and existing network but with a 3% per annum growth rate for five years.
- b) Including the Western Bypass – This scenario investigates the network conditions with the bypass in place and re-assigned existing traffic volumes with a 3% per annum growth rate over five years. The re-assigned volumes are based on the existing volumes and how their paths will change with the bypass in place.

None of the study intersections are expected to experience capacity constraints in either of the two scenarios evaluated. Refer to Figure B2 and B3 in Appendix B for the background analysis results for both scenarios.

This also applies to the intersection of the R102/R404 which will continue to operate acceptably under its current control, i.e. stop control on the minor approaches. There are current concerns regarding the traffic safety of this intersection in the light of a number of serious crashes that have occurred there. Several opinions have been expressed by members of the public through the media as well as by airport management that an intervention is required at this intersection. However, purely from an operational perspective there is still spare capacity at this intersection to

accommodate growth in traffic volumes. But given the safety issues at the intersection it is recommended that the WCG address these concerns as a matter of urgency.

7 ACCESS

There is currently no formal public road access to the GANEP area. Access is proposed via a new road that links to the public road network at the R404/Airport Access. Other than a minor deviation close to the intersection with the R404, the proposed public road will run on the boundary between Portion 4 and Portion 130. It will extend all the way to the east to also provide access to Portion 139.

A second access to the area is proposed via the R404 at an intersection further to the south and opposite the second access to the airport, which is close to the location where the quarry currently gains access. It is proposed that these two access roads be linked via a public road.

8 TRIP GENERATION AND DISTRIBUTION

8.1 Trip Generation

It is envisaged that the GANEP will develop with land uses such as light industrial, service industry, restaurants, and a filling station. The trip generation rates and the detailed trip generation are attached in Appendix D. The trip generation is based on the guidance as provided in the Trip Data Manual (TMH17, COTO, 2013). A 10% reduction was applied to the trip generation to account for internal trips since many of the proposed uses are complementary and there will be interaction between the uses not only directly but also indirectly with multi-destination trips. Refer to Table 1 for a summary of the estimated trip generation for the various properties. Noted that no detail plans were obtained for the development of Portion 34. The trip generation for this area was thus determined based on the following assumptions:

- Total Developable Area reduced by 13% to make provision for roads.
- A Floor Area Ratio of 75%.
- A Leasable Floor Space of 95%.

These assumptions are similar to what was initially used for the other portions.

Table 1: Total Trips after pass-by, diverted and internal trips deducted

Erven	Internal Portions	Land Use	Extent (m ² GLA)	Weekday AM Peak Hour			Weekday PM Peak Hour		
				In	Out	Total	In	Out	Total
Portion 4		Warehousing	35 262	95	64	159	71	87	158
		Filling Station Convenience Store	200	5	3	8	11	11	22
Portion 130 - 132	1	Service Industry	13 460	82	27	109	27	82	109
		Restaurant	500	0	0	0	14	8	22
		Fast Food	385	86	70	156	50	41	91
	2	Service Industry	5 634	34	12	46	12	34	46
	3-8	Light Industrial	26 816	116	29	145	29	116	145
Portion 139		Light Industrial	30 761	83	56	139	62	77	139
Portion 34		Light Industrial	26 643	115	29	144	29	115	144
GRAND TOTAL			139 660	616	289	905	305	571	877

According to the GANEP Road Master Plan (ITS, 2019) during the 2019 pre-covid period, the airport generated approximately 500 peak hour trips. Currently, due to economic constraints, international travel restrictions and changing user patterns, the passenger volumes through the airport is below the pre-covid volumes at approximately 50%. The airport passenger numbers are based on data received from ACSA for the Cape Town International Airport, the data for the George Airport could not be obtained.

Two scenarios are evaluated to allow for growth of the Airport:

- A low recovery rate of 10% per year in passenger activity which is directly linked to traffic volumes. This will result in the airport being at 80% of the 2019 traffic volumes within the next five years. This equates to approximately 400 trips.
- A high recovery rate of double the above. In the next five years, the passenger and traffic volumes will then be 20% higher than the pre-Covid volumes. This is approximately 600 trips.

8.2 TRIP DISTRIBUTION

Two trip distribution options were investigated as determined by the available road network with and without the Western Bypass. Without the Western Bypass, it is assumed that the trip distribution will be as follows:

- 20% to/from George via R102 east
- 10% to/from Groot-Brak via R102 west
- 30% to/from Fancourt via R404 north
- 20% to/from Herold's Bay via the R404 south
- 20% to/from the GANEP Area north of the Airport

It is assumed that the trip distribution will be as follows once the Western Bypass has been constructed:

- 60% to/from George/Western Bypass via R102 east
- 10% to/from Groot-Brak via R102 west
- 10% to/from Herold's Bay via the Western Bypass
- 20% to/from the GANEP Area north of the Airport

The above distributions are illustrated in Figures B4 to B7 in Appendix B.

9 FUTURE - TOTAL TRAFFIC SCENARIOS

To allow for a realistic review of possible future traffic conditions within the context of the uncertainties of economic growth and airport expansion options, four scenarios were evaluated. These scenarios are as follows:

- Low ACSA and GANEP Trips – without bypass
- High ACSA and GANEP Trips – without bypass
- Low ACSA and GANEP Trips – with bypass
- High ACSA and GANEP Trips – with bypass

For each scenario the existing traffic volumes were increased with a background growth rate of 3% per annum over five years (refer to Section 6.2) plus the estimated ACSA and GANEP trips were added to the road network.

The intersection capacity analyses are discussed in the following paragraphs based on whether the Western Bypass is constructed or not. This includes a proposal on phased implementation of any possible mitigation measures.

9.1 Without Western Bypass

Assuming a low recovery rate of only 10% per year in airport activity, with regional growth resulting in general background growth of 3% per year, the following would be required to accommodate the full development of the GANEP precinct:

- The main internal access roads are required to give access to the different portions, specifically the public road linking to the R404 at an intersection opposite the main airport access.
- If any development occurs in the southern parts of the precinct, the access road that links to the R404 and intersects the R404 opposite the secondary airport access will be required unless the internal link roads are constructed to allow access to the intersection opposite the main airport access.
- For full build out of the GANEP, the following will be required:
 - A roundabout/signal at the intersection of R404/R102. The actual type of control at this intersection needs to be determined through a specific study since there are various view points on what it should be.

- A single lane roundabout at the intersection of the R404/Airport Access/GANEP access.
- A stop-controlled intersection at the southern access to the GANEP opposite the secondary airport access.

Refer to Figure B8 and B9 for summaries of the intersection capacity analyses for both the low and the high ACSA recovery scenarios. These figures indicate the intersection operations for when the whole GANEP has been developed.

The development of the GANEP will obviously occur in phases and in line with market response. To enable a phased roll-out of the above-mentioned infrastructure which are required for the full development an analysis was done to determine when what will be required. The following is a summary of the phased analysis:

- Initially both roads into the GANEP which links to the R404 can be built with priority/stop control on the side roads at the R404 intersections. Similar to the link from the airport main access road. These priority/stop control approaches should function acceptably until 40% of the total trips from the proposed lands uses in GANEP has realised. The southbound approach to the R404, of the new public roads, should be built with a short right-turn lane and the shared through/left turn lane.
- The intersection of the R102/R404 will continue operate acceptably under its current control until 40% of the GANEP has developed (40% of the trips are on the network). Once the 40% point is reached, the intersection needs to be upgraded to either a roundabout or a traffic signal. These findings are purely from an operational perspective. Given the safety concerns as expressed by the public, it is recommended that the responsible road authority address these concerns.
- To accommodate further growth of the GANEP, the control at the R404/Airport Access/Main access to precinct be changed to a 4-way stop with dedicated right-turn lanes along three of the approaches. The 4-way stop control will operate acceptable until 70% of the trips from the GANEP are on the network. Without the Western Bypass, the R404 will still fulfil an important mobility function and it is not ideal to place a 4-way stop on a mobility route, although there are many other such examples. At the 40% growth point, it may be advantageous for the area and specifically as an access to the airport to construct a single lane roundabout instead of the 4-way stop. The roundabout will be required anyway to accommodate growth beyond the 70% ceiling.
- The above can be further summarised as follows:
 - Under the low-growth scenario, 40% of the GANEP traffic can be accommodated with only the construction of the main access road into the precinct and with stop control along the approach from the GANEP where it intersects with the R404 opposite the airport access road.
 - With development beyond 40% and up to 70% of the GANEP trips, the R404/Airport Access intersection will need to be changed to a 4-way stop with turning lanes along

three of the approaches. The intersection of the R102/404 needs to be improved together a roundabout or traffic signal.

- To go beyond 70% of the GANEP trips, the intersection of the R404/Airport Access needs to be upgraded to a single lane roundabout

Assuming a high recovery rate of 20% per year in airport activity, with regional growth resulting in general background growth of 3% per year, the following would apply to the development of the GANEP precinct:

- The main internal access roads are required to give access to the different portions, specifically the public road linking to the R404 at the intersection opposite the main airport access.
- If any development occurs in the southern parts of the precinct, the access road that links to the R404 and intersects the R404 opposite the secondary airport access will be required unless the internal link roads are constructed to allow access to the intersection opposite the main airport access.
- For full build out of the GANEP, the following will be required, similar to the low-growth scenario:
 - A roundabout/signal at the intersection of R404/R102.
 - A single lane roundabout at the intersection of the R404/Airport Access/GANEP access.
 - A stop-controlled intersection at the southern access to the GANEP opposite the secondary airport access.
- Similar to the low-growth scenario, a phased analysis was done and this is summarised as follows:
 - Under the high-growth scenario, 25% of the GANEP traffic can be accommodated with only the construction of the main access road into the precinct and with stop control along the approach from the GANEP where it intersects with the R404 opposite the airport access road.
 - With development beyond 25% and up to 50% of the GANEP trips, the R404/Airport Access intersection will need to be changed to a 4-way stop with turning lanes along three of the approaches. The intersection of the R102/404 needs to be improved to either a roundabout or traffic signal.
 - To go beyond 50% of the GANEP trips, the intersection of the R404/Airport Access needs to be upgraded to a single lane roundabout

9.2 With Western Bypass

The traffic demand along the R404 will obviously be significantly different if the Western Bypass is built. The function of the R404 will change from a mobility function to a pure access function. It is also most likely that it will be taken over by the George Municipality as a municipal road. As a local access road, control types such as 4-way stops become more agreeable.

Refer to Figure B10 and B11s for the intersection capacity analyses for both the low and the high airport recovery scenarios. These figures indicate the intersection operations for when the whole GANEP has been developed.

At a minimum, the same conditions and infrastructure requirements as outlined in Section 9.1 will apply during the first years before the Western Bypass is constructed. However, if the Western Bypass is constructed within the next five years, a 4-way stop at the R404/Airport Access intersection will work acceptably for a long time, from an operations perspective. However, from different perspectives such as sense of place, visual main access to an airport, etc. a single lane roundabout could be more appropriate and preferred.

Given the extent of the work required to construct the Western Bypass, it is unlikely that the Bypass will be fully complete and operational within the next five years, hence the requirements in Section 9.1 will remain relevant. It is only in the event of exceptional economic recovery with the GANEP developing fast and the Airport recovery is fast that the situation can arise in the next five years where the ceiling of 25% is reached and a decision needs to be made of whether a single lane roundabout is required at the intersection of the R404/Airport Access or should a 4-way stop be implemented. If at that point, the construction of the bypass is in process and it is evident that it will be completed soon, that the requirement for a roundabout at the R404/Airport Access intersection to exceed the 25% ceiling could be waved.

The need for improvements at the R102/R404 intersection will remain the same as outlined in Section 9.1 irrespective of the presence of the Western Bypass.

9.3 Future Scenario Conclusion

A roundabout or traffic signal is required at the R102/R404 intersection with or without the Western Bypass. Even though the phasing indicated that it is not immediately required, it would be beneficial to upgrade this intersection immediately due to safety issues at this intersection.

A 4-way stop control will work acceptably at the R404/Airport Main Access intersection, if the Western Bypass is constructed. However, due to this access being at the entrance to the airport, a single lane roundabout would be more appropriate. The secondary access will function acceptably as a priority control with or without the Western Bypass in place.

10 PUBLIC TRANSPORT

There are three bus routes planned to service the GANEP. This is according to the George Integrated Public Transport Network (GIPTN). These bus routes are from:

- George CBD to Herold's Bay via the R102 and R404.
- George CBD to the Airport and Mossel Bay via the R102, R404 and the N2.
- George CBD along the R102 to the Sinksabrug area and the Mossel Bay.

Provision therefore needs to be made for bus facilities along the R102 and the R404. Six bus embayment are proposed within the vicinity of the GANEP. Two embayments are proposed along the R102, downstream of the R102/R404 on both sides of the R102. Four embayments are proposed along the R404, downstream of both R404/Airport Access/GANEP Access and the R404/Secondary Access on both sides of the R404.

With public transport (PT) embayments along the R404, PT passengers will be able to access the GANEP although they will have to walk distances varying between 500m and 800m depending on where they want to be within the precinct. The George CBD to the Airport is a direct route to and from the airport. This bus will enter the George Airport at the main access of the R404 to drop-off and pick-up passengers.

In summary, it is necessary to provide PT facilities along both the R102 and R404. Based on the walking distances and the proposed internal roads within the GANEP, a bus service through the GANEP will be beneficial as this will allow for shorter walking distances. This service will however be dependent on the development of both accesses into the precinct. At a minimum, PT passengers will have to walk into the area, which could be improved by adding minibus taxi feeders in the precinct. However, this has not been considered in detail and the demand for such feeder services could be low and infeasible.

11 NON-MOTORISED TRANSPORT

There are currently no sidewalks along the R404. The GANEP Roads Master Plan (ITS, 2019) proposed a change to the Class 3 dual carriageway cross section to increase the sidewalk size from 1.5m to 2m. However, this dual carriageway will not be required in the near future. Therefore, it is proposed that a 2m sidewalk be constructed from the proposed bus embayment along the R404 linking with the sidewalks along the internal roads of the GANEP.

12 PARKING

All GANEP parking must be implemented on-site. The parking bays to be provided by the various portions must be according to the George Municipal standards.

13 LONG TERM ROAD RESERVE OF R404

The Road Master Plan (ITS, 2019) recommended that the road reserve width of the R404 be increased from 25m to a 32m road, between KM 9.2 and KM 9.9. This is to allow for a dual carriageway with an increased sidewalk width of 2m.

A letter was obtained from the WCG dated 4 May 2021 regarding the EIA application for the proposed upgrade and widening of the R404 (WCG, 2021). The preferred alternative as stated in the above-mentioned letter is as follows:

“The preferred alternative entails the clearance of more than 300m² of endangered garden route granite fynbos vegetation, as well as the infilling and dredging of a watercourse in order to upgrade the R404. The intersection of the R404 and the R102 required upgrade to either a roundabout OR a traffic signal. This EA is for either option A or B:

- *Option A: 25m Road Reserve & Roundabout at R404/R102 intersection*
- *Option B: 32m road reserve widened to each side & traffic signal at R404/R102 intersection”*

Due to a single lane roundabout being proposed at the R404/Airport Main Access it is proposed that option A be implemented. This will allow for single lane roundabouts to be constructed on both ends of the R404. For future flexibility it will be prudent that the road reserve be 32 meters. Provision can be made for a narrow median along the R404 until the R102 intersection decision has been finalised.

14 COST APPORTIONMENT

As part of the Roads Master Plan for the GANEP, a simplified high-level model was developed for the apportionment of capital costs for the development of the required road infrastructure. This model was updated as part of this study since more detailed land use information has now become available and more detail is available regarding the required road infrastructure and specifically the following:

- Dualling of R404 between the Airport Main and Secondary Access may no longer be required due to the Western Bypass.
- An internal GANEP ring road which would link the primary and secondary accesses.
- The proposed roundabout at the R404/Secondary Access may no longer be required due to the Western Bypass.
- Two internal roundabouts as proposed in the SDP's.

Figure E1 in Appendix E indicates the different landowners that will need to contribute to the different roads and intersections.

14.1 Cost Estimate of the Roads

A high-level construction cost estimate was prepared for the roads and intersections and is summarised in Table 2. This estimate was based on a unit-cost per area of the road construction. The intersections and roads included in the cost estimate are illustrated on Figure E1 in Appendix E.

Table 2: Construction Cost Estimate

Construction Cost Estimate					
Intersection	Length (m)	Width (m)	Area (sqm)	Rate (R/sqm)	Total
Road A	250	17	4250	R1 500	R6 375 000
Road B	300	10	3000	R1 500	R4 500 000
Road C	300	10	3000	R1 500	R4 500 000
Roundabout/Traffic Signal 1			4500	R1 500	R6 750 000
Roundabout 2			4500	R1 500	R6 750 000
Roundabout 3			3000	R1 500	R4 500 000
Roundabout 4			3000	R1 500	R4 500 000
Total					R37 875 000

14.2 Cost Apportionment

The cost apportionment for the road infrastructure was calculated by dividing the total estimated construction costs of the required infrastructure by the total number of expected development trips during the critical peak periods. The critical peak being the hour in which the development as a collective generates the most trips.

Estimated infrastructure cost included in apportionment:	R 37 875 000
Estimated number of peak hour trips:	1 782 trips
Capital Contribution per peak hour trip:	R21 254

15 SUMMARY AND RECOMMENDATIONS

15.1 Summary

The findings of the study can be summarised as follows:

- The GANEP consists of eight properties, each with certain land use rights and proposed development plans.
- The GANEP will develop with land uses such as light industrial, service industry, restaurants, and a filling station.
- For the existing scenario, all the intersections are operating acceptably with no capacity conditions being experienced. Although safety concerns at the intersection of the R102/R404 have been raised by the public.
- The Western Bypass could be constructed within the next five years.
- An average growth rate of 3% per annum was applied to the existing traffic volumes over a five-year horizon period to determine the background traffic volumes.
- No capacity constraints will be experienced under the expected background traffic demand scenarios. However, from a safety perspective there is a need for improvements at the R102/R404 intersection.
- Access is proposed via the R404/Airport Main Access intersection.
- The access road will be situated on the property boundary of Portion 4, serving as a direct access to both adjacent erven.
- A total of 905 trips could be generated by the GANEP during the a.m. peak hour and 877 trips could be generated during the p.m. peak hour.
- The George Airport traffic volumes have decrease from 500 trips pre-Covid to 250 trips during the peak hours of the day. It is expected that these volumes will recover during the next few years, depending on the travel restrictions and the economic growth.
- Two growth scenarios were analysed for the George Airport:
 - A low recovery rate of 10% per year. This will lead to the airport being at 80% in five years' time of where it was in 2019. This is approximately a total of 400 trips in/out during the peak traffic hours.
 - A high recovery rate of double the above. The traffic to/from the airport will then be 20% higher in 5-years' time than what it was pre-Covid. This amounts to approximately 600 peak hour trips.
- For the ultimate scenario all the intersections will operate acceptably, once the recommended upgrades are in place. This is with or without the Western Bypass in place.
- A 4-way stop control will work acceptably at the R404/Airport Main Access intersection, if the Western Bypass is constructed. However, due to this access being at the entrance to the airport, a single lane roundabout would be more appropriate.
- A roundabout or traffic signal is required at the R102/R404 intersection with or without the Western Bypass. Even though the phasing indicated that it is not immediately required, it

would be beneficial to upgrade this intersection immediately due to safety issues at this intersection.

- Six bus embayment are proposed within the vicinity of the GANEP. Two embayments are proposed along the R102, downstream of the R102/R404 on both sides of the R102. Four embayments are proposed along the R404, downstream of both R404/Airport Access/GANEP Access and the R404/Secondary Access on both sides of the R404.
- It is proposed that a 2m wide sidewalk be constructed from the proposed bus embayment along the R404 linking with the sidewalks along the internal roads of the GANEP.
- All on-site parking must be according to the George Municipal Standards.

15.2 Recommendations

It is recommended that the proposed development of the GANEP be approved by the relevant authorities under the following conditions:

- The main access road be constructed with stop control at the intersection of the R404/Airport Access Road and that the total trips out of GANEP be capped at 25% unless the recovery of the airport is slow and the general growth in background traffic is low due to slow economic recovery. Then the ceiling can be raised to 40%. This will have to be confirmed with an updated traffic study.
- To develop beyond the ceiling of 25% or 40% trips (Depending on Airport Recovery) will require the following:
 - A roundabout/traffic signal at the R102/R404 intersection.
 - At a minimum, 4-way stop control at the intersection of the R404/Airport Access if the Western Bypass is built or imminent.
 - A single lane roundabout at the intersection of the R404/Airport Access.
- The requirements related to PT, NMT and parking is adhered to.
- That the road reserve requirements of an increase to 32m along the R404 be implemented.
- That a capital contribution of R21 254 per peak hour trip be used to apportion the costs of the required bulk road infrastructure in and around the precinct.

REFERENCES

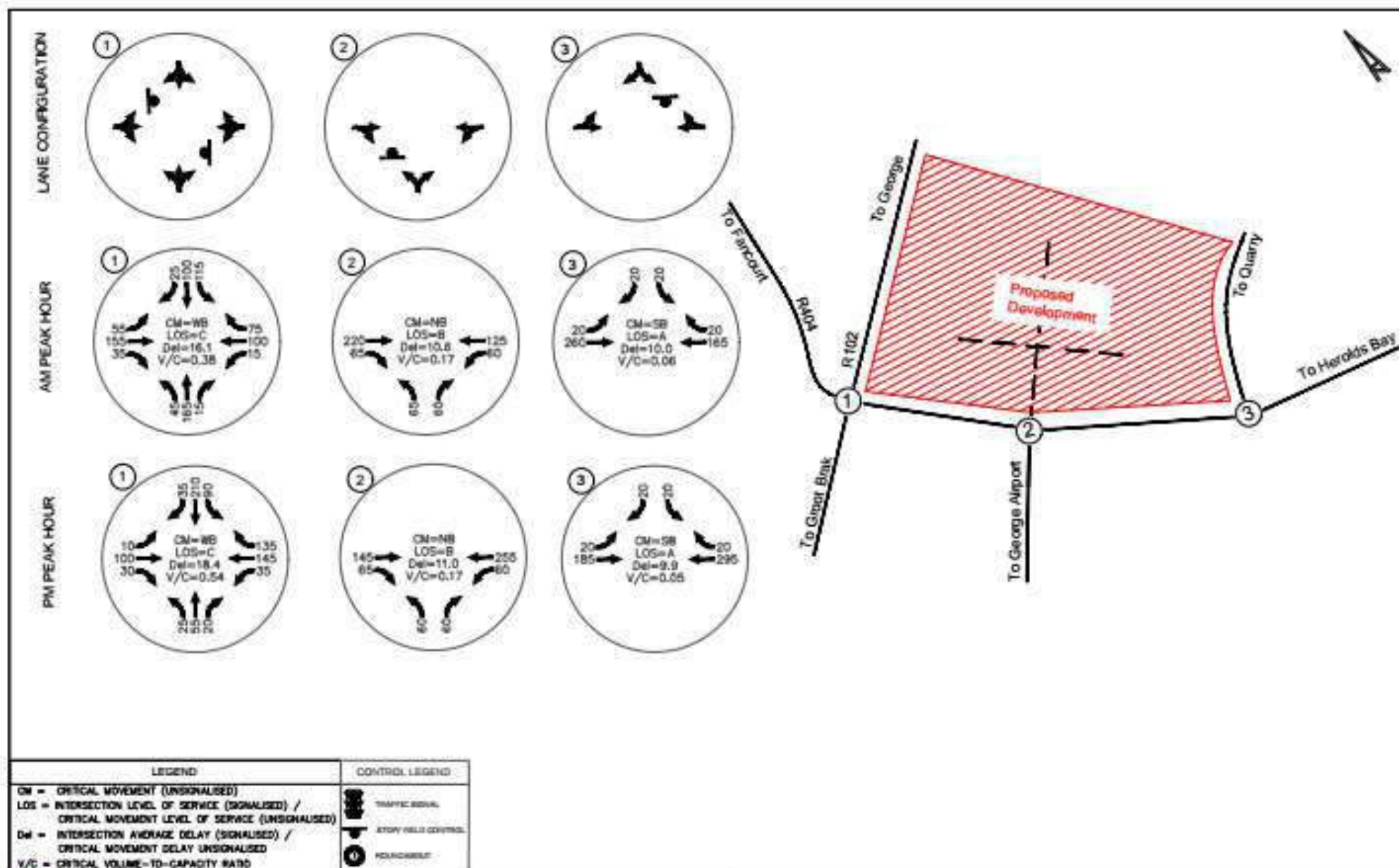
1. Arcus GIBB (Pty) Ltd, Archaeological Impact Assessment, The Proposed George Western Bypass Road, January 2009
2. Highway Capacity Manual (HCM), Quality and Level-of-Service Concepts, Transportation Research Board, 9 March 2015
3. Innovative Transport Solutions, Road Planning George Airport North Eastern Precinct, Road Master Plan and Cost Apportionment, March 2019
4. Kantey & Templer Consulting Engineers, km 1.9 Proposed Overpass to Quarry. Layout, Cross-section and TR89 Long Section, September 2018
5. Kantey & Templer Consulting Engineers, Proposed Trunk Road 89 km 0 to km 12.5 Preliminary Design, September 2016
6. Roodt Transport Safety (Pty) Ltd, Traffic Impact Assessment, Proposed Subdivision and Rezoning of a portion of Portion 139 of the farm Gwayang No 208 opposite George Airport Main Access on route R404, with consideration of development proposals on portions 4, 34 and 60 of the Farm Gwayang No 208, October 2021
7. South African Trip Data Manual, TMH17, Version 1.1, COTO, September 2013
8. Western Cape Government, Application for Environmental Authorisation (EA) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and the Environmental Impact Assessment Regulations, 2014: Proposed upgrading and widening of the R404 and the construction of a new municipal service access road, George, Reference 16/3/3/1/D2/19/0012/20, 4 May 2021
9. Western Cape Government, Road Network Information System (RNIS) website, 2019
10. WM De Kock Associates, Gwayang Local Spatial Development Framework, November 2015

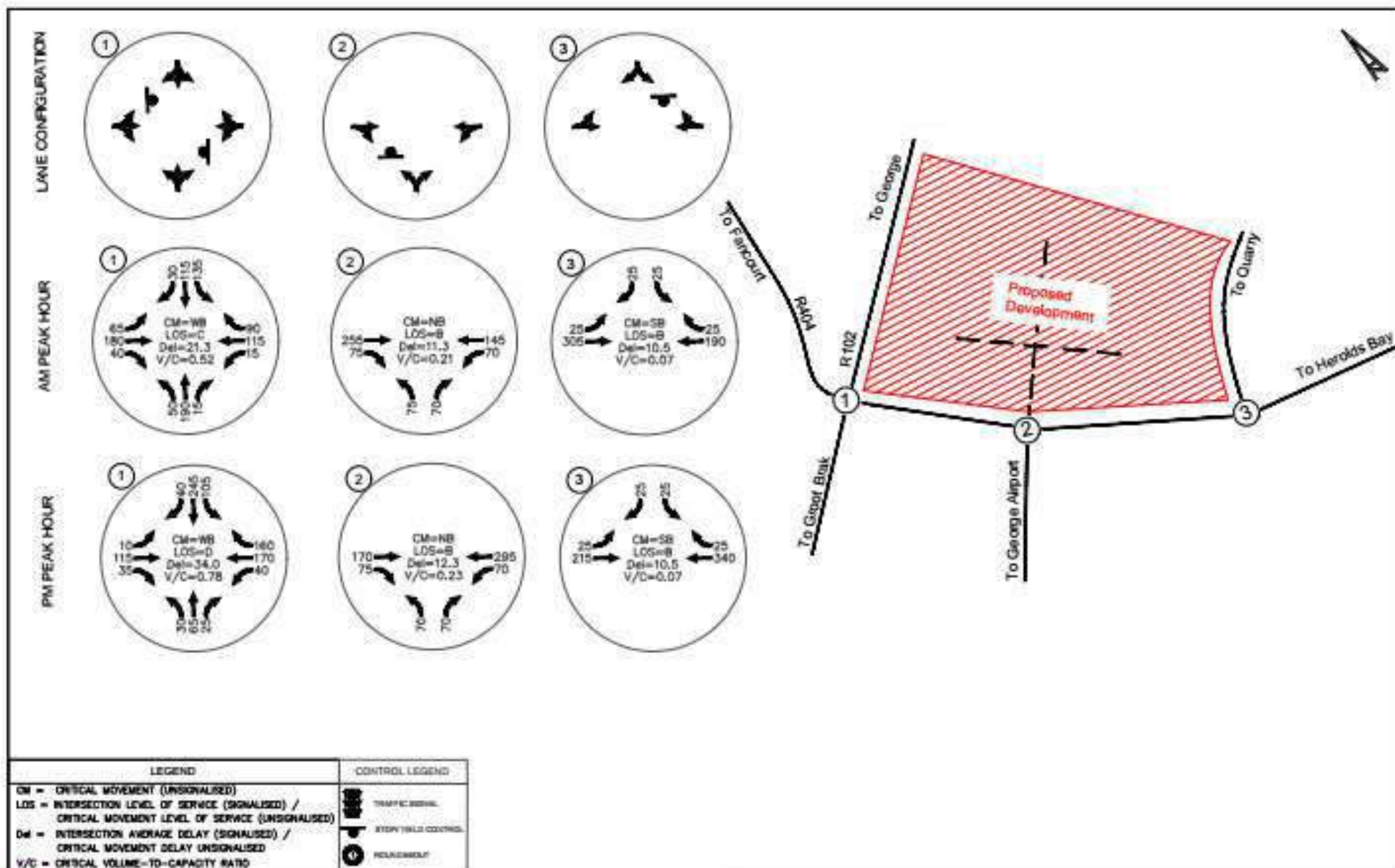
Appendix A

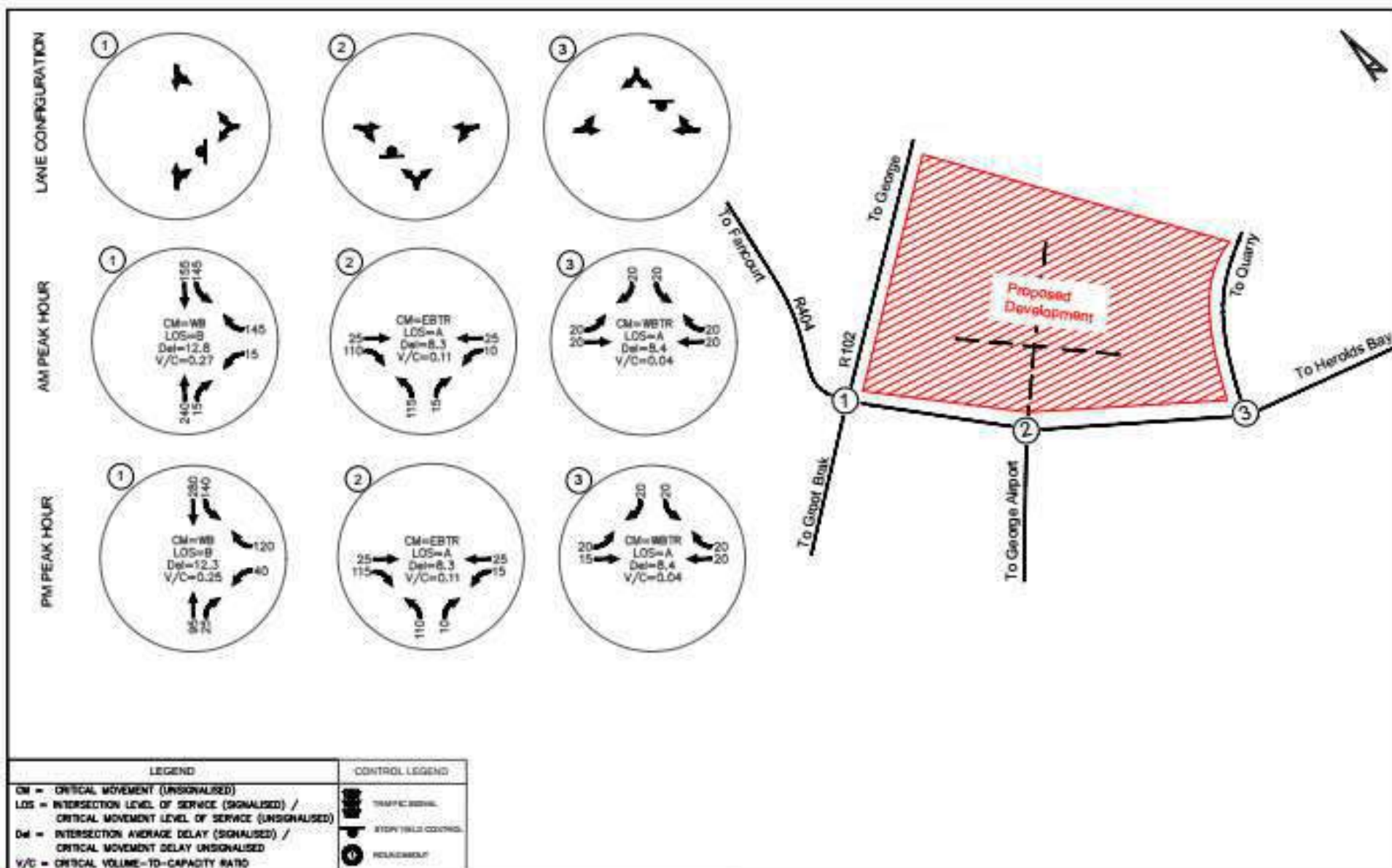
Background Figures

Appendix B

Traffic Analysis Figures

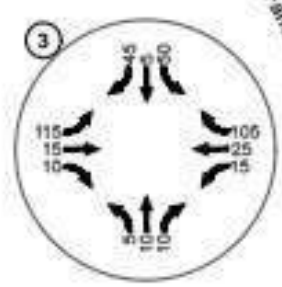
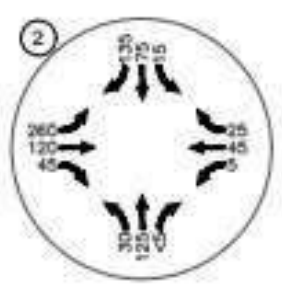
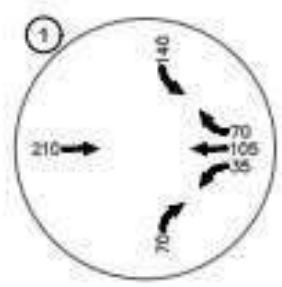




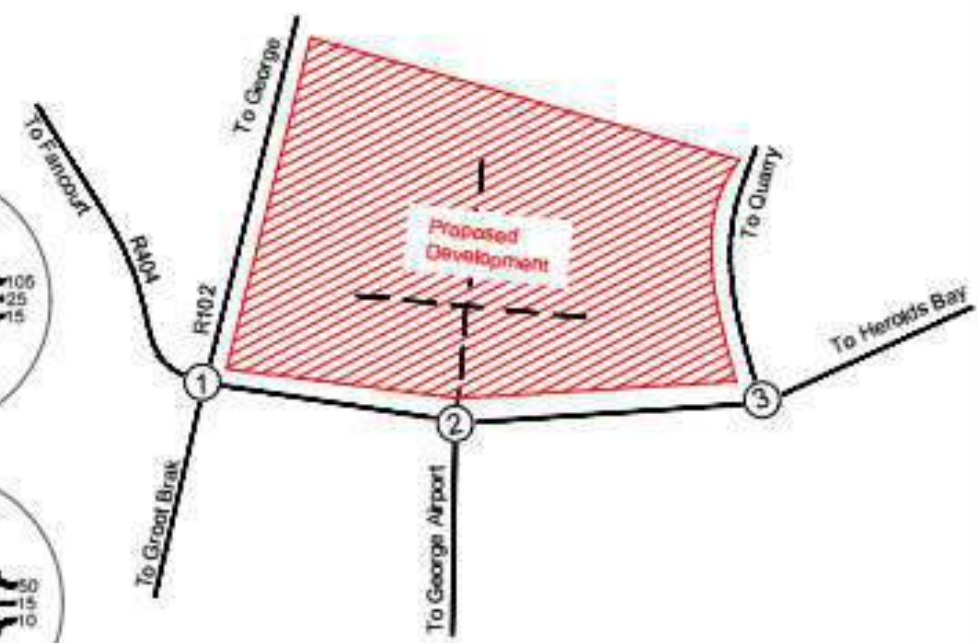
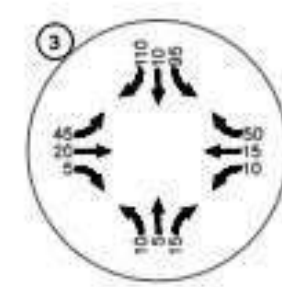
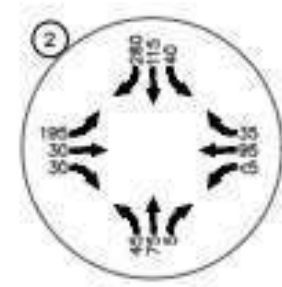
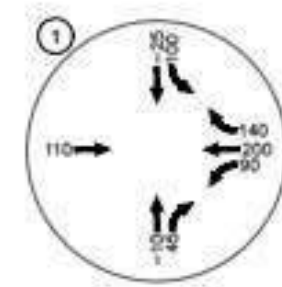




AM PEAK HOUR



PM PEAK HOUR



LEGEND	CONTROL LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALISED)	TRAFFIC SIGNAL
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)	YIELD CONTROL
Dm = INTERSECTION AVERAGE DELAY (SIGNALISED) / CRITICAL MOVEMENT DELAY UNSIGNALISED	ROUNDABOUT
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO	

3% BACKGROUND GROWTH
10% AIRPORT GROWTH (LOW RECOVERY RATE)
TRAFFIC SIGNAL ANALYSES IN SQUARE BLOCK

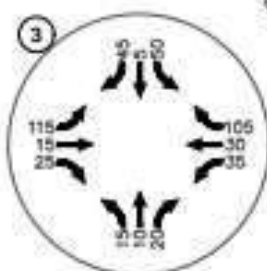
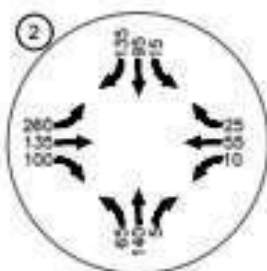
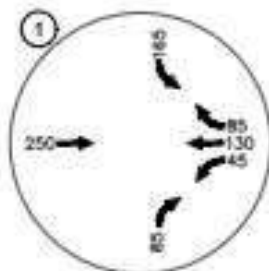


PROJECT
**ROAD PLANNING:
GEORGE AIRPORT NORTH EASTERN PRECINT**

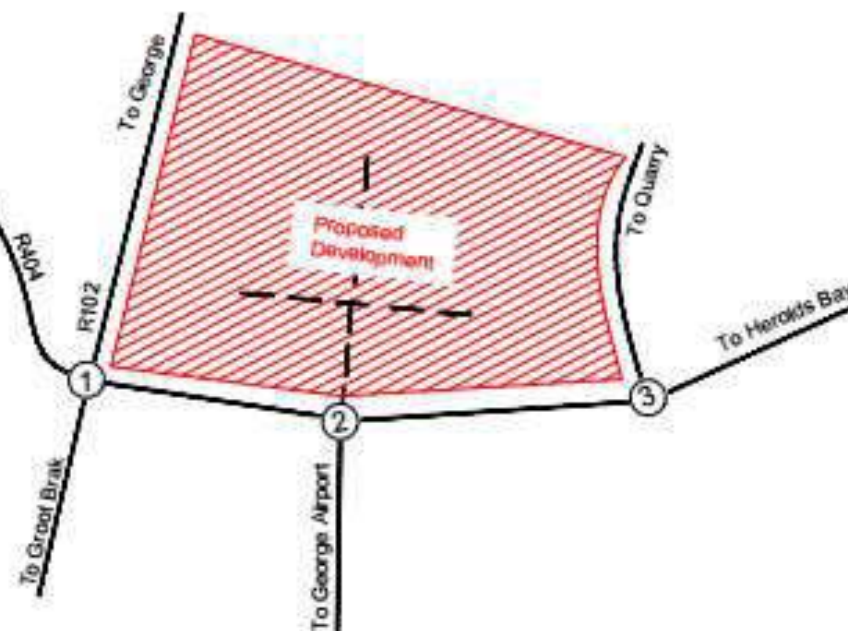
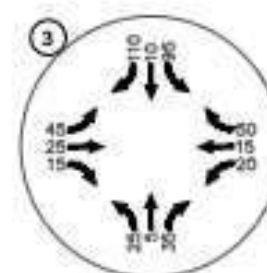
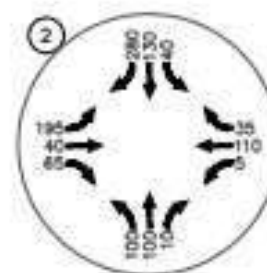
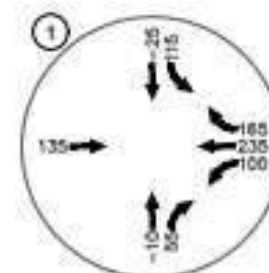
FIGURE
**2026 AM & PM: TRIP GENERATION
(WITHOUT WESTERN BYPASS: LOW ACSA AND GANEP)**

NUMBER
B4

AM PEAK HOUR



PM PEAK HOUR



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALISED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) /
CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)
DM = INTERSECTION AVERAGE DELAY (SIGNALISED) /
CRITICAL MOVEMENT DELAY UNSIGNALISED
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

CONTROL LEGEND



3% BACKGROUND GROWTH
20% AIRPORT GROWTH (HIGH RECOVERY RATE)
TRAFFIC SIGNAL ANALYSES IN SQUARE BLOCK



PROJECT

ROAD PLANNING:
GEORGE AIRPORT NORTH EASTERN PRECINCT

FIGURE

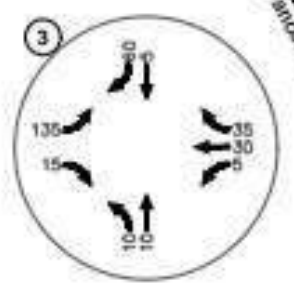
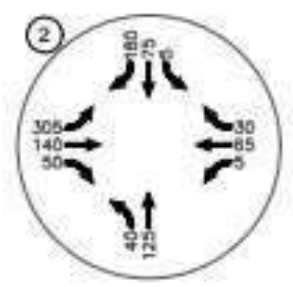
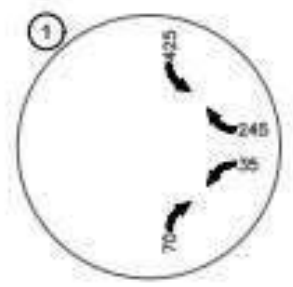
2026 AM & PM: TRIP GENERATION
(WITHOUT WESTERN BYPASS: HIGH ACSA AND GANEP)

TABLE

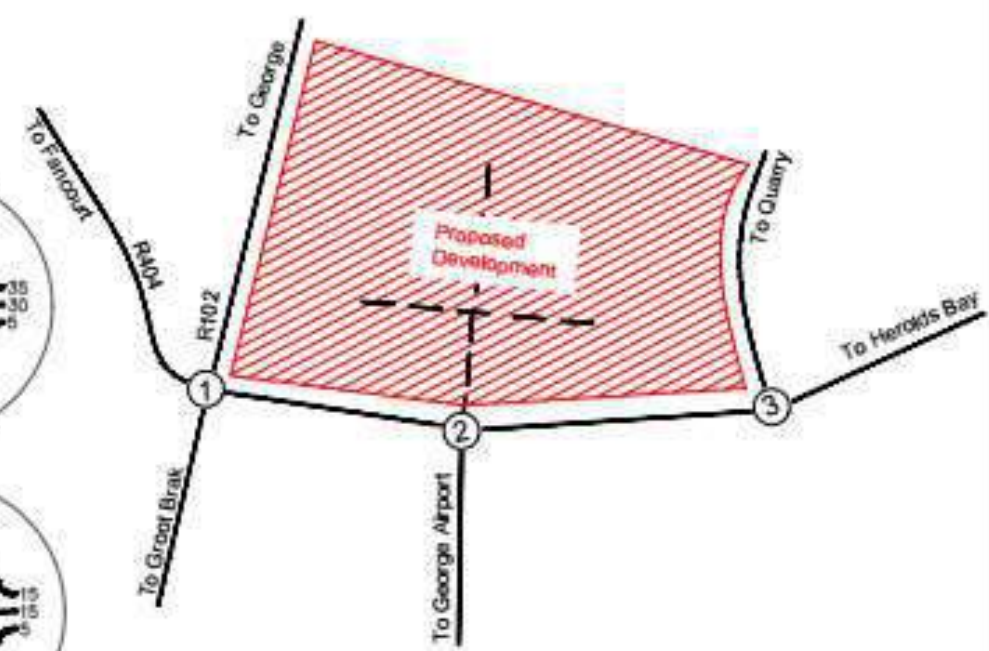
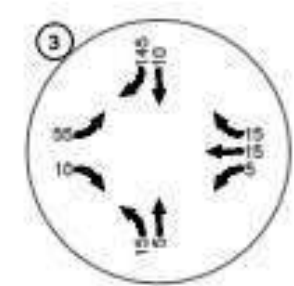
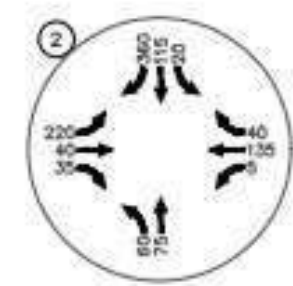
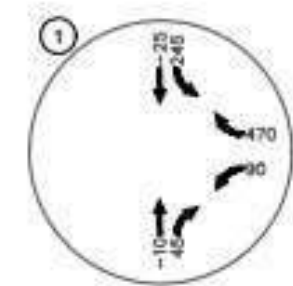
B5



AM PEAK HOUR



PM PEAK HOUR

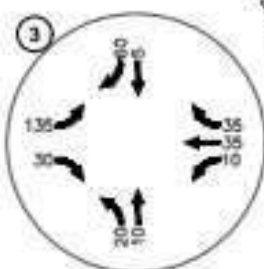
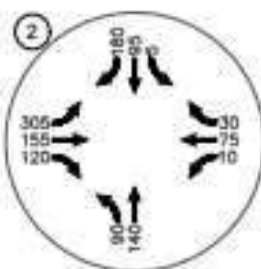
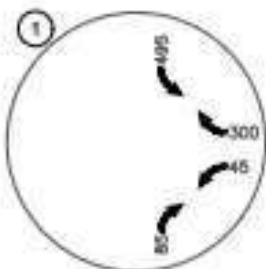


LEGEND	CONTROL LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALISED)	TRAFFIC SIGNAL
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)	STOP YIELD CONTROL
DM = INTERSECTION AVERAGE DELAY (SIGNALISED) / CRITICAL MOVEMENT DELAY UNSIGNALISED	ROUNDABOUT
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO	

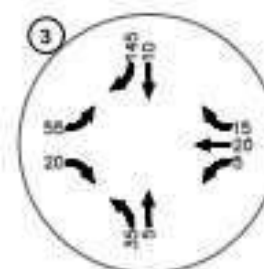
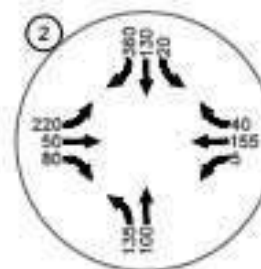
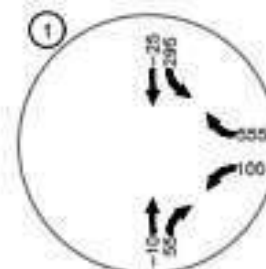
3% BACKGROUND GROWTH
10% AIRPORT GROWTH (LOW RECOVERY RATE)
TRAFFIC SIGNAL ANALYSES IN SQUARE BLOCK



AM PEAK HOUR



PM PEAK HOUR



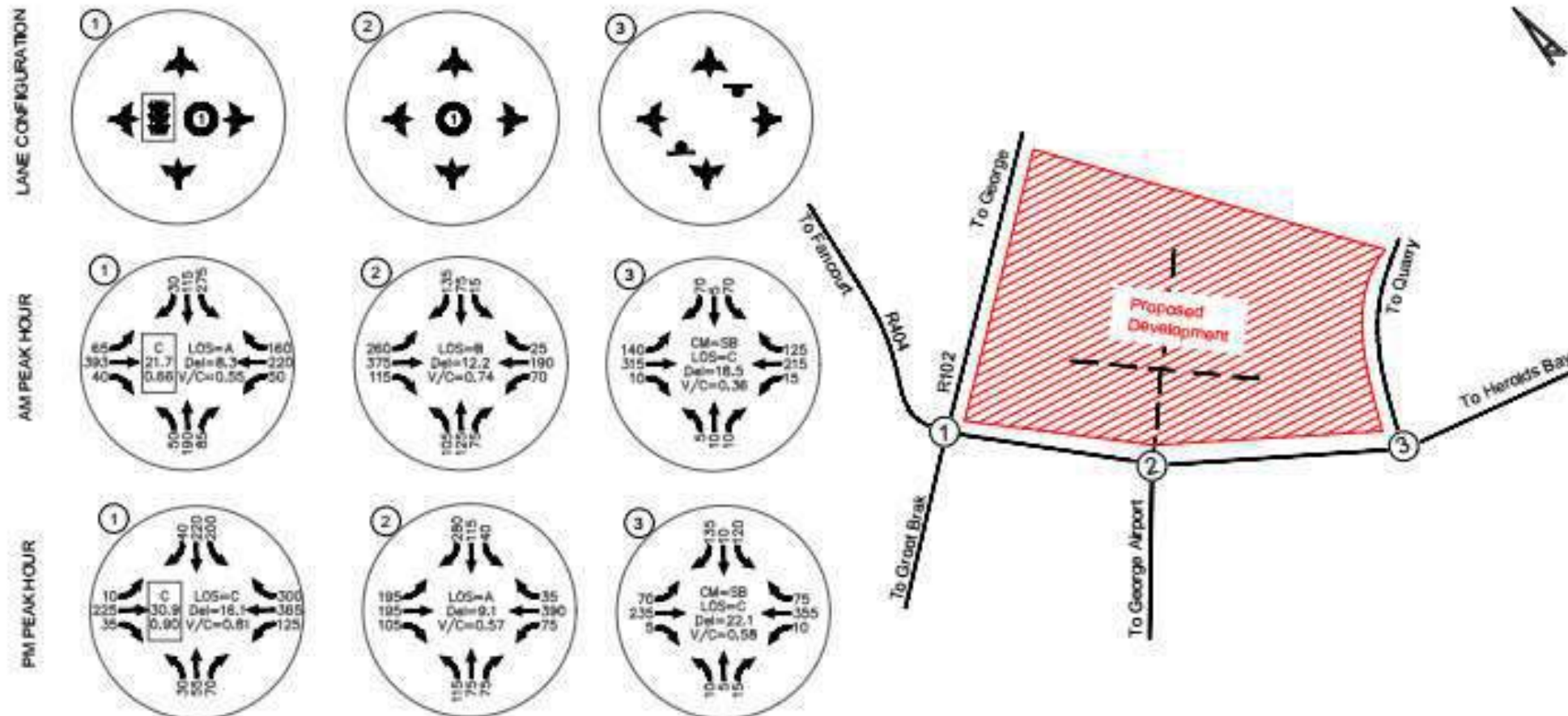
LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALISED)
 LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) /
 CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)
 Del = INTERSECTION AVERAGE DELAY (SIGNALISED) /
 CRITICAL MOVEMENT DELAY UNSIGNALISED
 V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

CONTROL LEGEND



3% BACKGROUND GROWTH
 HIGH AIRPORT GROWTH (HIGH RECOVERY RATE)
 TRAFFIC SIGNAL ANALYSES IN SQUARE BLOCK

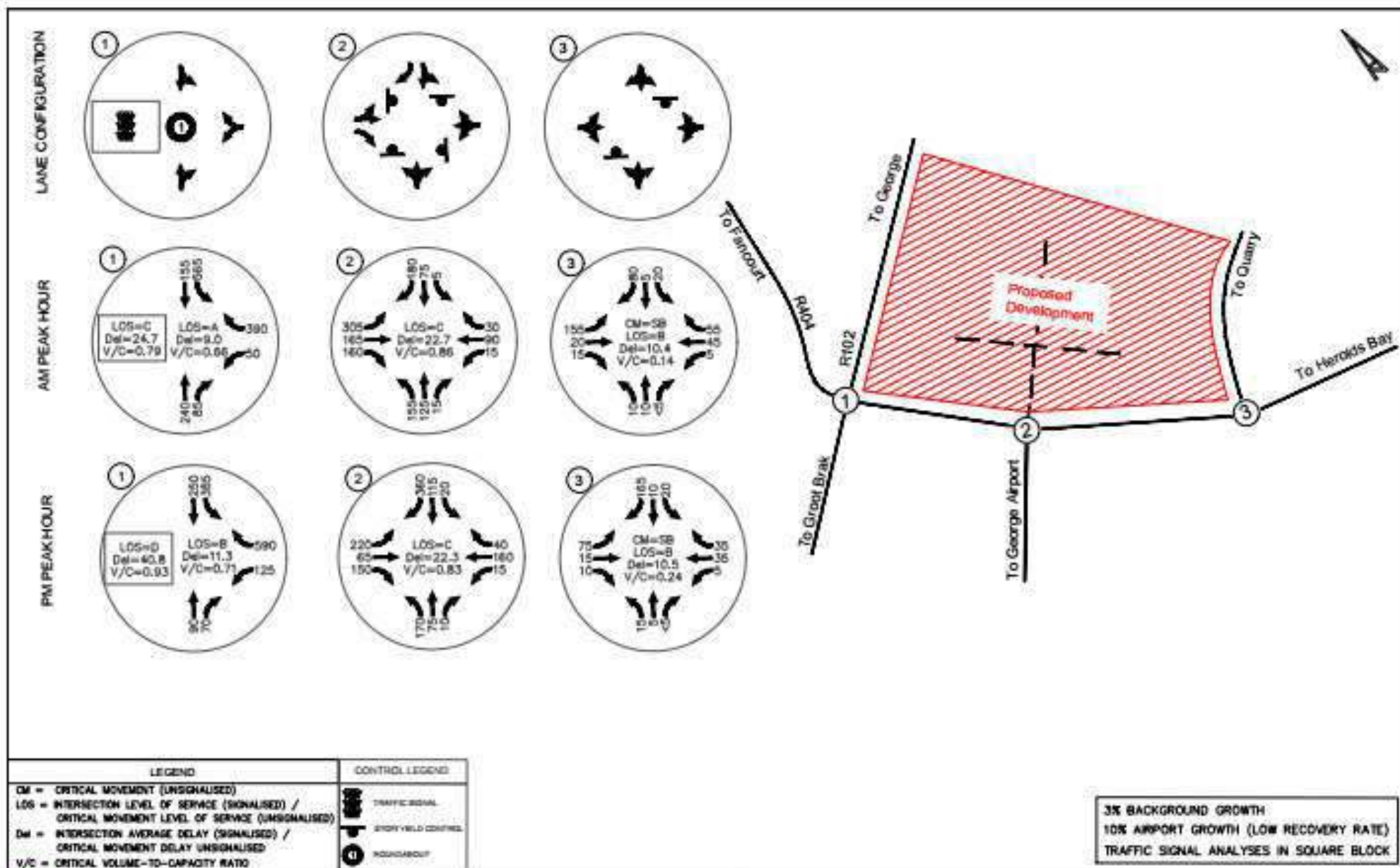


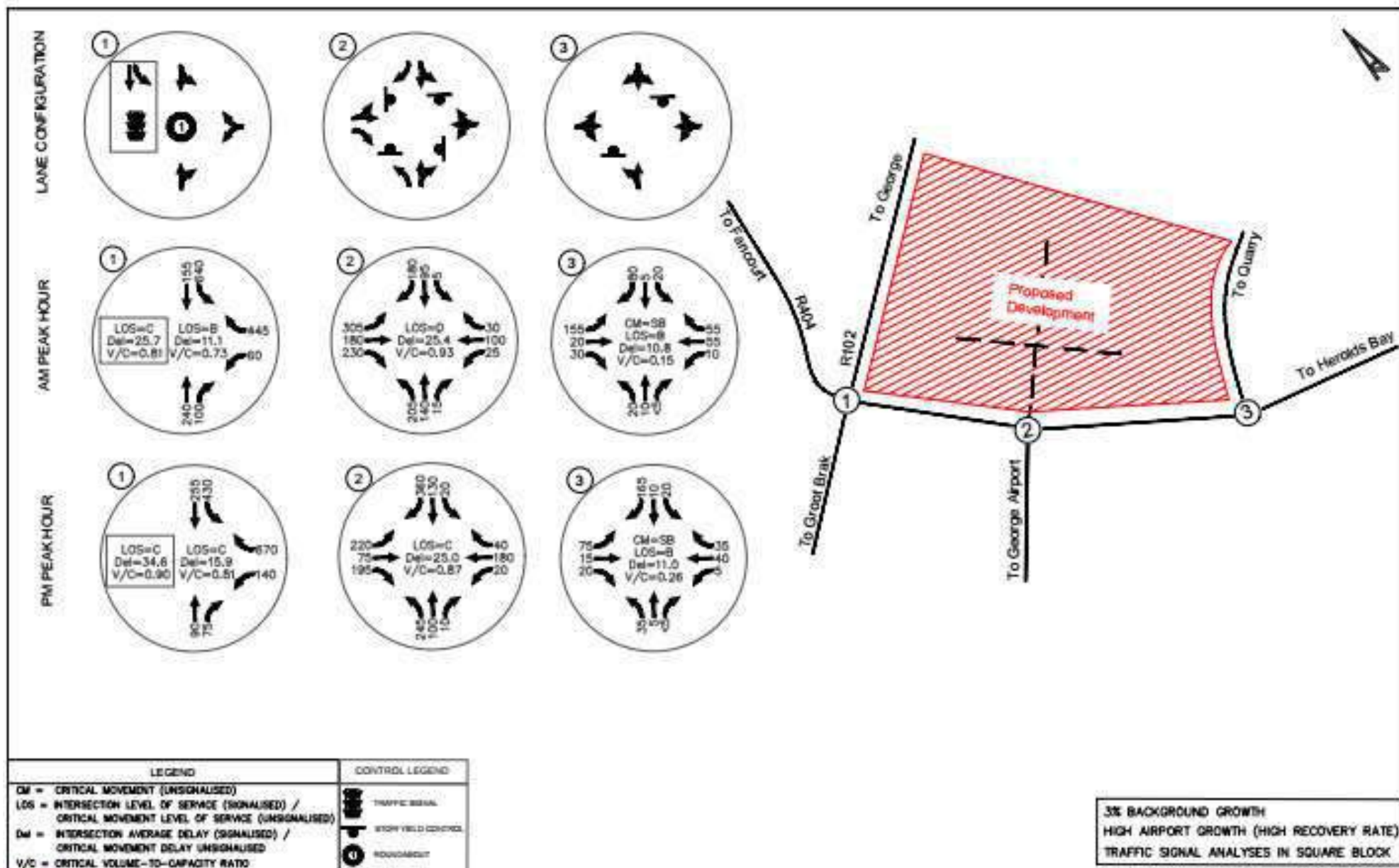
LEGEND	CONTROL LEGEND
CM = CRITICAL MOVEMENT (UNIGNALISED)	TRAFFIC SIGNAL
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNIGNALISED)	ADDITIONAL CONTROL
Del = INTERSECTION AVERAGE DELAY (SIGNALISED) / CRITICAL MOVEMENT DELAY (UNIGNALISED)	ROUNDABOUT
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO	

3% BACKGROUND GROWTH
LOW AIRPORT GROWTH (LOW RECOVERY RATE)
TRAFFIC SIGNAL ANALYSES IN SQUARE BLOCK

PROJECT	ROAD PLANNING: GEORGE AIRPORT NORTH EASTERN PRECINCT	REGION	2026 AM & PM: TOTAL SCENARIO (WITHOUT WESTERN BYPASS: LOW ACSA AND GANEP)	NUMBER	B8
---------	---	--------	--	--------	----







Appendix C

Road Planning Figures

Appendix D

Trip Generation Table

Event	Internal Portion	Land Use	Source	BRT Volume (V _B)	Zonal	Weekday AM Peak Hour				
						Flow	In	Out	Pass-by	Blocked
Portion 4		Warehousing	COTD 150	35,262	m2	0.50	10%	33%	2%	0%
		Filling Station Convenience Store	COTD 828	300	m2	4.21	0%	30%	0%	0%
Portion 130 + 132	1	Service Industry	COTD 118	13,400	m2	0.50	75%	25%	0%	0%
		Family Restaurant (sit-down)	COTD 832	500	m2					
		Fast Food	COTD 833	385	m2	45.00	15%	45%	0%	0%
		Service Industry	COTD 118	5,634	m2	0.50	75%	25%	0%	0%
	1-4	Light Industrial	COTD 148	26,836	m2	0.50	60%	30%	0%	0%
Portion 138		Warehousing	COTD 150	30,703	m2	0.50	60%	30%	0%	0%
Portion 34		Light Industrial	COTD 148	26,643	m2	0.50	60%	30%	0%	0%

DRIVWAY TRIPS										
Event	Internal Portion	Land Use	Weekday AM Peak Hour			Weekday PM Peak Hour			Total	
			In	Out	Total	In	Out	Total		
Portion 4		Warehousing	305	71	177	79	97	176		
		Filling Station Convenience Store	5	3	8	23	23	46		
Portion 130 + 132	1	Service Industry	91	38	121	39	91	130		
		Family Restaurant (sit-down)	0	0	0	26	26	40		
		Fast Food	91	78	173	108	87	193		
		Service Industry	31	13	51	13	38	51		
	1-4	Light Industrial	129	12	160	32	118	160		
Portion 138		Warehousing	91	62	154	69	85	154		
Portion 34		Light Industrial	128	32	168	32	118	160		
		Total Driveway Trips	696	325	1009	418	692	1102		
Pass-by										
Portion 4		Warehousing	0	0	0	0	0	0		
		Filling Station Convenience Store	0	0	0	4	4	8		
Portion 130 + 132	1	Service Industry	0	0	0	0	0	0		
		Family Restaurant (sit-down)	0	0	0	5	3	7		
		Fast Food	0	0	0	27	22	49		
		Service Industry	0	0	0	0	0	0		
	1-4	Light Industrial	0	0	0	0	0	0		
Portion 138		Warehousing	0	0	0	0	0	0		
Portion 34		Light Industrial	0	0	0	0	0	0		
		Total Pass-by Trips	0	0	0	36	29	65		
Blocked										
Portion 4		Warehousing	0	0	0	0	0	0		
		Filling Station Convenience Store	0	0	0	6	6	12		
Portion 130 + 132	1	Service Industry	0	0	0	0	0	0		
		Family Restaurant (sit-down)	0	0	0	5	3	8		
		Fast Food	0	0	0	24	20	44		
		Service Industry	0	0	0	0	0	0		
	1-4	Light Industrial	0	0	0	0	0	0		
Portion 138		Warehousing	0	0	0	0	0	0		
Portion 34		Light Industrial	0	0	0	0	0	0		
		Total Blocked Trips	0	0	0	35	29	64		
TOTAL TRIPS (see Remarks)										
Portion 4		Warehousing	305	71	177	79	97	176		
		Filling Station Convenience Store	5	3	8	23	23	46		
Portion 130 + 132	1	Service Industry	91	38	121	39	91	130		
		Family Restaurant (sit-down)	0	0	0	26	26	40		
		Fast Food	91	78	173	108	87	193		
		Service Industry	31	13	51	13	38	51		
	1-4	Light Industrial	129	12	160	32	118	160		
Portion 138		Warehousing	91	62	154	69	85	154		
Portion 34		Light Industrial	128	32	168	32	118	160		
		GRAND TOTAL	696	325	1009	418	692	1102		
Internal Trips										
			68%	33%		35%	65%			
			646	289	800	335	570	873		
TOTAL TRIPS (after 9% Internal Trips deducted)										
Portion 4		Warehousing	91	64	108	71	87	158		
		Filling Station Convenience Store	5	3	7	11	11	23		
Portion 130 + 132	1	Service Industry	81	27	108	27	82	109		
		Family Restaurant (sit-down)	0	0	0	14	8	23		
		Fast Food	81	70	156	90	41	91		
		Service Industry	31	13	46	13	34	46		
	1-4	Light Industrial	135	19	145	39	116	145		
Portion 138		Warehousing	81	56	119	62	77	119		
Portion 34		Light Industrial	115	29	144	29	115	144		
		GRAND TOTAL	636	289	965	385	572	873		

Retail Factors	A	B	
Peak Hour	6	2500	668
Pass-by	1.8%	45000	368

Rate			
Actual			
AM	0.0		
PM	3.4		
Pass-by	1.0%		

Pass-by Trips						
Filling Station	Trips Along E404	Capture Rate	In	Out	Total	
AM	120	4%	13	13	26	
PM	120	4%	13	13	26	

Appendix E

Cost Apportionment



ANNEXURE P:

ROD for Roads Master Plan 2021

REFERENCE: 16/3/3/1/D2/19/0012/20
ENQUIRIES: Shireen Pullen
DATE OF ISSUE: **04 MAY 2021**

The Municipal Manager
George Municipality
PO Box 19
GEORGE
6530

Attention: Mr. L. Daniels/Ms. L. Mooiman

Tel: (044) 801 9111
Email: ldaniels@george.gov.za
lc mooiman@george.gov.za

Dear Sir/Madam

APPLICATION FOR ENVIRONMENTAL AUTHORISATION (EA) IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014: PROPOSED UPGRADING AND WIDENING OF THE R404 AND THE CONSTRUCTION OF A NEW MUNICIPAL SERVICE ACCESS ROAD, GEORGE

ENVIRONMENTAL AUTHORISATION

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA") and the Environmental Impact Assessment ("EIA") Regulations, 2014, the Competent Authority herewith **grants Environmental Authorisation** to the applicant to undertake the listed activities specified in section B below with respect to the preferred alternative, described in the Basic Assessment Report ("BAR") received by this Department on 15 December 2020.

The applicant for this Environmental Authorisation is required to comply with the conditions set out in section E below.

A. DETAILS OF THE APPLICANT FOR THIS ENVIRONMENTAL AUTHORISATION

The Municipal Manager
George Municipality
% Mr. L. Daniels
PO Box 19
GEORGE
6530

Tel: (044) 801 9111
Email: ldaniels@george.gov.za

The abovementioned applicant is the holder of this Environmental Authorisation and is hereinafter referred to as “**the holder**”.

B. LIST OF ACTIVITIES AUTHORISED

Listed Activities	Activity/Project Description
<p>Listing Notice 1</p> <p><i>Activity Number: 19</i></p> <p><i>Activity Description</i></p> <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 development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 apply</p>	<p>The proposal will require earthworks within a watercourse or in close proximity of a watercourse for the extension of the existing culvert underneath the R404 within the watercourse.</p>

<p><i>Activity Number: 56</i> <i>Activity Description</i> The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre— (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 metres; excluding where widening or lengthening occur inside urban areas.</p>	<p>The existing road (R404) will be widened. Depending on the mitigation alternative selected, the intersection may be widened by more than 6m.</p>
<p>Listing Notice 3</p> <p><i>Activity Number: 12</i> <i>Activity Description</i> The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>a. Western Cape</p> <ol style="list-style-type: none"> i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development 	<p>In accordance to NBA Original and Remaining extent of threatened ecosystems (based on 2018 data) the proposed project area is mapped as falling within an endangered ecosystem (Garden Route Granite Fynbos) and as such clearance of vegetation will be required. The areas are however all transformed agricultural lands</p>

Framework adopted by the MEC or Minister	
--	--

The abovementioned list is hereinafter referred to as **“the listed activities”**.

The holder is herein authorised to undertake the following alternative that includes the listed activity as it relates to the development and the development footprint area:

The proposal entails the clearance of more than 300m² of endangered garden route granite fynbos vegetation, as well as the infilling and dredging of a watercourse in order to upgrade the R404. The intersection of the R404 and R102 requires upgrade to either a circle OR a signalised intersection. This EA is for either option A or B:

- Option A: 25m Road Reserve & Roundabout at R404/R102 intersection;
- Option B: 32m Road Reserve widened to each side & Signal at R404/R102 intersection

The entrances to the airport from the R404 will be upgraded to traffic circles. The upgrade of the R404 (Class 3 Road) between the R102 and the main airport entrance will increase to the preferred road reserve of a minimum of 32m to allow for the intersection upgrade (circle or signals) and a duel carriageway with a proposed sidewalk of 2m wide.

The proposal also includes the construction of a new municipal road from the airport entrance traffic circle to provide equitable municipal services and vehicular access to farm portions RE/60/208 (131/208 & 130/208 & 132/208), 4/208 and 139/208.

This EA will be implemented in accordance with the Site Development Plan attached to this EA as Annexure 2.

C. SITE DESCRIPTION AND LOCATION

The site description and location basically represents the existing provincial road (R404) within the existing road reserve (road reserve will need to be widened to meet the required standards). The listed activities will be undertaken on the preferred site for the construction of the new municipal services access road to farm Portions RE/60/208 (131/208 & 130/208 & 132/208), 139/208 and 4/208 which are located along the boundary between farm Portions RE/60/208 (131/208 & 130/208 & 132/208) and 4/208 to provide equitable access to the relevant portions.

Coordinates:

Description / Point	Latitude (S)	Longitude (E)
Starting Point	33° 59' 47.224" South	22° 22' 50.984" East
Middle Point	33° 59' 55.984" South	22° 22' 47.999" East
End Point	34° 0' 3.539" South	22° 23' 9.657" East

The SG digit code2	
	C02700000000020800068
	C02700000000020800131
	C02700000000020800132
	C02700000000020800000
	C02700000000020800060
	C02700000000020800139
	C02700000000020800004
	C02700000000020800034
	C02700000000020800037
	C02700000000020800078
	C02700000000020800082
	C02700000000020800083
	C02700000000020800084
	C02700000000020800053

Refer to Annexure 1: Locality Plan

The above is hereinafter referred to as "**the site**".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

The Director
HillLand Environmental
% Ms. C. Avierinos
PO Box 590
GEORGE
6530

Tel: 044 889 0229
Email: cathy@hilland.co.za

E. CONDITIONS OF AUTHORISATION

Scope and Validity Period of authorisation

1. This Environmental Authorisation is granted for the period from date of issue until **28 April 2031**, the date on which all the listed activities, including post construction rehabilitation and monitoring requirements will be deemed to be concluded at the site.

Further to the above, the Environmental Authorisation is subject to the following:

- 1.1. The Holder must start with the physical implementation and exceed the threshold of all the authorised listed activities on the site by 28 April 2026.
- 1.2. The post construction rehabilitation and monitoring requirements must be finalised at the site within a period of 6-months from the date the construction activities (construction phase) are concluded; but by no later than 31 October 2031.

Note: The post-construction rehabilitation and monitoring requirements should be completed at least six (6) months prior to expiry of the validity period of an environmental authorisation to ensure the Holder is able to comply with the environmental auditing requirements in time.

Failing which, this Environmental Authorisation shall lapse, unless the environmental authorisation is amended in accordance with the relevant process contemplated in the Environmental Impact Assessment Regulations promulgated under the National Environmental Management Act, 1998 (Act no. 107 of 1998).

2. The Holder is authorised to undertake the listed activities specified in Section B above in accordance with the Preferred Alternative described in the FBAR received by this Department. The authorised activities will be executed on the site as described in Section C above in accordance with the development footprint depicted in Annexure 2 of this Environmental Authorisation.

The preferred alternative entails the clearance of more than 300m² of endangered garden route granite fynbos vegetation, as well as the infilling and dredging of a watercourse in order to upgrade the R404. The intersection of the R404 and R102 requires upgrade to either a circle OR a signalised intersection. This EA is for either option A or B:

- ***Option A: 25m Road Reserve & Roundabout at R404/R102 intersection;***
- ***Option B: 32m Road Reserve widened to each side & Signal at R404/R102 intersection***

The entrances to the airport from the R404 will be upgraded to a traffic circle. The upgrade of the R404 (Class 3 road) between the R102 and main airport entrance will increase to the preferred road reserve of a minimum of 32m to allow for the intersection upgrade (circle or signals) and a duel carriageway with a proposed sidewalk of 2m wide.

The proposal also includes the construction of a new municipal road from the airport entrance traffic circle to provide equitable municipal services and vehicular access to farm portions RE/60/208 (131/208 & 130/208 & 132/208), 4/208 and 139/208.

This EA will be implemented in accordance with the Site Development Plans attached to this EA as Annexures 2.1 and 2.2.

3. This Environmental Authorisation may only be implemented in accordance with an approved Environmental Management Programme ("EMPr").
4. The Holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the Holder.
5. Any changes to, or deviations from the scope of the alternative described in section B above must be accepted or approved, in writing, by the Competent Authority, before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.

Notification and administration of appeal

6. The Holder must in writing, within 14 (fourteen) calendar days of the date of this decision–
 - 6.1. notify all registered Interested and Affected Parties ("I&APs") of –
 - (a) the decision reached on the application;
 - (b) the reasons for the decision as included in Annexure 3;
 - (c) the date of the decision; and
 - (d) the date when the decision was issued.
 - 6.2. draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended) detailed in Section G below;
 - 6.3. draw the attention of all registered I&APs to the manner in which they may access the decision;
 - 6.4. provide the registered I&APs with the:
 - (a) name of the Holder (entity) of this Environmental Authorisation,
 - (b) name of the responsible person for this Environmental Authorisation,
 - (c) postal address of the Holder,
 - (d) telephonic and fax details of the Holder,
 - (e) e-mail address, if any, of the Holder,
 - (f) contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations (as amended).
 - 6.5. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the applicant notified the registered I&APs of this decision.
 - 6.6. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided i.e. the listed activities, including site preparation, must not commence until the appeal is decided.

Written notice to the Competent Authority

7. Seven calendar days' notice, in writing, must be given to the Competent Authority before commencement of any activities.
 - 7.1. The notice must make clear reference to the site details and EIA Reference number given above.
 - 7.2. The notice must also include proof of compliance with the following conditions described herein: **Conditions: 4, 6, 9, 10, 11 and 23.**
8. Seven calendar days' notice, in writing, must be given to the Competent Authority on completion of the construction activities.

Management of activity

9. The Environmental Management Programme ("EMPr") submitted as part of the application for Environmental Authorisation must be amended and re-submitted for approval, subject to the following requirements:

- 9.1. The EMPr must be amended to incorporate the following —
- (a) Environmental Control Officer ("ECO") compliance reports must be submitted monthly to this Department's Regional Office for attention the Directorate Development Management (Region 3).
 - (b) Incorporate all the conditions contained in this Environmental Authorisation; The section dealing with the management and demarcation of the No-Go area's (including the open space areas) must clearly state how the areas will be demarcated, prior to any earthworks / commencement of construction; and
 - (c) Incorporate an alien invasive vegetation clearing plan.
- 9.2. The amended EMPr must be submitted to the Competent Authority and be approved, prior to construction activities commencing on the site.
- Note:** The revised EMPr should be submitted to the Competent Authority at least 90-days, prior to the construction activities commencing on site to ensure the competent authority is able to process / review the revised EMPr, prior to the intended date of commencement.

10. The EMPr must be included in all contract documentation for all phases of implementation.

Monitoring

11. The Holder must appoint a suitably experienced ECO for the duration of the construction and rehabilitation phases.
12. The ECO must—
- 12.1. be appointed prior to commencement of any works (i.e. site clearance; removal and movement of soil and / or rubble or construction activities commencing);
 - 12.2. ensure compliance with the EMPr and the mitigation measures contained herein;
 - 12.3. keep record of all activities on the site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO;
 - 12.4. remain employed until all development activities are concluded, and the post construction rehabilitation and monitoring requirements are finalised.
13. A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities and be made available to anyone on request, and where the Holder has a website, such documents must be made available on such platform where it is publicly accessible.
14. Access to the site referred to in Section C must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.

Auditing

15. The Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure that compliance with the conditions of the environmental authorisation and the EMPr is audited;
16. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme:
 - 16.1. During the period which the activities have been commenced with on site has been completed on site, the Holder must undertake annual environmental audit(s) and submit the Environmental Audit Report(s) to the Competent Authority.

A final Environmental Audit Report must be submitted to the Competent Authority within **three (3)** months of completion of the construction phase the post construction rehabilitation and monitoring requirements thereof.

Note: The final auditing requirements should be completed at least three months prior to the expiry of the validity period of the environmental authorisation (i.e. by no later than 31 January 2031) to ensure that the Holder is able to comply with all the environmental auditing and reporting requirements and for the competent authority to be able to process it timeously.

17. The Environmental Audit Report(s), must –
 - 17.1. be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process;
 - 17.2. provide verifiable findings, in a structured and systematic manner, on–
 - (a) the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and
 - (b) the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
 - 17.3. identify and assess any new impacts and risks as a result of undertaking the activity;
 - 17.4. evaluate the effectiveness of the EMPr;
 - 17.5. identify shortcomings in the EMPr;
 - 17.6. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
 - 17.7. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
 - 17.8. include a photographic record of the site applicable to the audit; and
 - 17.9. be informed by the ECO reports.

18. The Holder must, within 7 calendar days of the submission of the audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

Specific Conditions

19. No stormwater may be discharged from the development surface area directly into the nearby watercourse.
20. The culvert extension must be constructed during a dry period or time to avoid periods of high rainfall when there is minimal or no flow, to reduce the chances of erosion and sedimentation downstream.
21. Provision must be made to partially divert the stream in the event of a storm event during installation of the culvert extension (this includes earthworks required to prepare the stream bed to an appropriate level prior to the bedding of the culvert extension) for road expansion to the west of the R404:
- A temporary holding dam should be placed upstream of the construction area to prevent water flowing through the construction area and into the existing culvert. Clean water, upstream of the dam should be diverted by means of a temporary pipe through the construction area and into the existing culvert.
 - For road expansion to the east of the R404: A temporary pipe should be fitted to the culvert outlet to divert water through the construction area and further downstream into the watercourse.
 - A temporary instream check dam should be placed downstream of the existing culvert and the construction area to trap sediment that may pass through the culvert during high rainfall events"
22. Should the row of Yellowwood trees be removed or trimmed, the relevant permit must be obtained from the Forestry Section of the Department of Forestry, Fisheries and the Environment (DEFF).
23. A search and rescue operation for indigenous plants must be done prior to commencement of construction activities.
24. Active alien invasive plant control measures must be implemented to prevent the invasion of exotic and alien invasive vegetation within the disturbed areas (including culvert areas).
25. An integrated waste management approach, which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal, where appropriate, must be employed. Any solid waste must be disposed of at a landfill licensed in terms of the applicable legislation.
26. Should any heritage remains be exposed during excavations or any other actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape. Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority.

Heritage remains include: meteorites, archaeological and/or paleontological remains (including fossil shells and trace fossils); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; shipwrecks; and/or graves or unmarked human burials including grave goods and/or associated burial material.

F. GENERAL MATTERS

1. Notwithstanding this Environmental Authorisation, the Holder must comply with any other statutory requirements that may be applicable when undertaking the listed activities.

Amendment of Environmental Authorisation and EMP

2. If the Holder does not start with all listed activities and exceed the threshold of each listed activity within the period referred to in Section E, this Environmental Authorisation shall lapse for that activity, and a new application for Environmental Authorisation must be submitted to the relevant Competent Authority.

If the Holder wishes to extend a validity period specified in the Environmental Authorisation, an application for amendment in this regard must be made to the relevant Competent Authority, prior to the expiry date of such a period.

Note:

- (a) Failure to lodge an application for amendment prior to the expiry of the validity period of the Environmental Authorisation will result in the lapsing of the Environmental Authorisation.
 - (b) It is an offence in terms of Section 49A(1)(a) of NEMA for a person to commence with a listed activity if the competent authority has not granted an Environmental Authorisation for the undertaking of the activity.
3. The Holder is required to notify the Competent Authority where any detail with respect to the Environmental Authorisation must be amended, added, substituted, corrected, removed or updated.

In assessing whether to amend or correct the EA, the Competent Authority may request information to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.

The onus is on the Holder to verify whether such changes to the environmental authorisation must be approved in writing by the relevant competent authority prior to the implementation thereof.

Note: An environmental authorisation may be amended or replaced without following a procedural requirement contained in the Regulations if the purpose is to correct an error and the correction does not change the rights and duties of any person materially

4. The manner and frequency for updating the EMPr is as follows:
- (a) Any further amendments to the EMPr, other than those mentioned above, must be approved in writing by the relevant competent authority.
 - (b) An application for amendment to the EMPr must be submitted to the Competent Authority if any amendments are to be made to the impact management outcomes of the EMPr. Such amendment(s) may only be implemented once the amended EMPr has been approved by the competent authority.
- The onus is however on the Holder to confirm the legislative process requirements for the above scenarios at that time.
5. Where an amendment to the impact management outcomes of an EMPr is required before an environmental audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the Holder of the environmental authorisation.

Compliance with Environmental Authorisation and EMPr

6. Non-compliance with a condition of this environmental authorisation or EMPr is an offence in terms of Section 49A(1)(c) of the National Environmental Management Act, 1998 (Act no. 107 of 1998, as amended).
7. This Environmental Authorisation is granted for a set period from date of issue, during which period all the listed activities must be commenced with and concluded, including the post-construction rehabilitation; monitoring requirements and environmental auditing requirements which must be concluded.

The validity period and conditions of the environmental authorisation has been structured to promote the effective administration of the environmental authorisation and guidance has been provided to ensure the compliance thereof within the validity period, for example:

- ❖ Failure to submit the revised EMPr to the Competent Authority at least 90-days prior to the construction activities commencing on site, may result in the competent authority not being able to process / review the revised EMPr prior to the intended date of commencement.
 - ❖ Failure to complete the post construction rehabilitation and monitoring requirements at least six months prior to expiry of the validity period of an environmental authorisation may result in the Holder not being able to comply with the environmental auditing requirements in time.
 - ❖ Failure to complete the auditing requirements at least three months prior to expiry of the validity period of the environmental authorisation may result in the Holder not being able to comply with all the environmental auditing and reporting requirements and may result in the competent authority not being able to process the audit timeously.
8. This Environmental Authorisation is subject to compliance with all the peremptory conditions (i.e. 4, 6, 9, 10, 11 and 23.). Failure to comply with all the peremptory conditions prior to the physical implementation of the activities (including site preparation) will render the entire EA null and void. Such physical activities shall be regarded to fall outside the scope of the Environmental Authorisation and shall be viewed as an offence in terms of Section 49A(1)(a) of NEMA.

9. In the event that the Environmental Authorisation should lapse, it is an offence in terms of Section 49A(1)(a) of NEMA for a person to commence with a listed activity, unless the competent authority has granted an Environmental Authorisation for the undertaking of the activity.
10. Offences in terms of the NEMA and the Environmental Impact Assessment Regulations, 2014, will render the offender liable for criminal prosecution.

G. APPEALS

1. An appellant (if the holder of the decision) must, within 20 (twenty) calendar days from the date the notification of the decision was sent to the holder by the Competent Authority –
 - 1.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator; and
 - 1.2. Submit a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision-maker i.e. the Competent Authority that issued the decision.
2. An appellant (if NOT the holder of the decision) must, within 20 (twenty) calendar days from the date the holder of the decision sent notification of the decision to the registered I&APs–
 - 2.1. Submit an appeal in accordance with Regulation 4 of the National Appeal Regulations 2014 (as amended) to the Appeal Administrator; and
 - 2.2. Submit a copy of the appeal to the holder of the decision, any registered I&AP, any Organ of State with interest in the matter and the decision-maker i.e. the Competent Authority that issued the decision.
3. The holder of the decision (if not the appellant), the decision-maker that issued the decision, the registered I&AP and the Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.
4. The appeal and the responding statement must be submitted to the Appeal Administrator at the address listed below:

By post: Western Cape Ministry of Local Government, Environmental Affairs
and Development Planning

Private Bag X9186

CAPE TOWN

8000

By facsimile: (021) 483 4174; or

By hand: Appeal Administrator

Attention: Mr Marius Venter (Tel: 021 483 3721)

Room 809

8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: For purposes of electronic database management, you are also requested to submit electronic copies (Microsoft Word format) of the appeal, responding statement and any supporting documents to the Appeal Authority to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from the Appeal Administrator at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

H. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this Environmental Authorisation shall not be responsible for any damages or losses suffered by the Holder, developer or his/her successor in any instance where construction or operation subsequent to construction is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully

MR. GAVIN BENJAMIN

DIRECTOR: DEVELOPMENT MANAGEMENT (REGION3)

DATE OF DECISION: **04 MAY 2021**

CC:

Ms. Cathy Avierinos
Ms. Lindsay Mooiman
Ms. Inge Delpont

EAP (HillLand Environmental)
George Municipality
HillLand Environmental

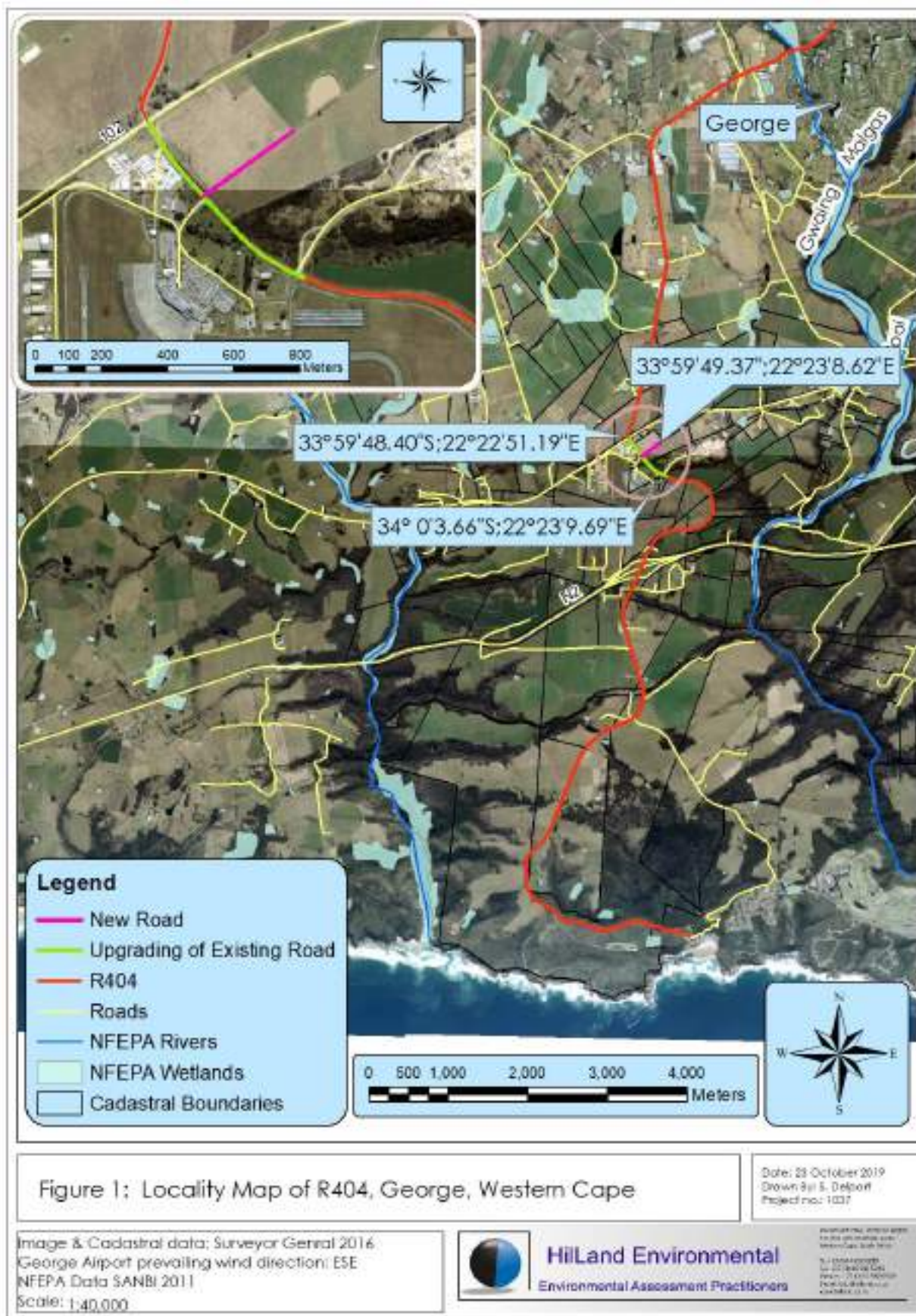
Email: cathy@hilland.co.za
Email: lcmooiMAN@george.gov.za
Email: environmental2@hilland.co.za

FOR OFFICIAL USE ONLY:

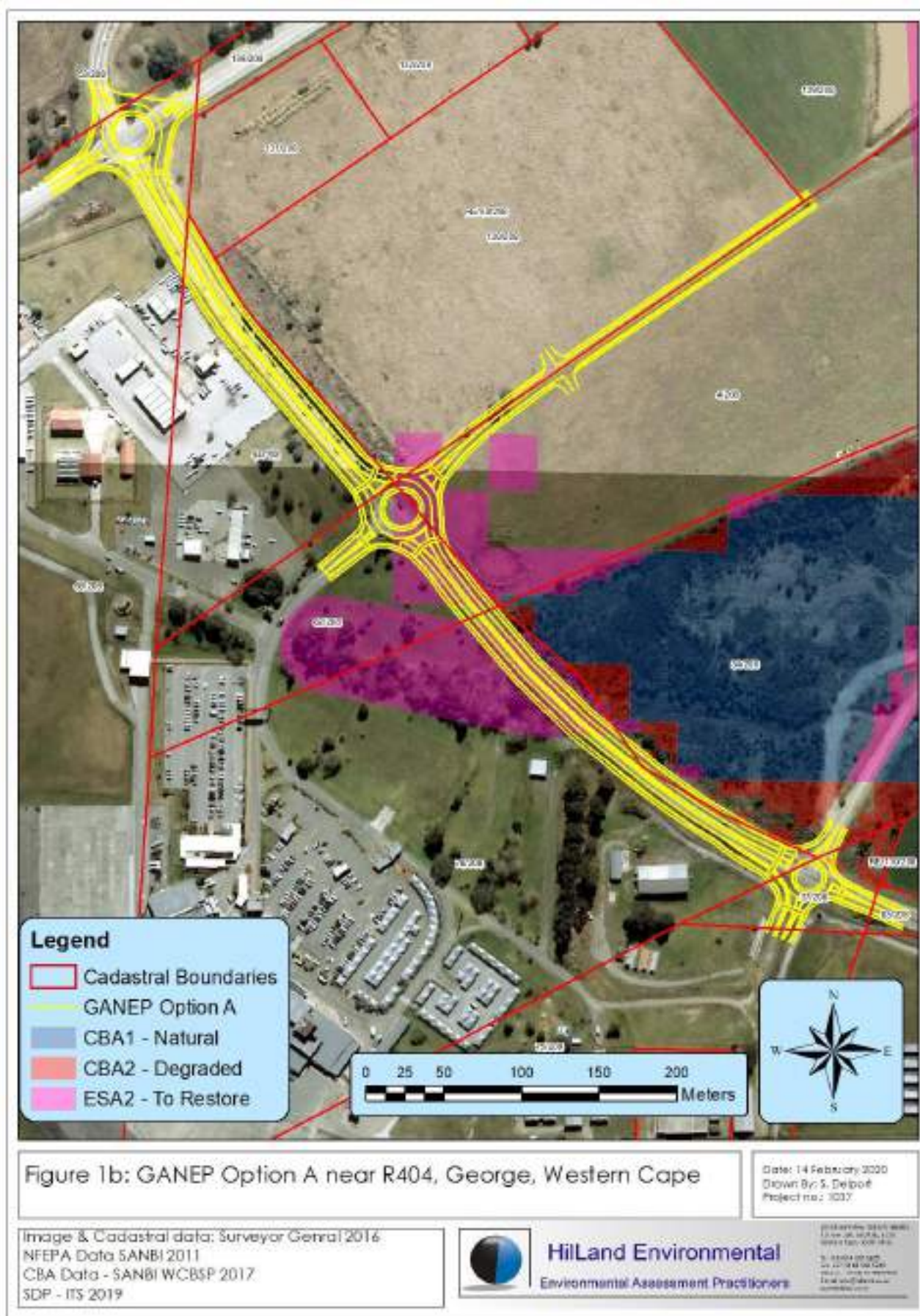
EIA REFERENCE NUMBER: 16/3/3/1/D2/19/0012/20

NEAS REFERENCE: WCP/EIA/0000784/2020

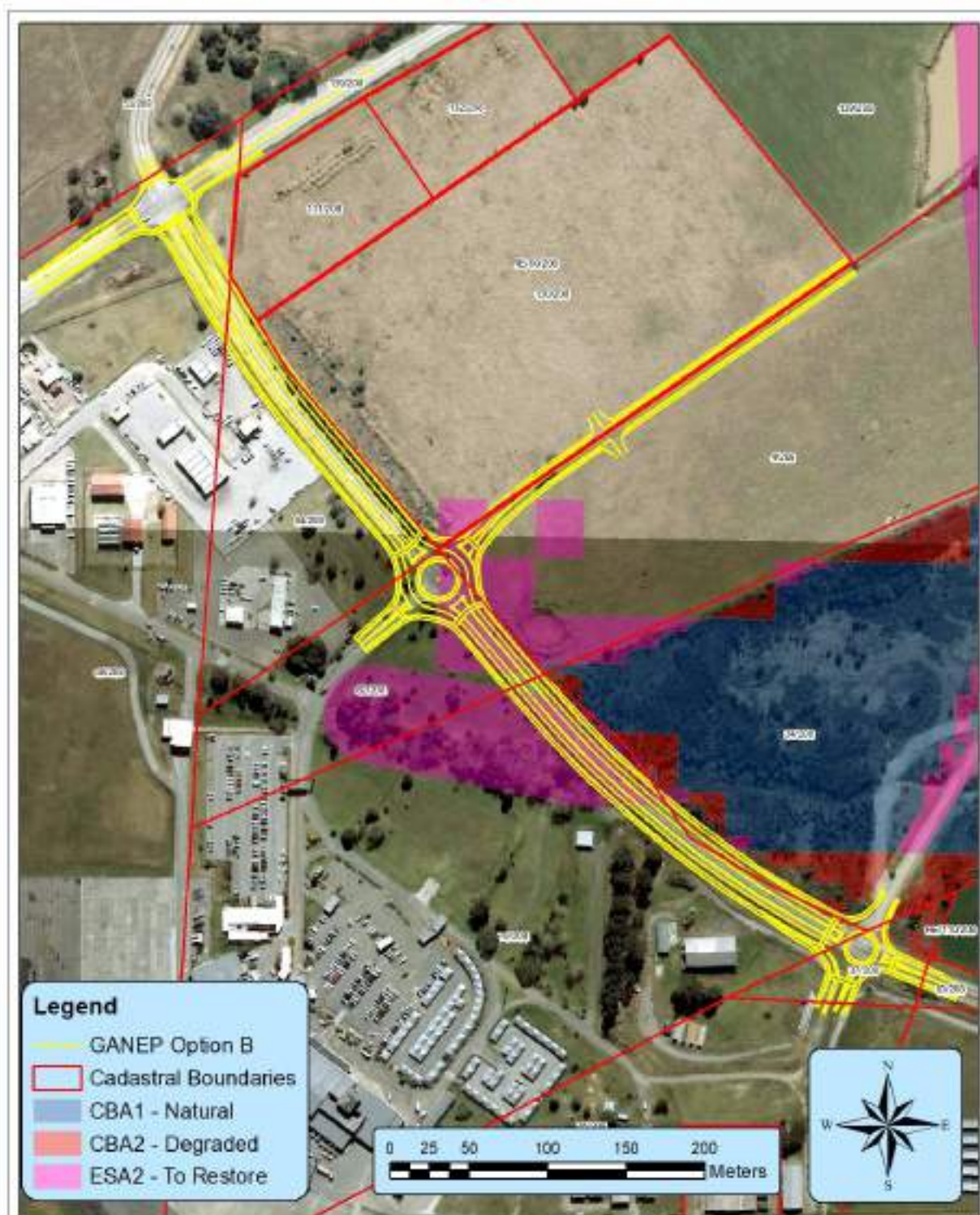
ANNEXURE 1: LOCALITY MAP



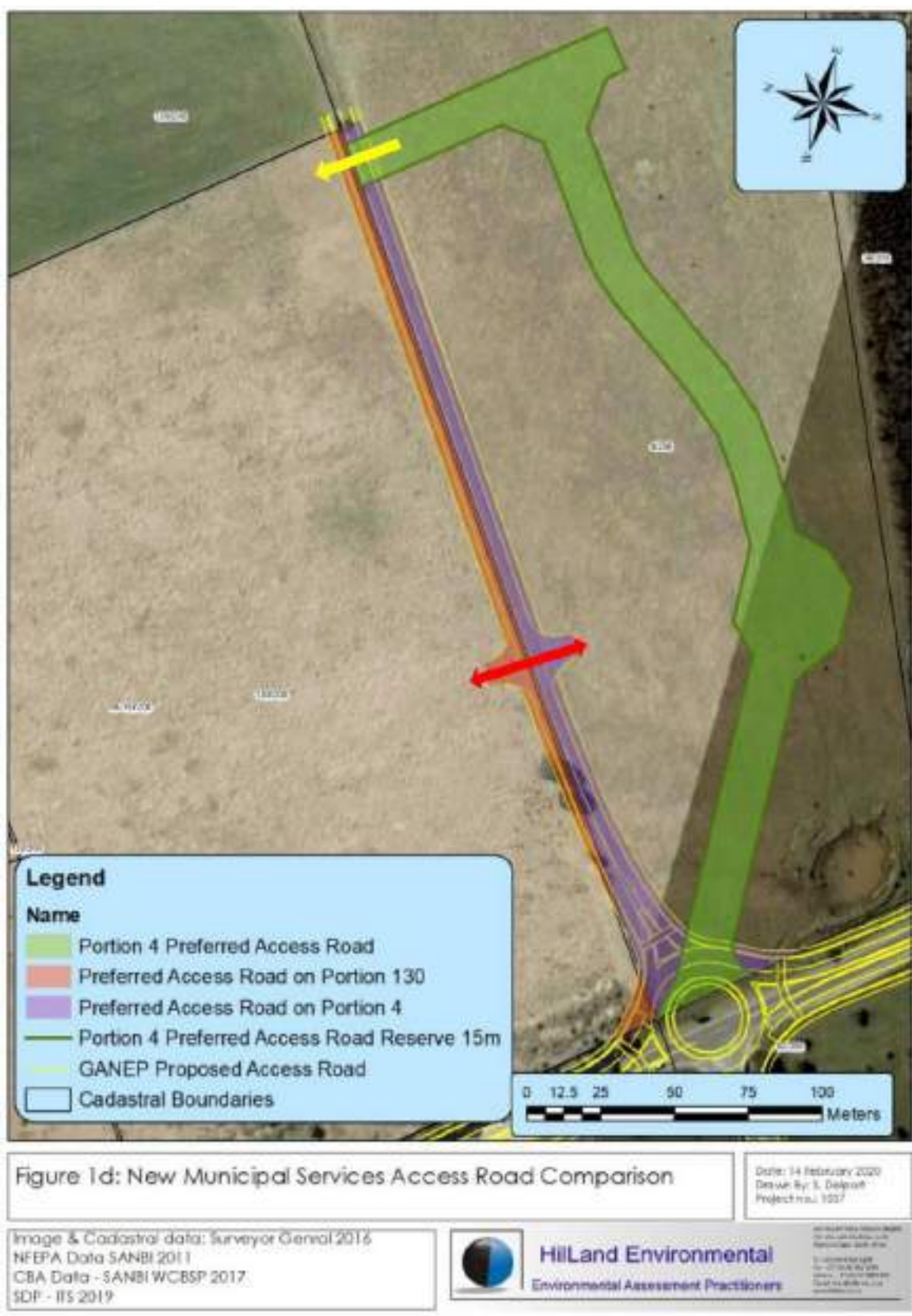
ANNEXURE 2.1: SITE DEVELOPMENT PLAN FOR OPTION A



ANNEXURE 2.2: SITE DEVELOPMENT PLAN FOR OPTION B



ANNEXURE 2.3: SITE DEVELOPMENT PLAN FOR ACCESS ALTERNATIVE OVER PORTION 4 AND THE PREFERRED EQUITABLE ACCESS



The proposed alternative at portion 4 (in green to the required municipal road reserve width) and the preferred alternative (pink and blue) which follows the common property boundary.

ANNEXURE 3: REASONS FOR THE DECISION

In reaching its decision, the Competent Authority considered, *inter alia*, the following:

- a) The information contained in the Application Form received on 16 September 2020, the Final Basic Assessment Report (FBAR) and EMPr submitted together with the FBAR on 15 December 2020;
- b) Relevant information contained in the Departmental information base, including the Guidelines on Public Participation, Alternatives (dated March 2013);
- c) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- d) The comments received from interested and affected parties (I&APs) and responses to these, included in the FBAR received by this Department on 15 November 2020; and
- e) The balancing of negative and positive impacts and proposed mitigation measures.

In addition to the above, the Department had enough information at its disposal to understand the environmental and spatial context and the case officer is also familiar with the site and surrounding area. All information presented to the Competent Authority was taken into account in the consideration of the application for Environmental Authorisation. A summary of the issues that were considered to be the most significant for the decision is set out below.

1. Public Participation

A sufficient public participation process was undertaken, and the applicant has satisfied the minimum requirements as prescribed in the EIA Regulation 2014 for public involvement. The public participation process included:

- Identification of and engagement with I&APs including organs of state which have jurisdiction in respect of the activity to which the application relates;
- Fixing a notice board at the 17 February 2020;
- Giving written notice to the owners and occupiers of land adjacent to the site and any alternative site where the listed activities are to be undertaken, the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities on 11 February 2020;
- The placing of a newspaper advertisement in the 'George Herald' in 19 December 2019;
- The pre-application BAR was made available from 18 February 2020 – 20 March 2020; and
- The draft BAR was made available from 08 October 2020 - 09 November 2020.

The following Organs of State provided comment on the proposal:

- ❖ Breede Gouritz Catchment Management Agency (BGCMA)
- ❖ CapeNature
- ❖ Heritage Western Cape
- ❖ George Municipality
- ❖ Garden Route Municipality
- ❖ Department of Agriculture Fisheries and Forestry
- ❖ Department of Agriculture
- ❖ The Department of Transport and Public Works

This Department requested consultation with the BGCMA due to the watercourse and existing culvert and BGCMA indicated that a Fresh Water Risk assessment was required for the proposed extension of the culvert in the watercourse. The aquatic specialist indicated that the risks associated with the widening of the stormwater culvert has a low impact and therefore, a General Authorisation is applicable to the proposal. A GA has been issued on the 4th of September 2020.

Provincial Roads (Public Works) have indicated that they prefer a signalised intersection at the R404/R102 intersection, while the George Municipality prefers a circle at the intersection between R102 and R404. To address this, the Environmental Authorisation was written to implement either a signal or a circle at the R404/R102 intersection.

HWC indicated that an NID would need to be submitted to confirm whether any other specialist studies would be required. A Heritage NID has been submitted on the 5th November 2019 and HWC indicated in a letter dated 10 February 2020 that no further action under Section 38 of the National Heritage Resources Act is required.

DAFF requested a site visit on the 17th February 2020 in order to determine the impact on the planted Protected Yellowwood trees and indicated in summary that "for the interest of the protected trees Forestry supports Option C and Option E (where the trees would be retained). However, none of the landowners are willing to expropriate portions of their land in order to protect the trees. Forestry indicated their support for option B, "but only if there are no other alternatives to protect the lane of Yellowwood trees)."

Cape Nature has indicated in their comments on the Draft BAR that they do not object to the proposal and are satisfied that the issues regarding how the proposed construction could impact CBA were addressed within the Aquatic Specialist report. Further recommendation and comments made by CapeNature are addressed in the Public Participation Report.

The Department of Agriculture confirmed that they have no objection to the proposed Project and that no additional studies were required.

The owners of Farm 208/4 objected to the proposal based on a commercial interest conflict between them and the owners of Farm 208/131 (both want to construct a fuel station) with respect to the airport support zone and specifically access to a future fuel station. The owners of Farm 208/4 suggested an alternative access. However, their alternative was considered in the process but rejected as it does not provide equitable access. All the comments and issues raised by I&APs and respective Organs of State that were captured in the Basic Assessment Report were responded to by the EAP.

2. Alternatives

The assessment process considered six alternatives to the upgrade of the R404 as well as the intersection of the R404 and R102 to either a circle OR a signalised intersection. The entrances to the airport from the R404 will be upgraded to traffic circles. The upgrade of the R404 (Class 3 road) between the R102 and main airport entrance will increase to the preferred road reserve of a minimum of 32m to allow for the intersection upgrade (circle or signals) and a duel carriageway with a proposed sidewalk of 2m wide.

Preferred alternative (Option A or B)

The preferred alternative entails the clearance of more than 300m² of endangered garden route granite fynbos vegetation as well as the infilling and dredging of a watercourse in order to upgrade the R404. The intersection of the R404 and R102 requires upgrade to either a circle OR a signalised intersection. This EA is for either option A or B:

- Option A: 25m Road Reserve & Roundabout at R404/R102 intersection;
- Option B: 32m Road Reserve widened to each side & Signal at R404/R102 intersection

Option C

This alternative entails the upgrade of the R404 and the intersection of the R404 and R102 with a 35m Road Reserve widening to the West and Signal at R404/R102 intersection. This alternative was not preferred as it requires excessive expropriation.

Option D

This alternative entails the upgrade of the R404 and the intersection of the R404 and R102 by a 33m Road Reserve widening to West and a roundabout at R404/R102 intersection. This alternative was not preferred as it requires excessive expropriation.

Option E

This alternative entails the upgrade of the R404 and the intersection of the R404 and R102 with a 37m Road Reserve widening to the East and Signal at R404/R102 intersection. This alternative was not preferred as it requires excessive expropriation.

Option F

This alternative entails the upgrade of the R404 and the intersection of the R404 and R102 by a 37m Road Reserve widening to the East & Roundabout at R404/R102 intersection. This alternative was not preferred as it requires excessive expropriation.

Alternative access road to the airport support zone

This alternative entails a different access road to the Airport Support Zone as proposed by the owners and applicant of Portion 4/208. This alternative will result in all traffic first passing through Portion 4 before allowing access to any other property in the proposed airport support zone, while the preferred alternative provides equitable access directly opposite each other to portion 4 and portion 130. In terms of the municipal mandate to provide equitable access, the preferred alternative provides direct access to both competing landowners directly opposite each other and off the airport circle and equally divides the land that will need to be expropriated. The alternative on Portion 4 was therefore considered, but rejected because it does not provide equitable access to all affected properties.

"No-Go" Alternative

This alternative entails no upgrade of the R404 or the R102/R404 intersection. This is not the applicant's preferred alternative as the intersection of the R102/R404 is currently not safe. The proposed development will address this issue by providing for a safer intersection between the R404 and R102, as well as widening the R404 and providing safer access into and out of the Airport and the New Airport Support Zone. It will also result in no unlocking of economic growth and employment opportunities around the airport precinct.

3. Impact Assessment and Mitigation Measures

3.1 Planning

- ❖ *The Western Cape Spatial Development Framework (PSDF)*

PSDF which call for investing in new regional economic infrastructure to unlock the potential of the emerging George/Mossel Bay node. The PSDF focuses on implementing and improving public transport and in order to achieve this current infrastructure (roads) needs to be properly maintained and upgraded to suitable standards which the proposed project will address by improving and upgrading of the current road infrastructure. The proposed development is therefore in line with both these principles.

The BAR states that one of the challenges the PSDF takes on is the restructuring of regions and settlements to offer the benefits to all and therefore the proposed project contributes as it represents an integrated transport and land use planning proactive intervention, instead of an uncoordinated transport system and land use planning that are more of a curative intervention. The proposed development entails equitable access which will benefit the broader society with new municipal services access road located on the boundary between farm portions. This is one of the objectives highlighted in the PSDF, as biodiversity protection which is described as "Optimise the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities".

The EAP further states in the BAR that the project is in line with the Space-Economy of the PSDF to connect the regional economic infrastructure in that the proposed new services access to the airport support zone will allow for the development of the airport support zone. Amongst others this could support local agricultural industry to support import and export trade. This Department agrees with this statement as the proposed development will not only support economic growth but will also increase safety at the R404/R102 intersection.

❖ *George Spatial Development Framework (MSDF)*

Strategic Goal 1: Develop and Grow George

The BAR submits that the proposed development will assist in creating and facilitating an enabling environment for economic development in George. It will also contribute to ensuring the development of participatory, practically implementable economic development and business retention and expansion strategies.

Policy A of the theme of "Infrastructure that invests in people and their socio-economic mobility and resilience."

The BAR submits that the proposed development is in line with this policy as it provides vehicular and municipal services access to the Airport Support Area that is supportive of the airports functionality and convenience of its users. The proposed project is in line with Policy A in terms of maintaining, expanding and improving the basic service delivery and infrastructure maintenance.

Policy F of the MSDF: Direct public and private fixed investment to existing settlements reinforcing their economic development potential. In this way, the impact of public and private investment is maximised, the majority of residents benefit, and the Municipality's natural and productive landscapes are protected"

According to the BAR the widening and addition of a roundabout/signalised intersection to accommodate the increased traffic anticipated for the development of the identified airport support area as identified in, will add to the medium to long term growth of the city by reinforcing the existing accessibility and infrastructure network, it also minimises the impact on the natural landscape by having construction remain largely within the existing road reserve.

The BAR further states that the construction of the new municipal services access road will also have a minimal impact on the natural landscape and agricultural resources since the proposed road is aligned to be on the boundary between Farm Portion RE/60/208 (131/208 & 130/208 & 132/208) and 4/208 and considering that the area is set aside for development in terms of the airport support area, for which approval is in place or in the process of obtaining approval.

Policy F2 of the MSDF “Direct the medium to long term growth of the George city area, when necessary, contiguous to the existing urban footprint in a manner that reinforces existing accessibility and infrastructure networks and minimises impact on natural landscapes and agricultural resources”.

Development of the George Airport precinct is supported in so far as it relates to the development of uses ancillary to the airport's operations and should not include activities already well catered for in the built footprint of the George urban area. An airport support area is identified in this MSDF. Tourism and commercial uses of a rural nature are supported in keeping with the rural landscape along the road connecting the airport to the George city area, as set out in more detail in the Gwayang LSDF.

This project is in line with Policy F2 of the MSDF as it proposes to provide the primary access (vehicular and services) to the airport support area (George Airport precinct).

The proposed new municipal services access road is set to provide equitable access to the properties in this airport support zone. Some of these properties already have development rights or are in the process of obtaining approval.

❖ *Gwayang Local Spatial Development Framework (GLSDF)*

Section 9.3 of the Gwayang LSDF supports tourism that contributes to the convenience and experience of tourists visiting the area – *“Properties around the airport are also suitably located to accommodate cargo and freight services. The development and detailed land use and infrastructure planning for this area should ideally be managed through an integrated development plan in order to co-ordinate the land uses.”* The proposed project is therefore supported by the Gwayang LSDF in that it provides for the equitable municipal services and vehicular access necessary to develop the airport support area. The proposed municipal services access road therefore forms part of the George municipality's strategic planning process to ensure that any potential planning process with regards to the airport support zone (and requiring equitable access off of R404) is dealt with swiftly as and when it is needed.

The Gwayang LSDF also elaborates on the up-and-coming Agri-tourism industry. It is therefore also important to note that the node at the airport is to create a functional link between these tourism industries, the rural areas and the city of George via the air and road link. Additional pressure will be added to this road system (and the unsafe intersections between R404 and R102) as these Agri-tourism industries expands.

3.2 Activity need and desirability

The BAR submits that the current R404/R102 intersection is a known dangerous intersection and the proposal alternatives seek to improve this situation. There is a current need for the upgrade as it will provide for a safer intersection between the R404 and R102, as well as widening the R404 and safer access into and out of the Airport and the New Airport Support Zone.

3.3 Freshwater

According to the BAR a section of the R404 planned to be widened, traverses a non-perennial stream which currently flows through an existing culvert beneath the road. The culvert will need to be extended in order to accommodate the widened road. The stream is not categorised as a Freshwater Ecosystem Priority Area and originates immediately to the east of the George Airport, runs beneath the R404 and eventually discharges into the Gwaing River.

The freshwater specialist also states that the watercourse is of low ecological importance and sensitivity. This is primarily due to the fact that the watercourse is a minor, first order, highly intermittent stream, with a poorly defined channel and very low diversity of instream habitat which provides very marginal habitat for aquatic and other biota. In light thereof, this Department is of the opinion that the watercourse is not ecologically sensitive and that the proposed development will have a low negative impact on the watercourse. A General Authorisation was issued on 4 September 2020.

3.4 Yellow wood trees

According to the BSAR there is a row of planted protected Yellow wood trees that are located adjacent to the gravel shoulder on the eastern side of the R404. Several mitigation measures were investigated to try and retain these trees. The mitigation was primarily focussed on avoiding impacts to a row of yellowwood trees that line the eastern verge of the road, north of the main access road into the airport. However, these mitigation alternatives were rejected by the Department of Transport and Public Works due to the requirement of excessive expropriation of private land, which is not desirable. Therefore, the row of protected yellowwood trees will be removed/relocated to fit in the future dual carriageway. New yellowwood trees will be planted in the new design.

3.5 Stormwater

All stormwater flow will be incorporated in the design of the widening of the road and directed to the natural flow pathways as is currently the case.

3.6 Biodiversity

The site consists of a mixture of agricultural land and existing roads. The new road is proposed along a boundary fence of these agricultural pastures. According to the BAR there are no intact vegetation ecosystems along the proposed route and no sensitive species are located along the proposed routes, except for the row of protected yellowwood trees. The EAP further submits that the presence of any specimens of *Erica unicolor*, *Diosma passerinoides*, or *Lampranthus pauciflorus* is highly unlikely as the area is historically transformed for agriculture and roads. As per the EMPr, a search and rescue operation for indigenous plants should be done, prior to commencement of construction. Cape Nature has confirmed that the project is acceptable and will not impact on Biodiversity aspects. In terms of NBA remaining extent mapping, the area for the proposed expansion of the R404 and the new municipal services road is transformed agricultural land and does not support the Endangered Garden Route Granite Fynbos.

3.7 Biophysical Impacts

According to the BAR impacts are anticipated from the preferred alternative on the biophysical environment. The BAR however states that the expected impact is considered to fall within the acceptable levels. Further to this, the construction phase of the proposed development will involve earthworks for the installation of services, construction of internal roads, retirement units and the frail care centre. The BAR further submits that vegetation clearing will expose the soil, which could potentially result in soil erosion. According to the

BAR these activities will increase storm water runoff and potential sedimentation. The BAR submits that the potential risks and impacts associated with the construction can be mitigated to acceptable levels through the effective implementation of the EMPr and strict compliance with the conditions of this authorisation. This Department concurs with these findings.

4. Scope and Validity Period of Authorisation

This environmental authorisation does not define specific operational aspects. The applicant has indicated that the construction activities (non-operational aspects) should be completed within a period of 10 years. The environmental authorisation's validity period has been granted for a period of ten years (10) years, during which period the construction activities must commence and be concluded, including the post-construction rehabilitation and monitoring, and submission of the final environmental audit. In light of the proposed implementation programme, the monitoring and post-construction rehabilitation can be adequately incorporated in the construction phase. The Holder is required to substantially implement the proposal within a period of 5-years after the environmental authorisation is issued. Where the activity has been commenced with, the EIA Regulations, 2014 allow that (upon application) the period for which the environmental authorisation is granted may be extended for a further period of 5-years.

5. National Environmental Management Act Principles

The National Environmental Management Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

6. Conclusion

After consideration of the information and factors listed above, the Department made the following determination:

- (a) The identification and assessment of impacts were adequately described in the FBAR dated 17 August 2020 and the key identified issues and impacts have been addressed and assessed adequately.
- (b) The procedure that was followed to conduct the environmental impact assessment was considered to be adequate to inform the decision-making process.
- (c) The mitigation measures proposed in the EMPr for the pre-construction, construction and rehabilitation phase of the proposed development are deemed to be sufficient to avoid and mitigate any potential negative impacts on the receiving environment during the construction phase.

In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with an approved EMP, the Competent Authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

----- END -----

ANNEXURE Q:

*Draft Servitude Agreement over Portions 34 &
129*



attorneys

60 Cathedral Street George 6529
PO Box 21 George 6530
South Africa
Doxex 1 George
Tel: +27 (0)44 873 2043
www.raubenheimers.co.za

MDA Professional Project Management Services
Mr Michael Elston
michael@mdaprojects.co.za

Your ref:

Our ref: WVB/lc/W63721/T430

Date: 14 May 2025

Dear Mr Elston

AIRPORT BUSINESS PARK DEVELOPMENT: SERVITUDE OF RIGHT OF WAY AGREEMENT

With reference to your letter of earlier today we herewith enclose a copy of the unsigned servitude of right of way agreement.

Yours faithfully

Signed: *WW van Breda*

W W VAN BREDA

Ref. : Lynette Cowley

Tel. : 044 873 2043 x 111

E-Mail : lynetteva@raubenheimers.co.za

Directors
Executive consultants
Associates
Office manager

A M Coetzee BSc LLB • J Y Classen BProc • J J Juma LLB • K Smit BSc LLB
W W van Breda BProc MCom DCom • W M Luttig BCom LLB
D du Plessis LLB • T J Louw LLB MBA • C Boshoff LLB
M du Plessis

Founded 1907

Raubenheimers Inc
Reg no: 1993/001742/21



SERVITUDE OF RIGHT OF WAY

granted by

THE TRUSTEES OF MERCEDES TRUST

to

SANWIL INVESTMENTS (PTY) LIMITED

and

HARK PROPERTIES (PTY) LTD



INDEX

SERVITUDE OF RIGHT OF WAY

NO	CLAUSE HEADINGS	PAGE
1	PARTIES	1
2	INTERPRETATION	1
3	INTRODUCTION	3
4	GRANT OF SERVITUDE	3
5	SUSPENSIVE CONDITION	4
6	COMPENSATION	4
7	INDEMNITY	4
8	REGISTRATION	4
9	PARTIES' GENERAL RIGHTS AND OBLIGATIONS	5
10	CO-OPERATION	6
11	ARBITRATION	6
12	BREACH	8
13	NOTICES AND DOMICILIA	8
14	WHOLE AGREEMENT	9
15	VARIATION	9
16	SUCCESSORS-IN-TITLE	9
17	SUPERSESSION	10
18	COSTS	10
ANNEXURE A : THE LOCALITY PLAN (CLAUSE 2.1.7)		

SERVITUDE OF RIGHT OF WAY

1 PARTIES

- 1.1 The parties to this agreement are -
 - 1.1.1 the trustees of Mercedes Trust;
 - 1.1.2 Sanwil Investments (Pty) Ltd; and
 - 1.1.3 Hark Properties (Pty) Limited.
- 1.2 The parties agree as set out below.

2 INTERPRETATION

- 2.1 In this agreement, unless inconsistent with or otherwise indicated by the context –
 - 2.1.1 **"the/this agreement"** means this document, including the appendices to this document;
 - 2.1.2 **"the dominant tenements"** means portion 4 and portion 139;
 - 2.1.3 **"the effective date"** means the date on which this agreement is signed by the party signing last in time;
 - 2.1.4 **"the grantees"** means Sanwil in respect of portion 4 and Hark in respect of portion 139;
 - 2.1.5 **"the grantor"** means the trustees for the time being of Mercedes Trust, T698/1992, being the registered owner of the servient tenement;
 - 2.1.6 **"Hark"** means Hark Properties (Pty) Ltd registration number 2011/13404/07;
 - 2.1.7 **"the locality plan"** means the plan annexed to this agreement as Annexure A indicating the servitude;
 - 2.1.8 **"the parties"** means all the parties to this agreement;
 - 2.1.9 **"portion 139"** means portion 139 of the farm Gwaing 208, George, owned by Hark;
 - 2.1.10 **"portion 34"** means portion 34 of the farm Gwaing 208, George, owned by Airports Co Ltd registration number 1993/00414/06;

- 2.1.11 “**portion 4**” means portion 4 of the farm Gwaing 208, George, owned by Sanwil;
- 2.1.12 “**Sanwil**” means Sanwil Investments (Pty) Ltd registration number 2021/570526/07;
- 2.1.13 “**the servient tenement**” or “**portion 129**” means portion 129 of the farm Gwaing No 208, George, owned by the grantor;
- 2.1.14 “**the servitude**” means means the servitude right of way depicted in red on Annexure A, stretching from the future underpass below the future Western Bypass (N2) indicated on Annexure A up to the Western boundary of portion 4;
- 2.1.15 “**the servitude area**” means the area over which the servitude road stretches as depicted on the layout plan;
- 2.1.16 “**the signature date**” means the date of signature of this agreement by the last party signing;
- 2.1.17 any reference to the singular includes the plural and *vice versa*;
- 2.1.18 any reference to natural persons includes legal persons and *vice versa*;
- 2.1.19 any reference to a gender includes the other genders.
- 2.2 The clause headings in this agreement have been inserted for convenience only and shall not be taken into account in its interpretation.
- 2.3 Words and expressions defined in any sub-clause shall, for the purposes of the clause of which that sub-clause forms part, bear the meaning assigned to such words and expressions in that sub-clause.
- 2.4 If any provision in a definition is a substantive provision conferring rights or imposing obligations on any party, effect shall be given to it as if it were a substantive clause in the body of the agreement, notwithstanding that it is only contained in the interpretation clause.
- 2.5 If any period is referred to in this agreement by way of reference to a number of days, the days shall be reckoned exclusively of the first and inclusively of the last day unless the last day falls on a day which is not a business day (being a day other than a Saturday, Sunday or South African public holiday), in which case the last day shall be the next succeeding business day.
- 2.6 This agreement shall be governed by and construed and interpreted in accordance with the law of the Republic of South Africa.

3 INTRODUCTION

- 3.1 The parties are adjoining landowners.
- 3.2 The grantees require access over the servient tenement to the dominant tenements.
- 3.3 The grantor, as owner of the servient tenement, is prepared to grant to the grantees a right of way for a road over the servient tenement to the dominant tenements.
- 3.4 The 3 (three) owners of portions 4, 129 and 139 all require a right of way over portion 34 to provide access to their said properties.
- 3.5 The parties acknowledge that the future western bypass referred to in clause 2.1.14 will change the nature of access to the subject properties for each of the parties, and this agreement will contribute to ensuring the Western Cape Government that their efforts and financial undertaking to secure the access from the R404 over Portion 34 (referred to in clause 4.2) to these properties will then serve all the properties jointly.

4 GRANT OF SERVITUDE

- 4.1 The grantor, as owner of the servient tenement, hereby as from the date of fulfilment of the suspensive condition referred to in clause 5 gives and grants unto and in favour of the grantees, as owners of the dominant tenements, in perpetuity, a praedial servitude of right of way over the servient tenement for a road along the servitude area on the terms and conditions set out in this agreement, and the grantees hereby acknowledge and accept the aforesaid servitude.
- 4.2 The servitude shall run parallel to the future western boundary of portion 129. Depending on construction and maintenance considerations, the width of the servitude area shall at no place exceed 10 (ten) meters and the road width shall not exceed 5 (five) meters.
- 4.3 It is recorded that –
 - 4.3.1 portions 4, 129 and 139 all require a right of way access over portion 34 for access to the respective properties;
 - 4.3.2 the access road over portion 34 consists of two portions namely the portion stretching from road R404 over portion 34 up to the western boundary of portion 129 and a portion of the road stretching from the western boundary of portion 129 to the southern boundary of portion 4;

- 4.3.3 the owner of portion 129 gains access to portion 129 over portion 34 with the consent of the owner of portion 34, but without a servitude of right of way being registered over portion 34 in favour of portion 129;
- 4.3.4 the grantor is agreeable to allowing the grantees, with the consent of the owner of portion 34, to also use the road over portion 34 used by it for access to its quarry on erf 129, to the extent required by the grantees.

5 SUSPENSIVE CONDITION

The granting of the servitude referred to in clause 4.1 is subject to the suspensive condition that the owner of portion 34 shall grant to the grantor a right of way over portion 34 to the servient tenement on the basis that the owners of the dominant tenements shall equally have access over portion 34 to the dominant tenements.

6 COMPENSATION

No amount shall be payable by the grantee to the grantor for the servitude provided for in terms of this agreement.

7 INDEMNITY

The grantor shall not be liable to the grantees or any third party for any damages whatsoever and howsoever arising which may arise from the use of the servitude road, or for any damages arising out of injuries which may be sustained by any third party, and the grantees hereby indemnify the grantor against all and any such claims and liability, including the costs to defend or settle any such claims : Provided that the grantees shall not be liable for any loss or damage caused by the grantor or any person in respect of whom the grantor has vicarious liability.

8 REGISTRATION

- 8.1 The servitude shall be registered in general terms : Provided that should the servitude area be surveyed, the servitude shall be registered in accordance with the Surveyor-General approved diagrams.
- 8.2 The parties shall, immediately after the effective date, sign all documents and do all things necessary to procure registration of the provisions of this agreement against the title deeds of the servient tenement and that of the dominant tenements.

- 8.3 The registration referred to in clause 8.1 shall be carried out by Raubenheimers Inc attorneys of George and the land surveying work concerned shall be carried out by the land surveyors appointed by the grantees, subject to the grantor's approval.
- 8.4 The parties shall, when called upon by the other of them or its representative to do so, hand over the title deed and diagrams relating to its property concerned and assist the other party in obtaining such other documents or consents as may be necessary to attain registration of the terms of this agreement in the Deeds Registry.
- 8.5 The costs arising from and in connection with the registration contemplated in clause 8.1 shall be borne by the grantees.

9 PARTIES' GENERAL RIGHTS AND OBLIGATIONS

- 9.1 The grantees shall be entitled to use the existing road(s) over the servitude area and to the extent that it may be necessary that the servitude road be built, the grantees shall construct the road after consultation with the grantor and bear the costs in respect thereof.
- 9.2 The grantees shall, in using the servitude road, comply with the following conditions:
- 9.2.1 Portion 4 shall use the servitude road for purposes of constructing the wastewater treatment works to be established on the remainder of portion 4 and thereafter only for operational purposes to service and maintain the utility services established on the remainder of portion 4;
- 9.2.2 In respect of portion 139 the servitude road may only be used for agricultural purposes.
- 9.2.3 The use of the servitude road may not negatively impact on the quarrying operations performed on portion 129.
- 9.2.4 The road required to be built by the grantees over the servitude area must be such that it provides to the grantor access to the northwest corner of the quarry on the servient tenement.
- 9.2.5 For the avoidance of doubt, it is provided that the use of the servitude road and the vehicles and traffic concerned may not interfere with the traffic and/or the operation of the quarry on the servient tenement.
- 9.2.6 The grantees must at all times observe the grantor's access control arrangements in respect of the servient tenement and in particular will not be allowed access between the hours 17:00 to 07:00 of the

next day daily and on Saturdays and Sundays unless authorised thereto by the grantor.

- 9.3 The grantees undertake that they will not object against the statutory allowed mining activities conducted on the servient tenement and nor will they object to any application for the renewal of any mining license or authorisation in respect of the quarry on the servient tenement.

10 CO-OPERATION

- 10.1 The parties undertake to sign all documents and to do all such other things as shall be necessary or requisite to give proper and due effect to the terms of this agreement or any matter arising therefrom according to its intent and purposes.
- 10.2 Either party ("**the non-defaulting party**") may at any time carry out any of the other party's ("**the default party**") obligations in terms of this agreement which the defaulting party has failed to carry out within a reasonable time after being required by the non-defaulting party to do so, and the non-defaulting party may at its sole discretion exercise such right in addition to or instead of (but without prejudice to) any other right which it may have in terms hereof and the defaulting party shall pay to the non-defaulting party on demand all costs and expenses incurred by the non-defaulting party in carrying out the defaulting party's neglected obligations.
- 10.3 The defaulting party hereby authorises the non-defaulting party with power of substitution to sign all the necessary documents on its behalf to give effect to the non-defaulting party's power in terms of clause 10.2.
- 10.4 Notwithstanding any other provisions of this agreement, the parties shall cooperate with one another to procure a servitude right of way over portion 34 in order to serve both portion 129 and the dominant tenements.

11 ARBITRATION

- 11.1 Should any dispute (other than a dispute in respect of which urgent relief may be obtained from a court of competent jurisdiction) arise between the parties in the widest sense in connection with -
- 11.1.1 the formation or existence of;
- 11.1.2 the carrying into effect of;
- 11.1.3 the interpretation or application of the provisions of;

- 11.1.4 the parties' respective rights and obligations in terms of or arising out of;
 - 11.1.5 the validity, enforceability or rectification of; or
 - 11.1.6 any documents furnished by the parties pursuant to the provisions of this agreement,
- that dispute shall, unless resolved amongst the parties, be referred to and be determined by arbitration in terms of this clause 10, provided that a party to the dispute has demanded the arbitration by written notice to the other party.
- 11.2 The arbitration shall be held -
 - 11.2.1 at George;
 - 11.2.2 with only the representatives and legal representatives of the parties to the dispute present thereat;
 - 11.2.3 otherwise in terms of the Arbitration Act, No 42 of 1965, it being the intention that the arbitration shall be held and completed within 30 (thirty) days after it was demanded.
 - 11.3 The arbitrator shall be, if the matter in dispute is principally -
 - 11.3.1 a legal matter, a practicing advocate or attorney of at least 10 (ten) years' standing;
 - 11.3.2 any other matter, any independent person, agreed upon between the parties.
 - 11.4 Should the parties fail to agree whether the dispute is principally a legal or other matter within 7 (seven) days after the arbitration was demanded, the matter shall be deemed to be a legal matter.
 - 11.5 Should the parties fail to agree on an arbitrator within 7 (seven) days after the expiry of the period referred to in clause 11.4, the arbitrator shall be appointed at the request of any party to the dispute by the Chairperson of the South Cape Society of Advocates.
 - 11.6 The decision of the arbitrator shall be final and binding on the parties and may be made an order of any competent court at the instance of any of the parties to the dispute.
 - 11.7 The parties hereby consent to the jurisdiction of the Cape Provincial Division of the High Court of South Africa Eastern Circuit Local Division in respect of any proceedings arising out of this agreement not subject to arbitration in terms of this clause.

- 11.8 The provisions of this clause -
- 11.8.1 constitute an irrevocable consent by the parties to any proceedings in terms hereof and no party shall be entitled to withdraw therefrom or claim at any such proceedings that it is not bound by such provisions;
- 11.8.2 are severable from the rest of this agreement and shall remain in effect despite the termination of or invalidity for any reason of this agreement.
- 11.9 This clause shall not preclude any party from obtaining relief by way of motion proceedings on an urgent basis or from instituting any interdict, injunction or any similar proceedings in any court of competent jurisdiction pending the decision of the arbitrator.

12 BREACH

- 12.1 Should either party ("**the party in default**") breach any term, condition, undertaking or warranty contained in this agreement and fail to remedy such breach within 10 (ten) days (or such reasonable longer period as may be necessary) after receipt of a written notice from the other of them ("**the innocent party**"), requiring such breach to be remedied, then, without prejudice to any other rights that it may have in terms of this agreement, the innocent party shall be entitled to forthwith institute legal proceedings for specific performance and to claim damages from the party in default.
- 12.2 Save for the provisions of clause 6.2, no party shall be entitled to terminate this agreement and the parties' remedies shall be restricted to the remedies provided for under clause 12.1 or as stated elsewhere in this agreement.

13 NOTICES AND DOMICILIA

- 13.1 The parties choose as their *domicilia citandi et executandi* their respective addresses set out in this clause for all purposes arising out of or in connection with this agreement at which addresses all processes and notices arising out of or in connection with this agreement, its breach or termination may validly be served upon or delivered to the parties.
- 13.2 For purposes of this agreement the parties' respective addresses shall be –
- 13.2.1 Grantor at _____
- e-mail: _____

- 13.2.2 Grantees at c/o Sanwil Investments (Pty) Ltd, Infrastructure Consulting Engineers CC, Crestway Office Park, Block D, 1st Floor, Hotel Street, Perseuor Park, Pretoria
e-mail : debruyn@iceisp.co.za,

or at such other address of which the party concerned may notify the other/s in writing provided that no street address mentioned in this sub-clause shall be changed to a post office box or poste restante.

- 13.3 Any notice given in terms of this agreement shall be in writing and shall -
- 13.3.1 if delivered by hand be deemed to have been duly received by the addressee on the date of delivery;
- 13.3.2 if transmitted by e-mail be deemed to have been received by the addressee on the day following the date of dispatch,

unless the contrary is proved.

- 13.4 Notwithstanding anything to the contrary contained or implied in this agreement, a written notice or communication actually received by one of the parties from another including by way of facsimile transmission shall be adequate written notice or communication to such party.

14 WHOLE AGREEMENT

This agreement constitutes the whole agreement between the parties as to the subject matter hereof and no agreements, representations or warranties between the parties other than those set out herein are binding on the parties.

15 VARIATION

No addition to or variation, consensual cancellation or novation of this agreement and no waiver of any right arising from this agreement or its breach or termination shall be of any force or effect unless reduced to writing and signed by all the parties or their duly authorised representatives.

16 SUCCESSORS-IN-TITLE

- 16.1 This agreement binds the parties' successors-in-title and assigns and the parties warrant that they will inform their successors-in-title and assigns of the provisions of this agreement.
- 16.2 All references in this agreement to the grantees shall for all purposes be deemed to include the grantees' successors-in-title and assigns and bind the owners from time to time of the dominant tenement.

17 SUPERSESSION

- 17.1 This document supersedes and replaces any agreements regarding the subject matter hereof previously entered into by the parties prior to the signing of this agreement.
- 17.2 This agreement shall for all purposes be deemed to have taken effect on the signature date (as defined in clause 2.1.18) and no agreement shall be binding unless signed by the parties.
- 17.3 The provisions of this clause 17 shall endure notwithstanding the termination of this agreement.

18 COSTS

- 18.1 Each party shall bear its own legal costs in connection with the drafting of this agreement and all attendance in connection therewith.
- 18.2 The grantees shall bear the costs of the registration of the servitude in the Deeds Registry.

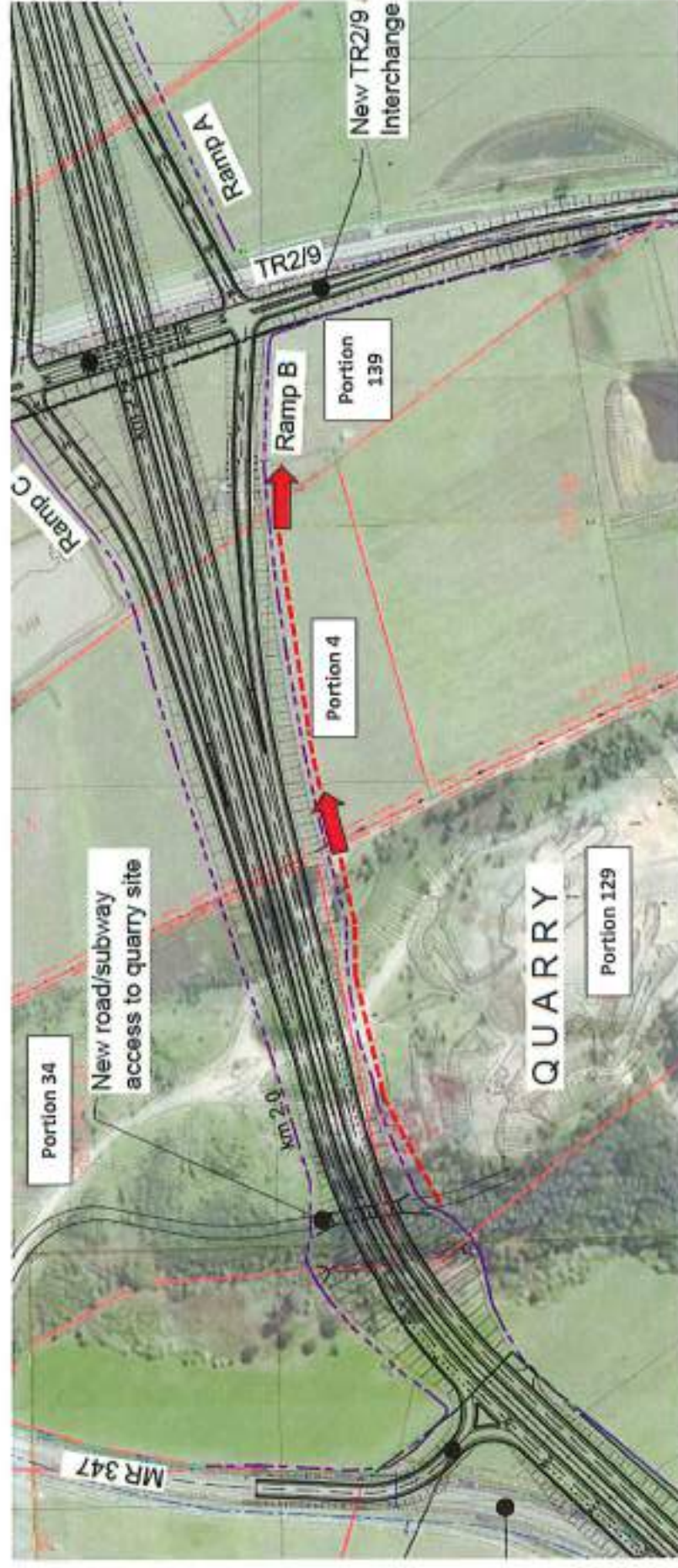
NAME	HEREIN REPRESENTED BY THE UNDERMENTIONED SIGNATORIES, WHO WARRANT THAT THEY HAVE BEEN DULY AUTHORISED THERE TO	DATE	PLACE	SIGNATURE
The Trustees of Mercedes Trust				
Sanwil Investments (Pty) Limited				
Hark Properties (Pty) Ltd				

ANNEXURE A

THE LOCALITY PLAN (Clause 2.1.7)

Access with Western Bypass

Layout showing proposed access after construction of the Western Bypass to Portions 4 and 139 over farm 208, George. This uses the existing quarry access off the R404.



- Servitude road to be established adjacent or close to the future Western Bypass boundary to the East of the road reserve. This will utilise the quarry access from the R404, to be formalised through the implementation of the Western Bypass.

ANNEXURE R:

*Approval: National Department of Agriculture,
2023*



agriculture, land reform & rural development

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA



Private Bag X120, Pretoria, 0001
Delpen Building, C/o Annie Botha & Union Street, Riviera, 0084

From: Directorate Land and Soil Management
Tel: 012-319-7451 Fax: 012-329-5938 Email: Annettes@dalrrd.gov.za/Francinano@dalrrd.gov.za
Website: www.dalrrd.gov.za
Enquiries: Helpdesk Ref: 2023_05_0072

Marike Vreken Town Planners CC
P. O. Box 2180
KNYSNA
6570

Email: info@vreken.co.za

Attention: Marike Vreken

APPLICATION IN TERMS OF THE SUBDIVISION OF AGRICULTURAL LAND ACT, ACT 70 OF 1970: SUBDIVISION OF THE REMAINDER OF PORTION 4 OF THE FARM GWAYANG NO. 208, DIVISION GEORGE, WESTERN CAPE PROVINCE


Your email dated 12 May 2023 refers.

With reference to the above-mentioned subject, the Department wishes to inform you that the application has been granted.

Consent No. 57333 Issued in terms of section 4 of the Act is enclosed.

The Conveyancer must lodge the signed copy of the Consent with the Registrar of Deeds together with the documents for registration.

Yours faithfully


MR D SERAGE
DEPUTY DIRECTOR GENERAL:
AGRICULTURAL PRODUCTION,
BIOSECURITY AND NATURAL RESOURCES MANAGEMENT
DELEGATE OF THE MINISTER:
DATE: 20230622

CC: The Surveyor-General Private Bag X 9028 CAPE TOWN 8000
CC: Mr Brandon Layman Landuse Management Department of Agriculture: Western Cape Private Bag x 1 ELSENBURG 760





**agriculture, land reform
& rural development**

Department:
Agriculture, Land Reform and Rural Development
REPUBLIC OF SOUTH AFRICA

VERW/REF.

2023_05_0072

CONSENT

*IN TERMS OF THE SUBDIVISION OF
AGRICULTURAL LAND ACT, 1970*

57383

By virtue of the powers delegated to me by the Minister of Agriculture, Land Reform and Rural Development, consent is hereby granted in terms of section 4(2) of the Subdivision of Agricultural Land Act, 1970, for the subdivision of the agricultural land described in paragraph 1, into units as indicated in paragraph 2, subject to the conditions set out in paragraph 3.

PARAGRAPH 1: THE AGRICULTURAL LAND TO WHICH THIS CONSENT APPLIES

REMAINDER OF PORTION 4 OF THE FARM GWAYANG NO. 208, IN EXTENT 11,0433 HECTARES, DIVISION GEORGE, WESTERN CAPE PROVINCE

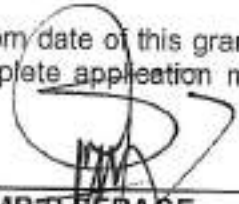
PARAGRAPH 2: CONSENT GRANTED

The subdivision of the above-mentioned agricultural land into fifteen portions measuring approximately 0,9930 hectares, 0,7790 hectares, 0,7885 hectares, 0,9837 hectares, 0,8719 ha, 1,3436 hectares, 0,2707 hectares, 0,1788 hectares, 0,3351 hectares, 0,0706 hectares, 0,0890 hectares, 0,1514 hectares, 0,1378 hectares, 0,1645 hectares and 3,6889 hectares represented by the figures marked Portions 1-14 and Remainder No. 208/4 as shown on the sketch plan attached.

PARAGRAPH 3: CONDITIONS PERTAINING TO THIS CONSENT

- 3.1 Simultaneously with registration of transfer written proof must be submitted that all the conditions imposed by the George Municipality: Department Development Services have been complied with.
- 3.2 This consent does not imply that the above-mentioned subdivisions are assured of a permanent water supply.
- 3.3 This consent does not exempt the property from the provisions of any other law and does not purport to interfere with the rights of any person who may have an interest in the agricultural land.
- 3.4 This consent is valid for 5 years from date of this grant. Should it not be registered within the time frame, a new complete application must be lodged which will be considered on its own merits.

20230622
DATE


MR D SERAGE
DEPUTY DIRECTOR GENERAL:
AGRICULTURAL PRODUCTION,
BIOSECURITY AND NATURAL RESOURCE,
MANAGEMENT
DELEGATE OF THE MINISTER

ANNEXURE S:

Wastewater Treatment Brochure

APPENDIX G11: WASTEWATER TREATMENT BROCHURE

ENGINEERED WETLAND TECHNOLOGY FOR TREATMENT OF WASTEWATER

INFORMATION SHEET

PG Joubert Pr Eng
Blue Crane Treatment Wetlands
PO Box 186
Perseuor Park
0020

July 2022



1. Introduction and purpose

Engineered wetlands designed and constructed to treat wastewater are ideally suited for local South African conditions. Engineered wetlands are well utilised in Europe and North America.

The purpose of this document is to provide information on the potential and need for the implementation of engineered wetlands in South Africa.

Phragmifiltre is a registered trade name in France. This wetland technology was developed in France over the past 30 years. Since then, more than 3 000 Phragmifiltre systems have been developed.

The benefits of the Phragmifiltre system include:

- Latest green technology to treat wastewater.
- Complete treatment including sludge and solids.
- Utilisation of composted sludge for further use.
- Robustness of the system.
- Treats domestic wastewater to meet General Standards in terms of the Water Act.
- Limited need for electricity.
- Adaptable to local conditions.
- Local construction materials.
- Limited mechanical components.
- Low maintenance.
- Create job opportunities for semi-skilled labour.
- Create opportunities for small contractors.
- Competitive life-cycle cost.

2. Constructed wetland technology

Constructed wetland technology is widely used in Europe and North America. Wastewater treatment plants based on this technology are developing rapidly in South America, Asia and the Middle East.

The origins of constructed wetland technology began in Germany in the 1950's at the Max Planck Institute. Research on wetlands was spearheaded by Kathe Seidel. These studies led to the first operational system being installed in Germany in the 1970's and then in the UK in the 1980's.

The world's largest constructed wetland is in Nimr, Oman. The system has been operational for 10 years, consistently reaching consent discharge targets. The system will be operated for a further 23 years by the German company Bauer Resources. The wetland treats up to 175 mega litres per day.

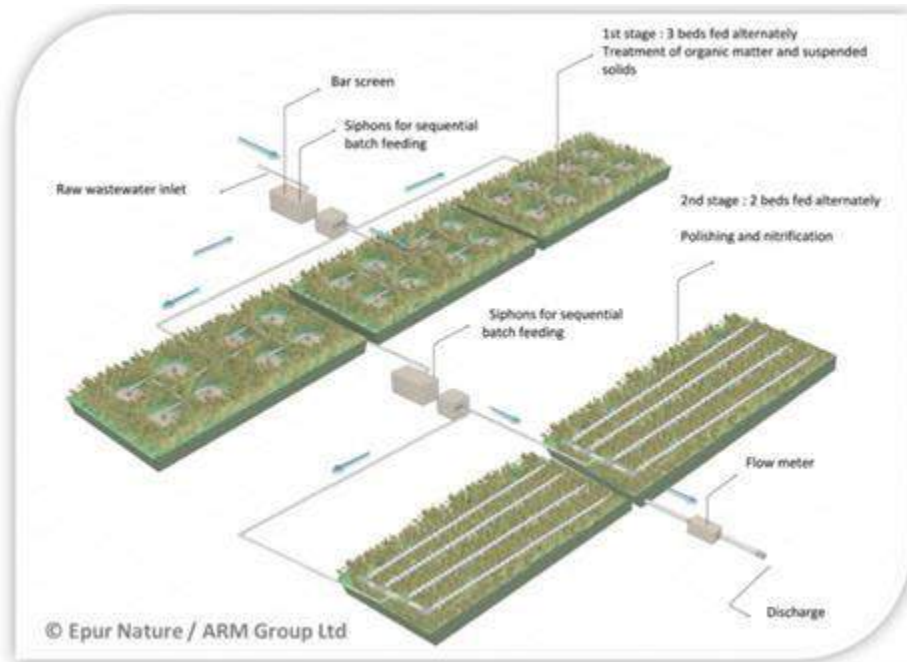


Engineered wetland in Nimr, Oman

Wetlands are scalable. It can be adjusted to meet local demands. It can be developed for small volumes (10 m³ per day) and can be upscaled to the size mentioned above.

Phragmifiltre is the first reedbed technology that provides complete treatment of raw sewage in one wetland system. The system was developed by French companies. Phragmifiltre is a registered trademark in France.

Phragmifiltre wastewater treatment plants require no pre-settlement of wastewater. The system is typically designed to have two stages. The first stage consists of three or more beds that de-waters the solids from the raw sewage on the surface of the reedbed.



Diagrammatic layout of a Phragmifiltre

The diagram above shows the three first stage beds. Macerated/screened sewage is fed to each bed in rotation, thereby allowing all the beds to have a rest period. The filtrate passes down through the beds which act as a typical vertical flow reedbed, reducing BOD primarily but also undertaking nitrification of ammonia. First stage filters are therefore both mechanical and biological filters.

The first stage filters are working in a similar manner as the sludge treatment constructed wetland indicated on the diagram below.



Sludge, retained on the surface of first stage beds, composts and mineralizes on the surface of the first stage beds. This layer that accumulates on the beds of the first stage is removed after a period of 10 to 15 years. This material on the surface is removed to be used for agricultural purposes.

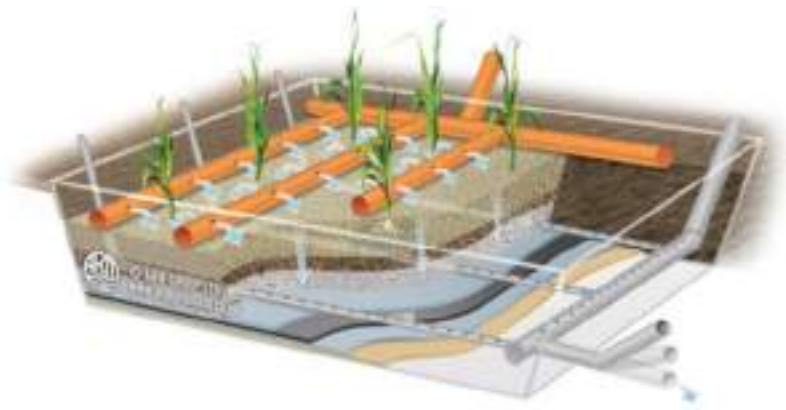


Composted sludge removed from first stage of Phragmifiltre after 14 years - Roussillon, France

The first stage of the Phragmifiltre requires no energy input and is therefore not affected by power outages. It is a passive system.

The second stage of the Phragmifiltre further treats the liquid phase exiting the first stage. The second stage filters are technically described as vertical down-flow reedbeds. These beds can be either batch-loaded unaerated or saturated aerated beds. The unaerated beds require no electricity whereas the aerated systems are equipped with blowers.

The diagram below shows the working of a vertical down flow forced aeration reedbed that is used as the second stage of a Phragmifiltre.



Partially treated wastewater from the first stage permeates vertically down through water saturated media in the second stage. The media provide surface area for microbes to live on. The typical surface area per cubic meter of media is approximately 400 m². 13 mm stone media provides for extensive area for microbial growth. This makes wetlands very stable and suitable to cope with varying loads.

Saturated vertical down flow reedbeds are aerated to increase the efficiency of the microbes populating the media. Aeration typically reduces the required footprint of reedbeds by 10 times.

Below is an example of a vertical down flow aerated wetland designed by Blue Crane in partnership with Arm. The wetland was constructed in Mwanza, Tanzania by Blue Crane. The photo was taken just after completion before the reeds started to grow. The white substance that can be seen on the surface of the wetland is foam resulting from the aeration at the bottom of the bed.

Wetland by ARM/Blue Crane in Tanzania



The photo below shows the same wetland with matured reeds after 4 years of operation. The wetland is performing in accordance with the design.



Due to the limited depth of the wetlands, the air supply at intake pressure requirement, is merely 200 millibar. This limits the energy requirement of blowers.

Electricity to drive the blowers, can be generated by means of green technology. Wetlands can be designed to only use blowers during daytime. This eliminates the need for battery storage of energy.

The retention time of liquids in the second stage is between 24 and 48 hours. This allows for adequate contact time between contaminated water and microbes living on the surface area of the media. This retention time also mitigates the impact of power outages since short periods without aeration have a limited impact on biological activity.

The system requires no highly trained on-site personnel. Due to limited, or no mechanical and electronic equipment, as well as the absence of complex control and instrumentation equipment, maintenance is simple and can mostly be performed by semi-skilled personnel.

A direct consequence of the limited operational interventions and the fact that on-site highly trained staff is not required, is that constructed wetlands can easily be decentralised at remote locations.

Phragmifiltre plants can be implemented to integrate with the natural landscape. The photo below shows a Phragmifiltre that was implemented for a UK water authority.



The table below shows the typical outflow quality of Phragmifiltre systems in Europe. Note that this technology was developed in Europe where it operates under sub-zero conditions in winter. Recent research indicated superior operating of the filters in warmer and dryer climates. Outflow quality target values of General Limits in terms of South African Water Act, can be achieved.

	Inlet concentration (mg/L)			Outlet concentration (mg/L)			Removal efficiencies (%)		
	Av	Max	Min	Av	Max	Min	Av	Max	Min
COD	636	1025	334	36	73	16	94	93	95
BOD₅	293	511	102	5	19	1	98	96	99
SS	252	430	83	5	13	1	99	97	99
TKN	63	110	24	2	4.6	0.6	97	96	98

Blue Crane recently completed the first Phragmifiltre in South Africa. It was developed in Midstream to treat 100 m³ domestic wastewater per day. The system is currently in the ramp-up phase and will reach its full potential within the next three months. Water quality results from Midstream confirm that the outflow quality recorded at plants in Europe, will be achieved.

3. Construction phase

The nature of the design of wetlands is such that there are limited high skill construction activities required. The following activities make up at least 85 % of the construction value:

- Mass earthworks to shape land to the required geometry and gradients.
- Seal wetland floor and side walls.
- Install drainage system at the bottom of vertical down-flow wetlands.
- Install distribution system at the bottom of vertical up-flow wetlands.
- Install aeration pipe system if required.
- Import and spread stone media from local commercial sources.
- Install connecting pipe and valve systems.
- Planting of reeds.
- Earthworks associated with related stormwater drainage systems to protect the wetlands in case of rainfall.
- Construction of attenuation dams to serve the needs of the downstream irrigation system.
- Electrical reticulation and site lighting.
- Installation of security systems such as security cameras, if required.
- Associated works such as walkways and service routes between different segments of wetlands.

Experience has shown that the works must be designed with specific attention to locally available construction resources. This not only supports local economic development but also results in containing construction cost.

Only local contractors were used for the construction of the engineered wetlands that were developed in Mwanza, Tanzania. See photo below.



Blue Crane Treatment Wetlands constructing wetland in Tanzania using local subcontractors

The detail design therefore has an objective of a scheme that can be un-bundled into smaller work packages for the purpose of construction. These work packages can be subcontracted to local emerging contractors. Local established contractors could be used for activities such as mass earthworks, if local emerging contractors do not have access to the required equipment.



Local emerging contractors and local equipment used to construct wetland using locally sourced materials – Blue Crane Treatment Wetlands

Almost all material required for the wetlands are locally sourced. Imported material is limited to a few pumps, valves, side channel blowers and the aeration distribution system. The current cost

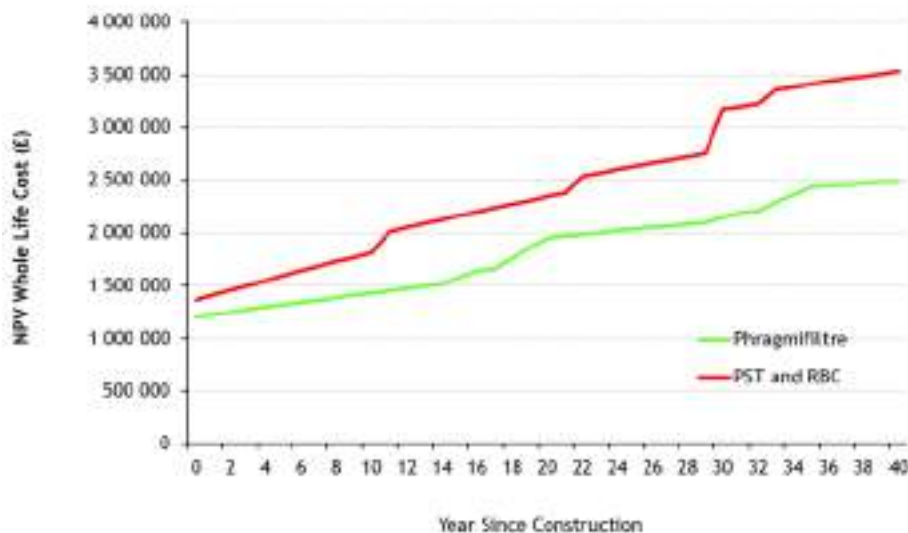
estimate of Phragmifiltres in SA shows that imported material will make up less than 10% of the project cost.

Plumbing and electrical work makes up a significant part of the works. The level of difficulty is however limited, and it could be performed by local contractors. The only external functions required are that of engineering design, engineering management, quality management, health and safety management and assisting with the management of interfaces between different subcontractors and suppliers. These functions can be provided by Blue Crane in consultation with ARM Reedbeds in the UK.

Construction is labour intensive and requires mostly unskilled and semi-skilled labour. It provides for ample opportunity to employ SMME's.

4. Feasibility of engineered wetlands

Research on treatment plants in Europe shows that lifecycle costing of conventional wastewater treatment plants is high, resulting from energy cost, equipment replacement and the cost of highly skilled labour. This research shows that the lifecycle cost of plants based on engineered wetland technology, is lower than that of conventional technology plants. See graph below. (PST refers to primary sludge treatment and RBC to rotating biological contactor.)



Local experience shows that this cost differential is larger in South African conditions. This is primarily due to local availability of semi-skilled labourers as well as experienced local mass earthworks contractors. A further factor is the limited expensive equipment to be imported if compared to conventional systems where the cost of imported equipment makes up a large part of the project cost.

The above-mentioned local market conditions open-up the gap further between the life cycle cost of conventional wastewater treatment systems and Phragmifiltres.

5. Importance of wastewater treatment

Treatment of wastewater is important for several reasons of which the following is relevant:

- To protect the receiving natural environment.
- To protect the community from spreading of disease.
- To allow for the treated wastewater to become available for other uses.

Diarrheal disease infection is common where sanitation is poor; both infants and susceptible travellers to developing countries are particularly at risk. The disease is most serious in infants. Diarrhoea is one of the leading causes of morbidity and mortality in South African children, accounting for approximately 20% of under-five deaths (*BMC Public Health website*). These deaths can be prevented. Proper wastewater treatment and disposal is one of the key measures of prevention.

Treatment of wastewater has become a crisis throughout South Africa. This is the case from small towns such as Kgetlengrivier (Koster) in the North-West to metropolitan municipalities such as Tshwane. The photo below (left) shows the impact on downstream nature if poorly treated wastewater is released into nature. The photo on the right below shows a part of the Roodeplaat Dam in Tshwane. The dam is overgrown with water hyacinths aquatic weeds. This is the direct result of poor treatment of wastewater at the Baviaanspoort wastewater treatment plant.



The effect of poorly treated wastewater on natural systems

6. Technology used widely in South Africa

The most used wastewater treatment technology in South Africa, is activated sludge. This is also the case at the Baviaanspoort wastewater treatment plant in Tshwane. This technology is theoretically sound and is used widely throughout the world.

Proper operation of an activated sludge plant requires knowledge of biological and physical factors that influence the efficiency of the process. The plants require continuous mixing and aeration. Mixing and aeration must be adjusted based on specific parameters that are continuously monitored. The treatment process is therefore reliant on complicated mechanical and electronic equipment using complex control and instrumentation equipment.



Derelict mechanical equipment at Rooiwal Wastewater Treatment Plant - Tshwane

Due to the continuous mixing and aeration of the plants, the energy requirement of the plants is significant. This results in significant operating costs. Any interruption of electrical supply results in failure of the operation and consequential releasing of untreated wastewater.

7. Blue Crane Treatment Wetlands / Arm Reedbeds association

Blue Crane (bctw.co.za) is a South African based company. The company has designed, built, constructed and operated, wetlands for many years. The employees and management of Blue Crane have at least 22 years of experience with this technology. This experience has led to profound respect for the underlying technology.

For this reason, Blue Crane relies exclusively on ARM Reedbeds (armreedbeds.co.uk) of the UK for the process design of wetlands. ARM is a founder member of both the Global Wetland Technology (GWT) (www.globalwettech.com) and the Constructed Wetland Association

(constructedwetland.co.uk). Through these networks ARM has access to the latest research and development outcomes worldwide.

As an organization of select member companies, GWT operates in several different manners. For large-scale international projects, GWT members work together so that large multi-national corporations and governments have a “one stop shop” of consolidated knowledge and expertise related to constructed wetland technology.

This collection of 10 companies represents the greatest body of knowledge and breadth of experience in constructed wetland technology. All the member companies have extensive international projects; collectively GWT has implemented over 1 500 wetland treatment systems in 30 different countries. These wetland technology companies are spread over 9 countries and 3 continents.

The Constructed Wetlands Association (CWA)(www.constructedwetland.co.uk) exists to promote the application of constructed wetland technology for water pollution control. It is a resource of information on constructed wetlands and reedbeds and provides linkages to approved designers and constructors.

Blue Crane entered into an association agreement with ARM approximately 10 years ago, whereby ARM will only act through Blue Crane in Africa. Blue Crane has significant local knowledge and extensive experience with the detail design of wetlands (based on process design provided exclusively by ARM).

Blue Crane developed this relationship with ARM to ensure that the South African and Sub-Saharan African community is exposed to the best constructed wetland technology available.

Blue Crane and its sister company Kebokae Project and Management are proud to have Total Energies SA, Anheuser-Busch InBev, Stillwater Sibanye and Midstream Estate (Bondev), as clients.

Blue Crane recently completed the development of the first Phragmifiltre in Southern Africa for Bondev in Midstream. The system is the first of a few for Midstream. The first system has a daily capacity of 100 m³ and treats domestic sewage.

Blue Crane has access to the Phragmifiltre trade name and technology via its association agreement with ARM.

8. Secondary use of treated wastewater

The quality of treated wastewater from Phragmifiltres complies with General Standards in terms of the South African Water Act. This water can be re-used for several purposes including agricultural uses. Blue Crane's experience with wetlands is that it consistently produce water of high quality.

9. Operation phase

Operating of constructed wetlands is simple but critical. Experience has shown that neglect of wetlands has severely negative consequences. All work, except for some critical activities, can be done by semi-skilled workers. Skilled labour input is limited to regular visits to the site by trained and experienced engineers and technicians. These visits can be limited to one or two visits per month, once the full-time maintenance team is experienced.

Blue Crane is vested in the growth of entrepreneurship and creating an environment for small business to grow. Blue Crane is committed to enter into long term agreements with local contractors to do the bulk of maintenance required. Blue Crane is prepared to train prospective local contractors to do the maintenance.



Semi-skilled maintenace activity performed in UK

Water tests must be performed regularly to confirm the efficacy of the wetland system. This includes testing of inflow water strength as well as testing of outflow water quality.

10. Engineering economy

The tables below show the tariffs charged by Johannesburg for water and wastewater treatment.

Residential Water tariff	20/21 R-value per kl
0-6kl	Free
6-10kl	R18.99
10-15kl	R19.82
15-20kl	R27.79
>20kl	R56.79

Sanitation tariff	20/21 R-value per kl
0-6kl	Free
6-10kl	R8.75
10-15kl	R11.08
15-20kl	R13.37
>20kl	R19.84

The total cost in case of a Build Operate and Transfer contract (BOT) is made up of development cost, financing cost and maintenance and operating cost. Based on available information, the estimated unit cost for the treatment of wastewater using a Phragmifiltre on a BOT basis, will be between R 15 and R 25 per m³ for projects treating between 100 and 300m³ per day. This is based on a BOT contract for a period of 20 years, where Blue Crane also finances the project. Treated wastewater is available for secondary use by others.

11. Summary

Constructed wetland technology for the treatment of wastewater has developed over the past 70 years since the research commenced at the Max Planck Institute in Germany. Phragmifiltre is a French design based on this technology. It is a registered tradename in France.

Management and employees of Blue Crane have 22 years' experience with the design, construction and operation of wetlands. Blue Crane entered into a partnership agreement with ARM Reedbeds in the UK whereby the process design of constructed wetlands is exclusively done by ARM. ARM has access to the Phragmifiltre technology and tradename via its association with French colleagues.

Blue Crane proposes to un-bundle projects for the construction to maximise the use of local small contractors. Blue Crane proposes to train and develop local contractors to maintain the system under subcontract with Blue Crane.

The Phragmifiltre application of engineered wetland technology is ideal for South African conditions. General Limits in accordance with the National Water Act can be met with this technology. The lifecycle cost of Phragmifiltres is competitive.

ANNEXURE T:

Agricultural potential statement

APPENDIX G1: AGRICULTURAL SITE VERIFICATION AND COMPLIANCE STATEMENT

**Site sensitivity verification
and Agricultural Compliance Statement
for the proposed development of Portion 139 (plus Portions 4 and 130 to 132)
of Farm number Gwayang No. 208 near George airport**

Table of Contents

1 Introduction.....	1
2 Project description	2
3 Site sensitivity verification	2
4 Assessment of agricultural impact	4
5 Agricultural Compliance Statement	5

1 Introduction

Environmental authorisation is being sought for development of a light industrial zone, a solar facility, and infrastructure on the above-mentioned properties (see locality in Figure 1). In terms of the National Environmental Management Act (Act No 107 of 1998) (NEMA), an application for environmental authorisation requires an agricultural assessment.

Johann Lanz was appointed as an independent agricultural specialist to provide the agricultural assessment. The objective and focus of an agricultural assessment is to assess whether or not the proposed development will have an unacceptable agricultural impact or not, and based on this, to make a recommendation on whether it should be approved or not.

The purpose of the agricultural component in the Environmental Authorisation process is to preserve the agricultural production potential of, particularly scarce arable land, by ensuring that development does not exclude existing or potential agricultural production from such land or impact the land to the extent that its production potential is reduced. This site however has significant limitations for crop production and is therefore not considered particularly preservation-worthy as agricultural production land.

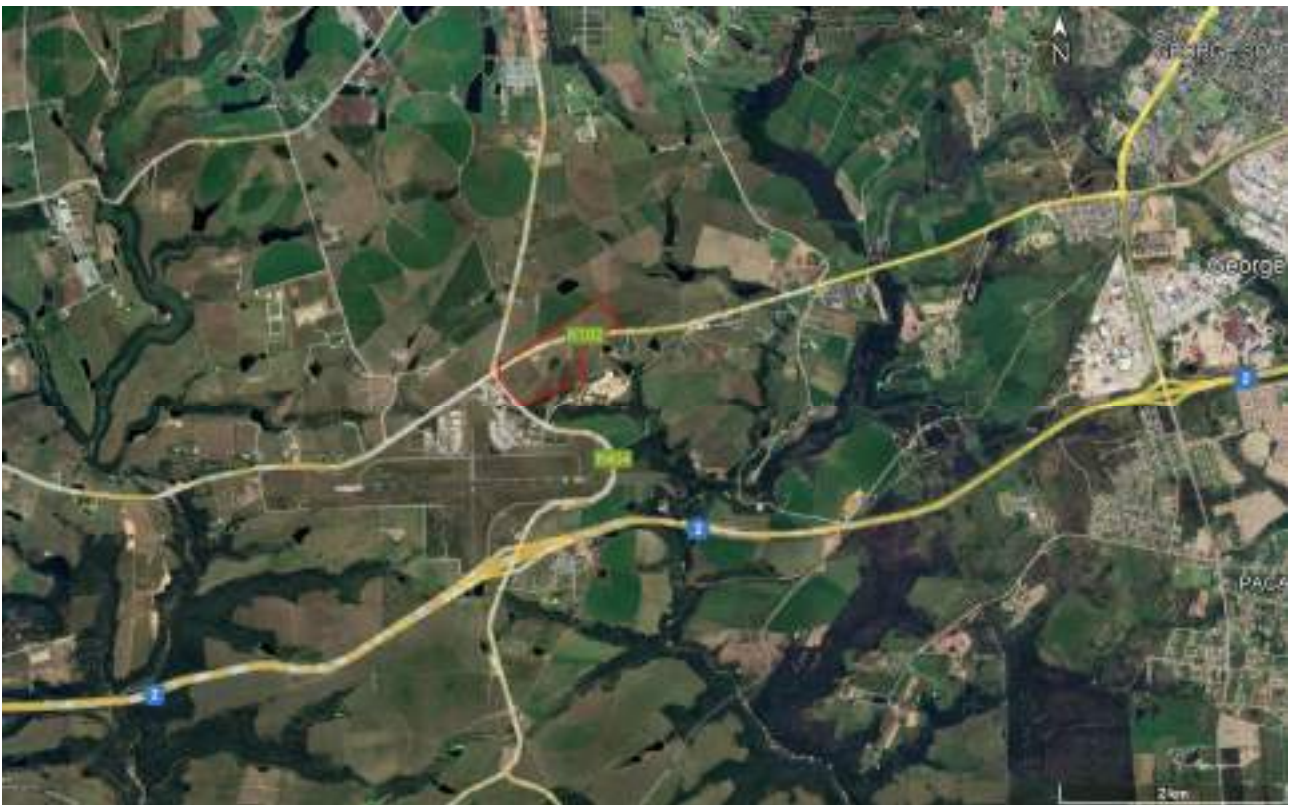
2 Project description

The proposed development is for:

1. A light industrial development on Portion 139;
2. A solar energy facility on Portion 139;
3. Services for the George Airport Support Zone. Services on Ptn 130 to 132 and part of Ptn 4 have already been approved in individual EAs for developments on the respective properties. However a waste water treatment works is planned on Ptn 4, with an alternative position on Ptn 139; and is not yet approved. Additional connecting water, stormwater and sewer infrastructure is also planned on the northern side of Ptn 4 and on Ptn 139. These are the subject of the current application, and this agricultural report. .

A satellite image map of the development is shown in Figure 2.

Figure 1. The locality of the proposed development area (red outline), just north-east of George



airport.

3 Site sensitivity verification

A map of the proposed development, overlaid on the screening tool sensitivity, is given in Figure 3. The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is cultivated or not. The land capability of the

investigated site varies from 7 to 8, which translates to a medium agricultural sensitivity. The site is indicated as high sensitivity on the screening tool because it is classified as cultivated land. It has historically been used for planted pastures.

However, although it is classified largely as high agricultural sensitivity, the screening tool sensitivity of the site has limited relevance for agricultural impact in this case. Agricultural sensitivity only takes biophysical factors (soil, climate, terrain) into account. The existence of any infrastructure on the land as well as land use zoning, surrounding land use, and limitations imposed by social factors are completely ignored in the mapping of agricultural sensitivity.

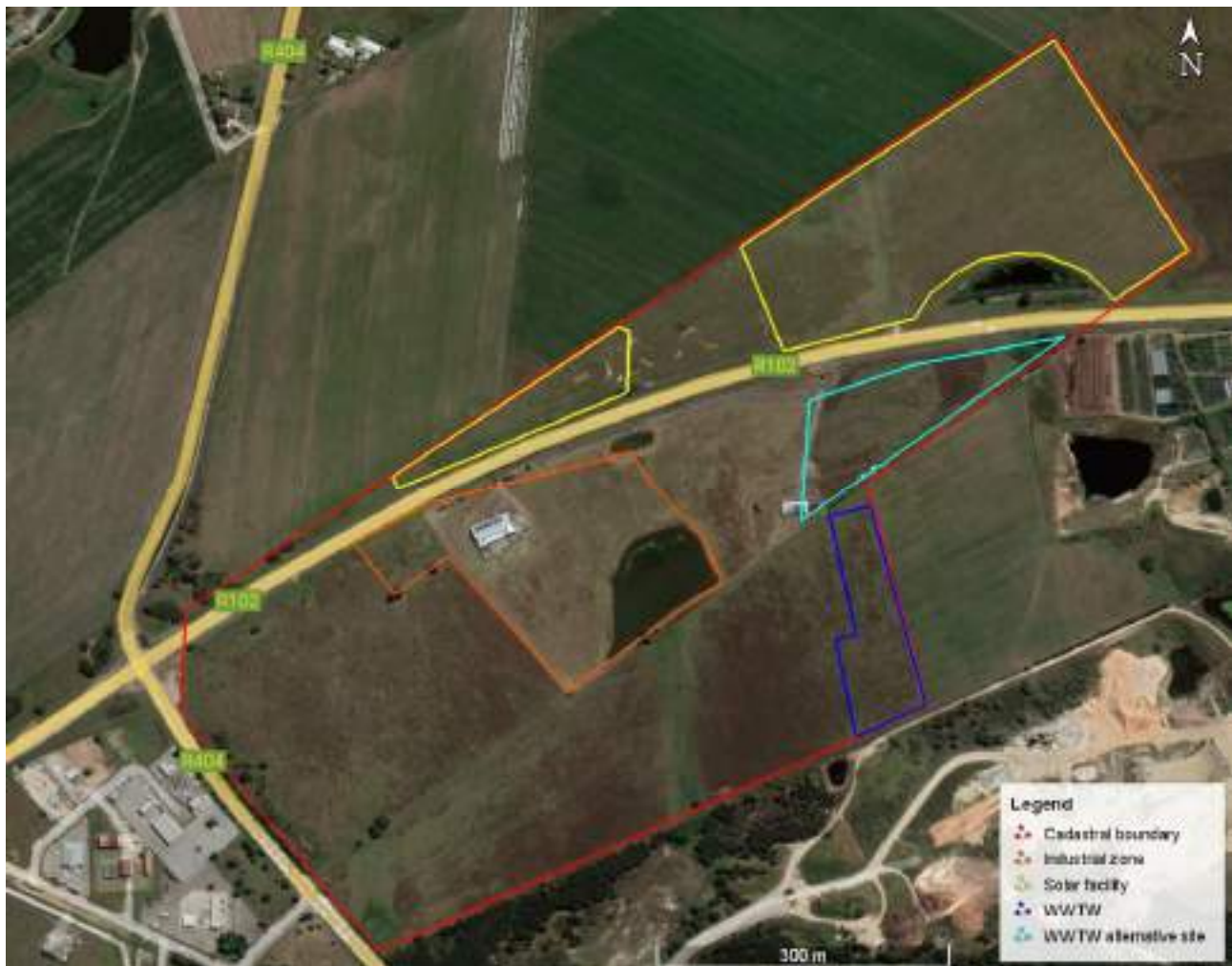


Figure 2. Satellite image map of the development footprint. Not shown is the planned north-south running roadway that will dissect the properties, but is not part of this application.

Agricultural sensitivity should be an indication of the agricultural production potential of land. The site under consideration has limited production potential. Although the land itself (climate, terrain and soil) is suitable for crop production, it is not currently utilised for any agricultural production, and has limitations on future production potential. The limitations are due to the small size of the land parcel, which makes agriculture non economically viable, and the fact that it is already divided up by an existing roadway and will be further dissected by the planned Western By-pass, rendering

the dissected property impractical for crop production and agricultural production. Furthermore, urban planning designates the area, not for agricultural use, but as part of the airport support zone, which effectively nullifies its future potential for agricultural production. Because of these constraints on its production potential, the site is assessed as being only of low agricultural sensitivity rather than high agricultural sensitivity. High agricultural sensitivity should be reserved for land that is suitable for viable crop production, which this land has been shown above not to be.

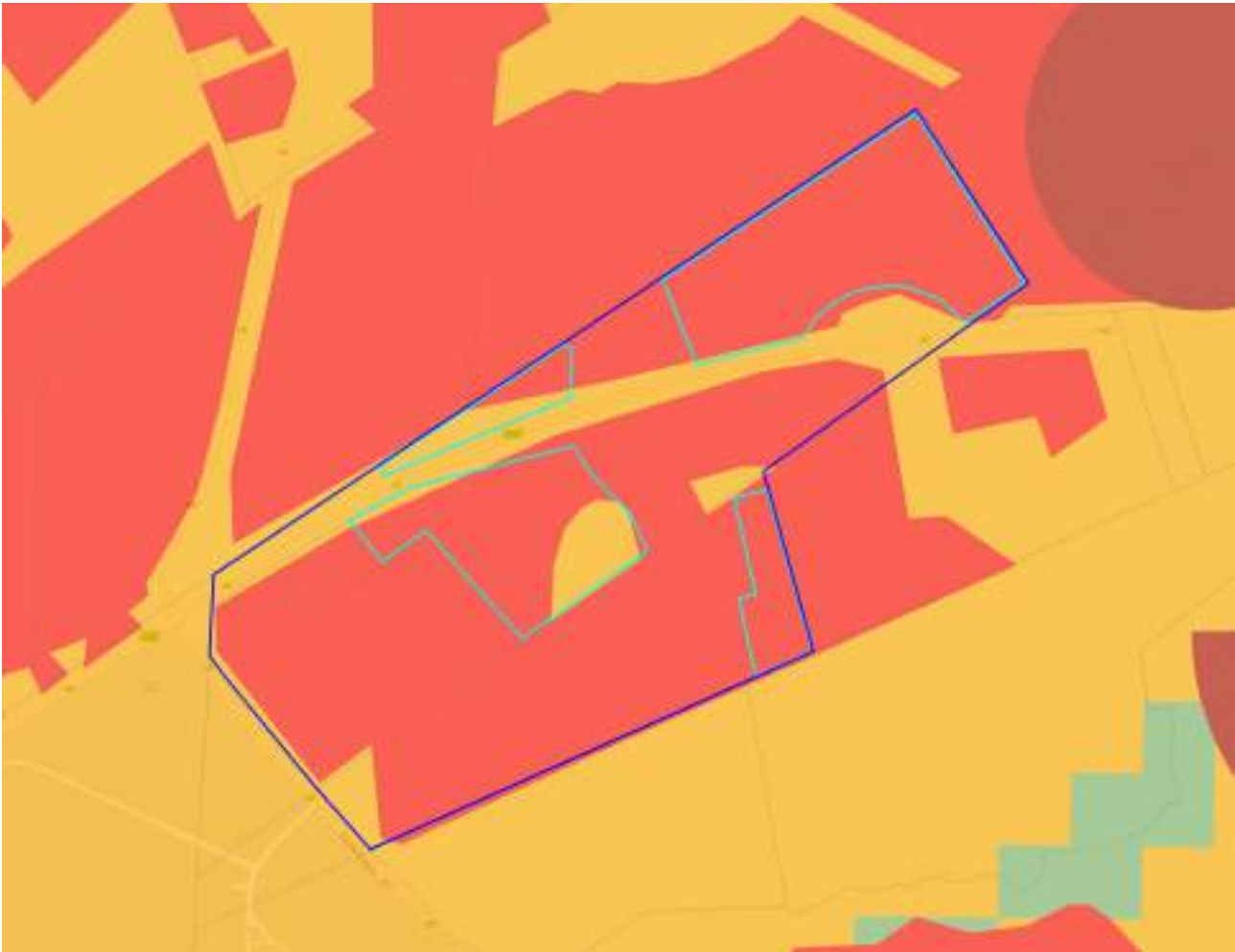


Figure 3. The proposed development overlaid on agricultural sensitivity as identified by the screening tool (green = low; yellow = medium; red = high; dark red = very high). This study has however assessed the entire site as being of low agricultural sensitivity.

4 Assessment of agricultural impact

Agricultural impact is a change to the future agricultural production potential of land. As noted above, the site under consideration has significant limitations on its future agricultural production potential. Therefore, although the proposed development will occupy the land, it will not reduce the production potential simply because it is already limited by the other factors discussed above. The proposed development will therefore not significantly change the agricultural production potential of the site and the agricultural impact of the proposed project is assessed as being low.

5 Agricultural Compliance Statement

An Agricultural Compliance Statement is required to indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site. It must provide a substantiated statement on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development.

The impact of the proposed development on the agricultural production capability of the site is assessed as being acceptable because, as discussed above, the agricultural impact is low. From an agricultural impact point of view, it is therefore recommended that the development be approved.

The protocol requirement of confirmation that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities, is not relevant in this case. There are also no Environmental Management Programme inputs required for the protection of agricultural potential on the site.

The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions. In completing this statement, no assumptions have been made and there are no uncertainties or gaps in knowledge or data that are relevant to it. No further agricultural assessment of any kind is required for this application.

The required relevant experience, proving the specialist's fitness for completing this assessment, is given in the curriculum vitae overleaf.

A handwritten signature in black ink, appearing to read 'J. Lanz', with a stylized, flowing script.

J. Lanz (Pr. Sci.Nat.)

4 August 2022

Johann Lanz

Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 1997
B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting Self employed 2002 - present

Within the past 5 years of running my soil and agricultural consulting business, I have completed more than 170 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, electrical grid infrastructure, urban, and agricultural developments. I was the appointed agricultural specialist for the nation-wide SEAs for wind and solar PV developments, electrical grid infrastructure, and gas pipelines. My regular clients include: Zutari; CSIR; SiVEST; SLR; WSP; Arcus; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Recent agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives.

In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant Agricultural Consultants International (Tinie du Preez) 1998 - 2001

Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

Contracting Soil Scientist De Beers Namaqualand Mines July 1997 - Jan 1998

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*, April / May 2010 issue.
- Lanz, J. 2009. Soil health constraints. *South African Fruit Journal*, August / September 2009 issue.
- Lanz, J. 2009. Soil carbon research. *AgriProbe*, Department of Agriculture.
- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine*.

I am a reviewing scientist for the *South African Journal of Plant and Soil*.

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 I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed/to be 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 specialist that meets the general requirements set out in Regulation 13 have 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, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have 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
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the specialist:



Date: **4 August 2022**

Name of company: **Johann Lanz – soil scientist (sole proprietor)**

ANNEXURE U:

Visual Impact Assessment

APPENDIX G5: VISUAL IMPACT ASSESSMENT – LIGHT INDUSTRIAL DEVELOPMENT

PROPOSED LIGHT INDUSTRIAL DEVELOPMENT

on **Portion 139** of the farm Gwayang no 208, division George,
George, Western Cape, South Africa

High-level VISUAL IMPACT ASSESSMENT

NOVEMBER 2022

REV 4

Prepared for:

Mr Jacques D Wheeler

Prepared by:



t: +27(0)86 036 0000

t: +27(0)12 460 3226/7/8

5 Guild House 239 Bronkhorst Street,
Nieuw Muckleneuk, Pretoria, South Africa

Table of Contents

1. INTRODUCTION.....	3
2. SCOPE OF PROJECT	3
3. METHODOLOGY & APPROACH	4
4. ASSESSMENT CRITERIA	4
5. DESCRIPTION OF THE AFFECTED AREA.....	6
6. VIEW SHED & VISIBILITY STUDY	20
7. VISUAL IMPACT ASSESSMENT	23
8. MITIGATING MEASURES.....	33
9. CONCLUSION	34

1. INTRODUCTION

NewUrban Architects and Urban designers were appointed by Jacques D Wheeler to do a high-level Visual Impact Assessment (VIA) as a requirement for the Environmental Impact Assessment (EIA). This VIA is done according to the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1) as compiled by the Provincial Government the Western Cape Department of Environmental Affairs and Development Planning dated June 2004.

The project falls within in the George Municipality and the property under discussion is located opposite to the George Airport, on portion 139 of farm 208. The urban design vision prepared NEWURBAN Architects & Urban Designers was done for the full Airport support zone. The VIA is site specific and is compiled taking into consideration a Category 4 development which entails a possible high visual impact according to the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes.

The outcome of the visual impact of the Category 4 development relates to the type of environment and is assessed in the study.

2. SCOPE OF PROJECT

The high-level VIA should form an integral part of the EIA and Township Application. Comments and objections that were received through the EIA process should also be addressed if it relates to be Visual impact. No direct comments regarding the Visual Impact were submitted during the EIA process.

The scope of work included in this Visual Impact Assessment:

- Criteria used in the assessment of the affected area
- Description of the proposed project and receiving environment.
- Determine of the Area affected by the development.
- Propose possible Mitigating Measures
- Viewpoints of 3D model

The overall objective of the Visual Impact Assessment (VIA) is to assess the significance of the visual impact that will be caused by the proposed development.

The VIA should be read in conjunction with:

- Proposed EIA (Basic Assessment process will be followed)
- Gwayang Local Spatial Development Framework (2015)
- Portion 139 of the farm Gwayang no 208, division George, George municipality application for subdivision & rezoning.
- VIA of Portion 4 of the farm Gwayang no 208
- VIA of Portion 130,131 & 132 of the farm Gwayang no 208 (In process)

Delimitation of scope of work.

- Monitoring programmes and urban design guidelines
- Impact of potential night lighting

3. METHODOLOGY & APPROACH

This VIA is done according to the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1) as compiled by the Provincial Government the Western Cape department of environmental affairs and development planning. The following sequence was employed in this Visual Assessment Report:

The desktop survey made use of various aerial photographs. These were used to identify landforms and landscape patterns, as well as to determine the view shed of the area. The view shed for the development is based on the maximum height of 2 storeys and based on an 18m high impact as per the Urban Design Guidelines set out for portion 139. (*GEORGE AEROTROPOLIS - URBAN DESIGN GUIDELINES DRAFT-REV4 – see annexures*)

In order to model the decreasing visual impact of the development, concentric diameter zones with distance of 1km to 5km from the proposed site were superimposed on the view shed to determine the level of visual exposure. The closest zone to the proposed development indicates the area of most significant impact, and the zone 2 - 5km indicates the area of least impact.

A photographic survey of the site and surrounding areas was conducted which determine the visibility of the proposed development.

Potential visual impacts were identified using standard criteria such as geographic view shed and viewing distance, as well as qualitative criteria such as importance to surrounding land users and compatibility with the existing landscape.

Possible mitigation measures were identified.

4. ASSESSMENT CRITERIA

The below assessment criteria will be used to assess the relevant viewpoints relating to the proposed developments. The assessment criteria are used to identify the overall visual impact the development will have on the existing environment.

VIEWPOINTS AND VIEW CORRIDORS

Viewpoints have been selected based on prominent viewing positions in the area. The selected viewpoints and view corridors are used as a basis for determining potential visual ability and visual impacts of the proposed development activities. 8 viewpoints were identified based on sensitivity and visual impact of the area.

VISUAL EXPOSURE

Visual exposure is based on distance from the project to selected viewpoints. Visual exposure or visual impact tends to diminish exponentially with distance. The visibility or visual exposure of any structure or activity is the point of departure for the visual impact assessment. It stands to reason that if the proposed development activities and associated infrastructure were not visible, no visual impact would occur. Visual exposure is determined by the view shed or the view catchment being the area within which the proposed development will be visible.

VISUAL SENSITIVITY

Visual sensitivity can be determined by several factors together such as prominent topographic or other scenic features, including:

- High points, ridges and spurs (visible from a greater distance and determines the horizon effects);
- Steep slopes (tends to be more prominent and visible from a distance);

LANDSCAPE INTEGRITY

Landscape integrity is represented by the following visual qualities, which enhance the visual and aesthetic experience of the area:

- Intactness of the natural and cultural landscape;
- Lack of visual intrusions or incompatible structures;
- Presence of a 'sense of place'.

VISUAL ABSORPTION CAPACITY (VAC)

The ability of elements of the landscape to "absorb" or mitigate the visibility of an element in the landscape. Visual absorption capacity is based on factors such as vegetation height (the greater the height of vegetation, the higher the absorption capacity), structures (the larger and higher the intervening structures, the higher the absorption capacity) and topographical variation (rolling topography presents opportunities to hide elements in the landscape and therefore increases the absorption capacity).

5. DESCRIPTION OF THE AFFECTED AREA

This section of the report provides a description of the current status of the environment. This provides a baseline context for assessment of the proposed development.

SITE LOCATION & DESCRIPTION

The location of the site (Portion 139 of The Farm Gwayang no 208 AIRPORT SUPPORT ZONE) is opposite the George Airport with the R404 running to the east of the site and the R102 to the north of the site. The airport is situated to the south west with a quarry to the south east of the proposed development. Access to the site from George is either via the N2 or the R102 connecting via the R404. The GPS co-ordinates for the centre of the proposed development are 33°59'44.3"S and 22°23'08.7"E

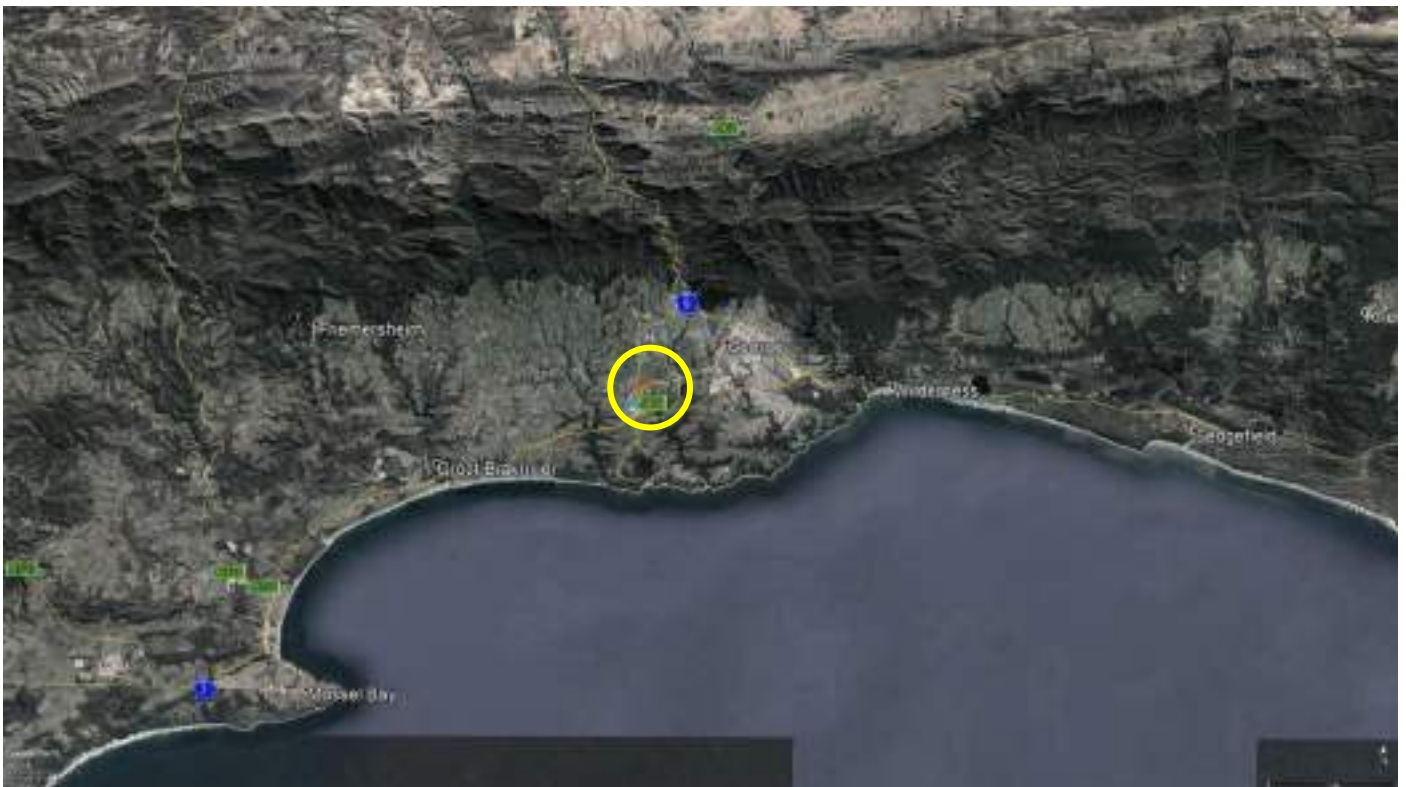


Figure 1: Macro Locality Plan

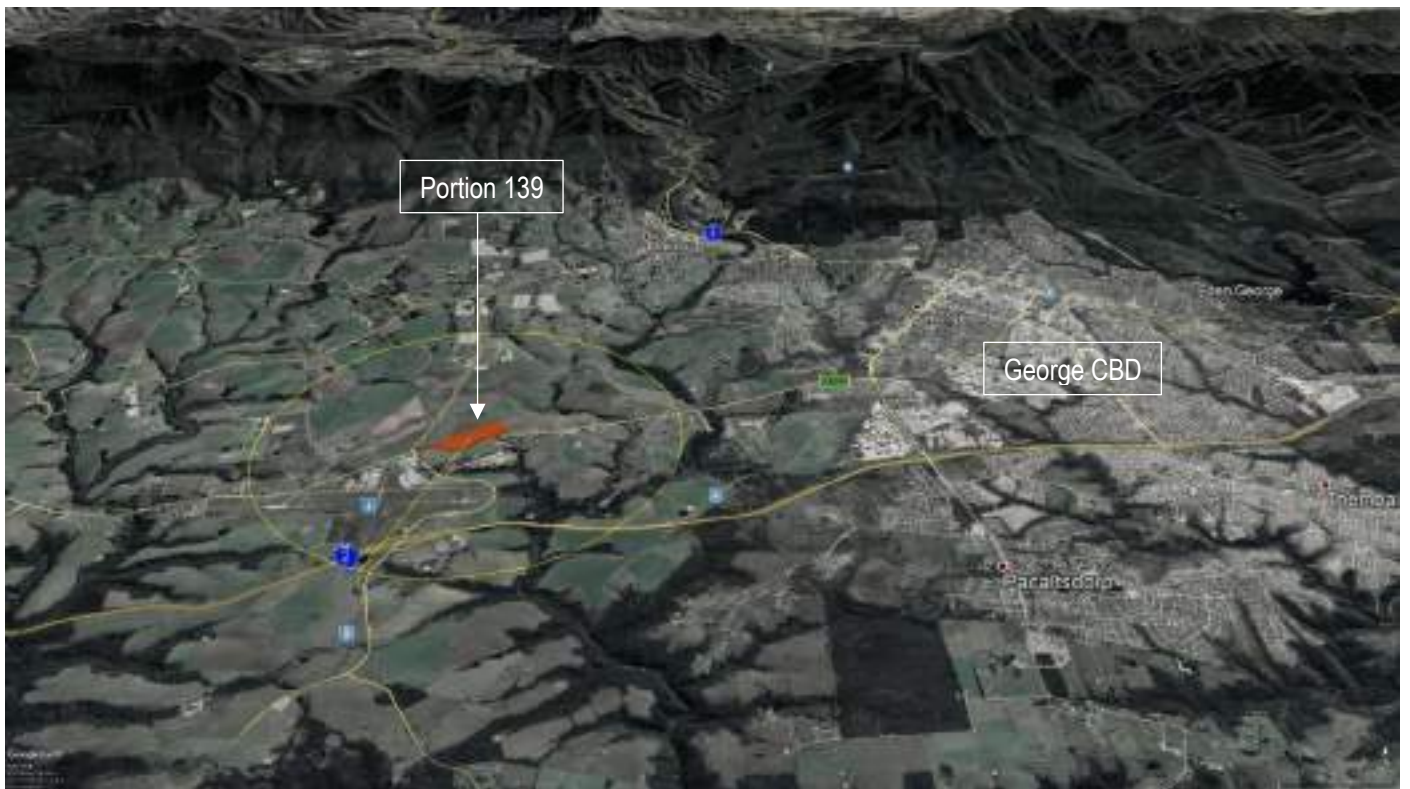


Figure 2: Mirco Locality Plan of Portion 139 The Farm Gwayang no 208



Figure 3: Aerial image of Portion 139 of Farm the Farm Gwayang no 208

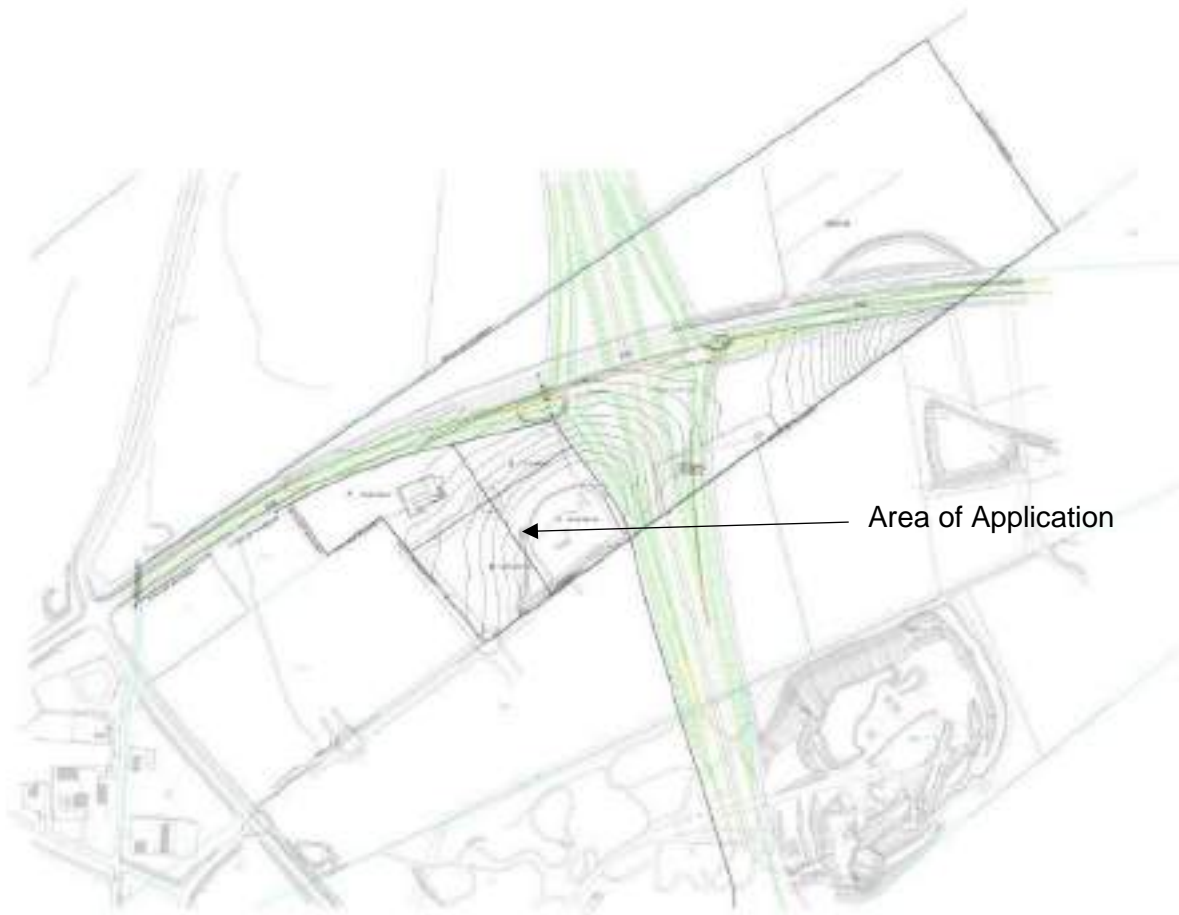


Figure 4: Cadastral layout of Portion 139 The Farm Gwayang no 208

SURROUNDING AREA

The airport is the most prominent structure in the immediate area occupying a large portion of the land. The existing quarry is visible or exposed from the R102 driving from east to west as the road is higher than the valley (see below). From other approaches the quarry is out of sight due to the high density of trees around surrounding it as well as the approach being lower than the quarry. The outlying areas beyond the 1km radius from the proposed site are primarily farmlands.



View travelling west along R102 traveling towards the airport. The airport tower can be seen in the distance across portion 139.



View of the proposed site from the R102 traveling from the east (Towards George Airport). The quarry is still visible from this point of view.



View from the R102. Looking toward the George airport. Existing structure on the portion 139 site is also visible.



View from the R102 of the existing structure on portion 139 (10m Height).



View just before the R102 & R404 intersection. The airport tower and car rental buildings are visible in the landscape.

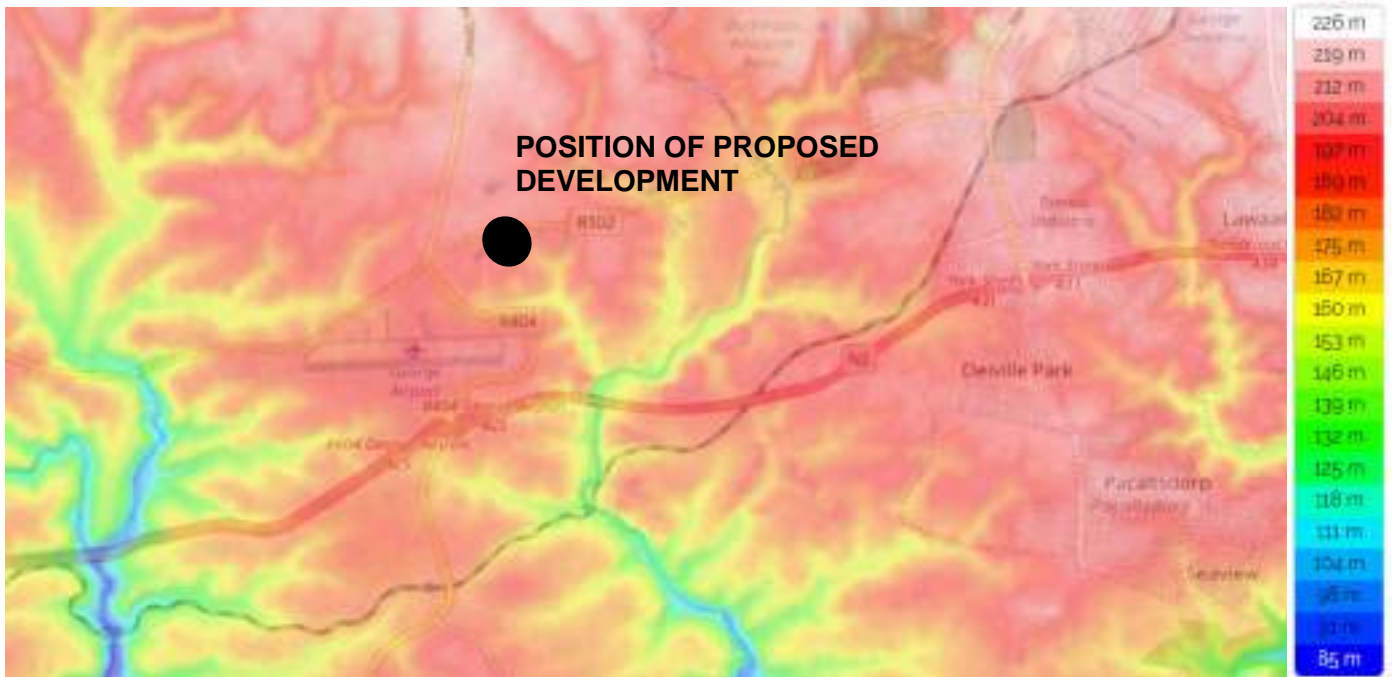


View from the R404 of the quarry south of the site looking east towards the quarry.

TOPOGRAPHY

An overview of the topography of the area noting the proposed site is in a similar level to the airport with low lying valleys to the south and south east of the site. The topography to the north increases in height above sea level while to the south drop in height toward the ocean. This plays a specific role in the view sheds and visibility of the proposed development.

According to Marike Vreken Urban and Environmental Planners, a 5m Contour Plan and Slope (Degree) Plan indicates that the topography is very flat and slope of 0-5 degree covers the proposed development area.



LAND COVER

Land cover varies in the immediate area. The airport contributes to a large area of disturbed land cover with the quarry also contributing to the disturbed natural landscape. Farmlands are the consistent land cover north of the R102 and again south of the N2.



For the purpose of this assessment, land cover is categorised into classes that represent natural habitat and land use categories that contribute to habitat degradation. Areas that are characterised by high levels of transformation and habitat degradation are generally accepted as being suitable for development purposes as it is unlikely that the development will further affect the biodiversity attributes of sensitivities. Conversely, areas that are characterised by extensive untransformed and pristine habitat are generally not regarded suitable options for development purposes. There are currently no CBAs identified on the site in terms of the Garden Route BSP. However, the drainage area is part of an ESA.

The area comprises extensive transformed habitat that resulted from agriculture, airport development and landing strip and the nearby quarry. The landcover on the area of the proposed development is Improved Grassland, the property is currently used for grazing purposes. The Crop Census (2013) illustrate that property consist of planted pastures (Lucerne). (Vreken.M, August 2018)



SENSE OF PLACE

The airport occupies a large land portion east of the proposed site and form part of the cultural landscape. The airport has a control tower that forms a landmark and is highly visible when approaching from any direction on the R404 and R102.

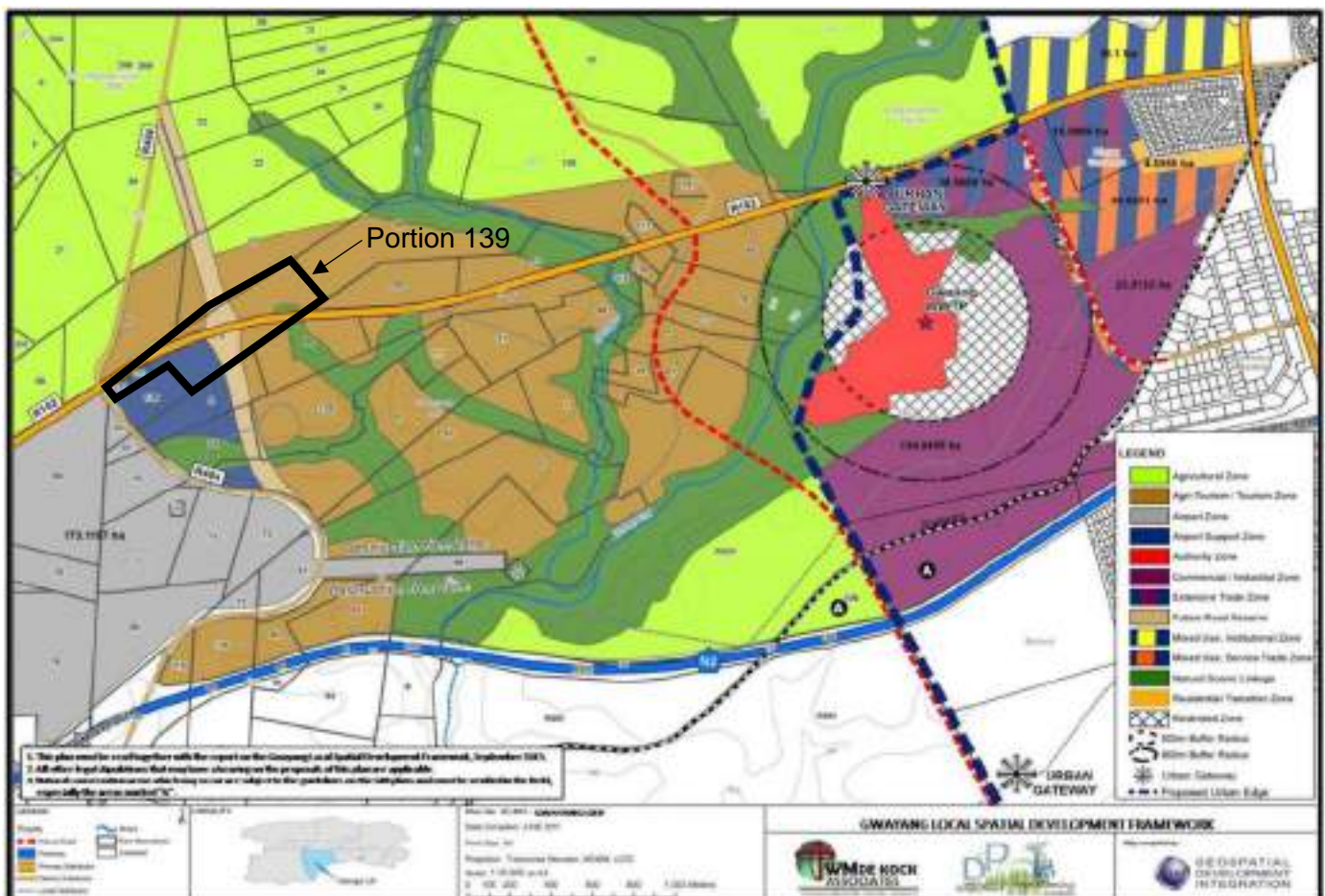
Farmland and disturbed landscape

PROPOSED DEVELOPMENT

The proposed site and development are positioned to the east of the existing airport and will form an extension of the existing airport. With the R102 to the north, R404 to the west, existing quarry & natural scenic linkage to the south and a proposed future road to the west of the site, the development is contained within these infrastructure and natural elements.

The proposed development vision as done by NewUrban Architects and Urban Designers considers restrictions of **2 storeys for light industrial and office use, both with 18m height restriction for this specific portion of 139.** (See height map below)

The proposed site falls within the airport support zone in the spatial development framework as seen below.



The below image shows the proposed development highlighted within the landscape.

Cadastral layout of Entire Portion 139 of The Farm Gwayang no 208



Town planning submission plan of The Farm Gwayang no 208 indicating the entire development. Final layout as per approved Site Development plan.



Building Heights Restriction according to the Proposed Urban Design Framework. Portion 139 is indicated as 18m in height. (GEORGE AEROTROPOLIS - URBAN DESIGN GUIDELINES DRAFT-REV4)





3D View of proposed Development on Portion 139 of Farm 208. Final layout as per approved Site Development plan.



3D View of Development on Portion 139 of Farm 208. Final layout as per approved Site Development plan.

The below image indicates the vision of the proposed entrance to the development across from the existing airport entrance as per previously submitted VIA for Portion 4 of The Farm Gwayang no 208



The below image indicates the vision of the proposed gateway and traffic circle at the existing airport entrance as per previously submitted VIA for Portion 4 of The Farm Gwayang no 208.



The below image shows the proposed total development vision of the airport support zone indicating Portion 139. As per previously submitted VIA for Portion 4 of The Farm Gwayang no 208



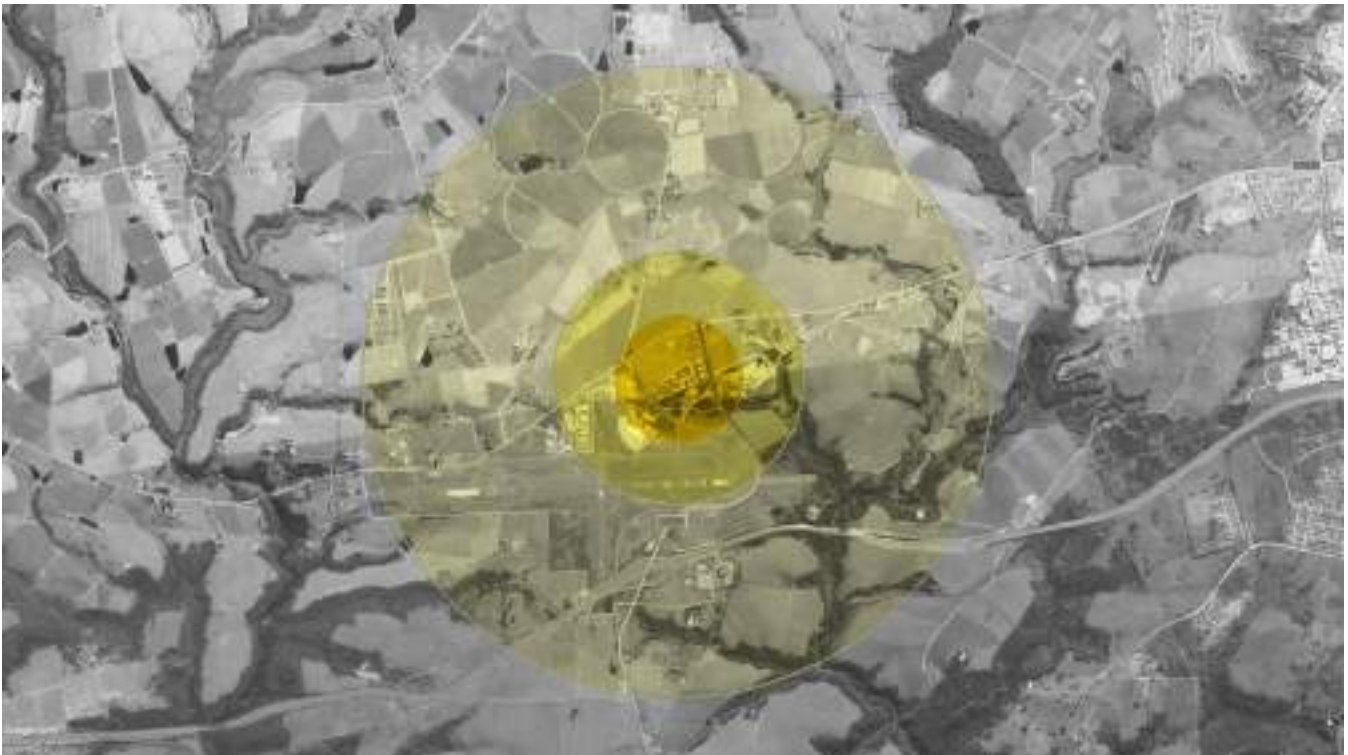
6. VIEW SHED & VISIBILITY STUDY

EXPOSURE ZONES

The exposure zones of the zones have been defined below and take into consideration distance only. Exposure zones form part of the visual exposure assessment below.

- <1 km (high)
- 1 - 2 km (moderate - high)
- 2 - 5 km (low - negligible). (Excluded form high-level assessment)

Viewpoints within the zones have been identified along primary approaches to the site and are identified in the assessment.



VIEW SHED VISIBILITY

The proposed site is considered as a baseline for the assessment. The viewsheds and visibility are taken at levels relative to the specific site and highlighted within the different exposure zones. Areas highlighted in yellow below are either at the same level as the site or higher in elevation. The viewshed does not take into consideration manipulated landscapes, existing building and trees. The elements will be considering as part of the VAC and Visual Exposure assessments.

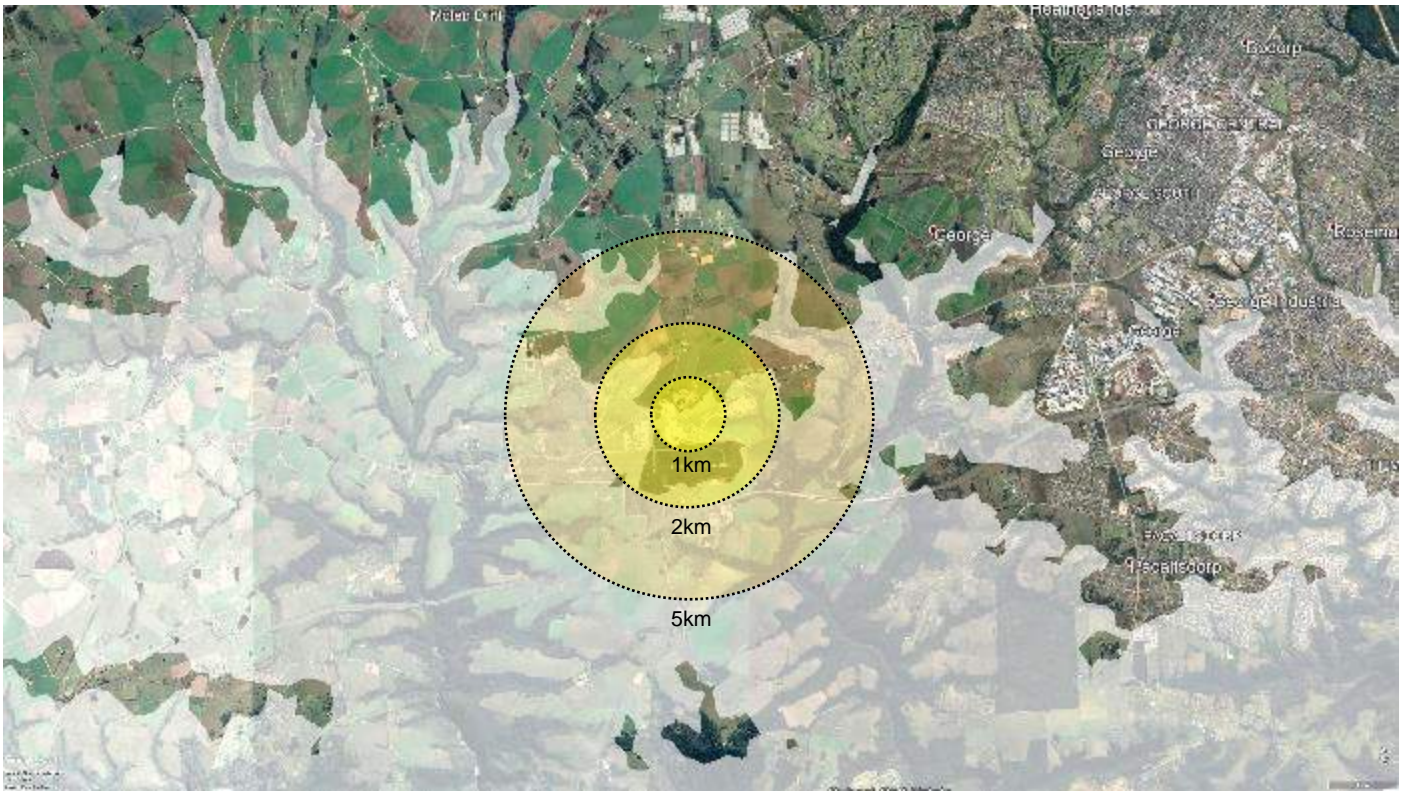


Figure: Base line assessment.

The viewshed visibility for the theoretical impact of the proposed development is based on an **8m, 18m & 22m high structure** below. The development would be visible from a larger area within the immediate surroundings compared to an undeveloped site, not taking into account trees, existing structures or buildings or any other artificial landform such as berms, dams etc. The largest area of influence is north of the site due to the rising topography.

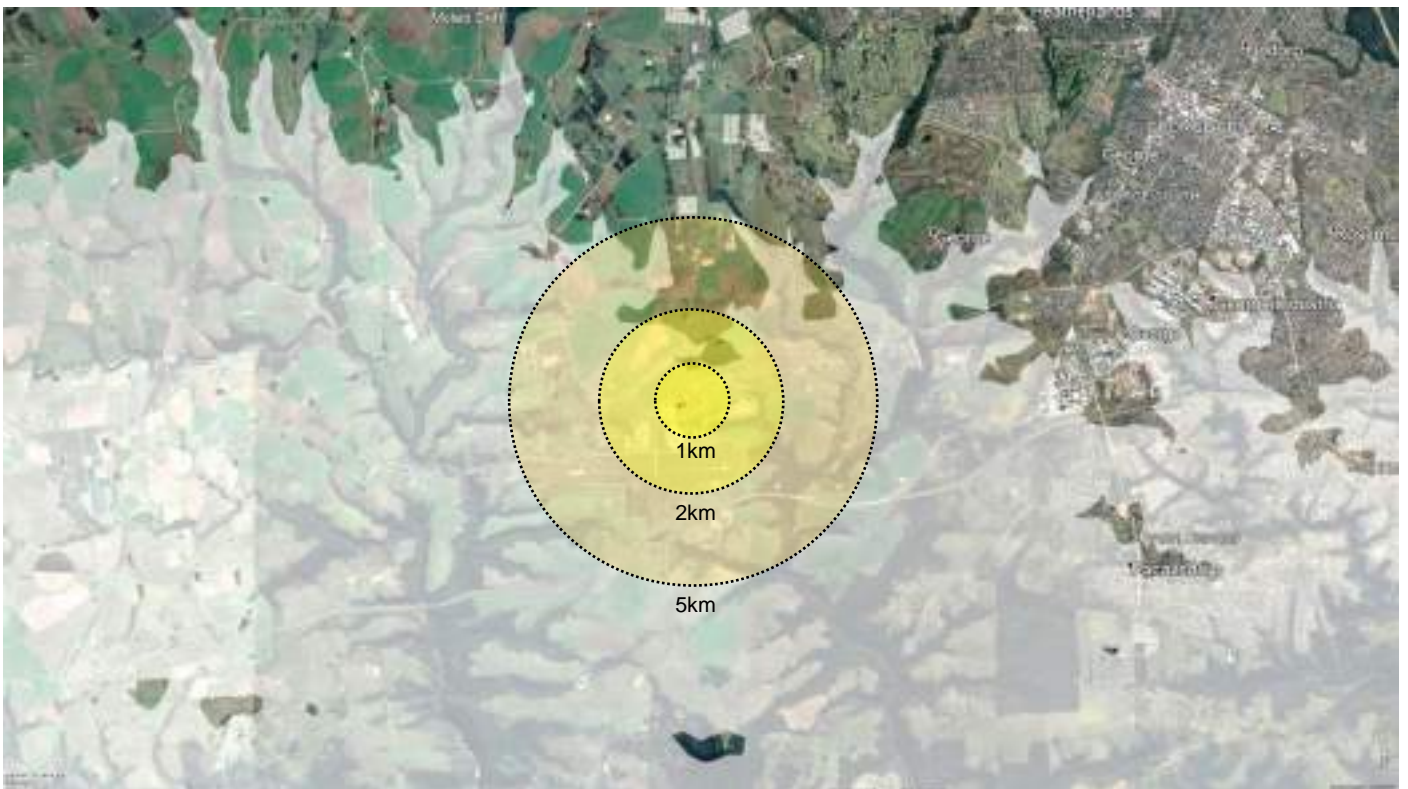
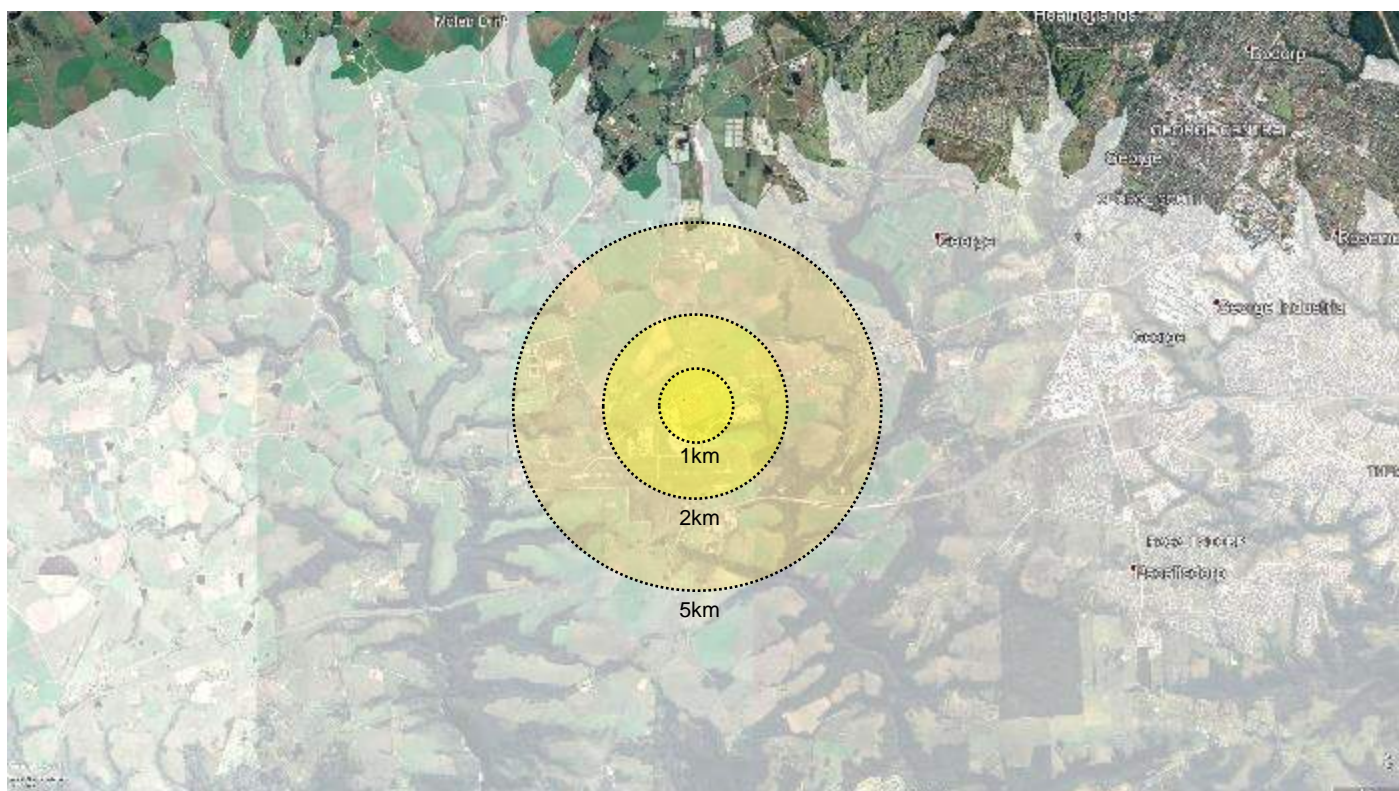
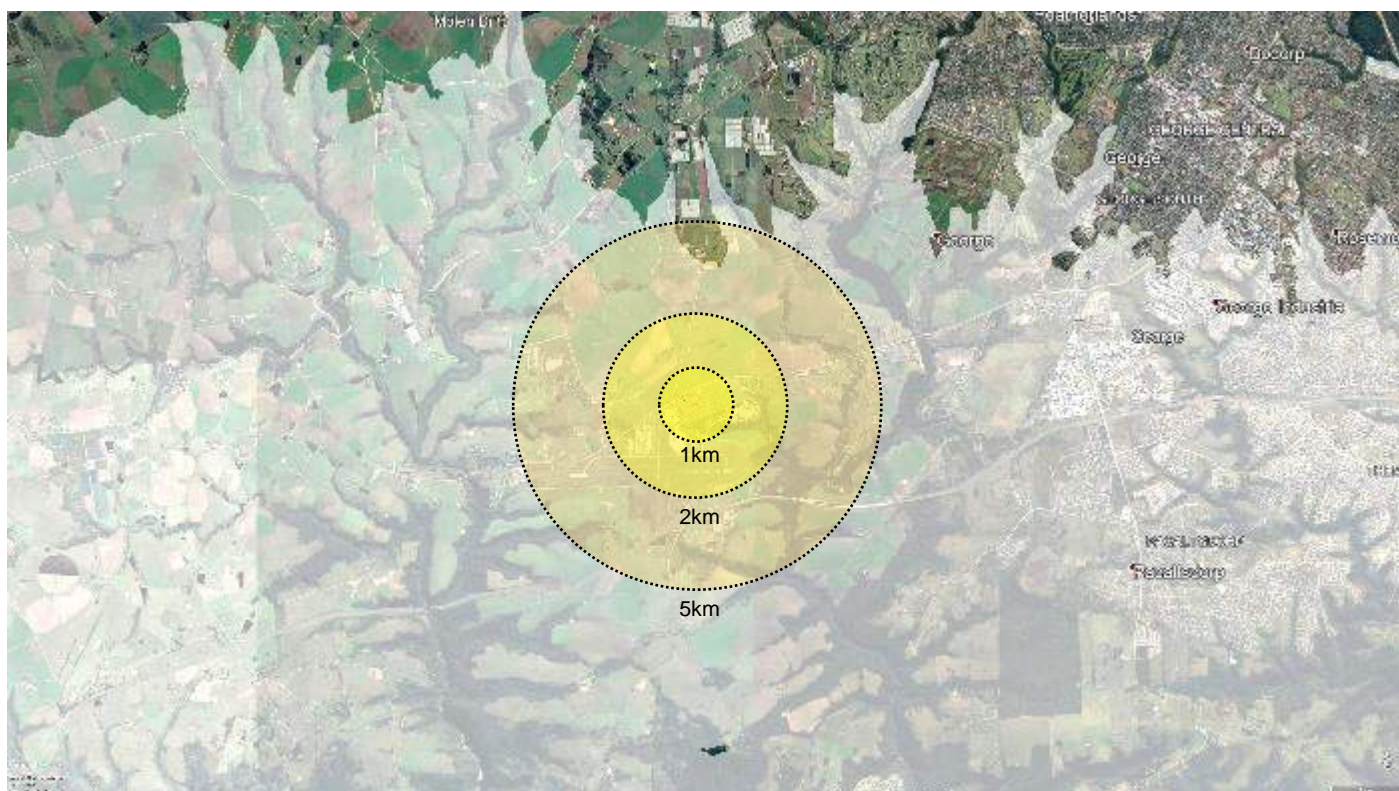


Figure: Assessment at 8m height.



It is expected that the development will be a **Category 4 development** which entails a possible high visual impact according to the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1) in the immediate surroundings.

Category 4 developments are expressed as; medium density residential development, sports facilities, small-scale commercial facilities / office parks, one-stop petrol stations, light industry, medium-scale infrastructure.

The development forms an extension of the existing airport within the airport support zone and should not be taken in isolation as a standalone development as described in the guideline.

VISUAL EXPOSURE

The level of visual exposure takes into consideration the distance at which the development is viewed from, visibility items of the viewsheds and any existing obstructions such as trees or existing development.

- High exposure – fully exposed
- Moderate exposure – partially exposed
- Low exposure – little to no exposure

VISUAL SENSITIVITY

The visibility of sites is determined by a combination of topography, landform, vegetation cover, settlement pattern and special features and existing development.

- High visual sensitivity – highly visible and potential sensitive areas in the landscape
- Moderate visual sensitivity – moderately visible in the landscape
- Low visual sensitivity – minimal visible in the landscape

LANDSCAPE INTEGRITY

Landscape integrity is represented by the following visual qualities, which enhance the visual and aesthetic experience of the area:

- High landscape integrity – Intact natural and cultural landscape with no visual intrusions or incompatible structures.
- Moderate landscape integrity – Intact natural or cultural landscape with minimal visual intrusions or incompatible structures.
- Low landscape integrity – Disturbed natural and cultural landscape with visual intrusions or incompatible structures.

VISUAL ABSORPTION CAPACITY

The ability of elements of the landscape to “absorb” or mitigate the visibility of an element in the landscape.

- High VAC – effective screening by topography and vegetation and existing structures.
- Moderate VAC - partial screening by topography and vegetation and existing structures.
- Low VAC - little or no screening by topography or vegetation and existing structures.

VIEWPOINTS

Viewpoint 1A



Viewpoint 1A is taking along the R404 at 500m approaching the site from the north.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
HIGH	MODERATE	MODERATE	LOW
The site is highly exposed at this point due to the proximity and elevation of the viewpoint.	moderately visible in the landscape, not within sensitive area.	The natural landscape is not considered intact.	little or no screening by topography or vegetation and existing structures.

Viewpoint 1B

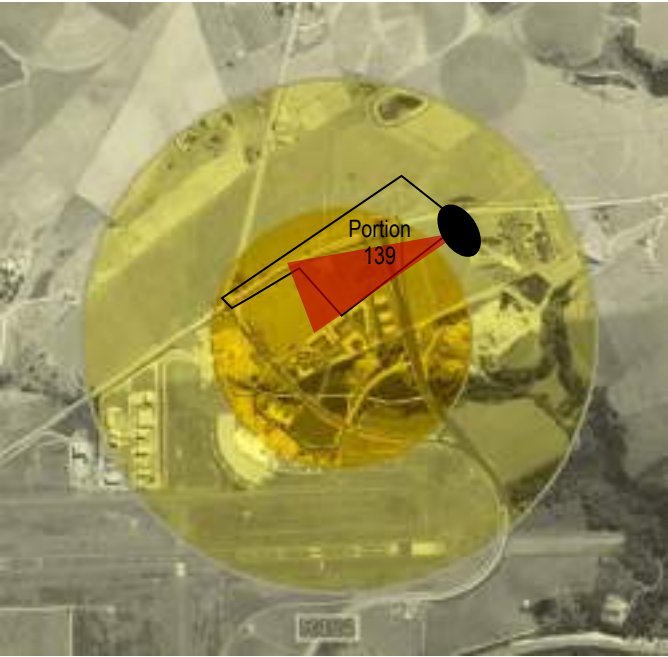


Viewpoint 1B is taking along the R404 at 1000m approaching the site from the north.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
MODERATE	MODERATE	MODERATE	MODERATE
The site is exposed at this point due to the elevation, however minimum exposed due to the distance	moderately visible in the landscape, not within sensitive area.	The natural landscape is not considered intact.	partial screening by topography and vegetation and existing structures.

Viewpoint 2A

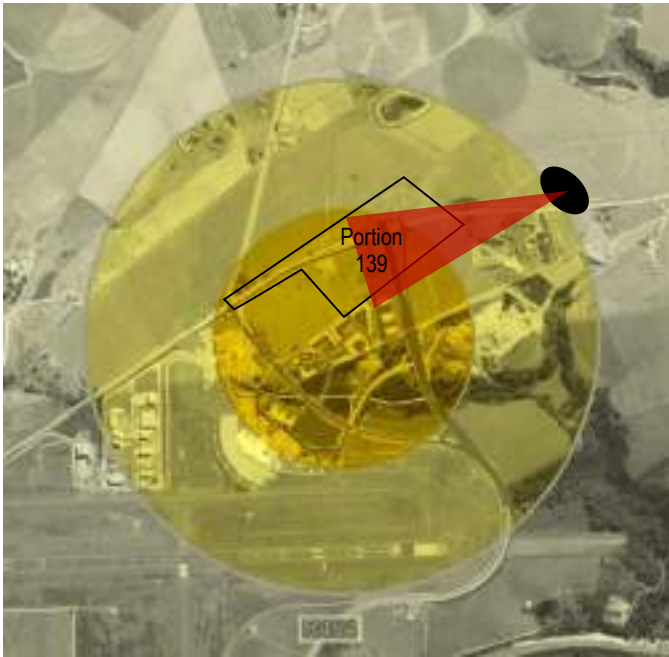


Viewpoint 2A is taking along the R102 at 500m approaching from the east.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
HIGH	MODERATE	MODERATE	LOW
The site is exposed due to the proximity of the viewpoint.	moderately visible in the landscape, not within sensitive area.	The natural landscape is not considered intact. Airport is visible from the viewpoint/	Little screening by topography and vegetation or existing structures. The future proposed road would screen the development from the viewpoint.

Viewpoint 2B

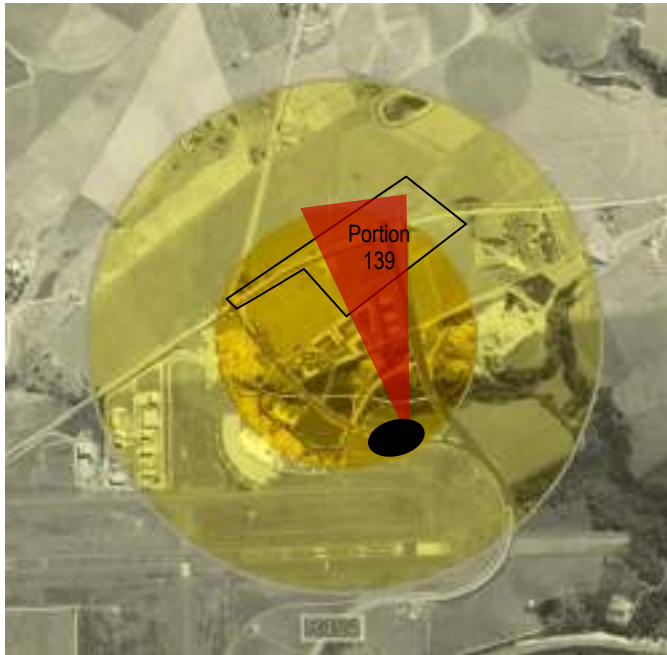


Viewpoint 2B is taking along the R102 at 1000m approaching from the east.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
MODERATE	MODERATE	MODERATE	MODERATE
The site is moderately visible in the landscape due to the proximity for the viewpoint.	Moderately visible in the landscape, not within sensitive area.	The natural landscape is not considered intact. Predominantly grasslands and agriculture.	Partial screening by topography and vegetation and existing structures.

Viewpoint 3A



Viewpoint 3A is taking along the R404 at 500m approaching from the south.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
LOW	LOW	LOW	HIGH
industrial or degraded areas prominent if the form of airport and quarry.	Minimally visible in the landscape	Disturbed natural and cultural landscape with visual intrusions or incompatible structures.	Effective screening by topography and vegetation and existing structures.

Viewpoint 3B



Viewpoint 3B is taking along the R404 at 1000m approaching from the south.



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
LOW	LOW	LOW	HIGH
Exposure of the site is low due to the proximity of the viewpoint, with degraded areas prominent with the landing strip in view.	minimally visible in the landscape	Disturbed natural and cultural landscape with visual intrusions or incompatible structures.	Effective screening by topography and vegetation and existing structures.

Viewpoint 4A

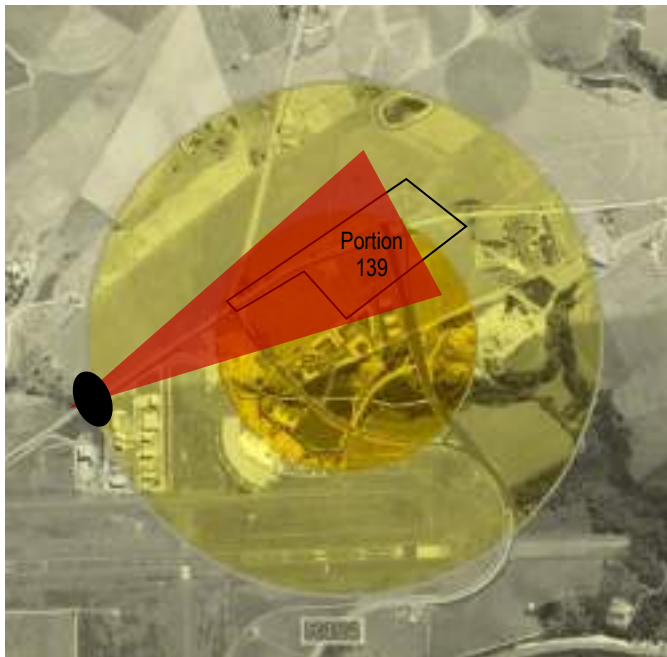


Viewpoint 4A is taking along the R102 at 500m approaching the site from the west



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
HIGH	MODERATE	LOW	LOW
The site is exposed due to the proximity of the viewpoint.	moderately visible in the landscape, not within sensitive area.	Disturbed natural and cultural landscape with visual intrusions or incompatible structures.	Little screening by topography and vegetation or existing structures. The future proposed road would screen the development from the viewpoint.

Viewpoint 4B



Viewpoint 4B is taking along the R102 at 1000m approaching the site from the west



VISUAL EXPOSURE	VISUAL SENSITIVITY	LANDSCAPE INTEGRITY	VISUAL ABSORPTION CAPACITY
LOW	LOW	LOW	HIGH
Exposure of the site is low due to the proximity of the viewpoint, with existing development obstructing the site line.	Minimally visible in the landscape, not within sensitive area.	Disturbed natural and cultural landscape with visual intrusions or incompatible structures.	Effective screening by topography and vegetation and existing structures.

The visual exposure from viewpoints within 500m from the site are relatively high. It is however predominantly the case when viewing the site from the north due to the increase in elevation from the site. Overall the visual exposure is moderate to low due to the capacity of the environment to absorb the visual impact of the development.

Visual sensitivity and landscape integrity are consistently moderate to low due to the surrounding environment being disrupted by the airport which can be seen from most of the viewpoints as well as the quarry being visible from the eastern approach on the R102 and southern approach on the R404.

Due to the underlying topography, existing trees and development, the environment has a moderately high capacity to absorb the visual impact of the development.

Based on the assessment of the viewpoints, taking into consideration the assessment criteria it is clear that the environment as defined by Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1) in the table below, is **an area or route of low scenic, cultural, historical significance and is disturbed**. Therefore, based on a category 4 development, a **moderate visual impact** can be expected. Degraded/wasteland areas such as the quarry may reduce the impact further.

Table below refers to the categorisation of issues to be address in the assessment. The mitigating measures are based on the moderate visual impact.

Type of environment	Type of development (see Box 3)				
	Category 1 development	Category 2 development	Category 3 development	Category 4 development	Category 5 development
Protected/wild areas of international, national, or regional significance	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected	Very high visual impact expected
Areas or routes of high scenic, cultural, historical significance	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected	Very high visual impact expected
Areas or routes of medium scenic, cultural or historical significance	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected	High visual impact expected
Areas or routes of low scenic, cultural, historical significance / disturbed	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected	High visual impact expected
Disturbed or degraded sites / run-down urban areas / wasteland	Little or no visual impact expected. Possible benefits	Little or no visual impact expected. Possible benefits	Little or no visual impact expected	Minimal visual impact expected	Moderate visual impact expected

8. MITIGATING MEASURES

Mitigating measures have the potential to manage and reduce the impact of the development on the surrounding environment. Due to the moderate outcome of the impact the mitigation measures are more prevalent for close distance mitigation. The types of mitigation measures that should be considered are:

MATERIALITY

Material selection should be considered as part of any design in order to ensure the proposed buildings/structures are in harmony with the surrounds as far as possible. Natural materials can be used to identify with the local landscape. Signage needs to be done with care on the R102 road.

COLOUR

Colour selection should be sensitive to the environment and cultural landscape. Preferably dark green, dark grey and dark brown walls but roof can be white for sustainability purposes. The development should also avoid the use of reflective surfaces in the design.

BULK & BUILDING FORM

The scale, bulk and building form can be used to articulate the buildings in order to mitigate or reduce the impact of the specific industrial typology.

HEIGHT & SCALE

The height and scale of the buildings should be minimised where possible, this will reduce the overall impact of the development from the surrounding environment. The 8m height should be mitigated by use of setbacks and screens to reduce the scale of the buildings. Larger buildings should be placed central to the development and step down towards the street edge (R102).

SCREENING

Screening through the planting of indigenous trees should be a priority. Addition of screens where landscape elements are not possible should be used to screen off any unsightly areas. The placement of these screens will be most effective along the boundary and or roadside. Screening has a strong potential to reduce the impact of the development on the surrounding areas.

URBAN DESIGN GUIDELINES

Mitigating measures should be included in the Urban Design Guidelines and should be described in more detail.

9. CONCLUSION

The proposed development forms an extension of this existing airport. Due to the extent of the existing Airport, the impact of this development within the landscape is much less of an impact than the Airport. The current site forms a portion of the total proposed Airport Support Zone as defined in the SDF and LSDF.

Although the development will have a moderate impact on the immediate area, it is however not considered degradation of the exiting landscape, but an extension of the current airport existing developed area. The airport support zone is contained by the existing and proposed roads as well as the natural topography which will avoid urban sprawl. This will limit the total feasible development area of the support zone.

As the Airport is a major gateway for the ever-growing tourism industry in the Garden Route, the celebration of the Gateway is an opportunity that can enhance the sense of the place and create a memorable experience.

In order to soften the possible visual impacts, certain mitigation principles have been proposed. In addition to this, architectural guidelines for the development could be done in terms of; building form, proportion, scale, architectural elements and finishes. This will ensure the impact is managed and consistent throughout the development.

ANNEXURE V:

*George Mun 2025-04-25 - Approved
Architectural Design Manual*

Menslike Nedersettings, Beplanning en Ontwikkeling
Human Settlements, Planning and Development

Collaborator No.: 3191096
Reference / Verwysing: Portion 4, 130 -139 of farm Gwayang No 208, Division George
Date / Datum: 25 April 2025
Enquiries / Navrae: Primrose Nako

Email: planning@delplan.co.za

DELPLAN
P O Box 9956
GEORGE
6530

**APPLICATION FOR ARCHITECTURAL GUIDELINES: PORTION 4, 130,131,132 AND 139 OF THE FARM
GWAYANG NO.208, DIVISION GEORGE**

Your application in the above regard refers.

The Acting Senior Manager: Planning (Authorised Official) has, under delegated authority, 4.16.18.1 of 30 June 2023 decided that the application for Permission, in terms of Section 15(2)(f) of the Land Use Planning By-law for George Municipality, 2023, for the approval of the Airport Business Park Architectural and Urban Design Guidelines Revision B dated April 2025 (attached as *Annexure A*) in terms of condition B of the approval dated 6 May 2022 for Portion 4 of the Farm Gwayang No 208, Division George, condition 15 of the approval dated 31 March 2023 for Portions 130, 131 and 132 of the Farm Gwayang No 208, Division George, and condition 14 of the approval dated 21 July 2023 for Portion 139 of the Farm Gwayang No 208, Division George. **BE APPROVED** in terms of Section 60 of the said By-law for the following reasons:

REASONS:

- (i). The Architectural and Urban Design Guidelines are not in conflict with the George Integrated Zoning Scheme By-law, 2023 or the conditions of the respective approvals.
- (ii). A Visual Impact Assessment (VIA) was submitted with the subdivision and rezoning applications, in support of the proposal in its current form.

Notes:

- a) The developer is to adhere to the requirements of all relevant Acts, as well as all conditions stipulated by any other authority whose approval is required and obtained for this proposed development.
- b) Site Development Plans must be submitted and approved in accordance with the respective conditions of approval and Zoning Scheme., prior to building plan approval
- c) No construction may be commenced with until such time as a building plan has been approved.

Yours faithfully


M. C. PETERSEN
SENIOR MANAGER: TOWN PLANNING

C:\scan\Portion 4 - 130 Gwayang (Architectural Guidelines Approval) (Delplan).docx

AIRPORT BUSINESS PARK, GEORGE

Light Industrial

Urban Design Guidelines
Farm Gwayang no 208
George, Western Cape, South Africa

Ref nr 30 233-8
April 2025

MUNICIPALITY GEORGE MUNICIPALITY
Approved in terms of Section 62 of the 2000-01
Municipal Land Use Planning By-law (2021) subject
to the conditions contained in the governing letter

2025/04/25
DATE
RATUM

Signature of the Mayor
SIGNED BY: Mayor: STANLEY J. J. J. J.

Contents

1. AIM	3
2. INTRODUCTION	3
3. APPROACH	6
4. DEVELOPMENT CONTROLS	7
5. OPEN SPACE, SERVICE CORRIDORS & TRANSITION ZONES	9
5.1 OPEN SPACE AND SERVICE CORRIDOR GUIDELINES	9
5.2 TRANSITION ZONES and REAR SITE BOUNDARIES	11
6. STREET INTERFACE AND SITE DEVELOPMENT GUIDELINES	12
6.1 STREET INTERFACE: ALL USES FACING MAIN ROADS R102 AND R404	12
6.2 GENERAL AND LIGHT INDUSTRIAL	13
7. GUIDELINE DRAWINGS	18
7.1 BUILDING HEIGHTS	18
7.2 GREEN STRUCTURE	19
7.3 OPEN AND SERVICE CORRIDORS	20
7.4 SERVICES	21
8. STREETSCAPE GUIDELINES	22
8.1 TYPE A - 20m TREE-LINE ENTRANCE BOULEVARD CONCORD WAY	23
8.2 TYPE B - 18m COLLECTOR STREETS - CESSNA AND SPITFIRE	24
8.3 TYPE C - 16m CUL DE SAC - GULFSTREAM	25
9. SECURITY GUIDELINES	26
9.1 PHYSICAL SECURITY	26
9.2 ELECTRONIC SECURITY	26
10. DESIGN REVIEW and APPROVAL PROCESS	27
11. ANNEXURES	
11.1 ANNEXURE 1 - LANDSCAPE MASTER PLAN	
11.2 ANNEXURE 2 - CONSTITUTION OF THE GEORGE ABP PROPERTY OWNERS ASSOCIATION	

MUNICIPALITY OF GEORGE MUNICIPALITY
 Approved in terms of Section 60 of the George Municipality Local Use Regulation 2014 (LUR 2014) to the conditions stipulated in the covering letter.

2025/04/25
 PAUL
 MAYHEM

Approved by the
 GEORGE LOCAL PLANNING
 SERVICES SUBCOMMITTEE

1. AIM

Development controls relate specifically to the setting out of statutory rights applicable to each site, and the control of the utilization of these rights on the site. The development guidelines in this document are generic and provide general guidance and rules to which **built** form should comply. Ultimately, site development and individual design must comply with the *Urban Design and Architectural Guidelines for George* (2011); and the site specific guidelines in this document. This document was developed for the GEORGE ABP PROPERTY OWNERS ASSOCIATION (ABP POA) as an environmental management tool to use in conjunction with the Constitution of the ABP POA, with special reference to Clause 8 of this Constitution.

2. INTRODUCTION

The project falls within in the George Municipality and the properties under discussion are located opposite to the George Airport, on portion 130, 131 & 132, 139 and Pin 4 of Farm Gwayang No. 208 George. NEWURBAN Architects & Urban designers (NEWURBAN), compiled a VISUAL IMPACT ASSESSMENT in accordance with the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1: 2005) - as compiled by the Provincial Government of the Western Cape Department of Environmental Affairs and Development Planning dated June 2004.

The Urban Design Guidelines proposed in this document are drawn from, and supportive of, the Urban Design and Architectural Guidelines for George (2011). NEWURBAN prepared an urban design vision for the full Airport Support Zone, for The Western Gateway Industrial Node - as identified in the Gwayang Local Spatial Development Framework (2015). The VIAs for the various developments forming the precinct are site specific and have been compiled taking into consideration a Category 4 development, which entails a possible high visual impact according to the Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1: 2005).

Mitigating measures have been considered for their potential to manage and reduce the impact of the development on the surrounding environment. Due to the moderate outcome of the visual impact assessment, mitigation measures are more prevalent for close-distance mitigations. Therefore, the types of mitigating measures considered are:

MATERIALITY

Natural materials can be used to blend with the local landscape.



Urban Design Guidelines Report - Airport Support Zone

The 8 – 15m height controls should be mitigated by use of setbacks and screens to reduce the scale of the buildings. See Plans The tallest buildings should be placed central to the development with lower buildings that step down towards the street edges (R102 & R404). The vision suggests that 15m structures be placed in the centre of the development, surrounded by a lower tier of 8 -10.5m structures.

SCREENING

Screening through the planting of indigenous and waterwise trees should be a priority.

Structural screens should be used where natural landscaped elements are not possible

Unsuitable areas such as mechanical services-, refuse-, outdoor storage- and loading yards should be screened from public view.

The placement of these screens will be most effective along the boundary and/or roadside.

Screening reduces the impact of the development on surrounding areas and should therefore incorporate plant life and be as natural as possible.

URBAN DESIGN GUIDELINES

The role of the urban design guidelines is to establish the intent for the design and development within AIRPORT BUSINESS PARK, GEORGE and to provide the framework within which site development and building applications will be evaluated. The guidelines set out herein are in addition to any regulations or by-laws of the local authority and National Building Regulations, and of the Urban Design and Architecture Guidelines for George (2011). The draft guidelines are defined in the following categories:

- **Development Controls** are provided, in alignment with the Conditions of Establishment for AIRPORT BUSINESS PARK, GEORGE.
- **Street Interface Guidelines** address the interface between the public domain (road or street) and the private domain (individual development). Through the interface guidelines the positive impact of a development on the public domain should be maximised and the negative impact minimised, thereby contributing to a **quality public environment**
- **Site Development Guidelines** address the development of individual sites to ensure that each contributes to an enhanced overall quality through improved public environments.



4. DEVELOPMENT CONTROLS

Each site has a set of approved statutory development controls:

The Portion numbers reflected in these tables are in terms of the Surveyor General portion numbers, with those in brackets reflected on other layouts in the document.

Portions 164, 165, 166, 167 and 171 of the Farm No 208, Gwayang (Portion numbers as reflected on layouts are Portions 1, 2, 6, 7 and 8 of Portions 130/131/132):

LAND USE ZONE (LAYOUT)	APPROPRIATE LAND USE	COVERAGE	HEIGHT	FAR	PARKING REQUIREMENTS
Light Industrial	INDUSTRY The Industrial Zone 1 even shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display.	75%.	Maximum height: 2 storey / 10.5m (including Mezzanine and Double Storey for office component only)	0.75	All parking is to be provided on site to the following requirements: 2 Parking Bays per 100m ² GLA.

Portions 178, 179, 180, 181 and Remainder of the Farm No 208, Gwayang (Portion numbers as reflected on layouts are Portions 1, 3, 4, 5, 6 and 7 of Portion 4):

LAND USE ZONE (LAYOUT)	APPROPRIATE LAND USE	COVERAGE	HEIGHT	FAR	PARKING REQUIREMENTS
Light Industrial	INDUSTRY The Industrial Zone 1 even shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display. (Filing station agreed among landowners to be on portion 1 of Portion 4 of 208)	75%.	Statutory Control Maximum height 1 storey / 8m (including Mezzanine and Double Storey for office component only)	0.75	All parking is to be provided on site to the following requirements: 2 Parking Bays per 100m ² GLA.

NOTE: for Portion 1 of Portion 4 of the Farm No 208, Gwayang:

Business VI
The proposed filing station is subject to an approved Site Development Plan which will determine the final development parameters for that property.



Portions 155, 156, 158 and 159 of the Farm No 208, Gwayang (Portion numbers as reflected on layouts are Portions A, B, E and F of Portion 139):

LAND USE ZONE (LAYOUT)	APPROPRIATE LAND USE	COVERAGE	HEIGHT	FAR	PARKING REQUIREMENTS
Light Industrial	INDUSTRY The Industrial Zone E even shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display.	75%	Storey Control: 1 storey / 8m Maximum height: 14.5m (including Mezzanine and Double Storey for office component only)	0.75	All parking is to be provided on site to the following requirements: 2 Parking Bays per 100m ² G.A.
NOTE: for Portion B of Portion 139 Place of instruction (Institutional) Temporary departure for Place of instruction (Culinary school)					

Portions 157 and 160 of the Farm No 208, Gwayang (Portion numbers as reflected on layouts are Portions C and D of Portion 139):

LAND USE ZONE (LAYOUT)	APPROPRIATE LAND USE	COVERAGE	HEIGHT	FAR	PARKING REQUIREMENTS
Light Industrial	INDUSTRY The Industrial Zone E even shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display.	75%	Storey Control: 1 storey / 8m (including Mezzanine and Double Storey for office component only)	0.75	All parking is to be provided on site to the following requirements: 2 Parking Bays per 100m ² G.A.

Portions 168, 169 and 170 of the Farm No 208, Gwayang (Portion numbers as reflected on layouts are Portions 3, 4 and 5 of Portions 130/131/132):

LAND USE ZONE (LAYOUT)	APPROPRIATE LAND USE	COVERAGE	HEIGHT	FAR	PARKING REQUIREMENTS
Light Industrial	INDUSTRY The Industrial Zone E even shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display.	75%	Maximum height 2 storey / 15m (including Mezzanine and Double Storey for office component only)	0.75	All parking is to be provided on site to the following requirements: 2 Parking Bays per 100m ² G.A.

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 60 of the George Municipality Land Use Planning By-Law (2023) subject to the conditions contained in the covering letter.

25/04/2025
DATE
25/04/2025
TIME
14:00:00
SIGNATURE: TOWN PLANNING
OFFICIAL

Urban Design Guidelines August – April 2024 RevB

5. OPEN SPACE, SERVICE CORRIDORS & TRANSITION ZONES

5.1 OPEN SPACE AND SERVICE CORRIDOR GUIDELINES

In line with the overall premise to encourage a strong link with the natural environment, open space and service corridors guidelines address side boundary interfaces of individual erven. In principle, areas along erf boundaries between the natural landscape and the development become landscape transition zones. Services are separated from landscape transition zones; and a corridor for services, circulation and utilities would be positioned along an opposite erf boundary. The width of these corridors will ultimately depend on detail design of services.

The intent is to ensure continuous open space, ecological linkages separated from service and utility areas. Separated corridors protect the environmental integrity of open space. Furthermore, by demarcating open space and service corridors, such corridors could be combined with those of adjacent erven to facilitate greater environmental protection or to increase the width of service areas between erven.



GUIDELINE ELEMENT		SERVICE CORRIDOR: SIDE BOUNDARY
BUILDING LINE WIDTH	<ul style="list-style-type: none"> 3m wide 	<ul style="list-style-type: none"> 3m wide or as per detail design In areas with steep slopes or where the shape of the erf presents a planning hazard, this guideline may be adjusted subject to an alternative workable solution being presented
SCREEN WALLS/ FENCES	<ul style="list-style-type: none"> A permeable security fence may be erected between adjacent erven using Clearvue fencing or similar permeable product. 	<ul style="list-style-type: none"> The service corridors of adjacent erven can be combined with no security wall on the side boundary between erven, or

		<ul style="list-style-type: none"> • Solid boundary wall can be erected on the inside of the service corridor where it is critical to screen off private outdoor space or service areas. • The wall should complement the design of the building in terms of articulation and materials. No prefabricated walling systems, Vibacrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed.
<p>USAGE OF AREA WITHIN BUILDING LINE</p> <p>MUNICIPALITY OF GEORGE Approved in terms of Section 62 of the George Municipality Land Use Planning By-Law (2023) subject to the conditions contained in the governing letter.</p> <p>2025/04/25 DATE DIT/JIA</p> <p>2025/04/25 MUNICIPALITY OF GEORGE LAND USE PLANNING BY-LAW (2023) SECTION 62</p>	<ul style="list-style-type: none"> • The open space corridors should be retained on natural ground level as far as possible • No buildings or permanent structures will be permitted in the open space corridor. • No vehicular movement will be permitted along the open space corridor. • The area must be landscaped and maintained by the owner of the erf in accordance with the landscape development plan to the satisfaction of the local authority. • Trees must be selected from a tree palette as part of the landscaping guidelines to be developed by a Landscape Architect as per SDP. • If such area is not satisfactorily maintained, the local authority can do such maintenance through a contractor for the account of the owner of the erf. • Pedestrian walkways must include hard landscaping for walkways, lighting, dustbins and benches. • The furniture must be selected from the list of products included in the landscaping guidelines. 	<ul style="list-style-type: none"> • The service corridor can be used for the installation of underground engineering services, access parking, loading, refuse storage and other service-related activities. • Unightly areas such as storage and refuse areas must be screened from adjacent erven by a non-transparent screen wall • The wall should complement the design of the building in terms of articulation and materials. No prefabricated walling systems, Vibacrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed.
COMBINING CORRIDORS OF ADJACENT ERVEN	<ul style="list-style-type: none"> • Combine the 3m landscaping corridors of adjacent properties to form 6m wide corridors 	<ul style="list-style-type: none"> • Combine the service corridors of adjacent properties to form omnibus corridors
COMBINATION OF SERVICE AND OPEN SPACE	<ul style="list-style-type: none"> • In some areas of the layout, it is required that a service corridor of 3m be developed adjacent to a landscape corridor on the same side boundary of an erf. • In such cases the open space corridor is always located along the erf boundary and the service corridor to the inside. • The service corridor may be separated from the open space corridor by a transparent screen wall to demarcate and protect the open space corridor from intrusion by service-related activities. 	

5.2 TRANSITION ZONES and REAR SITE BOUNDARIES

The aim of open space transition zones is to address the interface between development and conservation areas. The aim of guidelines for rear site boundaries is to address the rear site boundary of *erven* not adjacent to conservation areas.

The intent is to demarcate open space zones that will form part of a continuous open space network along the rear boundaries of properties and to address the transition from developed land to natural environment in such a way as to retain natural linkages.

The graphics to the right demonstrate the separation of services and landscaping and the implication for the development on sites.

GUIDELINE ELEMENT	OPEN SPACE TRANSITION ZONE	REAR SITE BOUNDARY
WHERE DOES THE GUIDELINE APPLY	<ul style="list-style-type: none"> If an erf abuts onto a conservation area, a transition zone shall be included along that edge of the erf 	<ul style="list-style-type: none"> All <i>erven</i>, except those <i>erven</i> abutting onto a conservation area.
BUILDING LINE WIDTH	<ul style="list-style-type: none"> 3m wide 	<ul style="list-style-type: none"> 3m wide
SCREEN WALLS/ FENCES	<ul style="list-style-type: none"> A permeable security fence may be erected on the erf boundary such as Clearvue fencing or similar permeable fencing. 	<ul style="list-style-type: none"> If a wall is erected, it should complement the design of the building in terms of articulation and materials. No prefabricated walling systems, Vibracrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed.
USAGE OF AREA WITHIN BUILDING LINE	<ul style="list-style-type: none"> The building line must be kept free from any building or permanent structure and must be on natural ground level as far as possible. Landscaping of this area must be in accordance with the guidelines of the SDP. The area must be landscaped and maintained by the owner of the erf in accordance with the SDP to the satisfaction of the local authority. Trees must be selected from a free pallet as part of the landscaping guidelines. If such area is not satisfactorily maintained, the local authority can co such maintenance through a contractor for the account of the owner of the erf. 	<ul style="list-style-type: none"> If retaining walls are erected in the building line, it must be constructed at an angle not exceeding 35 degrees, consisting of retainer planter boxes. The area within building line must be landscaped in accordance with the SDP to the satisfaction of the local authority. Apart from retainer planter boxes retaining walls, no other permanent structures are permitted in the building restriction area

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 60 of the GEORGE Municipality Land Use Planning By-law (2013) subject to the conditions contained in the covering letter

2025/04/25

DATE
DITTE
GATUUR

2025/04/25
MUNICIPALITEIT GEORGE
SENIOR BEWEGINGS, STRATEGIEKONTO

6. STREET INTERFACE AND SITE DEVELOPMENT GUIDELINES

6.1 STREET INTERFACE: ALL USES FACING MAIN ROADS R102 AND R404.

Intent: Due to high visibility from the main roads and the 'gateway location' of the airport support zone, buildings should convey a strong presence through deserving architecture, established within a park-like environment created through appropriate landscaping.

GUIDELINE ELEMENT	GUIDELINE
	<ul style="list-style-type: none"> All erven along Main Roads R102 and R404 will be subject to the requirements as determined by the Provincial Roads Department
BUILDING LINE / BUILD-TO LINE	<ul style="list-style-type: none"> A rear, building line of 20m for erven along Main Roads R102 and R404
SCREEN WALLS/ FENCES	<ul style="list-style-type: none"> A permeable security fence may be erected on the erf boundary using Clearvue fencing or similar product. No prefabricated walling systems, vibrocrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed.
USAGE OF AREA WITHIN BUILDING LINE	<ul style="list-style-type: none"> To maintain a park-like character, only trees but no shading structures will be allowed between the building and the fence on the main road. The building line must be kept free from any building or permanent structure and must be on natural ground level. The building restriction area shall be landscaped in accordance with the SDP part of the site development plan submissions to the satisfaction of the local authority. Trees to be planted should be selected from a tree palette provided as part of the SDP. Landscaping of this area must be in accordance with the guidelines of the SDP. The area must be landscaped and maintained by the owner of the erf in accordance with the SDP to the satisfaction of the local authority. If such area is not satisfactorily maintained, the local authority can do such maintenance through a contractor for the account of the owner of the erf.
BUILDING PLACEMENT AND FAÇADE	<ul style="list-style-type: none"> Storage areas should not be visible from the main road. It should be placed in the service corridors and should be adequately screened off by a wall designed as an extension of the building architecture. Advertisements or signage along the main road will have to comply with the standards as determined by the Design Review Committee.

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 50 of the George Municipality: Local Use Planning By-Law (2023) subject to the conditions contained in the governing letter.

2025 JUL 25

DATE
DATUM

WILLEM VAN DER MERWE
MUNICIPAL MANAGER TOWN PLANNING
IFM/GEORGE MUNICIPALITY

6.2 GENERAL AND LIGHT INDUSTRIAL

General Industry shall be limited to airport support services or uses including agricultural processing, logistics, freight, warehousing and storage, vehicle car hire, parking or other similar light industrial uses. The even may not be used for the manufacturing of consumer products, including electronics and clothing, a service trade, a service station, the sale of motor vehicles or open-air motor vehicle display

Intent: The development should be physically and visually integrated within its direct environment. The following are principles that will be applied:

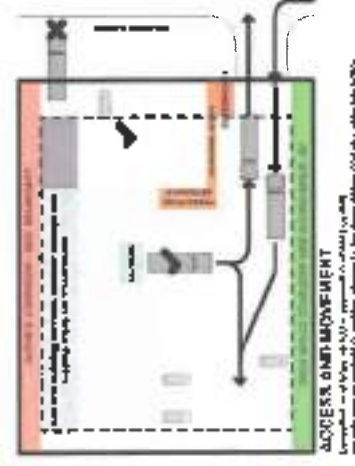
- The street interface should be defined to promote a street with a sense of enclosure, but should be on a human scale.
- It should reflect the corporate branding of the Estate.
- For the full impact of a park-like development, a green zone is incorporated along the edge of the sidewalk and the development.
- To encourage the extension of the public domain, a defined "front-of-house" is suggested.
- It is advised that the public face of the development is positioned along the edge facing the street
- Placement of buildings on the site should be such as to ensure that the development of the land responds to the topography and to regulate building mass and roof articulation



GUIDELINE ELEMENT

GUIDELINE

BUILDING LINE / BUILD-TO LINE

- A building line of 5m along the street edge applies.
- Maximum 45m setbacks allowed to accommodate 'front loading' bays
- Public interface/reception positioned along on street edge – primary pedestrian areas free from large truck movement.
- Where possible, truck loading bays to be located away from visitor's parking



 	<p>SCREEN WALLS/ FENCES/ENTRANCES/SECURITY</p> <p>ACCESS AND MOVEMENT – TO SEPARATE PEDESTRIAN FROM LARGE VEHICLE OPERATIONS</p> <ul style="list-style-type: none">• A permeable security fence may be erected on the erf boundary using Clearvue fencing or similar product. No solid walls prefabricated walling systems, vibrocrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed.• Solid fencing to screen service yards and should be kept to the minimum.• The fence should incorporate signage to indicate the physical address and business name.• Access gates are to be positioned on the street edge.
--	---

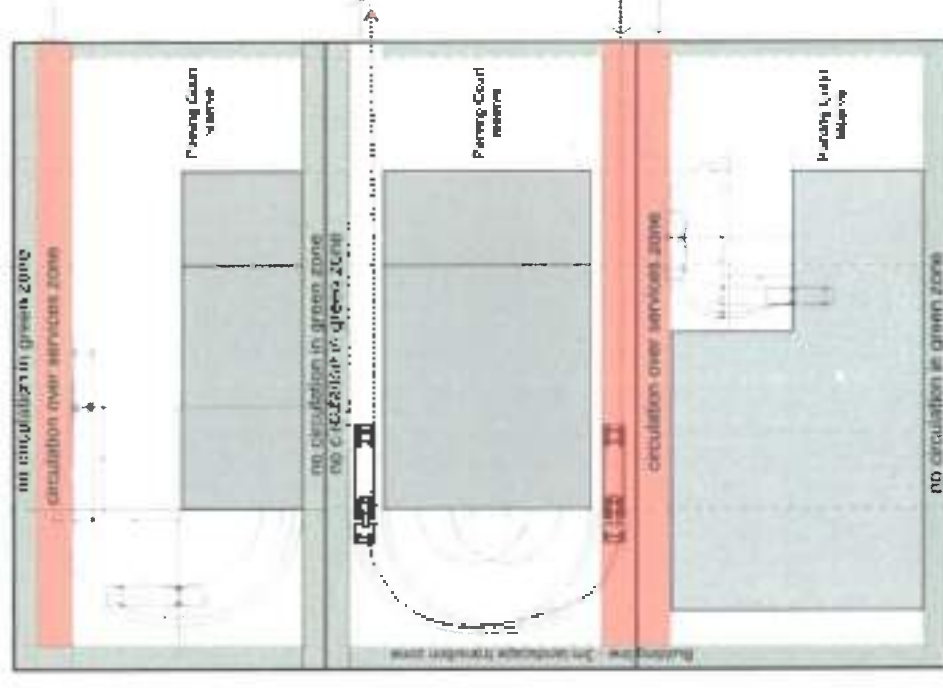
MUNICIPALITY OF GEORGE MUNICIPALITY
Approved in terms of Section 62 of the George Municipality: In Use Planning and Development Act 1993; subject to the conditions contained in the following letter.

2025/04/25
Date
DRC/DA

Approved by the Council on 17/04/2025
Councillor: COUNCILOR
COUNCILOR

USAGE OF AREA WITHIN BUILDING LINE

- A landscaping strip should be developed along the street edge. Landscaping of this area must be in accordance with the guidelines of the SDP.
- Only shading structures complementing the design and materials of the building will be allowed between the building and the street boundary.
- Trees to be planted should be selected from a tree pallet provided as part of the SDP.
- Service Yards (example: refuse yards and all mechanical equipment,) should not be visible from the road. It should ideally be placed within the service corridor site edges, and adequately screened off by a wall designed as integral part of the building.
- Green zones as defined by the SDP are to be kept free of vehicular traffic.
- Where a 20m setback is required the setback area may be used for truck circulation or car parking, provided it is screened off from view by means of soft screening applications as it will be facing onto the public roads.



MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 60 of the George Municipality: Land Use Planning By-Law (2023) subject to the conditions contained in the covering letter.

2025 10 04 12:55
DATE
DATUM

TECHNICAL MANAGER: TOWN PLANNING
SENIOR REGULATORY STANDARDS MANAGER

USE LOCATION ON SITE	<ul style="list-style-type: none"> To establish a positive street edge and to promote passive surveillance, the primary uses on each site should be located according to the following principles: <ul style="list-style-type: none"> Office buildings should preferably be located along the street interface of the site;
BUILDING PLACEMENT, SERVICE AND YARD LOCATION AND FAÇADE	<ul style="list-style-type: none"> Buildings on corner stands should select the lower order road for its building façade to correspond with its access. Storage yards, (including loading, and outdoor storage facilities) should be concentrated and located to minimize impact on surrounding areas. These areas should not be visible from the main road and should be adequately screened off. Service yards are encouraged over a dispersal of service facilities. These included provision for loading, refuse storage (in-lieu of a separately enclosed refuse area), utility cabinets and meters, transformers, generators, heating and cooling systems, antennas, satellite dishes and communications equipment, and all other outdoor mechanical equipment for the building. Service yards should be placed along service corridors and should be adequately screened off by a wall designed as an extension of the building architecture. Service yards should be located and designed for easy access by service vehicles and tenants. No retaining wall higher than 1m from natural ground level will be permitted. Landscaping, visitor's parking, public reception, and office components could contribute to an articulated façade.
ADVERTISEMENTS AND SIGNAGE	<ul style="list-style-type: none"> Advertisements or signage along the street interface should be integrated in the design of the building and should not appear as an add-on or separate feature. Signage shall be provided in accordance with the Design Review Committee's Panel branding guidelines. The Estate Branding and property address shall be placed on one side of the access gate and the advertisement or signage of the development on the other side.
BUILT FORM IN RELATION TO STREET EDGE	<ul style="list-style-type: none"> The key principle for the built form in the estate is the creation of a quality public environment with built form enclosure and a positive relationship between the building façade and the streetscape without compromising the operational requirements of any development. Locating the office space facing the street edge overlooking the parking court provides a positive building face to the street enhancing both the public environment as well as the branding of the building occupant.
<div> <p>MUNICIPALITY OF GEORGE MUNICIPALITY Approved in terms of Section 63 of the Geor-ge Municipality Land Use Planning By-law (2023) subject to the conditions contained in the covering letter.</p> <p><i>2025/04/25</i> DATE: 2025/04/25 BY: J.M.</p> <p>MEMBER OF THE MUNICIPALITY OF GEORGE TOWN PLANNING STREET DESIGN, STRATEGIC PLANNING</p> </div>	<ul style="list-style-type: none"> Ensuring the industrial/warehouse component of the development is always at the rear reduces the impact of the scale of this component as well as putting the urban aspect of the development where it will not detract from the overall quality of the street/most public realm and pedestrian environment.



- Clustering service areas away from the most pedestrian street interface is preferred. Landscaping, visitor's parking, public reception, and office components could contribute to a positive streetscape.

GUIDELINE ELEMENT	GUIDELINE
ACCESS AND INTERNAL CIRCULATION GUIDELINES	<ul style="list-style-type: none"> • Access gates are to be positioned on the street edge to comply with transport engineer's requirements. • Internal access can make use of the service-zone site edge, utilizing space that cannot be built on. • Access gates may be shared between adjacent erven.
PLAT FORMING	<ul style="list-style-type: none"> • The individual sites will require re-contouring to achieve gentle falls over wide areas. • Plat-forming should be respectful of storm water management, the quality of the streetscape and impact on neighbours. • Where retaining walls consisting of retaining blocks can be constructed at an angle of not more than 35 degrees, such retaining walls can be developed to a maximum height of 2m to create level platforms.
SERVICE AREA	<ul style="list-style-type: none"> • Provided that the erf does not abut onto a conservation zone, service areas can be developed to the rear of the building. • Service yards are encouraged over a dispersal of service facilities. • Service yards should be located and designed for easy access by service vehicles and tenants. • Unslightly areas such as storage, refuse, and all other outdoor mechanical equipment for the building, must be screened from adjacent erven by a non-transparent screen wall. The wall should complement the design of the building in terms of articulation and materials. No prefabricated walling systems, Vibrocrete, unplastered blocks, barbed wire, corrugated sheet metal walls or wire fences will be allowed. • Water storage and emergency fire water storage should be placed in the service yard and visually screened off.

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 62 of the George Municipality Land Use Planning By-Law (2023) subject to the conditions contained in the covering letter.

2025/04/25

DATE
DATUM

SIGNATURE: T. J. VAN DER MERWE
SENIOR DISTRICT PLANNING

7.3 OPEN AND SERVICE CORRIDORS

Wherever two or more portions are consolidated, the open space transition zone and the service space transitions zone may be combined, but may not overlap. If three portions or more are consolidated a revised landscape masterplan for the whole precinct must be approved by the municipality before consolidation.



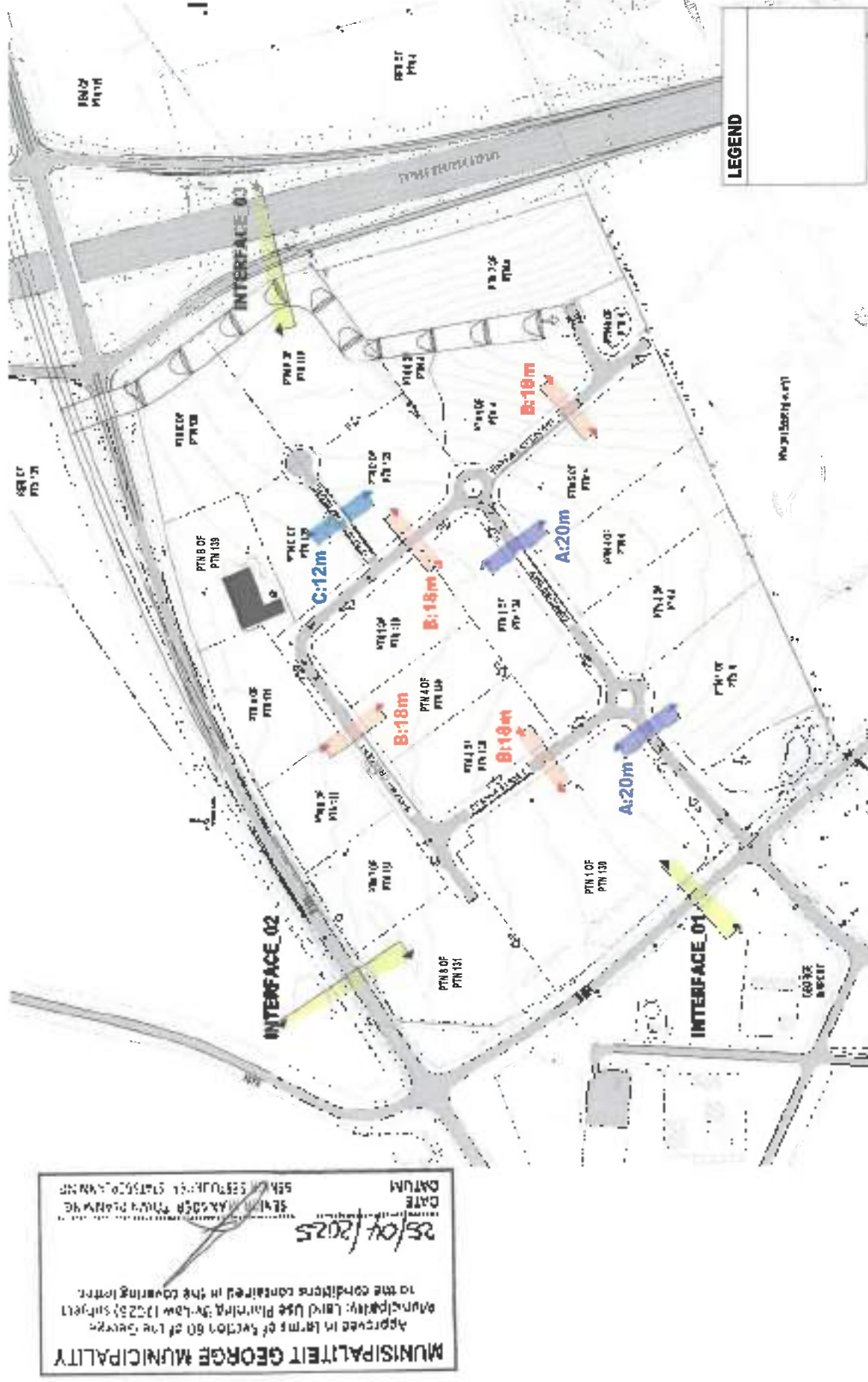
See Annexure I – Landscape Master Plan

Urban Design Guidelines Report – April 2025 Rev#8

For detailed services report, see:
 "Portions 4, 130, 131, 132, and 139 of the
 Farm Gwaysong 208. ASZ SERVICES
 REPORT (2022)02/03: Infrastructure
 Consulting Engineers CC.)

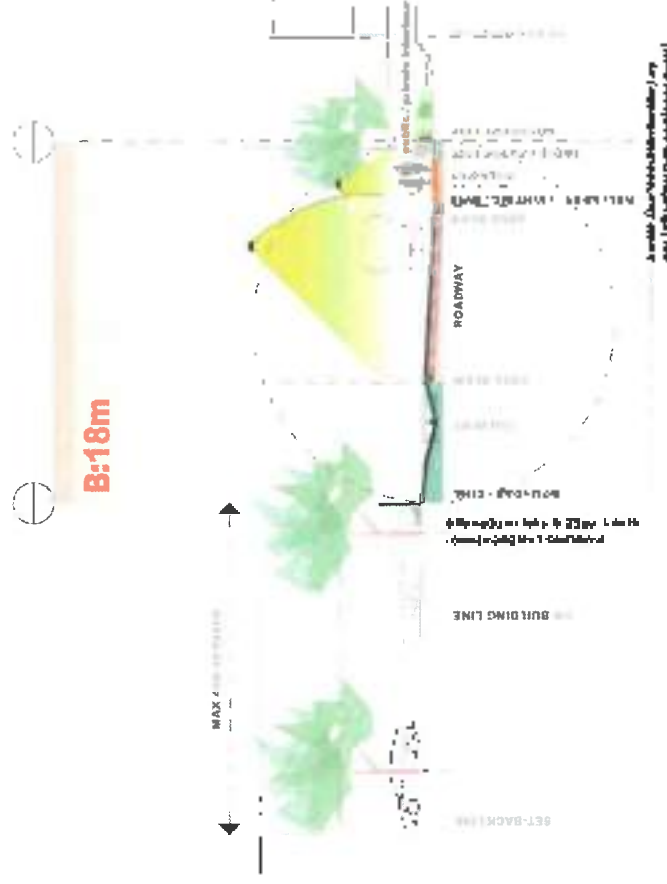


8. STREETSCAPE GUIDELINES



8.2 TYPE B - 18m COLLECTOR STREETS – CESSNA AND SPITFIRE

GUIDELINE ELEMENT	GUIDELINE
FUNCTION	<ul style="list-style-type: none"> The street should remain open for vehicular traffic
ROAD RESERVE WIDTH	<ul style="list-style-type: none"> 18m
TRAFFIC MEDIAN	<ul style="list-style-type: none"> No median
TRAFFIC LANES	<ul style="list-style-type: none"> Two traffic lanes, 1 in each direction
ON-STREET PARKING	<ul style="list-style-type: none"> None
SIDEWALK LAYOUT	<ul style="list-style-type: none"> Paved sidewalks must be generous, including the space for the street trees A pedestrian lane must be included Bioswale storm water treatment system along one side of the road.
LANDSCAPING	<ul style="list-style-type: none"> Trees must be selected from a tree palette to be provided as part of the SDP
PEDESTRIAN LANES	<ul style="list-style-type: none"> Pedestrians should always be allowed to move freely The layout of the paving patterns must comply with the design specifications of the SDP.
FURNITURE AND LIGHTING	<ul style="list-style-type: none"> Both the roadways and sidewalks must be well lit. Sidewalks should be lit by dedicated pedestrian scale lights. Street and lot lights must direct light downward in accordance with airport protocols and to avoid light pollution. Both the roadway and sidewalk lights must be well coordinated in terms of their placing and design. Litter bins must be provided as per the SDP.
PUBLIC TRANSPORT LAY-BYS	<ul style="list-style-type: none"> Subject to relevant road authority approval and to align with public transport requirements along collector routes Lay-bys and shelters must be provided at public transport pick-up and drop-off points along the boulevard The shelters must be lit at night and equipped with seating facilities and litter bins.



See Annexure 1 – Landscape Master Plan

MUNICIPALITEIT GEORGE MUNICIPALITY

Approved in terms of Section 65 of the George Municipality Land Use Planning By-law (2023) subject to the conditions contained in the covering letter.

25/04/2025

DATE

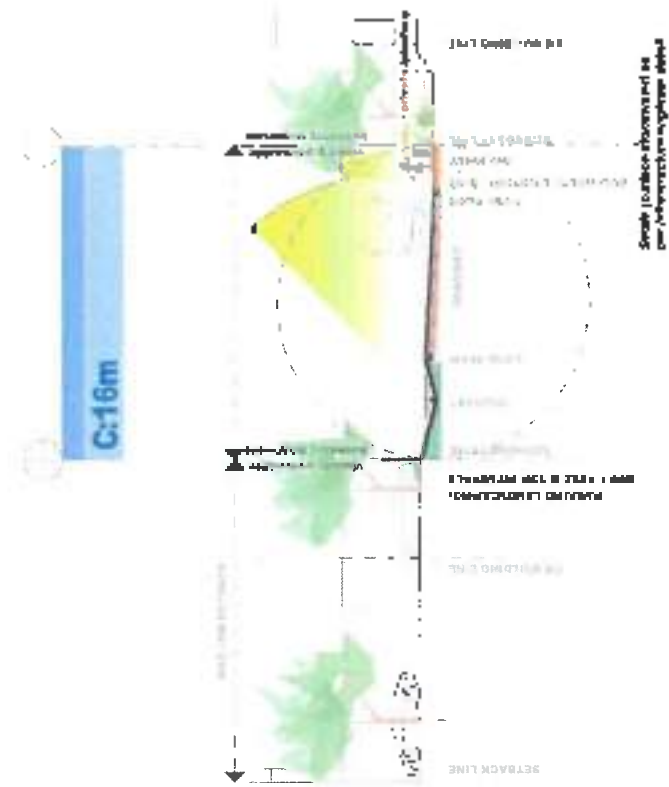
SECTION 65 OF THE LAND-USE PLANNING BY-LAW

SECTION 65 OF THE LAND-USE PLANNING BY-LAW

C:16m

8.3 TYPE C - 16m CUL DE SAC - GULFSTREAM

GUIDELINE ELEMENT	GUIDELINE
FUNCTION	<ul style="list-style-type: none"> The street should give access to individual erven
ROAD RESERVE WIDTH	<ul style="list-style-type: none"> 16m
TRAFFIC MEDIAN	<ul style="list-style-type: none"> No median
TRAFFIC LANES	<ul style="list-style-type: none"> Two traffic lanes, 1 in each direction
ON-STREET PARKING	<ul style="list-style-type: none"> None
SIDEWALK LAYOUT	<ul style="list-style-type: none"> Paved sidewalks must be generous, including the space for the street trees A pedestrian lane must be included Bioswale storm water treatment system along one side of the road.
LANDSCAPING	<ul style="list-style-type: none"> Trees must be selected from a tree palette to be provided as part of the SDP.
PEDESTRIAN LANES	<ul style="list-style-type: none"> Pedestrians should always be allowed to move freely The layout of the paving patterns must comply with the design specifications of the SDP.
FURNITURE AND LIGHTING	<ul style="list-style-type: none"> Both the roadways and sidewalks must be well lit. Sidewalks should be lit by dedicated pedestrian scale lights. Street and lot lights must direct light downward in accordance with airport protocols. Both the roadway and sidewalk lights must be well coordinated in terms of their placing and design. Litter bins must be provided as per SDP.
PUBLIC TRANSPORT LAY- BYS	<ul style="list-style-type: none"> None
BRANDING AND SIGNAGE	<ul style="list-style-type: none"> Branding element to be incorporated on cul-de sac island



See Annexure 1 – Landscape Master Plan

9. SECURITY GUIDELINES

Within the broader estate security plan each site will have to provide for its individual site security. It is promoted that as a rule security installations should be as least visible as possible

9.1 PHYSICAL SECURITY

GUIDELINE ELEMENT	GUIDELINE
ACCESS AND EGRESS CONTROL GATES AND FENCING.	<p>Control of access to the individual sites should be either by remote control access card or like method.</p> <ul style="list-style-type: none"> All gates and fencing to be visually permeable. No solid boundary walls or gates will be acceptable. No prefabricated walling systems, Vitacrete, unplastered blocks barbed wire, corrugated sheet metal walls or wire fences will be allowed.
THE REAR OF THE SITE	The security at the rear of the site will be as for the adjoining boundaries in the form of a visually permeable fence.

9.2 ELECTRONIC SECURITY

GUIDELINE ELEMENT	GUIDELINE
INTELLIGENT SECURITY SYSTEMS	<ul style="list-style-type: none"> Visually unobtrusive security measures for individual sites are promoted, and security systems that are intelligent and can be linked to the overall estate security would be preferred. CCTV systems are becoming a positive aspect of crime prevention and detection. Any such system proposed by individual developers will be supported and facilitated.

The following management guidelines should be incorporated into **Property Owners Association Manual**:

- Reducing the opportunities for crime through well-planted pedestrian routes, appropriately designed informal trading areas, mixed-use and extended hours of use of facilities;
- Limiting the potential danger posed by reducing and managing open spaces and vacant land;
- Providing appropriate down facing lighting that comply with airport protocols, in parks, along streets and pedestrian routes;
- Providing adequate infrastructure and facilities such as roads and telecommunication to improve interaction between communities and the police; and
- Managing the built environment efficiently, for example replacing light bulbs timeously, trimming trees and vegetation when and where required, collecting refuse regularly etc.

MUNICIPALITY OF GEORGE MUNICIPALITY

Approved in terms of Section 60 of the George Municipality Land Use Planning By-Law (2023) subject to the conditions contained in the engineering tender

25/04/2025
DATE
DARUNA

SERVICE MANAGER TOWN PLANNING
SERVICE MANAGER TOWN PLANNING

10. DESIGN REVIEW and APPROVAL PROCESS

Urban Design Guidelines were developed for the ABP POA who can delegate the Approval of any development to the Management Committee who can co-opt or appoint consultants for technical assistance, if needed to form a Design Review Panel (DRP).

The design review process is structured as follows:

1. Introduction to Design Review Panel ("DRP")

- Pre-design briefing and site visit
- Response to any queries regarding the guidelines.
- Conclusion of Design Review Agreement ("DRA") which will be compiled by the POA and includes the following:

- URBAN DESIGN GUIDELINES as per this document
- All the conditions and requirements by the POA that needs to be adhered to over and above the URBAN DESIGN GUIDELINES
- Approval fees per application
- Any operational requirements during construction period
- Any security requirements during the construction period
- Sidewalk and services deposits to be re-imbursed after Final Signoff
- Time frames for development completion and penalties, if required

- Payment of fees to the Property Owner's Association as per the DRA

- The DRP will consist of a Professional Architect and/or relevant professionals (affiliated to respective professional bodies), as required for the development under review. The DRP will also consist of representatives of Property Owner's Association, (ABP POA);

2. Design Review Panel: Consideration of documents prior to submission to George Municipality.

- All documents that are intended for onward submission to George Municipality, (part of "Council Pack") must be submitted to DRP for perusal, comment, and approval prior to submission to Council.
- This includes but is not limited to the SDP, design feasibility, landscape plan, elevations, ground floor and conceptual plans.
- Amendments, if any, should be approved by DRP prior to Council submission.

3. Design Review Panel: Final Review

- Detailed plans including technical drawings to be reviewed and approved by DRP prior to submission to Council.
- DRP to review any amendments required by Council post submission.
- Developer's architect to confirm adherence to the provisions of the specifications noted in the Design Guidelines ("affidavit")
- Proof of final Council approval or successful Section 7(6) application required prior to construction commencing

4. Design Review Panel: Final Signoff

- Physical inspection by DRP prior to application for occupation certificate form or actual site inspection of Council
- Re-imbursement of deposits.



The Design Review Process is mandatory and will be conducted by the AIRPORT BUSINESS PARK, GEORGE Design Review Panel (GADRP), for which a fee will be charged by the GADRP.

The process may vary depending upon the nature, type and extent of the development that is to be undertaken. Specific land use and typology may also influence the process which may include one or more additional meetings. Specific details of each DRP will be shared and clarified at the initial meeting – "Pre-design briefing and site visit", to avoid any uncertainty.



ANNEXURE W:

Final Basic Assessment Report as Submitted

CEN
Integrated Environmental Management Unit
140 Kruger Gardens, Admiralty Way
Summerstrand
Gqeberha
South Africa



Telephone: 082 320 3111 / 072 725 6400

Fax: 0865042549

Email: steenbok@aerosat.co.za / bclark@telkomsa.net

Reg No: 1996/032402/23

21 April 2023

Department of Environmental Affairs and Development Planning
Western Cape Government
4th Floor, York Park Building, 93 York Street, George, 6529

Re: Light Industrial Development and Solar Facility, and services for the George Business Park on Ptn 4 and 139 of Farm Gwayang No. 208 in George

DEADP Reference Number: 16/3/3/6/7/1/D2/19/0133/21

Attention: Mr S Kleinhans
C/C: Mr Francois Naude and Mr D Swanepoel

Dear Sirs

Attached, please find the **FINAL** Basic Assessment Report for the above-mentioned application. The first Draft as sent for a 30 day public review period, starting on 24 November 2022 and ending on 16 January 2023 (i.e. (i.e. excluding the period between 15 December and 5 January). Thereafter, we submitted a letter to your Department indicating that we will be using the 50 day extension period in terms of Regulation 19(1) of the EIA Regulations.

The Draft BAR was updated and included new information. The updated DBAR was therefore sent for a second round of public participation for 30 days, between 16 March and 19 April 2023. The due date for the Final BAR is 21 April 2023.

The WULA for Ptn 139/208 is underway and details on the application are provided in the BAR. The WULA for Ptn 4/208 needs to be amended to incorporate the planned Waste Water Treatment Works on the property, disposal of wastewater to a watercourse, and irrigation with treated effluent. The latter application has also been initiated. The case officer has provided comment on the application and the updated DBAR, and a site inspection was done on 6 April 2023.

Yours sincerely

Belinda Clark

CEN INTEGRATED ENVIRONMENTAL MANAGEMENT UNIT

Environmental and Rural Development Specialist

FINAL Basic Assessment Report

**Light Industrial Development and Solar Facility, and services
for the George Business Park on Ptn 4 and 139 of Farm
Gwayang No. 208 in George**

21 April 2023

Project Title:

FINAL Basic Assessment Report:

Light Industrial Development and Solar Facility, and services for the George Business Park on Ptn 4 and 139 of Farm Gwayang No. 208 in George

Project Applicant: Hark Properties (Pty) Ltd

DEA&DP Reference Number:

16/3/3/1/D2/19/0031/22

Environmental Assessment Practitioner:

CEN Integrated Environmental Management Unit

140 Kruger Gardens, Admiralty Way, Summerstrand, Gqeberha

Phone 072 725 6400 / 082 320 3111 • Fax 086 504 2549

E-mail: steenbok@aerosat.co.za / bclark@telkomsa.net

Date of submission: 21 April 2023

Contents

FINAL Basic Assessment Report	1
Light Industrial Development and Solar Facility, and services for the George Business Park on Ptn 4 and 139 of Farm Gwayang No. 208 in George.....	1
Content Requirements of a Basic Assessment Report, as per Appendix 1 of the EIA Regulations (2014 as amended)	5
FORM NO. BAR10/2019	8
GENERAL PROJECT DESCRIPTION	10
SECTION A: ADMINISTRATIVE DETAILS	40
Section B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INLCUDED IN the APPLICATION FORM	41
SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS	45
Section D: APPLICABLE LISTED ACTIVITIES.....	51
SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY	52
SECTION F: Public Participation.....	56
SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT	78
SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES	83
1. Details of the alternatives identified and considered	83
2. "No-Go" areas.....	87
3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.	88
4. Assessment of each impact and risk identified for each alternative	91
Terrestrial Ecology.....	95
Aquatic Biodiversity	97
Geohydrology	102
Archaeology/Heritage.....	105
Agriculture	105
Visual	106
Traffic.....	108
Socio-Economic	110
Civil Aviation	111
SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES	113
SECTION J: GENERAL.....	116
DECLARATION OF THE SPECIALIST.....	127
DECLARATION OF THE REVIEW SPECIALIST	128
Appendix A1: Locality Map	132
Appendix B1: Site Development Plan	133
Appendix B2: Sensitivity Map.....	139
Appendix C: Photographs	140
Appendix D: Biodiversity Map	141
Appendix E1: Comment from Heritage Western Cape	142
Appendix E2: Cape Nature	143
Appendix E6: WC Department of Transport and Public Works	147
Appendix E15: Comment from the local authority	151
Appendix E20: Proof of agreement/TOR of the specialist studies conducted.....	154
Appendix F: Public Participation Information	155
The Notification Process.....	155
Identifying Stakeholders	155
Notification Methods.....	156
Way Forward	157

Stakeholder Database	158
State Departments and Ward Councillors	158
Neighbours, and the broader public (note that contact details are removed from this public database, and the means of notification is identified by an 'x')	159
Notices	160
Media Notice	160
Site Posters	163
Letter to Stakeholders	165
Notice of Updated Draft Basic Assessment Report – sent to all registered IAPs and State Departments/Organs of State	169
Comments and Response Table	170
Copies of Correspondence Received from Stakeholders	197
DEA&DP	197
BGCMA	208
Western Cape Department of Transport and Public Works	220
Western Cape Department of Health	224
Western Cape Directorate: Pollution and Chemicals Management	228
Cape Nature	231
ACSA	237
PHS Consulting on behalf of the Mercedes Trust	242
George Municipality Civil Engineering Directorate	245
George Aerotropolis (Pty) Ltd – Mr Abu Varachhia	248
Appendix G: Specialist Reports	254
Appendix G1: Agricultural Site Verification and Compliance Statement	254
Appendix G2: Aquatic Biodiversity Impact Assessment	255
Appendix G3: Terrestrial Biodiversity, Plant and Animal Species Site Verification and Compliance Statements	256
Appendix G4: Heritage Assessment	257
Appendix G5: Visual Impact Assessment – Light Industrial Development	258
Appendix G6: Visual Impact Assessment – Solar Facility	259
Appendix G7: Urban Design Guidelines	260
Appendix G8: Socio-Economic Impact Assessment	261
Appendix G9: Traffic Impact Assessment	262
Appendix G10: Services Report and Stormwater Management Plan	263
Appendix G11: Waste Water Treatment Plant Brochure	264
Appendix G12: Electrical Report	265
Appendix G13: Town Planning Report	266
Appendix G14: Civil Aviation Assessment	267
Appendix G15: Geohydrological Investigation	268
Appendix G16: Integrated Water and Waste Management Plan	269
Appendix H: EMPr	270
Appendix I: Screening Tool Report	271
Appendix K: Need and Desirability	272
Appendix L: EAP Curriculum Vitae and EAPASA Registration Certificate	277

Content Requirements of a Basic Assessment Report, as per Appendix 1 of the EIA Regulations (2014 as amended)

Content Requirement (Appendix 1)	Relevant section of this BA Report
3 (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include:	
(a) details of— (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae	Section A and Appendix L
(b) the location of the activity, including (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties	Section B
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken	Section B and Appendix A1
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure	'General Project Description' at the start of the BAR, and Section B – Item 4.4
(e) a description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments	Section D
(f) a description of the policy and legislative context within which the development is proposed including— (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments	Section C and Appendix K
(g) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	Section E and Appendix K
(h) a motivation for the preferred site, activity and technology alternative	Section H
(i) a full description of the process followed to reach the proposed preferred alternative within the site, including— (i) details of all the alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts—	Public Participation – Section F and Appendix F Description of environmental attributes of the site and surrounding area – Section G and Appendix G Impact Assessment – Section H, I and J

<ul style="list-style-type: none"> (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity 	
<ul style="list-style-type: none"> (i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including— <ul style="list-style-type: none"> (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures 	Methodology - Section H3 Impact Assessment – Section H, I and J
<ul style="list-style-type: none"> (j) an assessment of each identified potentially significant impact and risk, including— <ul style="list-style-type: none"> (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated 	Section H, I and J
<ul style="list-style-type: none"> (k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report; 	Section I
<ul style="list-style-type: none"> (l) an environmental impact statement which contains— <ul style="list-style-type: none"> (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives 	Section A and Appendix B2

(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr	Section J Item 2
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	Section J Item 2.2
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed	Section J Item 2.4
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	Section J
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised	Section J Item 2.5
(r) an undertaking under oath or affirmation by the EAP in relation to— (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) 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	Section K
(s) where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts	N/A
(t) any specific information that may be required by the competent authority; and	-
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act	-

BASIC ASSESSMENT REPORT

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

NOVEMBER 2019

(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:	

NOTE: A Draft Basic Assessment Report (DBAR) was submitted to stakeholders and the Department of Environmental Affairs and Development Planning (DEA&DP) on 23 November 2022. Stakeholders were given 30 days to comment on the report, with comments due by 16 January 2023. The Final BAR was due on 24 February 2023. The Environmental Assessment Practitioner (EAP) submitted a letter to the DEA&DP indicating that a 50 day extension of timeframes for submission of the Final BAR (as per Regulation 19(1) of the Environmental Impact Assessment Regulations)) would be used, because significant additional information needed to be added to the BAR. The DBAR was updated to a second version, and sent to all registered Interested and Affected Parties (IAPs) for a further 30 day commenting period, from 16 March to 19 April 2023. The report has now been updated to a Final version, for submission to the DEA&DP for review and decision-making.

Activities planned on Ptn 4 of Farm Gwayang No 208 require an amendment to the existing Water Use Licence issued for the property (02/K30B/CI/10132) under the National Water Act (NWA) to include the planned Waste Water Treatment Works and disposal of treated effluent, as well as irrigation of common spaces using treated effluent (i.e. Section 21 e and g activities). Activities planned on Ptn 139/208 in the regulated area of a watercourse (i.e. for roads and infrastructure crossing drainage lines, infilling of an existing dam, and modification of a drainage line to create an Aquatic Zone) as well as irrigation with treated effluent require authorisation under the NWA (i.e. Section 21 c, e and i activities). A separate application has been submitted to the Breede-Gouritz Catchment Management Agency (BGCMA) (WU22440).

Please note that an integrated process is being done to align the WULA and BA applications, where the two competent authorities are the BGCMA and DEA&DP respectively. Information that is relevant to both applications is provided in this Final BAR. The WULA applications are done online using the E-WULAs system. IAPs are please to review all information and submit comments that is relevant to both applications.

Changes to the updated DBAR are highlighted in red text in this FINAL report. A table outlining new information added to the FINAL BAR is given below (new information that was added to the updated DBAR is also indicated for reference).

Overview of new information added to the FINAL DBAR:

Comments received from IAPs on the Updated DBAR – these have been added to Appendix F (Public Participation Report). Comments were received from:

- DEA&DP
- BGCMA: A site inspection was done with the BGCMA on 6 April as part of the WUL application.
- ACSA
- Cape Nature
- Western Cape Department of Health
- Western Cape Department: Pollution Directorate

The BAR has been updated to address comments submitted by IAPs:

- Further information is provided regarding water provision and meeting demands considering climate change predictions for the area, and the likelihood of drought.
- A water balance table is added.
- Information on dealing with power outages at the WWTW is provided.
- Information is added regarding what will be done with treated effluent and/or sludge in the event that the final product does not meet required standards.
- Clarity is provided on the quality of treated effluent – i.e. that it will not be treated to potable standards, but this will be considered in the future.
- The disposal and/or recycling of waste from the solar facility (at end-of-life) is addressed.
- Clarity is provided that the Property Owners Association does not need to register as a Water Service Provider.

The EMP_r has been updated to include suggested monitoring and mitigation measures, provided by the Western Cape Department of Health and the Pollution Directorate

The IWMP has been updated to include further measures to address ponding from irrigation with treated effluent.

Overview of information that was added to the Updated DBAR:

Aquatic Biodiversity Report:

The report has been updated to reflect the correct Water Use Licence Activities that are being applied for in terms of the National Water Act. The existing WULA for Ptn 4 of Farm Gwayang No 208 needs to be amended to incorporate the planned Waste Water Treatment Works (WWTW) to treat sanitation effluent from the Airport Support Zone (ASZ), and irrigation of common open spaces with treated effluent. A new application is submitted for activities on Ptn 139 of Farm Gwayang No 208, including activities in the regulated area of a watercourse (Section 21 c and i) for infrastructure and road crossings of drainage lines, infilling of an existing dam, and modification of a drainage area in an Aquatic Zone with check dams as part of the greater stormwater management system for the ASZ, as well as irrigation with treated effluent.

An Integrated Water and Waste Management Plan has been added to the specialist reports in Appendix G16. This technical report is required as part of the submission to the Breede-Gouritz Catchment Management Agency (BGCMA) for the WULA processes.

The Project Implementation Plan has been expanded to more clearly outline the Phasing and timelines for the various developments in the ASZ.

Additional information to address or respond to comments submitted by IAPs (including the DEA&DP and other commenting authorities) on the DBAR has also been included – this is highlighted in the Comments and Response Table in Appendix F, and where necessary, information is inserted into the body of this updated DBAR in red text.

Adding comment from the **George Municipality's Civil Engineering Department** on the proposed off-grid services plan

Adding recent **correspondence from the BGCMA** on the WULA processes

Adding comment from the **Western Cape Government Department of Transport and Public Works** with relevance to detailed design planning of the Western Bypass arterial and planning on Ptns 4 and 139 of Farm Gwayang No. 208

Updating the EMP to provide more information on maintenance and monitoring of the WWTW proposed on Ptn 4/208, and to clearly define roles and responsibilities from monitoring and auditing.

GENERAL PROJECT DESCRIPTION

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

This Basic Assessment is for the proposed development of:

1. **A light industrial zone** on a portion of **Ptn 139** of Farm Gwayang No 208 (south of the R102). Light industrial refers to predominantly warehousing and storage facilities, with no planned noxious uses. A land use application is submitted to the George Municipality for Subdivision of the property into a Portion A and Remainder. Portion A will then be rezoned to sub-divisional area with its subsequent subdivision into 6 portions zoned Industrial Zone I (light industry), 1 portion zoned Transport Zone II (public street) and 1 portion zoned Transport Zone III (private road). The disturbance footprint for the light industrial development is ~5 ha, on a 23.5 ha property. The existing store building on the property is to be retained and will be the inspiration for the proposed development. An existing dam on Ptn 139 on the southern side of the R102 will be decommissioned by removing the dam wall, with earthworks across the full site to achieve desired levels for building platforms.
2. The proposed Western Bypass Arterial will take up a portion of the proposed Remainder of 139/208 leaving 3 portions of fragmented land. To address energy needs, a **solar plant** is planned on two of these portions of **Ptn 139** on the northern side of the R102. The solar facility is based on a wheeling agreement for power back onto the grid (i.e. to provide power to others). The development of solar panels and supporting infrastructure (e.g. inverters, distribution board, and step-up transformer, with electrical cables) is planned in 2 phases – Phase 1 will be a 1.05 MW plant

on 1 ha of land, with an annual production of 1.792 GWh. Phase 2 is on the northern side of the R102, and east of the planned Western Bypass. The final phases will produce a total of 9 MW of renewable energy. The disturbance footprint of Phase 1 and 2 is ~8 ha. The current Agricultural zoning provides for 'renewable energy structure' as a consent use and no rezoning is required. The Directorate: Electrotechnical Services (DETS), George Municipality, is in support of the principle of the 1MW plant with the expansion with a further 8 MW to a total of 9 MW to be addressed following load flow and grid impact studies. Initially the 1MW plant will be wheeled to the electricity grid of George Municipality. Over time the wheeled energy will be scaled down to provide in the electricity needs of the Airport Support Zone. Solar panels will also be installed on roofs at the planned light industrial development on Ptn 139/208, but this is subject to a separate application once detailed building designs are available¹.

3. Services infrastructure on much of the development area of the full extent of the ASZ (i.e. including Ptn 4, 130 to 132 and 139) have already been approved in existing Environmental Authorisations (EAs) for the area south of the planned Western Arterial on Ptn 4, and Ptns 130 to 132 (DEA&DP Reference numbers 16/3/3/1/D2/19/0024/19 and 14/3/10/D2/19/0543/21 respectively). This application includes development of services infrastructure not included in these EAs. This includes **internal roads, services and stormwater infrastructure for Ptn 139/208**, and the development of a wastewater and water treatment and storage facility for the **George Airport Support Zone on the Remainder of 4/208** to the east of the planned Western Bypass Arterial². Treated effluent from the WWTW will be used for irrigation of common areas, flushing of toilets, and washing in the ASZ, and any remaining excess effluent will be discharged to the Aquatic Zone.
4. The drainage area on the east of Ptn 139 will be modified into an Aquatic Zone and will include 'check dams' that will form part of the stormwater management system for the full ASZ area.



Figure 1: Google Earth area identifying the development areas relevant to this application.

¹ The George LM Electrical Department is aware of the proposed solar panels on the roofs of the buildings in future, and this has been taken into account in terms of the overall demand calculations.

² The eastern part of Ptn 4/208 was not included in the Environmental Authorisation issued for the development of a light industrial development on the property (DEA&DP Reference: 16/3/3/1/D2/19/0024/19).

Further Details on Stormwater Management Systems and Services for the Airport Support Zone

The 3 landowners within the ASZ are co-ordinating development planning within the ASZ. To develop the properties; roads, stormwater systems, electricity, water and sanitation infrastructure are required. Services for the ASZ are inter-related, and the intention is to plan for and develop services for the full ASZ as an integrated infrastructure development project (i.e. 'ASZ services'.) The EAs issued for Ptn 4 (south-west of the Western Bypass) and Ptns 130 to 132 included the most recent Services Plan for the ASZ and no amendments to the EAs are required to develop infrastructure on these properties. Service Level Agreements will be entered into between the landowners/developers and the George Local Municipality (GLM). Services for the solar plant on the northern side of Ptn 139 are dealt with separately, as this is not part of the ASZ.

A Services and Stormwater Management Plan Report has been done for the ASZ by Infrastructure Consulting Engineers cc. The Plan responds to the National Climate Change Response White Paper in that it proposes an alternate system of stormwater management, sustainable use of water resources and secondary use of treated wastewater. An electrical report has been done by Clinkscapes Maughan-Brown (South) (Pty) Ltd. These are attached as Appendix G.

The George Local Municipality's long term bulk master planning makes provision for the bulk supply to the ASZ. However, current capacity constraints on both the water treatment and WWTW systems have been identified. Furthermore, implementation of the required bulk infrastructure will delay the implementation the ASZ. The owners of the land within the ASZ therefore propose to develop an off-grid industrial town. The Plan aims to limit the impact of the ASZ, during the developmental and operational phases, on the environment and on climate change. A property owner's association (POA) will be established to manage the maintenance and operations of the engineering infrastructure. The POA will have a Constitution that will guide the management of infrastructure as well as the relationship of the POA with the George Local Municipality (GLM). Please refer to a letter from the George Municipality Civil Engineering Department in this regard, where the services proposal is supported and confirmation is provided that a Service Level Agreement is being drawn up between the various parties.

The planned Western Arterial bisects Ptn 4 and Ptn 139, and the WWTW is situated on the NE side of Ptn 4. Service infrastructure will need to traverse the Arterial to connect the development area with the services area. The Western Cape Department of Transport and Public Works has issued a letter confirming they have no objection from an environmental perspective to the issuing of an EA, provided that the conditions towards the planning applications are adhered to. They further confirmed that services can cross the Arterial, but parallel services will not be entertained. If construction of the Arterial takes place at a later stage, this will not impact on the operations of the WWTW – ICE Engineers have indicated that the services will be coordinated and routed via one reinforced concrete pipe culvert. This culvert will be located at a depth below the pavement layers of the proposed Western Bypass and will stretch from road reserve boundary to road reserve boundary. The services will therefore not be affected by the roadworks, should they take place at a later stage. When the Western Bypass is constructed the services crossing the future road will need to be catered for as per all other service crossings. The designs for the services will be provided to WCG for comment before going ahead with construction.

The image below is a snapshot of the overall layout of the proposed ASZ (note the sections referred to as Portion 60 are on Ptns 130, 131 and 132). As above, the EA for Ptn 4 (on the section of the property that is SW of the Western Arterial) and Ptn 130 to 132 include the most recent ASZ services plan. Therefore services on these portions are not included in this application, but are described for reference, where relevant. The planned WWTW on Ptn 4 (north-east of the Western Arterial) is however part of this application.

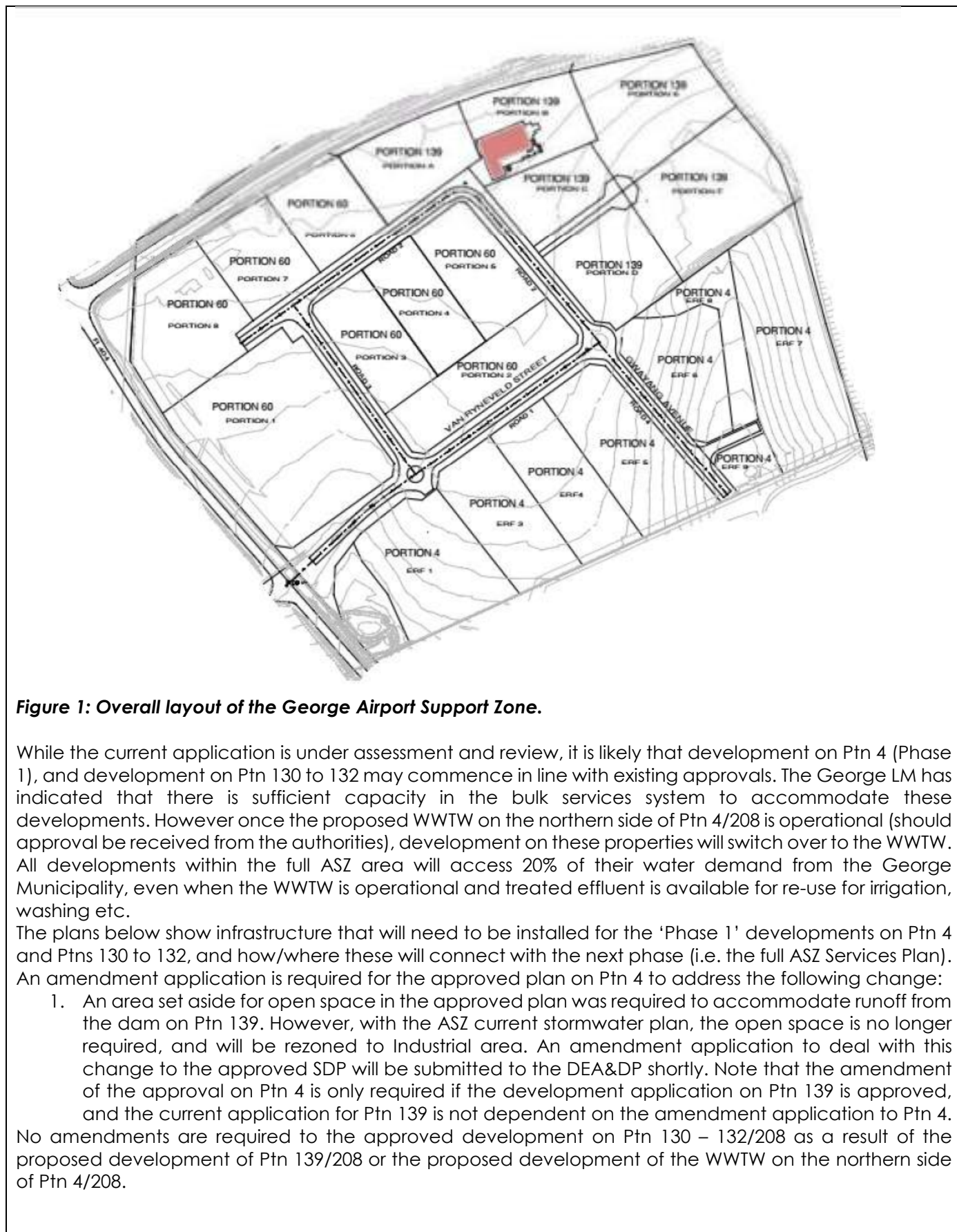




Figure 2: Services (water) required for Phase 1 of the development on Ptn 4, and for development on Ptns 130 to 132 (solid blue lines), connecting to the municipal bulk supply. The dotted blue lines are water lines needed for the next phase of development (ASZ plan).



Figure 3: Services (sewer) required for Phase 1 of the development on Ptn 4, and for development on Ptns 130 to 132 (solid red lines), connecting to the municipal bulk supply. The dotted red lines are water lines needed for the next phase of development (ASZ plan).



Figure 4: Stormwater infrastructure and grass swales required for Phase 1 of the development on Ptn 4, and for development on Ptns 130 to 132 (black lines. The red lines are stormwater infrastructure and grass swales needed for the next phase of development (ASZ plan).

Details on the ASZ Services Plan as extracted from the ICE and Clinkscales Maughan-Brown reports are given below. The full reports are included in Appendix G:

Water

The George Local Municipality (GLM) bulk water infrastructure runs along the R102 and 404. Internal water infrastructure within the ASZ will remain the property of the POA. A bulk connection will be established between the GLM's bulk supply system and the internal water infrastructure network. The total average annual daily water demand (AADD) for the ASZ is calculated at 538 m³ (at 400 litre per 100 m² per day), with a peak day factor of 1.6 (using a conservative approach to estimating demand – see below). The development requires a fire flow of 50l/s. Because of the fire risk of the type of building, and because the GLM cannot guarantee this fire flow under all circumstances, all buildings in the ASZ will have independent water storage for the purpose of fire flow.

The three water sources for the ASZ are:

- Municipal supply;
- Rainwater harvesting;
- Secondary use of treated wastewater

An analysis of the rainfall data at George Airport shows that 41% of the water demand of the ASZ can be met through water harvesting in an average rainfall year. Twenty-nine percent can be met if the rainfall of 2019 is assumed (the lowest annual rainfall the past 40 years this conservative figure has been used to estimate available yields to meet the development's water demand). Based on this, it is proposed that 30% of the water demand of the ASZ be sourced from rainwater harvesting, which requires adequate water storage. Analysis shows that 7 000 m³ water storage capacity should be available to supply at least 30% of the water demand throughout the year.

It is estimated that between 65 and 85% of all water consumed (the AADD of the ASZ) will be for flushing of toilets and urinals, gardening and washing of surfaces. All these uses can be supplied by treated and disinfected wastewater. A small ratio of the 400 litre per day will be used for cooking, drinking and hand

washing. The services report proposes the development of a wastewater treatment works for the ASZ on the remainder of Portion 4 on the eastern side of the future Western Bypass. Treated and disinfected wastewater from the treatment plant will be available for secondary use.

In summary, water for the ASZ will be supplied as follows:

- Rainwater harvesting from roofs, and drainage to a centralised storage facility on Portion 4 on the eastern side of the proposed Western Bypass. **Note that additional storage is proposed to store runoff from roofs during higher rainfall periods, and mitigate the projected drought risks for the area**
- Harvested water is stored, treated and disinfected for re-use
- Wastewater is drained through a gravity system to a low point on Portion 9 of Ptn4/208. From there it is pumped to the Remainder of Portion 4/208 on the eastern side of the proposed Western Bypass. At that position the water is treated and disinfected for secondary use. Excess treated wastewater is used for irrigation of common areas or discharged into the natural drainage channel. The quality of the treated wastewater must comply with general limits in accordance with the Water Act. *A Water Use Authorisation application has been submitted to the DWS/BGCMA in parallel with the BA application for irrigation with treated effluent and activities in the regulated area of a watercourse on Ptn 139, and to amend the existing WUL on Ptn 4 for irrigation with treated effluent, disposal of water containing waste, and discharge of treated effluent to a watercourse.*

A maximum of 20% of the water consumption will be allowed from the municipal bulk supply. The remaining 80% (minimum) will be a combination of treated wastewater and harvested rainwater. Harvested water will make up at least 29% of the total consumption. All three distribution systems (i.e. municipal, harvested water, and treated and disinfected wastewater) will be managed by the POA. The rainwater collection, storage, treatment and redistribution of harvested water will be managed by the POA. Likewise, the drainage, treatment and re-distribution of wastewater will be managed by the POA.

The water distribution network is shown in Figure 5.

Water Supply and Climate Change Risks:

The CSIR's Green Book predicts a significant risk in the increase in drought tendencies for George by 2050. To address the concern of climate change and how it may impact on water availability (with reference to rainwater harvesting and the reliance of the development on this water source), the section below outlines the conservative approach that has been used to calculate the development's water demand: Required water volumes for the development were calculated using a conservative approach:

- The calculation of the yield of 30% of the demand from water harvesting is based on the lowest annual rainfall over the past 40 years – i.e. **426 mm recorded in 2019**. Therefore during 97.5% of the years the yield of water harvesting will be more than the allowed 30% of demand.
- A conservative approach was used in calculating the water demand - The actual water demand for warehousing will be significantly less than the allowed 440 litres per 100 m² that was used for the calculation of water demand:
 - The figure of 440 litres per 100 m² of building area is proposed for all light industrial uses. The specific light industrial type of building that will predominantly be developed at the ASZ is warehousing. Calculating the water demand for warehousing specifically, using the National Building Regulations, results in a much lower demand. The Building Regulations proposes an occupancy of 2 persons per 100 m². Water demand is estimated at approximately 55 litres per person per day within a warehousing context. This is primarily for the flushing of toilets and urinals. A limited demand is expected for drinking, body washing, cooking and washing of dishes. Applying the guidance of the Building Regulations therefore proposes merely 110 litres per 100 m². Allowance should further be made for washing of surfaces as well as water losses and irrigation of gardens. Allowing a further 100 litres per 100 m² of building area for other uses and losses results in a total demand of 210 litres per 100 m². This further allowance for surface washing and irrigation will be limited during any prolonged drought.
- At least 80 % of the demand as calculated by the application of the Building Regulations will be used for flushing of toilets and urinals, gardening and washing of surfaces. This portion of the demand can be satisfied using treated wastewater. Therefore the Industrial Park will be able to

operate using only municipal water allocation and treated wastewater in the case of the 'worst case scenario' over the past 40 years. The wastewater treatment process results in losses of approximately 20%, leaving the remaining 80% for re-circulation under extreme drought conditions

In addition to the predictions of increased drought conditions in the George area, the CSIR's Green Book projects an increase in the annual rainfall of 100 mm by 2050. This is a significant increase above the current average annual rainfall of approximately 600 mm. As above, a conservative approach was used to estimate how much water could be available for the development from rainwater harvesting. The prediction in the Green Book of an increase of 100 mm in the annual average rainfall to 700 mm per annum, indicates that more water can be harvested in future. This is however not required since there is an acceptable water balance when using the driest period figures. However, the predicted increased droughts and increased rainfall volumes points to the need for increased storage capacity to make sure that enough water is stored during periods of higher rainfall to supply the water demand in drier periods (in addition to other mitigation measures that have been incorporated in the water supply scheme of the development). ICE Engineers have considered the predicted drought risks, and have responded by including additional storage capacity in the development plans.

The predicted drought risk emphasise the importance of the concept of 'circularity' where wastewater is treated in a nature-based solution, and circulated for re-use to meet water demands. The proposed water harvesting and re-use system for the Industrial Park has been designed to meet these requirements. Other mitigation measures that are recommended for water security include clearing alien vegetation in the drainage areas and planting only indigenous plant species in the development area.

Water Balance Calculations

The table below summarises the supply and demand as recorded in the Services Report by ICE and accepted by the George LM (GLM). The demand is based on the GLM Guidelines. Twenty percent of this demand is available in the GLM's bulk supply system – 107.62 m³ per day seven days per week.

Demand and supply as per Services Report by ICE in m³ (based on GLM Guidelines)	
Daily water demand based on George Guidelines (7 days per week) as per Services Report by ICE	538.11
Supply from GLM as per Services Report by ICE and agreed by GLM - 20%	107.62
Supply from Treated Wastewater as per Services Report by ICE - 50%	269.06
Supply from Water Harvesting as per Services Report by ICE - 30%	161.43
Total supply	538.11

The following tables summarise the demand and supply based on the Building Regulations for warehousing.

Demand and supply based on National Building Regulations in m³ per day	
Demand based on occupancy of 2 persons per 100 m ²	130.58
Additional demand for surface washing and irrigation, etc.	118.71
Total	249.29

Potable quality demand - 20%	49.86
Non-potable quality demand - 80%	199.43
Total	249.29

Supply from GLM - potable only	49.86
Supply from Treated Wastewater - non potable disinfected	99.71
Supply from Water Harvesting - non potable disinfected	99.71
Total supply	249.29

The 'oversupply' recorded in the Services Report by ICE is calculated as indicated in the table below. This potential over supply can be utilised to mitigate supply restrictions from the GLM as well as supply limitations of water harvesting in case of extreme drought.

'Excess' allowed for in Services Report in m³ per day (based on the 'conservative' approach in demand calculations)	
<hr/>	
Supply from GLM	57.76
Supply from Treated Wastewater - non potable disinfected	169.34
Supply from Water Harvesting - non potable disinfected	61.72
Total 'excess' supply that would be available in times of drought	288.82

A note on the 'ecological reserve requirements' of the Gwayang River, with relevance to rainwater harvesting and re-use of water in the ASZ (Belcher pers comm., 2023):

'Proposed water resource classes - Target Ecological Categories (TECs) - and resource quality objectives (RQOs) have been gazetted for the Breede Gouritz WMA (Government Gazette No 42053, dated 23 November 2018). The TEC for the downstream Gwaing River (in quaternary K30B) is an E Category (seriously modified) as it drains the George area with significant flow and water quality modification. No RQOs have been set for the river.

The proposed water consumption on the site, particularly given the proposal is to treat all of the sewage generated by the industrial node and the re-use of the final treated wastewater, as well as capture runoff from the properties so that only 20% of the development's water needs will need to be obtained from the George Municipality's supply network, would have negligible impact on flow in the Gwaing River.

The Reserve does not only speak to water quantity but also quality. Considering that the wastewater will be treated to a quality (at least General Limit) that can be reused and will only be discharged to a minor tributary of the Gwaing River when there is surplus that cannot be used (e.g. during high rainfall periods when irrigation cannot be done), and there would be significant dilution of the discharged water, the potential impact would be insignificant and would not impact on the present ecological condition of the river or its TEC'.

A note on registering as a Water Service Provider

The case officer from the BGCMA who is handling the WULA application for Ptn 4 and 139 was consulted to determine if the POA needs to register as a Water Services Provider. Mr Ndlovu responded via email confirming the following: 'Please note that it is not necessary for the Property Owners Association (POA) to register as a Water Services Provider since the George Municipality is the designated WSP authority in the

area. The POA can enter into a Service Level Agreement/Memorandum Of Agreement contract as a Water Services Intermediary with the Municipality **IF** the POA is planning to abstract water from any water resource which the DWS/BGCMA will issue a Water Use Licence for it. If the POA will be getting water from the municipality it is also not necessary to apply to be a WSP while you are receiving water from the municipality. The WULA doesn't deal with Water Service Provider applications'.

Sanitation

The capacity of the Gwayang Wastewater Treatment Plant is currently not capable of treating all the projected wastewater from the ASZ. The implementation of the upgrades required to service the ASZ is expected to take several years, which will delay the development of the ASZ.

The peak day dry weather sewage flow for the ASZ is estimated as 431 m³ (i.e. 80% of the AADD of 538 m³). A conservative peak factor of 4 is allowed in the design of local pipes, which are sized to cope with the instantaneous flow when running 70% full. The remaining 30% of the pipe cross section is allowed for stormwater ingress. For ease of maintenance all pipes are sized at 160 mm diameter.

Eight litre per second capacity is available in the existing rising main that leads from the Airport Pump Station 1. The peak hourly flow from the western part of the ASZ, that is proposed to temporarily drain to the Airport Pump Station 1, is less than 8 litre per second. Officials from GLM indicated that the western part of the ASZ (i.e. Phase 1 of the development on Ptn 4/208, and the full development area on Ptns 130 to 132) may drain temporarily towards PS1 until the proposed wastewater treatment works on Ptn 4/208 is established.

A WWTW to treat sanitation effluent from the ASZ is planned on the eastern side of the proposed Western Bypass on Ptn 4/208. The capacity of the system will be 430 m³ per day, of which ~63% will be used for water supply to the ASZ (as described above), including irrigation. Irrigation will be done in all common areas across the ASZ (for example landscaped areas in road reserves which cover an area of 11 382 m² and can accommodate 113 m³ of irrigated treated effluent a day at an irrigation volume of 10 mm). Any surplus treated effluent that remains after re-use in the ASZ will be discharged via the Aquatic Zone to the drainage line.

The intention is to treat effluent and use it for irrigation, washing of surfaces, and flushing of toilets. Effluent will be treated to a standard that is suitable for these purposes, in line with the requirements of the WULA. The engineers are investigating the feasibility of advancing the treatment process to generate effluent that is of potable standards. However, this is not part of the current proposal or application. The George LM is aware of the intention, and it is reflected in the Service Level Agreement.

Stormwater Management

The design philosophy of the Stormwater Management Plan for the ASZ is built on the National Climate Change Response White Paper which proposes 'Implementing best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, investment in water conservation and water demand management'. Furthermore, the Plan considers the freshwater aquatic studies done as part of the EIA processes for developments on the various land parcels within the ASZ. The study done on Ptns 130, 131 and 132 found no aquatic areas within the properties, and noted that the development will not impact on the Strategic Water Source Area (SWSA). It was recommended that the development is designed to comply with industry best practice standards related to storm water management. Watercourses identified on Ptn 139 are described as 'to be in a seriously to critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams'. The study recommended a 20 m wide drainage area be incorporated in the SDP, which can be managed as part of the stormwater system.

The ASZ is situated in the crest of the local drainage system. A small area to the north of the R102 drains towards the ASZ. The drainage system of the approved (but not yet constructed) Western Bypass will impact on the drainage of the area. Rainwater runoff from the area to the north of the R102, drains into the side drain on the northern side of the R102. The R102 has side drains on either side of the paved area of the road. The road reaches a crest at a position approximately 150 m from (to the east) the R102/ R404 intersection. To the west of that point, runoff drains towards the west, and crosses the R404 via a culvert. To the east of the crest, runoff drains to the east and eventually crosses from north to south via a culvert underneath the R102. To the south of the culvert outlet, runoff drains along a natural drainage line to an

existing small dam on the southern boundary of Portion 4/208. This aquatic zone is part of the open space system, incorporating the stormwater management system, in the SDP for Ptn 4/208.

The catchment of the ASZ is subdivided into two areas. The eastern area drains along the drainage line from the culvert passing underneath the R102 southwards. This area also receives runoff from the Western Bypass. This catchment area measures approximately 14 ha. The western part of the catchment area drains toward the existing dam situated directly to the east of R404 on Portion 1 of Portion 4. This area measures approximately 10 ha.

Increased urbanisation leads to:

- A change in the runoff characteristics of the catchment area. In the case of the ASZ the ratio of runoff increases from pre-development of approximately 53 % to post development of approximately 75%
- A reduction in the hydrological response time due to quicker runoff of the catchment area. This results in the reduction in the critical storm duration which in return increases the design storm intensity.

The increased peak flows result in flooding of downstream areas with potential damage to property and risk of loss of life in extreme cases. The stability and biodiversity of the receiving water bodies are also at risk. The impacts of urbanisation must therefore be mitigated by means of a sustainable stormwater design and plan.

Detention dams are typically used to slow water and reduce turbidity in runoff. Bioswales can be used to reduce turbidity at source (i.e. where water falls on the surface), and can be used along road sides and pavements.

The following measures are proposed in the stormwater management system for the ASZ:

- Accumulate runoff through bio swales. These swales can be incorporated in parking and circulation areas;
- Runoff along on-site swales to drain into a debris trap before discharging into the communal system, thereby treating pollutants at the source;
- Bio swales to be positioned adjacent to roads in the form of shallow V- drains;
- Runoff drains via bio swales to detention dams at the low ends of the ASZ;
- At road crossings bio swales are channelled into culverts to pass underneath the road surface
- Outlet structures from culverts to be treated to dissipate energy, where necessary, in order to protect the downstream swale
- Vehicle access to stands is the responsibility of property owners. This can be effected through culverts or low water crossings to be approved by POA.
- Detention dams to be utilized to limit runoff onto adjacent properties to pre-development levels.
- Swales to be vegetated with appropriate indigenous plants to promote trapping of contaminants.
- Flow velocities to be retained at levels that will prevent turbidity in runoff.
- Subsurface soil drainage system to be installed below grass swales where swales are located along roads. The objective of this drainage is to protect the road pavement from water.
- Aquatic zones along the eastern edge of the ASZ to be protected and redeveloped. Protection will be through the use of check dams to limit flow velocity to levels that can be sustained by vegetation.
- Natural vegetation to be introduced in aquatic zones. The objective of this is also to integrate aquatic zones into the industrial space for recreational uses of workers.
- Check dams to be used as detention structures to mitigate the impact of the industrial development on runoff intensity.
- Aquatic zones and bio-swales to lead to existing detention dams along the southern boundary of Portion 4.
- Outlet structures of existing detention dams to be upgraded to cope with 1 in 100 year flood conditions.
- The complete stormwater system, including detention ponds, to be managed by the POA.

Using these principles, a stormwater management layout has been planned for the ASZ using a combination of the various mitigation measures to address increased flow, reduced infiltration, and water quality. See Figure 7.

It is proposed to decommission the existing dam on Ptn 139. ICE Engineers considered what the removal of the dam would mean for attenuating flow from the development area, and the potential impact on

downstream areas (specifically on Ptn 4/208 as well as the mine on Ptn 129/208). Urban development impacts on the runoff characteristics of stormwater. It increases the rate of runoff as well as the volume of runoff. The proposed stormwater management plan for the development of the cumulative ASZ area aims to limit the peak runoff rate from the proposed development to the pre-development discharge rate. This is attained through check dams along the drainage line (Aquatic Zone) running from north to south through the properties. A further measure is that the existing dam at the southern boundary of Portion 4 will be used as a retention dam. It will require minor changes to the outlet structure of the existing dam. The volume of water in the drainage area downstream of the dam on Ptn 4/208 that had to be designed for in the stormwater management plan is unaffected by the presence of the dam on Ptn 139/208. The dam has little attenuation capacity, and the catchment area is small, with experience showing that it is very unlikely to be full (ICE Engineers). The Aquatic Zone and drainage line run to the west of the mining operation, and it is unlikely to be impacted by any changes in the ASZ.

Access and Roads

Access to the ASZ will be in accordance with GANEP road master plan. The main access road into the ASZ is Van Ryneveld Street. This road and the southern part of Gwayang Avenue form part of the GANEP road master plan. The developers of the ASZ with regards to the implementation of the GANEP road master plan are responsible for implementing this portion, while the remainder is the responsibility of ACSA, the Quarry and Portions 34 and 110. However, the developers of the ASZ will fund the development of a single lane roundabout at the main access intersection to the Airport and the ASZ from the R404 to allow this to go ahead.

Access to the proposed developments on Ptn 139/208 on the northern side of the R102 (i.e. the planned solar facilities Phase 1 and 2) will initially be obtained from the R102 (current farm accesses). Access to the proposed wastewater treatment works on Remainder 4/208 on the eastern side of planned Western Bypass (TR89) will initially be obtained from the internal road system on Ptn 4/208. A servitude will be registered over Erf 7 of Portion 4/208. Expropriation of the road reserve for the TR89 George Western Bypass will 'split' the area of Ptn 139/208 north of the R102 into 2 sections, and Ptn 4/208 into an eastern and western section. Therefore servitude roads will need to be established to provide access to these portions, once the expropriation goes ahead. The need for access management and spacing limitations to these sections dictate that servitudes to obtain access at appropriate spacing be provided with. The proposed Phase 1 solar facility will obtain access from the R404 at existing farm accesses 600 m north of the R102. The proposed Phase 2 solar facility and the planned WWTW on the eastern side of Ptn 4/208 will obtain access from the R102 to the east of the proposed eastern ramp of the TR89 interchange at a point to be determined by the Provincial Roads Department. The design and expropriation of the service roads are the responsibility of the Provincial Road Department that has to implement them before construction of the TR89. The Traffic Impact Statement done by Louis Roodt provides proposed access servitudes for these portions (see Figure 9).

Electricity

Each of the development applications in the ASZ have their own electrical report that describes electrical services and how they will connect with the municipal network. The Clinkscapes Maughan-Brown report is a combined report of the electrical services for all developments in the ASZ, to guide the drawing up of an agreement between the GLM and the POA. Based on available information, the total peak kVA demand of the ASZ is 2547 kVA. The additional capacity required is estimated at 2497kVA. As for sewer and water, the GLM have indicated capacity is available for the first phases of development of the ASZ, but capacity will have to be transferred to the site by link services.

Energy to the ASZ will be supplied by a new 11kV switching station to be established as near as possible to the intersection of the R102 and the R404. This switching station will be linked to the Municipality's existing Heatherpark 66/11kV substation via the existing and proposed "Mulberry" 11kV overhead lines on a ring supply. In future this supply will be connected to the Proefplaas Substation after the necessary 66/11kV transformer bay has been established, in line with the Gwayang Local Spatial Development Framework (2015).

Electrical requirements for the light industrial development on Ptn 139 are described below:

The peak electrical demand of the light industrial development on Ptn 139 is calculated as 716 kVA. The following measures will be used to reduce consumption, which will reduce demand by ~20%:

Comply with SANS 10400.

- Energy efficient light fittings, air conditioning, mechanical ventilation, refrigeration and water heating installations, electric motors, etc.
- Use of LPG gas instead of electrical appliances for cooking where economically feasible.
- Use of energy efficient appliances.
- Building and plant load management systems to reduce power consumption in the case of the industrial erven.
- Installation of Photo Voltaic (PV) and other Small Scale Embedded Generators (SSEG), where it can be economically justified.

Based on the existing zoning of the property, is assumed that the existing capacity is 10kVA. The projected demand is 716 kVA, therefore the additional capacity required is ~706 kVA, which will need to be supplied to the site via new link services

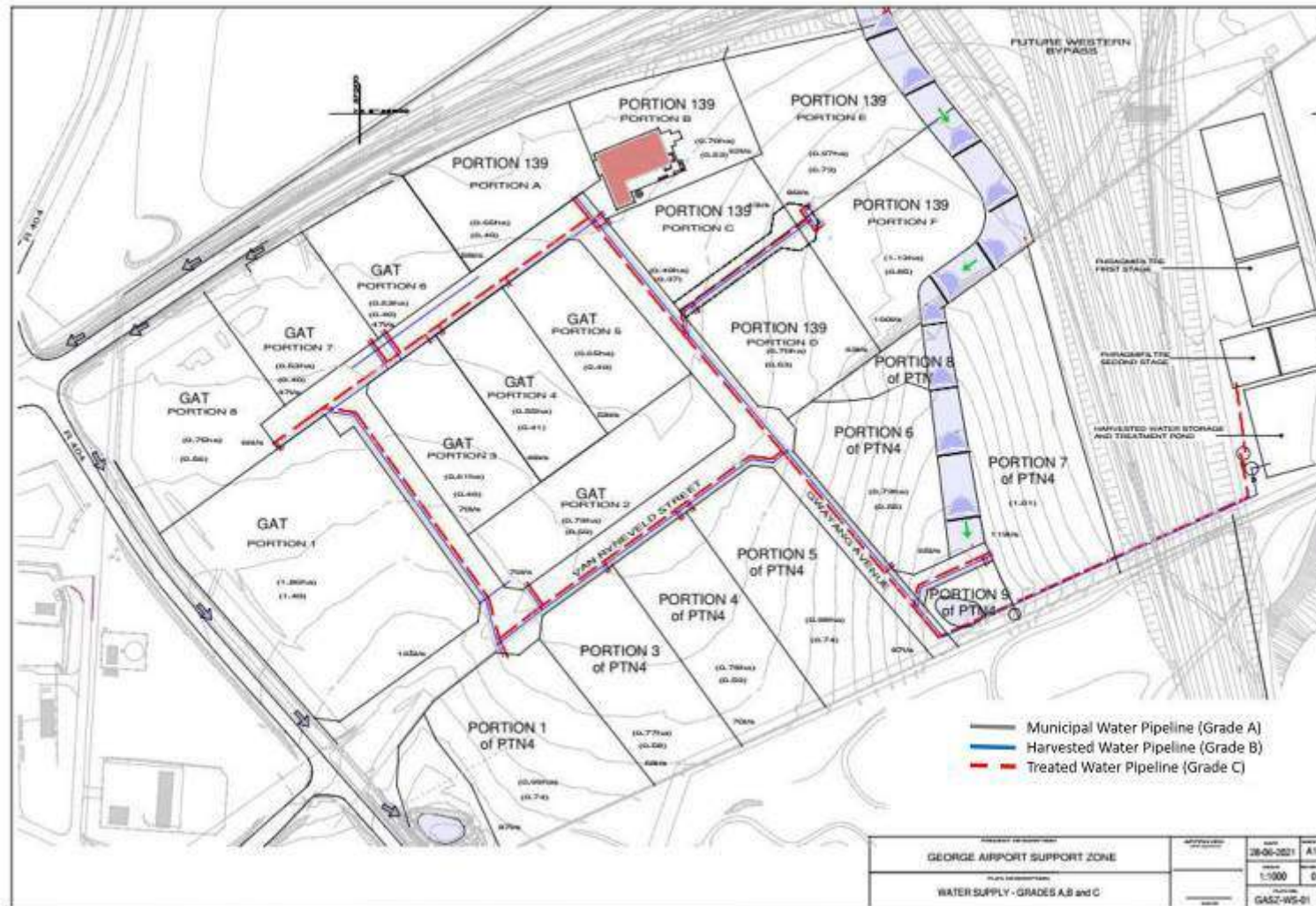


Figure 5: Water Supply Plan for the ASZ (ICE, 2022).

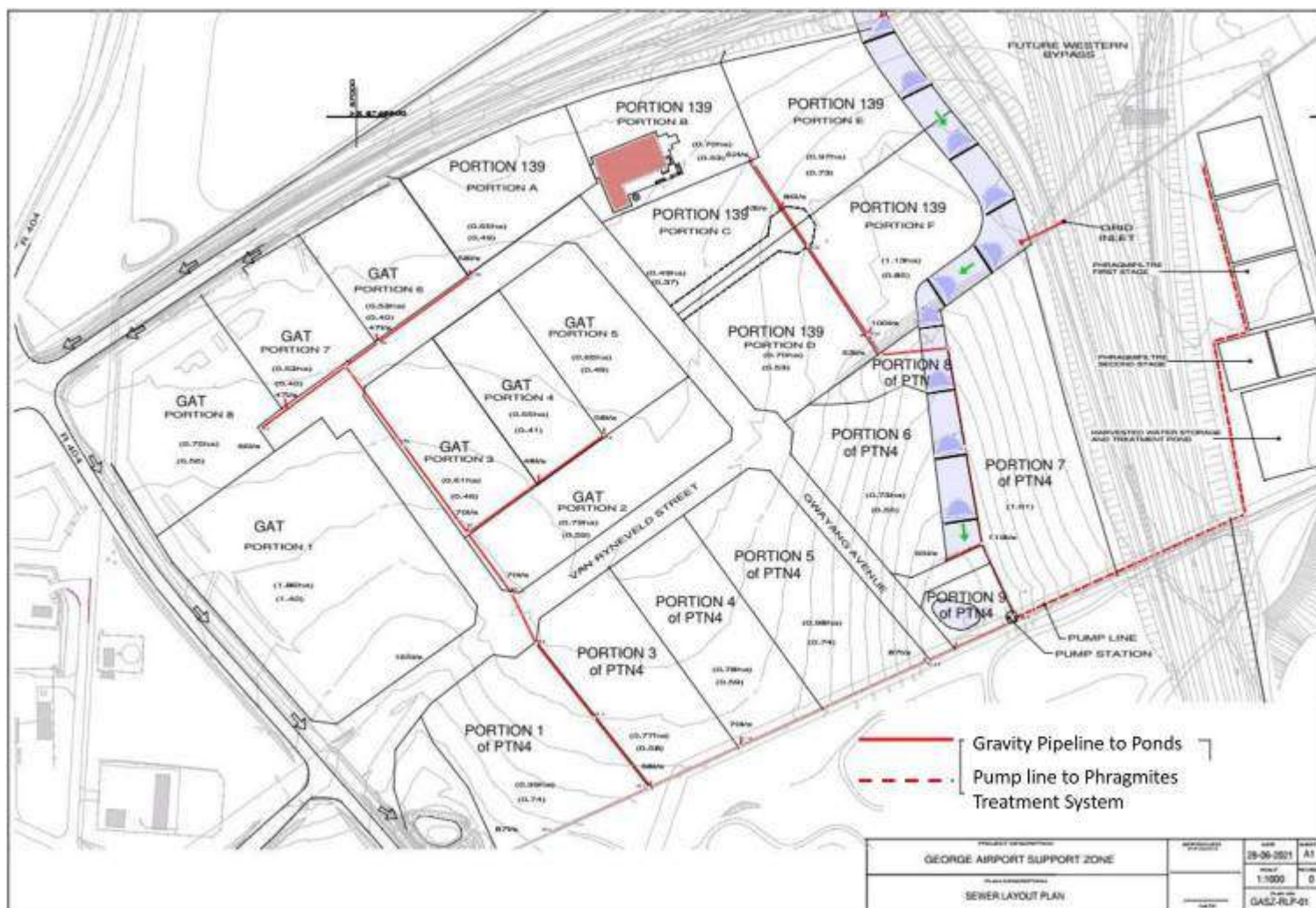


Figure 6: Sewer Layout Plan for the ASZ (ICE, 2022).

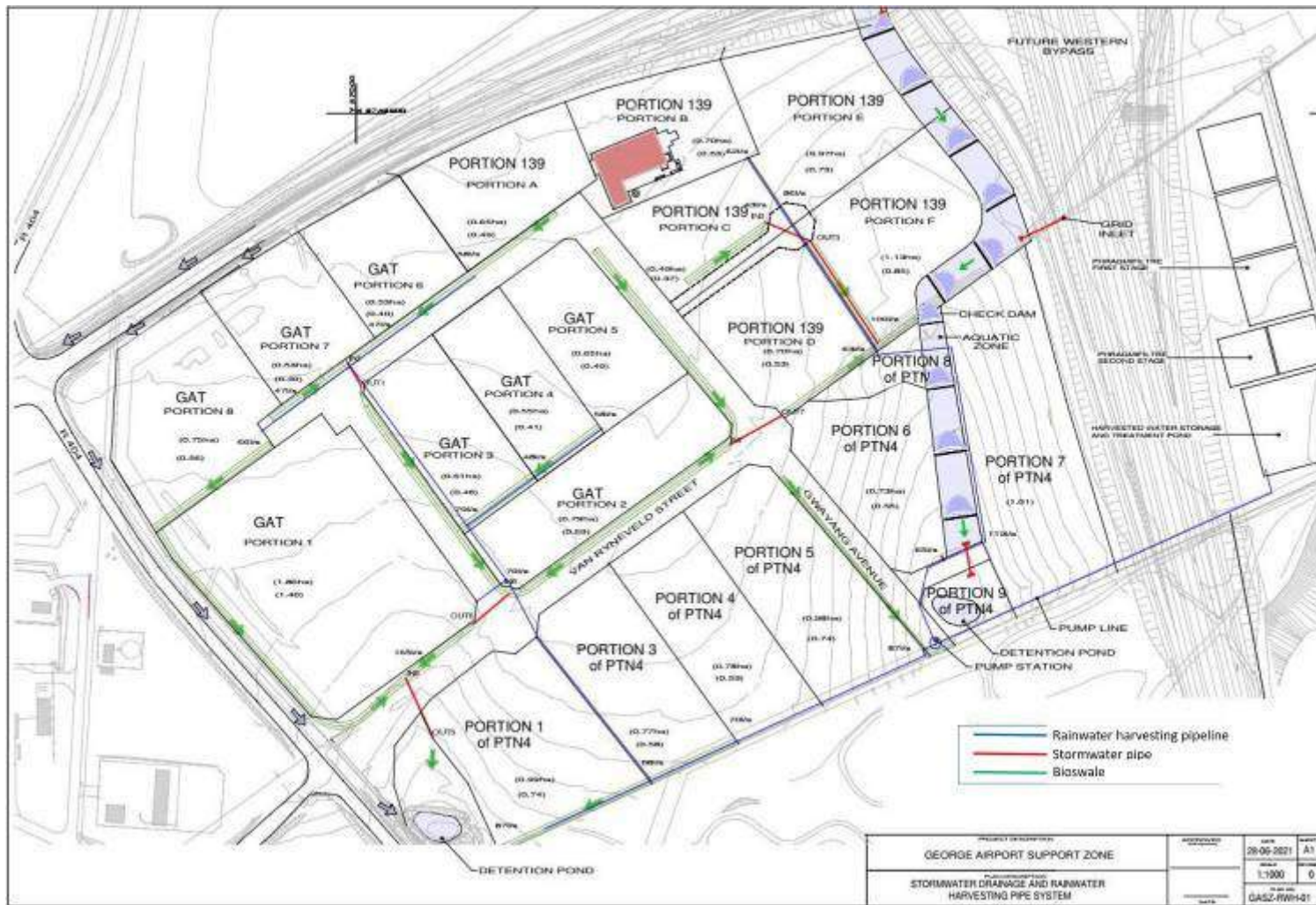


Figure 7: Stormwater Drainage and Rainwater Harvesting Pipe System for the ASZ (ICE, 2022).

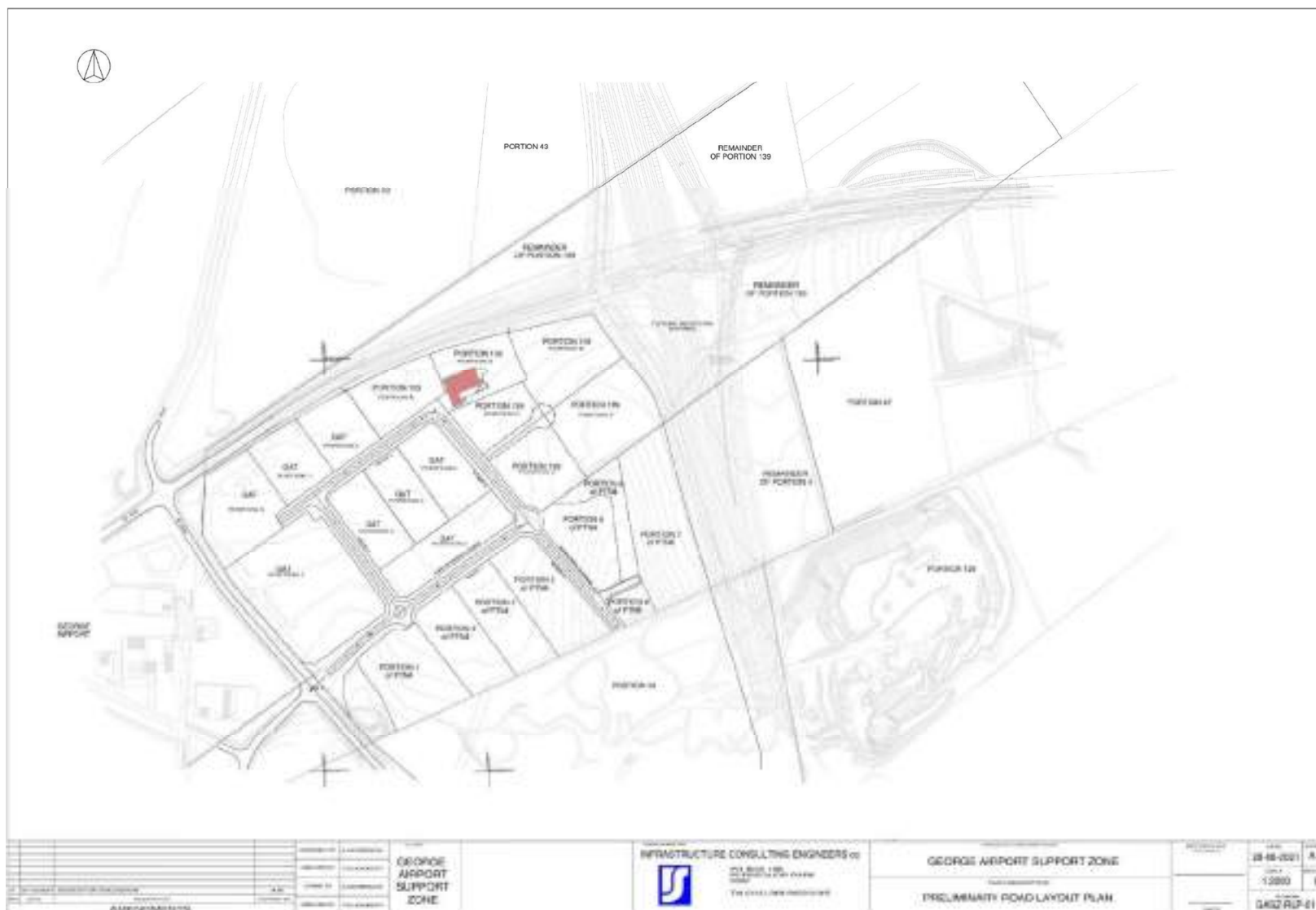


Figure 8: Preliminary Road Layout for the ASZ (ICE, 2022).

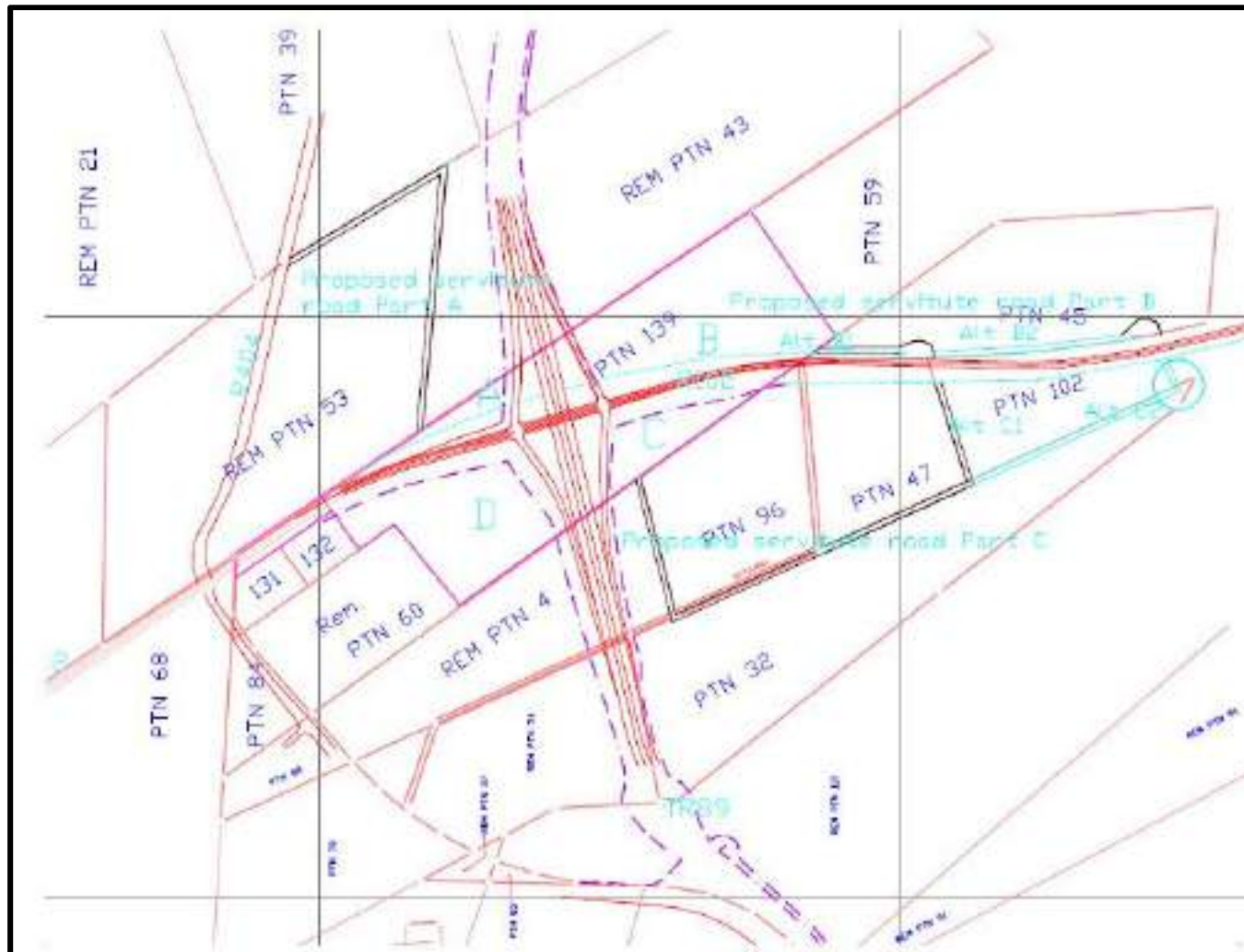


Figure 9: Proposed servitudes to subsections A (Phase 1 solar facility on Ptn 139/208), B (Phase 2 solar facility on Ptn 139/208), C (agricultural) and Remainder of Portion 4 (proposed waste water treatment plant) (lines only) (Roodt, 2022).



Figure 10: MV and LV Reticulation, Street Lighting, and Sleeve Layout Masterplan (Clinkscales Maughan-Brown).

Development Phasing within the ASZ

An overview of the development phasing of the various portions with the ASZ is given below. The landowners of the various properties in the ASZ discussed provision of services by the municipality for the complete ASZ with the George LM. There are not adequate services available at this stage for the complete ASZ. Twenty percent of the ASZ can however be serviced with the existing bulk services. Services can be made available for the remaining 80% of the ASZ in the future, but this will be expensive and will take time to implement. The owners of the different land parcels therefore agreed to develop Phase 1 (see image below) of the ASZ so long, that will be serviced by the existing bulk infrastructure.

The available daily volume (i.e. 20%) that will be used for Phase 1 is 107.62 m³. The table below shows the allocation of municipal water for each of the stands that make up Phase 1.

LAND UNIT	WATER AADD in m³ - reduced for warehousing and actual demand
Portion 3 of GAT	20.19
Portion 6 of GAT	15.00
Portion 7 of GAT	15.00
Portion 8 of GAT	30.49
Portion 4 Erf 1	12.00
PORTION B of 139	14.00
Total for phase 1	106.68

The owners and the officials from George LM furthermore agreed that the preferred option is that the Property Owners Association (POA) of the ASZ develop their own services infrastructure for sanitation (100%) and water (80%). As above, sanitation for 'Phase 1' of the ASZ will initially be serviced by the existing bulk services. The POA will then develop a waste water treatment system (proposed on the northern side of Ptn 4/208) to cope with the full demand of the ASZ. Before any further phases can be developed, the complete ASZ, including Phase 1, must be serviceable by the proposed wastewater treatment plant on Ptn 4. **In terms of the ASZ's Constitution, the owners agreed that no further development will take place within the ASZ before the schemes for water treatment and water harvesting have been completed.** The ASZ will remain reliant on the municipal infrastructure for 20 % of water supply.

Once the mentioned schemes for harvesting and treatment have been implemented, the allocation of municipal water for the land portions in the table above will reduce to 20% of the demand in terms of the Services Report by ICE. This will then release potable water for use by the other land units that make up the extent of the ASZ.

Harvested water and treated wastewater will be used to cope with the remaining 80% of the demand. Each stand will have three water connections - municipal, treated wastewater and harvested water.

The development planned on Ptn 139 will gain access from the R404 at the existing Airport access intersection over the road infrastructure on Ptns 130 to 132/208. The Approved Municipal Roads Masterplan for the precinct provides for the proposed Concorde Way along Ptn 130 and Ptn 4 to the border of Ptn 139. The proposed Spitfire Crescent then provides access over Ptn 130 and 129/208 to the light industrial properties planned on Ptn 139/208. These roads are all incorporated in the Environmental Authorisation (EA) issued by the DEA&DP to George Aerotropolis (Pty) Ltd (Reference 14/3/10/D2/19/0543/21) on 27 June 2022. Mr Abu Varachhia of George Aerotropolis has issued correspondence that the approved road network on their properties may be used to access Ptn 139/208 (refer to correspondence in Appendix F).

The image below shows the ASZ area with the various land parcels. Phasing for development of **roads and services** is illustrated in different colour shades (i.e. yellow, green and blue). Phasing for the development of **stands** is numbered in the image in red text. The table below the image identifies what approvals are required per phase. Stage 1 has all the required approvals in place to commence with development, and the services can be supplied by the George Local Municipality. Stages 2 to 4 are dependent on the approval of the current application for the WWTW on the north-eastern part of Ptn 4.

Detail on the Phasing is as follows:

PHASE 1 (approvals are in place – commencement will be soon):

- a. Develop the roads and services as highlighted in yellow on the layout (Phase 1)
- b. Develop the stands on Portions 4 and 130,131,132 as indicated as stage 1 and in red text “1” on the layout:
 - Portion of Ptn 4/208
 - Portions 3, 6, 7 & 8 of GASZ (Ptns 130,131,132/208)
- c. Connect the existing building on Portion 139/205 to the roads and services provided (Portion B of PTN 139 – marked with a “4” in the image).

These utilise Municipal services infrastructure, subject to the 20% of full demand on the whole development limit.

PHASE 2 (to commence within a year of the DEADP issuing a decision on this application)

- a. Develop the WWTW and services infrastructure on the east of Portion 4/208.
- b. Develop the roads and services as highlighted in green in the image (Phase 2)
- c. Develop the stands on Portions 4 and 130,131,132 as indicated as Stage 2 and in red text “2” in the image:
 - Portions 3,4 and 5 of Ptn4/208
 - Portions 1, 2, 4 & 5 of GASZ (Ptns 130,131,132/208)

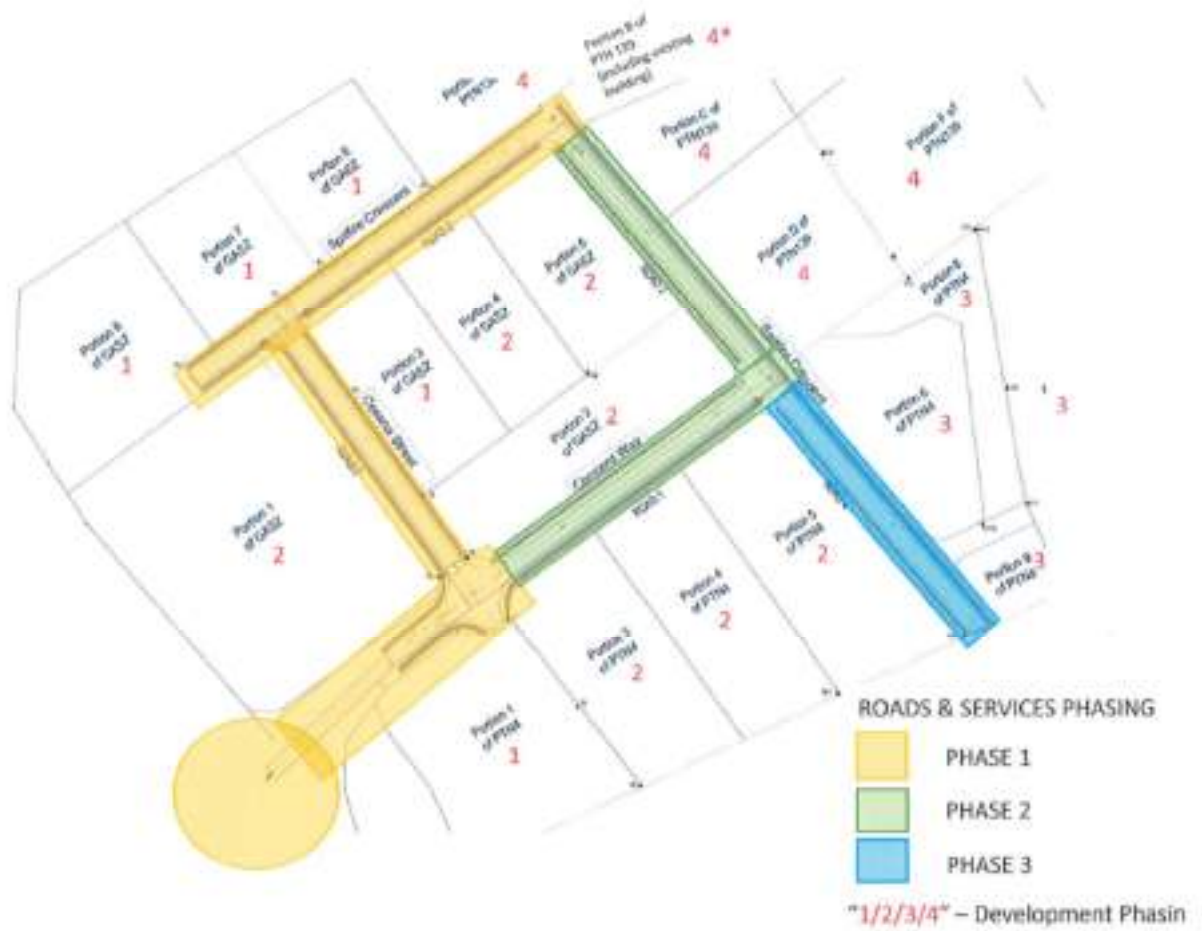
The wastewater connection to the Municipal line will be disconnected once the WWTW facility on the eastern part of Portion 4/208 is operational.

PHASE 3 (to commence within 10 years of the approval received for Portion 4/208):

- a. Develop the roads and services as highlighted in blue in the image (Phase 3)
- b. Develop the stands on Portion 4 as indicated as Stage 3 and in red text “3” in the image:
 - Portions 6 & 7 (8&9) of Ptn 4/208

PHASE 4 (to commence within 10 years of approval of this application, and after Phase 2 services infrastructure are installed; but independently of Phase 3 above):

- a. Develop the rest of stand “Portion B of Ptn 139/208”.
- b. Develop the stands on Ptn 139/208 as indicated as Stage 4 and in red text “4” in the image, in terms of the internal phasing layout that may be approved by the Municipality:
 - Portions A, C, D, E & F of Ptn 139/208



Stage	Stands	Zoning approval	Env Approval	Roads	Sewer	Water	Electrical
1	Ptn 4 – 1 Ptn 130/131/132 – 3,6,7,8 Ptn 139 – existing building: access, electrical, water and sewer	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132	Yellow	20% demand connect to Airport Pump Station, with equivalent DC in trust.	20% bulk connection	Refer plan – Phase 1
2	Ptn 4 – 3, 4, 5 Ptn 130/131/132 – 1,2,4,5	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green	Disconnect from Airport pump station and connect to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Refer plan – Phases 1 & 2
3	Ptn 4 – 6, 7	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green & Blue	Connection only to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Phase 1 and 2 complete
4	Ptn 139 – A, B, C, D, E, F	Ptn 4 Ptn 130/131/132 Ptn 139	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green	Connection only to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Phase 1 and 2 complete

NOTE: Stage 4 may have a phased approach within this development.

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. 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.
4. All applicable sections of this BAR must be completed.
5. 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.
6. This BAR is current as of **November 2019**. 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/eadp> to check for the latest version of this BAR.
7. 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.
8. 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.
9. 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.
10. 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.
11. 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.
12. 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.

13. 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.
14. 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: REGION 1 and REGION 2 (Region 1: City of Cape Town, West Coast District) (Region 2: Cape Winelands District & Overberg District)	GEORGE OFFICE: REGION 3 (Central Karoo District & Garden Route District)
<p>BAR must be sent to the following details:</p> <p>Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1 or 2) Private Bag X 9086 Cape Town, 8000</p> <p>Registry Office 1st Floor Utilitas Building 1 Dorp Street, Cape Town</p> <p>Queries should be directed to the Directorate: Development Management (Region 1 and 2) at: Tel: (021) 483-5829 Fax (021) 483-4372</p>	<p>BAR must be sent to the following details:</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> <p>Registry Office 4th Floor, York Park Building 93 York Street George</p> <p>Queries should be directed to the Directorate: Development Management (Region 3) at: Tel: (044) 805-8600 Fax (044) 805 8650</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.</p> <p>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.</p> <p>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	<p>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.</p>
Biodiversity Overlay Map:	<p>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.</p>

Linear activities or development and multiple properties	<p>GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system.</p> <p>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.</p> <p>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.</p>
--	--

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 N/A
	Appendix A3:	Map with the GPS co-ordinates for linear activities	X
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	✓
	Appendix E3:	Final Comment from the DWS	✓
	Appendix E4:	Comment from the DEA: Oceans and Coast	X N/A
	Appendix E5:	Comment from the DAFF	X N/A
	Appendix E6:	Comment from WCG: Transport and Public Works	✓
	Appendix E7:	Comment from WCG: DoA	X Comments were not provided on the DBAR. Further requests for comment <i>were</i> submitted with the

			updated DBAR. No comments have been received
	Appendix E8:	Comment from WCG: DHS	X Comments were not provided on the DBAR. Further requests for comment were submitted with this updated DBAR
	Appendix E9:	Comment from WCG: DoH	✓
	Appendix E10:	Comment from DEA&DP: Pollution Management	✓
	Appendix E11:	Comment from DEA&DP: Waste Management	X Comments were not provided on the DBAR. Further requests for comment were submitted with this updated DBAR
	Appendix E12:	Comment from DEA&DP: Biodiversity	X Comments were not provided on the DBAR. Further requests for comment were submitted with this updated DBAR. Comments have been received from Cape Nature
	Appendix E13:	Comment from DEA&DP: Air Quality	X Comments were not provided on the DBAR. Further requests for comment were submitted with this updated DBAR
	Appendix E14:	Comment from DEA&DP: Coastal Management	X
	Appendix E15:	Comment from the local authority	✓ Comment was provided by the Civil Engineering Department at the GLM
	Appendix E16:	Confirmation of all services (water, electricity, sewage, solid waste management)	X Refer to letter form the GLM Civil Engineering Department
	Appendix E17:	Comment from the District Municipality	X
	Appendix E18:	Copy of an exemption notice	X N/A
	Appendix E19	Pre-approval for the reclamation of land	X N/A

	Appendix E20:	Proof of agreement/TOR of the specialist studies conducted.	✓
	Appendix E21:	Proof of land use rights	<i>X an application has been submitted by Marlize de Bruyn Planning for rezoning and subdivision of Ptn 139 for the light industrial development and the eastern part of Ptn 4 to accommodate the WWTW.</i>
	Appendix E22:	Proof of public participation agreement for linear activities	X N/A
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		N/A
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		✓
Appendix.....	Any other attachments must be included as subsequent appendices		✓

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	CAPE TOWN OFFICE:		GEORGE OFFICE: ✓
	REGION 1 (City of Cape Town, West Coast District)	REGION 2 (Cape Winelands District & Overberg District)	REGION 3 (Central Karoo District & Garden Route District)
Duplicate this section where there is more than one Proponent	Hark Properties (Pty) Ltd		
Name of Applicant/Proponent:	Mr Jacques Douglas Wheeler		
Name of contact person for Applicant/Proponent (if other):	Hark Properties (Pty) Ltd		
Company/ Trading name/State Department/Organ of State:	2011/134040/07		
Company Registration Number:	PO Box 12654		
Postal address:	Garden Route Mall	Postal code: 6546	
Telephone:	() /	Cell: 078 190 3982	
E-mail:	jw@synnpro.com	Fax: () /	
Company of EAP:	CEN Integrated Environmental Management Unit		
EAP name:	Belinda Clark		
Postal address:	43 Rhodes Street, Mount Pleasant, Gqeberha		
Telephone:	(041) 3674748	Postal code: 6070	
E-mail:	bclark@telkomsa.net / steenbok@aerosat.co.za	Cell: 0727256400 / 0823203111	
Qualifications:	PhD Botany		
EAPASA registration no:	Registered Environmental Assessment Practitioner: Number 2019/1336		
Duplicate this section where there is more than one landowner	Ptn 139 of Farm Gwayang No 208 - Hark Properties (Pty) Ltd		
Name of landowner:	Mr Jacques Douglas Wheeler		
Name of contact person for landowner (if other):	PO Box 12654		
Postal address:	Garden Route Mall	Postal code: 6546	
Telephone:	() /	Cell: 078 190 3982	
E-mail:	jw@synnpro.com	Fax: () /	
Name of Person in control of the land:	Mr Jacques Douglas Wheeler		
Name of contact person for person in control of the land:	Mr Jacques Douglas Wheeler		
Postal address:	PO Box 12654		
Telephone:	Garden Route Mall	Postal code: 6546	
E-mail:	() /	Cell: 078 190 3982	
	jw@synnpro.com	Fax: () /	
Duplicate this section where there is more than one landowner	Ptn 4 of Farm Gwayang No 208 – SANWILL INVESTMENTS PTY LTD		
Name of landowner:	Mr De Bruyn Joubert		
Name of contact person for landowner (if other):	PO Box 186, Persquor Park, Pretoria		
Postal address:		Postal code: 0020	
Telephone:	/	Cell: 079 874 2048	
E-mail:	debruyn@iceisp.co.za	Fax: () /	
Name of Person in control of the land:	Mr De Bruyn Joubert		
Name of contact person for person in control of the land:	Mr De Bruyn Joubert		
Postal address:	As above		

Telephone:		
E-mail:		

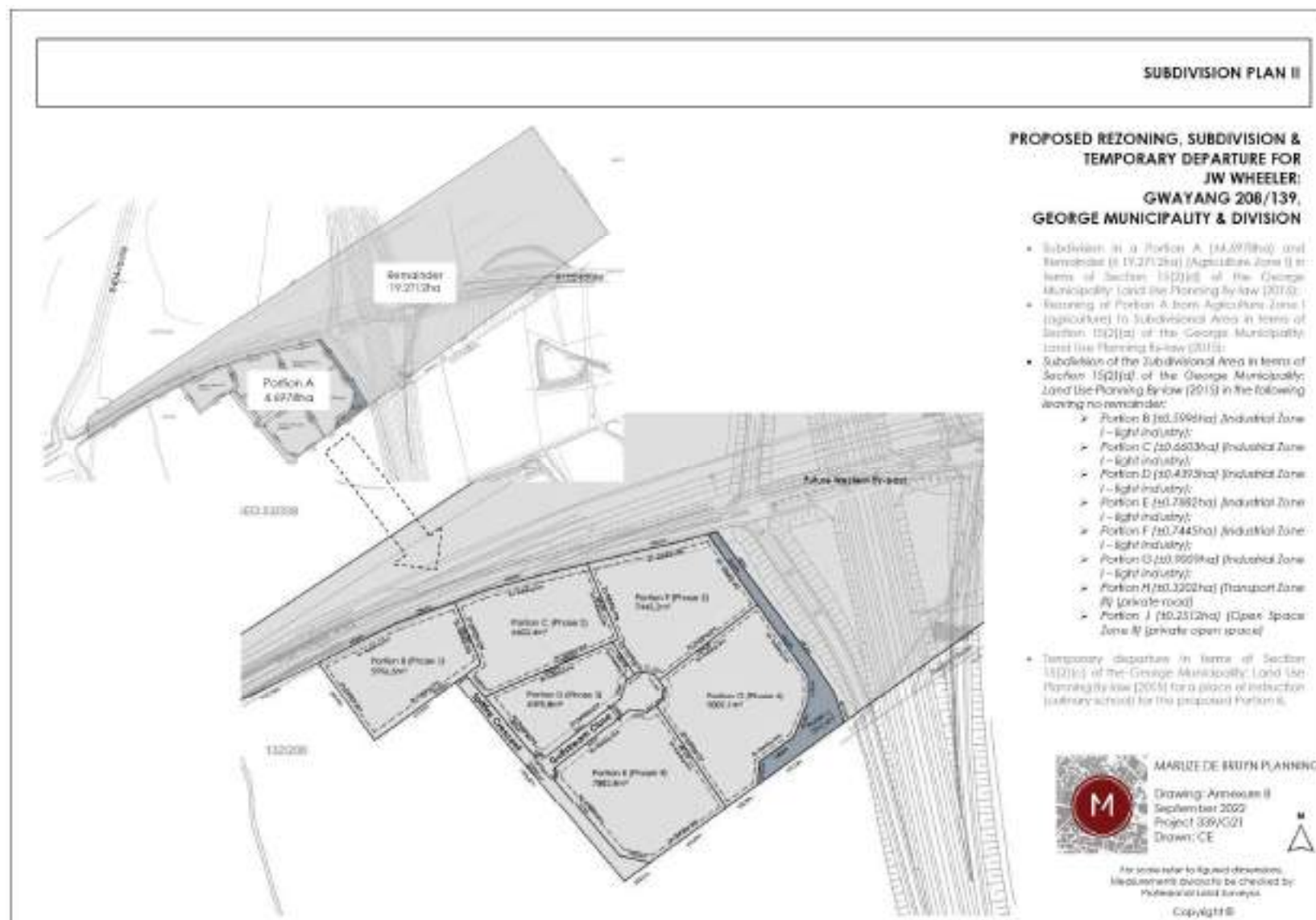
Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall: Contact person: Postal address: Telephone: E-mail:	George Municipality	
	Clinton Pietersen	
	PO Box 19	
	George	Postal code: 6530
	(044) 801-9375	Cell: /
	clinton@george.org.za	Fax: 086 529 9933

Section B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INCLUDED IN the APPLICATION FORM

1.	Is the proposed development (please tick):	New	<input checked="" type="checkbox"/>	Expansion																		
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.																					
Greenfield – Ptn 139 is currently agricultural land, with existing agricultural structures (dwelling & store). The area where services are planned for the ASZ is also currently on undeveloped land and/or in road reserves. The WWTW planned on Ptn 4 is on agricultural land. Approval for a light industrial development, including a filling station, has been obtained for Ptn 4 (but this has not yet been developed). The properties are within the George Airport Support Zone, referenced in the Gwayng Local Spatial Development Framework.																						
3.	For Linear activities or developments																					
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:																					
Ptn 4 and 139 of Farm Gwayang No. 208 – sewer, water and stormwater infrastructure within the development area.																						
3.2.	Development footprint of the proposed development for all alternatives.				~9000m ²																	
Estimated footprint of additional infrastructure and roads on Ptn 4 and 139 required for the George Airport Support Zone (i.e. that is not already included in the approved plans for Ptn 4 and Ptns 130 to 132) <i>Estimated disturbance width to install infrastructure is 5 m:</i> <ul style="list-style-type: none"> Rainwater harvesting pipe (max internal diameter: 450 mm); length: ~360 m; disturbance footprint: 1800 m² Water lines (max internal diameter: 160 mm); throughput: 20 l/s; length: 250 m; disturbance footprint: 1250 m² Sewer (max internal diameter 160 mm); throughput max: 20 l/s; length: 750 m; disturbance footprint: 3750 m² Bioswales: length: ~70 m; disturbance footprint: ~350 m² Internal roads Ptn 139: 1827 m²; 7 m wide 																						
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.																					
As per 3.2 Please note that details of infrastructure and internal roads on Ptn 139 and the eastern part of Ptn 4 are provided; however they do not trigger listed activities pertaining to the development of infrastructure because the diameter/length is below the relevant thresholds in Listing Notices 1 to 3 of the EIA Regulations. Infrastructure is however planned across watercourses, which triggers activities relevant to disturbance to a watercourse																						
3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.																					
Infrastructure is planned within a development zone, and will be accessed via a new road branching off the approved access to the ASZ off the R404 (i.e. as per the approved George Roads Master Plan), and planned internal roads within the planned development node.																						
3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives	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	0	4
Infrastructure is planned within the ASZ development area. A general starting point on the NW side of the ASZ, middle point in the centre of the ASZ, and end point near the eastern end of Ptn 4 is provided for reference																						
3.6.	Starting point co-ordinates for all alternatives																					
	Latitude (S)		33°					59'					48.04 "									
	Longitude (E)		22°					22'					53.30 "									
Middle point co-ordinates for all alternatives																						
	Latitude (S)		33°					59'					49.17 "									

	Longitude (E)	22°	23'	'8.54 "
	End point co-ordinates for all alternatives			
	Latitude (S)	33°	59'	49.84 "
	Longitude (E)	22°	23'	21.40 "
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):			235000 m ²
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):			N/A m ²
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:			<ul style="list-style-type: none"> • Light industrial development area on Ptn 139: 5 ha • Solar development area on Ptn 139: ~8 ha • WWTW and harvested water storage and treatment pond footprint on Ptn 4: less than 1 ha • Aquatic zone with check dams: 1 ha <p>Collective: ~15 ha</p>
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).			
1.	A light industrial zone on a portion of Ptn 139 of Farm Gwayang No 208 (south of the R102). Light industrial refers to predominantly warehousing and storage facilities, with no planned noxious uses. A land use application is submitted to the George Municipality for Subdivision of the property into a Portion A and Remainder. Portion A will then be rezoned to sub-divisional area with its subsequent subdivision into 6 portions zoned Industrial Zone I (light industry), 1 portion zoned Transport Zone II (public street) and 1 portion zoned Transport Zone III (private road). The disturbance footprint for the light industrial development is ~5 ha, on a 23.5 ha property. The existing store building on the property is to be retained and will be the inspiration for the proposed development. An existing dam on Ptn 139 on the southern side of the R102 will be decommissioned by removing the dam wall, with earthworks across the full site to achieve desired levels for building platforms. A copy of the Subdivision Plan (Marlize de Bruyn Planning, 2022) is inserted below.			
2.	The proposed Western Bypass Arterial will take up a portion of the proposed Remainder of 139/208 leaving 3 portions of fragmented land. To address energy needs, a solar plant is planned on two of these portions of Ptn 139 on the northern side of the R102. The development of solar panels and supporting infrastructure (e.g. inverters, distribution board, and step-up transformer, with electrical cables) is planned in 2 phases – Phase 1 will be a 1.05 MW plant on 1 ha of land, with an annual production of 1.792 GWh. Phase 2 is on the northern side of the R102, and east of the planned Western Bypass. The final phases will produce a total of 9 MW of renewable energy. The disturbance footprint of Phase 1 and 2 is ~8 ha. The current Agricultural zoning provides for 'renewable energy structure' as a consent use and no rezoning is required. The Directorate: Electrotechnical Services (DETS), George Municipality, is in support of the principle of the 1MW plant with the expansion with a further 8 MW to a total of 9 MW to be addressed following load flow and grid impact studies. Initially the 1MW plant will be wheeled to the electricity grid of George Municipality. Over time the wheeled energy will be scaled down to provide in the electricity needs of the Airport Support Zone.			
3.	Services infrastructure on much of the development area of the full extent of the ASZ (i.e. including Ptn 4, 130 to 132 and 139) have already been approved in existing Environmental Authorisations (EAs) for the area south of the planned Western Arterial on Ptn 4, and Ptns 130 to 132 (DEA&DP Reference numbers 16/3/3/1/D2/19/0024/19 and 14/3/10/D2/19/0543/21 respectively). This application includes development of services infrastructure not included in these EAs. This includes internal roads, services and stormwater infrastructure for Ptn 139/208, and the development of a wastewater and water treatment and storage facility for the George Airport Support Zone on the Remainder of 4/208 to the east of the planned Western Bypass Arterial. The proposed technology is a Phragmifilte system, using constructed wetlands. The target is to re-use 63% of treated effluent for water demands of the ASZ (e.g. flushing of toilets and washing of surfaces), with the remainder being used for irrigation or discharge to the drainage line. Treated effluent will be pumped to the top side of the Aquatic Zone for discharge. Effluent will be treated to meet General Limits. The capacity of the WWTW is 450 m3 per day. Details on services for the George Airport Support Zone, including the WWTW and re-use of treated effluent as part of the water supply system, are provided in the Services Report in Appendix G. The drainage area on the east of Ptn 139 will be			

modified into an Aquatic Zone and will include 'check dams' that will form part of the stormwater management system for the full ASZ area.				
4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.			
Access to the development will be obtained via the Municipal Service Access Road off the R404				
4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:	C02700000000020800139		
		C02700000000020800004		
4.7.	Coordinates of the proposed site(s) for all alternatives: Ptn 139			
	Latitude (S)	33°	59'	43.80"
	Longitude (E)	22°	23'	8.22"
4.7.	Coordinates of the proposed site(s) for all alternatives: WWTW on Ptn 4			
	Latitude (S)	33°	59'	47.53"
	Longitude (E)	22°	23'	21.48"



Subdivision Plan for Ptn 139 of Farm Gwayang No 208 (Marlize de Bruyn Planning, 2022).

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
---	-----	----

The DEA&DP approved an application to conduct public participation on the Draft Basic Assessment Report over the period between 15 December 2022 and 5 January 2023.

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.		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	
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	
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.		NO
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")		NO
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").		NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").		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	

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.	
Legislation and Approval Required	Competent Authority
Municipal Approval for Planning Applications for subdivision and rezoning – George Municipality Land Use Planning By Law (2015) and the Spatial Planning and Land Use Management Act (2013)	George Municipality
Approval in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970)	Department of Agriculture
Approval from the Municipality for service infrastructure connections.	George Municipality
Approval from Provincial Roads Department for wayleave to traverse roads	Department of Transport and Public Works (Provincial Roads Department)

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.
<p>The National Development Plan (2030)</p> <p>The National Development Plan is a broad strategic framework that aims to eliminate poverty and reduce inequality by 2030 based on a holistic approach that focuses on 6 priorities:</p> <ul style="list-style-type: none"> • Building Safer Communities • Environmental Sustainability • Faster and inclusive economic rural and urban economic growth • Economic infrastructure • Promoting Health • Transforming human settlements and urban space economy <p>The Plan has 15 Chapters that outline the objectives and actions necessary to achieve the overall vision for South Africa by 2030 – the following are relevant to the proposed development:</p> <p>Chapter 3: The following economic development policies are proposed:</p> <ul style="list-style-type: none"> • Promote Private Investment: Private Investment is linked with improved condition as a result of policy certainty, infrastructure delivery, and efficiency of public services which will improve quality of labour in surrounding areas.

- **Improve spatial dynamics and rural employment:** Encourage development close to rural townships. Rural economies will be activated through stimulation of agriculture and tourism investment.
- **Establish economic and growth clusters:** firm decisions need to be taken on sectors which could serve as platforms to launch new growth trajectories.
- **Establish Tourism Clusters:** Increase number of tourists entering the country and increase the average amount of money spent in regional economy.
- South Africa can do more to develop regions as international tourist destinations by empowering the broader diversity and range of tourism destinations

Chapter 5: The following guiding principles are defined for the transition of all aspects from policy to process to action. Focus should be put in place to establish a regulatory framework for proposed land uses, to ensure the conservation and restoration of the natural environment. These guidelines include the following:

- **Strategic Planning:** Apply a systems perspective, while ensuring an approach that is dynamic, with flexibility and responsiveness to emerging risk and opportunity, and effective management trade offs
- **Transformative approach:** Address all aspects of the current economy and society requiring amongst others visionary thinking and innovative planning
- **Manage transition:** build on existing process to attain gradual change and phased transition.
- **Opportunity focus:** for business growth, competitiveness and employment creation, that will contribute to equality and prosperity.
- **Full cost accounting:** Internalise externalities through full cost accounting
- **Effective participation of social partners:** Be aware of mutual responsibilities, engage on differences, seek consensus and exact compromise

Chapter 8: Spatial developments should conform to the following normative principles and should explicitly indicate how they would meet the requirements of these principles. These principles are directly related to Section 42 of the Spatial Planning and Land Use Management Act 16 of 2013 which will be implemented as the primary spatial and Land Use Management legislation on the 1st of July 2015. These principles include:

- Spatial justice
- Spatial sustainability
- Spatial resilience
- Spatial quality
- Spatial efficiency

The Site Development Plan and development concept of the proposed light industrial development zone and solar facility on Ptn 139 meets the objectives set in the National Development Plan. The proposed land uses integrate with other approved developments in the Airport Support Zone, and are in line with planning policies for the area. The development is efficient in its planned use of resources, and aims to be an 'off grid' industrial development zone.

George Municipal Spatial Development Framework (2019) (Marlize De Bruyn Planning, 2022)

The GMSDF identifies three spatial development strategies to direct and manage development within the municipal area of George, namely:

- Consolidate: Making what we have work better for our people
- Strengthen: Build on George's foundations for growth and resilience
- Smart Growth: Invest in catalysts for social and economic prosperity

These strategies are supported by policies – to give direction for appropriate development supported by local spatial development frameworks. Especially Policy B & F are of relevance for the proposed development of the Airport Support Zone which states:

- Policy B: Direct public and private fixed investment to existing settlements reinforcing their economic development potential. In this way, the impact of public and private investment is maximised, the majority of residents' benefit, and the Municipality's natural and productive landscapes are protected.
- Policy F: Manage the growth of urban settlement in George to ensure the optimum and efficient use of existing infrastructure and resources and in turn, secure the Municipality's fiscal sustainability and resilience, while preventing further loss of natural and agricultural assets.

Following the above, the GMSDF states that the Airport Support Zone is not intended to create urban expansion but for the establishment of land uses ancillary to and supportive of the airport's functionality and the convenience of users of the airport. The Airport Support Zone therefore will unlock economic development potential and ensure the more efficient use of what is available within the municipal area of George. The development of this precinct is addressed in more detail in the George Airport Corridor Local Spatial Development Framework (GAC LSDF, 2015). This LSDF supports the implementation of the GMSDF. The land use application proposed for Gwayang 208/139 is therefore consistent with the GMSDF as required in terms of Section 19 of the Western Cape Land Use Planning Act, 2014.

George Airport Corridor Local Spatial Development Framework (2015) (Marlize De Bruyn Planning, 2022)

George Airport plays a significant role in the Southern Cape's tourism industry and whether directly or indirectly, creates and supports jobs and economic growth for the George area. Efficient airports are an essential part of the transport network that all successful modern economies rely on. The George Airport is a crucial transport hub for the Southern Cape. As demand for travel increases, modern economies expect and demand a range of services and facilities at these transport hubs to improve their travel experience and to support their businesses. The George Airport is continuously improving on the service they render, which will also contribute to the development of the Southern Cape economy.

Currently the airport functions in isolation of the town and any complimentary commercial uses such as freight and logistics. Fuelling facilities are absent and there is no public transport to and from town for employees. The Gwayang Local Spatial Development Framework (LSDF) earmarks the land between the planned (and approved) Western Bypass and the airport for 'Airport Support Zone' purposes. The zone includes properties opposite the airport with the alignment of the future bypass road as the boundary. Land uses will be strictly limited to those that support tourists and airport facilities that cannot be located in the town with the same practical function. Further, the zone is ideally located to provide facilities for tourism support and may include fuelling facilities and a hotel. The Airport Support Zone should accommodate land uses supporting the airport facilities and provide a direct service to tourists. The proposed Western By-pass defines this node on the eastern side.

The GAC LSDF confirms that the greater George has a unique sense of place with examples of industrial development around airports not seen as suitable. Development in the Airport Support Zone should not detract from the existing landscape character.

Western Cape Biodiversity Spatial Plan (2017)

Land use planning and decision-making should strive for sustainable development and therefore requires spatial biodiversity assessments to better inform where and how development takes place. The Western Cape Biodiversity Spatial Plan (WCBSP) is a spatial tool that comprises the Biodiversity Spatial Plan Map (BSP Map) of biodiversity priority areas, accompanied by contextual information and land use guidelines that make the most recent and best quality biodiversity information available for land use and development planning, environmental assessment and regulation, and natural resource management. The location of the development footprint has been checked in relation to the WCBSP and identified biodiversity priority areas.

There are no Critical Biodiversity Areas (CBAs) in the planned development areas. The drainage area that runs on the eastern side of Ptn 139/208 from north to south towards the Gwayang River is classified as an Ecological Support Area 2 (ESA2). The aquatic specialist study took cognisance of the ESA in the assignment of buffer areas and recommendations.

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.

Chapter 4 of the WC Biodiversity Spatial Plan Handbook (2017) provides guidelines for land use planning and decision-making, and for land and resource management using the WC BSP Map. The Handbook provides the following land use guidelines for ESA2 areas:

'ESAs are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of CBAs, and deliver important ecosystem services. They facilitate landscape connectivity, promote resilience to climate change, and buffer elements of the landscape including protected areas and sites that are important for the survival of individual species. **ESA 2:** These areas may be degraded but still play an important role in supporting the functioning of PAs or CBAs, and are essential for delivering ecosystem services. These areas should be restored and/or managed to minimize impact on ecological infrastructure functioning; especially soil- and water-related services, and to allow for faunal movement.

Permissible land uses for ESA2 areas: There is more flexibility in terms of options for compatible land uses in ESAs than there is in CBAs. However, ESAs do need to remain ecologically functional, which means that they need to be maintained in at least a near-natural state, although some loss of biodiversity pattern through a variety of land uses is acceptable.

General Guideline for ESA2 areas: Restore and/or manage to minimise the impact on ecological infrastructure functioning, especially soil- and water-related services.

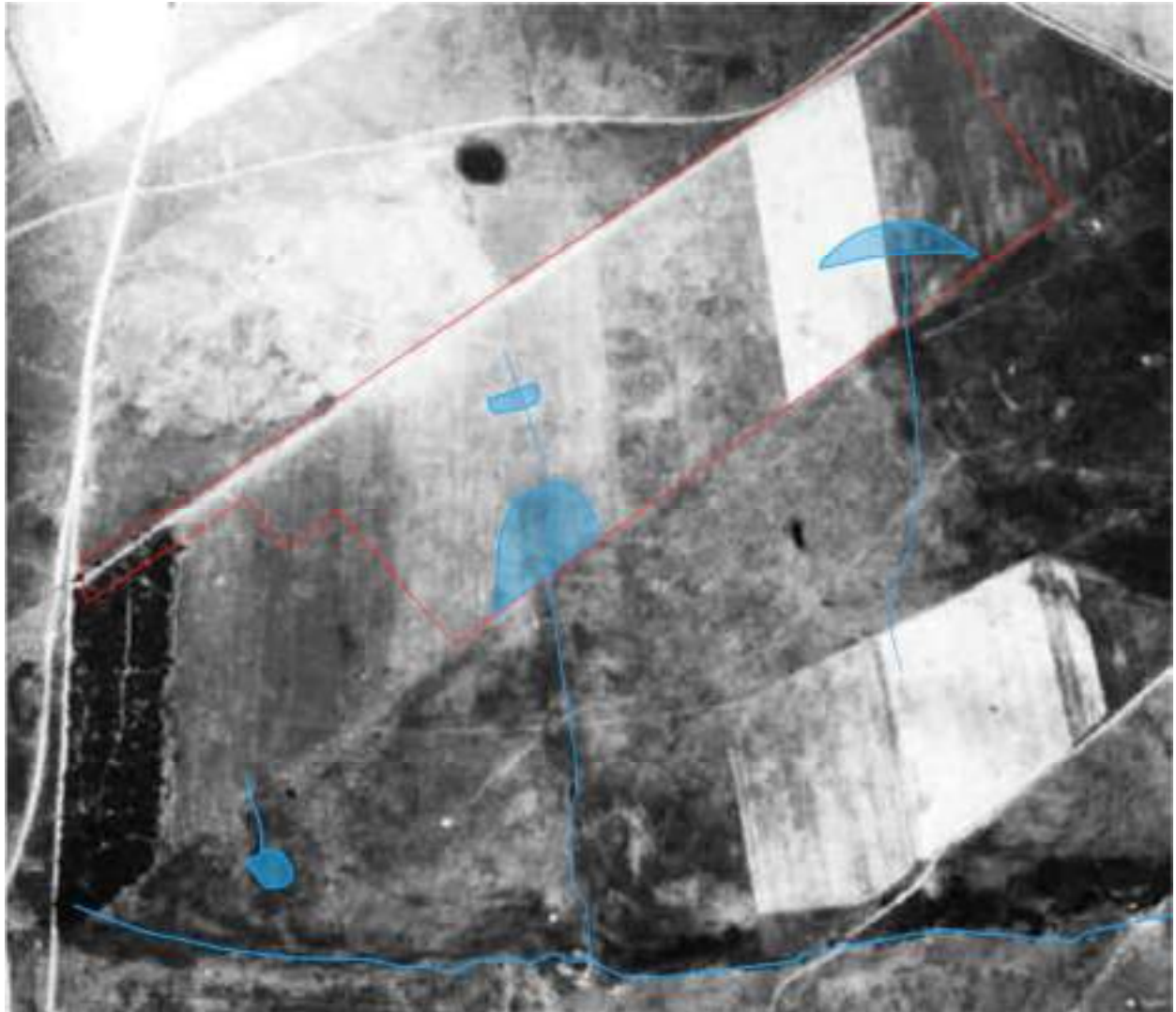
Specific Guidelines for ESA2 areas:

- These are areas which may already have some form of development (cultivation, mining or even buildings and infrastructure) but which should be providing ecosystem services. Where possible the current land uses should be withdrawn and rehabilitation should be undertaken.
- Best practice should apply in areas where land uses other than conservation are present e.g. agriculture.
- These areas should be targeted for habitat rehabilitation and restoration activities, e.g. alien clearing

As above, the drainage area on the eastern side of Ptn 139/208 is classified as an ESA2. The aquatic specialist report describes the aquatic features on the site as follows:

'A small watercourse that largely arises at the R102 crosses Ptn 139 from north to south. Two farm dams have been constructed within the watercourse channel, with the larger one along the southern boundary of Ptn 139. The watercourse drains into a small tributary of the Gwaing River that flows from west to east, south of Ptn 4/208. A further off-channel dam occurs in the eastern extent of Ptn 139, north of the R102. Downstream of Ptn 4/208, the stream passes to the south of a quarry and is joined by another small tributary of the Gwaing River. The National Freshwater Ecosystem Priority Areas mapping initiative has only mapped the dams to the north of the site as artificial wetland areas. Wetland areas along the minor tributaries to the south of Ptn 4 (downstream) are mapped as natural valley bottom and seep wetlands. The

watercourses in the area are mapped as aquatic Ecological Support Areas². However, the lower sections of the river, where the two streams' confluence and the valley bottom wetland areas occur (south of Ptn 4), are mapped as aquatic CBAs. The wider river corridor is mapped as riparian forest CBAs (WCBSP, 2017). A photograph from 1936 shows that the site was already completely modified and cultivated at that time (i.e. 85 years ago). The watercourses and dams were not visible in the site, although there appears to have been a wetland area in the eastern extent of the site. The small valley bottom wetland areas to the south of the site were present along the watercourses at that time, although cultivation had taken place within them (Belcher, 2022).



Past aerial image of the study area and surrounding area taken in 1936, overlain in Google Earth with the location of the site and present-day watercourses indicated (Belcher, 2022).



Surface water features at the site mapped in Google Earth (Belcher, 2022).

The watercourse within the site is considered to be in a seriously to critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams. The larger tributary of the Gwaing River to the south of the site is in a better ecological condition and is moderately to largely modified as a result of the construction of the airport and the associated activities and the invasion of the riparian zone with alien invasive plants. The watercourse within the site is considered to be of a low ecological importance and sensitivity while the larger tributary is of a moderate ecological importance and sensitivity due to the habitat that provides as well as the link that it helps to provide between the coastal area and the hillslope. Because the watercourses within the site are highly modified and of a low ecological importance and sensitivity, they would not pose a significant constraint to the proposed development of the site. The watercourses do however provide a corridor for the movement of water through the landscape. This functionality of the watercourses is recognised within the biodiversity conservation mapping of the area where the watercourses are mapped as aquatic ecological support areas (Belcher, 2022).

Belcher (2022) therefore recommended that 'the corridors and their associated functionality should thus preferably be maintained within the development proposal as far as possible. A 10m setback from either side of the watercourse that would allow for a corridor of 20m wide along the watercourse is recommended. The watercourses start within the proposed solar areas such that they are only minor features within this area and do not pose any significant constraint to the proposed solar development. Upstream of the site, they are no longer visible in the landscape. It is recommended that the development of the site at least address the drainage in the stormwater management plan for the site. Also of significance are the more ecologically important tributary of the Gwaing River and the valley bottom wetland area that are downstream of the site. Any potential impacts of the proposed development should be mitigated onsite to prevent any further degradation of these aquatic ecosystems. This primarily relates to the mitigation of stormwater arising from the developed site. The watercourses within this portion of the site (and the associated instream dams) are also not deemed to be highly significant aquatic habitats and could be integrated into the stormwater management system established onsite. A corridor of approximately 20m is recommended to accommodate stormwater flow within the site. The existing concrete channel within the watercourse should be removed and the channel shaped and planted with wetland vegetation such as *Juncus effusus*, *Carex gloerabilis*, *C. clavata*, *Isolepis prolifera*, *Cyperus polystachyos* and *Zantedeschia aethiopica* within the wetter bed together with buffalo grass *Stenotaphrum secundatum* or *Cynodon dactylon* along the banks. The incorporation should as far as possible lead to the longer-term improvement of the aquatic habitat within the watercourses onsite and more importantly adequately mitigate any potential downstream impacts on the valley bottom wetland and watercourse downstream (south) of the site' (Belcher, 2022).

A stormwater management plan has been developed for all properties within the George Airport Support Zone, including Ptn 139 and Ptn 4. The following stormwater management measures are proposed:

- The natural flow regime of runoff flowing via the aquatic zone will be adjusted by the introduction of check dams. The check dams will limit flow velocity to below 2 m/s. It will also act as detention facilities to mitigate the impact of the industrial development on runoff.
- The existing dam on Erf 1 of Portion 4 will be utilised as a detention facility. The dam has adequate capacity to attenuate sufficient runoff to reduce post-development runoff to pre-development runoff, in case of a major storm. The outlet structure of the dam will be upgraded to ensure the stability of the wall in case of a major storm.
- The existing dam of Erf 9 of Portion 4 will be used for the purpose of detention to a limited extent, due to the significant contribution of the check dams in this regard. The outlet of the dam will however be upgraded as in the case of the dam on Erf 1 as mentioned above.
- A network of bio-swales will be constructed mostly alongside roads inside the properties where required. The typical cross-section shows swales with a side slope of 1:4 and a maximum depth of 500 mm. At a depth of 500 mm below the invert level of swales, a subsurface drain will be installed to limit moisture ingress into the pavement layers of the road

The stormwater management plan considers the recommendations of the aquatic specialist report, and aims to facilitate connectivity and flow, as well as attenuation of runoff and water quality improvement through habitat rehabilitation within the 'aquatic zone' and check dams. In summary, the development is consistent with the land use guidelines for ESA2 areas in the WCBSP Handbook in that it facilitates connectivity of flow through the landscape, and aims improve the current ecological status of the drainages through replanting with indigenous vegetation.

Other Guidelines that have been considered in this BAR:

Parts 4, 5 and 6 of the DEA&DP's EIA Guideline Series (March 2013) address Public Participation, Alternatives, and Need and Desirability. The Guidelines were used to inform the process used in this BA.

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

The following specialist studies have been done in accordance with the relevant Protocols:

Study	Applicable Protocol	Specialist appointed to do the study
Landscape/Visual Impact Assessment	None specified – comply with Appendix 6 of the EIA Regulations	New Urban Architects and Urban Designers <i>High Level VIA done for the light industrial development zone and the solar facility</i>
Agricultural Impact Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources (20 March 2020) Government Gazette No. 43110	Johann Lanz <i>Site Verification and Compliance Statement completed</i>
Archaeological/Cultural Heritage Impact Assessment	Site Sensitivity Verification Requirements Where a Specialist Assessment is Required but no Specific Protocol has been Published (20 March 2020) Government Gazette No. 43110. General Requirement Assessment Protocols.	Perception Planning – <i>A notice of intention to develop has been submitted to Heritage Western Cape, who advised that no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required</i>
Palaeontology Impact Assessment	Site Sensitivity Verification Requirements Where a Specialist Assessment is Required but no Specific Protocol has been Published (20 March 2020) Government Gazette No. 43110. General Requirement Assessment Protocols.	<i>Specialist study not proposed – Francois Durand responded that study site falls in an area that is of no palaeontological concern, and that a palaeontology study is not required. No palaeontology sensitivity theme or rating was provided in the Screening Tool.</i>
Terrestrial Biodiversity Impact Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (20 March 2020) Government Gazette No. 43110	Dr Mike Cohen and Mike Cameron <i>Site Verification and Compliance Statement</i>
Plant Species Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (30 October 2020) Government Gazette No. 43855	Dr Mike Cohen and Mike Cameron <i>Site Verification and Compliance Statement</i>
Animal Species Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal	Dr Mike Cohen and Mike Cameron <i>Site Verification and Compliance Statement</i>

	Species (30 October 2020) Government Gazette No. 43855	
Aquatic Biodiversity Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (20 March 2020) Government Gazette No. 43110	Antonia Belcher <i>Aquatic Biodiversity Impact Assessment</i>
Hydrology Assessment	Site Sensitivity Verification Requirements Where a Specialist Assessment is Required but no Specific Protocol has been Published (20 March 2020) Government Gazette No. 43110. General Requirement Assessment Protocols.	SRK Consulting (Geohydrological study) and ICE (Stormwater Management Plan) <i>Geohydrological Investigation and Stormwater Management Plan</i>
Socio-Economic Impact Assessment	Site Sensitivity Verification Requirements Where a Specialist Assessment is Required but no Specific Protocol has been Published (20 March 2020) Government Gazette No. 43110. General Requirement Assessment Protocols.	Dr Anton de Wit <i>Socio-Economic Impact Assessment</i>

Section D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations **Please note that the WWTW planned on the NE side of Pn 4/208 does not trigger a listed activity related to the treatment of sewage effluent because the capacity of the WWTW is below the threshold in the listed activity (i.e. Activity 25: The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres). However the footprint of the WWTW and associated infrastructure exceeds 1 ha and the vegetation type (Garden Route Granite Fynbos) is a threatened ecosystem. Therefore the activity is relevant to disturbance of vegetation to develop the WWTW. However, potential operational phase impacts of the WWTW are addressed in this BAR nonetheless.**

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.
1 (ii)	The development of facilities or infrastructure for the generation of electricity from a renewable resource where— (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare	The planned solar plant on Ptn 139 has a capacity of less than 10 MW energy output, and the facility will cover an area of ~8 ha.
12(ii)(c)	The development of (ii) infrastructure or structures with a physical footprint of 100m ² or more – where such development occurs – (a) within a watercourse (c) if no development setback exists, within 32m of a watercourse, measured from the edge of a watercourse	A non-perennial watercourse that drains into the Gwayang River to the south runs through the properties. Infrastructure will be aligned across the watercourse on Ptn 139. A dam on Ptn 139 will be infilled, and an 'aquatic zone' with check dams will be created.
19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles, or rock of more than 10 cubic metres from a watercourse	A non-perennial watercourse that drains into the Gwayang River to the south runs through the properties. Infrastructure will be aligned across the watercourse on Ptn 139. Check dams are planned within the drainage corridor. Infilling and excavation will take place within the drainage areas on the various properties. An existing dam on Ptn 139 will be decommissioned, and the wall will be removed.
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation	The development footprint for the light industrial development, solar plant and WWTW is ~15 ha. While most of the development area is transformed agricultural land, some indigenous vegetation will need to be cleared.
28 (ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare, excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes	Ptn 139 and the rest of the properties that form the ASZ are on land that is zoned for agricultural purposes. The development footprint exceeds 1 ha, and the intended land use is industrial / commercial, with supporting infrastructure and roads. The eastern side of Ptn 4 is zoned Agriculture 1 and will be rezoned to Institutional Area to allow for the development of the WWTW. The footprint is however less than 1 ha.

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.
4 (i) (ii)(aa)	The development of a road wider than 4m with a reserve less than 13,5m – i. In the Western Cape, (ii) Areas outside of urban areas, (aa) Areas containing indigenous vegetation	Development of the internal access road network.
12 (i) (i)	The clearance of an area of 300m ² or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan – (i) in the Western Cape: (i) within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEM:BA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004	More than 300 m ² or more of indigenous vegetation will need to be cleared for all planned land uses on Ptn 139 and the eastern part of Ptn 4/208. The vegetation type is Garden Route Granite Fynbos, with has a critically endangered ecosystem threat status (Western Cape Biodiversity Spatial Plan).
14 (ii)(c)(i)(dd)	The development of - (ii) infrastructure or structures with a physical footprint of 10m ² or more – where such development occurs – (a) within a watercourse; (c) if no development setback has been adopted, within 32m of a watercourse, measured from the edge of a watercourse, excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour: In the Western Cape (i) Outside of urban areas, in: (dd) Sensitive areas identified in environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority	A non-perennial watercourse that drains into the Gwayang River to the south runs through the properties. Planned infrastructure is aligned across the watercourse on Ptn 139. The vegetation type is Garden Route Granite Fynbos, with has a critically endangered ecosystem threat status (Western Cape Biodiversity Spatial Plan).

Note:

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.
N/A		

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.
N/A		

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.
1.	A light industrial zone on a portion of Ptn 139 of Farm Gwayang No 208 (south of the R102). Light industrial refers to predominantly warehousing and storage facilities, with no planned noxious uses. A land use application is submitted to the George Municipality for Subdivision of the property into a Portion A and Remainder. Portion A will then be rezoned to sub-divisional area with its subsequent subdivision into 6 portions zoned Industrial Zone I (light industry), 1 portion zoned Transport Zone II (public street) and 1 portion zoned Transport Zone III (private road). The disturbance footprint for the light industrial development is ~5 ha, on a 23.5 ha property. The existing store building on the property is to be retained and will be the inspiration for the proposed development. An existing dam on Ptn 139 on the southern side of the R102 will be decommissioned by removing the dam wall, with earthworks across the full site to achieve desired levels for building platforms.
2.	The proposed Western Bypass Arterial will take up a portion of the proposed Remainder of 139/208 leaving 3 portions of fragmented land. To address energy needs, a solar plant is planned on two of

3.	<p>these portions of Ptn 139 on the northern side of the R102. The development of solar panels and supporting infrastructure (e.g. inverters, distribution board, and step-up transformer, with electrical cables) is planned in 2 phases – Phase 1 will be a 1.05 MW plant on 1 ha of land, with an annual production of 1.792 GWh. Phase 2 is on the northern side of the R102, and east of the planned Western Bypass. The final phases will produce a total of 9 MW of renewable energy. The disturbance footprint of Phase 1 and 2 is ~8 ha. The current Agricultural zoning provides for 'renewable energy structure' as a consent use and no rezoning is required. The Directorate: Electrotechnical Services (DETS), George Municipality, is in support of the principle of the 1MW plant with the expansion with a further 8 MW to a total of 9 MW to be addressed following load flow and grid impact studies. Initially the 1MW plant will be wheeled to the electricity grid of George Municipality. Over time the wheeled energy will be scaled down to provide in the electricity needs of the Airport Support Zone.</p> <p>Services infrastructure on much of the development area of the full extent of the ASZ (i.e. including Ptn 4, 130 to 132 and 139) have already been approved in existing Environmental Authorisations (EAs) for the area south of the planned Western Arterial on Ptn 4, and Ptns 130 to 132 (DEA&DP Reference numbers 16/3/3/1/D2/19/0024/19 and 14/3/10/D2/19/0543/21 respectively). This application includes development of services infrastructure not included in these EAs. This includes internal roads, services and stormwater infrastructure for Ptn 139/208, and the development of a wastewater and water treatment and storage facility for the George Airport Support Zone on the Remainder of 4/208 to the east of the planned Western Bypass Arterial. Treated effluent from the WWTW will be used for irrigation and washing in the ASZ, and any excess effluent will be discharged to the watercourse via the Aquatic Zone (where discharge will take place at the top end of the Aquatic Zone). The drainage area on the east of Ptn 139 will be modified into an Aquatic Zone and will include 'check dams' that will form part of the stormwater management system for the full ASZ area.</p>
2.	<p>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.</p>
<p>MARLIZE DE BRUYN PLANNING HAS SUBMITTED A LAND USE APPLICATION REQUIRED FOR DEVELOPMENT OF THE PROPERTY IN TERMS OF THE GEORGE MUNICIPALITY: LAND USE PLANNING BY-LAW:</p> <ul style="list-style-type: none"> SUBDIVISION OF GWAYANG 208/139 IN A PORTION A AND REMAINDER; REZONING OF PTN A INTO SUBDIVISIONAL AREA, & SUBDIVISION INTO 6 PORTIONS ZONED INDUSTRIAL ZONE I (LIGHT INDUSTRY), 1 PORTION ZONED TRANSPORT ZONE II (PUBLIC STREET) AND 1 PORTION ZONED TRANSPORT ZONE III (PRIVATE ROAD WITH CONSENT USE FOR RESTAURANT. A DWELLING HOUSE, SMALL OUTBUILDING AND A LARGER STORE BUILDING ARE ACCOMMODATED ON PTN 139. GEORGE MUNICIPALITY APPROVED A LAND USE APPLICATION FOR CONSENT USE (TOURIST FACILITY & FUNCTION VENUE) FOR THE PROPERTY IN THE EXISTING STORE BUILDING ON 9 NOVEMBER 2018. THIS APPROVAL HAS NOT BEEN IMPLEMENTED. <p>SOLAR FARM: ZONING WILL REMAIN AGRICULTURE ZONE I, WITH CONSENT USE FOR 'RENEWABLE ENERGY STRUCTURE'</p> <p>THE WASTE WATER TREATMENT PLANT AND STORAGE FACILITY ON THE EASTERN PART OF PTN 4/208 WILL BE REZONED TO INSTITUTIONAL AREA</p>	
3.	<p>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.</p>
<p>There are no conflicts.</p>	
4.	<p>Explain how the proposed development will be in line with the following?</p>
4.1	<p>The Provincial Spatial Development Framework.</p>
<p>THE WESTERN CAPE PROVINCIAL SPATIAL DEVELOPMENT FRAMEWORK (PSDF) (2014) SERVES AS STRATEGIC SPATIAL PLANNING TOOL THAT "COMMUNICATES THE PROVINCES SPATIAL PLANNING AGENDA". THE PROPOSED DEVELOPMENT COMPLIMENTS THE PSDF SPATIAL GOALS THAT AIM TO TAKE THE WESTERN CAPE ON A PATH TOWARDS:</p> <ul style="list-style-type: none"> GREATER PRODUCTIVITY, COMPETITIVENESS AND OPPORTUNITIES WITHIN THE SPATIAL ECONOMY; MORE INCLUSIVE DEVELOPMENT IN THE URBAN AREAS; STRENGTHENING RESILIENCE AND SUSTAINABLE DEVELOPMENT <p>SOME KEY POLICIES IN THE PSDF HAVE A BEARING ON THE DEVELOPMENT PROPOSAL:</p> <p>POLICY E1: USE REGIONAL INFRASTRUCTURE INVESTMENT TO LEVERAGE ECONOMIC GROWTH:</p> <ul style="list-style-type: none"> 2. USE REGIONAL OR DISTRICT SDFS AS A BASIS FOR ADDRESSING AND RECONCILING COMPETING AND OVERLAPPING DEMANDS FOR REGIONAL ECONOMIC INFRASTRUCTURE (E.G. REGIONAL AIRPORT). <p>POLICY E3: REVITALISE AND STRENGTHEN URBAN SPACE-ECONOMIES AS THE ENGINE OF GROWTH</p> <ul style="list-style-type: none"> 5. EXISTING ECONOMIC ASSETS (E.G. CBDS, TOWNSHIP CENTRES, MODAL INTERCHANGES, VACANT AND UNDER-UTILISED STRATEGICALLY LOCATED PUBLIC LAND PARCELS, FISHING HARBOURS, PUBLIC SQUARES AND MARKETS, ETC.) SHOULD BE TARGETED TO LEVER THE REGENERATION AND REVITALISATION OF URBAN ECONOMIES. 	

	<ul style="list-style-type: none"> 7. INCENTIVES SHOULD BE PUT IN PLACE TO ATTRACT ECONOMIC ACTIVITIES CLOSE TO DORMITORY RESIDENTIAL AREAS, FACILITATE BROWNFIELDS DEVELOPMENT. <p>POLICY S1: PROTECT, MANAGE AND ENHANCE SENSE OF PLACE, CULTURAL AND SCENIC LANDSCAPES</p> <ul style="list-style-type: none"> 2. PROMOTE SMART GROWTH ENSURING THE EFFICIENT USE OF LAND AND INFRASTRUCTURE BY CONTAINING URBAN SPRAWL AND PRIORITISING INFILL, INTENSIFICATION AND REDEVELOPMENT WITHIN SETTLEMENTS. <p>POLICY S3: ENSURE COMPACT, BALANCED & STRATEGICALLY ALIGNED ACTIVITIES AND LAND USES</p> <ul style="list-style-type: none"> THIS POLICY REFLECTS THE MAIN AIM OF THE POLICY THROUGH TARGETING ECONOMIC ASSISTS (E.G. MODAL INTERCHANGES UNDERUTILISED STRATEGICALLY LOCATED LAND PARCELS) THAT SHOULD BE USED AS A LEVER TO REGENERATE AND REVITALISE URBAN SETTLEMENTS. THE POLICY PROMOTES FUNCTIONAL INTEGRATION AND MIX LAND USE. THUS, THE POLICY SPECIFIES THE IMPORTANCE TO INCREASE DENSITY OF SETTLEMENTS AND NUMBER OF UNITS IN NEW HOUSING PROJECTS; CONTINUE TO DELIVER PUBLIC INVESTMENT TO MEET THE NEEDS IN SETTLEMENT DEVELOPMENTS; INTEGRATE PACKAGES OF LAND, INFRASTRUCTURE AND SERVICES AS CRITICAL TO PROMOTE DENSIFICATION AND EFFICIENCY ASSOCIATED WITH AGGLOMERATION. <p>PLANNING IMPLICATION:</p> <p>THE DEVELOPMENT PROPOSAL IS CONSISTENT WITH THE OBJECTIVES IN THE WCSDF. THIS IS ACHIEVED THROUGH CREATING AN URBAN ENVIRONMENT THAT IS EFFICIENT AND CONVENIENT, MAKING GOOD USE OF SPACE. THE DEVELOPMENT WILL CONTRIBUTE TO REGIONAL ECONOMIC INFRASTRUCTURE BY DEVELOPING AIRPORT SUPPORT SERVICES RELATED CLOSEBY TO THE GEORGE AIRPORT, AND IN SO DOING CONTRIBUTE TO ECONOMIC GROWTH OF THE REGION. THE DEVELOPMENT PROMOTES 'SMART GROWTH' THROUGH EFFICIENT USE OF LAND AND SHARED INFRASTRUCTURE, AND ALIGNING THE PROPOSAL WITH THE RELEVANT PLANNING POLICIES AND GUIDELINES FOR THE AREA. THE SOLAR PLANT WILL ULTIMATLEY PROVIDE ENERGY TO THE ASZ. THE DEVELOPMENT OF THE ASZ AS AN OFF-GRID NODE AND ESPECIALLY THE DEVELOPMENT OF A WWTW IN THE NODE PROMOTE EFFICIENT USE OF INFRASTRUCTURE AND RESOURCES.</p>
4.2	The Integrated Development Plan of the local municipality.
	<p>THE IDP IDENTIFIES THE VISION FOR THE GEORGE MUNICIPALITY AS 'A CITY FOR A SUSTAINABLE FUTURE'. THE MISSION IS TO:</p> <ul style="list-style-type: none"> DELIVER AN AFFORDABLE SERVICE DEVELOP AND GROW GEORGE KEEP GEORGE CLEAN, SAFE AND GREEN ENSURE GOOD GOVERNANCE AND HUMAN CAPITAL IN GEORGE AND TO PARTICIPATE IN GEORGE <p>THE PROPOSED DEVELOPMENT CONTRIBUTES POSITIVELY TO THE DEVELOPMENT AND GROWTH OF GEORGE IN A SUSTAINABLE FASHION THROUGH DEVELOPING AN 'OFF GRID' NODE INCLUDING A SOLAR FACILITY. TOURISM IS A SIGNIFICANT ACTIVITY IN THE AREA, AND THE AIRPORT SUPPORT ZONE HAS BEEN DESIGNATED FOR ANCILLARY USES THAT SUPPORT THE AIRPORT AND TOURISM GROWTH IN THE AREA.</p> <p>ONE OF THE SPATIAL DEVELOPMENT OBJECTIVES OF THE GEORGE LOCAL MUNICIPALITY'S IDP IS: 'STRENGTHENING THE ECONOMIC VITALITY BY ENHANCING THE REGIONAL AND LOCAL SPACE ECONOMY, STRATEGIC DEVELOPMENTS TO DIVERSIFY AND STRENGTHEN THE ECONOMY, CONSOLIDATING AND REINFORCING NODES OF ECONOMIC ACTIVITY, AND INFRASTRUCTURE SERVICES PROVISION' (GEORGE MUNICIPALITY, 2021/22:104)'. THE PROPOSED DEVELOPMENT IS STRATEGICALLY WELL LOCATED TO PROVIDE AN ESSENTIAL SUPPORTING AND ENABLING SERVICE IN THE CONTEXT OF AN ECONOMIC DEVELOPMENT NODE AROUND THE GEORGE AIRPORT</p>
4.3.	The Spatial Development Framework of the local municipality.
	SEE SECTION 4: POLICIES ABOVE
4.4.	The Environmental Management Framework applicable to the area.
	N/A
5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.
	<p>COMMENTS HAVE BEEN RECEIVED FROM CAPE NATURE (REFER TO APPENDIX F). ALL RECOMMENDATIONS FROM SPECIALIST STUDIES HAVE BEEN INCORPORATED WITHIN THE PREFERRED SITE DEVELOPMENT PLAN. ONLY THE AQUATIC SPECIALIST PROVIDED RECOMMENDATIONS REGARDING THE 20 M AQUATIC ZONE CORRIDOR. CAPE NATURE SUPPORTS THIS RECOMMENDATION.</p>
6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.
	See above
7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.
	N/A
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.
	No changes noted.

9.	<p>Explain how the proposed development will optimise vacant land available within an urban area.</p> <p>THE SITE IS OUTSIDE THE URBAN GROWTH BOUNDARY, BUT IS WITHIN A NODE DESIGNATED FOR DEVELOPMENT OF ANCILLARY SERVICES TO THE AIRPORT. AN INTEGRATED PLANNING APPROACH IS BEING FOLLOWED BY THE VARIOUS LANDOWNERS WITHIN THE AIRPORT SUPPORT ZONE, INCLUDING THE DEVELOPMENT OF A SERVICES AND STORMWATER MANAGEMENT PLAN THAT WILL MAKE THE ASZ MOSTLY OFF-GRID. DEVELOPMENT WITHIN THE 'ZONE' ALLOWS FOR EFFICIENT SHARING OF INFRASTRUCTURE. THE DEVELOPMENT SITE IS WITHIN AN AREA DESIGNATED FOR AIRPORT SUPPORT SERVICES IN THE GWAYANG LSDF AND IS THEREFORE IN LINE WITH PLANNING POLICIES FOR THE AREA.</p>
10.	<p>Explain how the proposed development will optimise the use of existing resources and infrastructure.</p> <p>The Services Report done by ICE (2022) has addressed the demand and supply options for services within the ASZ. Existing municipal infrastructure is described and assessed to determine which phases of the development can be supplied using existing infrastructure, and where upgrades and/or additional capacity is needed. The plan is for the ASZ to be an off-grid development, with only 20% of its water needs to be supplied by the George LM. Phase 1 of the development on Ptn 4 and Ptns 130-132 will connect to existing municipal bulk service infrastructure as capacity is currently available. However, once the WWTW planned on Ptn 4 is operational, the full ASZ area will connect to the plant.</p> <p>The development area is surrounded by an existing road network, primarily the R102 and R404 making it highly accessible. A new access circle and road will be developed to provide shared access to properties within the ASZ. This is as per the George Roads Masterplan.</p>
11.	<p>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).</p> <p>The long term water and wastewater municipal bulk master planning makes provision for the bulk supply to the ASZ. The George Local Municipality (GLM) however noted that there are currently capacity constraints on both the water treatment and WWTW systems. Implementation of the required bulk infrastructure will however delay the implementation of the ASZ. The owners of the land comprising the ASZ, propose to develop an off-grid industrial town. In order to meet this objective, cooperation between the GLM and the Developers, is essential. The ASZ will depend on the municipal bulk infrastructure in a limited but important way.</p> <p><u>Water:</u></p> <p>The existing and proposed bulk municipal water infrastructure, relating to the ASZ has an existing 200 mm diameter supply line that runs along the R102 and the R404. GLS revised the water master plan with the benefit of information of the proposed layout and zoning of the ASZ. There is no local expansion of the network proposed by the master plan. A bulk water connection between the GLM's bulk supply system and the ASZ internal reticulation is proposed. The supply by the GLM will be limited.</p> <p><u>Sewer:</u></p> <p>Wastewater from the Airport drains towards the Airport Pump Station (Airport PS 1). From there the wastewater is pumped towards the R102. The main runs to the east along the R102 and eventually leads to the Gwayang Wastewater Treatment Works. A main sewer is proposed to run from the north of the R102 along the eastern side of the R404. This main then runs along a tributary of the Gwayang River to a proposed pump station at a point directly to the north of the N2. From that point it joins with a rising main from Herolds Bay. The proposed system will then pump wastewater from Herolds Bay and the Airport to the Gwayang Wastewater Treatment Works. The pump station at the Airport will then be de-commissioned. The proposed system will also serve areas to the north of the R102. GLS confirmed that the capacity of the existing pump station (PS1) is 20 l per second of which 8 l per second is available for use by the ASZ. The capacity of the Gwayang Wastewater Treatment Plant is currently not capable to treat all wastewater from the ASZ. The implementation of the upgrades required to service the ASZ is expected to take several years. This will delay the development of the ASZ for several years. The instantaneous peak dry weather flow is calculated by applying a peak factor of 4. Flow rates in all pipes at 70% of flow depth, are low enough to be accommodated in a 110 mm diameter pipe. For ease of maintenance all pipes are sized at 160 mm diameter.</p> <p>GLS indicated that 8 litre per second capacity is available in the existing rising main (GW_15.02) that leads from the Airport Pump Station 1. The peak hourly flow from the western part of the ASZ, that is proposed to temporarily drain to the Airport Pump Station 1, is less than 8 litre per second.</p> <p>The developers of the ASZ are planning to have their own wastewater treatment plant on the eastern side of Ptn 4 of Farm Gwayang No. 208. Officials from GLM indicated that the western part of the ASZ may drain temporarily towards PS1 until the wastewater treatment works, mentioned above has been completed, should that be necessary due to delays in the completion of the scheme.</p> <p>The GLM has indicated that there is sufficient capacity for Phase 1 of the approved development on Ptn 4 and Ptns 130 – 132 to connect to the existing network for development on these properties to proceed.</p>
12.	<p>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.</p>
REFER TO APPENDIX K.	

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.

N/A

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

Public participation will be done in terms of Regulation 41 of the EIA Regulations (2014 as amended). The planned approach to be used was outlined in the Notice of Intent document which has been accepted by the Department. The same method has been used in the EIA Application form and BA process.

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

All officials included in the table of state officials to be consulted have been notified of this DBAR for comment:

DEA&DP	Steve Kleinhans, Shireen Pullen, Francois Naude, Danie Swanepoel, Malcolm Fredericks	Email: Steve.Kleinhans@westerncape.gov.za ; Shireen.Pullen@westerncape.gov.za ; Francois.Naude@westerncape.gov.za ; Danie.Swanepoel@westerncape.gov.za ; Malcolm.Fredericks@westerncape.gov.za
Western Cape Department of Mineral Resources:	Duduzile Kunene Busiswe Magazi	Email: Duduzile.Kunene@dmr.gov.za ; busisiwe.magazi@dmr.gov.za
Heritage Western Cape (HWC)	Whaseefa Dhansay, M Janse van Rensburg	Email: waseefa.dhansay@westerncape.gov.za ; ceoheritage@westerncape.gov.za
Western Cape DWS Water Quality Management	Melissa Lintnaar-Strauss	Lintnaar-Strauss@dws.gov.za
Western Cape Department of Health and Wellness	Manie Abrahams Dr Keith Cloete Nathan Jacobs	Email: Manie.Abrahams@westerncape.gov.za ; Shanon.Cupido@westerncape.gov.za ; Nathan.Jacobs@westerncape.gov.za
Western Cape Department of Transport & Public Works	Sharonette Webb Jandre Bakker Juan Prodehl Xander Smuts Carinne Muller Evan Burger	Email: service@westerncape.gov.za ; HOD.TransportPublicWorks@westerncape.gov.za ; Sharonette.Webb@westerncape.gov.za ; Jandre.Bakker@westerncape.gov.za ; Juan.Prodehl@westerncape.gov.za ; Xander.Smuts@westerncape.gov.za ; Carinne.Muller@westerncape.gov.za ; Evan.Burger@westerncape.gov.za
Western Cape Agriculture	Dr M Sebopetsa	HOD@elsenburg.com ; AneleS@elsenburg.com
Western Cape DHS	Ms Phila Mayisela	Phila.Mayisela@westerncape.gov.za
DAFF Land Use and Soil Management	K Maluleke	agriland@nda.agric.za
SANRAL Western Region	Nicole Abrahams	AbrahamsN@nra.co.za
CapeNature	Barend le Roux Colin Fordham Megan Simons	Email: bleroux@capenature.co.za ; cfordham@capenature.co.za ; msimons@capenature.co.za
Breede Gouritz Catchment Management Agency (BGCMA)	Carlo Abrahams, Makhosi Mthimkhulu, Rudzani Makahane Sbonelo Ndlovu	Email: cabrahams@bgcma.co.za ; mmthimkhulu@bgcma.co.za ; rmakahane@bgcma.co.za ; sndlovu@bgcma.co.za
SANRAL Western Region	Elma Lourens	Email: Lourense@nra.co.za
Eden District Municipality: Environmental Management	Johan Compion Nina Viljoen	Email: jcompion@edendm.co.za ; Nina@edendm.co.za
DEA&DP Pollution Management	Annabelle McClelland	Arabel.McClelland@westerncape.gov.za

DEA&DP Biodiversity	Marlene Laros	Marlene.Laros@westerncape.gov.za
DEA&DP Air Quality	Joy Learner Michaela Patrick	Joy.learner@westerncape.gov.za Michaela.Patrick@westerncape.gov.za
George Municipality: Executive Mayor	Executive Mayor	Email: mayor@george.gov.za
George Municipality: Municipal Manager	Dr Michele Gratz (acting)	Email: tduplooy@george.gov.za
George Municipality: Speaker	Sean Snyman	Email: ssnyman@george.gov.za
George Municipality: Planning and Development	Lauren Waring	Email: mjordan@george.gov.za
George Municipality: Civil Engineering	T Barnard	Email: tbarnard@george.gov.za
George Municipality: Community Services:	Allen Paulse	Email: imlubbe@george.gov.za
George Municipality: Electro-Technical Services	Bongani Mandla	Email: lbotha@george.gov.za

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

N/A

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

A combined PPP process for the Basic Assessment and WULA is being followed. The Draft BAR was sent to IAPs on the stakeholder database for a 30 day commenting period and comments that were received were included in the updated DBAR. The updated DBAR was sent for a further 30 day commenting period. The cumulative 60 day public review period is in line with the requirements for publication participation under the NWA for a WULA process. Comments received on the updated DBAR are included in this Final BAR that is submitted to the DEA&DP for review and decision-making. An overview of the PPP process with copies of all correspondence with State Departments and Organs of States is provided in Appendix F.

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.

A copy of the Comments and Response Table is inserted below. Comments submitted by IAPs/stakeholders (including Organs of State) resulted in providing further clarity on certain aspects of the development, but did not lead to a change in the development proposal per se. The following additional mitigation was added as a result of stakeholder comments:

1. Additional storage capacity for rainwater harvesting to mitigate the impact of drought on water availability
2. Adding an off-grid system with PV Panels, and inverter and batteries with a small generator to use at the WWTW when there are power outages
3. Adding further details on irrigation with treated effluent to the IWWMP to address ponding that may result from over-irrigation.
4. Addition of further reporting requirements to the Municipal Health Department to the EMPr.
5. Adding the following measures to the design and operations at the WWTW to indicate what can be done if treated effluent does not meet standards set in the WULA:
 - a. A buffer tank will be used at the WWTW to store treated effluent that does not meet standards at the point of discharge. The effluent will be sent back to the inlet works for further treatment.
 - b. Continuous monitoring of Free Chlorine in treated effluent before the point of discharge will be done at the WWTW.

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).

Comments and Response Table

Comments received on the Draft Basic Assessment Report	
Department of Environmental Affairs and Development Planning – received via email on 14 December 2022	
Engineering/Bulk Services:	
According to the DBAR the various property owners of the Airport Support Zone ("ASZ") are coordinating development planning within the ASZ specifically relating to service infrastructure requirement in terms of water, sewer, stormwater, electricity and access. However, according to the DBAR current capacity constraints on both water and wastewater treatment systems have necessitated that the developers propose an off-grid industrial town, since the George Municipality ("GM") can only accommodate 20% of the ASZ. It is understood that the GM agreed that the preferred option is that the Property Owners Association ("POA") of the ASZ develop their own services infrastructure for sanitation (100%) and water (80%)	Correct
Sanitation: It is understood that Phase 1 of the ASZ will initially be serviced by the existing bulk services. A Wastewater Treatment Work ("WWTW") which is being considered as part of this application for environmental authorisation on Portion 4 of the Farm Gwayang No. 208 (north of the proposed Western Bypass) will then be developed to cope with the entire ASZ, including Phase 1	Correct
Potable Water Supply: According to the BAR only 20% of the complete ASZ will be supplied by the GM. The remaining 80% will be obtained from treated wastewater and rainwater harvesting. The total average annual daily demand (AADD) for the ASZ is calculated at 538m ³ (at 400ℓ/100m ² /day) according to the information. As such, the ASZ will need to generate approximately 430m ³ of water through treated wastewater and rainwater harvesting. While this Directorate supports the harvesting of rainwater (30% of ASZ water requirements) and re-use of treated wastewater (50% of ASZ water requirements), the possible effects of climate change on the frequency of rainfall event and the resultant lack of possible harvesting has not been considered. It is therefore unclear whether harvesting is viable in the long term and what contingency plans are being considered in the event where long term drought conditions are experienced in the future. This must be addressed in the BAR	<p>Required water volumes for the development were calculated using a conservative approach:</p> <ul style="list-style-type: none"> The calculation of the yield of 30% of the demand from water harvesting is based on the lowest annual rainfall over the past 40 years. Therefore during 97.5% of the years the yield of water harvesting will be more than the allowed 30% of demand. A conservative approach was used in calculating the water demand - The actual water demand for warehousing will be significantly less than the allowed 440 litres per 100 m² that was used for the calculation of water demand: <ul style="list-style-type: none"> The figure of 440 litres per 100 m² of building area is proposed for all light industrial uses. The specific light industrial type of building that will predominantly be developed at the ASZ is warehousing. Calculating the water demand for warehousing specifically, using the National Building Regulations, results in a much lower demand. The Building Regulations proposes an occupancy of 2 persons per 100 m². Water demand is estimated at approximately 55 litres per person per day within a warehousing context. This is primarily for the flushing of toilets and urinals. A limited demand is expected for drinking, body washing, cooking and washing of dishes. Applying the guidance of the Building Regulations therefore proposes merely 110 litres per 100 m². Allowance should further be made for washing of surfaces as well as water losses and irrigation of gardens. Allowing a further 100 litres per 100 m² of building area for other uses and losses results in a total demand of 210 litres per 100 m². This further allowance for surface washing and irrigation will be limited during any prolonged drought.

	<ul style="list-style-type: none"> At least 80 % of the demand as calculated by the application of the Building Regulations will be used for flushing of toilets and urinals, gardening and washing of surfaces. This portion of the demand can be satisfied using treated wastewater. Therefore the Industrial Park will be able to operate using only municipal water allocation and treated wastewater in the case of the 'worst case scenario' over the past 40 years. The wastewater treatment process results in losses of approximately 20%, leaving the remaining 80% for re-circulation under extreme drought conditions <p>The CSIR's Green Book was consulted to determine the predicted climate change risks/hazards and the potential impacts on water security in the George Municipal area. Predictions for 2050 are that the annual average rainfall will increase by 100 mm. However an increase in drought tendencies is also predicted, and the settlement of George is indicated to be at extreme risk of an increase in drought tendencies. There is a low risk of an increase in urban flooding, and a decrease in the number of extreme rainfall days. These predictions emphasise the importance of the concept of 'circularity' where wastewater is treated in a nature-based solution, and circulated for re-use to meet water demands. The proposed water harvesting and re-use system for the Industrial Park has been designed to meet these requirements. Other mitigation measures that are recommended for water security include clearing alien vegetation in the drainage areas and planting only indigenous plant species in the development area.</p>
<p>Municipal Service Level Agreements:</p> <p>Considering the above and in accordance with Section 152 the Constitution and Section 73 of the Local Government: Municipal Systems Act, 2000 (Act no. 32 of 2000), the general duties and functions of local government are described, which require inter alia that the local government must provide basic services. The Local Government: Municipal Systems Act, 2000 does however allow for the provision of such a municipal service in its area or part of its area, through an external mechanism by entering into a service delivery agreement with an entity or person legally competent to operate a business activity. As such the applicant must enter into a Service Level Agreement with the George Municipality. In light hereof, the George Municipality's Directorate Civil Engineering Services must provide guidance on the requirements and implementation of such a service level agreement. In addition, the level of the service must be specified (i.e. service standard) and under which circumstances the municipality shall need to undertake the management and the maintenance of the facility to provide the service (i.e. failure to provide an adequate service).</p> <p>Furthermore, the BAR must include formal confirmation from the George Municipality that the POA can develop their own services infrastructure for sanitation (100%) and water (80%). Notwithstanding the aforementioned, it is understood that the POA is considering the off-grid development due to a delay in the implementation of the required municipal bulk upgrades in terms of water and sewer. However, it is unclear why the POA cannot implement the required upgrades which can then be subtracted from the required capital contributions to the George Municipality.</p>	<p>A property owner's association (POA) will be established to manage the maintenance and operations of the engineering infrastructure required for the Industrial Park. The POA will have a Constitution that will guide the management of infrastructure as well as the relationship of the POA with the George Local Municipality (GLM). The developers of the properties within the ASZ have been consulting with the George Municipality, and in particular the Civil Engineering Directorate. A Draft Services Agreement has been drawn up and is with the Municipality for review. As part of the public participation process on the project, the Draft BAR was sent to the Municipality to request comment on the proposal. Comment received from the Civil Engineering Directorate is included in the section below this table (i.e. under 'Copies of Correspondence Received').</p>
<p>Stormwater Management:</p> <p>A description of the stormwater management measures have been provided in the DBAR. However, the Stormwater Management Plan for the proposed development has not been</p>	<p>The Stormwater Management Plan was attached as Appendix G10 to the DBAR, and is again included in this updated DBAR.</p>

<p>included in the DBAR. You are therefore advised to include the plan in the BAR. This may also be an important aspect in an application for a license / authorisation in terms of the National Water Act, Act No. 36 of 1998.</p>	<p>The stormwater management system for the ASZ is described under the Project Description in the DBAR, and is illustrated in Figure 7.</p>
<p>Engineering Services Report: Furthermore, a copy of the Civil Engineering Services Report compiled by <i>Infrastructure Consulting Engineers</i> has not been included in the DBAR. As such, the report must be appended to the BAR.</p>	<p>As above, the Services Report and Stormwater Management Plan area a combined report in Appendix G10. Appendix G11 provides further details on the suggested WWTW technology, and Appendix G12 is the electrical report. The proposed services plan is described under the Project Description section of the DBAR, and is outlined in the Figures that follow the description.</p>
<p>Future Trunk Road D89 (Western Bypass): The Department notes that correspondence from the Western Cape Government: Department of Transport and Public Works (Roads) ("DTPW") regarding the proposed developments on Portion 4 of the Farm Gwayang No. 208 and Portions 130, 131 and 132 of the Farm Gwayang No. 208 have been included in the DBAR. The correspondence specifically relates to the proposed future Trunk Road 89 (George Western Bypass) and the proximity of the proposed developments to said road. With regard to this application, the proposed George Western Bypass will bisect Portions 4 and 139. The development of the WWTW, phases 1 and 2 of the proposed solar plant and the light industrial park will confirm the future road alignment of the George Western Bypass. It is unclear at which stage the planning for the proposed Western Bypass is and whether any changes to the road alignment is envisaged. Therefore, comment in this regard must be obtained from the Directorate: Road Planning of the DTPW. Furthermore, from the correspondence included in the DBAR it is understood that no external services may be located within any Proclaimed Provincial Road Reserve. However, the proposed WWTW will be located east of the George Western Bypass. As such, services will be installed within the road reserve. It is assumed that a wayleave application for the installation of sewer (and electrical lines from the solar plants) will be submitted in this regard. As such, comment in this regard and envisaged depth of any pipelines underneath the road must be obtained from the Directorate: Road Planning of the DTPW.</p>	<p>A meeting was held with Mr Evan Burger of the DTPW on 11 January 2023. The DTPW has subsequently responded to the DBAR in writing, confirming <i>'this Branch - from an environmental point of view, offers no objection to the issuing of an Environmental Authorisation, provided that the conditions towards the planning applications are adhered to'</i>. A wayleave application will be required for services. Mr Burger clarified that parallel services in the WCG road reserves would not be entertained, but that crossing services are not a problem. Therefore construction of infrastructure across the future Western Bypass to access the proposed WWTW and water treatment/storage areas on the Remainder of Ptn 4 and/or for infrastructure required for the solar facility on Ptn 139/208 would not be problematic. The consulting engineers (ICE) noted that the final services designs would take into consideration the Western Bypass design before construction. The services will be coordinated and routed via one reinforced concrete pipe culvert. This culvert will be located at a depth below the pavement layers of the proposed Western Bypass and will stretch from road reserve boundary to road reserve boundary. The services will therefore not be affected by the roadworks, should they take place at a later stage. When the Western Bypass is constructed the services crossing the future road will need to be catered for as per all other service crossings. The designs for the services will be provided to WCG for comment before going ahead with construction.</p>
<p>Proposed new WWTW on Ptn 4: The proposal includes the development of a new wastewater treatment works (WWTW) on Portion 4 of the Farm Gwayang No. 208 with a capacity to treat approximately 430m³ of sewage per day. It is understood that the works will be engineered wetland technology. Furthermore, it is understood that the treated effluent will be re-used, and any excess treated wastewater will be used for irrigation on the remaining extent of Portion 4. It is foreseen that when the George Western Bypass is constructed that the operation of the WWTW (if it were to be developed on the proposed location), could be significantly impede the operation of the WWTW. Specific details on the implementation; road crossing design and how the operational requirements will be ensured when the Western Bypass Road is developed must be provided. However, in order to avoid infrastructure crossing the proposed George Western Bypass Road reserve, an alternative location of the WWTW located on the western side of the George Western Bypass and south of the R102 should be investigated and the feasibility thereof determined. The operation, monitoring and auditing of the WWTW must be clearly detailed in the BAR. Please be advised that the laws relating to the operation of a waterwork and the discharge / irrigation with treated wastewater falls within the jurisdiction of the Department of Water and Sanitation and / or the responsible agent namely the Breede-Gouritz Catchment Management Agency ("BGCMA"). In this regard, this Department is of the considered view</p>	<p>As above, the DTPW has no objection to services crossing the Western Bypass in a wayleave. The method of pipeline installation and design has considered the potential impact of road works into account, and risks have been avoided by planning services in a reinforced pipe culvert. The culvert will be located at a depth below the pavement layers of the Western Bypass, from road reserve boundary to road reserve boundary. The location of the proposed WWTW on Ptn 4/208 is identified as the preferred location based on planning principles. The 5 properties within the ASZ are identified for 'Airport Support Zone' uses in the Gwayang LSDF (see areas shaded in dark blue in the image below). Approved and applied for land uses on these properties are in line with the LSDF, and make maximum use of the sites in terms of spatial planning principles. The eastern parts of Ptn 4 and 139/208 (i.e. east of the Western Bypass Arterial) are excluded from this use because they are bisected by the planned Arterial. Therefore similar constraints apply to sections of both properties in the ASZ that are not designated for airport-support uses, and the solutions offered by ICE in consultation with the DTPW would apply in either instance. Placing the WWTW on other portions of the properties in the ASZ (i.e. west of the Western Bypass Arterial) would not be efficient use of land designated for airport support services.</p>

that the proposed WWTW and the related management of treated wastewater will require water use license in terms of Section 21 of the National Water Act, Act No. 36 of 1998 ("NWA"). From the information in the DBAR it is unclear whether the BGCMA has been consulted and whether the required application has been submitted to the BGCMA. Considering the above, please be advised that in the event where a Water Use License is required that the EIA process and the Water Use License Application ("WULA") process must be synchronised. You are reminded that if these processes are not properly aligned, the lack of synchronisation; omission of any reports/information; or delay as a result thereof, may prejudice the success of the application for environmental authorisation. Furthermore, in terms of Regulation 7(3) of the EIA Regulations, 2014 (as amended) where an applicant submits an application for environmental authorisation in terms of these Regulations and an application for an authorisation, permit or licence in terms of a specific environmental management Act or any other legislation, the competent authority and the authority empowered under such specific environmental management Act or other legislation must manage the respective processes in a cooperative governance manner. Therefore, your EAP is requested to include all information related to the Water Use Authorisation Application in the Basic Assessment Process.



Extract from the Gwayang LSDF showing the properties that form part of the planned 'George Airport Support Zone' (outlined in red). Areas shaded in blue are designated for airport support uses.

Details on operation, monitoring and auditing of the WWTW are outlined in the EMP (Appendix H).

The BGCMA has been consulted, and has submitted comment on the DBAR by confirming what applications are required in terms of the NWA. Virtual consultations have also been held with the case officer, Mr Sbonelo Ndlovu. The application was submitted by Toni Belcher via the online E-WULAA system in October 2021. More recently, the current case officer, Mr Ndlovu and Mr Carlo Abrahams have advised that the existing WULA issued to Ptn 4/208 must be amended to include the planned WWTW and discharge of treated effluent, as well as irrigation of common areas with treated effluent. The application on Ptn 139 will proceed with its current reference number (WU 22440). Both applications are underway, and every effort is being made to follow an integrated process for both submissions. More recent correspondence from Mr Ndlovu in response to a direct query submitted by the EAP relevant to the BA process and in particular the specialist studies and technical reports required for the BA and WULA is inserted below in the 'Copies of Correspondence Received'.

The Draft BAR indicated that a WUA is required, and that the application has been initiated with the BGCMA. The assessment of impacts on surface and groundwater as a result of

	<p>infrastructure crossings of drainage areas, disposal of treated effluent and irrigation with treated effluent were addressed in the Draft BAR and are further addressed in this updated DBAR. Required specialist studies (i.e. aquatic biodiversity, geohydrology, stormwater management, and engineering) were also included in the Draft BAR. The delineated extent of aquatic areas are also identified in the aquatic biodiversity report, with management/mitigation measures.</p> <p>An Integrated Water and Waste Management Plan, that is required for the WULA submission, is added to this updated DBAR.</p>
<p>Renewable Energy Facility / Solar Plant:</p> <p>The proposed solar plant will be located on land north of the R102, which according to the Gwayang Local Spatial Development Framework (2015) is located outside the ASZ and within an area earmarked for Agri-Tourism. Notwithstanding the information in the Agricultural Compliance Statement indicating that economically viable crop production is impractical due to the property being bisected by the existing R102 and future George Western Bypass, the Western Cape Government: Department of Agriculture – Land Use Management must be consulted, and comment obtained and included in the BAR.</p> <p>Furthermore, it is understood that the ASZ will consist of light industrial uses which includes warehousing, etc. It is expected that the buildings within the ASZ will have considerable roof area available. The need for the development of the renewable energy facility on the portion of agricultural land must be demonstrated more clearly. As such, an alternative where solar panels are installed on the structures as a building requirement/parameter must be investigated and the feasibility thereof reported on in the BAR.</p>	<p>As part of the BA public participation process, the Department of Agriculture has been sent notices of the Draft BAR and reminders to submit comments. Unfortunately no comment has been received to date.</p> <p>The developer of Ptn 139 has indicated that a future application will be made to install solar panels on the roofs of buildings in the light industrial area. The roof areas will be exclusively for the light industrial development and for the benefit of the various warehouse owners. This will be done once detailed designs of buildings are done that will inform orientation, height etc. Solar panels on roofs in the light industrial development area are therefore not part of the current BA process. The glint and glare assessment done for the solar farm will need to be updated along with a second application to the CAA before the panels can be installed on roofs.</p> <p>The proposed solar farm on the northern side of the R102 is based on a wheeling agreement for power back onto the grid (i.e. to provide power to others). The desirability thereof is to contribute clean energy and reduce reliance on coal-based energy generation. This is especially important in the current scenario of ongoing load shedding, especially to an area where there is potential for growth.</p> <p>Therefore both solar panels on roofs in the planned light industrial development area, and a solar facility on the northern side of the R102 are planned, but these have different outcomes (i.e. for private development versus power to others).</p> <p>The agricultural specialist confirmed that the agricultural impact is low.</p>
<p>Implementation Program:</p> <p>Please note that, in accordance with the provisions of the Environmental Impact Assessment Regulations, 2014, a period for which the environmental authorisation is required must be provided. This period must be informed by the operational aspects and the non-operational aspects of the proposed development. As such, the date on which the activity will be concluded and the post construction monitoring requirements finalised, must be determined.</p> <p>With due consideration of the phasing of the ASZ as indicated in the table and figure on pages 23 and 24 of the DBAR, respectively; and the implementation programme specified in Section J: 2.5, the EAP is advised to provide estimated timeframes / dates within which the proposal will be implemented. The operational aspects must also be considered in the implementation programme.</p> <p>The implementation programme must demonstrate how the development will be synchronised with the implementation of all the required infrastructure. In this regard, the implementation programme must also clearly describe which portions (phases) of the proposed development(s) will be dependent on the development and operation of the proposed new WWTW. As such the necessary infrastructure must be established and operational ahead of the development of building / structures.</p>	<p>The DBAR provided the following information regarding timeframes:</p> <p><i>'Construction to commence within 1 year of issuing of a decision by the Department. Construction of Solar farm, the light industrial development, the WWTW and infrastructure will all start concurrently. The solar farm will be done in 2 phases. The light industrial zone buildings will be done in 5 phases. Approval is sought for a 10 year period for construction to be completed. Post-construction activities should be done within 1 year of completing the last building'.</i></p> <p>Details on the implementation of various phases of development on all properties within the ASZ, and how these relate to one another in terms of shared services are provided under the 'Project Description' of the BAR. The description provided in the DBAR has been expanded on in this updated DBAR to provide more details regarding implementation timelines.</p>


<p>Environmental Management Programme: The contents of the Environmental Management Programme ("EMPr") must meet the requirements outlined in Section 24N (2) and (3) of the NEMA (as amended) and Appendix 4 of GN No. R. 982 of 4 December 2014. The EMP must address the potential environmental impacts of the activity throughout the project life cycle, including an assessment of the effectiveness of monitoring and management arrangements after implementation (auditing). This Department has reviewed the EMPr as included and received as part of the DBAR. The following aspects must be addressed</p>	<p>Noted, please refer to the EMPr in Appendix H. The EMPr has been updated to address these comments.</p>
<p>Monitoring/Reporting: Throughout the EMPr it is indicated that the Environmental Control Officer ("ECO") will compile audit reports. A clear distinction must be made between the environmental monitoring reports and post-construction rehabilitation reports by the ECO and the environmental audit report to be compiled by an independent person with the relevant environmental auditing expertise. In this regard, please note that the environmental auditor cannot be the EAP or the ECO. Furthermore, take note of the auditing requirements with regard to environmental authorisations and EMPr's under Regulation 34 of the EIA Regulations, 2014 (as amended). In this regard, the EMPr must be amended to ensure compliance with the requirements. The contents of the environmental audit report must comply with Appendix 7 of the EIA Regulations</p>	<p>Noted, please refer to the EMPr in Appendix H. The EMPr has been updated to address these comments.</p>
<p>Operational Aspects: The EMPr must address the potential impacts of the proposed activity throughout the project life cycle. In this regard, the EMPr fails to adequately address the operational aspects associated with the proposed WWTW, with specific reference to the operation and maintenance of the WWTW and the irrigations with treated wastewater (when required). This must be addressed in the EMPr. Moreover, it is strongly advised that any operational aspects in respect of the water use authorisation is included in the EMPr.</p>	<p>Noted, please refer to the EMPr in Appendix H. The EMPr has been updated to address these comments.</p>
<p>With reference to Points 2.2 and 2.3 of this letter, it is reiterated that the failure to provide the required information and / or synchronise the required processes may prejudice the success of your application for environmental authorisation. In this regard, it is strongly advised that the relevant authorities are consulted timeously and where necessary, meetings arranged to discuss the proposal. Should the latter be considered, this Directorate will avail representatives to attend such meetings.</p>	<p>As above, the BGCMA has provided comment on the DBAR, confirming what applications are required. The WUA application has been submitted for Ptn 139 and the WULA on Ptn 4 is being amended. Every effort is being made to align the WULA and BA processes. Comment has been received from the Western Cape: DTPW who have indicated they have no objection to an Environmental Authorisation being issued for the project, provided that the conditions towards the planning process are adhered to. They have confirmed that services across the planned Western Bypass can be entertained. A letter from the George Municipality Civil Engineering Directorate is inserted below this table. As part of the BA public participation process, the Department of Agriculture have been sent notices of the Draft BAR and reminders to submit comments. Unfortunately no comment has been received to date from either.</p>
<p>Submission of the BAR: The BAR must contain all the information outlined in Appendix 1 of GN No. R. 982 of 4 December 2014 (as amended) and must also include and address any information requested in any previous correspondence in respect of this matter. The pre-application correspondence (Ref: 16/3/3/6/7/1/D2/19/0133/21) refers in this regard.</p>	<p>The EAP submitted a letter to the DEADP indicating that the 50 day extension would be applied. The DBAR has been updated (to this second version), and is being sent to all registered IAPs for a further 30 day review and commenting period. The due date for the Final BAR is now 21 April 2023.</p>

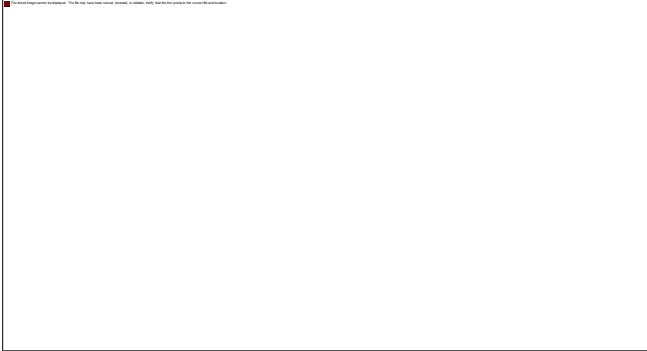
<p>Please be reminded that in accordance with Regulation 19 of GN No. R. 982 of 4 December 2014, the Department hereby stipulates that the BAR (which has been subjected to public participation) must be submitted to this Department for decision within 90 days from the date of receipt of the application by the Department.</p> <p>However, it is important that your EAP must determine if significant changes have been made or significant new information has been added to the BAR. In such an instance the EAP must notify the Department that an additional 50 days (i.e. 140 days reckoned from receipt of the application) would be required for the submission of the BAR. The additional 50 days must include a minimum 30-day commenting period to allow registered I&APs to comment on the revised report/additional information.</p> <p>In accordance with Environmental Impact Assessment best-practice, you are kindly requested to notify all registered Interested and Affected Parties including the authorities identified in the Public Participation Plan of the submission of the FBAR and to make the document available to them. This will provide such parties an opportunity to review the document and how their issues were addressed.</p>	
<p>Breede Gouritz Catchment Management Agency – received via email on 20 December 2022 and 10 March 2023</p>	

Confirmed that a WULA is required for activities : The proposed WWTW will trigger activities in terms of Section 21 g for disposal of waste that may be detrimental to the aquatic environment. Irrigation with treated effluent would trigger Section 21 e activities The proposed development occurs within the regulated area of a watercourse, and applications under Section 21 c and i will be required for altering the bed and banks of a watercourse. A Water Use Authorisation must be obtained from the Department before any activity can commence.	Noted thank you. An application is underway for Ptn 139/208. The WULA for Ptn4/208 is being amended to include the WWTW, disposal of water containing waste, and irrigation with treated effluent.
The case officer, Mr Ndlovu, confirmed that the WULA for Ptn 139 has been submitted (reference number WU22440) , and that the proposed WWTW and irrigation with treated effluent on Ptn 4 will need to be addressed by means of an amendment to the existing WULA for Ptn 4/208. Mr Ndlovu further indicated that the Department will provide additional comment in Phase 2 of the application process, once they have done a site inspection. He advised that preliminary specialist studies that will be required area a Freshwater Impact Assessment Report, Stormwater Management Report, a Geohydrological Report, Civil Designs Report for the plant/ Master Layout Plan for the development, Civil Services Report, Public Participation Report. The rest will be confirmed by the specialists.	Noted thank you The listed specialist studies are included in the current BA report.
Western Cape Department of Transport and Public Works – received via email on 16 January 2023	
In both its respective letters of 17 August 2021 (in favour of Portion 4) and 12 December 2022 (in favour of Portion 139) to George Municipality has this Branch conditionally supported the proposed planning applications and approved the proposed subdivisions towards these development proposals, which is why this Branch - from an environmental point of view, offers no objection to the issuing of an Environmental Authorisation, provided that the conditions towards the planning applications are adhered to.	Noted, thank you.
The Branch wishes to clarify the following: <ul style="list-style-type: none"> Although these external services (due to these developments being approved) located parallel to and within any of its Proclaimed Road Reserves, will not be allowed, perpendicular crossings of such road reserves with such services will be allowed. The approvals to subdivide both Portion 4 and Portion 139 are subject to the respective developers ensuring permanent, legal and unfettered access off the Proclaimed road network (existing and/or unbuilt roads) to all the respective subdivided portions; and it will not be this Branch's responsibility to ensure such permanent, legal and unfettered access 	Noted, the consulting engineers have confirmed that all planned services that cross the Western Bypass are perpendicular crossings.
CapeNature – received via email on 6 February 2023	
According to the Western Cape Biodiversity Spatial Plan (WCBSP 2017)1 the property is outside of the extent of Critical Biodiversity Areas and portion 4 of farm 208 has degraded Ecological Support Areas. The watercourse is a non-perennial river that drains to the south into a tributary of the Gwaing River. Furthermore, the property is within the National Strategic Water Source Area for surface water for the Outeniqua region and serves as a	Noted and referenced in the BAR.

water sources protection for the Gwaing River and watercourse protection for the South-eastern Coastal Belt.	
According to Mucina and Rutherford (2006) ² and the Western Cape Biodiversity Spatial Plan (Pool-Stanvliet <i>et al.</i> 2017) the vegetation is Garden Route Granite Fynbos which is listed as Critically Endangered (NEM:BA, 2022)	Noted and referenced in the BAR.
It is understood from the dBAR that Environmental Authorisation has been granted for services infrastructure on portions 4, 130-132, and 139 of Farm 208. Thus, Cape Nature's comments will only pertain to 4/208 and 139/208 for the proposed development, solar facility, services, and infrastructure for the George Airport Support Zone	Noted
Although the proposed development areas do not contain any CBAs the property to the south, 34/208, does have natural aquatic CBA. Thus, the proposed activities should be guided by the objectives and guidelines of CBAs to conserve and protect the CBAs towards the south (Pool-Stanvliet <i>et al.</i> 2017)	Noted, and addressed in the Aquatic Biodiversity report and impact assessment, w.r.t. connectivity across the landscape, flow requirements, and water quality management.
Indigenous Forest trees are present at the proposed development area and CapeNature reminds the applicant that activities in state forests must be licensed in terms of section 23 (1) (2) of the National Forest Act, 19984. Furthermore, section 15(1) of the National Forests Act states that no person may cut, disturb, damage, or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree except under a license granted by the Minister. Therefore, CapeNature recommends the applicant to obtain comments from the Department of Forestry, Fisheries and Environment if any indigenous protected tree species ⁵ will be impacted.	Noted, should Yellow wood trees on the property boundary of the ASZ need to be removed, the necessary permits will be applied for.
CapeNature is satisfied with the Terrestrial Biodiversity Impact Assessment and Plant Species Assessment reports. Furthermore, satellite imagery supports these reports that the proposed area has been historically transformed and does not contain any natural elements of Garden Route Granite Fynbos	Noted.
Increased severity of alien plant spread is listed as one of the construction phase impacts in the dBAR. CapeNature recommends compiling an alien control plan for the eradication and monitoring of invasive alien species. This plan must follow the National Environmental Management: Biodiversity Act (Act No.10 of 2004) ⁶ and should be included in the EMPr. Control methods for the eradication of alien invasive species must be implemented in such a way that it prevents harm to the surrounding environment. Furthermore, CapeNature suggest that invasive aliens outside the boundary of the development area also be removed. The continual removal of alien invasive vegetation will have a positive impact on the water resources for the area and the Outeniqua SWSA.	Noted. The removal of alien vegetation is addressed in the BAR and EMPr. However, it is recommended that an integrated alien vegetation management and control plan be done for the full ASZ, and in collaboration with surrounding property owners, to extend the positive impact to the downgradient CBAs. This will require a co-ordinated approach and planning on a more strategic level. Therefore it is recommended that the development to the Alien Vegetation Management Plan be made a Condition of Approval, and that the Plan should be developed by all developers in the ASZ within 6 months of the issuing of a decision on this application by the DEADP.
The property is within the SWSA for the Outeniqua region and is of national importance and their ecological functioning must be protected and maintained (Le Maitre <i>et al.</i> 2018) ⁷ . The aquatic report stated the importance of the non-perennial watercourse as a corridor which is important for water moving through the landscape. Thus, this watercourse will be maintained and a 20 m setback (i.e., 10 m on each side) has been recommended and is supported by CapeNature	Noted thank you. This is incorporated in the SDP.
Waste should be removed from the entire site and not only the development footprint. Waste generated by the development must be stored on site until it is removed to a registered facility. Ensure that waste bins and containers do not overflow by emptying them regularly and these bins must be situated away from the watercourses	Agreed and included in the EMPr
The Environmental Control Officer should monitor the construction and operational phases. Furthermore, any negative impacts to the environment must be mitigated within the EMPr	Noted and included in the EMPr

and the mitigation measure provided in the specialist reports must still be adhered and implemented. The ECO must ensure that the 20 m aquatic setback lines are strictly adhered. The ECO must identify any harmful activities to the environment	
Airports Company of South Africa – received via email on 16 January 2023	
Noise impact on buildings - ACSA suggests that the necessary insulation/ mitigation measures be put in place. ACSA cannot be held liable for the negative impact of aircraft noise and/or any other impacts associated with the close proximity to George Airport that could jeopardise the future success of this development	Noted. The developers are aware of the location of the property directly opposite to the George Airport and the potential for noise impact.
Building height - ACSA agrees with the assertion that comments must be sought from the South Africa Civil Aviation Authority regarding height restriction for the proposed development	A specialist study has been done that considers building height, and an application has been submitted to the SACAA.
Visual impact, glint and glare, obstacle avoidance - ACSA agrees with the assertion that comments must be sought from the South Africa Civil Aviation Authority, on the visual impact study conducted on the impact of 'glint and glare' that will result from the proposed development (i.e. solar facility).	A specialist study has been done that considers glint and glare from the proposed solar facility, and an application has been submitted to the SACAA.
Stormwater dams and WWTW ponds - attract birds, aircraft collision risk	Please note that the proposed WWTW technology will not result in standing water in open ponds. Water is treated below the aggregate (i.e. sub-surface). Surface vegetation in the treatment wetlands is comprised of Phragmites plants. The proposed check dams in the Aquatic Zone that forms part of the overall stormwater management system will also not hold water – these are for attenuation only (and not detention), and have outlets at the base of each check dam.
Site Development Plans and Building plans related to the proposed development must be shared with ACSA, the SACAA and ATNS for comments - In terms of the Civil Aviation Act and Regulations the Site Development Plans and Building Plans must be approved prior to construction by the Airports Company South Africa, the South African Civil and Aviation Authority (SACAA) and the Air Traffic Navigation Services (ATNS). These entities will evaluate the height, line of sight, reflective surfaces and nature of the proposed uses, to determine the impact that the proposed development will have on George Airport. We would therefore like to request that ACSA, the SACAA and ATNS be included as Interested and Affected Parties (IAPs). ACSA will grant approval on the Site Development Plans and Buildings plans related to the proposed development, on condition that approvals are received from both ATNS and SACAA	All plans and reports have been shared with SACAA as part of the PPP process on the DBAR, and also as part of the application in terms of obstacle avoidance and glint and glare.
PHS Consulting on behalf of the Mercedes Trust – received via email on 24 November 2022	
The Mercedes Trust has a valid mining licence for gravel on Ptn 129/208. The reserve determination has indicated that the source has the potential until approximately 2040 or longer. We would like to stress that the nature of mining activities relate to heavy machine and truck movement, dust and noise pollution in general. However this operation consists of gravel mining that relate to limited dust and due to the proximity to receptors no noise complaints have been received to date. The current access has also been successfully used for many years. The above is mentioned in order to draw the developer attention to the fact that the proposed development needs to be able to accept and acknowledge the current mine operation on the neighbouring farm. Mercedes Trust wants to avoid that a conflict situation arises in future due to the proximity of the mine to the new proposed urban development. As a norm mines don't develop close or inside the urban area and considering the indication that the road system on the new proposal relate to expansion it could hint towards urban expansion around the mine in future, jeopardising the mines existence	Urban development impacts on the runoff characteristics of stormwater. It increases the rate of runoff as well as the volume of runoff. The proposed stormwater management plan for the development of the cumulative ASZ area aims to limit the peak runoff rate from the proposed development to the pre-development discharge rate. This is attained through check dams along the drainage line (Aquatic Zone) running from north to south through the properties (see image below). A further measure is that the existing dam at the southern boundary of Portion 4 will be used as a retention dam. It will require minor changes to the outlet structure of the existing dam. Urban development also impacts on the quality of runoff. For this purpose the Services Report proposes that the development of all properties provides for a grid trap in the on-site stormwater system, before runoff from properties exits individual stands. Runoff is from grid traps channelled through a system of grass swales running along roads. The gradient and alignment of swales are of such a nature that water flow velocities are kept below the rate where erosion occurs. Grass swales furthermore mitigate the impact of the increased runoff from proposed buildings.

<p>The mine falls inside the same micro-catchment as the proposed development and stormwater run along a watercourse on the southern edge of the mine property. In order for the mine operation to control surface and groundwater quality as per NWA requirements, it is essential that the new development discharge stormwater and groundwater as per current quality to avoid the mine being regarded as the sole contributor to water quality changes in the medium to long term</p>	<p>Furthermore, runoff from the development area will drain via the Aquatic Zone (and drainage line that discharges south thereof), which runs to the west of the mine, where mining operations do not take place. Therefore it is not envisaged that the development of the ASZ will result in changes to the status quo at the mine in terms of surface runoff through the property.</p>
<p>How will the run-off from the development affect the mine operation? Will the mine need to dewater as a result of the development?</p>	
<p>Where will irrigation of treated effluent take place and how will it affect the water quality in the mine?</p>	<p>Irrigation of treated effluent is planned across common areas of open space across the ASZ. For example in landscaped areas along road sides. The geohydrological report has addressed irrigation using treated effluent, and the potential impact on reduced groundwater quality. The impact on down gradient environments and facilities (including the mine) is rated as very low negative with mitigation measures in place. Monitoring wells are recommended to test groundwater quality over time and determine if the ASZ is impacting on the local aquifer.</p>
<p>George Municipality – Civil Engineering Department</p>	
<p>The Civil Engineering Department wrote a letter confirming support of the development and that they are finalising a Service Level Agreement with the POA w.r.t. how services will be managed and implemented.</p>	<p>Noted thank you</p>
<p>George Aerotropolis (Pty) Ltd – received via email on 7 February 2023</p>	
<p>Mr Abu Varachhia of George Aerotropolis (Pty) Ltd confirmed that the approved roads within the development area on Ptn 130 to 132 of Farm Gwayang No 208 can be used to access the development on Ptn 139/208.</p>	<p>Noted thank you</p>
<p>Comments received on the Updated Draft Basic Assessment Report</p>	
<p>Department of Environmental Affairs and Development Planning – received via email on 13 April 2023</p>	
<p>Application for a Water Use Authorisation:</p> <p>1. The Department is aware that an application for water use authorisation ("WULA") for the proposed Wastewater Treatment Works has been submitted to the Breede-Gouritz</p>	<p>1. Noted, the 3 developers that will comprise the POA have been informed of the requirement to include the 'disposal' of sludge (for re-use as compost) in the Agreement with the George LM. The Agreement could not be updated between the date of receiving this comment from the DEA&DP and the due date for the Final BAR.</p>

<p>Catchment Management Agency ("BGCMA"). It is understood that the application for water use authorisation entails the amendment of the existing water use license issued for the water use activities on Portion 4 of the Farm Gwayang No, 208, in respect of the proposed development of Portion 4 for which environmental authorisation (Ref: 16/3/3/1/D2/19/0024/19) was issued. In this regard, the Department notes that Integrated Water and Wastewater Management Plan attached as Appendix G16 of the RBAR. From the document it is understood that the treated effluent from the proposed WWTW will be used for the irrigation of common areas, flushing of toilet and washing. Surplus treated effluent and effluent that cannot be reused will be discharged via the minor tributary. Furthermore, it is understood that sludge removal from the proposed WWTW will be undertaken every 10 to 15 years. It is understood that the sludge can be re-used in agricultural areas. It is unclear where this will be physically disposed of though, and in light hereof the agreement with the George Municipality should address this aspect too.</p> <p>2. In light of the above, you are advised to include information on the procedure to be followed in the event that the quality of the treated effluent and composted sludge does not comply with the required standards as may be specified in the Water Use License. It must be demonstrated what mitigation measures will be implemented to address the foreseen impacts in such a scenario.</p> <p>3. Furthermore, your attention is drawn to Section 22(1) of the WSA which states that no person may operate as a water services provider without the approval of the Water Services Authority having jurisdiction in the area in questions, namely the George Municipality. This is supported by Section 152 the Constitution and Section 73 of the Local Government: Municipal Systems Act, 2000 (Act no. 32 of 2000), which detail the general duties and functions of local government, which require <i>inter alia</i> that the local government must provide basic services. The Local Government: Municipal Systems Act, 2000 does however allow for the provision of such a municipal service in its area or part of its area, through an external mechanism by entering into a <i>service delivery agreement</i> with an entity or person legally competent to operate a business activity. In this regard, the Department notes the principles on which the Services Agreement will be based and the support of the George Municipality in respect of the proposed development and the services proposed to support the development. However, this agreement may not adequately address the risks and cumulative impacts associated with the delivery of such services. Furthermore, it is understood that since water provision and wastewater treatment for the entire Airport Support Zone ("ASZ") will be managed by the Property Owners Association ("POA"), that the POA will need to register as a Water Services Provider ("WSP") in terms of the Water Services Act, Act No. 108 of 1998, as amended ("WSA"). However, it is unclear whether the required authorisation in terms of the National Water Act, Act No. 36 of 1998 and / or the Water Services Act has been obtained. Information in this regard must be included in the Basic Assessment Report.</p>	<p>However, it will be finalised prior to any activities taking place, should the DEA&DP issue a positive decision.</p> <p>2. The solids and sludge that forms part of the wastewater to be treated forms part of the first stage of the treatment process. Treatment of the sludge takes place in a sludge treatment wetland. The diagram below shows a typical sludge treatment wetland.</p>  <p>Sludge accumulates on the surface of this phase. The accumulated sludge goes through resting periods when it dewateres and composts or mineralize. The system is sized to accumulate sludge for a period of 10 to 15 years before it needs to be removed. The quality of the sludge will be monitored throughout the mentioned period (i.e. on an annual basis). Should tests indicate that the sludge is not fit for purpose (i.e. for use as compost), further measures will be implemented to stabilize the sludge to acceptable levels (for example by dosing with lime).</p> <p>The quality of final outflow of the treated effluent will be monitored continuously, in line with the requirements of the WULA. Free chlorine will be measured on a continuous basis through probes. If the free chlorine values move beyond set levels, the final effluent will be diverted into an offline storage tank. The diversion will take place through a manifold of solenoid valves that automatically open and close to change the flow path of treated effluent to a storage facility. This effluent will then be recirculated via the inlet system of the treatment plant for further treatment so that it can meet standards set in the WULA.</p> <p>3. The case officer from the BGCMA who is handling the WULA application for Ptn 4 and 139 was consulted to determine if the POA needs to register as a Water Services Provider. Mr Ndlovu responded via email confirming the following: <i>'Please note that it is not necessary for the Property Owners Association (POA) to register as a Water Services Provider since the George Municipality is the designated WSP authority in the area. The POA can enter into a Service Level Agreement/Memorandum Of Agreement contract as a Water Services Intermediary with the Municipality IF the POA is planning to abstract water from any water resource which the DWS/BGCMA will issue a Water Use Licence for it. If the POA will be getting water from the municipality it is also not</i></p>
---	--

<p>4. It is noted that The George Municipality has stated that the treated wastewater should be treated to potable standards. This is understood to mean for primary use (i.e. drinking standard). You are required to consider and report on an alternative wherein the proposed wastewater treatment technology is utilised to treat the effluent to a drinking-standard. Please also refer to comment below under "potable water provision".</p>	<p><i>necessary to apply to be a WSP while you are receiving water from the municipality. The WULA doesn't deal with Water Service Provider applications'.</i></p> <p>4. Please note that this is not correct. The intention is to treat effluent and use it for irrigation, washing of surfaces, and flushing of toilets. Effluent will be treated to a standard that is suitable for these purposes, in line with the requirements of the WULA. The engineers are investigating the feasibility of advancing the treatment process to generate effluent that is of potable standards. However, this is not part of the current proposal or application. The George LM is aware of the intention, and it is reflected in the Service Level Agreement.</p>						
<p>Potable Water Provision:</p> <p>1. The Directorate notes that a conservative approach was used to determine the water demand and that the calculation was based on the lowest annual rainfall over the past 40 years. Notwithstanding this calculation, this Department is concerned that the Western Cape Province is especially vulnerable to climate change, being a winter rainfall area, as opposed to the other provinces in the country that are summer rainfall areas. The climate projections for this region indicate not only a warming trend as with the rest of the country, but also projected drying in many areas, with longer time periods between increasingly intense rainfall events. The latter is of particular concern in the already water stressed Province. These broad projections raise the risk profile of the Western Cape Province which is already vulnerable to droughts, floods and fire, which in turn will increasingly pose a more significant service delivery challenge to municipalities and in this case a "private services provider". The calculations must detail the expected changes in rainfall patterns and demonstrate how this will influence the proposed method water provision, the measures to address and overcome the risk must be provided.</p> <p>2. The mitigation measure provided that the George Municipality will provide potable water for human consumption only (i.e. in emergency / drought) is not necessarily accepted, especially in light of the fact that the Municipality can only currently provide 20% of the total ASZ's water demand (understood to be 20% of the average annual daily water demand AADD given as 538m³). This is calculated to be approximately 107m³. It is unclear if this volume would address the total volume of water required for human consumption in the ASZ development.</p> <p>3. The Directorate also notes the calculation for warehousing as per the National Building Regulations, which is based on an occupancy of two persons per 100m² where water demand is estimated at 55ℓ per person per day. According to the information at least 80% of the calculated demand (as calculated by the application of the Building Regulations) will be used for flushing of toilets and urinals, gardening and washing of surfaces and that this will be done using treated effluent. This is understood to be 80% of 538m³, which is approximately 430m³. It is unclear how the total volume of water from treated effluent will be provided, and it is assumed that a large volume of this</p>	<p>The CSIR's Green Book projects an increase in the annual rainfall of 100 mm for the George area by 2050. This is a significant increase above the current average annual rainfall of approximately 600 mm. To estimate how much water could be available for the development from rainwater harvesting, the lowest annual rainfall figure recorded in George over the past 40 years was used to estimate the yield – i.e. 426 mm recorded in 2019. The prediction in the Green Book of an increase of 100 mm in the annual average rainfall to 700 mm per annum, indicates that more water can be harvested in future. This is however not required since there is an acceptable water balance based on the lower rainfall of 2019 (see tables below). The Green Book also indicates an increase in the risk of droughts. This combined with the expected increase in annual rainfall points to the need for increased storage capacity to make sure that enough water is stored during periods of higher rainfall to supply the water demand in drier periods (in addition to other mitigation measures that have been incorporated in the water supply scheme of the development). ICE Engineers have considered the predicted drought risks, and have responded by including additional storage capacity in the development plans.</p> <p><u>Water Supply and Demand, and Water Balance calculations</u></p> <p>The table below summarises the supply and demand as recorded in the Services Report by ICE and accepted by GLM. The demand is based on the GLM Guidelines. 20% of this demand is available in the bulk supply system of the GLM – 107,62 m³ per day seven days per week.</p> <table border="1"> <tr> <th colspan="2">Demand and supply as per Services Report by ICE in m³ (based on GLM Guidelines)</th></tr> <tr> <td>Daily water demand based on George Guidelines (7 days per week) as per Services Report by ICE</td><td>538.11</td></tr> <tr> <td>Supply from GLM as per Services Report by ICE and agreed by GLM - 20%</td><td>107.62</td></tr> </table>	Demand and supply as per Services Report by ICE in m ³ (based on GLM Guidelines)		Daily water demand based on George Guidelines (7 days per week) as per Services Report by ICE	538.11	Supply from GLM as per Services Report by ICE and agreed by GLM - 20%	107.62
Demand and supply as per Services Report by ICE in m ³ (based on GLM Guidelines)							
Daily water demand based on George Guidelines (7 days per week) as per Services Report by ICE	538.11						
Supply from GLM as per Services Report by ICE and agreed by GLM - 20%	107.62						

<p>water will need to be stored once treated to supplement the 20% of the AADD received from the George Municipality.</p> <p>4. The information provided should demonstrate how a water balance is achieved between available water sources and the overall water demand, preferably in a tabular format. This should also clearly reflect how the ecological requirements of the watercourse will be met.</p> <p>5. However, according to the comment from the George Municipality: Civil Engineering Services (Ref: ASZ Farm 208; Date: 23 February 2023) the maximum 20% potable water which the municipality will supply to the ASZ (Portions 4, 130, 131, 132 and 139 of the farm Gwayang No. 208) will be fully available for the first phase of the ASZ, but that it will be apportioned between the various proposals within the ASZ as the phasing progresses. The division of the 20% potable water (bulk connection) between the respective developments is unclear and a more detailed description of the calculation must be provided to demonstrate how this will be achieved. Considering the nature and extent of the developments on the other portions of land in the ASZ, it is reasonable to expect that a greater volume of the 20% allocation of bulk water could eventually be utilised by those developments within of the ASZ. In light hereof, you are required to assess and report on an alternative how the effluent can be treated to a drinking standard (primary use) and how this measure will address the potable water requirements for this proposal as well as the developments in the ASZ.</p> <p>6. Notwithstanding the above and the information provided in the RBAR the Department remains concerned of the security of supply of potable water for the proposed development on Portion 139 (this application) as it only forms part of Phase 4 of the development of the ASZ.</p>	<table border="1"> <tr> <td>Supply from Treated Wastewater as per Services Report by ICE - 50%</td><td>269.06</td></tr> <tr> <td>Supply from Water Harvesting as per Services Report by ICE - 30%</td><td>161.43</td></tr> <tr> <td>Total supply</td><td>538.11</td></tr> </table> <p>The following tables summarise the demand and supply based on the Building Regulations for warehousing.</p> <table border="1"> <tr> <th colspan="2">Demand and supply based on National Building Regulations in m³ per day</th></tr> <tr> <td>Demand based on occupancy of 2 persons per 100 m²</td><td>130.58</td></tr> <tr> <td>Additional demand for surface washing and irrigation, etc.</td><td>118.71</td></tr> <tr> <td>Total</td><td>249.29</td></tr> </table> <table border="1"> <tr> <td>Potable quality demand - 20%</td><td>49.86</td></tr> <tr> <td>Non-potable quality demand - 80%</td><td>199.43</td></tr> <tr> <td>Total</td><td>249.29</td></tr> </table> <table border="1"> <tr> <td>Supply from GLM - potable only</td><td>49.86</td></tr> <tr> <td>Supply from Treated Wastewater - non potable disinfected</td><td>99.71</td></tr> <tr> <td>Supply from Water Harvesting - non potable disinfected</td><td>99.71</td></tr> <tr> <td>Total supply</td><td>249.29</td></tr> </table> <p>The demand calculated in accordance with the National Building Regulations is substantially lower than the demand in accordance with the GLM Guidelines. The reason for this is that the zoning allows for light industrial use and the Services Report by ICE is based on this zoning.</p>	Supply from Treated Wastewater as per Services Report by ICE - 50%	269.06	Supply from Water Harvesting as per Services Report by ICE - 30%	161.43	Total supply	538.11	Demand and supply based on National Building Regulations in m³ per day		Demand based on occupancy of 2 persons per 100 m²	130.58	Additional demand for surface washing and irrigation, etc.	118.71	Total	249.29	Potable quality demand - 20%	49.86	Non-potable quality demand - 80%	199.43	Total	249.29	Supply from GLM - potable only	49.86	Supply from Treated Wastewater - non potable disinfected	99.71	Supply from Water Harvesting - non potable disinfected	99.71	Total supply	249.29
Supply from Treated Wastewater as per Services Report by ICE - 50%	269.06																												
Supply from Water Harvesting as per Services Report by ICE - 30%	161.43																												
Total supply	538.11																												
Demand and supply based on National Building Regulations in m³ per day																													
Demand based on occupancy of 2 persons per 100 m²	130.58																												
Additional demand for surface washing and irrigation, etc.	118.71																												
Total	249.29																												
Potable quality demand - 20%	49.86																												
Non-potable quality demand - 80%	199.43																												
Total	249.29																												
Supply from GLM - potable only	49.86																												
Supply from Treated Wastewater - non potable disinfected	99.71																												
Supply from Water Harvesting - non potable disinfected	99.71																												
Total supply	249.29																												

The zoning is however limited to airport related uses only. This limits actual developments to warehousing to a large extent. The ICE report is based on the conservative approach, and does not take this into consideration.

The 'oversupply' recorded in the Services Report by ICE is calculated as indicated in the table below. This potential over supply can be utilised to mitigate supply restrictions from the GLM as well as supply limitations of water harvesting in case of extreme drought.

'Excess' allowed for in Services Report in m³ per day (based on the 'conservative' approach in demand calculations)	
Supply from GLM	57.76
Supply from Treated Wastewater - non potable disinfected	169.34
Supply from Water Harvesting - non potable disinfected	61.72
Total 'excess' supply that would be available in times of drought	288.82

Clarity on 20% water supply by the George LM for Phase 1 of the George Business Park development:

The GLM confirmed that bulk water and sanitation infrastructure is available for 20% of the total demand for the George Business Park. The daily volume available amounts to 107.62 m³. This volume will be used for the development of Phase 1 of the scheme. The table below shows the allocation of municipal water for each of the stands that make up Phase 1.

LAND UNIT	WATER AADD in m³ - reduced for warehousing and actual demand
Portion 3 of GAT	20.19
Portion 6 of GAT	15.00
Portion 7 of GAT	15.00
Portion 8 of GAT	30.49
Portion 4 Erf 1	12.00
PORTION B of 139	14.00
Total for phase 1	106.68

	<p>In terms of the Constitution of the Business Park the owners agreed that no further development will take place within the Business Park before the schemes for water treatment and water harvesting have been completed. Once the mentioned schemes for harvesting and treatment have been implemented, the allocation of municipal water for the land portions in the table above will reduce to 20% of the demand in terms of the Services Report by ICE. This will then release potable water for use by the other land units that make up the extent of the Business Park</p> <p><u>Please note the following regarding the likely impact of the proposed activities on the Ecological Reserve, as provided by the aquatic specialist (Toni Belcher):</u></p> <p>'Proposed water resource classes - Target Ecological Categories (TECs) - and resource quality objectives (RQOs) have been gazetted for the Breede Gouritz WMA (Government Gazette No 42053, dated 23 November 2018). The TEC for the downstream Gwaing River (in quaternary K30B) is an E Category (seriously modified) as it drains the George area with significant flow and water quality modification. No RQOs have been set for the river. The proposed water consumption on the site, particularly given the proposal is to treat all of the sewage generated by the industrial node and the re-use of the final treated wastewater, as well as capture runoff from the properties so that only 20% of the development's water needs will need to be obtained from the George Municipality's supply network, would have negligible impact on flow in the Gwaing River. The Reserve does not only speak to water quantity but also quality. Considering that the wastewater will be treated to a quality (at least General Limit) that can be reused and will only be discharged to a minor tributary of the Gwaing River when there is surplus that cannot be used (e.g. during high rainfall periods when irrigation cannot be done), and there would be significant dilution of the discharged water, the potential impact would be insignificant and would not impact on the present ecological condition of the river or its TEC'.</p>
<p>Grid Connection of the proposed solar plant:</p> <p>According to the information in the RBAR the solar facility is based on a wheeling agreement for power back onto the grid, which will be scaled down as the electricity needs of the Airport Support Zone increases over time. It is understood that this is supported by the George Municipality: Electrotechnical Services, subject to the load flow and grid impact studies. Furthermore, it is understood that rooftop solar panels also form part of the development within the proposed development and by extent the ASZ as it has a different outcome to the proposed solar plant north of the R102 Provincial Road. In this regard it is understood that rooftop panels will be exclusively for the benefit of the owners of the various warehouses, while the proposed solar plant is based on the wheeling agreement for power back onto the grid and providing clean energy. A view is held that, if the installation of rooftop solar panels with adequate storage capacity is not set as a prerequisite for the development of the buildings in the industrial park, the George Municipality will miss an opportunity to improve their electrical infrastructure and electricity supply in this precinct. It is advised that the applicant consider including this as a measure to address the impacts on this engineering service.</p>	<p>Based on the information contained in the electrical report, the George LM electrical department is aware that there will be PV installations on the roofs of the buildings in future, and this has been taken into account in terms of the demand. The George LM will be providing one bulk supply to the ASZ; and will therefore not have agreements with the individual even for the supply of electricity, but only with the POA as one entity.</p>
<p>Western Cape Department of Transport and Public Works – received via email on 22 March 2023</p>	

Received your application, our reference Job 30261. The matter is receiving attention and further communication will be addressed to you as soon as circumstances permit.	Thank you, the Department has already provided comment on the application, as included in comments on the Draft BAR.
Cape Nature - received via email on 22 March 2023	
Requested a copy of the updated DBAR via WeTransfer.	The report was shared, and confirmation of receipt was provided. A reminder email was sent on 18 April 2023. No comment received to date.
The Airports Company South Africa (ACSA) - received via email on 5 April 2023	
Appendix F (PPP Report) with comments from IAPs has been reviewed by ACSA. We confirm that the responses provided address the concerns of ACSA, and we appreciate the inclusion of SACAA when it comes to addressing height restriction and visual impacts. Any approval on the final Site Development Plans and Building Plans prior to commencement of construction will be granted by ACSA, provided that approvals are received from Air Traffic Navigation Services and the SACAA. It appears that most sections of the DBAR are unchanged, and it is assumed that Appendix F will be an appendix of the BAR? Thank you for including ACSA as an IAP and we look forward to providing further comment.	Noted, thank you Appendix F has been updated to include all correspondence with IAPs on the updated DBAR, and is appended to the Final BAR. The developers will continue to liaise with ACSA and the SACAA in gaining approvals for final site development plans and building plans.
Breede-Gouritz Catchment Management Agency - received via email on 5 April 2023	
The BGCMA did a site inspection on Ptn 139 on 6 April as part of the Phase 2 assessment of the WULA submitted by Jacques Wheeler (WUL reference 22440). The BGCMA confirmed water uses in terms of Section 21 of the NWA: Section 21 (c), (i), and (e). The BGCMA recommended that a new WUL be submitted for the WWTW on Ptn 4 for Section 21 e, f and g (i.e. irrigation, disposal and discharge of treated effluent). These will be integrated into the existing licence for Ptn 4 (issued 01/10/2021). The BGCMA is currently assessing the WUL application for Ptn 139. The specialist studies prepared are adequate to meet the requirements for the WULs on both Ptn 4 and Ptn 139 of Farm Gwayang No 208. The BGCMA specialists will provide comments on the WULs and make a final recommendation.	Noted, thank you.
Western Cape Department of Health - received via email on 14 April 2023	
This office has no objections to the proposed activity, subject to compliance with the applicable laws and by-laws of the local authority: <ol style="list-style-type: none"> Plans must be provided to the Department on how and where the solar waste will be disposed of. Details of the service provider who will dispose of the solar waste must be provided to the Municipal Health Services Department. The WWTW must have a generator to be used when there are power outages. Final effluent from the WWTW must comply with requirements of the National Water Act 36 of 1998. The watercourse into which the waste water will be released must be provided to the Department. Sample results must be provided to the Municipal Health Services on a regular basis. 	<ol style="list-style-type: none"> In this instance, 'solar waste' is assumed to mean 'waste' from decommissioning the solar facility at its end-of-life, and disposing of panels and other supporting infrastructure. Under the Extended Producer Responsibility (EPR) Regulations (May 2021), solar panel producers must take responsibility to ensure that much of their products are returned (and recycled by an accredited and licenced facility) after being sold and used. Manufacturers, importers, and brand owners are held accountable for the entire life cycle of the products they place on the market, from conception to post-consumer waste disposal. South Africa does have the capacity to recycle solar panels. The glass and aluminium frame of a solar panel makes up more than 80% of its weight and both these materials can easily be recycled. The expected life-time of a panel is ~20 years. Prior to decommissioning, Hark Properties will investigate the most feasible option of recycling and/or disposal. This will be done ahead of decommissioning by the developer.

<p>7. The Municipal Health Services must be informed whenever the WWTW may impact negatively on the public.</p>	<p>3. The engineers are designing an off-grid system with PV panels, and inverter and batteries to deal with power outages at the WWTW. A small generator will also be provided. The energy demand is limited, requiring a small system.</p> <p>4. Noted, and will be governed by the WULA</p> <p>5. Treated effluent will be discharged via the Aquatic Zone and into a side drainage of the Gwayang River.</p> <p>6. Noted, and will be included in the EMPr under reporting requirements.</p> <p>7. As above</p>
<p>Western Cape Directorate: Pollution and Chemicals Management - received via email on 17 April 2023</p>	
<p>1. Over irrigation with excessive amounts of treated effluent may result in a perched water table and pooling on the surface. It is important to maintain good irrigation management practices, to avoid over irrigation of the landscaped areas that are to be irrigated. Such management practices should be incorporated in the Integrated Water and Wastewater Management Report (IWWMR) (Appendix G16).</p> <p>2. <i>"A light industrial zone on a portion of Ptn 139 of Farm Gwayang No 208 (south of the R102). Light industrial refers to predominantly warehousing and storage facilities, with no planned noxious uses".</i> The D: PCM acknowledges the above statement, however, there is still a possibility for the storage or warehousing of hazardous substances/chemicals, which may pose a risk (in the event of a leak or spill) to waterways via stormwater channels draining the industrial area. For this reason, the D: PCM fully supports the statement made on page 24 of the IWWMR, <i>"Oil and litter traps must be incorporated into the stormwater management system to 'treat' runoff and capture any solids before it discharges into the watercourse corridor and attenuation dams. A cleaning schedule must be developed by the POA to ensure that traps are not blocked", for the prevention of pollution to the environment</i></p> <p>3. The D: PCM supports the actions mentioned under the monitoring and reporting section, page 25 of the IWWMR. These measures should be strictly adhered to</p> <p>4. The D: PCM further recommends the implementation of the measures proposed in the Stormwater Management Plan (Appendix G10), for the prevention of surface water contamination, management of surface runoff in the Airport Support Zone (ASZ) and maintenance of all drainage related infrastructure in the ASZ</p> <p>5. The following general recommendations are provided to prevent and manage the potential contamination emanating from the site during the construction, operational and decommissioning phases and should be incorporated into the Environmental Management Programme (EMPr):</p> <ul style="list-style-type: none"> o 5.1. The responsible management of hazardous chemicals should be practiced at all times and storage or handling of chemicals must not take place within close proximity of the watercourses. 	<p>1. A Geohydrological Report has been done by SRK Consulting that considered the local geology and groundwater environment, and possible impacts from irrigating with treated effluent on groundwater. An Aquatic Biodiversity Study was done by Toni Belcher that also considered the impacts of irrigation on surface water resources. No significant negative impacts were assessed, with mitigation measures in place. Mitigation measures are included in Section I of this FBAR. Additional mitigation has been added as follows (and included in the IWWMP):</p> <ul style="list-style-type: none"> o Irrigation application rates must be adjusted during times of rainfall to avoid over-irrigation o Irrigation should be done early in the morning, and spaced over the course of a week, with 1 to 2 day intervals between irrigation. <p>2. Noted</p> <p>3. Noted.</p> <p>4. Noted.</p> <p>5. Thank you, these measures have been included in the EMPr where not already addressed.</p>

<ul style="list-style-type: none"> o 5.2. The storage of hazardous substances (i.e. petrol, diesel, and lubricants etc.) should be located on impervious bases within bunds (to accommodate 110% of the volume) to contain any fugitive spillages and/or leakages. o 5.3. The refuelling and/or repair of heavy earth moving vehicles should not take place within the watercourse and should be conducted within a dedicated impervious area on site. o 5.4. All heavy earth-moving and transport vehicles must be in good working condition with no leaking hydrocarbon fuel, fluids or lubricant emanating from these vehicles 	
Cape Nature - received via email on 20 April 2023	
Cape Nature reviewed and submitted comment on the DBAR. After reviewing the updated DBAR, we have no further comments.	Noted, thank you.

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	<input checked="" type="checkbox"/>
1.2.	Provide the name and or company who conducted the specialist study.		
SRK Consulting			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
<p>Information on the groundwater environment in the area extracted from the geohydrological report (SRK, 2022):</p> <p>The granitic aquifer in the vicinity of George is regarded as a poor aquifer (as defined by DWAF, 2000), with borehole yields being low and groundwater quality being poor. The aquifer is secondary in character and owes its water-bearing properties to weathering processes. Data from the National Groundwater Archive indicates that the quality of groundwater from the granitic aquifer south of George is exceptionally poor. The electrical conductivity (EC) of five boreholes ranged between 306 mS/m and 1 350 mS/m, with an average 812 mS/m and a harmonic mean of 606 mS/m. These EC levels exceed the drinking standard of 170 mS/m (SANS, 2015). The groundwater has a Na Cl character. A low groundwater potential of 10 – 20 % is reported from existing hydrogeological literature. These percentages indicate the probability of drilling a successful borehole yielding > 2 L/s. In their Hydrogeological Map Series, an expected borehole yield of 0.1 – 0.5 L/s was reported in intergranular and fracturing networks. A poor electrical conductivity (EC) is expected for the area (i.e. 300 – 1000 mS/m).</p> <p>DWS initiated a project in 2003, referred to as the Groundwater Resource Assessment Phase 2 (GRA2). The main aim of the project was the quantification of the groundwater resources of South Africa on a national scale. The project included the quantification of recharge, storage and sustainable yield of the aquifer systems throughout South Africa. The expected average groundwater exploitation potential (AGEP) in the Project Area is 25 001 – 50 000 m³/km²/annum (0.79 to 1.58 L/s per km²).</p> <p>Based on the Aquifer Classification Map, the aquifer is classified as a minor aquifer region – therefore being a moderately-yielding aquifer system of variable water quality. These aquifers can be fractured or potentially fractured rocks which do not have a high permeability, or other formations with variable permeability. The aquifer extent may be limited and water quality variable. These aquifers seldom produce large quantities of water.</p>			
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.		
<p>A hydrocensus of boreholes within a 5 km radius of the site provided the following information regarding groundwater levels:</p> <ul style="list-style-type: none"> Four boreholes had water level data – the average groundwater level is 52.82 m bgl, the deepest 144.00 m bgl and the shallowest 14.88 m bgl. The report indicates the estimated groundwater depth at the site is 20 m bgl. <p>The project does not include groundwater abstraction. However, proposed land use activities have the potential to pollute groundwater, notably the operation of a WWTW and re-use of treated effluent for irrigation, washing etc. The geohydrological specialist report therefore focused the impact assessment on these aspects, and have been used to determine if the activities can take place at the site without impacting the groundwater resource. The report concluded that 'From a hydrogeological point of view the project can be authorised with very low risk of significant negative impact on groundwater quality and volume degradation, subject to proper management and implementation of mitigation measures. Mitigation measures include:</p> <ul style="list-style-type: none"> Ensure that good housekeeping rules are applied, which includes strict inspection and having spill containment measures in place. Install three groundwater monitoring wells, and do quarterly monitoring of water levels and groundwater quality. Figure 5-1 in the geohydrological report recommends positions for groundwater monitoring wells. Consideration must be given to the ownership of the land on which the monitoring boreholes are installed. The holes must be easily accessible, and permission must be obtained from the landowners. The water quality of the discharged / irrigated effluent must be in accordance with the DWS's standards. The volume effluent released for irrigation must not exceed the allowed and approved volumes of DWS (DWS to determine). 			

2. Surface water

2.1.	Was a specialist study conducted?	YES	<input checked="" type="checkbox"/>
2.2.	Provide the name and/or company who conducted the specialist study.		
Toni Belcher - BlueScience			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		

The specialist mapped and described watercourses and wetlands within the site and a 500 m buffer. The description below is extracted from the report:

The watercourse within the site is considered to be in a seriously to critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams. The larger tributary of the Gwaing River to the south of Ptn4/208 is in a better ecological condition and is moderately to largely modified as a result of the construction of the airport and the associated activities and the invasion of the riparian zone with alien invasive plants. The watercourse within Ptn 139 is considered to be of a low ecological importance and sensitivity while the larger tributary to the south of Ptn4/208 is of a moderate ecological importance and sensitivity due to the habitat that provides as well as the link that it helps to provide between the coastal area and the hillslope. Because the watercourses within the site are highly modified and of a low ecological importance and sensitivity, they would not pose a significant constraint to the proposed development of the site. The watercourses do however provide a corridor for the movement of water through the landscape. This functionality of the watercourses is recognised within the biodiversity conservation mapping of the area where the watercourses are mapped as aquatic ecological support areas (Belcher, 2022).

Belcher (2022) therefore recommended that 'the corridors and their associated functionality should thus preferably be maintained within the development proposal as far as possible. A 10m setback from either side of the watercourse that would allow for a corridor of 20m wide along the watercourse is recommended. The watercourses start within the proposed solar areas such that they are only minor features within this area and do not pose any significant constraint to the proposed solar development. Upstream of the site, they are no longer visible in the landscape. It is recommended that the development of the site at least address the drainage in the stormwater management plan for the site. Also of significance are the more ecologically important tributary of the Gwaing River and the valley bottom wetland area that are downstream of the site. Any potential impacts of the proposed development should be mitigated onsite to prevent any further degradation of these aquatic ecosystems. This primarily relates to the mitigation of stormwater arising from the developed site. The watercourses within this portion of the site (and the associated instream dams) are also not deemed to be highly significant aquatic habitats and could be integrated into the stormwater management system established onsite. A corridor of approximately 20m is recommended to accommodate stormwater flow within the site. The existing concrete channel within the watercourse should be removed and the channel shaped and planted with wetland vegetation such as *Juncus effusus*, *Carex gloerabilis*, *C. clavata*, *Isolepis prolifera*, *Cyperus polystachyos* and *Zantedeschia aethiopica* within the wetter bed together with buffalo grass *Stenotaphrum secundatum* or *Cynodon dactylon* along the banks. The incorporation should as far as possible lead to the longer-term improvement of the aquatic habitat within the watercourses onsite and more importantly adequately mitigate any potential downstream impacts on the valley bottom wetland and watercourse downstream (south) of the site' (Belcher, 2022).

The recommendations of the specialist report have been incorporated into the stormwater management plan for the site and the broader ASZ area.

3. Coastal Environment N/A

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	<input checked="" type="checkbox"/>
4.2.	Provide the name and/or company who conducted the specialist studies.		
	Mike Cameron and Dr Mike Cohen (review specialist)		
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"> • VEGMAP (2018): the pre-transformation vegetation type in the area is described as Garden Route Granite Fynbos, which has an endangered threat status on a national level. The terrestrial biodiversity and plant species assessment have described the ecological status of vegetation on the site as transformed and no longer representative of the vegetation type described for the area. • Western Cape Biodiversity Spatial Plan: the pre-transformation vegetation type in the area is described as Garden Route Granite Fynbos, which has a critically endangered threat status on a regional level. There are no Critical Biodiversity Areas (CBA) or Protected Areas (PA) on the site however the drainage line that runs through the site from north to south towards the Gwayang River is an Ecological Support Area 2. As described earlier, this has been incorporated into the stormwater management system for the Airport Support Zone to facilitate connectivity across the landscape. • NFEPA (Wetlands and Watercourses): wetlands and watercourses mapped in the NFEPA have been considered in the aquatic biodiversity specialist study. There are farm dams on the site, and one natural wetland within 500 m of the site. The non-perennial drainage area that crosses the site is a tributary of the Gwayang River.
4.4.	<p>Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.</p> <p>Chapter 4 of the WC Biodiversity Spatial Plan Handbook (2017) provides guidelines for land use planning and decision-making, and for land and resource management using the WC BSP Map. The Handbook provides the following land use guidelines for ESA2 areas: These areas may be degraded but still play an important role in supporting the functioning of PAs or CBAs, and are essential for delivering ecosystem services. These areas should be restored and/or managed to minimize impact on ecological infrastructure functioning; especially soil and water-related services, and to allow for faunal movement.</p> <p>Permissible land uses for ESA2 areas: There is more flexibility in terms of options for compatible land uses in ESAs than there is in CBAs. However, ESAs do need to remain ecologically functional, which means that they need to be maintained in at least a near-natural state, although some loss of biodiversity pattern through a variety of land uses is acceptable.</p> <p>General Guideline for ESA2 areas: Restore and/or manage to minimise the impact on ecological infrastructure functioning, especially soil- and water-related services.</p> <p>Specific Guidelines for ESA2 areas:</p> <ul style="list-style-type: none"> • These are areas which may already have some form of development (cultivation, mining or even buildings and infrastructure) but which should be providing ecosystem services. Where possible the current land uses should be withdrawn and rehabilitation should be undertaken. • Best practice should apply in areas where land uses other than conservation are present e.g. agriculture. • These areas should be targeted for habitat rehabilitation and restoration activities, e.g. alien clearing <p>As above, the drainage area is part of an ESA 2. The aquatic specialist identified a suitable buffer, and made recommendations for restoration of the drainage system. The drainage line through the ASZ is incorporated in the stormwater management system through an 'aquatic zone' with check dams that will be planted with indigenous aquatic vegetation to restore function.</p>
4.5.	<p>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.</p> <p>The terrestrial biodiversity, animal and plant species compliance statements confirmed that the site is of low biodiversity sensitivity, and low sensitivity for animal and plant species. Garden Route Granite Fynbos has been 'irrevocably denuded'. The conversion of vegetation to pastures with burning, bush cutting ploughing and grazing has rendered these properties of no value to plant and animal species of conservation concern that were listed in the Screening Tool Report.</p> <p>The ESA 2 area that runs through the site corresponds with the drainage line. The aquatic specialist's description of the ecological importance and status of the aquatic ecosystems on the site is described above and not repeated here.</p>
4.6.	<p>If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.</p> <p>N/A</p>
4.7.	<p>Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.</p> <p>As above, the transformed vegetation on the site, together with fencing and the transformed nature of vegetation in the surrounding landscape to predominantly agriculture, does not provide conducive habitat for faunal species.</p>

5. Geographical Aspects

	<p>Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.</p> <p>The site has a gentle topography, sloping towards the south-east and south. An existing dam on Ptn 139 will be decommissioned by removing the dam wall, with earthworks across the full site to achieve desired levels for building platforms. The aquatic specialist addressed decommissioning of the dam. She noted that '<i>the loss of artificial aquatic habitat associated with the decommissioning of the instream dam is not considered of any significance</i>'. Surface runoff from the site will be directed via the stormwater management system to the aquatic zone with check dams that will continue to drain runoff in a south-easterly direction towards the Gwayang River.</p>
--	--

6. Heritage Resources

6.1.	Was a specialist study conducted?	YES	<input checked="" type="checkbox"/>
------	-----------------------------------	-----	-------------------------------------

6.2.	Provide the name and/or company who conducted the specialist study.
	Stefan de Kock – Perception Planning
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.
	No sensitive heritage resources have been identified on the site. The specialist provided the following summary statement – <i>'the proposed development would not impact on heritage resources considered of cultural significance; that the study area has been transformed significantly in the past and that the proposal would be consistent with the spatial proposals and objectives contained in the Gwayang Local SDF (2015). It is therefore recommended that no future heritage-related studies be required in this instance and that the development may proceed'</i> .

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.
No historic structures, ruins or gravesites were noted during field work undertaken by the specialist.

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
	<p>A socio-economic impact assessment was done by Dr Anton de Wit. This section is informed by his report. The development is likely to exert much of its social influence within the George Local Municipality area. Key social attributes of George are:</p> <ul style="list-style-type: none"> • The economy of George confirms the town's status as a secondary city. Financial services and real estate account for the most significant slice of the town's economy (26%), followed by wholesale and retail trade, catering and accommodation (18%), and then manufacturing (14%). • Much of the local economic growth in 2016/17 happened in sectors such as construction (8%); commercial services (4%); and government, community, social and personal services (4%). Manufacturing reflected a meagre 1.5%. Since this time, growth in the local economy has slowed to 0.7% (2019). It is only the finance, insurance, real estate, and business services that maintain their previous growth levels. • The position of the economy of George within the larger Eden District Municipality is not encouraging and it is plagued by stunted economic growth (From 3.5% in about 2016 to 0.7% in 2019) that is slower than other similar municipalities. Employment growth over the last half a decade is basically zero, in fact, the net change in this case is actually negative. This highlights the fact that the sustainability and carrying capacity of the local economy are significant socio-economic limiting factors. • The total population of George is slightly more than 218 000 people, arranged in roughly 59 000 households. Of the number of households in this town, almost 14 500 exist in abject poverty. The unemployment rate for George is approximately 30% (it has doubled since 2016, largely due to the Covid19 pandemic), which, together with the problem of poverty and associated socio-economic deprivations, appear geographically concentrated in a few municipal wards. <p>Local economic development in George is therefore an urgent priority. There are several strategic resources that are conducive to economic development:</p> <ul style="list-style-type: none"> • Well-developed commercial, financial and social infrastructure. • Quality conference facilities, businesses and retail services. • Extraordinary bio-physical and marine resources. • A growing regional tourism sector and major transport systems, including the N2 National Road and the George Airport. • Potentially positive role of the George Airport in Local Economic Development.
8.2.	Explain the socio-economic value/contribution of the proposed development.

<p>Dr de Wit identified the following positive socio-economic impacts of the development:</p> <ul style="list-style-type: none"> • Construction phase will create short term temporary employment opportunities. This will culminate in a positive social impact in the form of increased economic activity, poverty alleviation and favourable socio-economic implications (such as improved access to and consumption of goods and services, greater freedom of choice, better quality of life) for the affected individuals and their dependants • Construction will result in the development and transfer of skills to meet the necessary labour requirements. Relevant individuals will be able to sell their newly acquired skills within and beyond the boundaries of the local economy long after the completion of the construction phase, therefore the duration of the impact will be long-term. • The development make a positive contribution to the Gross Geographic Product (GGP) of the George Municipality. • The demand for goods and services will have a positive impact on the local economy. • In operational phase, the development will contribute to Local Economic Development, particularly around the George Airport where it is strategically well situated to provide an essential enabling and supporting service to a future industrial node in proximity to the N2 National Road and the George Airport. 	
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"> • To use local labour, as far as possible, in construction and operational phases. • To supply the construction phase of the proposed development with the necessary local labour, the developer will most likely have to engage in a process of skills development and transfer. • Contribution to the GDP. • Source goods and services locally, and stimulate the local economy.
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>

The proposed development is likely to result in:

1. An increase in traffic in construction and operational phases which could impact on traffic and pedestrian safety. A Traffic Impact Assessment has been done by Louis Roodt of Roodt Transport Safety Pty Ltd. The report concludes that the traffic impact of the development until 2038 will be negligible. Construction phase traffic impacts are dealt with in the EMPr.
2. Visual impacts, including impacts on 'sense of place' are dealt with in the Visual Impact Assessment done by New Urban Architecture. The VIA considers the visual impact of the solar facility, and that of the light industrial development zone in the ASZ. A maximum of 2 storeys for light industrial and office use, both with an 18 m height restriction is used as a baseline for the VIA:
 - a. For the solar facility - the visual exposure from viewpoints within 500m from the site are relatively low as a result of the height of the PV Solar structures and the undulating topography. Based on a category 2 development, little or no impact of the solar facility is expected.
 - b. For the light industrial development - The visual exposure from viewpoints within 500 m from the site are relatively high. It is however predominantly the case when viewing the site from the north due to the increase in elevation from the site. Overall the visual exposure is moderate to low due to the capacity of the environment to absorb the visual impact of the development. Visual sensitivity and landscape integrity are consistently moderate to low due to the surrounding environment being disrupted by the airport which can be seen from most of the viewpoints as well as the quarry being visible from the eastern approach on the R102 and southern approach on the R404. Due to the underlying topography, existing trees and development, the environment has a moderately high capacity to absorb the visual impact of the development. Based on the assessment of the viewpoints, taking into consideration the assessment criteria it is clear that the environment as defined by Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1) is an area or route of low scenic, cultural, historical significance and is disturbed. Therefore, based on a category 4 development, a moderate visual impact can be expected. Degraded/wasteland areas such as the quarry may reduce the impact further. Although the development will have a moderate impact on the immediate area, it is however not considered degradation of the exiting landscape, but an extension of the current airport existing developed area. The airport support zone is contained by the existing and proposed roads as well as the natural topography which will avoid urban sprawl. This will limit the total feasible development area of the support zone. The VIA concludes that as the Airport is a major gateway for the ever-growing tourism industry in the Garden Route, the celebration of the Gateway is an opportunity that can enhance the sense of the place and create a memorable experience.

Urban design guidelines have been done for the ASZ to reduce visual impacts by addressing aspects such as building designs, colour, heights, and planting a screen along the property boundary.

Noise is expected in construction and operation phases, but the site is within a node designated for airport support services. The site is surrounded by the R102 and R404, a quarry and the George Airport. Therefore noisy activities currently take place in the area and the development is not expected to add significantly to noise levels. Mitigation measures are provided in the EMPr to reduce noise levels from construction activities.

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.	
<p>The preferred property for the light industrial development zone and solar facility is Ptn 139 of Farm Gwayang No. 208. The waste water treatment works for the ASZ is planned on the eastern side of Ptn 4 of Farm Gwayang No. 208. The properties are situated in the Airport Support Zone, a development node strategically situated opposite the George Airport intended for the provision of airport ancillary services. The Western Bypass is planned over the property and the concept design has been accommodated in the SDP for Ptn 139 and the waste water plant on Ptn 4. There is a long history of agriculture on the property and in the surrounding area, and vegetation is transformed. There are not CBAs or PAs on the site, and the ESA2 area has been accommodated in the SDP as an 'aquatic zone'.</p> <p>The proposed WWTW on Ptn 4 is specifically to service the ASZ, and the fragmented portion of Ptn 4 as a result of the Western Bypass is a suitable position in the ASZ to accommodate this type of infrastructure. The geohydrological and aquatic studies did not identify any flaws with the proposed position of the WWTW on Ptn 4/208. The properties are therefore considered suitable for the proposed land uses, and no alternatives are included.</p> <p>The location of the proposed WWTW on Ptn 4/208 is identified as the preferred location for the preferred site based on planning principles. The 5 properties within the ASZ are identified for 'Airport Support Zone' uses in the Gwayang LSDF. This land on the NE side of the Western Bypass is limited for other development types due to the position of the Western Bypass relative to the Airport. Access to the western part of the Western Bypass is well planned and will be via the R404 intersection where the Airport currently gains access. Access to the western part was finalised in the George Airport North Eastern Precinct (GANEP)</p>	

<p>Road Master Plan. Scarce land with good access on the western side of the Western Bypass must therefore be utilised for airport support purposes, and should not be considered for services such as a WWTW. The eastern parts of Ptn 4 and 139/208 (i.e. east of the Western Bypass Arterial) are excluded from this use because they are bisected by the planned Arterial, making them difficult to access and not desirable for airport support development. Rather, they are better suited to other activities such as utilities (such as a WWTW or solar facilities). Therefore from a planning perspective, either the eastern side of Ptn 4 or Ptn 139 would be better suited to a WWTW. There are also no environmental issues that make either site more preferable. The developers within the ASZ area have selected the NE side of Ptn 4 as their preferred option.</p> <p>The Western Bypass Arterial could however create a risk to the operation of the WWTW if, for example, it gets developed at a later stage and the pipelines that connect to the WWTW are affected. However this risk would apply to either of the portions of land in the ASZ (i.e. on Ptn 4 or 139), and one location is not preferable to the other from this perspective. To address the risk, ICE Engineers have discussed how pipelines will be installed to prevent this risk from taking place. <i>The services will be coordinated and routed via one reinforced concrete pipe culvert. This culvert will be located at a depth below the pavement layers of the proposed Western Bypass and will stretch from road reserve boundary to road reserve boundary. The services will therefore not be affected by the roadworks, should they take place at a later stage. When the Western Bypass is constructed the services crossing the future road will need to be catered for as per all other service crossings. The designs for the services will be provided to WCG for comment before going ahead with construction</i></p> <p>The Department of Transport and Public Works have confirmed that there is no problem in construction services across the planned Western Bypass, but that parallel services will not be entertained. No parallel services are proposed.</p> <p>In summary, placing the WWTW on other portions of the properties in the ASZ (i.e. west of the Western Bypass Arterial) would not be efficient use of land that is designated for airport support service. The developers of the ASZ have selected the NE side of Ptn 4 as their preferred option. There are no environmental flaws with this alternative.</p>
Provide a description of any other property and site alternatives investigated.
None.
Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.
<p>The site is ideally located for the expansion of airport related uses, as it is adjacent to the airport and is within the area earmarked for expansion of airport related facilities in the Gwayang LSDF and George SDF (2019). Access by means of a traffic circle is directly opposite the access to the George Airport. The proposed development (and land use type) will contribute to the character of the airport area, and will support the development of airport related uses adjacent to the George Airport. The following property characteristics are highlighted:</p> <ul style="list-style-type: none"> • The property is within an area designated for 'Airport Support Area' land uses in the finer-scale Gwayang LSDF (2019). • The proposed land uses are consistent with the character of the area, being opposite to the existing entrance to the George Airport and adjacent to approved developments with similar uses. • In relation to land uses recommended in the Gwayang LSDF in the surrounding area, the proposed development can be regarded as "infill" development within a small node at the intersection to the airport, thereby containing airport related land uses in the designated area. Land uses will be limited to those that support tourists and airport facilities that cannot be located in the town with the same practical function. • The development on Ptn 139 is part of an integrated planning approach with landowners on Ptn 4 and Ptns 130 – 132. Integration of services will allow the development of an off-grid light industrial development zone. • The ESA2 area on the site has been incorporated in the 'aquatic zone' in the site development plan, and biodiversity features on the remainder of the site do not necessitate conservation as an option. Vegetation is transformed and no longer representative of Garden Route Granite Fynbos. None of the plant and animals SCCs listed in the Screening Tool Report are expected to occur in the area due to the transformed nature of the environment.
Provide a full description of the process followed to reach the preferred alternative within the site.
<p>An aquatic specialist study was done and aquatic environments were delineated and buffer areas recommended. These areas have been incorporated in the aquatic zone which is part of the ASZ stormwater management system. The terrestrial biodiversity study did not identify any important habitats or sensitive environments that need to be protected. Other than incorporating aquatic areas in the open space system of the SDP, full coverage of the property is applied for to allow for efficient use of space.</p>
Provide a detailed motivation if no property and site alternatives were considered.
<p>The property is within the Airport Support Zone and the development application is specifically tailored to meet the intended land use objectives of the area. Terrestrial biodiversity is transformed, and aquatic environments are modified. Recommendations of the aquatic specialist study are incorporated in the aquatic zone, which is part of the stormwater management system across the ASZ. The objectives of an ESA2 are met in that the Aquatic Zone will allow for connectivity of flow across the landscape, and an improvement in the status and function of the aquatic area is expected with restoration and planting of indigenous aquatic vegetation and the inclusion of check dams. The latter, together with the use of bioswales and other on-site attenuation and filtration mechanisms throughout the ASZ will assist with attenuation and filtration of stormwater runoff, and will prevent pollution and sedimentation of important down-stream aquatic areas. Development applications are approved on Ptn 4 and Ptns 130 to 132 and an integrated planning approach across the ASZ is being followed. With this in mind, the property is considered suitable for the intended land use, and alternative properties are not relevant.</p>
List the positive and negative impacts that the property and site alternatives will have on the environment.
<p>The development will result in the change of agricultural land to developed area. This will result in the loss of vegetation and transformation to hard surfaces. Vegetation is however transformed by agricultural activities and has a low ecological value. The drainage line that runs through the site is important to facilitate connectivity across the landscape and ensure flow to the Gwayang River to the south. It is also important to provide ecosystem services such as flood attenuation and sediment control. The drainage area has been significantly modified and is canalised in sections. The development plans to decommission a</p>

<p>large instream dam, and create an aquatic zone with check dams. The intention is to restore functionality of the drainage area by planting with indigenous vegetation and slowing flow and trapping sediment in a series of check dams. The development is not expected to have significant environmental impacts provided that mitigation measures suggested in the impact assessment section and the EMPr are adhered to. The agricultural specialist confirmed that the site is of low agricultural potential and the development will not result in a significant impact on loss of agricultural land.</p>	
1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred activity alternative.	
The preferred activity alternative is to develop a light industrial development zone and solar facility, with a waste water treatment plant to provide services to the development and others in the Airport Support Zone.	
Provide a description of any other activity alternatives investigated.	
<p>The proposed activity is designed to be in line with the intended land uses for the area (i.e. airport support services), and to integrate with approved developments on surrounding properties in the ASZ. The waste water treatment works is proposed to enable the ASZ to be off-grid, and reduce pressure on the George Municipality. The technology proposed for the waste water treatment works produces effluent quality that is suitable for discharge to a watercourse (to be confirmed in the WULA). However, majority of the treated effluent will be re-used in the ASZ for irrigation, washing etc.; thereby reducing water demand from the municipality. Therefore no activity alternatives are deemed to be needed.</p>	
Provide a motivation for the preferred activity alternative.	
As above.	
Provide a detailed motivation if no activity alternatives exist.	
As above. The municipality's planning policies guide suitable development and land use applications in the area. The proposed activities are in line with the Gwayang LSDF and the George SDF (2019). The land uses can be managed in line with the provisions of the OEMPr to prevent negative impacts and maximise on positive impacts.	
List the positive and negative impacts that the activity alternatives will have on the environment.	
<p>The activities can impact on the environment by:</p> <ul style="list-style-type: none"> • Causing surface water and groundwater pollution – runoff from industrial areas, effluent from the WWTW • Increasing the chance of alien vegetation infestation as a result of disturbing the surface and importing alien vegetation seeds with truck movement. • Altering flow in the drainage system – increased flow and velocity due to increase in hard surfaces • Erosion and sedimentation of downstream aquatic areas <p>Light industrial development activities do not include noxious uses. The waste water treatment plant is capable of producing effluent that has suitable quality for discharge to a watercourse. The geohydrological investigation did not identify any significant risks to the groundwater environment associated with using treated effluent for irrigation. A stormwater management plan has been done for the full ASZ that incorporates bioswales across the development area along roadsides and pavements to promote infiltration at source as well as capturing rainfall from roofs. An aquatic zone with check dams is proposed to slow flow and trap sediment. Alien vegetation will be managed in accordance with the EMPr.</p>	
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.	
<p>Light industrial development on Ptn 139: development of the full portion of the site south of the R102 and west of the Western Arterial, apart from the aquatic zone, is proposed. There are no other sensitive features that need to be protected, and maximum use of the portion of the site within the ASZ is proposed for efficient use of space.</p> <p>Solar facility: the area where the solar panels are planned is agricultural land and a part thereof has been used as a bike track. The full portion of the site north of the R102 is proposed to be covered in solar panels.</p> <p>The waste water treatment works is planned on the northern side of the planned Western Arterial on Ptn 4. This is the most suitable position for a treatment plant for the ASZ in terms of the overall planning of the node.</p> <p>The instream dam on Ptn 139 will be decommissioned, and drainage (and stormwater management) will be accommodated in the proposed aquatic zone. The engineers considered the option of retaining the instream dam versus the aquatic zone to deal with flood attenuation and filtering runoff (to prevent sedimentation of downstream aquatic areas). The dam is oversized based on the size of the catchment. The contribution of the existing dam towards detention is limited because a limited area actually drains into the dam. Runoff calculations demonstrate that flow from the catchment north of the R102 can be attenuated through the use of bioswales along roadsides and pavements, and the check dams in the aquatic zone. Check dams reduce the velocity of water to protect the aquatic zone and allow for ingress of runoff into the soil and help regrowth of natural plants. This will facilitate restoration of the aquatic zone, and functioning of the ESA2 area. The instream dam is artificial, and the aquatic specialist indicated that decommissioning the dam will not result in a loss of aquatic habitat. Runoff from the western side of the ASZ drains towards the R404 and the lower end of Ptn 4. This is a larger catchment area, and runoff will be attenuated in the existing dam on Ptn 4/208.</p> <p>No further layout alternatives are deemed to be necessary to avoid environmental impacts.</p>	
Provide a description of any other design or layout alternatives investigated.	
None	
Provide a motivation for the preferred design or layout alternative.	
<p>Avoids identified sensitive environments.</p> <p>Allows for an integrated planning approach.</p> <p>Accessible.</p> <p>Maximum and efficient use of space in an area designated for the intended land use.</p>	

Provide a detailed motivation if no design or layout alternatives exist.	
The layout is considered to be acceptable and none of the specialist reports identified the need for an alternative layout to avoid unacceptable environmental or social risks.	
List the positive and negative impacts that the design alternatives will have on the environment.	
The layout incorporates the aquatic zone and recommended buffer area provided by the aquatic specialist. No other sensitive environments were identified for avoidance in a layout alternative. No layout or design alternatives are relevant.	
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:	
<p>The intention is for all developments that form part of the ASZ to form an 'off grid' industrial node. This will be achieved through:</p> <ol style="list-style-type: none"> 1. Rainwater harvesting from roofs 2. Capturing runoff 3. Re-using treated effluent from the waste water treatment works 4. Operating an on-site waste water treatment works 5. Using solar energy 6. Implement other standard energy saving options within the development area (e.g. LED lights). <p>The intention of the proposed services plan for the ASZ is to promote efficient use of resources, and reduce pressure on natural systems and the George Municipality. The stormwater management system, water harvesting and re-use of treated effluent responds to the National Climate Change Response White Paper by promoting medium and long term measures to limit the impact of climate change on the availability of water.</p> <p>The proposed technology for waste water treatment is a series of engineered wetlands using the Phragmifiltr treatment technology. The quality of treated effluent will meet General Limits. Details on the treatment system using a series of engineered wetlands are provided in the Services Report in the Appendices. The treatment system has 2 phases. Phase 1 consists of 3 wetlands, and requires no energy and is not affected by power outages. Sludge is produced in the first stage which is retained on the surface and composts over time, with removal after to 10 to 15 years. The composted sludge is suitable for agricultural use. The second stage has 2 wetlands in series, with vertical down-flow reed beds. Partially treated wastewater from the Phase 1 wetlands permeates vertically down through water saturated media which typically consists of 13 mm stone, providing surface area for microbes to live. The extensive microbial growth area makes the wetlands very stable and able to cope with varying loads. The reed bed is aerated which increases the microbes' efficiency and reduces the footprint requirements of the reed bed by 10 times. The retention in each wetland is ~20 hours which provides adequate contact time between partially treated effluent and microbes for treatment to take place. The retention time also mitigates the impact of power outages, since short periods without aeration have a limited impact on biological activity. To address risks of power outages, an off grid system has been added to the WWTW design, including panels, and inverter and batteries, with a standby generator. The treatment system does not require highly trained personnel to operate and has low maintenance requirements because of the limited mechanical and electronic equipment, as well as the absence of complex control and instrumentation equipment. Discharge of treated effluent will be via passive wetland areas associated with the check dams in the Aquatic Zone – i.e. no direct discharge of treated effluent to the watercourse will take place. Treated effluent will be disinfected prior to reuse in public areas.</p> <p>Free chlorine levels will be continuously monitored in treated effluent prior to discharge / re-use. If treated effluent does not comply with standards set in the WULA, it will be pumped to a buffer tank, and sent back to the inlet works for further treatment. The quality of sludge will be monitored on an annual basis for the 15 year period. If standards are not met, dosing with lime will be used, or other additional treatment measures required to meet standards.</p> <p>The proposed treatment system is therefore designed and operated to address typical risks of wastewater treatment plants – i.e. discharge of poor effluent quality, change in hydrological flow patterns through direct discharge of increased volumes of water to drainage areas, and dealing with sludge.</p>	
Provide a description of any other technology alternatives investigated.	
No other technology alternatives have been investigated.	
Provide a motivation for the preferred technology alternative.	
The alternative applied for significantly reduces the demand for services from the local municipality and efficiently utilises available resources to meet the development's demands. The addition of a solar plant assists with addressing the current energy problem in South Africa.	
Provide a detailed motivation if no alternatives exist.	
As above, the alternative applied for adequately incorporates resource use efficiency and will be a good example of a self-sufficient development. The stormwater management system, water harvesting and re-use of treated effluent responds to the National Climate Change Response White Paper by promoting medium and long term measures to limit the impact of climate change on the availability of water.	
List the positive and negative impacts that the technology alternatives will have on the environment.	
<p>Positive:</p> <ul style="list-style-type: none"> • Reduced pressure on water resources • Reduced reliance on coal-powered energy <p>Negative:</p> <ul style="list-style-type: none"> • Treated effluent from the waste water treatment works will be used for irrigation, washing etc. However, any excess effluent will need to be discharged to the Aquatic Zone. Treated effluent from the WWTW will be pumped to the top end 	

<p>of the Aquatic Zone for discharge. If treated effluent does not meet the necessary standards (to be determined in the WULA) in the event of an emergency or plant failure; pollution of the watercourse could take place. Similarly, irrigation with poor quality treated effluent could result in groundwater pollution. As above, effluent and sludge will be monitored to test if it complies with standards in the WULA. If standards of treated effluent are not met, it will be pumped to a storage tank and then back to the inlet works for further treatment. Sludge will be tested annually, and additional dosing with lime or other measures will be used to further treat sludge if required. The EMPr provides mitigation measures to address these risks. The aquatic and geohydrological specialists did not indicate any significant impacts to surface water or groundwater environments with mitigation measures in place.</p>	
1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred operational alternative.	
As above.	
Provide a description of any other operational alternatives investigated.	
As above.	
Provide a motivation for the preferred operational alternative.	
As above.	
Provide a detailed motivation if no alternatives exist.	
As above.	
List the positive and negative impacts that the operational alternatives will have on the environment.	
As above.	
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 means that the status quo of the site will remain. Ptn 139 is currently agricultural land, with existing agricultural structures (dwelling & store). The George LM approved a land use application for consent use (tourist facility & function venue) on Ptn 139 in the existing store building on 9 November 2018. This approval has not been implemented. The WWTW planned on Ptn 4 is on agricultural land. Retaining these land uses will mean that the planned industrial service infrastructure (airport services) will not take place in close proximity of the George Airport; as identified in the Gwayang LSDF and George SDF (2019). This site is ideally located for the proposed development in terms of access, and proximity to the airport. The solar facility contributes to the overall sustainability of the development. The application also includes the services required for the ASZ to be off-grid. Therefore if the development does not go ahead, approved developments on Ptn 4 and Ptns 130 tot 132 will need to depend on bulk municipal services, and the opportunity to implement a resource-use efficient services plan will not be realised.</p> <p>Vegetation on the site has been modified and is no longer representative of Garden Granite Fynbos. No critical biodiversity areas identified in the Western Cape Biodiversity Spatial Plan (WCBSP) (2017) traverse the site. The non-perennial drainage line that cross the site from north to south, as well as their associated dam / wetland areas have been mapped as a Category 2 Ecological Support Area, associated with River / Wetland features in the WCBSP (2017). Recommendations of the aquatic specialist report have been taken into account in the delineation of watercourse on the property within the proposed aquatic zone. The remainder of the property has no remaining natural areas or ecological support areas on the site that would require the area to be used for conservation purposes as a preferred option.</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.
None	
1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
<p>The preferred alternative is a light industrial development and solar facility on Ptn 139 and a waste water treatment plant on the eastern side of Ptn 4 with services to allow for an off-grid industrial development node in the ASZ. The properties are strategically located within the ASZ and the proposed land uses are in line with the George LM's planning policies. The layout plan incorporates the ESA2 drainage area in the aquatic zone. No other sensitive environments were identified by specialists that need to be conserved or managed as open space in the site development plan. The development type by nature promotes resource use efficiency through water harvesting and re-use of treated effluent.</p>	

2. "No-Go" areas

<p>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).</p>	
<p>No 'no-go' areas have been identified by any of the specialist studies nor the EAP. The aquatic specialist delineated watercourses and wetlands in the surrounding area. This includes the two non-perennial watercourses on Ptn 139, one south of the R102 that drains through the proposed light industrial area, and one north of the R102 that drains through the proposed solar facility. The proposal is to re-align the former stream, and incorporate it into the overall stormwater management system for the ASZ in the Aquatic Zone. The specialist commented that <i>'Because the watercourses within the site are highly modified and of a low ecological importance and sensitivity, they would not pose a significant constraint to the proposed development of the site. The proposed realignment of the stream would thus have a potential impact of low significance provided a corridor is maintained and a functioning watercourse re-established within the corridor'</i>. There are also 2 instream dams on these watercourses, and the dam within the light industrial area is planned for decommissioning. The dam on the northern side of the</p>	

R102 where the solar facility is planned is recommended for stormwater attenuation. Regarding the dams, the specialist noted 'watercourses within this portion of the site (and the associated instream dams) are also not deemed to be highly significant aquatic habitats and could be integrated into the stormwater management system established onsite'. 'The corridors and their associated functionality should thus preferably be maintained within the development proposal as far as possible. A 10m setback from either side of the realigned watercourse that would allow for a corridor of 20m wide along the watercourse is recommended'.

Therefore while no No-Go areas are indicated, the aquatic specialist's recommendation of a 20 m buffer around the re-aligned watercourse and the importance of maintaining functionality and drainage connectivity has been incorporated into the design of the 'aquatic zone' that forms part of the stormwater management system.

Watercourse Co-ordinates:

33°59'39.21"S 22°23'10.92"E

33°59'45.49"S 22°23'14.36"E

33°59'46.87"S 22°23'12.43"E

33°59'53.02"S 22°23'13.60"E

The dam on the northern side of the R102 where the solar facility is planned is recommended for stormwater attenuation.

Co-ordinates:

33°59'35.53"S 22°23'26.67"E

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.

The following criteria have been used to assess the significance of predicted impacts. For each identified impact, a comparison is made between the preferred development alternative, and the 'no-go' option; with and without mitigation measures in place.

In the criteria presented below, a scale of how each variable can be measured and/or rated is discussed. This scale is based on qualitative data and the assignment of 'values' in each instance is done in an objective manner. This is achieved by using objectively-derived data gathered from various sources (i.e. recommendations from specialist studies and other scientific publications, observations made during detailed site investigations, consideration of comments from interested and affected parties, discussions with relevant stakeholders, and perusal of relevant environmental planning guidelines).

Extent

Whether the impact will occur on a scale limited to the immediate areas or site of the development activity or will the impact occur on a sub-regional, regional and/or national scale.

Description	Explanation	Scoring
Footprint / Site	The impact could affect the whole, or a significant portion of the site.	1
Local	Impact could affect the adjacent landowners and areas surrounding the site.	2
Regional	Impact could affect the wider area around the site, that is, from a few kilometres, up to the wider region.	3
National	Impact could have an effect that expands throughout a significant portion of South Africa – that is, as a minimum has an impact across provincial borders.	4

Duration

Whether the lifetime of the impact will be of a short duration (0-5 years); medium term (5-15 years); long-term (15 years, with the impact ceasing after the operational life of the development); or considered permanent where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Description	Explanation	Scoring
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process, and will be relevant for 0 to 5 years.	1
Medium term	The impact will be relevant for 5 to 15 years.	2
Long term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter (i.e. more than 15 years).	3
Permanent	This is the only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient (i.e. impact will remain after the operational lifetime of the project).	4

Intensity/Magnitude:

Whether the intensity (magnitude / size) of the impact is high, medium, low or negligible (no impact). Where possible the intensity of impacts are quantified. This will be a relative evaluation within the context of all the activities and the other impacts

within the framework of the project. Note that intensity is scored differently as this is a critical issue in terms of the overall risk and impact assessment. The intensity is thus measured as the degree to which the project affects or changes the environment.

Description	Explanation	Scoring
Very Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	2
Low	The impact alters the affected environment in such a way that the natural processes or functions are slightly affected.	4
Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.	6
High	Function or process of the affected environment is disturbed to the extent where the function or process temporarily or permanently ceases.	8

Probability:

The probability of the impact actually occurring as either improbable (low likelihood); probable (distinct possibility); highly probable (most likely) or definite (impact will occur regardless of preventative measures).

Description	Explanation	Scoring
Unlikely	The possibility of the impact occurring is none, due either to the circumstances, design or experience.	1
Probable	There is a possibility that the impact will occur to the extent that provisions must therefore be made.	2
Highly Probable	It is most likely that the impacts will occur at some stage of the Development. Plans must be drawn up before carrying out the activity.	3
Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied upon.	4

Significance:

The significance of impacts of the proposed project are assessed with the mitigation measures being implemented. The significance of the identified impacts on the components of the affected environment are described as:

1. No Impact

Where the project action will not cause any adverse or beneficial changes to the natural (biophysical), and/or socio-economic environment.

2. Impact of Low Significance

Where the project actions will result in minor short-term changes to the biophysical and/or socio-economic environment. The impacts will usually be restricted to the immediate area of the project action. The affected system should return to its natural or almost natural state in a short period of time (0 - 5 years). The impacts on human populations will be of a short duration and will not have any lasting consequences.

3. Impact of Moderate Significance

Where the project actions will result in moderate short-term or medium term changes to the biophysical and/or socio-economic environment. The effects of the impact could be experienced outside of the project action area and may be evident at a sub-regional or even a regional level. Minor indirect impacts may arise from the project action. The system should recover but it is unlikely that it will return to its natural state. Recovery would only take place in the medium term (5-15 years). Impacts on the human population will be felt after the project action is completed but are not severe and/or disruptive to their quality of life or economic wellbeing.

4. Impacts of High Significance

Where the project actions will result in major long-term changes to the biophysical and/or socio-economic environment. The effects of the impact will be experienced outside of the project action area and may be evident at a regional, national and even at the international level. Secondary or indirect impacts may arise from the project action. The system may recover over the long-term (>15 years) but will not revert to its natural state. Impacts on human populations will be felt after the project action is completed. The impacts are of a long-term nature and are disruptive to the previous life style of the affected population.

Determination of significance is made on the assumption that any mitigation and / or management measure, which is recommended, will be implemented by the developer.

The level of significance is expressed as the sum of the area exposed to the risk (extent), the length of time that exposure may occur over in total (duration), the severity of the exposure (intensity) and the likelihood of the event occurring (probability).

$$\text{Significance value} = (\text{Extent} + \text{Duration} + \text{Intensity}) \times \text{Probability}.$$

A distinction will be made for the significance rating without the implementation of mitigation measures and with the implementation of mitigation measures. The purpose of mitigation measures is to reduce the significance level of the anticipated impact. Therefore, the reduction in the significance level after mitigation is directly related to the scores used in

the impact assessment criteria. The effect of potential mitigation measures to reduce the overall significance level is also to be considered in each impact table (i.e. values with or without mitigation are presented).

Description	Explanation	Scoring
No / Very Low Impact	There is no impact or a very low impact.	1-9
Low	The impacts are less important, but some mitigation is required to reduce the negative impacts.	10-27
Medium	The impacts are important and require attention; mitigation is required to reduce the negative impacts.	28-45
High	The impacts are of high importance and mitigation is essential to reduce the negative impacts	46-64

Status of the Impact:

This describes whether the impact is positive (a benefit) or negative (a cost), or neutral.

Degree of Confidence in Predictions:

The degree of confidence in the predictions, based on the availability of information and/or specialist knowledge.

Reversibility

Impact reversibility refers to the degree to which the inevitable and possibly unanticipated impacts of an activity can be reduced/removed at any time during project implementation or after project completion.

Description	Explanation
Low	The effected environment is permanently modified, and will not be able to recover with intervention.
Medium	The effected environment will recover with significant intervention.
High	The effected environment will recover.

Resource Irreplaceability

Comments on the resource that is being impacted on with regards to whether it can be replaced or not.

Description	Explanation
Low	The resource is not irreparably damaged or is not scarce
Medium	The resource is irreparably damaged, but is represented elsewhere
High	The resource is irreparably damaged, and is not represented elsewhere

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.

Overview of the 'Sensitivity' of various environmental themes of the site (DFFE Screening Tool Report):

The DFFE's on-line Screening Tool collates available desktop information for the project area, and assigns a sensitivity rating to various 'themes' (e.g. terrestrial biodiversity, aquatic etc.). Specialist studies and / or the EAP either verify or dispute the sensitivity rating based on site-specific assessments, and other available information. Table 1 **Error! Reference source not found.** outlines the different themes and their allocated sensitivity rating for the project area, with comments on whether the sensitivity ratings have been confirmed or disputed by the specialist studies and/or the EAP. Details of specialist studies done and the relevant Protocols are provided below:

Study	Specialist	Professional Registration/Qualification	Applicable Protocol	Type of Study
Landscape/Visual Impact Assessment	Quinton Lawson and Bernard Oberholzer	SACLAP, SACAP	None specified – comply with Appendix 6 of the EIA Regulations	High Level VIA
Agricultural Impact Assessment	Johann Lanz	Pri. Sci. Nat. 400268/12	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources (20 March 2020) Government Gazette No. 43110	Site Verification and Compliance Statement
Heritage Impact Assessment	Stefan de Kock – Perception Planning	Hons: TRP(SA) EIA Mgmt(IRL) Pr Pln PHP	Site Sensitivity Verification Requirements Where a Specialist Assessment is Required but no Specific Protocol has been Published (20 March 2020) Government Gazette No. 43110	Heritage report – NID sent to HWC.
Terrestrial Biodiversity Impact Assessment	Mike Cameron and Dr Mike Cohen (review specialist)	Mike Cameron: MSc Conservation Biology Mike Cohen: PhD Zoology Pri.Sci.Nat 401917/83	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (20 March 2020) Government Gazette No. 43110	Site Verification and Compliance Statement
Plant Species Assessment	Mike Cameron and Dr Mike Cohen (review specialist)		Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species (30 October 2020) Government Gazette No. 43855	Site Verification and Compliance Statement
Animal Species Assessment	Mike Cameron and Dr Mike Cohen (review specialist)		Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species (30 October 2020) Government Gazette No. 43855	Site Verification and Compliance Statement

Aquatic Biodiversity Assessment	Toni Belcher – BlueScience (Pty) Ltd.	Professional Environmental Scientist (Pr. Sci. Nat 400040/10) Professional Ecological Science (Pr. Sci. Nat 400040/10)	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (20 March 2020) Government Gazette No. 43110	Impact Assessment
Geohydrology Study	Eunice Goosens and Gert Nel - SRK Consulting	Professional Scientist Pr. Sci. Nat 400216/06	None specified – comply with Appendix 6 of the EIA Regulations	Geohydrological investigation and report.
Traffic Impact Assessment	Louis de Villiers Roodt - Roodt Transport Safety Pty Ltd	Pr Eng ECSA 820425	TIA done in accordance with the South African Traffic Impact and Site Traffic Assessment Manual THM 16 Volume 1 (COTO 2012) and Volume 2 (COTO 2014) and the South African Trip Data Manual TMH 17 (COTO 2013)	Traffic Impact Assessment
Socio-Economic Impact Assessment	Dr AH de Wit	PhD Geography. IAIA member	None specified – comply with Appendix 6 of the EIA Regulations	Socio-Economic Impact Assessment

Table 1: Sensitivity Ratings of Themes for the Project Area (as per the DFFE Screening Tool Report)

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agricultural Theme		<p>X</p> <p>The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is cultivated or not. The land capability of the investigated site varies from 7 to 8, which translates to a medium agricultural sensitivity. The site is indicated as high sensitivity on the screening tool because it is classified as cultivated land. It has historically been used for planted pastures. The specialist disputed this rating, and confirmed a low sensitivity.</p>		
Animal Species Theme		<p>X</p> <p>Refers to SCCs recorded or modelled to be in the area: Avifauna: 3 SCCs The terrestrial ecologist disputed the sensitivity and confirmed a low sensitivity rating.</p>	<p>X</p> <p>Refers to SCCs recorded or modelled to be in the area: Amphibians: 1 species Mammals: 1 species Invertebrates: 1 species The terrestrial ecologist disputed the sensitivity and confirmed a low sensitivity rating.</p>	
Aquatic Biodiversity Theme	<p>X</p> <p>Aquatic CBA and Strategic Water Source Areas within the broader area. The aquatic specialist noted there are no Aquatic CBAs and FEPA wetland mapped features within the site. It is highly unlikely that the project activities would impact the SWSA. The watercourses within the site are 'highly modified and of a low ecological importance...They do. provide a corridor for the</p>			

	movement of water through the landscape. This functionality of the watercourses is recognised within the biodiversity conservation mapping of the area where the watercourses are mapped as aquatic ecological support areas. The corridors and their associated functionality should thus preferably be maintained within the development proposal as far as possible'.			
Archaeological and Cultural Heritage Theme				X Specialist confirmed low sensitivity, and NID submitted to HWC. HWC responded that no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required
Civil Aviation Theme	X Within 8 km of a major civil aviation aerodrome. Specialist did an assessment to determine how 'glint' and 'glare' will affect aviation receptors such as pilots on final approach to the George airport, as well as the Air Traffic Control Tower (ATCT). No issues noted due to fixed axis Solar PV arrays being positioned to the north of the aviation receptors and angled towards the north.			
Defence Theme				X No specialist studies done. EAP confirms no defence bases occur on site or in the immediate surrounding area that could be impacted by the development.
Plant Species Theme			X Refers to Species of Conservation Concern recorded or modelled to be in the area – 11 Plant SCCs listed Specialist disputed medium sensitivity, and indicated low sensitivity.	
Terrestrial Biodiversity Theme	X Critically endangered ecosystem and ESA2. The terrestrial ecologist disputed the sensitivity and confirmed a low sensitivity rating.			

The section that follows is an assessment of the impacts of the proposed activities on Ptn 139 and Ptn 4 on the receiving biophysical and socio-economic environment. The impact of the preferred development option on the identified site is assessed with and without mitigation, and the option of implementing the No-Go alternative in each instance is discussed. Where relevant, cumulative impacts are also assessed. A 500 m buffer around the ASZ properties is considered in the cumulative assessment, as per the aerial view in the image below:



Google Earth image showing the George ASZ properties and a 500 m radius for consideration of cumulative impacts. Ptn 4 and 139 are outlined in blue and yellow respectively.

A. Planning and Design Phase

No impacts identified for this phase

B. Development and Operational Phases

Terrestrial Ecology

The terrestrial ecologist did a survey of all properties within the ASZ and considered the sensitivities identified in the Screening Tool Report – i.e. terrestrial biodiversity, plant SCCs and animal SCCs. The sensitivities of the 3 themes were disputed by the specialist, who confirmed that all 3 are Low sensitivity. A summary baseline description of the local terrestrial environment is as follows (from Cameron, 2022 (and Cohen as review specialist)):

The study area is predominantly under grass pasture, and has been for many years. Surrounding land uses include the George Airport to the west, a quarry to the south-east, agricultural fields to the north and east, and roads and infrastructure. The original vegetation type (Granite Garden Fynbos) is an endangered ecosystem and conservation of remaining intact vegetation is important for biodiversity persistence. However, vegetation on the site is transformed to such an extent that it is highly unlikely that it can be restored to its original status. Terrestrial vegetation of the site and its surroundings is confined to a few grasses (some invasive) and a scattering of ruderal weeds and shrubs (exotic and indigenous, e.g. *Plantago lanceolata*, *Conyza scabrida*, *Onopordium acanthium*, *Verbena bonariensis*, *Solanum* species, *Lobelia* sp., *Helichrysum foetidum*, *H. cymosum*, *H. crispum*, *Metalsia acuta* and *Selago corymbosum*) and trees. The few indigenous tree species noted are bird dispersed along the most western and southern fence lines of the broader ASZ area (*Grewia occidentalis*, *Searsia chirensensis*, *Rhamnus prinoides* and *Gymnosporia buxifolia*. *Dais cotinifolia* is also found here but is extra limital). Most of the trees along the fenceline are alien invasive species, especially dense *Acacia mearnsii* and a few *Acacia melanoxylon* (blackwood) and *Solanum mauritanicum* (bugweed) trees. A plant species list is provided in Appendix 3 of the terrestrial ecology specialist report. Vegetation is considered to have a low alpha diversity especially of species of the original vegetation.

The site includes an ESA2 that is associated with drainage corridors that are part of a tributary of the Gwayang river catchment. The drainage system has been mapped by the aquatic specialist and has a low ecological value. Drainage flow and connectivity of these drainage corridors will be managed as part of the overall stormwater system.

Six animal SCCs were highlighted in the Screening Tool Report to occur in the study area, with either high or medium sensitivity. These are *Philantomba monticola*, *Circus ranivorus*, *Neotis denhami*, *Bradypterus sylvaticus*, *Africalus knysnae* and *Aneuryphymus montanus*. The terrestrial ecologist looked for these species or signs of their occurrence, and assessed

the habitat status to determine if it is suitable for the listed species. The species either do not occur on the site or the habitat is not conducive. *N. denhami* could utilize the grass pastures of the site and in the surrounding farm pastures. However the specialist does not consider the site as being 'essential to its survival status'. Animal species noted during the survey by the specialist were mainly transient birds (e.g. Black headed heron), and birds associated with cattle (e.g. cattle egret, sacred ibis). Other species noted were blacksmith lapwing, pied kingfisher, hadeda, yellow billed duck and Egyptian goose. All properties had rodent runways in the grass sward, probably Vlei rat (*Otomys irroratus*). Animals species sensitivity is therefore confirmed to be low.

Ten plant SCCs were highlighted in the Screening Tool Report to occur in the study area, with medium sensitivity. These are *Satyrion muticum*, *S. princeps*, *Tulista kingiana*, *Gladiolus vaginatus*, *Disa hallackii*, *Lampranthus pauciflorus*, *Leucospermum glabrum*, *Erica unicolor muticum*, *Euchaetis albertiniana*, and *Diosma passerinoides*. The terrestrial ecologist looked for these species and assessed the ecological condition of the site to determine if the species is likely to occur. The specialist noted that it is highly unlikely that the SCCs would occur on the site, either because it is not the correct habitat or because of the extensive transformation due to a long history of grazing. The sensitivity of the plant species theme is therefore considered to be low.

Project phase	Construction	
Impact	Vegetation loss, habitat destruction, disturbance to/loss of SCCs	
Description of impact	The full extent of Ptn 139 will be disturbed and changed from predominantly agricultural land to light industry and/or solar facilities. The northern part of Ptn 4 will be used for a waste water treatment plant. The drainage through Ptn 139 will be re-aligned to the eastern boundary and the instream dam on the area south of the R102 will be decommissioned. The drainage area will be modified to an 'aquatic zone' that will form part of the stormwater management system for the ASZ. Aquatic impacts are separately assessed, but for the purposes of the ESA 2, the intention is to maintain functionality and promote drainage connectivity across the landscape. Both of these aspects will be achieved in the aquatic zone since aquatic vegetation will be restored by planting with indigenous aquatic plants and flow will be maintained (and attenuated) through check dams to prevent siltation and flooding. Other than direct loss of vegetation and disturbance to fauna, other construction phase impacts on terrestrial ecology include: poaching of plants and animals, increased severity of alien plant spread, collisions with construction vehicles, pollution and environmental degradation in the surrounding landscape, and entrapment in open trenches and excavations. The Construction EMP provides mitigation for construction environmental risks to be prevented.	
Mitigatability	Medium	Mitigation is available to prevent indirect impacts from construction activities. No mitigation is applicable to vegetation or habitat loss.
Potential mitigation	<ul style="list-style-type: none"> Refer to the Construction EMP 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Short term (1)	Short term (1)
Extent	Local (2)	Local (2)
Intensity	Low (4)	Very Low (2)
Probability	Probable (2)	Probable (2)
Confidence	High	High
Reversibility	High	High
Resource irreplaceability	Low	Low
Significance	Low: 14	Very Low: 10

Project phase	Operations
Impact	Impact on the functioning and quality of the ESA2 area
Description of impact	As above, the drainage line that runs through Ptn 139 is part of an ESA2 area. The recommended management objective for these areas is to maintain functionality and connectivity. Both of these will be achieved in the 'aquatic zone'. Maintenance of the check dams and restored vegetation will be needed in the aquatic zone to ensure optimal functioning to prevent sedimentation of the Gwayang River downstream of the site. Ongoing alien vegetation management and monitoring will also be required. Management of operational phase impacts is addressed in the OEMP. Treated effluent from the planned WWTW on Ptn 4 will mostly be re-used on site for irrigation, washing of surfaces and flushing of toilets. However, surplus effluent will be discharged to the drainage area via the Aquatic Zone. The WWTW is designed to meet General Limit standards which are suitable for discharge to watercourses. Potential degradation of water quality in the river is assessed separately under 'Aquatic Biodiversity' impacts.

Mitigatability	Medium	Mitigation measures are provided in the OEMP to address maintenance of the aquatic zone, and alien vegetation control.
Potential mitigation	<ul style="list-style-type: none"> Refer to the Operational EMP 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Long term (3)	Long term (3)
Extent	Local (2)	Local (2)
Intensity	Low (4)	Very Low (2)
Probability	Probable (2)	Unlikely (1)
Confidence	High	Medium
Reversibility	High	High
Resource irreplaceability	Low	Low
Significance	Low: 18	Very Low: 7
Cumulative Impacts	Low	Low

No-Go Alternative:

The no-go option would mean that the current practice of grazing would continue which has resulted in transformation of the vegetation type. Roads, infrastructure and fencing are in place and fragment the landscape and alter hydrological flow. Alien vegetation on the property boundaries and in the surrounding area, especially to the east of Ptn 4/208 is also currently a biodiversity risk. The current land use therefore has a **low negative impact** on the environment.

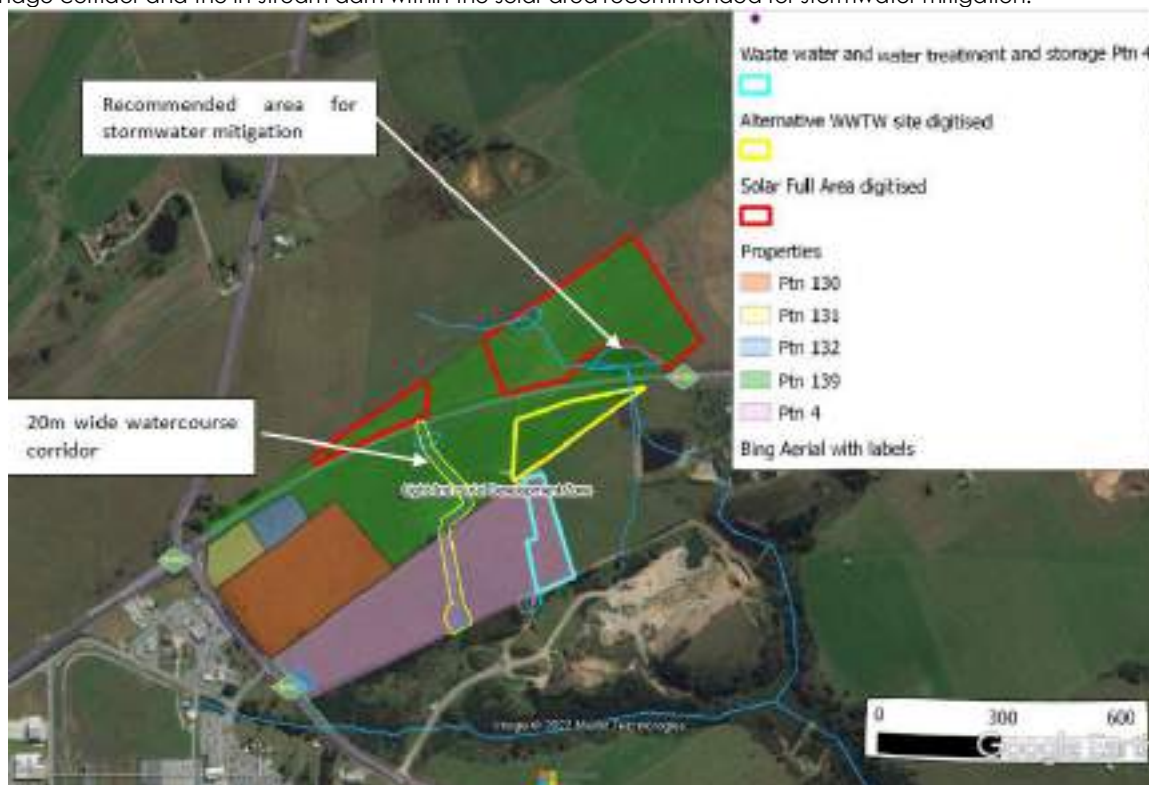
Aquatic Biodiversity

The aquatic biodiversity specialist has done an assessment of all properties within the ASZ and considered the sensitivity of the aquatic environment as identified in the Screening Tool Report – i.e. Very High because of the presence of an Aquatic CBA (downstream river), and ESA2 (the drainage line through Ptn 139) and a SWSA on the properties. Based on the history of disturbance to the aquatic environments in the area, and the current status; the aquatic specialist disputed the Very High sensitivity rating and indicated that the *'watercourses within the site are highly modified and of a low ecological importance...They do however provide a corridor for the movement of water through the landscape. This functionality of the watercourses is recognised within the biodiversity conservation mapping of the area where the watercourses are mapped as aquatic ecological support areas. The corridors and their associated functionality should thus preferably be maintained within the development'*. A summary baseline description of the local aquatic environment is as follows (from Belcher, 2022).

'A small watercourse that largely arises at the R102 crosses Ptn 139 from north to south. Two farm dams have been constructed within the watercourse channel, with the larger one along the southern boundary of Ptn 139. The watercourse drains into a small tributary of the Gwaing River that flows from west to east, south of Ptn 4/208. A further off-channel dam occurs in the eastern extent of Ptn 139, north of the R102. Upstream of the site, as well as the section of stream flowing adjacent to the site is overgrown with alien trees (primarily black wattle *Acacia mearnsii*) and invasive alien kikuyu grass *Pennisetum clandestinum*. A small valley-bottom wetland dominated by riverbed grass *Pennisetum macrourum* is associated with the larger tributary to the south of Ptn 4/208. Downstream of the site, the stream passes to the south of a quarry and is joined by another small tributary of the Gwaing River. The National Freshwater Ecosystem Priority Areas mapping initiative has only mapped the dams to the north of the site as artificial wetland areas. Wetland areas along the minor tributaries to the south of the site (downstream) are mapped as natural valley bottom and seep wetlands. The watercourses in the area are mapped as aquatic Ecological Support Areas2. However, the lower sections of the river, where the two streams' confluence and the valley bottom wetland areas occur, are mapped as aquatic CBAs (south of Ptn 4). The wider river corridor is mapped as riparian forest CBAs (WCBSP, 2017). A photograph from 1936 shows that the site was already completely modified and cultivated at that time (i.e. 85 years ago). The watercourses and dams were not visible in the site, although there appears to have been a wetland area in the eastern extent of the site. The small valley bottom wetland areas to the south of the site were present along the watercourses at that time, although cultivation had taken place within them' (Belcher, 2022).

The watercourse within the site is considered to be in a seriously to critically modified ecological condition with extensive loss of ecological functionality as a result of the cultivation of the area as well as the instream dams. The larger tributary of the Gwaing River to the south of the site is in a better ecological condition and is moderately to largely modified as a result of the construction of the airport and the associated activities and the invasion of the riparian zone with alien invasive plants. The watercourse within the site is considered to be of a low ecological importance and sensitivity while the larger tributary is of a moderate ecological importance and sensitivity due to the habitat that provides as well as the link that it helps to provide between the coastal area and the hillslope. Because the watercourses within the site are highly modified and of a low ecological importance and sensitivity, they would not pose a significant constraint to the proposed development of the site. The watercourses do however provide a corridor for the movement of water through the landscape. This functionality of the watercourses is recognised within the biodiversity conservation mapping of the area where the watercourses are mapped as aquatic ecological support areas. The proposed realignment of the stream

to the eastern side of Ptn 139 would thus have a potential impact of low significance provided a corridor is maintained and a functioning watercourse re-established within the corridor. A 10m setback from either side of the realigned watercourse that would allow for a corridor of 20m wide along the watercourse is recommended' (Belcher, 2022). The image below shows the 'aquatic constraints' mapping for the site, indicating the 20 m buffer around the re-aligned drainage corridor and the in-stream dam within the solar area recommended for stormwater mitigation:



Project phase	Construction and Operational Phases	
Impact	Loss of Aquatic Habitat and associated biota	
Description of impact	The development could result in the potential modification and/or loss of aquatic habitat in and downstream of the site. The aquatic features are however minor features that are already significantly modified by past agricultural activities. The proposed solar facility is on the flatter area at the top of the watercourses, where any potential impacts would be very low. Watercourses on the southern side of the R102 and the in-stream dams are also not considered highly significant aquatic habitats and could be integrated into the stormwater management system for the ASZ. Any potential impacts on the aquatic habitat of the more ecologically important tributary of the Gwaing River System and the associated valley bottom wetland area downstream of Ptn 4 must be mitigated. The constraints map indicating which areas to avoid in development planning are shown in the image above. These have been incorporated into the stormwater management system for the ASZ and functionality and connectivity will thus be maintained. The loss of artificial aquatic habitat associated with the decommissioning of the instream dam on Ptn 139 is not considered of any significance.	
Mitigatability	High to Medium	Recommended No-Go areas are accommodated in the SDP where the drainage line and 20 m buffer is part of the 'aquatic zone' which is part of the stormwater management system. Mitigation is available to prevent impacts on downstream aquatic areas.
Potential mitigation	<p>Construction Phase:</p> <ul style="list-style-type: none"> No-Go areas must be clearly demarcated on site, and construction activities must avoid these areas. This excludes areas where road and infrastructure crossings are required, as well as stormwater management upgrades. The number of watercourse crossings for infrastructure (roads, powerlines, water and sewer pipelines) should be minimised and limited to one position as far as possible (e.g. align at a road crossing). A corridor of approximately 20 m is recommended to accommodate stormwater flow within the site. The existing concrete channel within the watercourse should be removed and the channel shaped and planted with wetland vegetation such as <i>Juncus effusus</i>, <i>Carex gloerabilis</i>, <i>C. clavata</i>, <i>Isolepis prolifera</i>, <i>Cyperus polystachyos</i> and <i>Zantedeschia aethiopica</i> within the wetter bed together with buffalo grass <i>Stenotaphrum secundatum</i> or <i>Cynodon dactylon</i> along the banks. The incorporation should as far as possible lead to the longer-term improvement of the aquatic habitat within the watercourses on site and more importantly adequately mitigate any potential downstream impacts on the valley bottom wetland and watercourse downstream (south) of the site. 	

	<ul style="list-style-type: none"> Runoff into the downstream watercourse and wetland area must be done in a dispersed manner. This is achieved by means of the check dams in the aquatic zone and attenuation dams on the lower end of Ptn 4/208. The basin of the instream dam that will be decommissioned can be filled to just retain the watercourse channel as is present upstream and downstream of the dam. Measures (such as placing of hay bales or a temporary silt trap) should be in place to prevent siltation of the watercourse downstream of the dam while this is being done. The watercourse at the dam site should be shaped and planted as outlined above Refer to the Construction EMP <p>Operational Phase:</p> <ul style="list-style-type: none"> The 'aquatic zone' should consist largely of suitable local indigenous plants (as above). The introduction of exotic and alien invasive plants (and in particular kikuyu grass <i>Pennisetum clandestinum</i>) for landscaped areas should be avoided. It is recommended that alien vegetation control measures take place throughout the undeveloped open areas of the site such as within the corridors and stormwater management areas. Control of nuisance growth of bulrush <i>Typha capensis</i> is likely to also be required on an ongoing basis to encourage the growth of indigenous vegetation. Implement the requirements of the OEMPr. 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Long term (3)	Long term (3)
Extent	Local (2)	Local (2)
Intensity	Medium (6)	Low (4)
Probability	Probable (2)	Probable (2)
Confidence	High	High
Reversibility	High	High
Resource irreplaceability	Low	Low
Significance	Medium to Low: 22	Low: 18
Cumulative Impacts	Medium to Low	Low

Project phase	Construction and Operational Phases
Impact	Impairment of surface water quality
Description of impact	<p>The surface water within the aquatic features in or adjacent to the site could be contaminated by activities during construction as well as contaminated stormwater runoff from the developed areas during the operation phase. Typical contaminants from construction phase are hydrocarbon leaks from equipment and vehicles, runoff from cement mixing areas, leaks and spills from chemical toilets and material stores, solid waste/litter etc.</p> <p>In operational phase, the water quality impacts from the proposed solar facility are likely to be of negligible significance as there are no significant aquatic features in the proposed project area and the area is relatively flat and upslope of the R102 road.</p> <p>It is proposed to operate a wastewater treatment plant on the eastern side of Ptn 4. The capacity of the system will be 430 m³ per day, of which ~63% will be used for water supply to the ASZ. Treated effluent will be disinfected prior to reuse in public areas. The remainder of treated effluent will be used for irrigation or released into the drainage line via the Aquatic Zone. The quality of treated effluent will meet General Limits. Effluent will not be treated to potable standards, however the engineers are considering the feasibility of this option for future phases. Details on the treatment system using a series of engineered wetlands are provided in the Services Report in the Appendices. The treatment system has 2 phases. Phase 1 consists of 3 wetlands, and requires no energy and is not affected by power outages. Sludge is produced in the first stage which is retained on the surface and composts over time, with removal after 10 to 15 years. The composted sludge is suitable for agricultural use. The second stage has 2 wetlands in series, with vertical down-flow reed beds. Partially treated wastewater from the Phase 1 wetlands permeates vertically down through water saturated media which typically consists of 13 mm stone, providing surface area for microbes to live. The extensive microbial growth area makes the wetlands very stable and able to cope with varying loads. The reed bed is aerated which increases the microbes efficiency and reduces the footprint requirements of the reed bed by 10 times. The retention in each wetland is ~20 hours which provides adequate contact time between partially treated effluent and microbes for treatment to take</p>

	<p>place. The retention time also mitigates the impact of power outages, since short periods without aeration have a limited impact on biological activity. Nevertheless, to address risks of power outages, an off grid system has been added to the WWTW design, including panels, and inverter and batteries, with a standby generator. The treatment system does not require highly trained personnel to operate and has low maintenance requirements because of the limited mechanical and electronic equipment, as well as the absence of complex control and instrumentation equipment. Discharge of treated effluent will be via passive wetland areas associated with the check dams in the Aquatic Zone – i.e. no direct discharge of treated effluent to the watercourse will take place.</p> <p>Free chlorine levels will be continuously monitored in treated effluent prior to discharge / re-use. If treated effluent does not comply with standards set in the WULA, it will be pumped to a buffer tank, and sent back to the inlet works for further treatment. The quality of sludge will be monitored on an annual basis for the 15 year period. If standards are not met, dosing with lime will be used, or other additional treatment measures required to meet standards.</p> <p>In operational phase, typical risks associated with waste water treatment systems are effluent of poor quality being released to the environment due to system failure, poor maintenance, or shut down with power outages. Discharge of flow directly to a watercourse can also change the hydrological flow patterns, resulting in erosion and sedimentation of downstream areas. Dealing with sludge can also be problematic. The above description identifies how the proposed system is designed and operated to address these risks.</p> <p>Treated effluent will be used to irrigate landscaped and common open space areas. Over-irrigation can result in ponding of effluent at the surface, which should be avoided. This can be managed through a controlled irrigation system. Mitigation measures are provided below and in the IWWMP.</p> <p>Construction of the Western Bypass Arterial at a later stage could impede the operations of the WWTW, especially by damage to pipeline infrastructure that it would need to cross over. ICE Engineers have addressed this in the planning of pipeline installation. <i>The services will be coordinated and routed via one reinforced concrete pipe culvert. This culvert will be located at a depth below the pavement layers of the proposed Western Bypass and will stretch from road reserve boundary to road reserve boundary. The services will therefore not be affected by the roadworks, should they take place at a later stage. When the Western Bypass is constructed the services crossing the future road will need to be catered for as per all other service crossings. The designs for the services will be provided to WCG for comment before going ahead with construction</i></p>	
Mitigatability	High to Medium	Recommended aquatic buffer areas are accommodated in the SDP where the drainage line and 20 m buffer is part of the 'aquatic zone' which is part of the stormwater management system. Mitigation is available to prevent impacts on downstream aquatic areas.
Potential mitigation	<ul style="list-style-type: none"> Stormwater management measures at the planned solar facility area on Ptn 139 must prevent any contaminated runoff during construction and operation of the facility (such as from washing of the solar panels) from draining directly into the aquatic features. The proposed stormwater management system for the ASZ accommodates the filtration of potential pollutants from stormwater runoff from the planned light industrial area on Ptn 139 by means of bioswales alongside roads and pavements and in parking areas and circulations areas. Onsite oil and litter traps are included in the treatment measures for the stormwater runoff. Adhere to the recommendations of the CEMPr to manage and prevent pollution impacts from construction activities. The aquatic zone and stormwater management system across the site is designed to mitigate water quality impacts of the development area on downstream aquatic areas. Adequate measures must be in place to prevent any sewage spillages within the site from draining to the watercourse. There should also be backup measures or storage in the event that the works is not able to operate. This is accommodated within the design of the Phragmifiltre system. The works should be routinely maintained to ensure that it continues to operate in line with its design. The advantage of the Phragmifiltre system is its low maintenance requirements. If discharge of treated effluent takes place, this must be via the passive wetland systems in the check dams in the aquatic zone. No direct discharge to the watercourse must take place. This is accommodated in the project plan, where treated effluent will be pumped to the top end of the Aquatic Zone. Treated effluent from the WWTW must be tested monthly to demonstrate compliance with the authorised water quality standards (suggest water quality variables as listed in the General limit – faecal coliforms, pH, electrical conductivity, orthophosphates, ammonia, suspended solids and chemical oxygen demand). Monitoring must be done at the point of discharge from the WWTW, and at the last check dam in the aquatic zone. Levels of free Chlorine in treated effluent will be continually monitored. If treated effluent does not meet standards in the WULA, it must be sent to the buffer tank, and back to the inlet works for further treatment. 	

	<ul style="list-style-type: none"> • Irrigation application rates must be adjusted during times of rainfall to avoid over-irrigation. • Irrigation should be done early in the morning, and spaced over the course of a week, with 1 to 2 day intervals between irrigation. • A weekly record must be kept of the volumes of treated effluent that is irrigated or discharged from the WWTW into the Aquatic Zone. • The Municipal Health Services Department must be informed whenever the WWTW may impact negatively on the public. • Monitoring results must be provided to the Municipal Health Services Department. • Implement the requirements of the OEMPr. 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Long term (3)	Long term (3)
Extent	Local (2)	Local (2)
Intensity	Medium (6)	Low (4)
Probability	Probable (2)	Probable (2)
Confidence	Medium	Medium
Reversibility	Medium	High
Resource irreplaceability	Low	Medium
Significance	Medium to Low: 22	Low: 18

Project phase	Operational Phase	
Impact	Flow modification	
Description of impact	The hardening of the surface areas within the proposed development area would decrease infiltration capacity of the ground, and increase surface water runoff to the adjacent aquatic features. This may change hydrological flow, and result in erosion and sedimentation.	
Mitigatability	High to Medium	Recommended aquatic buffer areas are accommodated in the SDP where the drainage line and 20 m buffer is part of the 'aquatic zone' which is part of the stormwater management system. Mitigation is available to prevent impacts on downstream aquatic areas.
Potential mitigation	<ul style="list-style-type: none"> • The proposed stormwater management plan must be implemented and maintained • Road designs over watercourses must have sufficient drainage measures to not impede or confine flow (surface and sub-surface flow). • Any infrastructure that crosses watercourses must not impede flow. • If discharge of treated effluent takes place, this must be via the passive wetland systems in the check dams in the aquatic zone. No direct discharge to the watercourse must take place. 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Long term (3)	Long term (3)
Extent	Local (2)	Local (2)
Intensity	Medium (6)	Low (4)
Probability	Probable (2)	Probable (2)
Confidence	High	High
Reversibility	High	High
Resource irreplaceability	Low	Low
Significance	Medium to Low: 22	Low: 18
Cumulative impacts	Low	Low

The no-go option would mean that the status quo would remain – i.e. the watercourses within the site will remain in their existing degraded ecological condition and there would be no potential risk of further impacts to the downstream aquatic ecosystems. The current land use has a **very low negative impact** on the environment.

Cumulative Impacts

The tributaries and wetland areas of the Gwaing River System have all been significantly modified by the urban activities where the rivers are located within the George urban edge and by agricultural activities outside of George. As a result, the aquatic habitat, flow and water quality in the watercourses have been altered with most of the indigenous riparian vegetation having been removed and many of the riparian zones invaded with alien vegetation. The rivers do however still provide an important ecological function in the landscape in providing corridors for the movement of water and associated biota between the higher-lying areas and the coast within a transformed landscape.

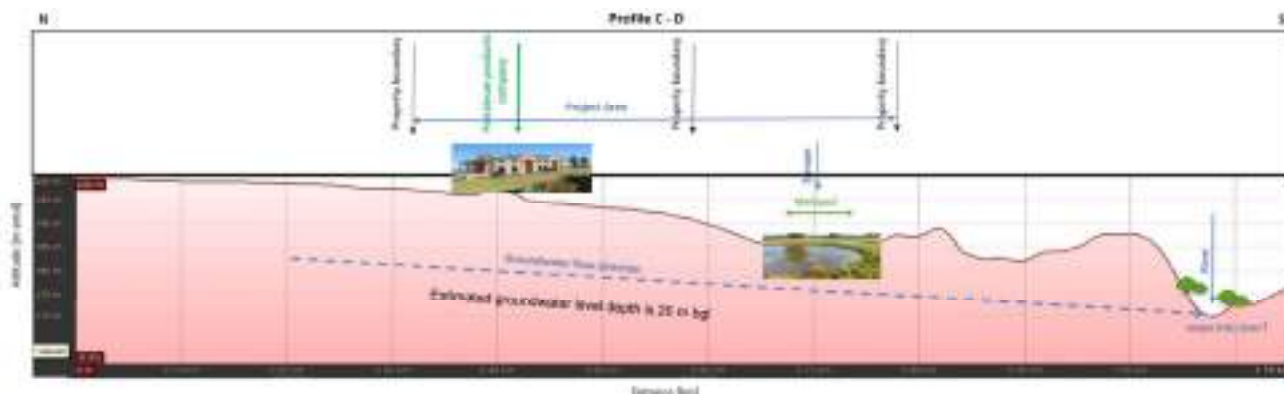
The proposed development does not impact any major watercourses within the Gwaing River System and, as such, has a low potential cumulative impact on the larger aquatic ecosystem. As per the recommended aquatic buffer areas and development guideline provided above, the two smaller watercourses within the site must be accommodated in the aquatic zone within the development to reduce the potential of impacting on the downstream larger tributary of the Gwaing River (which is a CBA) (Belcher, 2022).

Geohydrology

The Screening Tool Report does not specify a sensitivity rating for Geohydrology, but does recommend that a hydrology study should be done. ICE Engineers have considered surface runoff parameters across the development areas within the full ASZ and have developed a stormwater management plan to ensure pre-and post- development runoff are similar. A geohydrology study has been done by SRK Consulting to address the potential for groundwater contamination from the WWTW and using treated effluent for irrigation and washing of surfaces in the ASZ. A summary baseline description of the local geohydrological environment is as follows (from SRK Consulting (2022).

The ASZ properties fall within the K30A and K30B drainage regions. Surface and groundwater flow is anticipated to be south, south-east towards the Gwaing River, which flows south-west. Seven boreholes are listed on the NGA within 5 km of the site, which provides information on the expected geohydrological conditions. Groundwater depth varies between 6 and 160 m, and the yield ranges from 0.87 to 5 L/s. The site is located on the George Batholith comprising gneissic granite and granodiorite (i.e. Maalgaten Granite of the George pluton) (Coetzee, 1979 in SRK, 2022). Five boreholes were found in the hydrocensus done in May 2022. The groundwater quality from the boreholes was reported as being very saline and not usable. The water level in the borehole located at Norga River Nursery was reported as being 13 m (date unsure) but is currently at ~ 22 m.

A thin sand cover (~ 1 m) overlies orange-grey stiff clay, here interpreted to be highly weathered clay. The clay, as tested by means of four test pits on the opposite side of the R404, was reported to have a very low permeability of 1.3×10^{-7} m/s to 1.3×10^{-8} m/s (Abrahams, 2012 in SRK, 2022). The aquifer is regarded as 'poor' with low borehole yields and poor water quality (DWAf, 2000). Water quality from 5 borehole reports on the NGA indicated very poor water quality of the aquifer at the site – the electrical conductivity (EC) ranged between 306 mS/m and 1 350 mS/m, with an average 812 mS/m and a harmonic mean of 606 mS/m. These EC levels exceed the drinking standard of 170 mS/m (SANS, 2015). The groundwater has a NaCl character. Soils have a marked clay accumulation, strongly structured and a non-reddish colour. The soils have a moderately deep depth of 450 to 750 mm and less than 20 % rock is expected (SRK, 2022). A Conceptual Site Model has been done for the site to identify potential sources, pathways and receptors for possible pollutants of concern. Potential pollutants of concern from the site are leakage/spills of untreated/partially treated effluent from the WWTW, leaks from sewer pipelines, as well as using treated effluent for irrigation. The groundwater table is not a flat surface but generally follows the ground surface (in fractured rock), with more subdued slopes. The local groundwater flow direction should be from the highest point towards the non-perennial rivers and then towards the Gwaing River, with a regional groundwater flow towards the south-east. Local groundwater flow should gradually follow topography, joining the regional groundwater flow direction. The local groundwater flow on the site should be from a north-west direction flowing south-eastwards and will join in the regional groundwater flow direction of the Gwaing River, which is from north-east to south-west. A second pathway will include surface (e.g., leakage overland towards rivers, streams and the quarry). The expected receptors will include the groundwater aquifer, the earth dams, quarry, as well as the rivers / streams (SRK, 2022). Two profiles were run across the site in a north-south direction – see image below from SRK (2022).



Conceptual site model – Profile C-D.

Potential sensitive receptors are – surface water features, the groundwater environment, other groundwater users, and the quarry (i.e. dermal contact of people who handle quarry water). Note that the 'wetlands' in the area are not considered to be groundwater dependent.

In summary, the geohydrological specialists indicated that the project will create a very low risk to groundwater quality and volume degradation should the mitigation measures be implemented.

Project phase	Operational Phase	
Impact	Groundwater quality and volume degradation	
Description of impact	Malfunctioning of the WWTW, leading to spills and leaks Sewage pipeline leaks / pipe failures Use of treated effluent for irrigation and washing	
Mitigatability	High to Medium	Mitigation measures are available to prevent the likelihood WWTW malfunctioning and poor quality effluent (as per description under Aquatic Biodiversity impacts). Monitoring is recommended for early detection of potential problems.
Potential mitigation	<ul style="list-style-type: none"> Ensure that good housekeeping rules are implemented which includes strict inspection and having spill containment measures in place. Install 3 groundwater monitoring wells and monitor these quarterly. Suggested positions are provided in the figure below this table. The specialist notes that land ownership must be considered as it will be important that access is available. The suggested points are all within the ASZ. The quality of treated effluent for discharge and/or irrigation purposes must meet DWS standards. The volume of treated effluent that can be discharged and/or used for irrigation must not exceed the volumes specified by the DWS in the WUA (when issued). Levels of free Chlorine in treated effluent will be continually monitored. If treated effluent does not meet standards in the WULA, it must be sent to the buffer tank, and back to the inlet works for further treatment. Irrigation application rates must be adjusted during times of rainfall to avoid over-irrigation. Irrigation should be done early in the morning, and spaced over the course of a week, with 1 to 2 day intervals between irrigation. The Municipal Health Services Department must be informed whenever the WWTW may impact negatively on the public. Monitoring results must be provided to the Municipal Health Services Department. 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Medium term (2)	Short term (1)
Extent	Local (2)	Local (2)
Intensity	High (8)	Medium (6)
Probability	Probable (2)	Unlikely (1)
Confidence	High	High
Reversibility	Medium	Medium
Resource irreplaceability	Low	Low
Significance	Low: 24	Very Low: 9



Proposed groundwater monitoring well positions (SRK, 2022).

The **no-go option** would mean that the status quo would remain – i.e. the groundwater environment would persist in its current status which has poor quality and low yield, but there would be no potential risk of pollution impacts to the groundwater environment or other groundwater users. The current land use of predominantly agriculture has a **very low negative impact** on the groundwater environment.

Archaeology/Heritage

The Screening Tool Report indicates a Low sensitivity for the archaeological/cultural heritage theme. A heritage survey of Ptn 139 was done by Stefan de Kock of Perception Planning No sensitive heritage resources were identified on the site. The specialist provided the following summary statement – *'the proposed development would not impact on heritage resources considered of cultural significance; that the study area has been transformed significantly in the past and that the proposal would be consistent with the spatial proposals and objectives contained in the Gwayang Local SDF (2015). It is therefore recommended that no future heritage-related studies be required in this instance and that the development may proceed'*. A notice of intention to develop has been submitted to Heritage Western Cape, who advised that no further action under Section 38 of the National Heritage Resources Act (Act 25 of 1999) is required. In summary, no significant impacts on archaeology / cultural heritage are anticipated. The specialist did not provide any specific mitigation measures or recommendations for inclusion in the EMP.

Agriculture

The Screening Tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is cultivated or not. The land capability of the site varies from 7 to 8, which translates to a medium agricultural sensitivity. The site is indicated as High sensitivity on the Screening Tool because it is classified as cultivated land. It has historically been used for planted pastures. The specialist disputed this rating, and confirmed a Low sensitivity. The existence of any infrastructure on the land as well as land use zoning, surrounding land use, and limitations imposed by social factors are completely ignored in the mapping of agricultural sensitivity in the approach used by the Screening Tool. Agricultural sensitivity should be an indication of the agricultural production potential of land. The site under consideration has limited production potential. Although the land itself (climate, terrain and soil) is suitable for crop production, it is not currently utilised for any agricultural production, and has limitations on future production potential. The limitations are due to the small size of the land parcel, which makes agriculture non-economically viable, and the fact that it is already divided up by an existing roadway and will be further dissected by the planned Western By-pass, rendering the dissected property impractical for crop production and agricultural production. Furthermore, urban

planning designates the area, not for agricultural use, but as part of the airport support zone, which effectively nullifies its future potential for agricultural production. Because of these constraints on its production potential, the site is assessed as being only of low agricultural sensitivity rather than high agricultural sensitivity.

The proposed development will therefore not significantly change the agricultural production potential of the site and the agricultural impact of the proposed project is assessed as being low. The specialist did not provide any specific mitigation measures or recommendations for inclusion in the EMPr.

Visual

The Screening Tool Report does not specify a sensitivity rating for a visual theme, but does recommend that a Visual/Landscape study should be done. Two high level Visual Impact Assessments (VIA) have been done by New Urban Architects – one for the light industrial development on Ptn 139 and another for the solar facility on the northern side of the R102. The studies were done according to the 'Guideline for Involving Visual and Aesthetic Specialists in EIA Processes (Edition 1)' (2004). Two separate reports were done because the type of development influences the category of potential impact – the light industrial development is a Category 4 development which entails a possible high visual impact according to the Guideline (to be determined by the assessment). The proposed solar facility is a **Category 2** development as the nature of the type of structures intended are light weight and seen as small-scale infrastructure. A maximum of 2 storeys for light industrial and office use, both with an 18 m height restriction is used as a baseline for the VIA for the light industrial development.

The VIA is done as follows – aerial images are used to identify landforms and landscape patterns and to determine the viewshed. The latter is based on the height of the proposed structures. The level of visual exposure is then determined in concentric zones between 1 and 5 km distances from the site, where the area closest to the site is deemed to have the highest potential visual impact. A photographic survey of the site and surrounding areas is done to determine the visibility of the proposed development. Potential visual impacts of the planned structures are then identified using criteria such as geographic view shed, viewing distance, importance to surrounding land users and compatibility with the existing landscape. The following assessment criteria are used:

- Viewpoints: selected based on prominent viewing positions in the area
- Visual exposure: based on distance from the project to selected viewpoints and decreases exponentially with increasing distance
- Visual sensitivity is determined by several factors such as prominent topographic or other scenic features (e.g. high points, ridges, spurs and steep slopes)
- Landscape integrity: represented by visual qualities that which enhance the visual and aesthetic experience of the area – i.e. 'intactness' of the natural and cultural landscape, lack of visual intrusions, and 'sense of place'
- Visual absorption capacity: ability of elements of the landscape to "absorb" or mitigate the visibility of an element in the landscape. For example, areas with higher vegetation height have higher visual absorption capacity.

The site is situated opposite the George Airport which is most prominent structure in the immediate area occupying a large portion of the land. Surrounding roads are the R404 and the R102. A quarry occurs to the south-east of the site and is visible or exposed from the R102 driving from east to west as the road is higher than the valley. From other approaches the quarry is out of sight due to the high density of trees surrounding it as well as the approach being lower than the quarry. Access to the site from George is either via the N2 or the R102 connecting via the R404. The outlying areas beyond the 1km radius from the proposed site are primarily farmlands.

The property slopes very gently to the south, and increases in height to the north. The height above mean sea level of the site is similar to that of the Airport.

Land cover varies in the immediate area. The airport contributes to a large area of disturbed land cover with the quarry also contributing to the disturbed natural landscape. Farmlands are the consistent land cover north of the R102 and again south of the N2.

The airport occupies a large land portion east of the proposed site and forms part of the cultural landscape. The airport has a control tower that forms a landmark and is highly visible when approaching from any direction on the R404 and R102.

For the solar development, 8 viewpoints were selected based on prominent viewing positions in the area, and are used as a basis for determining potential visual ability and visual impacts of the proposed 2 m high solar panels. As a result of the low height of the proposed PV panels the Plant would not be obtrusively visible from far distances. An overview of the assessment criteria relevant to 8 viewpoints and the solar development is given below:

Viewpoint No.	Visual Exposure	Visual Sensitivity	Landscape Integrity	Visual Absorption Capacity
1: along the R404 at 1km approaching the proposed PV Solar plant from the north	Low	Low	Low	High
2: along the R404 at 500m approaching the proposed PV Solar plant from the north	Low	Low	Low	High
3: along the R102 at 1000m approaching the proposed PV Solar plant from the west	Low	Low	Low	High
4: along the R102 at 500m approaching the proposed PV Solar plant from the west	High	High	Low	Low
5: along the R102 at 1000m approaching the proposed PV Solar plant from the East	Moderate	Low	Low	Moderate
6: along the R102 at 500m approaching the proposed PV Solar plant from the East	High	Moderate	Low	Low
7: along the R404 at 1000m approaching the proposed PV Solar plant from the south	Low	Low	Low	High
8: from the quarry road at 500m approaching the proposed PV Solar plant from the south	Low	Low	Low	High

The visual exposure from viewpoints within 500m from the site are relatively low as a result of the height of the PV Solar structures and the undulating topography. Visual sensitivity and landscape integrity are consistently low due to the surrounding environment being disrupted by the airport which can be seen from most of the viewpoints as well as the quarry being visible from the eastern approach on the R102 and southern approach on the R404. Based on the above, it is clear that the site is within an area or route of low scenic, cultural, historical significance and is disturbed. Therefore, based on a Category 2 development, **little or no visual impact from the proposed solar facility can be expected.**

For the proposed light industrial development on the southern side of the R102, 8 viewpoints were selected based on prominent viewing positions in the area, and are used as a basis for determining potential visual ability and visual impacts of the proposed structures with a maximum height of 2 storeys (18 m high impact). The development would be visible from a larger area within the immediate surroundings compared to an undeveloped site, not taking into account trees, existing structures or buildings or any other artificial landform such as berms, dams etc. The largest area of influence is north of the site due to the rising topography. The development forms an extension of the existing airport within the airport support zone and should not be taken in isolation as a standalone development.

An overview of the assessment criteria relevant to 8 viewpoints and the light industrial development is given below:

Viewpoint No.	Visual Exposure	Visual Sensitivity	Landscape Integrity	Visual Absorption Capacity
1: along the R404 at 500m approaching the site from the north	High	Moderate	Moderate	Low
2: along the R404 at 1000m approaching the site from the north	Moderate	Moderate	Moderate	Moderate
3: along the R102 at 500m approaching from the east	High	Moderate	Moderate	Low
4: along the R102 at 1000m approaching from the east	Moderate	Moderate	Moderate	Moderate
5: along the R404 at 500m approaching from the south	Low	Low	Low	High
6: taking along the R404 at 1000m approaching from the south	Low	Low	Low	High
7: along the R102 at 500m approaching the site from the west	High	Moderate	Low	Low
8: along the R102 at 1000m approaching the site from the west	Low	Low	Low	High

The visual exposure from viewpoints within 500m from the site are relatively high. It is however predominantly the case when viewing the site from the north due to the increase in elevation from the site. Overall the visual exposure is moderate to low due to the capacity of the environment to absorb the visual impact of the development.

Visual sensitivity and landscape integrity are consistently moderate to low due to the surrounding environment being disrupted by the airport which can be seen from most of the viewpoints as well as the quarry being visible from the eastern approach on the R102 and southern approach on the R404.

Due to the underlying topography, existing trees and development, the environment has a moderately high capacity to absorb the visual impact of the development.

Based on the above, it is clear that the site is within an area or route of low scenic, cultural, historical significance and is disturbed. Therefore, based on a Category 4 development, a **moderate visual impact from the light industrial zone can be expected**. Degraded/wasteland areas such as the quarry may reduce the impact further. Although the development will have a moderate impact on the immediate area, it is however not considered degradation of the exiting landscape, but an extension of the current airport developed area. The airport support zone is contained by the existing and proposed roads as well as the natural topography which will avoid urban sprawl. This will limit the total feasible development area of the support zone. The specialists concluded that since the Airport is a major gateway for the ever-growing tourism industry in the Garden Route, the celebration of the Gateway is an opportunity that can enhance the sense of the place and create a memorable experience.

Project phase	Operational Phase	
Impact	Visual Impact – Light Industrial Development Zone	
Description of impact	Visual impact of 18 m high structures to sensitive receptors in the surrounding area.	
Mitigatability	Medium	Urban design guidelines have been developed for the full ASZ that consider the visual impact.
Potential mitigation	<ul style="list-style-type: none"> Urban design guidelines must be complied with and considered in detailed design of the buildings (see Appendix G). 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Long term (3)	Long term (3)
Extent	Local (2)	Local (2)
Intensity	Medium (6)	Medium (6)
Probability	Highly Probable (3)	Probable (2)
Confidence	Medium	Medium
Reversibility	Low	Low
Resource irreplaceability	Low	Low
Significance	Medium (33)	Low (22)
Cumulative Impacts	Medium	Medium

The no-go option will not change the current visual character of the area – i.e. there are **no visual impacts**.

Cumulative visual impacts from development of the full ASZ can be expected. The ASZ (as defined in the Gwayang LSDF, and which the site is a part of) is contained by the existing and proposed roads as well as the natural topography which will avoid urban sprawl. This will limit the total feasible development area of the support zone. As the Airport is a major gateway for the ever growing tourism industry in the Garden Route, the celebration of the Gateway is an opportunity that can enhance the sense of the place and create a memorable experience. Medium negative impacts on the surrounding area are expected with the change of land use. It is important that cognisance is taken of recommendations in the Gwayang LSDF regarding design principles that must be implemented to minimise visual impacts of the ASZ.

Traffic

The Screening Tool Report does not include a theme for 'traffic', nor recommends that a Traffic Impact Assessment (TIA) should be done. However, a TIA has been done by Louis Roodt to address the potential impact of the project on traffic and to address access.

Access to Ptn 139 is currently via the R102, a historic access that will be affected by the approved (but not yet developed) George Western Bypass and will be closed as part of the rezoning. An agreement was reached between all the owners/developers of properties in the ASZ to support a roads master plan to give access to all the properties from the approved 'George Roads Masterplan' which includes a roundabout on the R404 opposite the George Airport Main Access road. The proposed development of an industrial zone on Ptn 139 was included as latent rights for the TIA done for the application for development on Ptn 4/208 in 2017. Access to the proposed development on Ptn 139 will therefore be via the internal road network on Ptn 4.

Traffic volumes for the base and design horizon years were taken to be the same as those used in the 2017 TIA because the impact of COVID-19 pandemic made it unrealistic to count the 2020/2021 traffic as the George Airport was not served by normal flights and regional traffic was adversely affected. It was therefore assumed that traffic recovered to pre-pandemic volumes in the base year 2022 and that the imposed growth will realise in the design year 2027. The proposed roundabout on

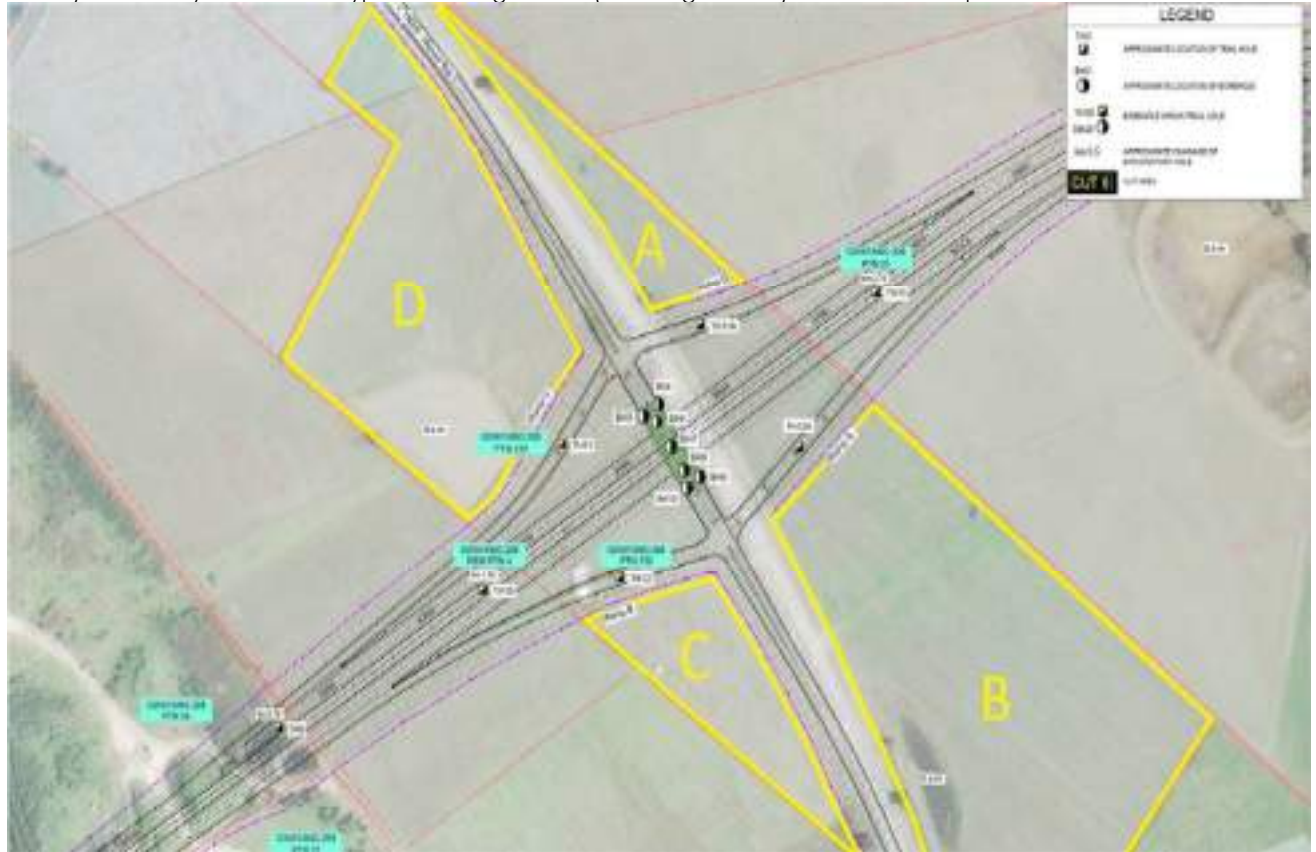
the R404 will operate at a Level of Service (LOS) A at projected traffic volumes. Therefore there is reserve capacity to mitigate any under-estimation of traffic in the design year. The planning horizon year is 2035. The TIA considered the existing short term and the planned long term road network for the precinct – this includes the planned TR 89 Western Bypass that will significantly change the traffic pattern in front of the George Airport.

Traffic demand from the development on Ptn 139 was based on traffic as counted in 2014, 2017 and projected plus generated traffic as calculated as per Addendum B of TMH 16 Vol 1. It is expected that in the long term, traffic volumes on the R404 past the Airport will decrease with the construction of the proposed George Western Bypass TR89. Traffic from the R102 towards the N2 and Herolds Bay will be diverted along the TR89. Traffic volumes used in the TIA represent trips generated when the ASZ is entirely developed.

The results of the capacity and operational analyses show that the proposed roundabout intersection on the R404 can easily accommodate the expected additional vehicle trips for the full trip generation from the ASZ, not only for the 2022 base year, but also for a horizon year in 2026 assuming 15% growth over the 5 years. The upgrading of this intersection to a roundabout will ensure LOS A during the AM and PM Peak Hour in the base (2022) and horizon (2026) year. The adequate LOS in the design and 2026 horizon year with the roundabout give confidence that even spare capacity will be available should the economy and tourism improve after the Covid pandemic. In the future, the construction of the George Western Bypass TR89 will reduce the north-south through traffic and retain only traffic with destinations at the airport and the Support Zone.

Therefore with the construction of the roundabout on the R404, **no significant impacts on traffic are expected from traffic volumes associated with the light industrial development on Ptn 139 on the southern side of the R102.**

A Traffic Impact Statement (TIS) was subsequently done to address traffic impacts from the planned solar facility on the portion of Ptn 139 to the north of the R102 and to the proposed WWTW on Ptn 4/208. The TIS refers to 4 sections on Ptn 139 (i.e. A to D) created by the Western Bypass bisecting Ptn 139 (see image below). Section D forms part of the TIA done for the ASZ.



Access to the proposed developments on Ptn 139/208 on the northern side of the R102 (i.e. the planned solar facilities Phase 1 and 2) will initially be obtained from the R102 (current farm accesses) – this pertains to Sections A and B in the image above. Access to the proposed wastewater treatment works on Remainder 4/208 on the eastern side of planned Western Bypass (TR89) will initially be obtained from the internal road system on Ptn 4/208. A servitude will be registered over Erf 7 of Portion 4/208. Expropriation of the road reserve for the TR89 George Western Bypass will 'split' the area of Ptn 139/208 north of the R102 into 2 sections (i.e. A and B) with a third portion (i.e. C) to the south of the R102; and Ptn 4/208 into an eastern and western section. Therefore servitude roads will need to be established to provide access to these portions, once the expropriation goes ahead. The need for access management and spacing limitations to these sections dictate that servitudes to obtain access at appropriate spacing be provided with. The proposed Phase 1 solar facility will obtain access from the R404 at existing farm accesses 600 m north of the R102. The proposed Phase 2 solar facility and the planned WWTW on the eastern side of Ptn4/208 will obtain access from the R102 to the east of the proposed eastern ramp of the TR89 interchange at a point to be determined by the Provincial Roads Department. The design and expropriation of the service roads are the responsibility of the Provincial Road Department that has to implement them before construction of the TR89. The Traffic Impact Statement done by Louis Roodt provides proposed access servitudes for these portions.

Trip generations on these subsections are **negligible** and can be accommodated at sealed low volume driveways with geometric design to that of farm accesses. The traffic impact can be accommodated for projected traffic up to the year 2038.

Socio-Economic

The Screening Tool Report does not have a specific theme for the socio-economic theme, however it does recommend that a specialist SIA be done. A SIA of the proposed development has been done by Dr A H de Wit. The description and assessment of impacts below is extracted from his report:

The proposed development is likely to exert much of its social influence at the local level – i.e. in the George Municipality. The area has witnessed a depressed economic outlook in recent times. Stagnant employment growth is a significant local challenge. This does not bode well for the plight of the town's poor and unemployed inhabitants. Following the economic impact of the Covid19 pandemic, unemployment has furthermore shown a sharp increase here. However, George has access to several strategic resources that count in its favour from the perspective of economic development. This includes well-developed commercial, financial and social infrastructure; quality conference facilities, businesses and retail services; extraordinary bio-physical and marine resources; and a growing regional tourism sector and major transport systems, including the N2 National Road and the George Airport.

To identify and assess the social impacts of the proposed development, research results were filtered through a range of possible social change processes and SIA categories. The following impacts are identified for construction and operational phases:

Project phase	Construction Phase	
Impact	Socio-Economic – creation of temporary employment opportunities	
Description of impact	The investment required for construction phase is estimated at R294 387 000.00. Increased employment opportunities (estimated at 487 direct jobs) will culminate in positive social impacts in the form of increased economic activity, poverty alleviation and favourable socio-economic implications (e.g. improved access to and consumption of goods and services, greater freedom of choice, better quality of life etc.) for the affected individuals and their dependants. The number of indirect and induced employment opportunities that will be created by the proposed development's construction phase and activities is estimated at 522.	
Mitigatability	None	
Potential mitigation	• None	
Assessment	Without mitigation	With mitigation
Nature	Positive	N/A
Duration	Short term (1)	
Extent	Local (2)	
Intensity	High (8)	
Probability	Definite (5)	
Confidence	High	
Reversibility	N/A	
Resource irreplaceability	N/A	
Significance	Medium (specialist rating) (55)	

Project phase	Construction Phase	
Impact	Socio-Economic – empowerment impacts and the development and transfer of skills	
Description of impact	Skills development and transfer will need to be done to meet the necessary labour requirements. This will have a socio-economic importance that extends well beyond the period of the proposed development's construction phase. Relevant individuals will be able to sell their newly acquired skills within and beyond the boundaries of the local economy long after the completion of the construction phase.	
Mitigatability	None	
Potential mitigation	<ul style="list-style-type: none"> None 	
Assessment	Without mitigation	With mitigation
Nature	Positive	
Duration	Short term (1)	

Extent	Local (2)	
Intensity	High (8)	
Probability	Definite (5)	
Confidence	High	
Reversibility	N/A	
Resource irreplaceability	N/A	
Significance	Medium (specialist rating) (55)	

Project phase	Construction Phase	
Impact	Socio-Economic – public health and safety with increased construction traffic	
Description of impact	The development is likely to generate increased traffic as far as the daily movement of its workforce and other construction related traffic is concerned. This could culminate in health and safety impacts through the potential increase in motor vehicle and pedestrian related accidents.	
Mitigatability	Medium	Mitigation measures are available to reduce the significance of the impact.
Potential mitigation	<ul style="list-style-type: none"> Establish an information-sharing link with the Community Safety Directory of the George Municipality Comply with relevant health and safety regulations, and applicable legislation, including the Occupational Health and Safety Act (85/1993); 2014 Construction Regulations and the 1996 National Road Traffic Act 	
Assessment	Without mitigation	With mitigation
Nature	Negative	Negative
Duration	Short term (1)	Short term (1)
Extent	Local (2)	Local (2)
Intensity	Medium (6)	Low (4)
Probability	Definite (4)	Probable (2)
Confidence	High	High
Reversibility	Medium	Medium
Resource irreplaceability	Low	Low
Significance	Low (specialist rating) (36)	Very Low (specialist rating) (14)
Cumulative impacts	Very Low	Very Low

Cumulative impacts are also assessed in this instance, but are predicted to be of very low significance.

Other construction and operational phase impacts identified by the specialist (but not formally rated) are:

- Construction activities will create a positive impact on the GGP, and will lead to an increased demand for goods and services.
- The proposed light industrial development will contribute to Local Economic Development, particularly around the George Airport. Here it would be strategically well situated to provide an essential enabling and supporting service to a future industrial node in proximity to the N2 National Road and the George Airport.
- The solar plant will have significant operational and strategic implications for the proposed Light Industrial Development. This includes the sustainable provision of energy and the subsequent preservation of economic activity and all of the ensuing direct and indirect socio-economic benefits

The No-Go option will mean that the development does not proceed, and the positive socio-economic impacts identified above will not be realised. The specialist provided a **high negative rating of the No-Go alternative in this instance**. The No-Go option however does mean that the potential for public health and safety impacts associated with increased construction traffic will not take place. The status quo in this regard is Very Low negative.

Civil Aviation

The Screening Tool Report indicates that the Civil Aviation theme has a Very High sensitivity because the site is opposite the George Airport. To address potential risks associated with creating an obstacle to aircraft, as well as glint and glare from the solar panels; Aviata has done a glint and glare assessment. Furthermore, an ICAO ANNEX 14 Obstacle Avoidance Evaluation Report has been done.

A glint and glare study was done to determine how these variables will affect aviation receptors such as pilots on final approach to the George Airport, as well as the Air Traffic Control Tower (ATCT). They have the potential to cause temporary flash blindness in the receptors and hinder their abilities to conduct their operations. A model of the light industrial development and solar panels with structure heights was set up. Due to the fixed axis Solar PV arrays being positioned to the north of the aviation receptors and angled towards the north, no primary receptors will be affected. Further modelling was done to determine the exposure to receptors flying a 'northern circuit'. Three point receptors were assessed at a height of 304 m (1000 ft). The modelling results show that the three additional receptors will be exposed to green glare when the sun is rising in the east and when the sun is setting in the west. Green glare is the lowest risk. Based on this, the specialist recommended that the project is authorised by the Civil Aviation Authority from a glint and glare perspective. No changes to the internal layout of the development, height of structures or orientation of panels were recommended.

SRTM elevation data was used for assessment to determine the Maximum Obstacle Elevation (AMSL) for any obstacles / structures within the proposed light industrial development without penetrating the ICAO Annex 14 Obstacle Limitation Surfaces. On condition that obstacles/structures within the proposed light industrial development do not exceed the Maximum Obstacle Elevation (AMSL) (as specified in Section 2.7.3 of the report), they will remain clear of the ICAO Annex 14 Obstacle Limitation Surfaces. The specialist recommended that a site survey be done at development stage to ensure the Maximum Obstacle Elevation (AMSL) is not exceeded. The reports have been submitted to the CAA.

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>Specialist studies were done to address the various 'themes' outlined in the Screening Tool Report, other than for the 'defence' theme which is Low Sensitivity. All specialists assessed the significance of the development during construction and operational phase as being of either Low or Very Low significance with mitigation measures in place, except for the Visual Impact of the light industrial development. The significance of the latter is rated as medium negative. However the development is not considered degradation of the exiting landscape, but an extension of the current airport developed area. Urban design guidelines have been developed for the full ASZ area and have considered the guidelines in the Gwayang LSDF. Several positive impacts have been identified for the socio-economic environment, notably employment creation, skills development, and contribution to the GGP of the George Municipality. The potential for public health and safety incidents in construction phase as a result of construction vehicles in the area was identified as a possible negative social impact, but this can be mitigated to low significance.</p> <p>Specialist mitigation was provided by the aquatic, geohydrological, visual, and socio-economic specialists. The suggested measures have either been incorporated into the development layout (i.e. the aquatic specialist recommendations regarding drainage areas and buffers), or are included in the EMP for the project that will guide construction and operational phase activities. The following mitigation measures were provided by specialists:</p> <p><u>Aquatic Specialist:</u></p> <ul style="list-style-type: none"> No-Go areas must be clearly demarcated on site, and construction activities must avoid these areas. This excludes areas where road and infrastructure crossings are required, as well as stormwater management upgrades. <i>Included in the EMPr</i> The number of watercourse crossings for infrastructure (roads, powerlines, water and sewer pipelines) should be minimised and limited to one position as far as possible (e.g. align at a road crossing). <i>Considered in the services and road layout</i> A corridor of approximately 20 m is recommended to accommodate stormwater flow within the site. The existing concrete channel within the watercourse should be removed and the channel shaped and planted with wetland vegetation such as <i>Juncus effusus</i>, <i>Carex gloerabilis</i>, <i>C. clavata</i>, <i>Isolepis prolifera</i>, <i>Cyperus polystachyos</i> and <i>Zantedeschia aethiopica</i> within the wetter bed together with buffalo grass <i>Stenotaphrum secundatum</i> or <i>Cynodon dactylon</i> along the banks. The incorporation should as far as possible lead to the longer-term improvement of the aquatic habitat within the watercourses on site and more importantly adequately mitigate any potential downstream impacts on the valley bottom wetland and watercourse downstream (south) of the site. <i>The buffer area has been incorporated in the 'Aquatic Zone' that is part of the stormwater management system. Suggested plant species are included in the EMPr.</i> Runoff into the downstream watercourse and wetland area must be done in a dispersed manner. <i>Addressed in the check dams in the Aquatic Zone.</i> The basin of the instream dam that will be decommissioned can be filled to just retain the watercourse channel as is present upstream and downstream of the dam. Measures (such as placing of hay bales or a temporary silt trap) should be in place to prevent siltation of the watercourse downstream of the dam while this is being done. The watercourse at the dam site should be shaped and planted as outlined above. <i>Included in the Aquatic Zone and check dams, as well as the EMPr.</i> The introduction of exotic and alien invasive plants (an in particular kikuyu grass (<i>Pennisetum clandestinum</i>) for landscaped areas should be avoided. <i>Included in the EMPr</i> It is recommended that alien vegetation control measures take place throughout the undeveloped open areas of the site such as within the corridors and stormwater management areas. Control of nuisance growth of bulrush <i>Typha capensis</i> is likely to also be required on an ongoing basis to encourage the growth of indigenous vegetation. <i>Included in the EMPr</i> Stormwater management measures at the planned solar facility area on Ptn 139 must prevent any contaminated runoff during construction and operation of the facility (such as from washing of the solar panels) from draining directly into the aquatic features. <i>Included in the EMPr.</i> The proposed stormwater management system for the ASZ accommodates the filtration of potential pollutants from stormwater runoff from the planned light industrial area on Ptn 139. Onsite oil and litter traps should be included in the treatment measures for the stormwater runoff. <i>Included in the SWMP.</i> Adhere to the recommendations of the CEMPr to manage and prevent pollution impacts from construction activities. <i>Addressed in the CEMPr.</i> Adequate measures must be in place to prevent any sewage spillages within the site from draining to the watercourse. <i>Addressed in the WWTW design and maintenance activities in the OEMPr.</i> There should also be backup measures or storage in the event that the works is not able to operate. The works should be routinely maintained to ensure that it continues to operate in line with its design. <i>Addressed in the WWTW design</i> Monitoring of the final treated wastewater (water quality variables as listed in the General limit – faecal coliforms, pH, electrical conductivity, orthophosphates, ammonia, suspended solids and chemical oxygen demand - should be measured monthly and a weekly record kept of the volumes irrigated or discharged from the WWTW into the Aquatic Zone). <i>Included in the OEMPr.</i> 	

- If discharge of treated effluent takes place, this must be via the passive wetland systems in the check dams in the aquatic zone. No direct discharge to the watercourse must take place. *Incorporated in the design and function of the Aquatic Zone.*
- Treated effluent from the WWTW must be routinely tested to demonstrate compliance with the authorised water quality standards. Monitoring must be done at the point of discharge from the WWTW, and at the last check dam in the aquatic zone. *Included in the OEMPr.*
- Road designs over watercourses must have sufficient drainage measures to not impede or confine flow (surface and sub-surface flow). *To be considered by engineers at detailed design stage.*
- Any infrastructure that crosses watercourses must not impede flow. *To be considered by engineers at detailed design stage*

Geohydrology

- Ensure that good housekeeping rules are implemented which includes strict inspection and having spill containment measures in place. *Included in the EMPr.*
- Install 3 groundwater monitoring wells and monitor these quarterly. Suggested positions are provided, however land ownership must be considered as it will be important that access is available. *Included in the OEMPr.*
- The quality of treated effluent for discharge and/or irrigation purposes must meet DWS standards. *Included in the design and maintenance of the WWTW.*
- The volume of treated effluent that can be discharged and/or used for irrigation must not exceed the volumes specified by the DWS in the WUA. *Included in the OEMPr.*

Visual

- Urban design guidelines must be complied with and considered in detailed design of the buildings. *Urban design guidelines are available, and will be considered at detailed design stage.*

Socio-Economic

- Establish an information-sharing link with the Community Safety Directory of the George Municipality. *Included in the EMPr*
- Comply with relevant health and safety regulations, and applicable legislation, including the Occupational Health and Safety Act (85/1993): 2014 Construction Regulations and the 1996 National Road Traffic Act. *Included in the EMPr.*

Civil Aviation

- Regarding obstacle avoidance for aircraft, a site survey be done at development stage to ensure the Maximum Obstacle Elevation (AMSL) is not exceeded. *To be addressed by the development team at detailed design stage, before construction commences.*

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr
As above	
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.
None	
4.	Explain how the proposed development will impact the surrounding communities.
Refer to the socio-economic impact assessment – significant positive socio-economic impacts on a local scale are expected. A potential negative impact is community health and safety risks because of increased construction vehicles in the area. However this can be mitigated to low significance.	
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.
<p>Climate change risks to the proposed development are:</p> <ol style="list-style-type: none"> 1. Water availability 2. Potential flooding of the Aquatic Zone with increase in hard surfaces and accelerated flow <p>A Services and Stormwater Management Plan Report has been done for the ASZ by Infrastructure Consulting Engineers cc. The design philosophy of the Stormwater Management Plan is built on the National Climate Change Response White Paper which proposes 'Implementing best catchment and water management practices to ensure the greatest degree of water security and resource protection under changing climatic conditions and, in particular, investment in water conservation and water demand management'. The Plan responds to the National Climate Change Response White Paper in that it proposes an alternate system of stormwater management, sustainable use of water resources and secondary use of treated wastewater. This is part of the developers' objectives to make the ASZ and 'off-grid' industrial node. With the harvesting of stormwater runoff and re-use of treated effluent, the development will generate 80% of its own water demand. The SWMP calculated pre-and post-development runoff, and includes the development of an 'Aquatic Zone' with check dams to attenuate runoff and prevent flooding and siltation. The natural flow regime of runoff flowing via the aquatic zone will be adjusted by the introduction of check dams. The check dams will limit flow velocity to below 2 m/s. It will also act as detention facilities to mitigate the impact of the industrial development on runoff. Check dams will be spaced between 20 and 40 m. This close spacing is proposed to enhance infiltration of runoff. Swales are planned along roadsides to promote infiltration rather than accelerated overland flow. The existing dam on Portion 1 of Portion 4 will be utilised as a detention facility. Approximately 9,5 ha of the total catchment of the ASZ drains towards this dam. The dam has adequate capacity to attenuate sufficient runoff to reduce post development runoff to pre-development runoff, in case of a major storm. The outlet structure of the dam will be upgraded to ensure the stability of the wall in case of a major storm. The existing dam on Portion 9 of Portion 4 will be used for the purpose of detention to a</p>	

limited extent, due to the significant contribution of the check dams in this regard. The outlet of the dam will however be upgraded as in the case of the dam on Portion 1.

The CSIR's Green Book predicts a significant risk in the increase in drought tendencies for George by 2050. To address the concern of climate change and how it may impact on water availability (with reference to rainwater harvesting and the reliance of the development on this water source), the section below outlines the conservative approach that has been used to calculate the development's water demand:

Required water volumes for the development were calculated using a conservative approach:

- The calculation of the yield of 30% of the demand from water harvesting is based on the lowest annual rainfall over the past 40 years – i.e. 426 mm recorded in 2019. Therefore during 97.5% of the years the yield of water harvesting will be more than the allowed 30% of demand.
- A conservative approach was used in calculating the water demand - The actual water demand for warehousing will be significantly less than the allowed 440 litres per 100 m² that was used for the calculation of water demand:
 - The figure of 440 litres per 100 m² of building area is proposed for all light industrial uses. The specific light industrial type of building that will predominantly be developed at the ASZ is warehousing. Calculating the water demand for warehousing specifically, using the National Building Regulations, results in a much lower demand. The Building Regulations proposes an occupancy of 2 persons per 100 m². Water demand is estimated at approximately 55 litres per person per day within a warehousing context. This is primarily for the flushing of toilets and urinals. A limited demand is expected for drinking, body washing, cooking and washing of dishes. Applying the guidance of the Building Regulations therefore proposes merely 110 litres per 100 m². Allowance should further be made for washing of surfaces as well as water losses and irrigation of gardens. Allowing a further 100 litres per 100 m² of building area for other uses and losses results in a total demand of 210 litres per 100 m². This further allowance for surface washing and irrigation will be limited during any prolonged drought.
- At least 80 % of the demand as calculated by the application of the Building Regulations will be used for flushing of toilets and urinals, gardening and washing of surfaces. This portion of the demand can be satisfied using treated wastewater. Therefore the Industrial Park will be able to operate using only municipal water allocation and treated wastewater in the case of the 'worst case scenario' over the past 40 years. The wastewater treatment process results in losses of approximately 20%, leaving the remaining 80% for re-circulation under extreme drought conditions

In addition to the predictions of increased drought conditions in the George area, the CSIR's Green Book projects an increase in the annual rainfall of 100 mm by 2050. This is a significant increase above the current average annual rainfall of approximately 600 mm. As above, a conservative approach was used to estimate how much water could be available for the development from rainwater harvesting. The prediction in the Green Book of an increase of 100 mm in the annual average rainfall to 700 mm per annum, indicates that more water can be harvested in future. This is however not required since there is an acceptable water balance when using the driest period figures. However, the predicted increased droughts and increased rainfall volumes points to the need for increased storage capacity to make sure that enough water is stored during periods of higher rainfall to supply the water demand in drier periods (in addition to other mitigation measures that have been incorporated in the water supply scheme of the development). ICE Engineers have considered the predicted drought risks, and have responded by including additional storage capacity in the development plans.

The predicted drought risk emphasise the importance of the concept of 'circularity' where wastewater is treated in a nature-based solution, and circulated for re-use to meet water demands. The proposed water harvesting and re-use system for the Industrial Park has been designed to meet these requirements. Other mitigation measures that are recommended for water security include clearing alien vegetation in the drainage areas and planting only indigenous plant species in the development area.

Buffers around drainage areas as suggested by the aquatic specialist are incorporated in the SDP.

The development proposal includes a solar plant using renewable energy from the sun, and reducing dependence on energy from coal-fired power stations.

6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.
----	---

None

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.
----	--

As above, the only specialist study to provide specific recommendations that have relevance to the development layout and design is the aquatic study. As described above, the suggested drainage corridor and buffer areas are incorporated in the SDP.

8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.
----	---

DUE TO THE NATURE AND SENSITIVITY OF THE LOCAL ENVIRONMENT AND THE NATURE OF THE PROPOSED ACTIVITIES, IMPACT AVOIDANCE WAS ONLY RELEVANT TO THE RECOMMENDATIONS OF THE AQUATIC SPECIALIST STUDY. THE RECOMMENDATIONS TO ALLOW FOR A 20 M WIDE DRAINAGE CORRIDOR AND TO FACILITATE CONNEVTIVITY AND FLOW ACROSS THE LANDSCAPE IS INCORPORATED IN THE DEVELOPMENT PLAN. THE SPECIALISTS DID NOT IDENTIFY ANY SIGNIFICANTLY HIGH NEGATIVE IMPACTS THAT NEED FURTHER AVOIDANCE MEASURES. MITIGATION MEASURES (AS LISTED ABOVE) IDENTIFIED BY SPECIALISTS ARE INCLUDED IN THE CEMPR AND OEMPR TO REDUCE THE SIGNIFICANCE OF IDENTIFIED IMPACTS. ALL IMPACTS WITH MITIGATION IN PLACE ARE EITHER LOW OR VERY LOW NEGATIVE, OTHER THAN VISUAL IMPACTS OF THE LIGHT INDUSTRIAL ZONE. THE LATTER HAS A MEDIUM NEGATIVE IMPACT.

SECTION J: GENERAL

1. Environmental Impact Statement

1.1.	Provide a summary of the key findings of the EIA.
	<p>The proposed development of the light industrial zone on Ptn 139 on the southern side of the R102 integrates well with the overall development plan for the George ASZ. The desirability of the proposed land uses is demonstrated in terms of compliance with local planning policies. The solar facility is planned on the part of Ptn 139 north of the R102. The planned WWTW on the northern side of Ptn 4 is a critical addition to the overall Services Plan for the ASZ. The technology of the planned WWTW can produce treated effluent of a suitable quality for discharge to watercourses and/or for reuse on site for irrigation, washing of surfaces or flushing of toilets (to be confirmed by the WULA). The WWTW technology allows for adequate retention time of effluent to deal with any shocks to the system, and has low maintenance and energy requirements. Sludge is also efficiently dealt with and will only need to be removed after 10 to 15 years at which time it can be used for agricultural purposes.</p> <p>The properties have been used for agriculture for many years and biodiversity has been transformed. There are no CBAs or Protected Areas on the properties. The pre-transformation vegetation type is endangered, however the terrestrial biodiversity specialist commented that the vegetation on site is not representative of Garden Route Granite Fynbos and it is unlikely to recover to its original status. Listed animal and plant SCCs were also not observed on the site, and the habitat on site is not conducive to their occurrence.</p> <p>None of the specialist studies identified features of high sensitivity on the properties nor did they identify any significantly high negative environmental and socio-economic impacts of the planned land uses on the receiving environment. The recommendations of the aquatic specialist study to incorporate a 20 m wide drainage corridor within the stormwater management system have been incorporated in the SDP and SWMP. This meets the objectives of the ESA 2 that drains through the site towards the Gwayang River to the south (i.e. to maintain functionality and connectivity). Mitigation measures in other specialist studies are included in the CEMPr and OEMPr.</p> <p>The development provides significant socio-economic opportunities to the local community and economy.</p> <p>The no-go option will mean that the site will remain as agricultural land with a barn that operates as a show room and offices; and that the WWTW will not be developed. The no-go option has a low to very low negative impact on environmental features, and a high negative impact on the socio-economic environment.</p> <p>Considering the transformed nature of the site, and the low agricultural potential of the property (as described by the agricultural specialist) and furthermore that the site is part of the ASZ where the intended land use is airport support services; the no-go option is not considered to be the preferred option in this instance, provided that mitigation measures in the EMPrs are implemented for the lifetime of the project.</p>
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)
	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.
	See the summary impact table below:

Aspect	Development Phase	Impact	Significance Without Mitigation	Significance With Mitigation	No-Go Alternative
Terrestrial Ecology	Construction	Vegetation loss, habitat destruction, disturbance to/loss of SCCs	Low (-)	Very Low (-)	Low (-)
Terrestrial Ecology	Operational	Impact on the functioning and quality of the ESA2 area	Low (-)	Very Low (-)	
Terrestrial Ecology	Operational – Cumulative Impact	Impact on the functioning and quality of the ESA2 area	Low (-)	Very Low (-)	
Aquatic Biodiversity	Construction and Operational	Loss of Aquatic Habitat and associated biota	Medium to Low (-)	Low (-)	Very Low (-)
Aquatic Biodiversity	Construction and Operational – Cumulative Impact	Loss of Aquatic Habitat and associated biota	Medium to Low (-)	Low (-)	
Aquatic Biodiversity	Construction and Operational	Impairment of surface water quality	Medium to Low (-)	Low (-)	
Aquatic Biodiversity	Operational	Flow modification	Medium to Low (-)	Low (-)	
Geohydrology	Operational	Groundwater quality and volume degradation	Low (-)	Very Low (-)	Very Low (-)
Archaeology/Cultural/Heritage	No significant impacts on archaeology / cultural heritage are anticipated				
Agriculture	The site has limited production potential. Although the land itself (climate, terrain and soil) is suitable for crop production, it is not currently utilised for any agricultural production, and has limitations on future production potential. The limitations are due to the small size of the land parcel, which makes agriculture non-economically viable, and the fact that it is already divided up by an existing roadway and will be further dissected by the planned Western By-pass, rendering the dissected property impractical for crop production and agricultural production. Furthermore, urban planning designates the area, not for agricultural use, but as part of the airport support zone, which effectively nullifies its future potential for agricultural production. Because of these constraints on its production potential, the site is assessed as being only of low agricultural sensitivity. No significant impacts on agricultural production are anticipated.				
Visual (solar facility)	Little or no visual impact from the proposed solar facility is expected.				Neutral
Visual (light industrial zone)	Operational	Visual impact of structures to surrounding sensitive receptors	Medium (-)	Low (-)	
Visual (light industrial zone)	Operational – Cumulative Impact	Visual impact of structures and the full ASZ to surrounding sensitive receptors	Medium (-)	Medium (-)	
Traffic (light industrial development zone)	Operational – Cumulative Impact	With the construction of the roundabout on the R404, no significant impacts on traffic are expected from traffic volumes associated with the light industrial development on Ptn 139 on the southern side of the R102. This is when traffic is considered at full development of the ASZ.			Low (-) (with the R404 roundabout in place)
Traffic (solar facility and WWTW on Ptn 4)	Operational – Cumulative Impact	The traffic impact from the planned solar facility and WWTW is negligible, and can be accommodated for projected traffic up to the year 2038.			
Socio-Economic	Construction	Temporary Employment	Medium (+)	N/A	High (-)

Socio-Economic	Construction	Empowerment and transfer of skills	Medium (+)	N/A	
Socio-Economic	Construction	Public health and safety with increased construction traffic	Low (-)	Very Low (-)	Very Low (-)
Socio-Economic	Construction – Cumulative Impact	Public health and safety with increased construction traffic	Very Low (-)	Very Low (-)	
Socio-Economic	Construction and Operational	Other construction and operational phase impacts identified by the specialist (but not formally rated) are: <ul style="list-style-type: none">• Construction activities will create a positive impact on the GGP, and will lead to an increased demand for goods and services.• The proposed light industrial development will contribute to Local Economic Development, particularly around the George Airport. Here it would be strategically well situated to provide an essential enabling and supporting service to a future industrial node in proximity to the N2 National Road and the George Airport.• The solar plant will have significant operational and strategic implications for the proposed Light Industrial Development. This includes the sustainable provision of energy and the subsequent preservation of economic activity and all of the ensuing direct and indirect socio-economic benefits			
Civil Aviation	Operational	Glint and glare on aviation receptors	No significant impacts anticipated.		
Civil Aviation	Operational	Creating an obstacle to aircraft	No significant impacts anticipated. The specialist recommended that a site survey be done at development stage to ensure the Maximum Obstacle Elevation (AMSL) is not exceeded. The reports have been submitted to the CAA for review.		

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>Pre-Construction Compliance:</p> <ul style="list-style-type: none"> • Environmental management systems in place to comply with the EA, EMPr, and any other Condition of Approval; as well as general environmental best practice for construction phase. • Any Permits and/or approvals required are timeously obtained (for example permits to remove threatened or protected plant species). • A Water Use Licence must be issued for Ptn 139/208 and the existing WULA for Ptn 4/208 must have been amended, prior to construction commencing. Conditions of Approval relevant to pre-commencement must be met. • Sensitive environments avoided and specific management incorporated in detailed design planning. • Final services designs shared with the WC Department of Transport and Public Works for review and approval relevant to the Western Arterial Design. • Approval obtained from the SACAA in terms of obstacle avoidance around the George Airport. • An ECO must be appointed. • The Services Level Agreement between the POA and George Municipality must be finalised. • The Urban Design Guidelines must be considered in detailed design planning. • DEA&DP approved final plans and a pre-construction compliance audit <p>Construction Phase:</p> <ul style="list-style-type: none"> • Emergencies and/or incidents prevented and/or dealt with in a manner that does not cause harm to the surrounding environments and people. • Surrounding landowners have no grievances • Activities restricted to approved working areas to prevent unnecessary environmental damage and to prevent disturbance to surrounding land users • Prevent habitat loss in areas outside of the approved work area. • Minimise degradation of terrestrial and aquatic environments in the surrounding area. • Prevent impacts on faunal species that use the site and surrounding areas. • Prevent the spread of alien vegetation in accordance with an integrated alien vegetation management plan for the ASZ and surrounding properties. The Plan must be developed and implemented within 6 months of a decision being made on this application. • Prevent pollution of surface and groundwater environments • Appropriate storage of materials, including hazardous substances, to prevent dust and nuisance, leaks and spills, polluted runoff, and exceedance of designated work areas. • Minimise and control dust and vehicle emissions to minimise nuisance and potential health problems, and impacts on visual quality. • Noise disturbance to surrounding land users/residents avoided. • Minimise the consumption and wastage of water. • Prevent erosion and sedimentation, and degradation of water quality of surface and groundwater environments • Stabilise and rehabilitate disturbed areas, especially at watercourse crossings. • Prevent solid waste pollution • Responsible waste management • Waste minimisation and recycling • Suitable location, storage and management of soil stockpiles. • Fuel is stored and used in a manner that does not pose a pollution risk. • Site successfully rehabilitated and stable, with little to no risk of pollution, erosion, visual impacts, and safety risks <p>Operational Phase</p> <ul style="list-style-type: none"> • Aquatic Zone functioning optimally, and facilitating attenuation of flow and filtration of any pollutants. • The Aquatic Zone is restored to a better ecological condition than pre-development. • Alien vegetation under control. • No degradation of surface and groundwater quality. • The WWTW is operated and maintained and consistently produces treated effluent of good quality. • Irrigation of common areas is controlled and monitored to ensure there is no ponding, and that groundwater quality does not deteriorate. • The solar farm is well maintained and provides clean energy. • The stormwater management system functions optimally. • The development maintains its status as an off-grid industrial node.
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.
	<ul style="list-style-type: none"> • The CEMPr must be implemented in construction phase, and an ECO must be appointed to oversee environmental compliance in construction phase.

	<ul style="list-style-type: none"> The OEMPr must be implemented in operational phase. The Property Owners Association must assign a responsible person/company to oversee environmental compliance in operations for the full ASZ. An external environmental specialist must be appointed to audit compliance with developments within the ASZ with Conditions of Approvals/Permits, and the OEMPr Suggested monitoring must be implemented as per details provided in the OEMPr: <ul style="list-style-type: none"> The quality of treated effluent from the WWTW The quality of water within the Aquatic Zone at the point where it discharges to the drainage system Groundwater quality at 3 suggested monitoring wells The current status of the aquatic environment within the properties must be improved through planting with indigenous aquatic vegetation, and implementing the recommended stormwater management plan. Functionality of the aquatic zone must be maintained, and flow across the landscape must not be inhibited. An alien vegetation management plan must be implemented across the ASZ. The Plan must be finalised within 6 months of the DEADP issuing a decision on this application. The Plan must be developed in accordance with the NEM: Biodiversity Act, and must be done on a catchment level. The Urban Design Guidelines must be considered in detailed design planning.
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.
The EAP is of the opinion that the proposed development does not present any unacceptably high negative impacts, and that with mitigation in place, it may proceed. Conditions listed above under Item 2.2 must be implemented.	
2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.
	<p>Only <u>the terrestrial ecological specialist</u> identified assumptions/limitations to the assessment:</p> <ul style="list-style-type: none"> The properties were surveyed between late summer and early winter. A few sparsely scattered pioneer fynbos species were flowering but non-flowering species were also very sparsely scattered throughout the properties. Most of the vegetation covering the area was made up of grasses and it is assumed that it is unlikely that other species would be more common in other seasons. A hot burn in late summer may yield a few geophyte species and possibly myrmecochorous species. However, this is highly unlikely given the history of ploughing, bush cutting and grazing that has taken place on these properties over decades <p>The EAP has identified the following assumptions:</p> <ul style="list-style-type: none"> The significance rating of impacts is based on the applicant implementing all mitigation measures for the duration of the construction and operational period, and that long-term monitoring as recommended in specialist reports and the EMPrs will be implemented and used to make adaptive management decisions where required. The stakeholder database for public participation was compiled using all possible data sources – i.e. cadastral shapefiles within the ASZ and neighbouring properties and landowner details from previous stakeholder engagement processes, and on WinDeed. A copy of the stakeholder database that was used for notifications is inserted in the Public Participation Report (Appendix F). To 'cast the net wide' and capture comments from the broader community, notices were sent to Ward Councillors, and placed at visible locations near the site, and in the media. <p>The EAP is of the opinion that these limitations have been addressed in the assessment approach and methodology and the EMPrs. The Environmental Authorisation (if issued) will be legally binding on the applicant, and Conditions of approval will be linked to mitigation measures in the BAR. Management, monitoring and reporting measures are provided in the EMPr to facilitate environmental compliance and best practice in construction and operational phases. The above-mentioned limitations / assumptions therefore should not compromise the assessment or findings of this BAR.</p>
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.
<p>Ptn 139/208 and the WWTW on Ptn 4/208</p> <p>Construction to commence within 1 year of issuing of a decision by the Department.</p> <p>Construction of Solar farm, the light industrial development, the WWTW and infrastructure will all start concurrently. The solar farm will be done in 2 phases. The light industrial zone buildings will be done in 5 phases.</p> <p>Approval is sought for a 10 year period for construction to be completed. Post-construction activities should be done within 1 year of completing the last building.</p> <p><u>Implementation Plan for development of all stands, services and roads in the ASZ:</u></p>	

The image below shows the ASZ area with the various land parcels. Phasing for development of **roads and services** is illustrated in different colour shades (i.e. yellow, green and blue). Phasing for the development of **stands** is numbered in the image in red text. The table below the image identifies what approvals are required per phase. Stage 1 has all the required approvals in place to commence with development, and the services can be supplied by the George Local Municipality. Stages 2 to 4 are dependent on the approval of the current application for the WWTW on the north-eastern part of Ptn 4. Detail on the Phasing is as follows:

PHASE 1 (approvals are in place – commencement will be soon):

- c. Develop the roads and services as highlighted in yellow on the layout (Phase 1)
- d. Develop the stands on Portions 4 and 130,131,132 as indicated as stage 1 and in red text "1" on the layout:
 - Portion of Ptn 4/208
 - Portions 3, 6, 7 & 8 of GASZ (Ptns 130,131,132/208)

- These utilise Municipal services infrastructure, subject to the 20% of full demand on the whole development limit.

- d. Develop the WWTW and services infrastructure on the east of Portion 4/208.
- e. Develop the roads and services as highlighted in green in the image (Phase 2)
- f. Develop the stands on Portions 4 and 130,131,132 as indicated as Stage 2 and in red text "2" in the image:
 - Portions 3,4 and 5 of Ptn4/208
 - Portions 1, 2, 4 & 5 of GASZ (Ptns 130,131,132/208)

PHASE 3 (to commence within 10 years of the approval received for Portion 4/208):

- PHASE 4 (to commence within 10 years of approval of this application, and after Phase 2 services infrastructure are installed; but independently of Phase 3 above):**

-
- ROADS & SERVICES PHASING**
- PHASE 1
 - PHASE 2
 - PHASE 3
- ~1/2/3/4~ - Development Phasing

Stage	Stands	Zoning approval	Env Approval	Roads	Sewer	Water	Electrical
1	Ptn 4 – 1 Ptn 130/131/132 – 3,6,7,8 Ptn 139 – existing building: access, electrical, water and sewer	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132	Yellow	20% demand connect to Airport Pump Station, with equivalent DC in trust.	20% bulk connection	Refer plan – Phase 1
2	Ptn 4 – 3, 4, 5 Ptn 130/131/132 – 1,2,4,5	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green	Disconnect from Airport pump station and connect to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Refer plan – Phases 1 & 2
3	Ptn 4 – 6, 7	Ptn 4 Ptn 130/131/132	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green & Blue	Connection only to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Phase 1 and 2 complete
4	Ptn 139 – A, B, C, D, E, F	Ptn 4 Ptn 130/131/132 Ptn 139	Ptn 4 Ptn 130/131/132 Ptn 139	Yellow & Green	Connection only to Private Treatment Works	20% bulk connection & Private harvesting and treatment capacity	Phase 1 and 2 complete

NOTE: Stage 4 may have a phased approach within this development.

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.

The Services Report and Stormwater Management Plan are designed to create an 'off-grid' ASZ. Eighty percent of the water demand of the ASZ will come from harvesting of rainwater/runoff and re-use of treated effluent from the planned WWTW on Ptn 4.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.

Mitigation measures are provided in the CEMPr for waste management in construction phase, with the intention of reducing the generation of waste by construction activities, reusing waste generated by construction activities where possible, and separating waste on site for recycling off-site. In operational phase, general solid waste from the development will be collected by the Municipality and disposed of at the transfer station in George, and from there to the district landfill site near Mossel Bay. Waste will be collected at enclosed waste service yards at each of the light industrial erven that will be accessible from internal access roads. Solid waste quantities for commercial / light industrial purposes are based on an estimated solid general waste generation of 0.1kg/m²/day: light industries – estimated to generate 3500 kg/day.

Decommissioning the solar facility at its end-of-life, and disposing of panels and other supporting infrastructure will generate waste that needs to be dealt with responsibly. Under the Extended Producer Responsibility (EPR) Regulations (May 2021), solar panel producers must take responsibility to ensure that much of their products are returned (and recycled by an accredited and licenced facility) after being sold and used. Manufacturers, importers, and brand owners are held accountable for the entire life cycle of the products they place on the market, from conception to post-consumer waste disposal. South Africa does have the capacity to recycle solar panels. The glass and aluminium frame of a solar panel makes up more than 80% of its weight and both these materials can easily be recycled. The expected life-time of a panel is ~20 years. Prior to decommissioning, Hark Properties will investigate the most feasible option of recycling and/or disposal.

The Eden Municipality Integrated Waste Master Plan promotes reduction, re-use, and recycling of waste. In line with this, separate bins will be made available at waste service yards for recyclable materials. Bins will be emptied by a registered waste removal and recycling company. Hazardous waste in operational phase will be removed by a registered service provider in terms of the regulations of the Waste Act (Act No. 59 of 2008) and the Hazardous Substances Act (Act 5 of 1973). No burning, on-site burying or dumping of any type of waste will be allowed.

5. Energy Efficiency

8.1. Explain what design measures have been taken to ensure that the development proposal will be energy efficient.

An electrical report has been prepared by. The report sets the following objectives for development in the ASZ to reduce the impact on the municipal network and national grid:

- Comply with SANS 10400.
- Energy efficient light fittings, air conditioning, mechanical ventilation, refrigeration and water heating installations, electric motors, etc.
- Use of LPG gas instead of electrical appliances for cooking where economically feasible.
- Use of energy efficient appliances.
- Building and plant load management systems to reduce power consumption in the case of the industrial erven.
- Installation of Photo Voltaic (PV) and other Small Scale Embedded Generators (SSEG), where it can be economically justified

SECTION K: DECLARATIONS

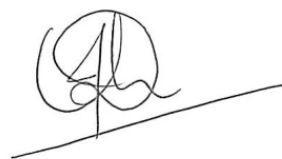
DECLARATION OF THE APPLICANT

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

I **Jacques Douglas Wheeler**, ID number **701109 5377 081** 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:

16 March 2023

Date:

Hark Properties (Pty) Ltd

Name of company (if applicable):

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I ...Belinda Clark....., EAPASA Registration number ...2019/1336..... 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;



20 April 2023

Signature of the EAP:

Date:

CEN Integrated Environmental Management Unit

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP (NOT APPLICABLE)

I, EAPASA 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.

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
 - [REDACTED]
- 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.



4 October 2022

Signature of the Specialist:

Date:

Johann Lanz – Soil Scientist (sole proprietor)

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I, Antonia Belcher, 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

[REDACTED]

- 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 Specialist:

11 OCTOBER 2022
Date:


Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I, M. J. CAMERON, 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 Specialist:

Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

I ...Michael Cohen....., 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.

Michael Cohen

Signature of the Review Specialist:

Date: 15 November 2022

CEN Integrated Environmental Management Unit

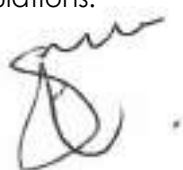
Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I, **Stéfan 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
 - [REDACTED]
- 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.



4th October 2022

Signature of the Specialist:

Date:

Perception Planning


Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I Gerrit Jacobus Jordaan, 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
 - [REDACTED]
- 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 Specialist:

04-10-2022

Date:

Newurban Group (Pty) Ltd

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I ...Anton de Wit..., 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
 - [REDACTED]
- 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.



05 October 2022

Signature of the Specialist:

Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

I, **Louis de Villiers Roodt** Pr Eng ECSA 820425

as the appointed Traffic and Transportation Engineering

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
 - [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
- 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.



Louis de Villiers Roodt Pr Eng

Signature of the Specialist:

4 October 2022

Date:

Roodt Transport Safety Pty Ltd


Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I Brett Spangehl, 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 Specialist:

07/11/2022

Date:

Aviata Consulting

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I ...Brett Williams....., 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.



Digitally signed by
Brett Williams

8th November 2022

Signature of the Specialist:

Date:

Safetech (sub-contracting to Aviata)

Name of company (if applicable):

DECLARATION OF THE SPECIALIST

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

I, Eunice Goossens , as the appointed hydrogeological specialist from SRK Consulting (SA), 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.

SRK Consulting - Certified Electronic Signature
 
588009_JS/44836/Other
4243-6698-9642-GOOS-04/10/2022
This signature has been printed digitally. The Authority has given permission for its use for this document. The details are stored in the SRK Signature Database

4 October 2022

Signature of the Specialist:

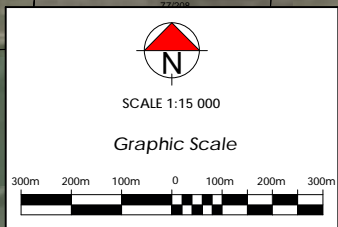
Date:

SRK CONSULTING (SA) (PTY) LTD.

Name of company (if applicable):

PLAN 1:

Locality Plan



PLAN 1

LOCALITY PLAN

REMAINDER PORTION 4 OF THE FARM GWAYANG
NO 208, DIVISION & MUNICIPALITY OF GEORGE



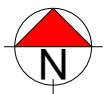
STATUS & OMBUDSCOMPLAINTS

21 Trotter Street, PO Box 2180
KNYSNA 6570

(044) 382 0420
086 459 2987
e-mail: marike@vreken.co.za
www.vreken.co.za

PLAN 2:

Subdivision Plan



SCALE 1:2 500

139/208

96/208

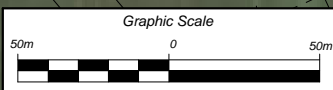
4/208

Ptn A
± 1,5940 ha
(Utility Zone)

182/208

181/208

129/208



PLAN 2

REMAINDER PORTION 4
OF THE FARM GWAYANG
NO 208, DIVISION &
MUNICIPALITY OF GEORGE

SUBDIVISION PLAN

NOTES

1. Sizes and dimensions are approximate and subject to final survey.
2. The Figure ABCDEF represents Ptn A (±1,5940 ha) of Rem of Ptn 4 of the Farm Gwayang No 208, Division George.
3. the line ab represents a 8m wide temporary right of way servitude along the northern boundary of Portion 182.
4. Ptn A of Rem of Ptn 4 No 208 to be rezoned to "Utility Zone".

DRAWN:	MV	CHECKED:	MV
PLAN NO:	Pr2476-F208Ptn04		
PLAN DATE:	11 Oct 2024		
STORED:	z:\drawings\App\Pr2476-F208Ptn04.dwg		

COPY RIGHT:

This Plan may not be copied or amended without the written consent of M Vreken

APPROVED IN TERMS OF SECTION 23(1) OF THE
GEORGE MUNICIPALITY'S BY-LAW ON
MUNICIPAL PLANNING AS PUBLISHED IN
P.N. 8747/2023 ON 21 APRIL 2023.

MUNICIPAL MANAGER

DATE:



21 Trotter Street, PO Box 2180
KNYSNA 6570

(044) 382 0420
086 459 2987
e-mail: marike@vreken.co.za
www.vreken.co.za