DRAFT ENVIRONMENTAL IMPACT ASSESSMENT REPORT FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, GAUTENG PROVINCE

GAUT 002/24-25/E4121

APPLICANT:
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environmental consulting cc

MARCH 2025

EXECUTIVE SUMMARY

Project Description

Approximately 30ha of vacant land will be utilized for warehousing and light industrial uses on the site. Twenty (20) erven of varying sizes comprise the township. Bulk infrastructure in the form of water, onsite sewerage treatment, and electricity have been addressed to adequately and sustainably service the development. The seep wetland and its associated buffer zone has been excluded from development.

Property Ownership

The applicant is the landowner. The property is registered in the name of Corpclo 1482 (Pty) Ltd.

Site description

The project is located on Portion 72 of the Farm Bultfontein 533 JQ, city of Johannesburg Metropolitan Municipality, Gauteng Province. The study area is located directly south of the established Lanseria Corporate Park. Most of the site is vacant, with the existing HireAll warehouse located in the southeastern corner of the farm portion. The study area is located within a peri-urban area that has undergone expansion within the last decade.

Compatibility of township with the Surrounding Area

The study area is located within an area characterised by transformed open veld, current and historic agriculture, and present urbanisation. Surrounding land uses (excluding the LIA) are a mix of small holdings (formal and informal low density residential), rural-agriculture and vacant land. The site is in the centre of several active land use applications presently under review with the approving authorities, for light industrial, warehousing, and cargo operations. The Lanseria Corporate Estate is located directly north of the application site, and a Filling Station is located adjacent southeast of the site. There are no residential areas which can be negatively impacted by the development.

The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal. The site is situated within an area that has been classified as *Industrial* in terms of the Nodal Review 2020 Policy document.

The study area is in line with the spatial transformation plans and vision for the municipal jurisdiction and will be directly associated with the development of the Lanseria node through private investment. The site is identified in the municipal strategic planning for future development, and municipal services and infrastructure have been planned around the site for the type of development proposed.

Infrastructure and Services

1. The sewage treatment as discussed will have to be sewer package treatment plants that will be located on each individual site, on the lower points of the site. The typical sewer demand ranges between 8KL – 12KL /day for the individual sites, with a sewer flow of 0.62l/s to 0.5 l/s including 15% stormwater infiltration and 1.8 peak factor. Each land owner will have to pay a levy towards the HOA, that will appoint a specialist by means of a service level agreement to maintain all sewer package plants.

2. The water will have a conventional formal connection, and a total demand for the site are of 375.23 KL / day AADD. The peak domestic water demand, including the 1.3 seasonal factor, as well as the instantaneuous peak factor of 4, will be 22.47 l/s. With a Moderate category for fire flow, an additional 100 l/s will have to be provisioned. The accumulates to a total demand of 122.47 l/s.
3. The stormwater on site will have two drainage points, with two large attenuation ponds. Drainage 1 – Conventional connection to a v-channel of road infrastructure. Drainage 2 – Discharge by means of a stormwater pipe, to a future open channel connection point. Both regional Attenuation ponds will be constructed to treat stormwater to the pre 5 year flow rates, and by sizing ponds to attenuate the difference between the Post 25 and Pre 5 year storms.
4. There is an existing access road, that will be extended to service internal site areas. The current TIA conducted, is approved.

Electrical Power

Cupro Consulting was appointed by the applicant to investigate the available electrical services for the proposed development. See Appendix 4.

Eskom will require a system strengthening project, prior to making power available for the Lanseria X 81 development. The Eskom team will investigate various options and incorporate the solution they deem optimal in the budget quote to the Developer.

Flood line

CivilConcepts Consulting Civil and Structural Engineers have confirmed that the calculated flow conditions for the site, does not constitute conditions associated with floods, but rather conform to typical “Sheet flow” conditions. As such, CivilConcepts Consulting Civil and Structural Engineers cannot classify the area as a flood line but rather as a “natural low point”.

Solid waste disposal

During the *construction* phase, waste should be managed as described in the Waste Disposal Management Plan included in the EMPr. During the *operational* phase, municipal or private waste services must be utilised, as well as the services of recycling companies.

Access and Roads

Corli Havenga Transportation Engineers have conducted the Traffic Impact Assessment for Lanseria X 81. Corli Havenga Transportation Engineers *support* the proposed Lanseria X 81 township from a traffic flow point of view. The report recommendations include:

1. Access must be obtained off Airbus Close as depicted in the township layout;
2. 6 intersections must be upgraded to accommodate the new township

The Institutional Environment

The Lanseria X 81 township is subject to numerous national, provincial and local statutory polies and regulations. This EIA application abides by the listed statutory requirements.

Need and Desirability

Lanseria's strategic location, with its proximity to major transportation routes and the Lanseria International Airport, makes it an ideal site for a light industrial township. Introducing a light industrial township into the Lanseria area will contribute to the economic diversification within the region. There are no physical features or any topographical constraints (Ridges, sinkholes, etc) which may restrict or prevent the land from being developed. The site is in the centre of several active land use applications presently under review with the approving authorities, for light industrial, warehousing, and cargo operations. The Lanseria area is experiencing significant economic development, with plans for the Lanseria Smart City, a new economic hub envisioned to promote smart, sustainable growth. The area is increasingly becoming attractive for businesses, logistics, and light industrial operations due to its proximity to major highways and the airport.

The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal. The site is situated within an area that has been classified as *Industrial* in terms of the Nodal Review 2020 Policy document. The study area is in line with the spatial transformation plans and vision for the municipal jurisdiction and will be directly associated with the development of the Lanseria node through private investment. The site is identified in the municipal strategic planning for future development.

Considering that the development area is within the approved urban edge and is located within the primary development zone of the Greater Lanseria Smart City development proposal, its location forms part of the urban development plans for the region.

Description of the receiving environment

The project area falls within the Highveld Climatic Zone. The project site to be principally underlain by granite (migmatites, banded gneisses, mafic and ultra-mafic xenoliths, homogeneous and porphyritic grano-diorite phases with prominent pegmatite veining) of the Halfway House Granite formation (Johannesburg-Pretoria granite inlier 5) of the Basement Complex. A shallow groundwater table was encountered in geotechnical zone 8.

Freshwater ecosystems on site include two (2) Unchannelled Valley Bottom (UCVB) wetlands; one (1) Seep wetland; and two (2) Relic wetland features, within the 500m *investigation* area. From both hydro pedological and geotechnical investigations, *there is little lateral movement of water towards the seep wetland on site.* To sustain the wetland on site, the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, or at least, to encourage water infiltration into deeper rock layers. Any discharge into the wetland must be controlled by a Stormwater Management Plan. These measures will help ensure that development structures will not be affected by excess water in the rainy season.

Hydraulic connectivity of soils on the site should be taken into consideration by the geotechnical engineer or engineering geologist to address and incorporate any ecological constraints into the site development plan.

Overall, the impact significance of the proposed development (prior to mitigation) on faunal and floral habitat and diversity, ranges from low to very low within the study area. After mitigation measures are implemented, the impact scores will reduce, resulting in predominantly very low impacts and a few low impact scores. The potential for large-scale impacts is unlikely if recommended mitigatory measures as stipulated in the specialist terrestrial report are adhered to.

The historical, ongoing, and surrounding anthropogenic impacts, including cultivation, grazing, and development, have undermined the long-term potential to maintain a diverse faunal assemblage within the study area, due to its existing diminished, degraded, and fragmented condition. Presently, the habitats within the study area can only support a moderate to low diversity of faunal classes, predominantly favouring common, small-sized animals while large mammals or predators are mostly excluded. As such vegetation clearing and operational activities are not expected to have significant impacts on the overall faunal populations within the region.

Social Environment

The economic environment of Lanseria includes a mix of sectors such as agriculture, light industry, tourism, and services. The presence of the Lanseria International Airport contributes to economic activities in the area, including aviation-related services and
tourism.

The area provides employment opportunities across various sectors, including manufacturing, logistics, hospitality, and transportation. The development of industrial parks and warehouses in the study area will further contribute to job creation and economic growth. The social environment of Lanseria encompasses diverse communities with varying socio-economic backgrounds. These include rural communities engaged in agriculture, as well as urban residents and commuters working in nearby cities. The Lanseria area faces challenges such as unemployment, poverty, and infrastructure gaps, which directly impacts on economic development. However, there are also opportunities for investment, entrepreneurship, and community development initiatives to address these challenges and promote sustainable growth.

The Lanseria Smart City is a development project aimed at creating a sustainable and technologically advanced urban centre in Lanseria, Johannesburg. A comprehensive planning process has earmarked specific areas in the Lanseria area for selected land uses. The development of the site with light industrial land uses are likely to positively impact directly on the socio-economic foundation in terms of job creation, during the construction phase and during the operational phase. In general, the development of the land will have a positive impact on the social and economic qualities of the surrounding communities and business activities.

Alternatives

The property is privately owned by the applicant, Mr Craig Murchie. The applicant seeks to rezone and subdivide the property to establish a light industrial township. The selection of the development footprint and layout followed a precautionary approach, to ensure that any unacceptable environmental impacts related to the proposed development are avoided. This avoidance approach reduces the degree of mitigation required to ensure that potential environmental impacts are within acceptable levels. This approach was achieved by appointing specialists to undertake constraints and sensitivity analysis for the entire study area to inform the scoping & EIA process. These constraints identified were used to determine the areas acceptability for development from an ecological, freshwater resource, archaeological, hydro pedological, heritage, and socio-economic perspective, ensuring potential impacts are kept to the minimum.

A light industrial development has been adequately motivated, and is the applicants preferred option. The development must implement alternative technologies as a standard practise. Alternative energy sources are the only alternative for the township.

Impacts and Mitigation Measures

The impact assessments undertaken have indicated that the significance of the negative impacts associated with the construction phase would largely be of a Medium to Low significance, assuming full mitigation measures are implemented. These impacts are readily and practically mitigable.

Impacts on the bio-physical environment remain within the acceptable limits of moderate to low impact significance, as *no development is proposed in the seep wetland.* The proposed development will have several social and economic benefits during the construction and operational phases.

Conclusion

After considering and assessing the potential environmental impacts associated with the proposed development, it can be concluded that it is the onsite sewer treatment plants, and indirect impact to the seep wetland on site, that are the highest risks and potentially negative impacts to the township.

There are no biophysical constraints / significant negative impacts on the biophysical environment, that could result in fatal flaws for the project. The seep wetland will be conserved on site and excluded from all development.

The preferred alternative assessed in this report is feasible and reasonable, provided municipal water and waste removal services, bulk infrastructure upgrades and electrical power supply can be feasibly and sustainably secured for the long term. The light industrial land use proposal is in line with the planning policies and guidelines for the area. All the mitigation, management and monitoring measures provided under Section J of this report must be implemented, should the proposed development be approved.

The project can be supported for authorisation. SEC recommends that the application be authorised, subject to the compilation and submission of the Final Environmental Impact Assessment Report, The Final Environmental Management Program (EMPr), and all specialist studies. Applicable legislation must be followed, and applicable licenses obtained prior to any construction occurring on site.

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FIGURES:

SECTION O APPENDICES

SECTION A: 1. NEMA REQUIREMENTS FOR AN EIA REPORT

The table below lists the minimal contents of an EIA report in terms of Appendix 3 of the EIA Regulations, 2014 (as amended) and provides a reference on where to find the required information in this report. This Draft EIA report has been compiled in accordance with the NEMA EIA Regulations, 2014, as amended. A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 1 below.

Table 1: Report Structure

Contents of an EIA report	Where it is found in this report
1a. An environmental impact 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 Details of – • the EAP who prepared the report; and • the expertise of the EAP, including a curriculum vitae;	Section A.4 Appendix 1
1b. The location of the development footprint of the activity on the approved site as contemplated in the accepted scoping report, including: • The 21-digit Surveyor General code of each cadastral land parcel; • Where available, the physical address and farm name; • Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Section B
1c. A plan which locates the proposed activity or activities applied for as well as the associated structures and infrastructure at an appropriate scale, or, if it is – • a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or • on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Figure 1
1d. A description of the scope of the proposed activity, including • all listed and specified activities triggered and being applied for; and • a description of the associated structures and infrastructure related to the development;	Section C
1e. A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;	Section D

1f. 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 development footprint within the approved site as contemplated in the accepted scoping report;	Section E
1g. A motivation for the preferred development footprint within the approved site as contemplated in the accepted scoping report;	Section E & Section F
1h. A full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report, including	
i. details of the development footprint alternatives considered;	Section G
ii. details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Section H
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;	Appendix 12
iv. the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Section F
v. the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Section J
vi. the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;	Section J
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;	Section J
viii. the possible mitigation measures that could be applied and level of residual risk;	Section J
ix. if no alternative development footprints for the activity were investigated, the motivation for not considering such; and	Section G

x. a concluding statement indicating the location of the preferred alternative development footprint within the approved site as contemplated in the accepted scoping report;	Section G
(i) A full description of the process undertaken to identify, assess and rank the impacts the activity and associated structures and infrastructure will impose on the preferred development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity, including —	Section J
i. a description of all environmental issues and risks that were identified during the environmental impact assessment process; and	Section J
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;	Section J
j. an assessment of each identified potentially significant impact and risk, including— 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 mitigated;	Section J
k. where applicable, a summary of the findings and recommendations of 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 assessment report;	Section I
(l). an environmental impact statement which contains— 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 development footprint on the approved site as contemplated in the accepted scoping report 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 L

(m) based on the assessment, and where applicable, recommendations from specialist reports, the recording of proposed impact management outcomes for the development for inclusion in the EMPr as well as for inclusion as conditions of authorisation;	Section J
(n) the final proposed alternatives which respond to the impact management measures, avoidance, and mitigation measures identified through the assessment;	Sections F & J
(o) 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 I & K
(p) a description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section K
(q) 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 L
(r) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded and the post construction monitoring requirements finalised;	N/A
(s) 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 or affected parties;	Appendix 1
(t) where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
(u) an indication of any deviation from the approved scoping report, including the plan of study, including (v) any deviation from the methodology used in determining the significance of potential environmental impacts and risks; and (w) a motivation for the deviation;	N/A
(x) any specific information that may be required by the competent authority; and	Section O
(y) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

(2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to an environmental impact assessment report, the requirements as indicated in such notice will apply.	Noted

2. OBJECTIVE OF THE EIA PROCESS

The objective of the environmental impact assessment process is to conduct a consultative process, to achieve the following:

i. determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
ii. describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report;
iii. identify the location of the development footprint within the approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
iv. determine the—
- nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
- degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources, and (cc) can be avoided, managed or mitigated;

v. identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
vi. identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
vii. identify suitable measures to avoid, manage or mitigate identified impacts; and
viii. identify residual risks that need to be managed and monitored.

3. INTRODUCTION

The Applicant and landowner, Mr Craig Murchie, has appointed Seedcracker Environmental Consulting CC, an independent, registered, Environmental Assessment Practitioner (EAP), to assist with conducting the required application processes (including the Scoping and public participation processes), and to compile and submit the required documentation in support of an application for Environmental Authorisation (EA) in accordance with the NEMA Listed activity/ies, namely:

- **GNR 984: Activity 15**; The clearance of an area of 20 hectares or more of indigenous vegetation

- **GNR 984: Activity 12 c 11**; The clearance of an area of 300 square metres or more of indigenous vegetation, except where such clearance of vegetation is required for maintenance purposes

undertaken in accordance with a maintenance management plan, in Gauteng, Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; and

See Section D for the full list of activities identified for the project.

Approximately 30ha of vacant land will be utilized for warehousing and light industrial uses on the site. Bulk infrastructure in the form of water, sewerage and electricity have been addressed to adequately and sustainably service the development.

The applicant is the landowner. The property is registered in the name of Corpclo 1482 (Pty) Ltd. The site is zoned "Agricultural". The project is located on Portion 72 of the Farm Bultfontein 533 JQ, city of Johannesburg Metropolitan Municipality, Gauteng Province. The study area is located directly south of the established Lanseria Corporate Park. Most of the site is vacant, with the existing HireAll warehouse located in the southeastern corner of the farm portion.

4. DETAILS OF THE EAP

Company of Environmental Assessment Practitioner (EAP):	SEEDCRACKER ENVIRONMENTAL CONSULTING CC
Name of the EAP:	STEPHANIE CLIFF
EAP Qualifications	BSC Hons Animal Science BSC Hons Wildlife Management
Professional affiliation or registration:	Registered Environmental Assessment Practitioner: Number 2019/487 Member of IAIA SA
Physical address:	Waterkloof, Pretoria
Telephone:	082 626 4117
E-mail:	Stephweb@mweb.co.za

See Appendix 1 for Steph Cliff's Curriculum Vitae. Stephanie Cliff holds a BSc Honours Degree in Animal Science, and a BSc Honours Degree in Wildlife Management. Mrs Cliff started her career in Environmental Management in 2003. Her subsequent involvement in all fields of environmental and social management have been in leadership positions. Mrs Cliff has considerable experience in the governance, environmental ethics, legislation, risk management and technical aspects of environmental management systems and Environmental Impact Assessment Processes. She has gained advanced knowledge of Integrated Environmental management (IEM) tools and principles, the principles, and fundamental criteria of the National Environmental Management Act (NEMA), provincial policies and regulations. Mrs Cliff has worked throughout South Africa, conducting Basic Assessments, Scoping& EIAs, and has monitored construction activities (Environmental Control Officer) for the built environment. She has project managed all projects assigned to her, conducted the full spectrum of public participation for strategic, linear, and large-scale projects, peer reviewed specialist studies, and authored the consolidated impact reports. SEC was established in 2008. Mrs Cliff is a Registered Environmental Assessment Practitioner: Number 2019/487. As a Registered EAP, Mrs Cliff is required to uphold the EAPASA Code of Ethical Conduct and Practice in all professional endeavours, towards the goal of quality assurance in environmental assessment practice.

5. SPECIALIST CONSULTANTS

In terms of regulation 16(1)(b)(v) of the EIA Regulations, 2014, as amended, the National Web based Environmental Screening Tool Report is included in Appendix 2. Specialist studies that were identified through use of the National Web based Environmental Screening Tool were:

- Landscape/visual Impact Assessment;
- Archaeological and Cultural Heritage Impact Assessment;
- Palaeontology Impact Assessment;
- Terrestrial Biodiversity Impact Assessment;
- Aquatic Biodiversity Impact Assessment;
- Socio-Economic Impact Assessment;
- Plant Species Assessment; and
- Animal Species Assessment.

Specialist studies conducted during the Scoping Phase, which included site investigations, confirmed the redundance of the Palaeontology Impact Assessment, Landscape/visual Impact Assessment and Social Impact Assessment, as identified by the tool. The remainder of the studies were deemed essential, based on the nature of the proposed development, the receiving environment and the Scoping Phase assessment (including plan of study for impact assessment). An additional Hydropedological study has been conducted to address authority comments.

The specialist studies included thorough site visits, and the gathering of data relevant to identifying and assessing environmental impacts that may occur because of the proposed mixed light industrial development proposal. The impacts were assessed according to the impact significance rating methodology (Section J). The specialists have also included recommendations preliminary mitigation/ management measures to minimise potential negative impacts or enhance potential benefits, respectively. The specialist's declaration of independence is included in the respective specialist reports.

The following team of qualified and experienced specialist's, form part of the project team:

Professional Discipline	Company and Contact Person
Flood Line Statement	Civil Concepts (Pty) Ltd
Hydropedological Study	Index PTY LTD
Freshwater Delineation and assessment	Scientific Aquatic Services
Biodiversity assessment	Scientific Terrestrial Services
Heritage Impact Assessment	Dr J Van Schalkwyk
Geotechnical Investigation	Geoid Geotechnical Engineers PTY LTD
Town Planning	The Town Planning Hub
Traffic Impact	Corli Havenga Transportation Engineers
Civil services and Stormwater Management	JN Civil Consulting Engineers
Electrical Services report	Cupro Consulting

SECTION B. PROPERTY DESCRIPTION

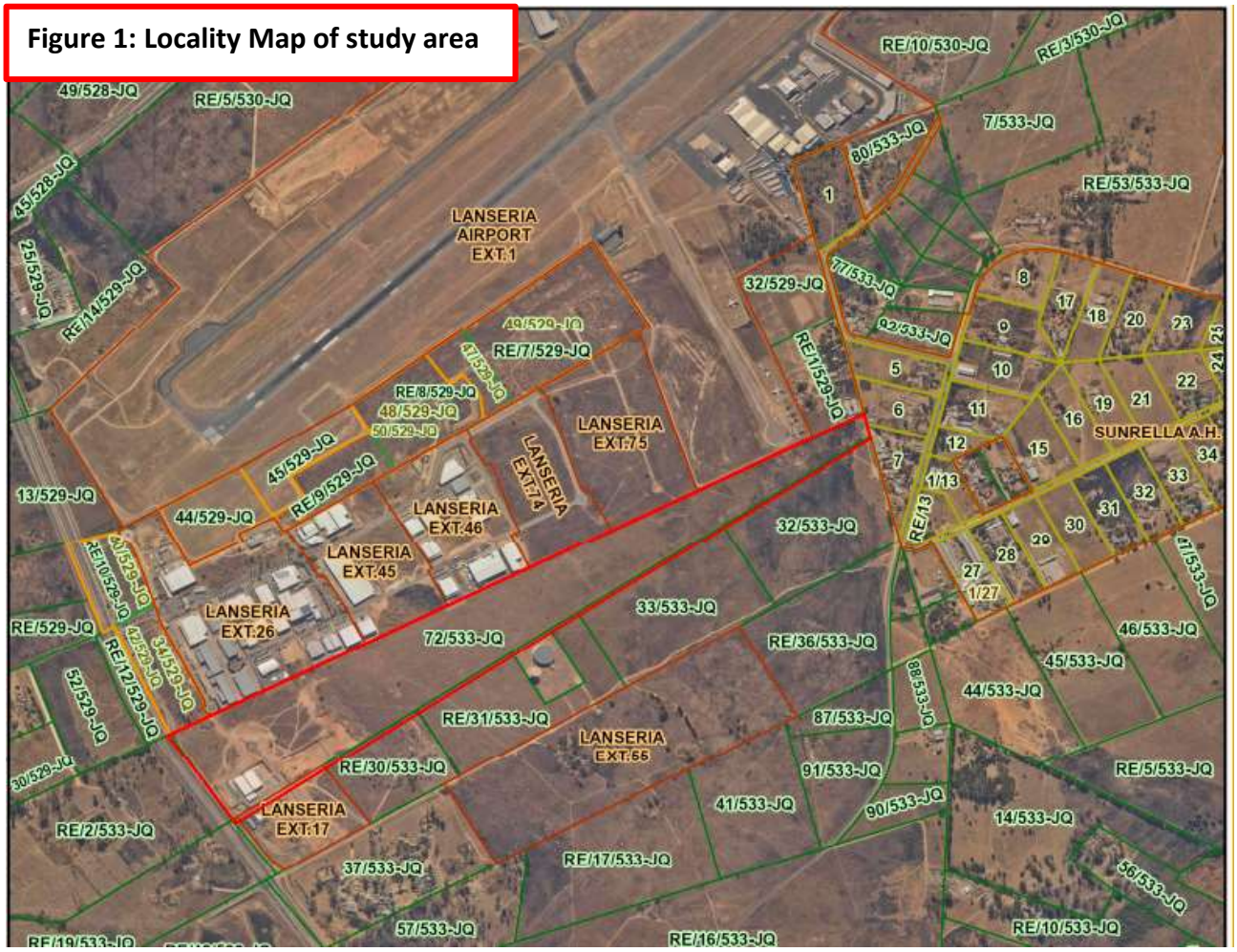
B1. Project Locality and Extent

Portion 72 of the Farm Bultfontein 533 JQ, city of Johannesburg Metropolitan Municipality, Gauteng Province. The farm portion measures 32ha. The township will only be established over a portion thereof measuring 30.7995ha in extent. The study area is located 1 kilometre (km) south of the Lanseria airport. The N14 is located 2.3 km southeast of the study area, directly east of the R512 and directly south of the existing Lanseria Corporate Estate. The site is located within the City of Johannesburg Metropolitan Municipality. Please see Figure 1 for the locality map.

The corner coordinates of the site are:

25 57 19.34 S	25 56 51.40 S
27 54 52.63 E	27 55 32 .86 E
25 57 27.01 S	25 56 53.48 S
27 54 57.99 E	27 55 53.53 E

Figure 1: Locality Map of study area



The SG 21 Digit Code for the property: T0JQ00000000053300000.

B2. Property Ownership

The applicant is the landowner. The property is registered in the name of Corpclo 1482 (Pty) Ltd.

B3. Site description

The land cover on site is presently open and undeveloped, and not under any formal agriculture. However, previous evidence of historical ploughing is evident from the aerial photographs of the site.

The study area is located within a peri-urban area that has undergone expansion within the last decade. The study area is located directly south of the established Lanseria Corporate Park. Since 2008, the Lanseria airport and industrial warehousing have expanded considerably to the north of the study area. Most of the site is vacant, with the existing HireAll warehouse located in the southeastern corner of the farm portion, (complete modification in which buildings and excavation activities have occurred).

B4. Surrounding Land Uses

The study area is located within an area characterised by transformed open veld, current and historic agriculture, and present urbanisation. Surrounding land uses (excluding the LIA) are a mix of small holdings (formal and informal low density residential), rural-agriculture and vacant land.

The site is in the centre of several active land use applications presently under review with the approving authorities, for light industrial, warehousing, and cargo operations. The Lanseria Corporate Estate is located directly north of the application site, and a Filling Station is located adjacent southeast of the site. There are no residential areas which can be negatively impacted by the development.

B5. Compatibility of township with the Surrounding Area

The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal. The site is situated within an area that has been classified as *Industrial* in terms of the Nodal Review 2020 Policy document.

The study area is in line with the spatial transformation plans and vision for the municipal jurisdiction and will be directly associated with the development of the Lanseria node through private investment. The site is identified in the municipal strategic planning for future development, and municipal services and infrastructure have been planned around the site for the type of development proposed.

SECTION C. PROJECT DESCRIPTION

C1. Project Description

The applicant proposes to establish warehousing and light industrial uses on the site. Twenty (20) erven of varying size are proposed to cater for large and smaller light industrial buildings, with the eastern most erf reserved for a wetland system. This wetland (which includes the 32m buffer zone) will be retained as private open space.

The secure light industrial park will have access from the R512, Malibongwe Drive. The light industrial park is aimed at capitalising on the location of the site within the Lanseria Smart City, as well as its location immediately adjacent to the established Lanseria Corporate Estate. The intention of the application is to permit the development of industrial uses that will fit in with the surrounding character of the area. See Figure

2 and Appendix 17 for the present preferred proposed layout plan. The site is presently zoned “Agricultural”. The Town Planning Hub (TPH) have been appointed by the applicant, to apply for Township Establishment Rights.

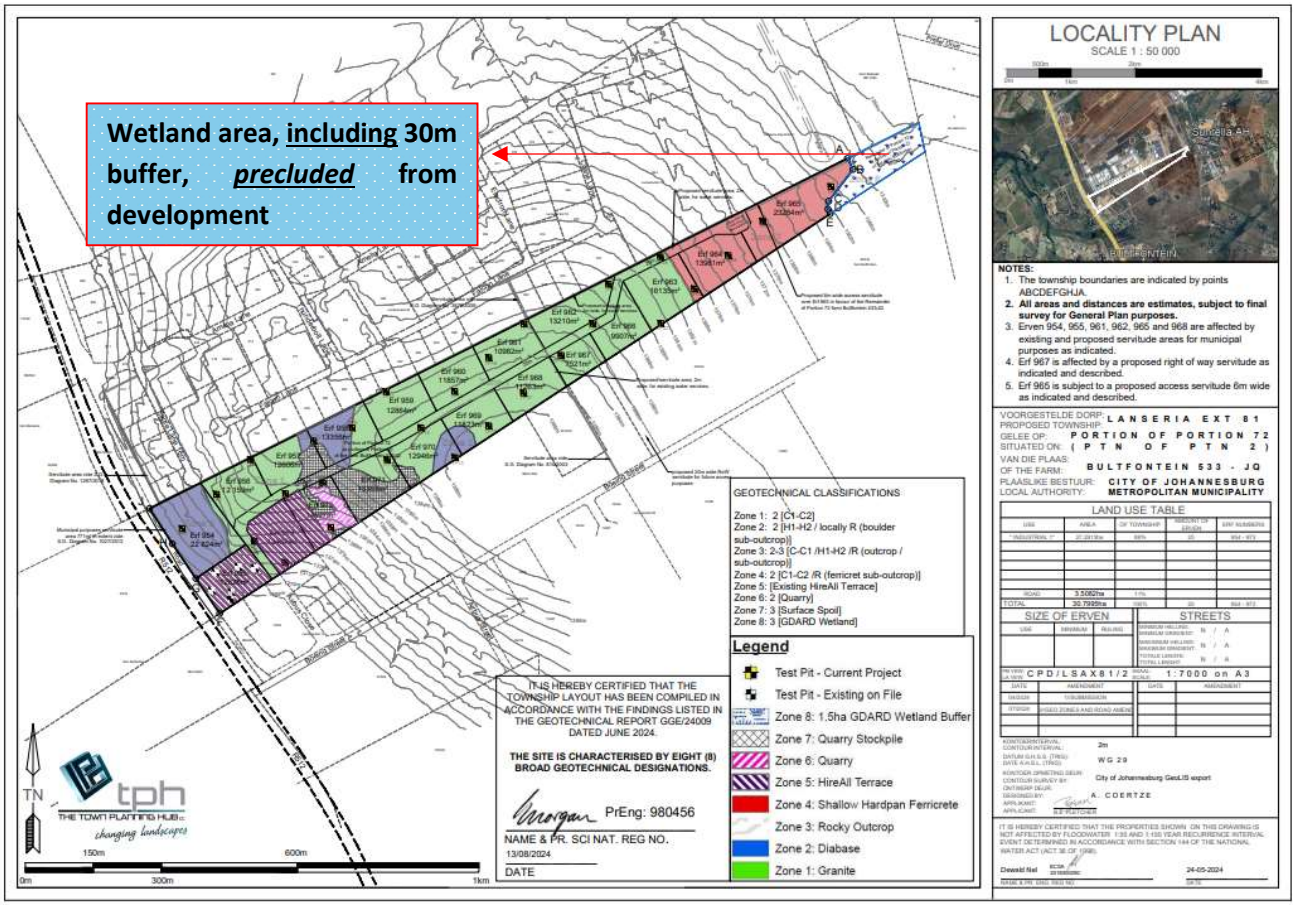
C 2. Engineering Services

Engineering Services for the proposed development is the planning, investigation, and design of systems for the provision of water, electricity, roads, stormwater and sewerage required for a feasible and sustainable development.

JN Civil Consulting Engineers were appointed to investigate Water supply, Sewage management, Storm water drainage, and Solid waste disposal for the Light Industrial township. JN Civil Consulting engineers have prepared the Outline Scheme Report for the summary of the civil services required for the site to be functional. See Appendix 3. Further to this, the report also indicates the demand that the proposed development will have on municipal infrastructure, Sewer, Potable and Fire water, Stormwater, Roads and transportation.

The information provides council with sufficient information, to make decisions regarding future developments, by considering the effect that the current development has on the bulk infrastructure within the large town planning scheme of Mogale City. The Outline Scheme Report also provide council with information regarding the upgrading of bulk infrastructure and contributions should be required.

Figure 2: Present and preferred Township Layout Plan (See Appendix 17 for larger image)



C 2.1 Water Supply

Existing system and connection

This site has an existing water line connection for the existing HireAll development. There is an external water line at this position. Council must still confirm this position and other information regarding existing water line.

Figure 3: Existing water connection

Fire water demand

According to the design standards, this development is categorized as a Moderate risk area, as the site is within the urban area, but not high-density buildings of 3 stories or higher. Moderate Risk 2 require the design to be tested with the additional flow of 100 l/s to be added to the potable water demand. The minimum head required at a hydrant according to moderate risk category, is 15m.

The total water demand for the township is 139.04 l/s.

Bulk connection

For the bulk water connection, it is recommended that a connection from the internal water network is made, by connecting onto the bulk water line at the connection point indicated at the entrance. A bulk water connection with water meter, as well as a fire hydrant booster connection is recommended.

Based on the calculated water demand, as well as considering the design guideline recommendations on preferred velocity and pipe material, JN Civil recommend that a 315mm diameter UPVC class 12 connection pipe be installed. On the inside of the site boundary, after the water meter connection and hydrant booster connection, domestic water and fire water can be split into two pipe systems. The domestic water connection can be a 160mm diameter UPVC class 12, and the fire water line proposed as a 250mm diameter UPVC Class 16.

The internal services will be taken over by City of Johannesburg. They will be responsible for the maintenance of the services.

C 2.2 Bulk Sewer

Existing system and connection

There is no existing sewer infrastructure within the area. For this reason, it is proposed to make use of on site sewer package plants, for the treatment of raw sewer. The sewer will be treated to a standard safe enough for discharging into the downstream watercourse. This approval will be formally addressed with DWS by means of a formal WULA application submitted by Oryx solutions Africa PTY LTD.

Sewer connection requirements

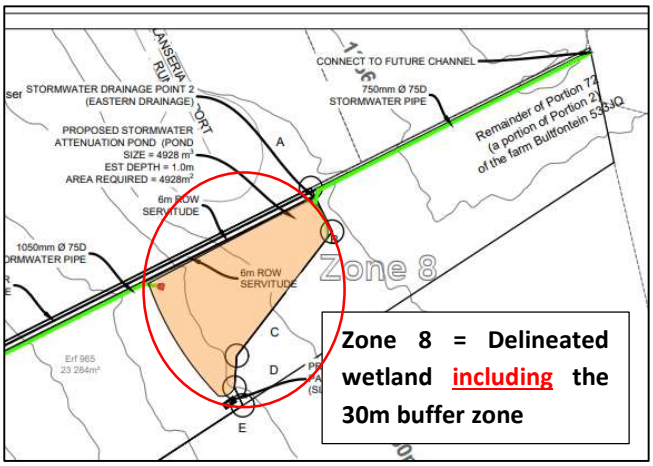
As there is no formal external sewer system and connection point, each erf will have its own sewage package plant that will be constructed and located at the lowest corner of the site. Internal sewer networks will be constructed for the calculated flow demands and connect to the sewage package plant. The package plant will discharge into the downstream watercourse. Each land owner will have to pay a levy towards the HOA, that will appoint a specialist by means of a service level agreement to maintain all sewer package plants.

The Waterbear Technology Waste Water Treatment Fusion Series, is proposed to service the individual township stands. The "Fusion" is a factory built activated sludge sewage treatment plant that has a low power consumption, single underground tank construction, is easy to install, is low maintenance, occupies a small footprint and meets the South African DWS effluent standards.

The Outline Scheme Report was submitted to council for comment. Comments have been received from Johannesburg Water confirming that there is water capacity for the proposed new development. There is a feeder line through the site to connect the development to. There is however a pressure problem for peak demand, which can be solved by building a pumpstation. See Appendix 18 for this correspondence.

Proximity of package plant to wetland system

The February 2025 approval of the Final Scoping report and plan of study, requires clarity as to within how many meters of the "watercourse" (there is no watercourse on the site, only a seep wetland) *the attenuation ponds* will be located: The north eastern attenuation pond for the development is located directly adjacent to, and on the border of the 30m wetland buffer zone, as depicted in the adjacent diagram; an excerpt taken from the service report diagrams in Appendix 4.



C 2.3 Electrical Power

Cupro Consulting was appointed by the applicant to investigate the available electrical services for the proposed development. See Appendix 4.

The Eskom Botesdal 11kV overhead line is running on the street front of the development. This line is supplied from Eskom's Lanseria 88/11kV substation.

Eskom have confirmed that the existing Botesdal 11kV overhead line *does not have capacity* to supply this development. Eskom will therefore require a system strengthening project, prior to making power available for this development. The Eskom team will investigate various options and incorporate the solution they deem optimal in the budget quote to the Developer.

From the network configuration, a possible solution would be to "split" the 11kV feeder by installing *a new 11kV feeder bay in the substation and constructing a new powerline parallel to the existing power line up to the Lanseria road / R512 crossing*. Eskom still need to confirm the final scope of works for system strengthening. Cupro Consulting recommend that Eskom be approached with an application of 1.8 MVA for the total development. Each erf/light industrial stand will be served with an Eskom meter on its border.

Figure 4: Existing Eskom Botesdal 11kV overhead line

The electricity supply network will conform to Eskom standards and requirements. Other standards to which the electrical design will adhere include the relevant SANS safety and equipment standards, as well as the NRS 048 quality of supply standard.

Rooftop Solar Generation

The industrial load use is ideal for installation of a rooftop solar system within each stand, due to the load curve coinciding with the solar generation curve.

C 2.4 Storm water Management and Design

The site is split into two drainage areas, as there is a watershed in the centre of the site. Drainage 1 drains towards the Southwestern corner. Drainage 2 drains to the South-eastern corner of the site, from where it connects to the formal roads stormwater infrastructure. Figure 5 indicates the two drainage areas and low points.

Drainage 1 will drain on the southwestern side of the site, directly into the formal road drainage system on the R512.

Figure 5: Site Drainage Patterns

Figure 6: Existing stormwater connection drainage point 1

Drainage 2 will drain to the lowest corner as indicated in Figure 9 "*Stormwater connection point*". From this point, a field inlet structure will be constructed, where stormwater will connect onto a new proposed channel to be constructed to service all Northern neighbouring sites and eventually discharge into the river.

Figure 7: Existing stormwater connection drainage point 2

: The bulk stormwater pipeline will be installed along the boundary of the property, *within the seep wetland area. A WULA is presently being obtained for this water use.*

The GDE February 2025 approval of the Final Scoping report and plan of study requested that where possible, all the structures within the wetland buffer must be removed, and an alternative route should be considered for the proposed storm water pipe. Due to the natural topographic lay of the land, the gravity fed drainage of the site towards the south-eastern corner of the site (the lowest point of the site), is the most appropriate engineering design proposal for the management of stormwater. Furthermore, this stormwater drainage

proposal ties in with the approved Lanseria X 11 stormwater plan. Lanseria X 11 has received Environmental and Water Use Authorisations for all the activities required on site.

In addition to the above, an Environmental authorisation and Water Use License was approved in 2024 and 2025 respectively, for the construction and implementation of a bulk council water pipeline, in the *exact same position* as proposed for the present stormwater pipe. The water pipeline was required for the approved Lanseria X 11 development, adjacent to P/72 Bultfontein study area. After receipt of the approvals, council changed the water pipeline route, such that the water pipeline will no longer be constructed in this location anymore. Hence, this EIA (Gaut 002/24-25/E4121) and the WULA that has been submitted to the DWS for the Lanseria X 81 township, is a double-authorisation for a similar land use and the same NEMA activities. As such, an alternative route for the proposed storm water pipe has not been considered.

C 2.5 Flood line

CivilConcepts Consulting Civil and Structural Engineers have confirmed that the calculated flow conditions for the site, does not constitute conditions associated with floods, but rather conform to typical “Sheet flow” conditions. As such, CivilConcepts Consulting Civil and Structural Engineers cannot classify the area as a flood line but rather as a “natural low point”.

See Appendix 5 for this desktop study.

C 2.6 Solid waste disposal

During the *construction* phase, waste should be managed as described in the Waste Disposal Management Plan included in the EMPr. During the *operational* phase, municipal or private waste services must be utilised, as well as the services of recycling companies.

C 2.7 Access and Roads

Corli Havenga Transportation Engineers have conducted the Traffic Impact Assessment for Lanseria X 81, see Appendix 6. This report has been prepared according to the requirements of the South African Traffic Impact and Site Traffic Assessment Manual.

A previous township application has been approved for the Hireall Buildings and yards on site. A section of the access road to service these approved land uses has already been constructed, hence, a section of the access road to the township has also already been implemented.

Corli Havenga Transportation Engineers *support* the proposed Lanseria X 81 township from a traffic flow point of view. The report recommendations include:

1. Access must be obtained off Airbus Close as depicted in the township layout;
2. The following road upgrades must be implemented:

2.7.1 Intersection: R512 (Malibongwe) and R552 (Pinevalley)

All-way stop upgraded to signalised intersection.

2.7.2 Intersection: R512(Malibongwe) and Falcon Close/Refilwe

All-way stop upgraded to signalised intersection, subject to a signal warrant.

2.7.3 Intersection: R512 (Malibongwe) and Boeing Street

The intersection is upgraded as depicted in Figure 7:

- Additional 90m right-turn lane on R512 southern approach (allowing double right-turn lanes onto Boeing Street);
- Two lanes in both directions along Boeing Street up to Airbus Close;
- Additional right-turn lane, maximum that can be fitted on Boeing Street eastern approach;
- Left-slip lane on R512 northern approach;
- Bus/taxi stops along Malibongwe Drive on both sides of the intersection; and
- Traffic signal

2.7.4 Intersection: R512 (Malibongwe) and Amelia Lane

Two-way stop upgraded to signalised intersection.

2.7.5 Intersection: R512 (Malibongwe) and Ashenti Road/Princess Avenue

All-way stop upgraded to signalised intersection.

2.7.6 Intersection: Boeing Street and Airbus Close

The intersection is upgraded to accommodate the access to the township with the following additional lanes as depicted in Figure 6:

- Two lanes in both directions along Boeing Street towards the R512;
- Left slip lane on Boeing Street eastern approach; and
- Additional 45m shared through- and right-turn lane on Boeing Street eastern approach (future right-turn lane)

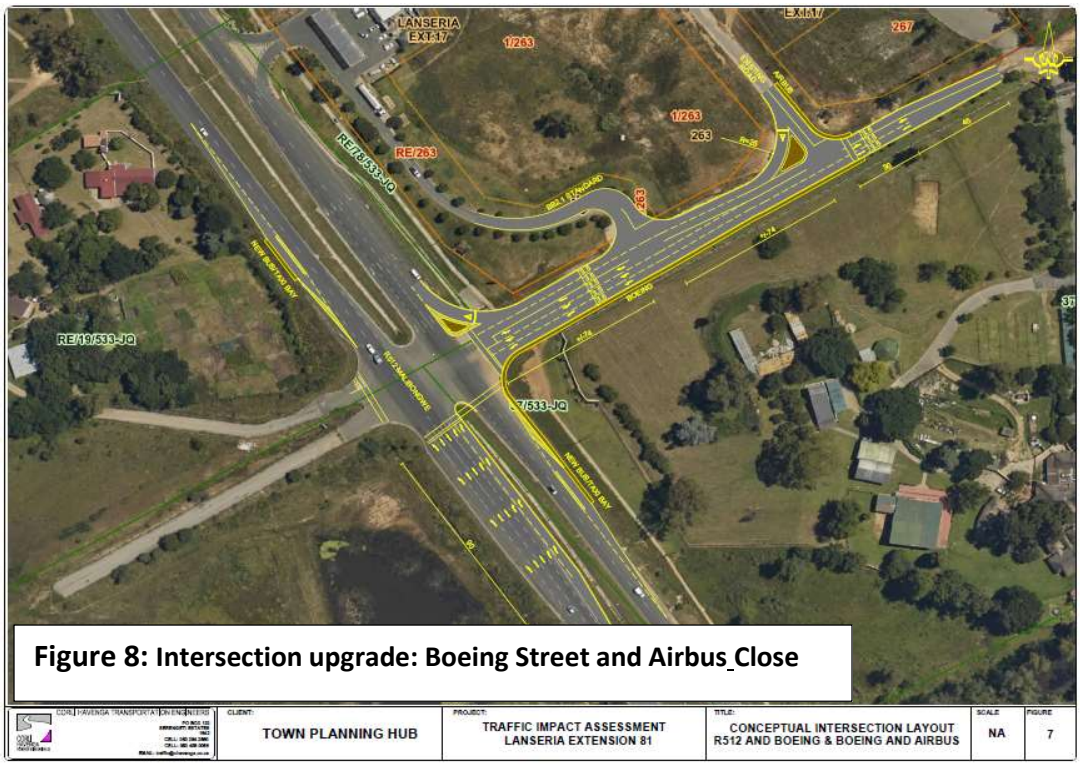


Figure 8: Intersection upgrade: Boeing Street and Airbus Close

- The developer must implement sidewalks next to Boeing Street, between Airbus Close and the R512.

Public transport

The Gautrain does not operate in the area. Bus services and minibus services were observed operating along the R512/Malibongwe Drive. There are existing facilities along Malibongwe Drive at the intersection with Amelia Lane and at the intersection with Ashenti Street. These facilities are located well beyond an acceptable walking distance from the proposed township, ±1.6km from the middle of the township. Facilities are therefore proposed at the intersection of the R512 and Boeing Street, the walking distance is ±850m.

As development takes place in the area and Boeing Street is extended, facilities should be implemented at the intersection of Boeing Street and Airbus Close.

The public transport demand from this development can be accommodated with these facilities. As development takes place and the road network develops it is expected that public transport service providers will increase services in the area. There are no sidewalks along Airbus Close , Boeing Street or the R512. The provision of sidewalks along Boeing Street between Airbus Close and the R512 are proposed.

C 2.8 Green Design / Environmental Building Considerations

The concept of a sustainable or green building can be defined as “one that has minimal impact on the environment”. The definition is however, constantly evolving. Net zero buildings on the other hand, are defined as: “energy efficient buildings with energy supply from renewable sources on-/or off-site or through offsets”.

Thus, a green sustainable building refers to both a structure and the using of processes that are environmentally responsible and resource-efficient throughout a building’s life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. One which has minimal impact on the environment. Ideally, the green building preserves and restores the surrounding habitat that is vital for sustaining life and then becomes a net producer and exporter of resources, materials, energy and water (rather than being a net consumer). Green building construction and operation assures the healthiest and most efficient (meaning least disruptive) use of land, water, energy and resources.

Green engineering design principles must be included in the individual Warehouses Architectural design. The Architectural Edge Tool for each warehouse must deal with the issues of energy, water supply and waste disposal. A well-planned light industrial township can incorporate sustainable practices and technologies to minimize environmental impact. This includes energy-efficient building designs, waste management systems, and green spaces.

SECTION D: DESCRIPTION OF THE INSTITUTIONAL ENVIRONMENT

The Constitution of the Republic of South Africa (Act 108 of 1996)	The environment, health and well-being of people are safeguarded under the Constitution of the Republic of South Africa, 1996 by way of section 24. Section 24(a) guarantees a right to an environment that is not harmful to human health or well-being

	and to environmental protection for the benefit of present and future generations. Section 24(b) directs the state to take reasonable legislative and other measures to prevent pollution, promote conservation, and secure the ecologically sustainable development and use of natural resources (including water and mineral resources) while promoting justifiable economic and social development. The current environmental laws in South Africa concentrate on protecting, promoting, and fulfilling the Nation's social, economic, and environmental rights; while encouraging public participation, implementing cultural and traditional knowledge, and benefiting previously disadvantaged communities. Under South African environmental legislation, the applicant is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts. The applicant will be responsible for the development and implementation of the conditions of any Environmental Authorisation received, in terms of rehabilitation, and the implementation of the Environmental Management Programme [EMPr]. The issuing of an environmental authorisation or other permits or licences for any aspect of the proposed project, will ensure that the environmental right enshrined in the Constitution contributes to the protection of the biophysical and socio-economic environment.
National Environmental Management Act (Act 107 of 1998), as amended (NEMA)	The National Environmental Management Act (Act 107 of 1998) (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment, and which require authorisation from the relevant authorities based on the findings of an environmental assessment. NEMA is a national act, which is enforced by the Department of Environmental Affairs (DEA). These powers are delegated in Gauteng, to the Department of Agriculture, Rural Development and Environment (GDARDE).
National Environmental Management Act (NEMA) Environmental Impact Assessment (EIA) Regulations 2014 (as amended)	In terms of Section 24(2) of NEMA, the Minister and or any MEC in concurrence with the Minister may identify activities which require authorisation as these activities may negatively affect the environment. The Act requires that in such cases the impacts must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorising, permitting, or otherwise allowing the implementation of an activity. The NEMA EIA Regulations guide the processes required for the assessment of impacts of Listed Activities. Three Listing Notices have been published under Government Gazette No 40772 on 07 April 2017; and are an amendment of the 2014 Regulations that were published under Government Gazette No. 38282 on 04 December 2014. The levels of environmental assessment required under each of these Listing Notices are as follows: ▪ Listing Notice 1 (GNR 983 in Government Gazette No 40772 of 07 April 2017): This Notice identifies listed activities that require a Basic Assessment. ▪ Listing Notice 2 (GNR 984 in Government Gazette No 40772 of 07 April 2017): This Notice identifies listed activities that require Scoping and Environmental Impact Assessment. ▪ Listing Notice 3 (GNR 985 in Government Gazette No 40772 of 07 April 2017): This Notice identifies listed activities that require Basic Assessment in specifically identified geographical areas

	An Environmental Authorisation must be obtained for any activity that is listed in any of the above notices. Such an authorisation may only be granted once the required assessment has been compiled by an independent environmental assessment practitioner, and submitted to the competent authority.

The triggered listed activities are presented in Table 1. The identified activities indicate that the development will require authorisation in terms of GNR 984 Listing Notice 2 and GNR 985 Listing Notice 3 of the NEMA EIA Regulations (2014), as amended. As such, a *Scoping and EIA process* will be required to be undertaken in line with all the requirements of the NEMA EIA Regulations, 2014, as amended.

Listing Number	**Description of Listing triggered by the proposed activity**	**Applicability**
GN. R 983, 8 December 2014, Activity 12, Listing 1	**The development of (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; where such development occurs (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; excluding (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; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (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	The light industrial township will require stormwater attenuation ponds to manage stormwater on site.

	where indigenous vegetation will not be cleared.	
GN. R 983, 8 December 2014, Activity 13, Listing 1	**The development of facilities or infrastructure for the off-stream storage of water, including dams** and reservoirs, with a combined capacity of 50 000 cubic metres or more	The light industrial township will require stormwater attenuation ponds to manage stormwater on site.
GN. R 983, 8 December 2014, Activity 19, Listing 1	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 (i) a watercourse.	The installation of the bulk stormwater system "Drainage 2" proposal may temporarily disturb 10 cubic metres of the seep wetland on site.  Drainage 2 will drain to the lowest north-eastern corner. From this point, a field inlet structure will be constructed, where stormwater will connect onto a new proposed channel to be constructed to service all Northern neighbouring sites and eventually discharge into the river.
GN. R 983, 8 December 2014, Activity 27, Listing 1	**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 (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	To establish the proposed Light industrial township, (i.e. permanent removal) indigenous vegetation will be cleared on site.
GN. R 983, 8 December 2014, Activity 28, Listing 1	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:** (i) will occur inside an urban area, where the total land to be developed is bigger than 5	The site has been historically used for agriculture purposes and is larger than 1ha, located outside the urban area. As such this activity is triggered.

	hectares; or **(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.	
GN. R 984, 8 December 2014, Activity 15, Listing Notice 2	**The clearance of an area of 20 hectares or more of indigenous vegetation,** excluding where such clearance of indigenous vegetation is required for (i) the undertaking of a liner activity; or maintenance purposes undertaken in accordance with a maintenance management plan.	To establish the proposed Light industrial township, approximately 30ha of indigenous vegetation will be cleared on site.
GN. R 985, 8 December 2014, Activity 4 (c) iv, **Listing 3**	The **development of a road** wider than 4 metres with a reserve less than 13,5 metres, in Gauteng, in Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans	The Light industrial township will require internal access roads.
GN. R 985, 8 December 2014, Activity 12, **Listing Notice 3**	**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. c**. Gauteng** 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 or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans;** or iii. 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	The project site is located within a Critical Biodiversity Area. (CBA) 300m² of indigenous vegetation will be cleared to establish the light industrial township.

A Scoping and Environmental Impact Assessment (EIA) process is required for above listed activities which have the potential to result in significant impacts which are complex to assess. Scoping and EIA studies accordingly provide a mechanism for the comprehensive assessment of activities that are likely to have more significant environmental impacts.

Assessment for Reporting on Identified Environmental Themes	The Department of Forestry, Fisheries and the Environment (DFFE) has published requirements in terms of site sensitivity verification, GN 320 of 20 March 2020, Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Section 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation. In terms of this notice, prior to commencing with a specialist assessment, the current use of the land and the environmental sensitivity of the site under consideration identified by the national web based environmental screening tool (screening tool), where determined, must be confirmed by undertaking a site sensitivity verification. In terms of this notice, the following is applicable: • The site sensitivity verification must be undertaken by an environmental practitioner or a specialist. • The site sensitivity verification must be undertaken using: A desktop analysis, using satellite imagery, A preliminary on-site inspection, and any other available and relevant information. • The outcome of the site sensitivity verification must be recorded in the form of a report that: Confirms or disputes the current land and the environmental sensitivity as identified by the screening tool, such as new development or infrastructure, the change in vegetation cover or status etc., Contains motivation and evidence (e.g., photographs) of either the verified or different use of the land and environmental sensitivities, and Is submitted together with the relevant assessment report prepared in accordance with the requirements of the EIA Regulations.
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	The objectives of this act are (within the framework of NEMA) to provide for: • The management and conservation of biological diversity within the Republic of South Africa and of the components of such diversity; • The use of indigenous biological resources in a sustainable manner; • The fair and equitable sharing among stakeholders of the benefits arising from bio prospecting involving indigenous biological resources; • To give effect to ratify international agreements relating to biodiversity which are binding to the Republic; • To provide for cooperative governance in biodiversity management and conservation; and • To provide for a South African National Biodiversity Institute to assist in achieving the objectives of this Act. This act alludes to the fact that management of biodiversity must take place to ensure that the biodiversity of the surrounding areas is not negatively impacted upon, by any activity being undertaken, to ensure the fair and equitable sharing among stakeholders of the benefits arising from indigenous biological resources. Furthermore, a person may not carry out a restricted activity involving either:

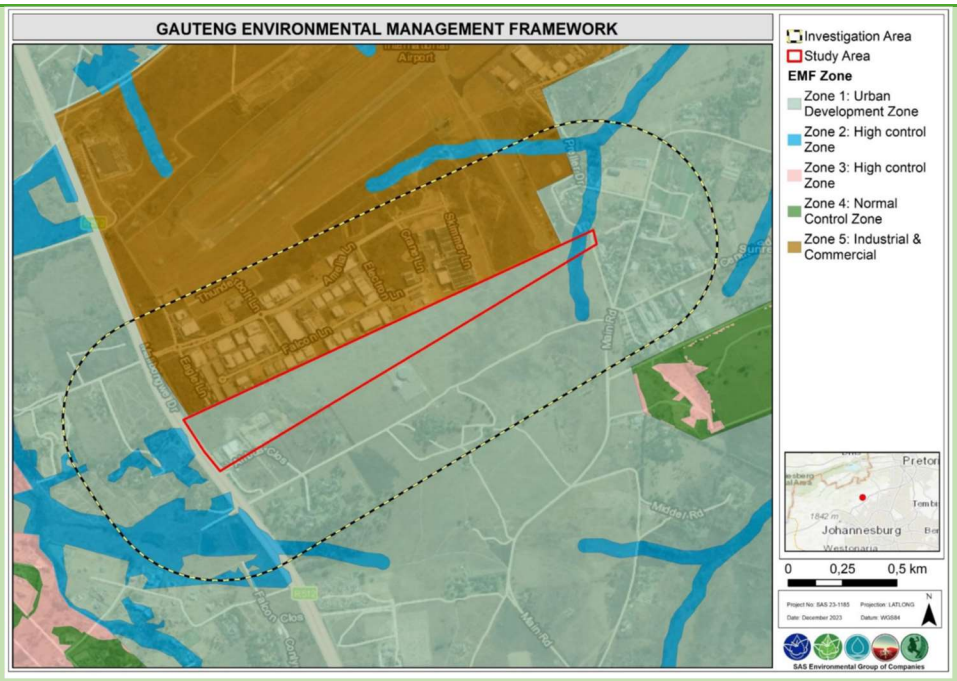
	a) A specimen of a listed threatened or protected species; b) Specimens of an alien species; or c) A specimen of a listed invasive species without a permit. Chapter 7 of the NEMBA regulations govern the 'permit system for listed threatened or protected species. To remove or relocate any Threatened or Protected Species (TOPS) should they be identified on the site and relevant permits must be applied for. According to the 2022 Red List Ecosystems (RLE) database, the study area is located within the remaining extent of the Critically Endangered (CR) Egoli Granite Grassland. From a provincial biodiversity management perspective, the Gauteng Conservation Plan (C-Plan) V 3.3 indicates that majority of the study area is located within an area considered to be of biodiversity importance, most notably an Important Critical Biodiversity Area (CBA) (also referred to as CBA 2). Triggering features of the Important CBA include the presence of Red and Orange Listed (OL) plant species and primary vegetation. CBAs are areas of high biodiversity value and need to be maintained in a natural state. CBA Important Areas are areas considered important for the survival of threatened species and includes valuable ecosystems such as wetlands, untransformed vegetation, and ridges. A small section in the north of the study area is also located within an Ecological Support Area (ESA). Scientific Terrestrial Services (Pty) Ltd. were appointed to conduct a terrestrial biodiversity assessment as part of the Environmental Authorisation (EA) application process for the study area. See Section F and Appendix 7 of this report, for the detail of these studies. The specialist study is aligned to the requirements of this act.
Government Notice 598 Alien and Invasive Species Regulations (2014), including the Government Notice 864 Alien Invasive Species List as published in the Government Gazette 40166 of 2016, as it relates to the National Environmental Management Biodiversity Act, 2004 (Act No 10 of 2004)	NEMBA is administered by the Department of Environmental Affairs and aims to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA. In terms of alien and invasive species. This act in terms of alien and invasive species aims to: - Prevent the unauthorized introduction and spread of alien and invasive species to ecosystems and habitats where they do not naturally occur, - Manage and control alien and invasive species, to prevent or minimize harm to the environment and biodiversity; and - Eradicate alien species and invasive species from ecosystems and habitats where they may harm such ecosystems or habitats. Alien species are defined, in terms of the National Environmental Management: Biodiversity Act, 2004 (Act no 10 of 2004) as: (a) A species that is not an indigenous species; or (b) An indigenous species translocated or intended to be translocated to a place outside its natural distribution range in nature, but not an indigenous species that has extended its natural distribution range by natural means of migration or dispersal without human intervention. Categories according to NEMBA (Alien and Invasive Species Regulations, 2017): - Category 1a: Invasive species that require compulsory control; - Category 1b: Invasive species that require control by means of an invasive species management programme;

	- Category 2: Commercially used plants that may be grown in demarcated areas, provided that there is a permit and that steps are taken to prevent their spread; and - Category 3: Ornamentally used plants that may no longer be planted. All Category 1 Declared Weeds and other alien invaders must be removed from the site.
The National Water Act, 1998, Act 36	The National Water Act (Act 36 of 1998) "NWA" provides a framework to protect, develop, conserve, and manage the nation's water resources. Water use is defined broadly in terms of the NWA, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. A field assessment was undertaken in October 2023 by SAS, during which freshwater ecosystems were identified within the study area and associated investigation area (defined as a 500m radius around the study area) in line with GN 4167 of December 2023. These freshwater ecosystems include: • Two (2) Unchannelled Valley Bottom (UCVB) wetland; • One (1) Seep wetland on site; and • In addition, to the above wetlands, two (2) Relic wetland features were identified within the greater 500m investigation area. Scientific Aquatic Services (SAS) were appointed to conduct a freshwater ecosystem assessment as part of the Environmental Authorisation (EA) process for the proposed development on the remainder of Portion 72 of the farm Bultfontein 533 JQ. See Section F and Appendix 8 of this report, for the detail of this study. The NWA also provides for pollution prevention measures, with particular emphasis on water resource pollution. In accordance, the licensee shall ensure that activities impacting upon water resources and effluent releases are monitored for compliance with the applicable Regulations. Emergency incidents involving water resources are included in the Act, requiring the polluter to remediate and mitigate the impacts of such an emergency incident. In terms of Section 19 of the NWA, "an owner of land, a person in control of land or a person who occupies or uses the land on which any activity or process is or was performed or undertaken; or any other situation exists, which causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring". A water use must be licensed (in terms of Section 21) unless it is listed in Schedule 1 as an existing lawful water use; is permissible under a general authorisation; or if a responsible authority waives the need for a licence. Galago Environmental Consultants have been appointed to compile a Water Use Authorisation Application (WUA) process for the proposed development on the remainder of Portion 72 of the farm Bultfontein 533 JQ.

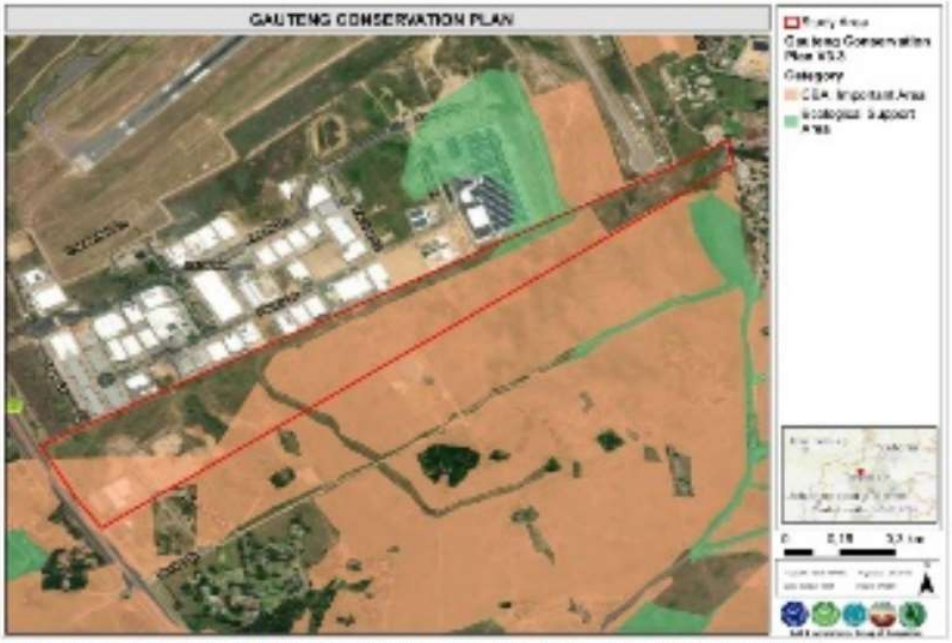
Government Notice 509 as published in the Government Gazette 40229 of 2016 as it relates to the National Water Act, 1998 (Act No. 36 of 1998)	In accordance with GN509 of 2016 as it relates to the National Water Act, 1998 (Act 36 of 1998), a regulated area of a watercourse in terms of water uses as listed in Section 21c and 21i is defined as: • the outer edge of the 1 in 100 year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam; • in the absence of a determined 1 in 100 year flood line or riparian area, the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or • a 500m radius from the delineated boundary (extent) of any wetland or pan in terms of this regulation. Any development on the study site has the potential to impact the aquatic ecosystems and must be authorised in terms of Section 21 of the National Water Act (1998). Galago Environmental Consultants have been appointed to conduct the WULA for this application.
National Environmental Management Act: Protected Areas Amendment Act 21 of 2014	The National Environmental Management: Protected Areas Amendment Act 21 of 2014 aims to amend the National Environmental Management: Protected Areas Act, 2003, so as to amend or insert certain definitions; to authorise the declaration of marine protected areas; to provide for the management of marine protected areas; to provide for transitional measures; to effect certain textual alterations; and to provide for matters connected therewith. The National Environmental Management: Protected Areas Act 57 of 2003 intends to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas; and for matters in connection therewith. Although the study area does not occur in a Protected Area, the study area is located within the remaining extent of the Critically Endangered (CR) Egoli Granite Grassland. The Gauteng Conservation Plan (C-Plan) V 3.3 indicates that majority of the study area is located within an Important Critical Biodiversity Area (CBA). CBAs are areas of high biodiversity value and need to be maintained in a natural state. CBA Important Areas are areas considered important for the survival of threatened species and includes valuable ecosystems such as wetlands, untransformed vegetation, and ridges. A small section in the north of the study area is also located within an Ecological Support Area (ESA). Scientific Terrestrial Services (Pty) Ltd. have been appointed to conduct a terrestrial biodiversity assessment as part of the Environmental Authorisation (EA) application process for the study area. See Section F and Appendix 7 of this report, for the detail of these studies.
National Environment Management Waste Act, 2008 (Act No. 59 of 2008)	The NEM: Waste Act (NEMWA) was accented to on 10 March 2009 and came into effect on 01 July 2009. This Act repeals the sections in the Environment Conservation Act, Act 73 of 1989 that previously dealt with the licensing of general and hazardous waste

	storage facilities. The Act was established to regulate waste management for the protection of human health and the environment. Section 19 of the NEMWA authorises the Minister to publish a list of waste management activities which would require an environmental assessment and waste management licence. On 3 July 2009 the Minister published a schedule of waste management activities in respect of which a waste management licence is required in accordance with section 20(b) of NEMWA (GN R718, GG 32368). Activities listed under Category A of GN R 718 for which a waste management licence is required, are equivalent to those that require a Basic Assessment process as stipulated in GN R 544 of June 2010. Category B activities are equivalent to those that require a full EIA process as stipulated GN R 545 of June 2010. None of the activities relating to the construction and operation of the proposed Light Industrial township development, will require a waste management license.
National Heritage Resource Act 25 of 1999	The National Heritage Resource Act 25 of 1999 introduce an integrated and interactive system for the management of the national heritage resources; promote good government at all levels, and empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations and Chapter 2 section 35 subsection 3 states that any person who discovers archaeological or paleontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources and subsection 4 says that no person may, without a permit issued by the responsible heritage resources authority— a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite; b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite; and section 36 subsection 3 states that no person may, without a permit issued by SAHRA or a provincial heritage resources authority— c) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves; d) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or e) bring onto or to use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals As part of the S&EIR process, an independent heritage consultant was appointed to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the study area. See Section F and Appendix 9 of this report, for the detail of this study.
The Gauteng Provincial Environmental Management Framework, 2015	The Gauteng Provincial Environmental Management Framework is a legal instrument in terms of the Environmental Management Framework Regulations. The regulations are designed to assist environmental impact management including EIA processes, spatial planning and sustainable development. The objectives of the policy are:

	• To ensure efficient urban development (including associated service infrastructure) in defined selected areas with lower environmental concerns and high development demand in order to help facilitate the implementation of Gauteng Growth and Management Perspective, 2014. • To facilitate the optimal use of current industrial, mining land and other suitable derelict land for the development of non-polluting industrial and large commercial developments. • To protect Critical Biodiversity Areas (CBAs) within urban and rural environments. To ensure the proper integration Ecological Support Areas (ESAs) into rural land use change and development. • To use ESAs as defined in municipal bioregional plans in spatial planning of urban open space corridors and links within urban areas. • To focus on the sustainability of development through the implementation of initiatives such as Energy efficiency programmes, plans and designs, Waste minimisation, reuse and recycling, Green infrastructure in urban areas, and Sustainable Urban Drainage Systems (SUDS) According to the GDARD Environmental Management Framework, the study and investigation areas fall within the following EMF Zones: EMF Zone 1: (Urban development zone): Most of the study area and the investigation area is located within Zone 1. The intention with this zone is to streamline urban development activities in it and to promote development infill, densification, and concentration of urban development, to establish a more effective and efficient city region that will minimise urban sprawl into rural areas. EMF Zone 2: (High control area inside Zone 1): Linear bands associated with drainage in the study and investigation areas are classified as being in Zone 2. This zone is sensitive to development activities. Only conservation should be allowed in this zone. Related tourism and recreation activities must be accommodated in areas surrounding this zone. EMF Zone 5: (Industrial and Commercial): The northern portion of the investigation area is located within Zone 5. The intention with Zone 5 is to streamline non-polluting industrial and large-scale commercial (warehouses etc.) activities in areas that are already used for such purposes and areas that are severely degraded but in proximity to required infrastructure. The figure below shows the location of the site within the GPEMF 2014 mapping.



Gauteng C-Plan v3 2011	The Gauteng Conservation Plan (Version 3.3) (GDARD, 2011) classified areas within the province based on its contribution to reach the conservation targets within the province. These areas are grouped as Critical Biodiversity Areas (CBAs) or Ecological Support Corridors (ESAs). The CBAs comprise 'Irreplaceable' areas that must be conserved and areas classified as 'Important' to reach the conservation targets of the Province. ESAs are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of CBAs and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration to ensure sustainability in the long term. From a provincial biodiversity management perspective, the Gauteng Conservation Plan (C-Plan) V 3.3 indicates that majority of the study area is located within an area considered to be of biodiversity importance, most notably an Important Critical Biodiversity Area (CBA) (also referred to as CBA 2). Triggering features of the Important CBA include the presence of Red and Orange Listed (OL) plant species and primary vegetation. CBAs are areas of high biodiversity value and need to be maintained in a natural state. CBA Important Areas are areas considered important for the survival of threatened species and includes valuable ecosystems such as wetlands, untransformed vegetation, and ridges. A small section in the north of the study area is also located within an Ecological Support Area (ESA). The following figure shows the study area located within an Important Critical Biodiversity Area (CBA).

	 Scientific Terrestrial Services (Pty) Ltd. were appointed to conduct a terrestrial biodiversity assessment as part of the Environmental Authorisation (EA) application process for the study area. See Section F and Appendix 7 of this report, for the detail of this study.
Joburg 2040 – Growth and Development Strategy	The policy envisions a World Class African City of the Future – a vibrant, equitable African city, strengthened through its diversity; a city that provides real quality of life; a city that provides sustainability for all its citizens; a resilient and adaptive society, with Improved quality of life and development-driven resilience for all, to provide a resilient, liveable, sustainable urban environment, underpinned by infrastructure supportive of a low-carbon economy, an inclusive, job-intensive, resilient and competitive economy that harnesses the potential of citizens, and a high performing metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive Gauteng City Region." The Town Planning hub submits that by way of approval of the proposed Lanseria X 81 application, the City of Johannesburg will be adhering to the outcomes that are proposed within the policy document. The proposed development will contribute to a sustainable environment, create jobs and incentivize the Municipality in terms of economic growth and future sustainability.
Johannesburg Spatial Development Framework, 2040	The core objective of the SDF 2040 is to create a spatially just world class African city. The SDF 2040 is premised on spatial transformation, defined through the principles of equity, justice, resilience, sustainability, and urban efficiency which it seeks to translate into a development policy. The future "polycentric Johannesburg" will bring jobs to residential areas and housing opportunities to job centres rather than merely transporting people between the two. It will create complete nodes where people can live work and socialise, which are efficiently connected by public transport. It will bridge spatial and social barriers and build a framework for a spatially just city.

	The application site falls within the consolidation zone as identified within the Johannesburg Spatial Development Framework, 2040, and further identified as a Peri-Urban Zone within the Nodal Review, while the northern corner of the property has been identified as an Industrial Node. The SDF recognises the possible development of the Lanseria area as a logistics and airport industry hub. This vision will depend on private sector investment appetite and the availability and cost of infrastructure. Lanseria's potential as a significant job provider for the surrounding marginalised areas is also recognised. The Lanseria X 81 application can be seen as an extension of the industrial townships directly adjacent to the study area. In general, this application is in line with the planning and views of the policy document.
Nodal Review, 2020	The Nodal Review is a comprehensive Policy with the intention to ensure development that "occurs in a way that is holistically sustainable: having positive environmental, social and economic effects". The application site is earmarked as a Peri-Urban Zone, with the eastern section earmarked as an Industrial Zone. The guidelines associated with the Agricultural/Peri-urban zone state that the character and development intent of these areas should be that of maintaining low intensity residential / agricultural environments. The Town Planning Hub have applied for a deviation from the Peri-Urban Zoning, given the existing and future commercial and industrial developments in the immediate area. The application site is a natural extension to the already approved and operational Lanseria Extensions 26, 45, 46 and 75. The site is located directly south of the existing Lanseria Corporate Estate. Several Light Industrial and warehousing proposals are envisaged for the immediate surrounding area. The Lanseria X 81 application is line with the views and future planning for the City of Johannesburg. The Lanseria international airport, facilitates ancillary and supporting services to be provided within the immediate vicinity of its operations.
The Draft Greater Lanseria Master Plan (GLMP) 2021	The vision of a new 'Smart City' within the Greater Lanseria Growth Node emanates from a joint initiative of the Presidency, the Office of the Gauteng Premier, the City of Tshwane, the City of Johannesburg and Mogale City. The Development Bank of SA and the adjacent North West Province municipality of Madibeng are also represented. The State President introduced the initiative in his State of the Nation address in February 2020, and the Office of the Premier has led extensive studies and engagements in putting the planning of the smart city in place." The initiative of a Smart City will be guided by the draft Greater Lanseria Smart City Framework Policy Document. The application site falls within the Lanseria Urban Growth Node, Focus Zone 1. This zone encompasses an agglomeration of primary nodes, including the proposed New Town Centre, a mixed-use activity node, and nodes with a focus on residential development, business and warehousing development, as well as appropriate light industrial and commercial support development. It includes the Lanseria Airport specialist node and surrounding areas to the northern boundary of the GLMP study area. The location of the Lanseria X 81 township is ideal as it will contribute to the future growth of economic stability in the area. The location lends itself to accessibility to major transport routes, namely the R512 and N14. The policy document does not only support

	densification from a residential perspective, it encompasses infill development and supports a large variety of land uses at suitable locations to create a true post-apartheid city.
Lanseria Regional Spatial Development Policy (LRSDF) 2017	The Lanseria Regional Spatial Development Policy (LRSDF), established in 2017, plays a pivotal role in shaping the future of the Greater Lanseria area in Gauteng Province, South Africa. The LRSDF aims to create a smart city within the Lanseria region, as envisioned by President Cyril Ramaphosa. This transformative initiative seeks to address the spatial legacy of apartheid by developing a modern, sustainable urban environment. The Greater Lanseria Master Plan (GLMP) serves as the first phase of this smart city development. Key stakeholders include: · Gauteng Growth and Development Agency (GGDA) · Department of Water and Sanitation · Gauteng Dept of Agriculture, Rural Development and Environment (GDARDE) · City of Johannesburg The smart city project initially aimed to accommodate 350,000 to 500,000 people by 2030. The focus was to be on building essential infrastructure, including Wastewater treatment facilities. The LRSDF represents a progressive step toward realizing a modern, interconnected, and forward-thinking urban landscape in the Lanseria area. The project site falls within an area identified for development in the LRSDF 2017.
Lanseria Integrated Open Space Plan (LIOSP) 2018	The Lanseria Integrated Open Space Plan (LIOSP), developed in 2018, plays a crucial role in shaping the open spaces and green areas within the City of Johannesburg Metropolitan Municipality. The LIOSP aims to provide a comprehensive understanding of all open space resources within the study area. It covers existing conservation areas, key ecological spaces, and socio-economic open spaces. The plan serves as a decision-making tool for development, park planning, and conservation programs. The study area encompasses a diverse range of developments, including planned, incremental, and informal ones. It extends from Lanseria Airport in the north to Kya Sand / Bloubosrand in the south. The eastern boundary is Diepsloot, and the western boundary is formed by the R512. Notable small holdings, suburbs, and townships within the study area include: Northern Farm, Sunrella Agricultural Holdings, Diepsloot, Dainfern, Broadacres, Steyn City, Chartwell, Farmall, Nietgedacht, Lanseria. The study area strategically lies within a broader regional “opportunity” zone. Future development and growth are likely to be influenced by both internal pressures and external factors beyond the boundary. The LIOSP contributes to informed decision-making, ensuring effective management of the open space network in this dynamic region.

- The Lanseria X 81 township is subject to numerous national, provincial and local statutory polies and regulations. This EIA application abides by the listed statutory requirements.

SECTION E: NEED AND DESIRABILITY ANALYSIS

Lanseria's strategic location, with its proximity to major transportation routes and the Lanseria International Airport, makes it an ideal site for a light industrial township. Introducing a light industrial township into the Lanseria area will contribute to the economic diversification within the region. It is an important aspect of the EIA process to conduct an environmental need and desirability analysis, to determine the potential impact of the proposed development on the environment, and whether it is necessary and desirable.

Conducting an environmental need and desirability analysis is important for any land use proposal in Gauteng. This analysis provides valuable information to stakeholders and will help to ensure that the development proposal is sustainable, and aligned with the broader goals of environmental protection, social equity, and economic growth.

The consideration of 'need and desirability' requires the consideration of the context of the proposal along with the broader societal needs and the public interest. According to the DFFE's Guidelines on Need and Desirability, the concept of need and desirability can be explained as; "need refers to *time*", and "desirability refers to *place*" – i.e., Is this the right time and the right place for locating the type of land use being proposed? Need and desirability can be equated to the wise use of land – i.e., the question of what the most sustainable use of land is. It is believed that the adequate consideration of need and desirability throughout the environmental process, will ensure that the "best practicable environmental option" is pursued. The need and desirability from an environmental and planning perspective is discussed in this section.

E 1. Desirability from a Planning Perspective

The proposed utilisation of the land must be considered *desirable* in relation to the spatial planning frameworks for the area. The concept of "desirability" in a land-use planning context can be described as follows:

"Degree of acceptability" of the specific land use(s) on a said property within an existing natural or manmade environment and the guideline proposals included in the relevant spatial development framework plans and policies, and municipal engineering services in so far as it relates to the desirability or based on its effect on existing rights and the biophysical environment concerned".

The desirability of the Lanseria X 81 development, will be discussed concerning the following aspects:

- Physical characteristics
- The character of the area
- Accessibility
- Spatial Planning
- Provision of services

E 1.1 Physical Characteristics of the site

The study area is very uneven with many small excavations. The excavations are anticipated to be the result of previous mining activities, likely from sand and gravel borrowing when the platforms for the adjoining industrial area was built (It appears from the micro indentations on the northern part of the site, that sand

was either mined or moved to Lanseria Industrial area to build platforms for construction). The entire site is derelict land. There are no fences on site, which allows for informal grazing by lessees or landless people.

The site is located on the crest of the landscape, with the northern section that drains east and north, and the northern section towards the north. The topography of the proposed development site is good for a light industrial development, as no major earthworks are required to facilitate the development proposal (ie.infill). There are no physical features or any topographical constraints (Ridges, sinkholes, etc) which may restrict or prevent the land from being developed.

E.1.2 Character of the area

The study area is located within an area characterised by transformed open veld, current and historic agriculture, and present urbanisation. Surrounding land uses (excluding the LIA) are a mix of small holdings (formal and informal low density residential), rural-agriculture and vacant land. The site is in the centre of several active land use applications presently under review with the approving authorities, for light industrial, warehousing, and cargo operations. The Lanseria area is experiencing significant economic development, with plans for the Lanseria Smart City, a new economic hub envisioned to promote smart, sustainable growth. The area is increasingly becoming attractive for businesses, logistics, and light industrial operations due to its proximity to major highways and the airport.

E.1.3 Accessibility

The area benefits from improved road infrastructure, with the R512 (Malibongwe Drive) and N14 highway providing easy access to Johannesburg, Pretoria, and other key areas. This accessibility makes the Lanseria area attractive for commuters and businesses. The proposed secure light industrial park will gain access from the R512, Malibongwe Drive, and the existing Airbus Close.

E.1.4 Spatial Planning

The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal. The site is situated within an area that has been classified as *Industrial* in terms of the Nodal Review 2020 Policy document. The study area is in line with the spatial transformation plans and vision for the municipal jurisdiction and will be directly associated with the development of the Lanseria node through private investment. The site is identified in the municipal strategic planning for future development.

Considering that the development area is within the approved urban edge and is located within the primary development zone of the Greater Lanseria Smart City development proposal, its location forms part of the urban development plans for the region.

E.1.5 Provision of services

See Section C of this report for the discussion of services for the Lanseria X 81 development.

1. The sewage treatment as discussed will have to be sewer package treatment plants that will be located on each individual site, on the lower points of the site. The typical sewer demand ranges between 8KL – 12KL /day for the individual sites, with a sewer flow of 0.62l/s to 0.5 l/s including 15% stormwater infiltration and 1.8 peak factor.

2. The water will have a conventional formal connection, and a total demand for the site are of 375.23 KL / day AADD. The peak domestic water demand, including the 1.3 seasonal factor, as well as the instantaneous peak factor of 4, will be 22.47 l/s. With a Moderate category for fire flow, an additional 100 l/s will have to be provisioned. The accumulates to a total demand of 122.47 l/s.

3. The stormwater on site will have two drainage points, with two large attenuation ponds. Drainage 1 – Conventional connection to a v-channel of road infrastructure. Drainage 2 – Discharge by means of a stormwater pipe, to a future open channel connection point. Both regional Attenuation ponds will be constructed to treat stormwater to the pre 5 year flow rates, and by sizing ponds to attenuate the difference between the Post 25 and Pre 5 year storms.

4. There is an existing access road, that will be extended to service internal site areas.

E2. Need and Desirability of the development from a Socio-Economic Perspective

Table 4 outlines the need and desirability of the development from a *locational* perspective. It informs the justification of the development to build in the proposed time and location from a socio- economic perspective.

NEED:	
Aspect	Statement
Is the land use (associated with activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework agreed to by the relevant environmental authority?	Yes
Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?	Yes.
Does the community/area need the activity and the associated land use concerned? (is it a societal priority)	While the development of another light industrial township in the Lanseria area may not be an explicit societal priority in a broad sense, it can be motivated within the context of economic development, job creation, and regional growth plans. However, it needs to be carefully planned, balanced with environmental considerations, and aligned with the needs and aspirations of local communities to truly serve as a beneficial priority for society.

Is this project part of a national programme to address an issue of national concern or importance?	Yes. The South African government has envisioned the development of the Lanseria Smart City, which aims to be a modern, sustainable, and inclusive urban hub. The city plans include mixed-use developments that incorporate residential, commercial, and industrial spaces. A light industrial township will fit into this vision by providing the necessary industrial and commercial infrastructure.

DESIRABILITY:

Aspect	Statement
Would the approval of this application compromise the integrity of the existing approved municipal IDP and SDF as agreed to by the relevant authorities?	No. The development proposal supports and aligns with the existing municipal planning policies and framework for the area.
Do location factors favour this land use (associated with the activity applied for) at thisplace? (relates to the contextualization of the proposed land use on this site within its broadercontext)	Yes. The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal.
Will the proposed activity or the land use associated with the activity applied for, result inunacceptable opportunity costs?	If the market for industrial space in the area is already saturated, or if existing facilities have high vacancy rates, an additional light industrial development may struggle to attract tenants or buyers. This would result in sunk costs for developers, and lost opportunities to use the land for more profitable purposes. If there is a stronger demand for alternative land uses, such as residential housing, commercial space, or mixed-use developments, the opportunity cost of dedicating land to more industrial use could be substantial. Since the property is privately owned land however, the applicant has not investigated other land use proposals, due to prohibitive cost implications.
Will the proposed land use result in unacceptable cumulative impacts?	No. The light industrial township will not lead to significant environmental degradation, will not place additional strain on local infrastructure (applicant responsible for upgrades), will not reduce the quality of life for adjacent residents or harm public health (no noxious gases, loud noises anticipated), and will not negatively affect

	alternative economic opportunities like tourism and agriculture. This environmental impact assessment, public participation and stakeholder consultation, and municipal - approved town planning applications, are essential to mitigate these risks and ensure balanced development that aligns with the area's long-term sustainability goals.

E3 Need and Desirability of the development: *An Environmental Perspective*

The environmental need analysis is the process of evaluating the environmental impact of the proposed light industrial land use development. This analysis will help to determine the necessity of the development in the area and identify potential environmental risks. The environmental desirability analysis evaluates the overall benefits and drawbacks of the proposed light industrial development. This analysis considers the social, economic, and environmental impacts of the development to determine whether it is desirable.

The needs and desirability analysis component of the "*Guideline on need and desirability in terms of the Environmental Impact EIA Regulations (Notice 819 of 2014*)" includes, but is not limited to, describing the linkages and dependencies between human well-being, livelihoods and ecosystem services applicable to the area in question, and how the proposed development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage sites, opportunity costs, etc.). Table 5 below presents the needs and desirability analysis undertaken for the proposed Lanseria X 81 development.

Table 5: Motivation for Need and Desirability

Guideline	Statements
How will this development (and its separate elements/aspects) impact the ecological integrity of the area? How were the following ecological integrity considerations taken into account in terms of: Threatened Ecosystems, Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"), Conservation targets, Ecological drivers of the ecosystem, Environmental Management Framework Spatial Development Framework, and Global and international responsibilities relating to the environment (e.g., RAMSAR sites, Climate Change, etc.).	Scientific Terrestrial Services (Pty) Ltd. (hereafter "STS") was appointed to conduct a terrestrial biodiversity assessment as part of the Environmental Authorisation (EA) application process for the proposed Lanseria X 81 township. See Appendix 7 for this report. The findings of this report include the following: The study area is located within the remaining extent of the Critically Endangered (CR) Egoli Granite Grassland. The Gauteng Conservation Plan (C-Plan) V 3.3 indicates that the majority of the study area is located within an area considered to be of biodiversity importance, most notably an Important Critical Biodiversity Area (CBA) (CBA 2). A small section in the north of the study area is also located within an Ecological Support Area (ESA). Based on the results of the field investigations conducted by STS, three (3) broad habitat units were identified within the study area, namely: Degraded Grassland Habitat, Moist Grassland and Transformed Habitat. All development layouts will remain outside of the Seep Wetland (and associated buffers/setbacks). The greatest impact on floral habitat and diversity is anticipated to be the result of vegetation clearing activities, specifically impacting on habitat and diversity within the Degraded Grassland, Moist Grassland (specifically the Perched Moist Grassland) and the Transformed Habitat. However, given the lowered sensitivity of these habitats, the overall impact significance is anticipated to be low, resulting in a limited loss of a diversity of floral species. Direct impacts on the Seep Wetland are not anticipated as construction is assumed to occur outside of the Wetland

Guideline	Statements
	and associated buffers. Overall, the impact significance of the proposed Lanseria X 81 development (prior to mitigation) on faunal habitat and diversity ranges from low to very low within the study area. No threatened species were recorded within the study area, and as no habitat to support such species is deemed present within the study area, a Plant Species Compliance Statement is required. See Appendix 7. The findings of the site assessment disputed the screening tool outcome of medium sensitivity for the Plant Species Theme and instead verifies a low sensitivity. Two (2) OL species were recorded within the study area, namely *Boophone disticha* and *Hypoxis hemerocallidea*. Permits for the relocation of OL species within the development footprint area is not required. Although these OL species were recorded within the Degraded Grassland Habitat, the abundance thereof was low, and it is unlikely that other species will be recorded; these species are widespread occurring species (i.e., not restricted to Gauteng) that can tolerate various habitat types and conditions. As such the study area is not regarded as important to support populations of these OL species. From a faunal perspective, the Degraded Grassland Habitat, Perched Moist Grassland and Seep Wetland have the potential to possibly support four faunal SCC, albeit not permanently and probably only for foraging purposes. Habitat integrity and sensitivity in all habitat units, are limited by anthropogenic developments surrounding the study area, that have reduced its size and fragmented it from surrounding natural areas. The study area has also been impacted by historical cultivation and current grazing activities which has reduced the long-term sustainability

Guideline	Statements
	of the study area to support SCC. The impact on SCC within the study area is not anticipated to be significant, given the limited POC of such SCC. Impacts, without mitigation, to faunal SCC range from low to very low through all phases of the development. Mitigation, if implemented correctly, will reduce the impact significance to SCC in most phases to very low. The proposed activities will impact on the habitat units within the study area to varying degrees. The greatest (direct) impact associated with the proposed development activities will be within floral and faunal habitat of low and very low SEI, whereas only a small aspect of the proposed activities has the potential to (indirectly) impact on floral habitat with medium SEI. However, given the mitigation measures as provided in The STS reports (and additional mitigation measures provided in the SAS freshwater report, Appendix 8)) are implemented, the anticipated impact from the proposed development is considered to vary between low and very low impact significance. It is the opinion of the ecologists that their study provides the relevant information required to implement Integrated Environmental Management (IEM) and to ensure that the best long-term use of the ecological resources in the study area will be made in support of the principle of sustainable development.
How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The anticipated impact from the proposed development is considered to vary between *low and very low impact significance*, (STS Terrestrial Biodiversity Assessment Report, Appendix 7). *All development layouts will remain outside of the Seep Wetland (and associated buffers/setbacks).*

Guideline	Statements
	If the mitigation measures provided in STS Terrestrial Biodiversity Assessment Report and the SAS freshwater report (Appendix 7) are implemented on site, the anticipated impact from the proposed development is considered to vary between low and very low impact significance.
How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	All potential positive and negative ecological impacts were assessed in the STS Terrestrial Biodiversity and SAS Freshwater Assessment reports - refer to Section F and I of this report. The mitigation hierarchical approach was followed to manage the impacts and risks identified by specialists. Refer to baseline ecological information in Section G, and the impact assessment and mitigation measures in Section J of this EIA Report.
What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	The proposed development will generate waste during both the construction and operational phases. In the case of the proposed development, an integrated waste management system which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact the health of the environment and human health, must be adopted where possible. A Waste Management Plan (WMP) outlining measures and procedures for the appropriate handling, storage and disposal of wastes generated during the entire project lifecycle (preconstruction, construction and operational phases), is included in the EMPr.

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How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed development will change the character of the site. The site will be transformed from being undeveloped to a construction site and built environment. A comprehensive Heritage Impact Assessment (Appendix 9) was conducted to consider the impact of the proposed development on any cultural and heritage resources. Measures have been provided to avoid or minimise any potential negative impacts associated with the proposed development. No culturally significant sites will be destroyed for this project.
How will this development use and/or impact non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed land use project will use non-renewable natural resources such as oil, coal, and natural gas for energy and transportation needs. The construction materials, including cement, steel, and bricks, would also require non-renewable resources for their production. Water resources will be impacted by such developments through increased demand from commercial and residential activities. Another potential impact on natural resources will be from waste generation and pollution. Light Industrial land use developments increase the amount of waste generated, including both solid waste and wastewater. This waste may need to be treated or disposed of, which could require additional resources. Overall, a Light Industrial development could have significant impacts on non-renewable natural resources if not designed and executed with sustainability principles in mind. To minimize these impacts, sustainable construction practices, efficient use of resources, and renewable energy sources will be employed wherever possible. Additionally, waste

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	management and pollution prevention strategies should be implemented to reduce the impact on natural resources.
How will this development use and/or impact renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds?	The Lanseria X 81 development will have both positive and negative impacts on renewable natural resources and the ecosystem in terms of the following aspects: • Energy Use and Impact: The light industrial land use development can impact renewable natural resources such as wind and solar energy. The development will utilize renewable energy sources such as solar panels, thereby reducing its dependence on non-renewable sources, and help to mitigate climate change. • Water Use and Impact: The operational Lanseria X 81 development will impact water resources by increasing the demand for fresh water. The development will require large amounts of water for construction, operation, and maintenance. This can lead to overuse of water resources and have significant impacts on groundwater reserves. Additionally, the development may increase stormwater runoff, which can cause erosion, sedimentation, and pollution of nearby water bodies. • Land Use and Impact: The Lanseria X 81 built development will impact the land by altering the present terrestrial and freshwater ecosystems and reducing biodiversity. The development may contribute to soil erosion, fragmentation of habitats, and loss of biodiversity. • Waste Management and Impact: The Lanseria X 81 built development will impact the environment through waste generation and management. The development will produce significant amounts of waste during construction and operation.

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	If not managed properly, this waste can contribute to pollution, soil degradation, and water contamination.
What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources?	The following measures will be explored to avoid or minimize the use of resources in the Lanseria X 81 warehouse buildings: • Passive design strategies: Passive design strategies such as building orientation, shading, natural ventilation, high-performance insulation, and daylighting can reduce the dependence on artificial lighting, heating, and cooling systems. • Energy-efficient appliances: Installation of energy-efficient electrical appliances such as LED lighting, energy-efficient air conditioners, fans, and refrigeration can drastically reduce energy consumption. • Renewable energy sources: Integration of renewable energy sources such as solar panels can minimize the use of fossil fuels for energy production. • Water-efficient fixtures: Installation of water-efficient fixtures such as taps, showers, and dual flush toilets can significantly reduce the consumption of water. • Use of sustainable building materials: Use of sustainable building materials such as bamboo, recycled steel, and reclaimed wood can reduce the demand for new materials, conserve natural resources, and minimize waste. • Recycling and waste reduction: Incorporation of recycling and waste reduction systems can divert waste from landfills and save resources. • Green roofs and walls: Installation of green roofs and walls can reduce heating and cooling loads and improve air quality while promoting biodiversity.

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What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	• Commissioning: Regular commissioning of building systems can identify and rectify inefficiencies, ensuring optimal performance and resource use. • Greywater systems: Installation of greywater systems can recycle wastewater for non-potable uses, such as irrigation. • Education and awareness: Raising awareness among building users about resource conservation and sustainable practices can instill responsible behavior and promote a culture of sustainability. • Energy-efficient lighting technology and energy saving measures will be used as far as possible to reduce the energy requirements of the development. The applicant understands that the responsible and equitable use of resources is essential for promoting sustainable development and minimizing negative impacts on the environment and society. The architects, still to be appointed by the individual erf owners, are similarly aware of these requirements. By adopting sustainable practices, utilizing renewable resources, and engaging with local communities, built developments can minimize their environmental footprint while promoting social equity and economic growth. Responsible and equitable use of resources is essential for promoting sustainable development and minimizing negative impacts on the environment and society.
Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e., de-materialised growth)? (Note sustainability requires that settlements reduce their ecological	The proposed Lanseria X 81 development could have significant impacts on non-renewable natural resources if not designed and executed with sustainability principles in mind. The EMPr (Appendix 16) provides measures for the implementation of the activities during the planning,

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footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life) Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e., what are the opportunity costs of using these resources this the proposed development alternative?) Do the proposed location, type and scale of development promote a reduced dependency on resources?	construction and operational phases of the proposed development. The EMPr considers the following principles, amongst others: • To minimize the developments dependency on resources, sustainable construction practices, efficient use of resources, and renewable energy sources should be employed wherever possible. • Pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied. • Waste is minimized, re-used or recycled where possible and otherwise disposed of in a responsible manner. • Negative impacts on the environment and people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied. • Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means. • The EMPr provides monitoring measures to evaluate the various stages and phases of development, and to identify potential negative impacts and take corrective measures as necessary. Implement regular reporting and communication to stakeholders on the development's performance, including environmental, social, and economic indicators.

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How was a risk-averse and cautious approach applied in terms of ecological impacts? What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? What is the level of risk associated with the limits of current knowledge? Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	A risk-averse and cautious approach has been adopted by the Terrestrial and Freshwater specialists, for their respective assessments. This approach has included identifying measures to minimize potential harm to the environment because of the impacts identified for a built development. A detailed description of assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed are included in the relevant sections of the terrestrial and freshwater reports. The specialist reports include mitigation measures to reduce potential environmental harm, and monitoring actions before, during, and after the proposed activity, to assess any impacts that occur to the environment, and adjust mitigation measures as needed. By adopting a risk-averse and cautious approach in terms of ecological impacts, the environment will be better protected and will ensure that the building activities have minimal negative impacts in the long-term.
How will the ecological impacts resulting from this development, impact people's environmental rights in terms of the following: *Negative impacts*: e.g., access to resources, opportunity costs, loss of amenity (e.g., open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? *Positive impacts*: e.g., improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	In many cases, negative ecological impacts resulting from a built development, can disproportionately affect marginalized communities. These impacts affect people's ability to access clean air, water, and food, and can also impact their ability to enjoy a healthy and safe environment. In many cases, these impacts and can violate their right to a healthy and sustainable environment. Such impacts can lead to the displacement of communities. The ecological impacts of the Lanseria X 81 development have been carefully considered, and mitigation measures provided to protect people's environmental and human rights.

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Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g., on livelihoods, loss of heritage sites, opportunity costs, etc.)? Based on all of the above, how will this development positively or negatively impact the ecological integrity objectives/targets/considerations of the area? Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	A detailed impact assessment is provided in Section J of this report. Measures to avoid, mitigate and manage negative impacts and promote positive impacts are included in the EMPr (Appendix 16). The EMPr aims to identify and prevent the potential negative impacts on the environment and people's environmental rights, and where they cannot be altogether prevented, are minimised and remedied. The EMPr (Appendix 27) encourages and promotes community wellbeing and empowerment through the environmental education of workers during construction. The outcome of this EIA Report and the EMPr is to ensure that the proposed development is sustainable, inclusive, and respectful of human rights and the environment, and that the provisions of all the environmental reports compiled for the development are enforced and monitored during the lifecycle of the project.
Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Cumulative impacts are identified and assessed in Section J of this report.
"Promoting justifiable economic and social development" What is the socio-economic context of the area, based on, amongst other considerations, the following considerations? The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area, Spatial priorities and desired spatial patterns	The socio-economic context of the Lanseria area is shaped by its strategic location, economic development potential, rural-urban transition, and diverse population. The area is undergoing significant transformation due to ongoing and planned developments, such as the proposed Lanseria Smart City. The application site falls within the consolidation zone as identified within the Johannesburg Spatial Development Framework, 2040, and

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(e.g., need for integration of segregated communities, need to upgrade informal settlements, need for densification, etc.), Spatial characteristics (e.g., existing land uses, planned land uses, cultural landscapes, etc.), and, Municipal Economic Development Strategy ("LED Strategy")	further identified as a Peri-Urban Zone within the Nodal Review, while the northern corner of the property has been identified as an Industrial Node. The SDF recognises the possible development of the Lanseria area as a logistics and airport industry hub. This vision will depend on private sector investment appetite and the availability and cost of infrastructure. Lanseria's potential as a significant job provider for the surrounding marginalised areas is also recognised. The Lanseria X 81 application can be seen as an extension of the industrial townships directly north of the study area. In general, this application is in line with the planning and views of the policy document. The application site falls within the Lanseria Urban Growth Node, Focus Zone 1. This zone encompasses an agglomeration of primary nodes, including the proposed New Town Centre, a mixed-use activity node, and nodes with a focus on residential development, business and warehousing development, as well as appropriate light industrial and commercial support development. It includes the Lanseria Airport specialist node and surrounding areas to the northern boundary of the GLMP study area. The Draft Greater Lanseria Smart City Framework states that the Lanseria Smart City will recognize that much of the population of this future city already exists in Diep Sloot, Cosmo City, Lion Park, Zevenfontein, Zandspruit, Porcupine Park and Joe Slovo communities, and will consciously make special connectivity and inclusion of these into the new city and its prospects.

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Considering the socio-economic context, what will the socio- economic impacts be on the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? • Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	The socio-economic benefits and impacts are discussed in Section G and Section J of this report. The Lanseria X 81 development will contribute to: *Infrastructure Development*; Improving infrastructure in a community can attract businesses, investors, and tourists. This may involve investing and upgrading transportation networks, utilities, broadband connectivity, and other physical infrastructure to create an economic-friendly environment, *Workforce Development*: Enhancing the skills and employability of the local workforce is crucial for economic growth. Initiatives may include vocational training programs, job placement services, partnerships with educational institutions, and promoting entrepreneurship and innovation, *Local Enterprise Zones*: Establishing designated areas with tax incentives, streamlined regulations, and other benefits can attract businesses to invest and create jobs in a specific locality. These enterprise zones are often aimed at revitalizing underdeveloped areas and stimulating economic growth, and *Collaborative Networks*: Collaboration and partnerships among local businesses, government entities, educational institutions, and community organizations can foster economic development. This can involve creating business associations, industry clusters, or innovation hubs to promote knowledge sharing and cooperation. The specific LED initiatives implemented for the Lanseria X 81 development, will depend on the priorities and resources available to the local government, community organizations, and other stakeholders.

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How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	This EIA has addressed the physical (proposed built environment, land uses and consideration of the biophysical environment), cultural (heritage impact assessment) and social needs (public participation) of the study area.
Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	Yes. A project of this nature would result in long term positive social and economic gains in terms of providing infrastructure and services such as places of work, roads, emergency services, safety and security services, electricity, water, and waste removal to the area. The applicant and Municipality would have to fulfil the infrastructure requirements such as the bulk services (water and power), construction of internal roads, and the installation of other infrastructural requirements.

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• How was a risk-averse and cautious approach applied in terms of *socio-economic* impacts? • What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? • What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? • Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	A risk-averse and cautious approach in terms of socio-economic impacts, involves carefully considering and mitigating potential risks and negative consequences, before implementing project initiatives. A risk-averse and cautious approach aims to minimize potential negative socio-economic impacts and ensure that the benefits of the development initiative outweigh the risks. It emphasizes careful consideration, stakeholder engagement, evidence-based analysis, and ongoing monitoring to foster sustainable and inclusive development. This comprehensive environmental impact assessment (EIA) has identified the potential risks and impacts associated with the proposed Lanseria X 81 Project. This EIA addresses the economic, social, cultural, and environmental aspects pertaining to the development proposal, to ensure that the potential negative consequences of the development are minimized or mitigated.

	The Scoping & EIA PPP has included thorough Stakeholder Engagement Processes. Stakeholders who the EIA PPP engaged with included community members and councillors, which allowed for a better understanding of the communities concerns and perspectives. The social well-being of the local population is linked to infrastructure such as water supply, waste management, healthcare, and education. The development of new economic areas creates additional demand for these services, affecting both local communities and the environment.

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How will the socio-economic impacts resulting from this development impact people's *environmental* rights in terms following: Negative impacts: e.g., health (e.g., HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? Positive impacts. What measures were taken to enhance positive impacts?	Measures are provided in the EMPr to avoid any impacts on people's environmental rights during the construction phase. Registered I&APs have been provided with the opportunity to comment on this draft EIA report, thereby ensuring that all people's needs, rights and concerns have been addressed through this process.
Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts may result in ecological impacts (e.g., over utilisation of natural resources, etc.)?	Development of the Lanseria area involves a complex network of linkages and dependencies that connect its socio-economic dynamics to its ecological impacts. These linkages reflect the interconnected nature of economic growth, infrastructure development, community well-being, and environmental sustainability. Understanding these connections is crucial to evaluating the broader implications of development, such as another light industrial township or the Lanseria Smart City initiative.

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	The Lanseria area's proximity to major economic hubs like Johannesburg and Pretoria makes it strategically important for economic activities, particularly for logistics, light industrial activities, and service industries. The development of new industrial and commercial areas depends on these economic ties, which also influence the local economy by creating jobs and attracting investment. The Lanseria Airport serves as a key catalyst for economic activity in the region, supporting logistics, tourism, and business travel. Any development in the area is closely tied to the accessibility and capacity of the airport, which supports regional economic growth. The development of industrial townships or other economic hubs relies on the availability of a local labor force. The surrounding communities provide both skilled and unskilled labour, which creates a dependency on the socio-economic stability of these communities to sustain economic activities. The social well-being of the local population is linked to infrastructure such as water supply, waste management, healthcare, and education. The development of new economic areas creates additional demand for these services, affecting both local communities and the environment. Economic activities, especially in industrial zones, depend on natural resources such as water, energy, and land. The natural environment supports these resources, and over-dependency or unsustainable use can degrade these ecosystems. The region's natural areas, including rivers, green spaces, and biodiversity hotspots, provide crucial ecosystem services like water purification, carbon sequestration, and tourism. Development that alters these natural systems can degrade or disrupt these services, affecting both human and ecological health.

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	The conversion of natural or agricultural land into industrial or residential zones leads to habitat destruction and fragmentation. This directly affects local flora and fauna, reduces biodiversity, and impacts ecological corridors necessary for wildlife movement. Socio-economic activities, such as manufacturing, transportation, and construction, increase air and water pollution. Industrial emissions contribute to air pollution, while runoff from construction sites and industrial operations can contaminate local water bodies, affecting aquatic ecosystems and the quality of drinking water for local communities. Industrial developments can lead to soil contamination through the release of chemicals, heavy metals, and hazardous waste. This reduces soil fertility, affects agricultural productivity, and poses health risks to both humans and wildlife. The degradation of natural areas reduces the provision of ecosystem services, such as clean air, water, and fertile soil, which are crucial for both human well-being and economic sustainability. Loss of these services can create a negative feedback loop where degraded ecosystems further impact socio-economic stability.
What measures were taken to pursue the selection of the “best practicable environmental option” in terms of socio-economic considerations?	The “best practicable environmental option / alternative (BPEO)” has been selected in this EIA report based on a comprehensive understanding of the project. This detailed draft EIAR includes all the possible environmental and socio-economic factors applicable to a light industrial, built environment project. A large team of specialists have provided detailed inputs in their respective fields, pursuant in selecting the BPEO.

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	The PPP has identified and addressed the socio-economic factors that need to be considered for the authority's decision-making process. Data has been gathered for the area, and relevant stakeholders were engaged with during the PPP, to understand and address the socio economic factors such as employment opportunities, economic growth, social equity, community well-being, cultural heritage, public health, and the overall impact on local livelihoods. A Comparative Analysis of the different alternatives, considering both environmental and socio-economic factors has been included in section G of this report. This analysis has evaluated how the identified alternatives perform in terms of their environmental effectiveness and socio-economic impacts. The Stakeholder Engagement process conducted for the EIA has assisted with the decision making regarding the BPEO / project alternative. The Stakeholder Engagement process has been transparent, inclusive, and has involved engagement with the relevant identified stakeholders.

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What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?	To pursue environmental justice and ensure that adverse environmental impacts are not unfairly distributed, particularly among vulnerable and disadvantaged persons, the following measures have been taken as part of this EIA: The EIA and PPP has provided access to information and has raised public awareness of the project through inclusive and participatory processes. These processes have provided the platform and multiple avenues for

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	affected communities, including the vulnerable and disadvantaged persons, to voice their comments/concerns/objections, and to be part of meaningful participation and decision making for the proposed project. Information related to environmental risks, impacts, and decision-making processes has been made accessible and transparent to all. This Environmental Impact Assessment has not identified any disproportionate impacts on the vulnerable and disadvantaged groups in the area. This DEIAR has included an assessment of cumulative impacts (see section J of this report) and has addressed the social implications of the project (Section J, H & appendix 12).
Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	Yes.
What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	The Lanseria X 81 project is a targeted investment in the study area. A Comprehensive Environmental Assessment and PPP has been conducted to identify potential social and environmental impacts. An EMPr that includes strategies for mitigating negative impacts and enhancing positive outcomes is included in Appendix 16 of this report. The EMPr addresses issues such as air and water quality, noise pollution, waste management, and access to public amenities. The new light Industrial proposal will not compromise access to water and energy resources for local communities. The development will

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	implement water-saving technologies, renewable energy options, and pollution control measures to minimize resource competition. The required road upgrades and public transport requirements will benefit both the industrial zone and the surrounding communities. Shared infrastructure can improve the quality of life and foster inclusive growth. The wetland and buffer zone on site will not be developed. This green buffer zone will aid in minimizing environmental and health impacts on nearby communities.
What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	Under South African environmental legislation, the Applicant is accountable for the potential impacts of the activities that are undertaken and are responsible for managing these impacts throughout the development's life cycle. The Applicant, therefore, has overall and total environmental responsibility to ensure that the EMPr is implemented on site, and that both the EMPr and the Environmental Authorisation are complied with at all times. The Applicant is also responsible for ensuring that all other environmental and water-related legislation is complied with.

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What measures were taken to: • ensure the participation of all interested and affected parties, • provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, • ensure participation by vulnerable and disadvantaged persons • promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means, • ensure openness and transparency, and access to information in terms of the process, • ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition was given to all forms of knowledge, including traditional and ordinary knowledge, and • ensure that the vital role of women and youth in environmental management and development was recognised and their full participation therein was be promoted?	Refer to Section H and Appendix 12 for the PPP conducted for the project.
Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	The Lanseria X 81 development will be planned and implemented in a way that creates opportunities for all sectors of the community, while being consistent with the priority needs of the local area. The project is part of the Lanseria Smart City Mixed land use proposal, which will integrate light industrial, residential, commercial, and recreational zones. The light industrial development will generate local employment opportunities across various skill levels, from low-skilled to highly skilled

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	jobs. This benefits local residents and provides a diverse range of job prospects that can cater to different community sectors.

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What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	Health and safety concerns have been addressed in the EMPr, Appendix 16. The appointed Contractor must always observe the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and ensure adequate safety precautions on the site throughout the development phase. An Environmental Control Officer (ECO) must be appointed to monitor compliance with the EMPr during the development phase. This will be a condition of the environmental authorisation.
Describe how the development will impact job creation in terms of, amongst other aspects: • the number of temporary versus permanent jobs that will be created, • whether the labour available in the area will be able to take up the job opportunities (i.e., do the required skills match the skills available in the area), • the distance from where labourers will have to travel, • the location of jobs opportunities versus the location of impacts (i.e., equitable distribution of costs and benefits), and • the opportunity costs in terms of job creation (e.g., a mine might create 100 jobs, but the impact on 1000 agricultural jobs, etc.).	The proposed development is expected to create new employment opportunities during the development phase. The majority, if not all, of the employment opportunities, are likely to benefit previously disadvantaged individuals from the local community. Given the high unemployment levels in the surrounding areas, coupled with the low income and education levels, this would represent a positive social impact. At this stage, estimations are that the maximum number of job opportunities during any phase would total 200 prospects. Most of these jobs would fall within the unskilled category. The total cumulative number of jobs could amount to 600.
What measures were taken to ensure: • that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and • that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	National, municipal and local departments that administer a law relating to a matter affecting the environment relevant to this application for Environmental Authorisation, as well as those identified by IAPS's and the competent authority, have been consulted during the PPP undertaken as part of the Scoping and EIA process.

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	Consultation with the state departments and organs of state assists in the coordination of policies and legislation relating to the environment. This consultation process has been undertaken during the PPP.
What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The overarching purpose of the EIA process is to determine, assess and evaluate the consequences (positive and negative) of a proposed development. An iterative approach has been followed as part of this Scoping and EIA process, to achieve the key purpose of EIA, which is to identify solutions, approaches or options for development that best meets sustainability objectives. Throughout the Scoping and EIA process, there have been opportunities to constantly refine and adapt the development proposal to respond to these issues or concerns, about the environmental factors. The PPP undertaken as part of the Scoping and EIA processes, have provide members of the public (or I&APs) with the opportunity to raise any environmental concerns related to the proposed development. All issues and concerns raised have been addressed in the CRR, see Appendix 12 of this report.
Are the mitigation measures proposed realistic and what long-term environmental legacy and the managed burden will be left? What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	Yes. Refer to Section J of this report for the practical, achievable, and realistic mitigation measures recommended for the impacts identified for this project. These measures have been incorporated into the EMPr, and they will also become conditions of the environmental authorisation, should it be granted. The Applicant will be responsible for the implementation of, and for compliance with the conditions of all environmental-related approvals. Compulsory monthly monitoring and compliance actions to be carried out by an independent ECO, will hold the relevant parties accountable to the correct environmental compliance.

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Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	The "best practicable environmental option (BPEO)" has been selected in this EIA report based on a comprehensive understanding of the project. This detailed draft EIAR includes all the possible environmental issues as well as the socio-economic factors applicable to a light industrial land use, built environment project. A large team of specialists have provided detailed inputs in their respective fields, pursuant in selecting the BPEO. A Comparative Analysis of the different alternatives, considering both environmental and socio-economic factors have been included in section G of this report. This analysis has evaluated how the identified alternatives perform in terms of their environmental effectiveness and socio-economic impacts. A description of the development alternatives is provided in Section G of this report. The assessment of the impacts associated with the alternatives are provided in this section as well.
Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Positive Cumulative Socio-Economic Impacts from the Lanseria X 81 township includes economic growth by attracting investment, increasing business activity, and generating revenue for local authorities through taxes and fees. Light industrial developments typically create a range of jobs, from low-skilled to skilled positions. The cumulative effect of multiple developments can provide substantial employment opportunities for residents, helping to reduce poverty and improve living standards. Furthermore, the presence of light industrial zones can create opportunities for local SMEs to participate in supply chains, provide services, and benefit from increased demand. This fosters local entrepreneurship and economic diversification. Light industrial developments often necessitate upgrades to local infrastructure, such as roads, public transportation, water supply, and

Guideline	Statements
	sewage systems. These improvements can have a cumulative positive impact by benefiting both the industrial sector and the broader community. The establishment of industrial zones and the subsequent development of supporting infrastructure can lead to an increase in property values in the surrounding areas. This benefits local property owners and can increase municipal revenues through higher property taxes. The cumulative effect of several light industrial developments could however place significant strain on existing infrastructure, such as roads, water supply, electricity, and sewage systems. This can lead to congestion, increased maintenance costs, and potential service disruptions if infrastructure is not upgraded or expanded in line with development. If local communities are not adequately involved in the planning and decision-making processes, the benefits of industrial development may not be equitably distributed, leading to social tension and dissatisfaction. The cumulative impacts of multiple light industrial developments in the area, could lead to environmental degradation, such as air and water pollution, noise pollution, and loss of natural habitats. These impacts can have negative socio-economic consequences, such as reduced quality of life, health problems, and loss of ecosystem services. The concentration of industrial activities in a relatively small area can lead to increased traffic congestion, particularly during peak hours. This affects not only industrial efficiency but also the daily lives of residents, potentially leading to longer commutes, road accidents, and increased vehicle emissions.

Guideline	Statements
	The expansion of industrial zones can lead to the loss of agricultural land, green spaces, and natural areas, impacting local food security, recreation opportunities, and overall community character. The cumulative development of industrial areas could exacerbate local climate change vulnerabilities, such as heat islands, flooding, and droughts. Stringent environmental regulations and monitoring will be implemented on site, to control pollution, manage waste, and protect natural resources.

SECTION F DESCRIPTION OF THE RECEIVING ENVIRONMENT

F 1 The Biophysical Environment

F 1.1 General Climatic conditions

The project area falls within the Highveld Climatic Zone. The average annual precipitation ranges from 500mm to 700mm (WRC, 1994). Rainfall is generally in the form of thunderstorms. These can be of high intensity with lightening and strong gusty south-westerly winds. Hail frequency is high, tending to occur 4-7 times per season. Over the last seven year period, 1989 recorded the highest rainfall in a year with 630mm while the lowest of 429mm was recorded in 1985. The majority of the rainfall is during the summer months of October to March at which time approximately 90% of the annual rainfall occurs.

Temperatures in this climatic zone are generally mild, but low minima can be experienced in winter due to clear night skies. Temperatures in the region tend to be warm to mild, with average maximum temperature of 27.90 C and an average minimum temperature of 11.80C. Frost characteristically occurs in the winter months. Generally winds are light, but south-westerly winds associated with thunderstorms are typically strong and gusty.

F 1.1.1 Climate Change

[1]Climate projections indicate that the outcome for Gauteng is likely to be a drier climate overall, with higher temperatures and longer dry spells dominating weather patterns. Intense rainfall events will aggravate the situation by increasing run-off rather than infiltration. These occurrences increase the risk for flash floods and erosion, placing pressure on stormwater infrastructure and affecting agricultural practices.

Climate change is a serious threat to Gauteng. Gauteng's current socio-economic situation will deteriorate if it fails to adequately respond to climate change. Gauteng is particularly vulnerable at a household level where poverty reduces people's adaptive capacity, but also at a macroeconomic level because of the region's heavy dependence on carbon-intensive energy. The Gauteng City Region's Overarching Climate Change Response Strategy and Action Plan states that the pressure on economic performance will also mount if the energy footprint of the province remains tightly bound to coal-fired electricity and coal/oil-based liquid fuels. The strategic financial sense of a switch to renewable energy is undisputed.

The climate change impacts associated with a light industrial development located in an economic development zone, may include (i) Greenhouse Gas Emissions; Industrial activities, particularly those involving manufacturing, transportation, and energy generation, can contribute to greenhouse gas emissions such as carbon dioxide (CO2), methane (CH4), and nitrous oxide (N2O). These emissions contribute to climate change by trapping heat in the atmosphere, (ii) Air Pollution: Industrial processes may release air pollutants such as volatile organic compounds (VOCs). These pollutants contribute to local air quality degradation, (iii) Resource Consumption; Industrial development typically requires significant resource consumption, including water, energy, and raw materials. Extraction, processing, and transportation of these resources can result in associated greenhouse gas emissions and environmental impacts, such as habitat destruction, water pollution, and deforestation, which can exacerbate climate

[2] ***www.*** *Climate change is a serious threat to Gauteng (iol.co.za)*

change, (iv) Land Use Change; the expansion of industrial development within an economic development zone requires land use change, including the transformation of natural habitats to accommodate industrial facilities and infrastructure, (v) Heat Island Effect; Concentrations of industrial infrastructure and impervious surfaces such as asphalt and concrete can create urban heat islands, where temperatures are significantly higher than surrounding rural areas. Urban heat islands exacerbate local warming trends, increase energy demand for cooling, and worsen heat-related health risks for nearby communities, (vi) Water Stress; Industrial development can exacerbate water stress by increasing demand for freshwater resources for manufacturing processes, cooling purposes, and sanitation. Climate change-induced changes in precipitation patterns and hydrological cycles can further exacerbate water scarcity issues, leading to conflicts over water allocation and potential disruptions to industrial operations.

To mitigate these climate change impacts, it's essential for non-noxious light industrial developments to incorporate sustainable practices such as energy efficiency, renewable energy adoption, waste reduction, pollution prevention, and climate-resilient design into their planning, operation, and management strategies.

F 2.2 Site Geology

Geoid Geotechnical Engineers (GGE) have been appointed by Mr Craig Murchie, HireAll, to carry out a geotechnical investigation for the proposed development of Lanseria Extension 81 situated on *Portion of Portion 2 of the farm Bultfontein 533-IQ*. See Appendix 10 for this report. The following detail is taken for this specialist report:

The project site is subdivided into 21 separate erven, numbered 954 - 974, of which Erven 956 and 974 are already utilised as the main warehouse and plant yard of the HireAll heavy plant division at Lanseria. The remaining erven are presently undeveloped, virgin parcels, except for, (a) a small quarry on Erf 973, and (b) loose stockpiles of spoils - possibly derived from the quarry - which are predominantly placed on the adjacent Erf 972, but spill over onto Erf 971, 978 and 959.

The vegetation on the site consists predominantly of veld grass, with very limited bush dotted around the prominent rock outcrop passing through Erven 971 / 972 and colonising the material stockpiles on the stands surrounding the quarry. The lowermost 1.5ha of the site is affected by a drainage line and small wetland which is buffered by others and presented as an overlay, where development will be precluded. In addition to the prominent outcropping ridge exposed on Erven 971 / 972, sporadic boulder/rock outcrop is littered throughout the surface of much of the lower half of the western slope of the site.

The project site to be principally underlain by granite (migmatites, banded gneisses, mafic and ultra-mafic xenoliths, homogeneous and porphyritic grano-diorite phases with prominent pegmatite veining) of the Halfway House Granite formation (Johannesburg-Pretoria granite inlier 5) of the Basement Complex. The geological mapping is fairly complex in the immediate vicinity of the site, showing it to be directly impacted by both a fault line (crush zone) and several mafic (diabase) intrusions passing through the otherwise granitic setting. The profile observed in the test pits confirms the regional geological mapping for the project site, exposing a fairly typical residual granite profile with several intrusions of residual diabase and exposure of the

aforementioned fault line passing through the south-western third of the site. Given these observations, it is our assessment that eight geotechnical zones are warranted for this site. See Figure 7.

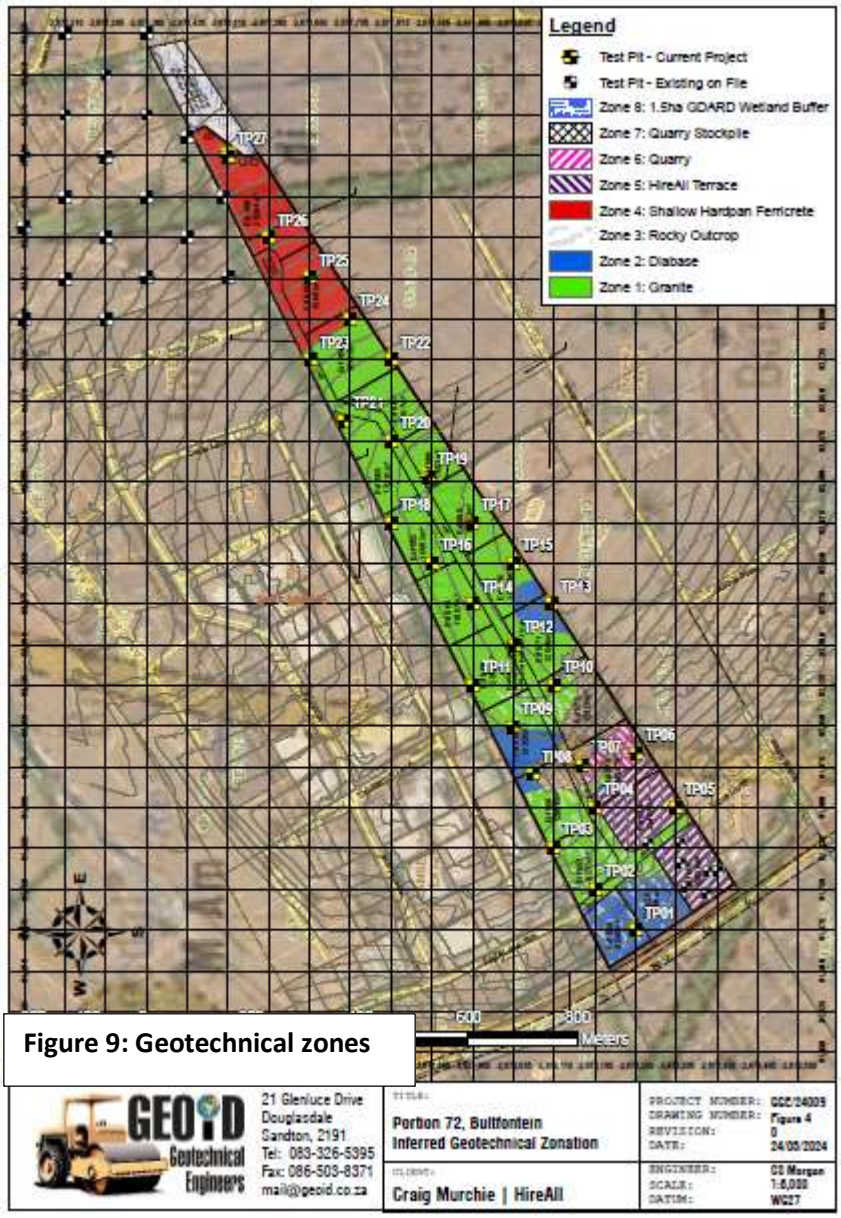


Figure 9: Geotechnical zones

Groundwater

A shallow groundwater table was encountered in two of the seven test pits from the previous investigation for the present Hire All warehouse - TP113 and TP114 - located in the low-lying basin comprising Zone 2 – from depths in the order of 0.5m below ground level. Although this was not found in the 2024 investigation, the soil profile is commonly leached in the reworked residual granite zone, indicative of shallow groundwater. Moreover, the presence of highly competent, very shallow, near-hardpan ferricrete beneath the eastern slope is characteristic of an intermittent shallow perched water table in Zone 4. Any areas of the site characterised by "*vlei*" vegetation - typical of that found which generally grows in partial to waterlogged soils - is indicative of widespread shallow groundwater.

The founding assessment and recommendations are included in the report. The individual stands will first need to be terraced, necessitating a measure of earthworks on each to produce a level platform for the structure. Slope stability and drainage precautions are discussed in the report. Subsoil drains should be installed parallel to all cut slopes to intercept natural groundwater migration.

Given the complexity of this site, with structures potentially able to straddle even multiple zones, it is recommended that the Geotechnical Specialist be appointed to interact with the professional team to provide ongoing support for the duration of this project to further investigate, delineate transition zones, provide costings, undertake preliminary designs and procurement advice, finalise the designs, and inspect / monitor the

ground improvement / foundation works for compliance with the project recommendations and specifications on all in-ground works.

F 2.3 Topography and drainage

Geoid Geotechnical Engineers (GGE) confirmed that the site can be seen to be rising from the R512 in the west, to the hillcrest parallel with the reservoir and water tower on the adjacent plot, Portion 161 / 533-IQ, whereafter it falls in an easterly direction towards the airport taxiway. The average natural slope west of the hillcrest is approximately 1:18 (5.6% or 3.2°), with a more gentle slope east of the hillcrest at approximately 1:22.5 (4.4% or 2.5°).

The hydropedological study conducted by INDEX (Pty) Ltd (Appendix 11) confirms that the site is located on the crest of the landscape with the northern section that drains east and north; and the northern section towards the north. The site is slightly convex for the major part, and then concave when it reaches the wetland area. Drainage of stormwater mainly takes place as surface flow towards the lower laying portions to the east of the site. The subject site is too narrow to channel water lower down the landscape. Runoff south of the crest is to along the Lanseria boundary.

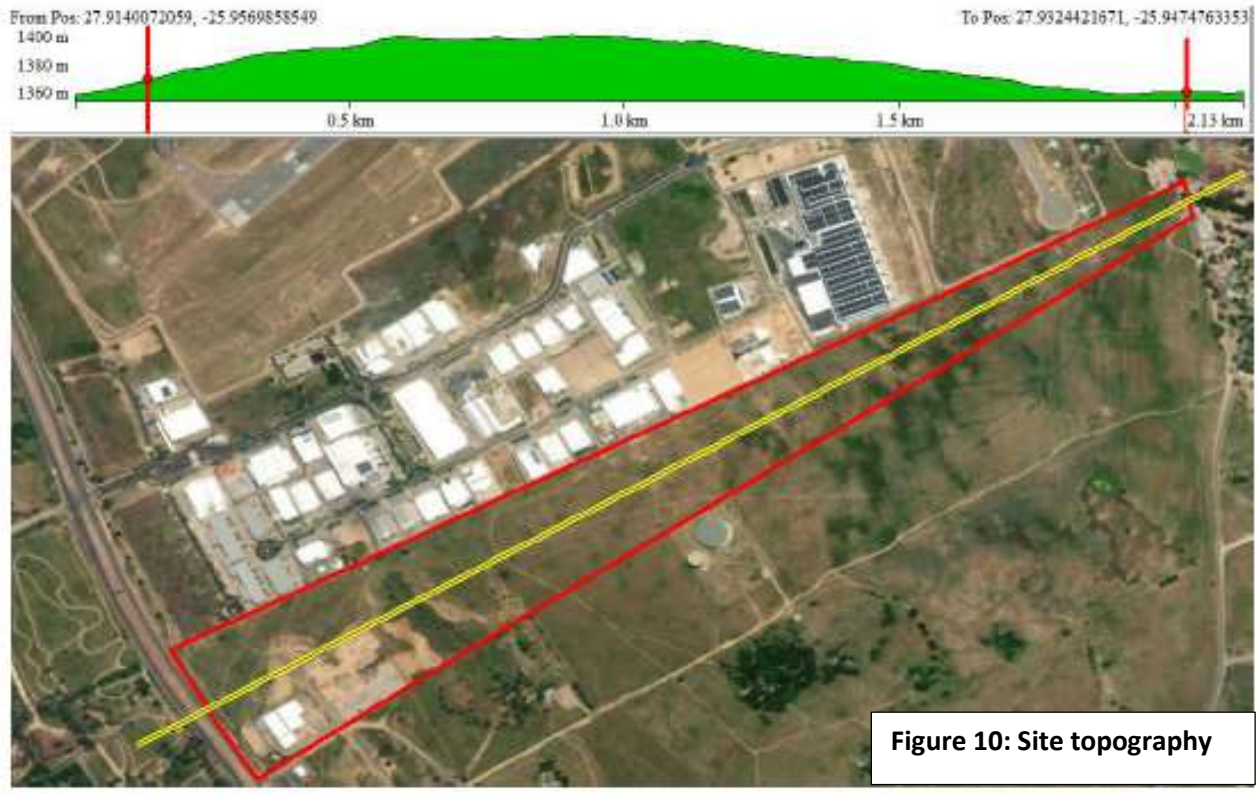


Figure 10: Site topography

F 2.4 Hydrological features on the site

The study and investigation area, fall within a catchment which is considered an upstream catchment area. Upstream Management Areas (4) are sub-quaternary catchments in which human activities need to be managed to prevent degradation of downstream river FEPAs and Fish Support Areas. According to the

NFEPA database, there are no *rivers* within the study and investigation areas. The Jukskei River is located approximately 1,6 km east of the study area. According to the NFEPA Database, the river is largely modified (Class D). According to the Gauteng C-Plan, the study area is traversed by non-perennial river buffer and there are three wetland buffers within the investigation area. According to the NBA 2018: SAIIAE database, A natural seep wetland traverses the eastern portion of the study area, while two unchannelled valley-bottom wetlands and associated seep wetlands are in the investigation area.

F 2.4.1 Wetlands

Scientific Aquatic Services (SAS) was appointed to conduct a freshwater ecosystem assessment for the project, see Appendix 8.

SAS conducted a field assessment in October 2023 during which freshwater ecosystems were identified within the study area and associated investigation area (defined as a *500m radius around the study area*) in line with GN 4167 of December 2023. These freshwater ecosystems include:

- Two (2) Unchannelled Valley Bottom (UCVB) wetlands;
- One (1) Seep wetland; and
- Two (2) Relic wetland features were identified within the *investigation* area.

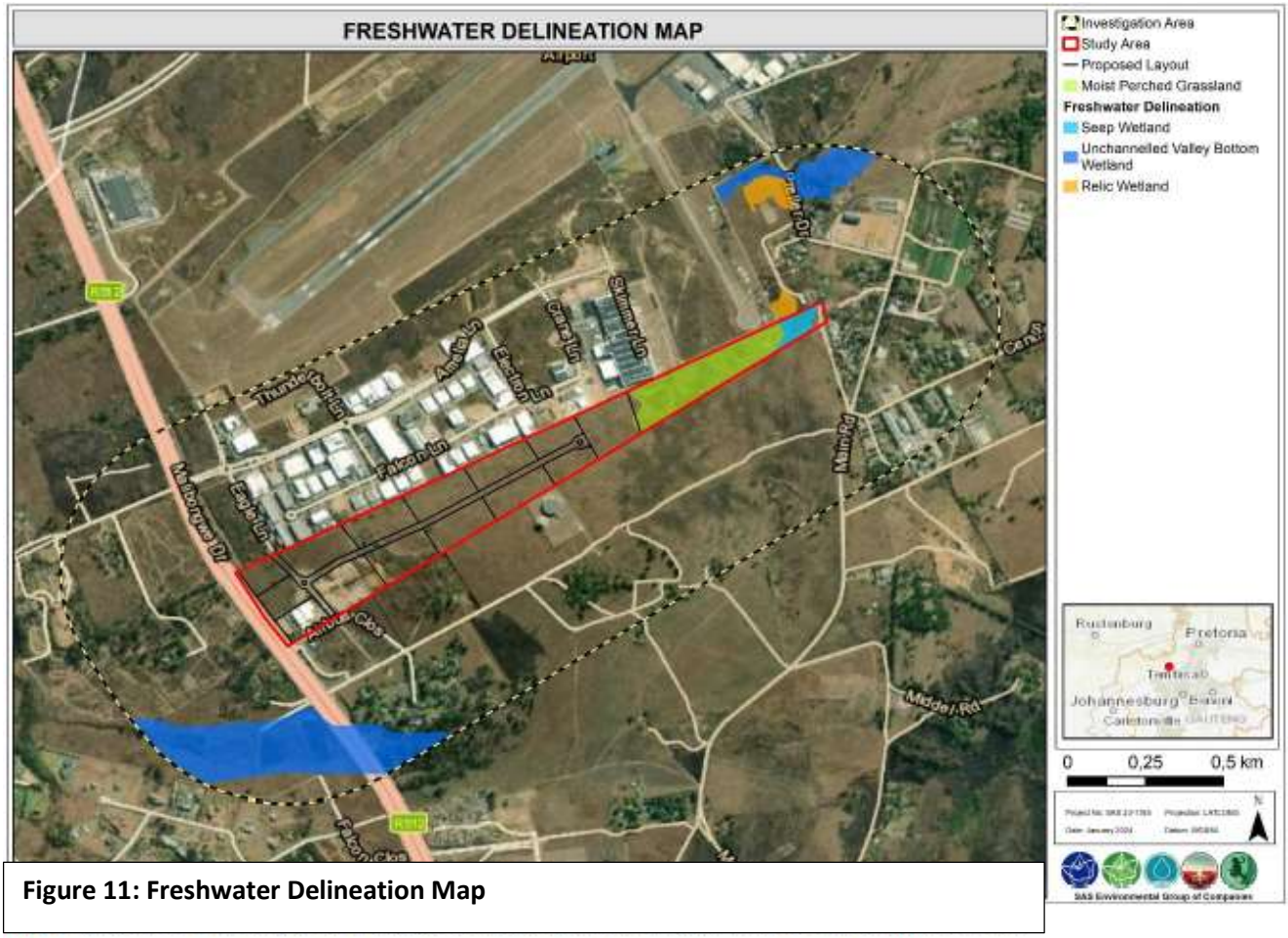


Figure 11: Freshwater Delineation Map

The unchannelled valley-bottom wetlands are affected by artificial features such as instream dams and the seep wetlands and unchanneled valley bottom wetlands are affected by roads, therefore, the all the wetlands are currently *largely to critically modified (Class D/E/F).* The Ecosystem Threat Status (ETS) of the unchanneled valley-bottom wetlands and seep wetlands are critically endangered (CR), and the Ecosystem Protection Level (EPL) of the unchanneled valley-bottoms are Not Protected. The seep wetland is currently poorly protected.

The UCVB wetlands were only considered using desktop methods; given their location in relation to the study area. The focus of the Freshwater assessment was on the seep wetland which is located within the study area, and may be impacted by the proposed development.

The Seep wetland:

The seep wetland was prominently characterised by shallow soils depth with rocky outcropping which limits the infiltration of water into deeper soil layers. However, the interflow processes are likely to occur on top of the impermeable plinthic layer and create seasonal wetland conditions that result in the abundance of *Seriphium plumosum.*

Alterations to the natural hydraulic regime and geomorphological processes of the seep wetland have occurred due to the presence of the *informal* road (created illegally by trespassers) that traverses the south eastern and western portions of the wetland. Additional stormwater inputs from the airport and Middel Road adding increased flow and sediment sources to the wetland. Indiscriminate waste disposal (illegal dumping) within the wetland was observed and these can act as barriers, diverting and blocking the movement of water during the presence of flow within the wetland. Excavation was noted within the wetland, and this also impacts on the natural distribution of water and flows within the system.

During the site assessment, it was observed that cattle were heavily grazing the wetland (illegally by trespassing herdsman), as evidenced by their trampling. This has resulted in impacts on the wetland vegetation and altered the hydrology, which in turn encourages the establishment of alien and invasive species. Despite the hydrological and geomorphological impacts on the wetland, the wetland displays little to limited soil erosion. No surface water was present at the time of the assessment and therefore no water quality parameters were able to be assessed.

The *ecological service provision* by the seep wetland was assessed as *very low to high*. Ecoservices considered of most significant importance include food for livestock due to the (illegal) cattle grazing activities that take place in the area. Given the development surrounding the wetland, the demand for ecological services such as erosion control, phosphate assimilation and toxicant assimilation is considered high whereas the supply is limited.

The seep wetland was assessed to be of *low Ecological Importance and Sensitivity (EIS).* The *hydro-functional importance* of the wetland was assessed to be *very low* and given that the wetland is in a light industrial area, the direct human benefits were also considered to be limited. However, the wetland is

considered *important on a national scale* and the *ecological state is currently in a largely to critically modified (Class D/E/F).* The Ecosystem Threat Status (ETS) of the seep wetland is critically endangered (CR), and the Ecosystem Protection Level (EPL) of the seep wetland is currently poorly protected as indicated by the NBA.

The *ecological condition* of the seep wetland has been moderately modified (PES Category C). This is due to catchment wide activities such as stormwater inflows from the airport and Middel Road adjacent to the study area. There is also an informal road traversing the wetland which has to a degree fragmented the wetland and resulted in desiccation of some portions of the wetland. Excavation and infilling was noted during the site visit, this has impacted on the natural zonation of the wetland and has the potential to result in areas where water ponds artificially during the rainfall events. Illegal livestock (cattle) grazing and trampling is having a large impact on wetland habitat in the seep wetland.

Based on the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS), the Resource Management Objective (RMO) is to maintain the Ecostatus of the seep wetland at a Best Attainable State and Recommended Ecological Category of C (Moderately modified). It is unlikely that the wetland will improve due to the land use setting of the wetland. As part of the proposed development project, mitigation measures should be implemented throughout, to minimise potential further impacts on the wetlands and ensure that potential edge effects are managed in line with the mitigation hierarchy. It is essential that the

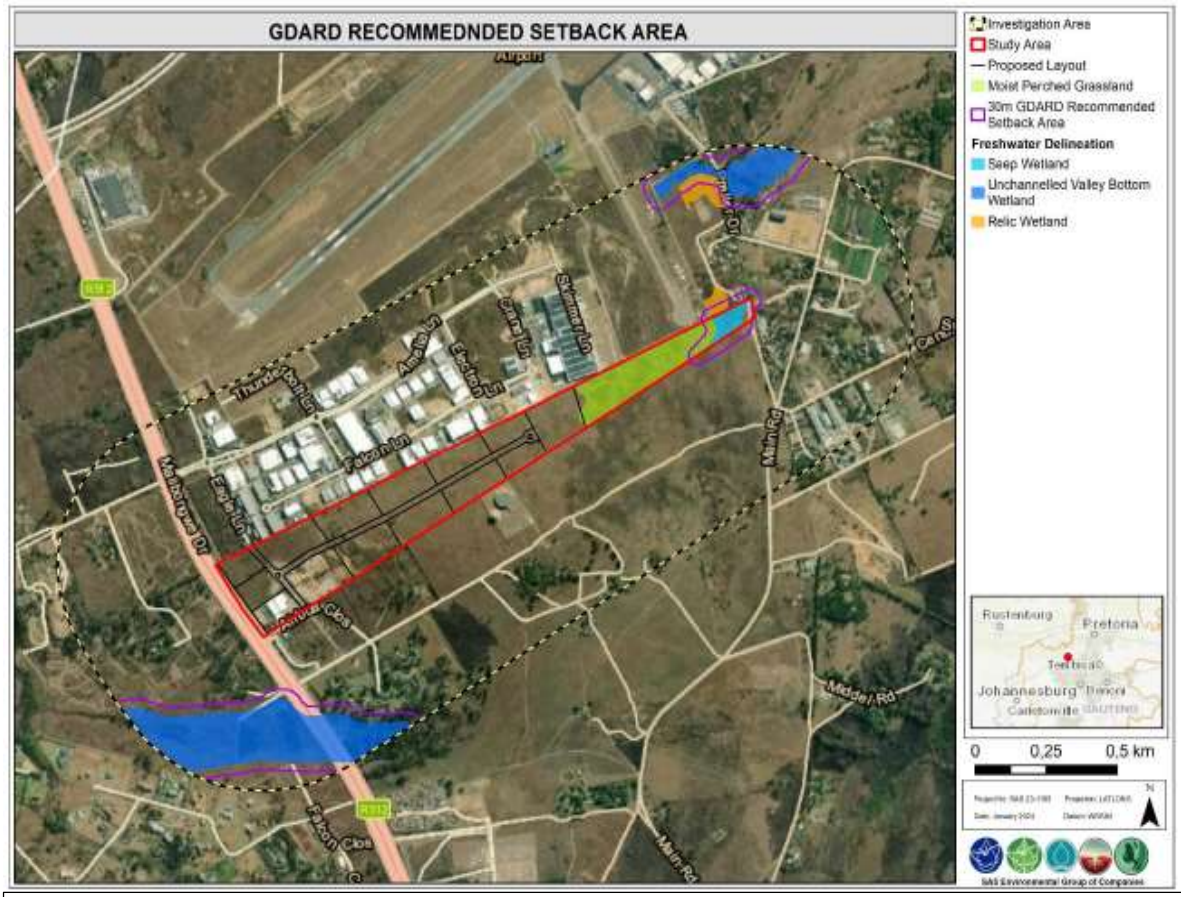


Figure 12: GDARDE Recommended buffer zones

wetland delineations and applicable zones of regulation are taken into consideration during the planning phase of the proposed mixed-use development, and that development within the wetland is avoided altogether, in line with the mitigation hierarchy. The GDARDE Requirements for Biodiversity Assessments, Version 3 (2014) Guidelines specify buffer widths for sensitive features. The guidelines specify that a wetland and a protective buffer zone, beginning from the outer edge of the wetland temporary zone, must be designated as sensitive. A 30m buffer zone width for wetlands occurring inside urban areas is required.

The activities associated with the construction and operational of the proposed Lanseria X 81 development pose a "*Low" risk significance to the seep wetland* on site, provided all mitigation measures as stipulated in the Freshwater Assessment Report (SAS 23-1185) must be implemented to prevent any edge effects and cumulative impacts from occurring on the freshwater ecosystems associated with the proposed development and within the investigation area.

Based on the findings of the study, it is the professional opinion of the freshwater ecologist that the proposed development can be considered acceptable, provided that the delineated extent of the wetland and the associated 30m GDARD recommended setback area are demarcated as "no-go areas" and provided that all mitigation measures as detailed are implemented.

F 2.5 Hydropedology

Index PTY LTD, Mr A Gouws, was commissioned to conduct a hydro pedological study for the site. See Appendix 11 for this specialist report. The purpose of a hydro pedological investigation is to present hydrological soil flow path and storage mechanism information to engineers and planners.

The hydroped survey was done in 2024. Several profiles were dug by a backhoe excavator and investigated to determine lateral subsurface water flow on the site. The study found that the entire site is derelict land. It appears from the micro indentations on the northern part of the site, that sand was either mined or moved to the northern Lanseria Industrial area to build platforms for construction. There are no fences which allows for informal grazing by lessees or landless people.

The site occurs on the crest of the landscape. Construction of the Lanseria industrial estate has modified the groundwater profile with the result that the only contribution that the application site makes to the baseflow of groundwater is generated on the site itself. There are no clear drainage lines on this portion of the site. The site is on the plateau of the landscape and sloped south and north from the centre.

There is a small portion of land in the north-eastern corner of the site that is a wetland, and which should be retained and maintained. This contains responsive soils, which was also identified as wetlands in the Terrestrial Specialist Study. Construction on the site should not prevent any lateral water movement towards the watercourse. The uneven previously mined area should be rehabilitated and levelled out to prevent pockets of water saturated soils, which could potentially damage the foundations of small structures. Hydromorphic soils were identified towards the eastern side of the site. This is within the headlands of the watercourse.

The soils found on the northwestern portion has been modified through stripping of the topsoil and borrowing of gravel for construction purposes. These soils are now greyish and brown soil on hard rock or partially weathered granite. Construction of the adjacent industrial area has modified the groundwater profile with the result that the only contribution that this site makes to the baseflow of groundwater is generated on the site itself. The mining effectively removed horizons that could act as a permeable layer in which lateral subsurface water can flow and which can contribute to maintain a wetland.

From both hydro pedological and geotechnical investigations there is little lateral movement of water towards the watercourse. To sustain the wetland on site, the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, or at least, to encourage water infiltration into deeper rock layers; and any discharge into the wetland must be controlled by a Stormwater Management Plan. These measures will help ensure that development structures will not be affected by excess water in the rainy season.

Hydraulic connectivity of soils on the site should be taken into consideration by the geotechnical engineer or engineering geologist to address and incorporate any ecological constraints into the site development plan.

F 2.6 Terrestrial Ecology

Scientific Terrestrial Services (Pty) Ltd. (hereafter "STS") was appointed to conduct a terrestrial biodiversity assessment for the Lanseria x 81 study area. See appendix 7 for this specialist report.

According to the 2022 Red List Ecosystems (RLE) database, the study area is located within the remaining extent of the Critically Endangered (CR) Egoli Granite Grassland. The Gauteng Conservation Plan (C-Plan) V 3.3 indicates that the majority of the study area is located within an Important Critical Biodiversity Area (CBA) (also referred to as CBA 2). Based on the results of the field investigations conducted between the 24th of October 2023, three (3) broad habitat units (and associated submits) were identified within the study area, namely:

1. Degraded Grassland Habitat – this habitat comprised the largest extent of the study area. The habitat was dominated by grass species in which a moderately low to intermediately developed herbaceous layer was supported. Faunal species observed within this habitat were limited to common species to the region known to thrive in degraded environments;

2. Moist Grassland – the floral communities associated with this habitat shared a subset of species with the Degraded Grassland; however, this habitat was unique in that it supported additional species that have an affinity for hydromorphic2 soils. Two subunits were identified within this habitat; habitats shared the same floral communities but were distinguished on the basis that a section of the Moist Grassland is considered a Seep Wetland3. The Seep Wetland is considered a watercourse as per the National Water Act, 1998 (Act No. 36 of 1998) as amended (NWA). All development will remain outside of the Seep Wetland and its associated buffers/setbacks.

The remainder of the Moist Grassland (i.e., the second subunit) will be referred to as Perched Moist Grassland. The seasonal increase in moisture levels within these habitats may provide temporary suitable habitat conditions for some faunal species, notably amphibians, but due to the lack of permanent water, surface water is unlikely to serve as an important breeding habitat for such species.

3. Transformed Habitat – this habitat comprised the second largest extent of the study area. This habitat was associated with the complete transformation of areas (e.g., buildings or areas of excavation and dumping). Little habitat was available for native plant species and thus a lack of suitable habitat for SCC (both threatened and protected) was also evident within this habitat. Generally, vegetation communities were largely absent or represented mainly by AIP species (in which the abundance thereof was often high). The Transformed Habitat within the study area does not offer any unique habitat for fauna or areas of significant conservation value.

Floral Habitat and Diversity:

The proposed development will result in the direct loss of indigenous vegetation on the habitat units associated with the study area. Indirect impacts (i.e., edge effects such as alien plant proliferation) are anticipated for the habitats within the study area. However, the impacts can remain localised if strict mitigation measures are implemented and development and associated activities remain within the approved footprint area.

As per the Gauteng C-Plan, CBA 2 areas overlapped with the Degraded Grassland, the Transformed Habitat, and the Moist Grassland. The triggering features for the CBA 2 included the presence of primary vegetation and habitat for Red Listed bird species. Red listed bird habitat was identified by the Gauteng conservation plan as being located within the south-western corner of the study area (i.e., the area in which the Transformed Habitat is located). Given the modified nature thereof, no habitat for red-listed birds is available within the study area. Furthermore, as the vegetation communities have been subject to considerable anthropogenic activities (both historically and currently), the subsequent degraded floral communities are not considered primary vegetation; instead, the floral communities are secondary in nature. Given the above, it is concluded that no intact, functioning CBA (Important) habitat is present within the study area.

A small section in the east of the study area overlaps with an ESA. The overlapping habitat includes the Seep Wetland. Although degraded in nature, the Seep Wetland is considered to provide functioning ESA habitat (albeit modified); the wetland contributes to ecological function and connectivity within the greater landscape. All development will remain outside of the Seep Wetland and its associated buffers/setbacks.

According to the Red list of ecosystems (RLE) (2022) database, the study area is located within the CR Egoli Granite Grassland. Sections of the Degraded Grassland, Transformed Habitat, and Moist Grassland all overlap with the remaining extent of the RLE. However, given the altered species communities and structure within these habitats, and the associated shift from the typical floral communities that are

associated with the reference vegetation type (i.e., Egoli Granite Grassland vegetation), no representative RLE habitat was identified within the study area. The greatest impact on floral habitat and diversity is anticipated to be the result of vegetation clearing activities, specifically impacting on habitat and diversity within the Degraded Grassland, Moist Grassland (specifically the Perched Moist Grassland) and the Transformed Habitat. However, given the lowered sensitivity of these habitats, the overall impact significance is anticipated to be low, resulting in a limited loss of a diversity of floral species.

Direct impacts on the Seep Wetland are not anticipated as construction will occur outside of the Wetland and associated buffers. However, secondary impacts are possible, and if not mitigated, impacts to the Seep Wetland are anticipated. It must be ensured that development is excluded from the Seep Wetland (identified as a watercourse by the NWA), and that the associated regulated buffer zones are implemented – refer to recommendation in the Freshwater assessment (STS 22-2057, 2024). A vegetated corridor around the Seep Wetland should be considered as this will be very beneficial in ensuring connectivity across the landscape (especially for neighbouring CBA or ESA habitat).

Faunal Habitat and Diversity:

Overall, the impact significance of the proposed development (prior to mitigation) on faunal habitat and diversity ranges from low to very low within the study area. After mitigation measures are implemented, the impact scores will reduce, resulting in predominantly very low impacts and a few low impact scores. The potential for large-scale impacts is unlikely if recommended mitigatory measures as stipulated in the specialist terrestrial report are adhered to.

The historical, ongoing, and surrounding anthropogenic impacts, including cultivation, grazing, and development, have undermined the long-term potential to maintain a diverse faunal assemblage within the study area due to its existing diminished, degraded, and fragmented condition. Presently, the habitats within the study area can only support a moderate to low diversity of faunal classes, predominantly favouring common, small-sized animals while large mammals or predators are mostly excluded. As such vegetation clearing and operational activities are not expected to have significant impacts on the overall faunal populations within the region.

Species of conservation Concern (SCC)

None of the triggered floral species (as identified by the Department of Forestry, Fisheries, and the Environment's (DFFE) National Web-based Environmental Screening Tool) were identified within the study area, nor was any suitable habitat for such species identified. Two (2) Orange Listed species were identified within the study area, namely *Boophone disticha* (least concern (LC)) and *Hypoxis hemerocallidea* (LC). Relocation activities must be undertaken by a suitably trained individual to minimise impacts to the species and associated habitat to which they are relocated. Permits for the relocation of OL species within the development footprint area is not required. However, if these species need to be relocated to surrounding habitat outside of the development footprint area. Although these OL species were recorded within the Degraded Grassland Habitat, the abundance thereof was low, and it is unlikely

that other species will be recorded; these species are widespread occurring species (i.e., not restricted to Gauteng) that can tolerate various habitat types and conditions. As such the study area is not regarded as important to support populations of these OL species.

The online screening tool considered the study area to have both a high faunal sensitivity and a medium faunal sensitivity. After field verification, STS determined that the following species, *Tyto capensis* (African Grass Owl, VU) and *Eupodotis senegalensis* (White-bellied Korhaan, VU), have a medium probability of occurrence, with the potential to forage within the study area, but will not likely be found permanently. The verified site sensitivity for *Crocidura maquassiensis* (Makwassie Musk Shrew, VU), *Hydrictis maculicollis* (Spotted-necked Otter, VU), *Clonia uvarovi* (Uvarov's Clonia Bush cricket, VU) and *Dasymys robertsii* (Robert's Shaggy Rat, VU) were low as suitable habitat within the study area was limited.

From a faunal perspective, the Degraded Grassland Habitat, Perched Moist Grassland and Seep Wetland have the potential to possibly support four faunal SCC, albeit not permanently and probably only for foraging purposes. Habitat integrity and sensitivity in all habitat units, are limited by anthropogenic developments surrounding the study area, that have reduced its size and fragmented it from surrounding natural areas. The study area has also been impacted by historical cultivation and current grazing activities which has reduced the long-term sustainability of the study area to support SCC. The impact on SCC within the study area is not anticipated to be significant, given the limited POC of such SCC.

Impacts, without mitigation, to faunal SCC range from low to very low through all phases of the development. Mitigation, if implemented correctly, will reduce the impact significance to SCC in most phases to very low. Should any faunal SCC be encountered (albeit considered unlikely given the current ecological condition of the study area) a suitably qualified specialist should be consulted as to help ascertain the best way forward.

The proposed activities will impact on the habitat units within the study area to varying degrees. The greatest (direct) impact associated with the proposed development activities will be within floral and faunal habitat of **low** and **very low SEI**, whereas only a small aspect of the proposed activities has the potential to (indirectly) impact on floral habitat with **medium SEI**. However, given the mitigation measures as provided in this report series (and any additional mitigation measures provided in the freshwater report) are implemented, the anticipated impact from the proposed development is considered to vary between **low** and **very low** impact significance.

It is the opinion of the ecologists that this study provides the relevant information required to implement Integrated Environmental Management (IEM) and to ensure that the best long-term use of the ecological resources in the study area will be made in support of the principle of sustainable development.

F 2.7 Air Pollution

No formal study of the air quality in the study area will be undertaken, due to the non-noxious land uses of the Lanseria X 81 project. Some industrial processes can emit odours, which might not be harmful but can affect the quality of life for nearby residents and businesses. Construction and operational activities

can generate dust, which can contribute to particulate matter in the air. Effective dust control measures are important to mitigate this. Mitigation measures provided in this DEIAR and EMPr, such as implementing best practices for dust control, can help minimize the anticipated impacts.

F 2.8 Noise

Currently, no noise is generated on the site. The construction of a light industrial development can generate various types of noise impacts, which might affect nearby residential and commercial areas. These noise impacts include the following:

- **Construction Machinery**: Equipment like excavators, bulldozers, cranes, and generators can produce significant noise levels. These machines are often the primary source of noise during construction.
- **Site Preparation**: Activities such as earth-moving, grading, and piling can be noisy due to the heavy machinery and operations involved.
- **Construction Work**: Noise from activities like drilling, hammering, cutting, and welding can contribute to the overall noise levels. These activities are often intermittent but can be loud when they occur.
- **Traffic**: The movement of construction vehicles and trucks to and from the site can generate noise, particularly during peak hours of delivery and removal of materials.
- **Material Handling**: The handling and placement of construction materials, including the unloading of materials and the operation of cranes or hoists, can create noise.
- **Construction Site Setup**: Initial setup activities, including the installation of temporary facilities and setting up equipment, can also generate noise.
- **Vibration**: Although primarily a concern for structural impacts, the vibration from heavy machinery can sometimes contribute to noise disturbances.

By planning and implementing mitigating measures as presented in this DEIAR and EMPr, the impact of noise from construction activities can be managed effectively, balancing development needs with the comfort of surrounding communities.

F 3 Qualitative Environment

F 3.1 Visual Impact

According to the DFFE screening report for the site, based on the selected classification and the environmental sensitivities of the proposed development footprint, a landscape/visual Impact Assessment has been identified for inclusion in the Scoping and EIA assessment.

The Lanseria area is characterized by a mix of rural and semi-urban landscapes, with various features contributing to its visual landscape. One of the prominent features of the area is the Lanseria International Airport and the Lanseria Corporate Estate. The airport infrastructure, and the existing ALPLA building in the Lanseria Corporate Estate, defines the visual landscape, adjacent to the study site. The terrain around

Lanseria is typically characterized by rolling hills stretching across the landscape. Agriculture is prevalent in the Lanseria area, with farms spread out across the landscape. Fields of crops, grazing livestock, and farmhouses contribute to the rural visual landscape. There are also residential neighbourhoods and communities in the area. These range from traditional homesteads, informal settlements and modern housing developments. Roads, both paved and dirt, traverse the Lanseria area, connecting different parts of the region. Water towers, power lines, and other infrastructure elements are also part of the study areas visual landscape.

The proposed Lanseria X 81 Light Industrial township will change the character of the site from an unbuilt, vacant property to a light industrial township. The disturbance of the present visual environment during the construction phase of the township, will lead to temporary negative visual impacts. Construction impacts will be temporary in nature. The construction of the township will be phased. The surrounding area is already characterised by visual elements such as existing infrastructure (power lines, water tower, roads), and traffic movement. Although the large warehouse buildings will be clearly visible, it is anticipated that the development will be accepted as the inevitable extension of the Lanseria Corporate Estate. Vacant land located near a developing area, is either formally developed, or informally invaded. Formally planned development is the preferable option. The constructed development (operational phase) will have a permanent visual impact. The present sense of place will be permanently altered. However, considering that the site is earmarked for urbanisation, the development of the site in line with the Smart City's Framework is inevitable. To this end, no specialist visual impact assessment is deemed necessary for the development.

F 4 Socio Economic Environment

Demographics of a study area are important to ensure that new developments will complement/fit into the existing land uses.

The social and economic environment of the Lanseria area is influenced by various factors, including its proximity to multiple municipal jurisdictions, the area's natural resources, planned and proposed infrastructure development, and local demographics. Lanseria is located close to Johannesburg, which provides opportunities for economic interactions, including commuting, trade, and access to services and employment opportunities in these urban centers. The economic environment of Lanseria includes a mix of sectors such as agriculture, light industry, tourism, and services. The presence of the Lanseria International Airport contributes to economic activities in the area, including aviation-related services and tourism.

The area provides employment opportunities across various sectors, including manufacturing, logistics, hospitality, and transportation. The development of industrial parks and warehouses in the study area will further contribute to job creation and economic growth. The social environment of Lanseria encompasses diverse communities with varying socio-economic backgrounds. These include rural communities engaged in agriculture, as well as urban residents and commuters working in nearby cities. The Lanseria area faces challenges such as unemployment, poverty, and infrastructure gaps, which directly impacts on economic development. However, there are also opportunities for investment, entrepreneurship, and community development initiatives to address these challenges and promote sustainable growth.

The social and economic environment of the Lanseria area is shaped by factors such as urbanization, infrastructure development, economic activities, and community dynamics. Developments which accommodate inclusive growth, infrastructure investment, and community development, can contribute to enhancing the social and economic environment of the Lanseria area.

The Lanseria Smart City is a development project aimed at creating a sustainable and technologically advanced urban centre in Lanseria, Johannesburg. A comprehensive planning process has earmarked specific areas in the Lanseria area for selected land uses. The development of the site with light industrial land uses are likely to positively impact directly on the socio-economic foundation in terms of job creation, during the construction phase and during the operational phase. In general, the development of the land will have a positive impact on the social and economic qualities of the surrounding communities and business activities.

Population
The area around Lanseria includes a mix of urban and semi-rural populations. It's not a densely populated urban area but has a growing residential and business community.

Age Distribution
The demographics include a range of age groups, from young professionals and families to retirees, reflecting the mixed-use nature of the area.

Economic Activity
Lanseria is home to various light industrial and commercial developments. The presence of the airport also contributes to local economic activity, including logistics, tourism, and business travel. There are residential neighbourhoods ranging from more affluent housing estates to more modest homes, reflecting a diverse socioeconomic landscape.

Infrastructure and Amenities
Lanseria is well-connected by road, with major highways linking it to Johannesburg and Pretoria. The airport serves as a significant transport hub, which influences the local economy and lifestyle. The area has access to essential services, including schools, healthcare facilities, and shopping centres. However, the extent and quality of these services can vary depending on proximity to major urban centres.

Community and Lifestyle
The lifestyle in Lanseria tends to blend suburban and rural characteristics, with larger properties and open spaces compared to more densely built urban areas. The area benefits from natural surroundings and open spaces, which can be attractive for outdoor activities and recreational pursuits.

Development and Growth
Lanseria is experiencing growth and development, with increasing interest in both residential and commercial projects. This growth brings changes to the social profile, as new developments attract different demographics and business interests.

Lanseria represents a dynamic area where urban and rural characteristics intersect, influenced by its role as a transport hub and the ongoing development of both residential and commercial properties.

F 5 Heritage and Palaeontological Resources
The *DFFE National Screening Tool* was consulted prior to commencing with the specialist assessment. According to the *DFFE National Screening Tool*, the section making up the larger project area has a high sensitivity for archaeological and cultural heritage themes. Based on the findings of the site sensitivity assessment, the cultural heritage specialist has compiled a full Phase I cultural heritage impact assessment. See Appendix 9.

The site visit undertaken by the heritage specialist confirms that the largest extent of the proposed project site is found to be of very low heritage sensitivity. This does not mean that no heritage resources will be present in these very low sensitive areas, but the probability of resources of high cultural significance being found there are highly unlikely. Since no sites, features or objects of cultural significance were identified on site, the impact of the proposed develop is determined to be very low and no mitigation measures are proposed. From a heritage point of view, it is recommended that the proposed development be allowed to continue, on condition of acceptance of the proposed mitigation measures. Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

The Palaeontological Sensitivity Map (http://www.sahra.org.za/sahris/map/palaeo) indicates that the project area has an *insignificant to zero sensitivity of fossil remains* to be found and therefore a palaeontological assessment is not required.

F 6. Civil Aviation
The sensitivity of this theme affecting the project site is classified as medium to very high for the following features: Medium within 5km of an air traffic control site, medium between 8 and 15km of other civil aviation aerodrome and very high within 8km of a major civil aviation aerodrome.

The study area is located adjacent to the Lanseria Light Industrial Cargo Park (Corporate Estate), and the Lanseria International Airport. No specialist assessment will be conducted for this theme, as the nature of the development will not negatively impact on overhead aircraft. The height of the light industrial warehouses (3 storeys) will not be an influencing factor and, provided the structures do not make use of large reflective surfaces, the safety of civil air navigation will not be impacted by the development. Similarly, aircraft noise has not been raised as a factor for the ground users in the local region, for any other light industrial applications that SEC is aware of.

F 7. Environmental Composite Map

The preferred township layout plan, [Figure 2 of this report], has been configured to incorporate the sensitive environmental characteristics and areas of significance that must be taken into consideration. The preferred township layout plan, indicates the following in relation to the proposed development site:

- Wetlands with buffer areas to be conserved in the development
- Storm water attenuation ponds;
- On site waste treatment plants; and
- Adequate open space.

See figure 13 for the Environmental Composite Map of the proposed township.

SECTION G: ALTERNATIVES

One of the objectives of the S&EIR process is to investigate alternatives to the proposed project. The Integrated Environmental Management procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a reasonable number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. To ensure that the proposed development enables sustainable development, *reasonable* and *feasible* alternatives must be explored.

G.1 Reasonable and Feasible alternatives

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives are considered as a *norm* within the Environmental Process. Alternatives should include the consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The no-go alternative must also in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

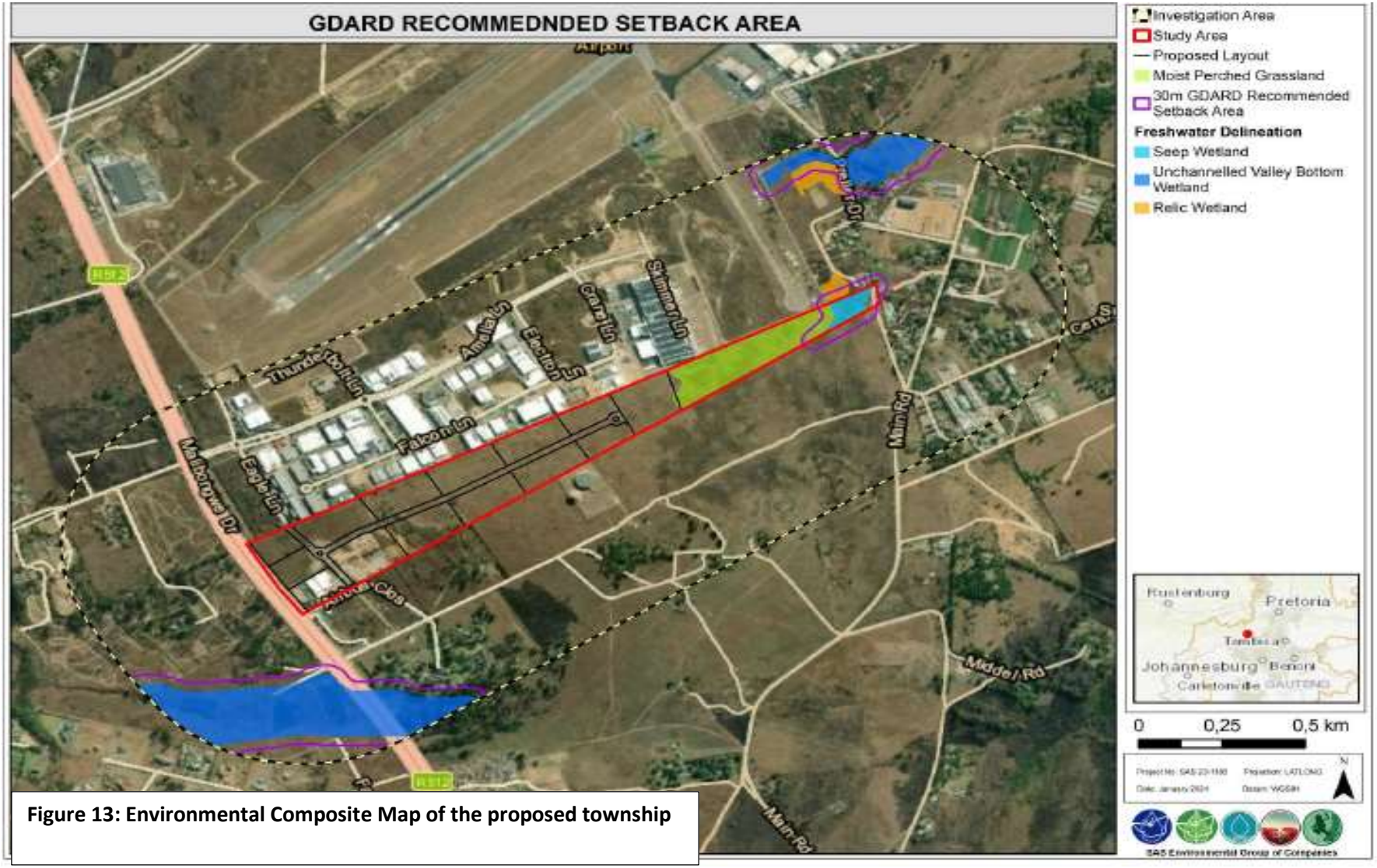


Figure 13: Environmental Composite Map of the proposed township

"Alternatives", in relation to a proposed activity, refers to different means of meeting the general purpose and requirements of the activity, which may include alternatives to; -

a) the property on which or location where it is proposed to undertake the activity.
b) the type of activity to be undertaken.
c) the design or layout of the activity.
d) the option of not implementing the activity.

G.2 Fundamental alternatives

Fundamental alternatives are developments that are *totally* different from the proposed project description and include the following:

- Alternative property or location where it is proposed to undertake the activity.
- Alternative type of activity to be undertaken.
- Alternative technology to be used in the activity.

G.3 Incremental alternatives

Incremental alternatives relate to *modifications* or *variations* to the *design* of a project that provide different options to reduce or minimise environmental impacts. There are several incremental alternatives that can be considered, including:

- Alternative design or layout of the activity.
- Alternative technology to be used in the activity.
- Alternative operational aspects of the activity

G.4 No-Go Development

The EIA process is obligated to assess the status quo (i.e. the "No-Go" option). The No-Go alternative provides the assessment with a baseline against which predicted impacts resulting from the proposed development may be compared. A ''No-Go" alternative has been assessed for the development.

G.5 Analysis of alternatives

The alternatives considered for the proposed Lanseria X 81 Township include location alternatives, land use alternatives (including the No-go option), and layout alternatives.

A summary of the alternatives assessed is provided in Table 8 below. Table 9 illustrates the methodology used to assess the identified alternatives. The table assesses the advantages and disadvantages and provides further comments on the selected alternatives.

Table 8: A summary of the alternatives that were assessed.

Alternative level		Alternative	Description
Property location	or	1 (*Preferred* alternative)	Current proposed site
		2	None identified. The Applicant is the owner of the subject property, and the application is therefore only relevant to this site.

Layout alternatives	1 (*Preferred* alternative)	Current proposed layout, Figure 2. At the onset of the project, the wetland on site was delineated such that no development has ever been placed in this no-go area.
	2	Following the review of the Scoping Report for this project, comments received from the Lanseria Corporate Park stated that Eagle Lane is a Private Road with access control. No access would be possible to this internal road. Subsequently, the internal road network for the Lanseria X 81 township was amended. See Figure 12.
Land use alternatives	1 (*Preferred* alternative)	Light Industrial Township
	2	Mixed Land Use Township
Technology alternatives	1 (Preferred alternative)	Alternative technologies for Smart building technologies, energy provision, water management and waste management
	2	Conventional methods of construction, energy provision, water management and waste management are
No-go option	1	Current land use remains.

Table 9: The alternatives for the Lanseria X 81 Project

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
Property or location (Fundamental location alternative)	Alternative location 1 - Current proposed site (preferred alternative).	- The property belongs to the applicant. - The applicant has the freedom to decide how to develop the land according to the SDF for the area - The privately owned land can provide leverage for financing options for the applicant, such as using equity in the property to secure loans for further development. - The value of the property will increase given its location in the Lanseria Smart City.	- No flexibility in case of sensitivity features found on site. - Reduced flexibility in terms of land use options, due to location and spatial planning for the area. - Removal of indigenous vegetation.	YES	NO	The present project location has no bio-physical fatal flaws. At the onset of the project, the wetland on site was delineated and adopted, such that no permanent development has ever been placed in this no-go area.
	Alternative location 2 – None identified.	N/A	N/A	N/A	N/A	No alternative location will be assessed in the impact assessment.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
Land Use (Fundamental location alternative)	Alternative Land Use 1 - Current proposed Light Industrial Land Use	- A light industrial township in the Lanseria area will contribute to the economic diversification within the region. - A light industrial township has the potential to generate significant employment opportunities for local residents. Light industries such as manufacturing, assembly, and logistics typically require a diverse range of skills, and provide jobs at various levels, from entry-level positions to skilled trades and	- The presence of another light industrial development in the region may increase competition for businesses and resources. - Regional economic downturns can lead to higher vacancy rates and reduced demand for industrial space. - Uncertainties regarding the return on investment, especially if market conditions change or if the area does not	YES	NO	The proposed development area is located within the municipal area of City of Johannesburg Metropolitan Municipality. The site is located close to Lanseria Airport where large expansions are planned and are currently taking place. Significant changes to the surrounding area have taken place over the past few years which have resulted in the inclusion of the Lanseria area in the Gauteng Provincial Urban Boundary. The utilisation of P/72 Bultfontein, close to the Airport for industrial land uses is based on sound Town

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		management roles. This can help alleviate unemployment and improve livelihoods in the Lanseria area. - A light industrial township will catalyse infrastructure development in and around Lanseria. This includes the construction of industrial parks, roads, utilities, and transportation networks necessary to support industrial activities. Improved infrastructure not only benefits industrial operations but also enhances connectivity and accessibility for residents and businesses in the surrounding areas.	develop as anticipated.			Planning principles and development guidelines. The SDF recognises the possible development of the Lanseria area as a logistics and airport industry hub. This vision will depend on private sector investment appetite and the availability and cost of infrastructure. Lanseria's potential as a significant job provider for the surrounding marginalised areas are also recognised. The Lanseria X 81 application can be seen as an extension of the industrial townships directly north of the study area. In general, this application is in line with the planning and views of the policy document.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		- A light industrial township will attract domestic and foreign investment to Lanseria. Investors are often attracted to areas with established industrial infrastructure and favourable business conditions. By providing a conducive environment for light industries to thrive, Lanseria can become a magnet for investment, stimulating economic growth and driving local development. - The site is served by existing main roads leading to the N14. - The site is able to access water from existing bulk pipelines, and electricity				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		from the existing ESKOM supply. - The development proposal is supported by the municipal planning policies. - Single land use developments, such as the proposed light industrial township, can be designed and optimized for specific purposes, such as residential, commercial, or industrial. This can result in more efficient use of space, infrastructure, and resources. - Reduced Conflict: Single land use developments may have fewer conflicts between different land uses, such as noise complaints, traffic				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		congestion, or incompatible activities. - Single land use developments can be more predictable in terms of property values, land use regulations, and market demand. This can provide more certainty for developers, investors, and buyers.				
	Alternative Land Use 2 – Mixed Land use township	- Combining residential, commercial, and industrial spaces can create a vibrant local economy, attracting various businesses and reducing reliance on a single sector. - Mixed-use developments provide easy access	- Mixed land use developments can increase noise and pollution levels, as different land uses may have different operating hours, equipment, and environmental impacts. This can result in reduced quality of life and	YES	NO	The location of the Lanseria X 81 township is ideal as it will contribute to the future growth of economic stability in the area. The location lends itself to accessibility to major transport routes, namely the R512 and N14. The planning policies and master plans for the Lanseria area, supports densification from a residential

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		to amenities, such as shops, schools, and recreational areas, enhancing the quality of life for residents. - With residential and commercial spaces close together, residents can walk or bike to work and services, reducing traffic congestion and carbon emissions. - Mixed-use developments can be more attractive to buyers and investors, potentially leading to higher property values over time. - These developments foster community engagement by creating shared	negative health impacts for residents. - Mixed land use developments can lead to increased traffic congestion, as people need to travel further to access different activities and services. This can result in higher transport costs, longer travel times, and reduced productivity. - Mixed land use developments may have limited property value growth, as some people may prefer single land use developments or			perspective, infill development and supports a large variety of land uses at suitable locations to create a true post - apartheid city.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		spaces where residents and businesses can interact, strengthening social ties. - Mixed-use zoning allows for adaptability, making it easier to respond to changing market demands and community needs. - A diverse mix of uses can enhance the resilience of the township, allowing it to better withstand economic fluctuations by attracting a variety of businesses and residents. - Higher density and mixed-use	homogeneous neighbourhoods. This can result in lower demand and lower prices for mixed-use properties. - Mixed land use developments can increase the potential for conflict between different land uses, as they may have different interests, priorities, and impacts.			

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		development can lead to better public services, including transportation, utilities, and infrastructure, as local governments prioritize these areas for investment. - A mix of residential and commercial spaces can drive foot traffic to local businesses, boosting their viability and contributing to the local economy.				
Layout alternative (Incremental alternative)	Alternative layout 1 – Current proposed layout, see Figure 2.	The development of the preferred layout has been informed by the following: - Council's planning policies, compliance with zoning and	The civil services report for this project, includes the locality and placement of the onsite sewer treatment plants, and stormwater attenuation ponds, on the preferred layout. See	YES	YES	The preferred layout plan is being assessed in detail in this DEIAR.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		regulations for industrial use, - Warehouse structures to comply with height restrictions and safety zones of the LIA. - Compatibility with Existing Land Uses. Ensuring the new development will integrate with surrounding uses, - Wetland systems on site; and • Layout relative to existing infrastructure, such as access roads; and servitudes. The preferred layout plan has been informed by the	Annexure A of Appendix 3. Disadvantages of the preferred layout relate to these services as follows: - Installing multiple on-site sewer treatment and stormwater management systems can involve significant upfront capital expenditures, which can strain budgets. - Ongoing maintenance of treatment and attenuation systems is necessary, requiring skilled personnel and additional operational costs. - Designating land on each erf for treatment and attenuation facilities may reduce the available space for warehouses and			

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		full scope of technical, terrestrial, aquatic, socio-economic and geological studies conducted for this EIA, as well as the comments received from the COJ.	other development, limiting potential profitability. - The presence of on-site treatment and stormwater systems may limit the ability to expand or modify the development in the future.			
	Alternative Layout 2 See Figure 12	- The initial layout plan linked Airbus Close to Eagle Lane. Eagle Lane is however a private, internal road of the Lanseria Corporate Estate. The Lanseria X 81 township internal road layout had to be amended for this change, which changed some erf sizes and shapes.	- Linkage to adjacent corporate estate was lost.	YES	YES	The Lanseria Corporate Estate requested that the link road from airbus Close to Eagle Lane was removed. The change to the Lanseria X 81 internal road network also slightly changed the configuration of the individual erven in the proposed new township.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		- The Lanseria X 81 township would be a secure corporate estate, not allowing throughfare with other road users to the existing Lanseria Corporate Estate.				
Technology alternatives	Alternative 1 Implementation of Alternative technologies	Conventional methods of construction, energy provision, water management and waste management are replaced with technology that, as an alternative to resource-intensive and wasteful industry, aims to utilize resources sparingly, with minimum damage to the environment, at affordable cost and with a possible degree of control over the processes. Alternative technologies are paving the way building	None	YES	YES	The need to incorporate technology into everyday building and site management has never been more important.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		companies look at making new structures, whether that is a residential site, corporate building, or government establishment. As trends have evolved, there is also a need to incorporate greener practices into building methods, plus smart technology is also taking shape in construction practices. These trends will be shaping the future of the construction industry for years to come, so it is important for the applicant to look at some of the most prevalent changes that are coming into effect for a more efficient and sustainable building process. Prefabricated buildings				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		In a world which is increasingly looking towards more cost-effective building materials, prefabricated and modular buildings are the answer to a changing economic climate, particularly in the business world. A specially created modular structure offers a toolkit and building blueprint to help one get started, and can usually be constructed in a short space of time with efficiency and precision. Each element is made to fit exact specifications and saves time and money in the long-term. These buildings are also able to be relocated easily. The use of mobile technology				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		As all industries see the increase of mobile technology to improve productivity, the construction sector is starting to make use of this innovative tool. Mobile technology is helping to shape the processes and methods of traditional building practices and streamline them with other areas of the business for greater visibility. Everything can be managed from software systems, and each person on a project has responsibility for the process within the job. All systems can function under one hub and includes everything from tracking and assigning tasks to reporting, which can be seen and evaluated by managers and employees for				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		effective communication and dispute resolution. Green or sustainable buildings are a major talking point throughout the industry and have been a big focus for government targets. As concern for the environment and how the industry impacts on it grows, constructing green buildings is high on the agenda for many firms. Buildings that incorporate renewable energy is also the way forward, as the government aims to incorporate this type of energy into residential and commercial properties rather than dirtier fuel types. The construction of the development will be at the forefront of major change in the building industry. which				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		include but will not be limited to: - Structural elements - Thermal and energy performance and/ or efficiency of material - Water penetration - Quality management system - Cost and design - Alternative energy sources - Alternative water management systems - Green buildings and Green infrastructure etc - Innovative building systems in terms of human settlements				

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
		designs and delivery processes - Use of new materials in building houses - New ways or methods of applying traditional materials - Improvements in designs to enhance functionality of a house - System designs (designing for energy efficient house) - Performance based design-fit for purpose.				
	Alternative 2 Conventional methods of construction, energy provision,	None.	Conventional methods of construction, energy provision, water management and waste management are not in line with current day	YES	NO	The site must be developed with sustainable principles and current day state of the art technologies.

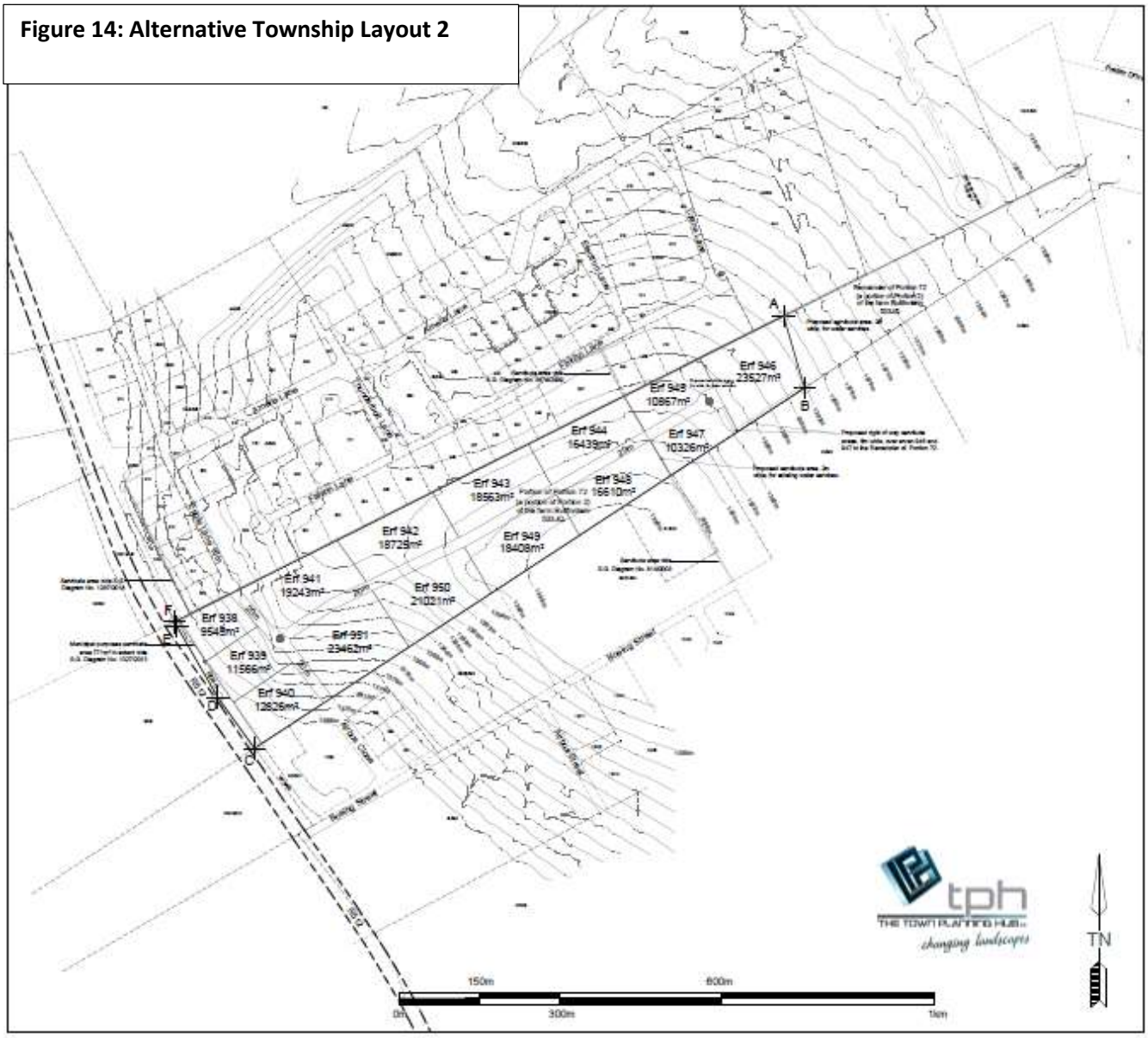
Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
	water management and waste management		sustainable thinking and is not recommended for this project.			
No-go option The continuation of the existing land use (i.e. maintaining the status quo) of undeveloped land		- The wetland on site will not be impacted by stormwater discharge from the new township.	- Less job creation. - Will negatively affect socio-economic development in the region. - The risk is present that the site will be impacted by unmitigated livestock grazing and trampling. - The site forms a critical aspect of the Lanseria Smart City area, and this site falls within the heart and core of the Greater	YES	YES	The 'do nothing' alternative or keeping the current status quo of no activities occurring on-site, also provides the baseline against which the impacts of other alternatives should be compared. Will be assessed further in the impact assessment process. The site would remain vacant and open, while sites surrounding this area of Lanseria are becoming increasingly developed, and more pressure is put on land for development, especially in this emerging Lanseria economic area. The site is located within the proposed

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
			Lanseria Master Plan identified "town centre" area. Should development not proceed, the land will remain underutilized, with no additional job creation and no contribution to economic development and social upliftment within the region.			new "Smart City" in Lanseria. The Lanseria Smart City area was announced by South African President Cyril Ramaphosa in his 2020 State of the Nation Address. Following the announcement, a joint initiative led by the Gauteng Office of the Premier was formed to undertake extensive studies and engagements for the planning of Lanseria Smart City. This site forms a critical aspect of the Lanseria Smart City area, and this site falls within the heart and core of the Greater Lanseria Master Plan identified "town centre" area. The entire site is derelict land. There are no fences which allows for unmitigated informal grazing by lessees or

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
						landless people, negatively impacted the wetland and grassland on the site. Due to all of the above, it does not make any sense for this piece of land to remain undeveloped; when areas directly adjacent to the site are already developed, or are in the process of being developed. The greater area forming part of the Lanseria Smart City area which is set to become a huge economic development zone. The site can gain easy access from the R512 road, which is a major road between Gauteng and the North-West province. No development has ever been proposed in the seep wetland on site. Hence, the no-go alternative is not a preferred alternative, and

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
						development of the site can be supported.

Figure 14: Alternative Township Layout 2



G 6. Conclusion and recommendations for the alternatives considered for the application

The property is privately owned by the applicant, Mr Craig Murchie. The applicant seeks to rezone and subdivide the property to establish a light industrial township. The selection of the development footprint and layout followed a precautionary approach, to ensure that any unacceptable environmental impacts related to the proposed development are avoided. This avoidance approach reduces the degree of mitigation required to ensure that potential environmental impacts are within acceptable levels. This approach was achieved by appointing specialists to undertake constraints and sensitivity analysis for the entire study area to inform the scoping & EIA process. These constraints identified were used to determine the areas acceptability for development from an ecological, freshwater resource, archaeological, hydropedological, heritage, and socio-economic perspective, ensuring potential impacts are kept to an absolute minimum.

A light industrial development has been adequately motivated, and is the applicants preferred option. The development must implement alternative technologies as a standard practise. Alternative energy sources are the only alternative for the township.

All environmental impacts and risks identified are discussed in Section J of this report for the preferred layout, see Appendix 17.

SECTION H THE PUBLIC PARTICIPATION PROCESS (PPP)

The Public Participation Process (PPP) is a requirement of several pieces of South African legislation and aims to ensure that all relevant Interested and Affected Parties (I&APs) are consulted and involved, their opinions are taken into account, and a record of their comments is included in the reports submitted to relevant authorities. The process aims to ensure that all stakeholders are provided an opportunity as part of a transparent process, which allows for a robust and comprehensive environmental study. The PPP for any development project needs to be managed properly and according to best practises to ensure and promote:

- Compliance with international best practise options;
- Compliance with national legislation;
- Establish and manage relationships with key stakeholder groups; and
- Encourage involvement and participation in the environmental study and authorisation / approval process.

As such, the purpose of the PPP and stakeholder engagement process is to:

- Provide an opportunity for I&APs to obtain clear, accurate and comprehensible information about the proposed activity, its alternatives or the decision and the environmental impacts thereof;
- Provide I&APs with an opportunity to indicate their viewpoints, issues and concerns regarding the activity, alternatives and / or the decision;
- Provide I&APs with the opportunity to suggest ways of avoiding, reducing or mitigating negative impacts of an activity and enhancing positive impacts;
- Enable the applicant to incorporate the needs, preferences and values of I&APs into the activity;
- Provide opportunities to avoid and resolve disputes and reconcile conflicting interests;
- Enhance transparency and accountability in decision-making;
- Identify all significant issues for the project; and
- Identify possible mitigation measures to minimise and / or prevent environmental impacts associated with the project.

The PPP for the Lanseria X81 project has been undertaken in accordance with the requirements of the NEMA, as well as in line with the principles of Integrated Environmental Management (IEM). IEM implies an open and transparent participatory process, whereby stakeholders and other I&APs are afforded an opportunity to comment on the project.

H 1 Initiating the Public Participation Process; Public participation during the *Scoping Phase*

The public participation process followed during the *Scoping Phase* of the EIA included the following actions:

- Delivery of the Draft Scoping Report (DSR) to commenting authorities and key stakeholders (DWS, COJ Environment, ACSA, Ward Councillors, Residents Associations, ect), The availability of the Draft Scoping Report (DSR) was announced via an advert in the Midrand Report, circulating regionally, site notices, and email communication to interested and affected parties including government departments;
- Notifying adjacent landowners of the availability of the Draft Scoping report;
- Placing the BID and scoping report on the EAP website for review;
- All comments were addressed and incorporated into the Final Scoping Report.
- The final scoping Report was made available to the Registered Interested & Affected parties including organs of state and submitted to GDARDE at the same time.

The approach adopted for the scoping phase of the project, was to identify as many I&APs as possible initially, through a suite of activities, as follows:

- Placing advertisements in a local newspaper;
- Placing notice boards on site;
- Meeting and telecom with the councillors to inform them of the project;
- Providing written notice and a Background Information Document (BID) to potential I&APs including adjacent property owners, property owners associations, previously registered I&AP's, relevant municipal departments, ward councillors and relevant commenting authorities;
- Requesting potential I&APs to recommend other potential I&APs to include on the database.

H 1.1 Identification of stakeholders

The identification of Interested and Affected Parties (I&APs) has been undertaken through the following:

Contacting IAP's through the distribution of the Background Information Document (BID):

A BID for the proposed project was compiled in English. The BID provided background to the proposed project and highlighted the legal requirements and EIA process to be followed for the project. A Response Form was attached to the BID, inviting I&APs to provide comments on the proposed activities, to identify any further I&APs who should be consulted, and to register on the I&AP database. The BID and Response Form were distributed via e-mail to I&APs on the 24th and 25th April 2024. A copy of the BID is included in Appendix 23.

Due to the POPI Act, no names or contact details of members of the public will be included in the report, only the issues raised.

H1.2 Newspaper advertisements

The formal announcement of the project was done by placing an advertisement in The Citizen, dated 6 November 2024. Proof of this advertisement is included in Appendix 12.

The objective of the newspaper advertisement was to:

- Inform I&APs of the proposed project;
- Inform I&APs of the Scoping and EIA Application and the way in which I&APs could deliver any comments to the proposed development; and
- Invite I&APs to become involved in the proposed project by registering as I&Aps
- Inform them of any changes to the project details, ie. Applicant details.

H 1.3 Site Notices

In accordance with the NEMA (1998) EIA Regulations, 2014, as amended, a notice board providing information regarding the project, the applicant, locality description, property description, the public participation process and contact details of the environmental assessment practitioner, was placed on site. The size of the notice board was 60cm by 42cm (i.e. A2 size) as per 41(4)(a). On-site notice boards were placed at highly visible locations on the site, on the 5th November 2024. The content of the site notices is included in Appendix 12. Photographs of the site notices is included in Appendix 12 of this Report.

H1.4 List of Authorities identified and notified

Relevant government departments, municipal departments and key stakeholders (adjacent property owners) were contacted to inform them of the proposed project and to obtain their issues and comments in this regard. See Appendix 24 for the database informed of this application.

H1.5 Background Information document

Background Information Documents were provided to the IAP's via email. Due to the POPI Act, no names or contact details of members of the public have been included in the reports, only the issues raised. The DSR was made available on SEC's website at https://publications.seedcrackers.co.za/, from 6 November 2024 – 5 December 2024. I&APs had 30 days to submit their written comments on the DSR.

H1.6 Comment on the Scoping Report

The EIA Regulations specify that I&APs must have an opportunity to verify that their issues have been captured. Issues raised during the public review period of the Scoping Report, were captured in the Comments and Response Report (CRR), Appendix 13 of this report. Comments received were addressed and/or incorporated into the Final Scoping Report. The final report was made available on EAP's website to all Registered I&AP. The report was also submitted to GDARD for decision-making.

H 1.7 Competent authority's decision on the scoping report

According to the EIA Regulations, GDARDE approved the scoping report and plan of study within 43 days of receipt of the report. See Appendix 14 for this approval letter.

H 2 Public Participation During the *EIA Phase*

H2.1 Notices and Advertising

The availability of this Draft EIA Report has been emailed to the registered AIP's, to notify and invite them to review the Draft EIA Report, and to provide comments as appropriate.

H2.2 Public Review of the Draft EIR

The Draft EIA Report has been made available for public review on SEC's website at https://publications.seedcrackers.co.za, from 11 March 2025 and ending on 24 April 2025.

H2.3 Organs of state and authority consultation

The availability of the report is provided to the COJ Dept of Environment. Other relevant organs of state were notified of the availability of the report and directed to access the electronic versions on the website.

H2.4 Issues and Response Report

Comments received during the EIA review phase will be incorporated into the CRR and IAP database. No objections have been received to date. Comments received during the scoping phase have been addressed.

H2.5 Environmental Authorisation and Notifications

On receipt of the environmental authorisation, an email will be sent out to inform stakeholders and Registered I&APs of the authorisation, its associated conditions and the provisions for the appeal process.

SECTION I: SUMMARY AND RECOMMENDATIONS OF THE SPECIALIST ASSESSMENTS

This section provides 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.

I 1. Terrestrial Impact Assessment

Scientific Terrestrial Services (Pty.) Ltd. (STS) was appointed to conduct a terrestrial biodiversity assessment as part of the Environmental Authorisation process for the proposed Light Industrial development, Lanseria X 81. The purpose of the study is to define the biodiversity of the Study Area from a conservation database perspective. It is furthermore the objective of this study, to provide detailed information to guide the fieldwork components to ensure that all relevant ecological aspects were considered prior to performing the field assessments.

Findings and Conclusion

According to the 2022 Red List Ecosystems (RLE) database, the study area is located within the remaining extent of the Critically Endangered (CR) Egoli Granite Grassland. The Gauteng Conservation Plan (C-Plan) V 3.3 indicates that most of the study area is located within an Important Critical Biodiversity Area (CBA) (also referred to as CBA 2). Based on the results of the field investigations

conducted between the 24th of October 2023, three (3) broad habitat units (and associated submits) were identified within the study area, namely:

1. Degraded Grassland Habitat – this habitat comprised the largest extent of the study area. The habitat was dominated by grass species in which a moderately low to intermediately developed herbaceous layer was supported. Faunal species observed within this habitat were limited to common species to the region known to thrive in degraded environments;

2. Moist Grassland – the floral communities associated with this habitat shared a subset of species with the Degraded Grassland; however, this habitat was unique in that it supported additional species that have an affinity for hydromorphic2 soils. Two subunits were identified within this habitat; habitats shared the same floral communities but were distinguished on the basis that a section of the Moist Grassland is considered a Seep Wetland3. The Seep Wetland is considered a watercourse as per the National Water Act, 1998 (Act No. 36 of 1998) as amended (NWA). All development will remain outside of the Seep Wetland and its associated buffers/setbacks.

The remainder of the Moist Grassland (i.e., the second subunit) will be referred to as Perched Moist Grassland. The seasonal increase in moisture levels within these habitats may provide temporary suitable habitat conditions for some faunal species, notably amphibians, but due to the lack of permanent water, surface water is unlikely to serve as an important breeding habitat for such species.

3. Transformed Habitat – this habitat comprised the second largest extent of the study area. This habitat was associated with the complete transformation of areas (e.g., buildings or areas of excavation and dumping). Little habitat was available for native plant species and thus a lack of suitable habitat for SCC (both threatened and protected) was also evident within this habitat. Generally, vegetation communities were largely absent or represented mainly by AIP species (in which the abundance thereof was often high). The Transformed Habitat within the study area does not offer any unique habitat for fauna or areas of significant conservation value.

Floral Habitat and Diversity:
The proposed development will result in the direct loss of indigenous vegetation on the habitat units associated with the study area. Indirect impacts (i.e., edge effects such as alien plant proliferation) are anticipated for the habitats within the study area. However, the impacts can remain localised if strict mitigation measures are implemented and development and associated activities remain within the approved footprint area.

As per the Gauteng C-Plan, CBA 2 areas overlapped with the Degraded Grassland, the Transformed Habitat, and the Moist Grassland. The triggering features for the CBA 2 included the presence of primary vegetation and habitat for Red Listed bird species. Red listed bird habitat was identified by the Gauteng conservation plan as being located within the south-western corner of the study area (i.e., the area in which the Transformed Habitat is located). Given the modified nature thereof, no habitat for red-listed birds is available within the study area. Furthermore, as the vegetation communities have been subject to considerable anthropogenic activities (both historically and currently), the subsequent degraded floral communities are not considered primary vegetation;

instead, the floral communities are secondary in nature. Given the above, it is concluded that no intact, functioning CBA (Important) habitat is present within the study area.

A small section in the east of the study area overlaps with an ESA. The overlapping habitat includes the Seep Wetland. Although degraded in nature, the Seep Wetland is considered to provide functioning ESA habitat (albeit modified); the wetland contributes to ecological function and connectivity within the greater landscape. All development will remain outside of the Seep Wetland and its associated buffers/setbacks.

According to the Red list of ecosystems (RLE) (2022) database, the study area is located within the CR Egoli Granite Grassland. Sections of the Degraded Grassland, Transformed Habitat, and Moist Grassland all overlap with the remaining extent of the RLE. However, given the altered species communities and structure within these habitats, and the associated shift from the typical floral communities that are associated with the reference vegetation type (i.e., Egoli Granite Grassland vegetation), no representative RLE habitat was identified within the study area. The greatest impact on floral habitat and diversity is anticipated to be the result of vegetation clearing activities, specifically impacting on habitat and diversity within the Degraded Grassland, Moist Grassland (specifically the Perched Moist Grassland) and the Transformed Habitat. However, given the lowered sensitivity of these habitats, the overall impact significance is anticipated to be low, resulting in a limited loss of a diversity of floral species.

Direct impacts on the Seep Wetland are not anticipated as construction is assumed to occur outside of the Wetland and associated buffers. However, secondary impacts are possible, and if no mitigated, impacts to the Seep Wetland are anticipated. It must be ensured that development is excluded from the Seep Wetland (identified as a watercourse by the NWA), and that the associated regulated buffer zones are implemented – refer to recommendation in the Freshwater assessment (STS 22-2057, 2024). A vegetated corridor around the Seep Wetland should be considered as this will be very beneficial in ensuring connectivity across the landscape (especially for neighbouring CBA or ESA habitat).

Faunal Habitat and Diversity:
Overall, the impact significance of the proposed mixed-use development (prior to mitigation) on faunal habitat and diversity ranges from low to very low within the study area. After mitigation measures are implemented, the impact scores will reduce, resulting in predominantly very low impacts and a few low impact scores. The potential for large-scale impacts is unlikely if recommended mitigatory measures as stipulated in the specialist terrestrial report are adhered to.

The historical, ongoing, and surrounding anthropogenic impacts, including cultivation, grazing, and development, have undermined the long-term potential to maintain a diverse faunal assemblage within the study area due to its existing diminished, degraded, and fragmented condition. Presently, the habitats within the study area can only support a moderate to low diversity of faunal classes, predominantly favouring common, small-sized animals while large mammals or predators are mostly excluded. As such vegetation clearing and operational activities are not expected to have significant impacts on the overall faunal populations within the region.

Species of conservation Concern (SCC)

None of the triggered floral species (as identified by the Department of Forestry, Fisheries, and the Environment's (DFFE) National Web-based Environmental Screening Tool) were identified within the study area, nor was any suitable habitat for such species identified. Two (2) Orange Listed species were identified within the study area, namely *Boophone disticha* (least concern (LC)) and *Hypoxis hemerocallidea* (LC). Relocation activities must be undertaken by a suitably trained individual to minimise impacts to the species and associated habitat to which they are relocated. Permits for the relocation of OL species within the development footprint area is not required. However, if these species need to be relocated to surrounding habitat outside of the development footprint area. Although these OL species were recorded within the Degraded Grassland Habitat, the abundance thereof was low, and it is unlikely that other species will be recorded; these species are widespread occurring species (i.e., not restricted to Gauteng) that can tolerate various habitat types and conditions. As such the study area is not regarded as important to support populations of these OL species.

The online screening tool considered the study area to have both a high faunal sensitivity and a medium faunal sensitivity. After field verification, STS determined that the following species, *Tyto capensis* (African Grass Owl, VU) and *Eupodotis senegalensis* (White-bellied Korhaan, VU), have a medium probability of occurrence, with the potential to forage within the study area, but will not likely be found permanently. The verified site sensitivity for *Crocidura maquassiensis* (Makwassie Musk Shrew, VU), *Hydrictis maculicollis* (Spotted-necked Otter, VU), *Clonia uvarovi* (Uvarov's Clonia Bush cricket, VU) and *Dasymys robertsii* (Robert's Shaggy Rat, VU) were low as suitable habitat within the study area was limited.

From a faunal perspective, the Degraded Grassland Habitat, Perched Moist Grassland and Seep Wetland have the potential to possibly support four faunal SCC, albeit not permanently and probably only for foraging purposes. Habitat integrity and sensitivity in all habitat units, are limited by anthropogenic developments surrounding the study area, that have reduced its size and fragmented it from surrounding natural areas. The study area has also been impacted by historical cultivation and current grazing activities which has reduced the long-term sustainability of the study area to support SCC. The impact on SCC within the study area is not anticipated to be significant, given the limited POC of such SCC.

Impacts, without mitigation, to faunal SCC range from low to very low through all phases of the development. Mitigation, if implemented correctly, will reduce the impact significance to SCC in most phases to very low. Should any faunal SCC be encountered (albeit considered unlikely given the current ecological condition of the study area) a suitably qualified specialist should be consulted as to help ascertain the best way forward.

The proposed activities will impact on the habitat units within the study area to varying degrees. The greatest (direct) impact associated with the proposed development activities will be within floral and faunal habitat of **low** and **very low SEI**, whereas only a small aspect of the proposed activities has the potential to (indirectly) impact on floral habitat with **medium SEI**. However, given the mitigation

measures as provided in this report series (and any additional mitigation measures provided in the freshwater report) are implemented, the anticipated impact from the proposed development is considered to vary between **low** and **very low** impact significance.

It is the opinion of the ecologists that this study provides the relevant information required to implement Integrated Environmental Management (IEM) and to ensure that the best long-term use of the ecological resources in the study area will be made in support of the principle of sustainable development.

Recommended Mitigation Measures
See Section I, J and Appendix 16 for the mitigation measures provided by the specialist report.

It is the opinion of the ecologists that this study provides the relevant information required to implement Integrated Environmental Management (IEM) and to ensure that the best long-term use of the ecological resources in the Study Area will be made in support of the principle of sustainable development.

This study provides the Environmental Assessment Practitioner (EAP) and the relevant authorities with sufficient information to apply the principles of Integrated Environmental Management (IEM) and the concept of sustainable development. It is the opinion of the ecologist that, provided all mitigation measures are implemented, the proposed development is unlikely to lead to significant impacts to faunal communities or SCC within the region.

I 2. SAS Freshwater Ecosystem Assessment
Scientific Aquatic Services (SAS) was appointed to conduct a freshwater ecosystem assessment as part of the Environmental Authorisation (EA) and Water Use Authorisation Application (WUA) processes for the proposed Lanseria X 81 Light Industrial development.

The purpose of this report is to define the freshwater ecology of the area in terms of characteristics, assessing key ecological drivers, and to define the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS), as well as the socio-cultural and ecological service provision of the freshwater ecosystems utilising current industry “best practice” assessment methods. Additionally, this report aims to define the Recommended Management Objectives (RMO) and Recommended Ecological Category (REC) for the freshwater ecosystems associated with the proposed light industrial development. In addition, the potential impact of the proposed light industrial development on the freshwater ecosystems has been assessed through the application of the DWS Risk Assessment.

Findings and Conclusion
A field assessment was undertaken in October 2023 during which freshwater ecosystems were identified within the study area and associated investigation area (defined as a 500m radius around the study area) in line with GN 4167 of December 2023. These freshwater ecosystems include:

- Two (2) Unchannelled Valley Bottom (UCVB) wetlands;
- One (1) Seep wetland; and

- In addition, to the above wetlands, two (2) Relic wetland features were identified within the investigation area.

Input on the final delineation was provided by Galago Environmental upon request of the proponent, and was considered in preparation of the final delineation by SAS. This delineation by Galago Environmental is considered acceptably accurate and is considered as the best estimate of the wetland boundary when soil characteristics are considered with more emphasis and not the presence of facultative wetland vegetation being considered as the key indicator in the landscape as initially prepared by SAS.

The UCVB wetlands were only considered using desktop methods given their location in relation to the study area and the focus of the assessment was on the seep wetland which is located within the study area and will potentially be impacted by the proposed development. The seep wetland is moderately modified (PES category C), with very low to high Ecoservice provision. The EIS is low for this freshwater system. The Recommended Ecological Category for the seep wetland is category C.

Following the freshwater ecosystem site assessment, the Department of Water and Sanitation (DWS) Risk Assessment Matrix (2023) was applied to determine the significance of potential impacts associated with the proposed mixed-use development on the receiving freshwater environment. According to the risk assessment, the activities associated with the proposed mixed-use development during construction and operational phase pose a “Low “risk significance to the wetland associated with the proposed mixed-use developments. Adherence to cogent, well-conceived and ecologically sensitive site development plans, and the mitigation measures as provided in this report including general good construction practice, ongoing management and maintenance as well as monitoring, is essential if the significance of perceived impacts is to be reduced to limit further degradation of the seep wetland.

Based on the findings of the study, it is the professional opinion of the freshwater ecologist that the proposed light industrial development can be considered acceptable, provided that the delineated extent of the wetland and the associated 30m GDARD recommended set back area are demarcated as “no-go areas” and provided that all mitigation measures as detailed are implemented.

Recommended Mitigation Measures

See Section I and Appendix 16 for the mitigation measures provided by the specialist report. The activities associated with the construction and operational of the proposed Lanseria X 81 development pose a “Low” risk significance to the seep wetland associated with the proposed developments provided all mitigation measures as stipulated in the report mitigation measures must be implemented to prevent any edge effects and cumulative impacts from occurring on the freshwater ecosystems associated with the proposed development and within the investigation area.

If strict enforcement of cogent, well-developed mitigation measures takes place, the significance of impacts arising from the proposed development are likely to be reduced during the construction and operational phases assuming that a high level of mitigation takes place. Additional “good practice”

mitigation measures applicable to a project of this nature are provided in Appendix H of the freshwater report.

I 3. Hydropedology report

Index PTY LTD was commissioned to condut a hydropedological study of the study area. The purpose of a hydropedological investigation is to present hydrological soil flow path and storage mechanism information to engineers and planners, to plan and design the proposed land use appropriately.

Findings and Conclusion

There are no clear drainage lines on the site. The site is on the plateau of the landscape and sloped south and north from the centre. There is a small portion of land in the northern corner of the site that is a wetland, and which should be retained and maintained. This wetland contains responsive soils, which was also identified as wetlands in the Terrestrial Specialist Study. The uneven, previously mined area should be rehabilitated and levelled out to prevent pockets of water - saturated soils, which could potentially damage the foundations of small structures. The soils found on the northwestern portion has been modified through stripping of the topsoil and borrowing of gravel for construction purposes. These soils are now greyish and brown soil on hard rock or partially weathered granite.

Construction of the adjacent industrial area has modified the groundwater profile with the result that the only contribution that the application site makes to the baseflow of groundwater, is generated on the site itself. The supposed “mining” effectively removed horizons that could act as a permeable layer in which lateral subsurface water can flow and which can contribute to maintain a wetland. From both hydropedological and geotechnical investigations there is little lateral movement of water towards the watercourse.

Recommended Mitigation Measures

To sustain the wetland, the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, or at least, to encourage water infiltration into deeper rock layers; discharge into the wetland must be controlled by a Stormwater Management Plan. Hydromorphic soils were identified towards the eastern site of the site. This is within the headlands of the watercourse. Construction on the site should not prevent any lateral water movement towards the watercourse.

These measures will help ensure that development structures will not be affected by excess water in the rainy season. Hydraulic connectivity of soils on the site should be taken into consideration by the geotechnical engineer or engineering geologist to address and incorporate any ecological constraints into the site development plan.

I 4. Flood line Determination

Civil Concepts Consulting Civil and Structural Engineers conducted a desktop study of the possible flood lines affecting the proposed township Lanseria X81, situated on Portion 72 of the Farm Bultfontein 533-JQ.

Findings and conclusions

The catchment area contributing to the natural low point on the most eastern side of the townships (Catchment 2) can be confirmed as 0.75 km2 with an average slope of 3.75%.

The anticipated pre-development run-off for major storm events for the catchment is:

1:50 = 7.9 m3/s

1:100 = 10.2 m3/s

With

C = 0.42

I50 = 95 mm/h

I100 = 117 mm/h

This result in typical flow depths of y50 = 280mm over a width of 29m and y100 = 310mm over a width of 32m, average flow velocities expected are +/- 1.9m/s. The calculated flow conditions does not constitute conditions we would associate with floods, but rather conform to typical "Sheet flow" conditions. As such we cannot classify the area as a flood line but rather as a "natural low point".

Recommended Mitigation Measures

We propose that the stormwater system be designed to cater for a return period of 1:25 years with allowance in terms of freeboard for up to a 1:50 year event.

I 5. Traffic Impact Assessment

Corli Havenga Transportation Engineers conducted a traffic impact assessment in support of the township application on Lanseria Extension 81, situated on a portion of Portion 72 (portion of Portion 2) of the Farm Bultfontein 533 JQ.

Findings and conclusions

- The traffic impact assessment was done in support of the township application on Lanseria Extension 81 situated on a portion of Portion 72 (portion of Portion 2) of the Farm Bultfontein 533 JQ.
- The total extent of the township is 30.7995ha with 27.031ha available for development.
- The proposed development controls is "Industrial 1"
- It is estimated that the development will generate a total of 849 and 849 peak hour trips during the weekday AM and PM peak traffic hours;
- The results of the capacity analysis indicate that traffic control upgrades are already required at all the intersections analysed along the R512/Malibongwe Drive. With the expected traffic demand from the development road upgrades are required at two intersections.
- This application can be supported from a traffic flow point of view. It is further recommended that:
- Access is obtained off Airbus Close.

Recommended mitigation measures

The proposed development is supported from a traffic engineering perspective provided that the following road upgrades are implemented:

- Intersection: R512 (Malibongwe) and R552 (Pinevalley)
  All-way stop upgraded to signalised intersection.
- Intersection: R512(Malibongwe) and Falcon Close/Refilwe
  All-way stop upgraded to signalised intersection, subject to a signal warrant.
- Intersection: R512 (Malibongwe) and Boeing Street
  The intersection is upgraded as follows:
  - Additional 90m right-turn lane on R512 southern approach (allowing double right-turn lanes onto Boeing Street);
  - Two lanes in both directions along Boeing Street up to Airbus Close;
  - Additional right-turn lane, maximum that can be fitted on Boeing Street eastern approach;
  - Left-slip lane on R512 northern approach;
  - Bus/taxi stops along Malibongwe Drive on both sides of the intersection; and
  - Traffic signal
- Intersection: R512 (Malibongwe) and Amelia Lane
  Two-way stop upgraded to signalised intersection.
- Intersection: R512 (Malibongwe) and Ashenti Road/Princess Avenue
  All-way stop upgraded to signalised intersection.
- Intersection: Boeing Street and Airbus Close
  The intersection is upgraded to accommodate the access to the township with the following additional lanes:
  ➢ Two lanes in both directions along Boeing Street towards the R512;
  ➢ Left slip lane on Boeing Street eastern approach; and
  ➢ Additional 45m shared through- and right-turn lane on Boeing Street eastern approach (future right-turn lane)
- The developer implements sidewalks next to Boeing Street, between Airbus Close and the R512.

I 6. Heritage Impact assessment

In accordance with Section 38 of the NHRA, an independent heritage consultant, Mr J A Van Schalkwyk, was appointed by to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development is planned.

Findings and conclusions

No heritage sites occur in the study area, there would be no impact resulting from the proposed development.

Recommended mitigation measures

Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

SECTION J ENVIRONMENTAL IMPACT ASSESSMENT

This section identifies and assesses the key issues and environmental impacts associated with the proposed development. This impact assessment has been used to guide the identification and selection of the preferred alternatives, and management and mitigation measures, applicable to the proposed activities.

General and specialist impact assessments have been conducted based on site visits, previous work experience on similar projects, and information relating to the planning and design, construction, and operation of the light industrial development. A series of specialist studies were conducted during the EIA for the proposed Lanseria X 81 development. The completed specialist studies and their findings have been integrated into this EIA Report. The key findings of each specialist were evaluated in relation to each other to provide an overall and integrated assessment of the project impacts.

J 1 Identification and assessment of impacts

The identification and assessment of environmental impacts is a multi-faceted process, which combines quantitative and qualitative descriptions and evaluations. It involves the application of scientific measurements and professional judgment to determine the significance of environmental impacts associated with the proposed project. The potential impacts associated with the proposed activities were identified and assessed via the following:

1. Site inspection to better understand the study terrain and the local context.
2. Review of applicable guidelines, policies, plans, legislation and literature available from EIA's conducted for the adjacent townships.
3. Review of specialist study findings.
4. Critically review proposed activities to identify feasible alternatives.
5. Consult with relevant state departments (on going).
6. Consult with interested and affected parties (on going).
7. Identify and assess potential impacts associated with the proposed activities.

The impacts and the proposed management thereof are discussed on a qualitative level and quantitatively assessed by evaluating the nature, extent, magnitude, duration, probability and ultimately the significance of the impacts (refer to methodology provided in section J2). Where applicable, the impact assessments and significance ratings provided by the respective specialists are included.

The assessment considers impacts before and after mitigation, where in the latter instance the residual impact following the application of the mitigation measures is evaluated.

The above methods are believed to have been adequate for the purposes of this environmental impact assessment process.

J 2. Impact Assessment Methodology

The Impact Assessment Methodology has been aligned with the requirements for EIA Reports as stipulated in Appendix 3 (3) (1) (j) of the 2014 NEMA EIA Regulations, as amended, which states the following: "An environmental impact 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 an assessment of each identified potentially significant impact and risk, including-

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 mitigated".

The identification of potential impacts includes impacts that will occur during the construction and operational phases of the development. The assessment of impacts includes direct, indirect as well as cumulative impacts. The nature of the proposed project is well understood. As such, the impacts (both positive and negative) associated with the project has been adequately assessed.

The following methodology is applied to the prediction and assessment of impacts and risks. Potential impacts and risks have been rated in terms of direct, indirect and cumulative impacts:

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are associated with the construction, operation or maintenance of an activity.

- **Indirect impacts** of an activity are indirect or induced changes that may occur because of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken, or which occur at a different place because of the activity.

- **Cumulative impacts** are impacting that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period and can include both direct and indirect impacts.

The Impact Assessment Methodology includes the following aspects:

Nature of impact - this reviews the type of effect that a proposed activity will have on the environment.

Status - Whether the impact on the overall environment (social, biophysical and economic) will be:

- Positive - environment overall will benefit from the impact;
- Negative - environment overall will be adversely affected by the impact; or
- Neutral - environment overall will not be affected.

Spatial extent – The size of the area that will be affected by the impact:

- Site specific;
- Local (<10 km from site);
- Regional (<100 km of site);
- National; or
- International (e.g. Greenhouse Gas emissions or migrant birds).

Duration – The timeframe during which the impact/risk will be experienced:

- Very short term (instantaneous);
- Short term (less than 1 year);
- Medium term (1 to 10 years);
- Long term (the impact will cease after the operational life of the activity (i.e. the impact or risk will occur for the project duration)); or
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient.

Consequence – The anticipated severity of the impact/risk:

- Extreme (extreme alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they permanently cease);
- Severe (severe alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Substantial (substantial alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes, i.e. where the environment continues to function but in a modified manner); or
- Slight (negligible alteration of natural systems, patterns or processes, i.e. where no natural systems/environmental functions, patterns, or processes are affected).

Reversibility of the Impacts - the extent to which the impacts are reversible assuming that the project has reached the end of its life cycle (operational phase) will be:

- High reversibility of impacts (impact is highly reversible at end of project life, i.e. this is the most favourable assessment for the environment).
- Moderate reversibility of impacts;
- Low reversibility of impacts; or
- Impacts are non-reversible (impact is permanent, i.e. this is the least favourable assessment for the environment).

Irreplaceability of Resource Loss caused by impacts – the degree to which the impact causes irreplaceable loss of resources if the project has reached the end of its life cycle (operational phase) will be:

- High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e. this is the least favourable assessment for the environment);
- Moderate irreplaceability of resources;
- Low irreplaceability of resources; or
- Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e. this is the most favourable assessment for the environment).

Using the criteria above, the impacts/risk will further be assessed in terms of the following:

Likelihood – The probability of the impact occurring:

- Extremely unlikely (little to no chance of occurring);
- Very unlikely (<30% chance of occurring);
- Unlikely (30-50% chance of occurring)
- Likely (51 – 90% chance of occurring); or
- Very likely (>90% chance of occurring regardless of prevention measures).

Significance – Will the impact cause a notable alteration of the environment?

- 0 – Impact will not affect the environment. No mitigation necessary.
- 1 - Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision making);
- 2 - Moderate (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated);
- 3 - High (the risk/impacts will result in a considerable alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision making); or

J 3. Impacts and Risks Assessed in the EIA Phase

A description of all environmental issues and risks that were identified during the EIA process, an assessment of the significance of each impact and risk, and an indication of the extent to which the impact and risk could be avoided or addressed by the adoption of mitigation measures are provided in the following tables. The following tables encompass the planning, construction and operational phases of the development.

J 3.1 Geological and Physical Aspects

	Preferred Alternative: Light Industrial Township	Alternative 2: Mixed Land Use township	No-Go Option
Potential impact and risk:	Destabilisation of surface geology and soil	Destabilisation of surface geology and soil	Status quo remains. No development will be undertaken.
Project Life-cycle	**Construction and Operation**		
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and medium term	Local and medium term	N/A
Consequence of impact or risk	Potential foundation problems	Potential foundation problems	
Probability of occurrence:	Unlikely	Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	Partially reversible	Partially reversible	N/A
Indirect impacts:	None	None	N/A
Cumulative impact prior to mitigation:	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Low negative (1)	Low negative (1)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation:	Foundation recommendations and drainage precautions are provided for each geotechnical zone, appropriate for light industrial warehouse structures with an adjoining masonry office structure. See Appendix 10 for the geotechnical report. Slope stability checks are required for both cut and fill sides of the terrace to model the impact of any terracing on the retaining walls.	Foundation recommendations have not been provided for a mixed land use township. Material reuse, surface beds and hard stands and drainage precautions can apply.	None required

	Preferred Alternative: Light Industrial Township	Alternative 2: Mixed Land Use township	No-Go Option
	Cut slopes should typically be battered at 1V:2.5H and 1V:3H in fill - to facilitate rehabilitation through vegetation. Formal soil retaining walls / lateral support will be necessary to support the slopes, for which more detailed investigation is required on each stand. Any temporary deep excavations should be formed no steeper than 1V:1H to protect any workers in the trenches, as the sidewalls will be susceptible to slumping under the action of vibratory compaction equipment in the trenches, failing which all sidewalls should be supported with appropriate shoring. Surface water attenuation to reduce the flow rate off this future industrial park, to be discharged, in a controlled fashion, into the wetland of Zone 8, will obviate the need for impervious liners, as seepage from the attenuation pond into the wetland is considered non -problematic. Care should, however, be exercised in ensuring that the discharge is directed away from the elevated fill of Lanseria Airport's Taxiway Charlie, which may, otherwise, be compromised by uncontrolled / concentrated stormwater emanating from this development.		

	Preferred Alternative: Light Industrial Township	Alternative 2: Mixed Land Use township	No-Go Option
	Given the complexity of this site, it is recommended that the Geotechnical Specialist be appointed to interact with the professional team to provide ongoing support for the duration of this project to further investigate, delineate transition zones, provide costings, undertake preliminary designs and procurement advice, finalise the designs, and inspect / monitor the ground improvement / foundation works for compliance with the project recommendations and specifications on all in-ground works. Periodic inspection of the works during construction will provide for confirmation of the recommendations given in the geotechnical report, and for any significant changes from the anticipated conditions to be taken into account timeously, to avoid unnecessary expense due to construction errors.		
Residual impacts:	No residual impacts anticipated. Additional design-level investigative work necessary to optimize foundation works / ground improvement / deep cuts with lateral support and high fills with retaining walls, have been provided in the geotechnical report.	No residual impacts anticipated.	N/A
Cumulative impact post mitigation:	Low	Low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Problematic excavation conditions Groundwater Soil Permeability	Specific founding recommendations such subsoil drainage, soil rafts, ground improvements and deep foundations, are to be incorporated into the design of all structures.
Indirect	No significant indirect impacts on geological and physical aspects are anticipated	
Cumulative	No significant cumulative impacts on geographical, geological and physical aspects are anticipated.	

J 3.2 Soil Erosion and contamination

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Soil pollution Soil Erosion	Soil pollution Soil Erosion	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Site	Site	N/A
Consequence of impact or risk	Soil pollution Soil Erosion	Soil pollution Soil Erosion	
Probability of occurrence:	Soil pollution: Unlikely Soil Erosion: Unlikely	Soil pollution: Unlikely Soil Erosion: Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Loss of topsoil, Irreplaceable Soil pollution, Irreplaceable	Loss of topsoil, Irreplaceable Soil pollution, Irreplaceable	N/A
Degree to which the impact can be reversed:	Non-reversible	Non-reversible	N/A
Indirect impacts:	Once soil is disturbed by construction related activities, it becomes far more susceptible to erosion and a decrease in quality. Erosion of the soil surface greatly increases the risk of losing topsoil to erosion and impairing the soils ability to support vegetation growth.	Once soil is disturbed by construction related activities, it becomes far more susceptible to erosion and a decrease in quality. Erosion of the soil surface greatly increases the risk of losing topsoil to erosion and impairing the soils ability to support vegetation growth.	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	Nutrients and seed banks are lost to sun baking and humus content will often be reduced (oxidised). This makes future rehabilitation/re-vegetation difficult and favours colonising species like invasive aliens.	Nutrients and seed banks are lost to sun baking and humus content will often be reduced (oxidised). This makes future rehabilitation/re-vegetation difficult and favours colonising species like invasive aliens.	
Cumulative impact prior to mitigation:	High negative	High negative	No impact
Significance rating of impact prior to mitigation:	High negative	High negative	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Soil pollution: Modern sewer treatment methods (e.g., membrane bioreactors, constructed wetlands) should be used on site, that offer higher efficiency in removing contaminants. Where possible, design sewer treatment systems that rely on gravity to minimize energy use and reduce operational failures. Erosion control measures (e.g., silt fences, sediment basins) must be implemented on each individual erf to prevent soil erosion during construction and operation of the sewer treatment plant, as applicable. Under no circumstances should oil, diesel or any other chemical be disposed of at the site.	Soil pollution: Modern sewer treatment methods (e.g., membrane bioreactors, constructed wetlands) should be used on site, that offer higher efficiency in removing contaminants. Where possible, design sewer treatment systems that rely on gravity to minimize energy use and reduce operational failures. Erosion control measures (e.g., silt fences, sediment basins) must be implemented on each individual erf to prevent soil erosion during construction and operation of the sewer treatment plant, as applicable. Under no circumstances should oil, diesel or any other chemical be disposed of at the site.	None required

	Preferred Alternative	Alternative 2	No-Go Option
	Minimise petrol, diesel, and oil leaks by allocating a loading zone, which is protected against such leaks. Drip trays must be secured and emptied regularly. Chemical toilets must be provided by the contractor in accordance with DWS requirements. A Spill Contingency Plan should be adopted. Soil erosion: On any areas where the risk of erosion is evident, appropriate temporary or permanent works and water energy dispersion structures must be installed. There needs to be minimal vegetation clearance and exposure of soils. Wind screening and barriers should be installed where necessary. The Stormwater Management Plan as proposed in Appendix 5 must be implemented. Avoid vegetation clearance and earthworks during the rainy season when chances of runoff and water erosion are highest Minimise the extent of the disturbance footprint at each instance and progressively clear required areas to minimise the cumulative loss of soil from disturbed areas through erosion and dust emission	Minimise petrol, diesel, and oil leaks by allocating a loading zone, which is protected against such leaks. Drip trays must be secured and emptied regularly. Chemical toilets must be provided by the contractor in accordance with DWS requirements. A Spill Contingency Plan should be adopted. Soil erosion: On any areas where the risk of erosion is evident, appropriate temporary or permanent works and water energy dispersion structures must be installed. There needs to be minimal vegetation clearance and exposure of soils. Wind screening and barriers should be installed where necessary. The Stormwater Management Plan as proposed in Appendix 5 must be implemented. Avoid vegetation clearance and earthworks during the rainy season when chances of runoff and water erosion are highest Minimise the extent of the disturbance footprint at each instance and progressively clear required areas to minimise the cumulative loss of soil from disturbed areas	

	Preferred Alternative	Alternative 2	No-Go Option
	The development activities should preferably commence on the upgradient (northern) section of the subject property, such that the downgradient section can remain temporarily undisturbed to naturally attenuate stormwater runoff and associated erosion from the cleared area upgradient Avoid soil disturbance in the vicinity of drainage lines as soils are periodically waterlogged due to slow drainage and will likely be excessively prone to erosion once disturbed; Avoid soil disturbance on steep slopes as such areas inherently prone to erosion; The upper 300 mm of topsoil should be removed and stockpiled on site for re-use (top-dressing) during rehabilitation and landscaping where possible, as this horizon is the most fertile and carries the seedbank; A gradient of not more than 2:1 and ≤ 2 m height should be maintained in order to preserve biological viability and reduce soil deterioration of the topsoil stockpiles; The location of the topsoil stockpile should be selected strategically such that minimal re-handling is required until rehabilitation. Revegetate and mulch progressively as each section of works is completed, such that the interval between	through erosion and dust emission The development activities should preferably commence on the upgradient (northern) section of the subject property, such that the downgradient section can remain temporarily undisturbed to naturally attenuate stormwater runoff and associated erosion from the cleared area upgradient Avoid soil disturbance in the vicinity of drainage lines as soils are periodically waterlogged due to slow drainage and will likely be excessively prone to erosion once disturbed; Avoid soil disturbance on steep slopes as such areas inherently prone to erosion; The upper 300 mm of topsoil should be removed and stockpiled on site for re-use (top-dressing) during rehabilitation and landscaping where possible, as this horizon is the most fertile and carries the seedbank; A gradient of not more than 2:1 and ≤ 2 m height should be maintained in order to preserve biological viability and reduce soil deterioration of the topsoil stockpiles; The location of the topsoil stockpile should be selected strategically such that minimal re-handling is required until	

	Preferred Alternative	Alternative 2	No-Go Option
	clearing and revegetation is kept to an absolute minimum. Furthermore, a grass cover should be established as soon as possible on the stockpile(s), and stockpiled soils should be maintained naturally covered with vegetation until rehabilitation commences; A diversion berm should be provided on the up-slope side of stockpiles to divert overland flow around the stockpile, and sediment control fencing should be placed around the lower sides and ends of the stockpile to provide minimal washing away of soil during high runoff events; Avoid any further stripping/excavation and stockpiling of in-situ soils as far as possible to ensure that the soils remain in their natural horizon sequence; Dampen the disturbed areas to supress dust emission from cleared areas and access roads; A spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans should also be compiled to guide the construction works.	rehabilitation. Revegetate and mulch progressively as each section of works is completed, such that the interval between clearing and revegetation is kept to an absolute minimum. Furthermore, a grass cover should be established as soon as possible on the stockpile(s), and stockpiled soils should be maintained naturally covered with vegetation until rehabilitation commences; A diversion berm should be provided on the up-slope side of stockpiles to divert overland flow around the stockpile, and sediment control fencing should be placed around the lower sides and ends of the stockpile to provide minimal washing away of soil during high runoff events; Avoid any further stripping/excavation and stockpiling of in-situ soils as far as possible to ensure that the soils remain in their natural horizon sequence; Dampen the disturbed areas to supress dust emission from cleared areas and access roads; A spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans should also be compiled to guide the construction works.	
Residual impacts:	Loss of topsoil Soil and Water pollution Ecosystem disruption	Loss of topsoil Water pollution Ecosystem disruption	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	Health hazard anticipated.	Health hazard	
Cumulative impact post mitigation:	Moderate to Low	Moderate to Low	N/A
Significance rating of impact after mitigation:	Moderate to Low (1)	Moderate to Low (1)	N/A

Project Life-cycle	**Operational Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Soil pollution Soil Erosion	Soil pollution Soil Erosion	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Site	Site	N/A
Consequence of impact or risk	Improper management of the individual onsite sewer treatment plants could lead to leachate contaminating surrounding soil, affecting plant growth and soil health. Repairs done to construction vehicles should be conducted on hardened surfaces. Soil Erosion	Improper management of the individual onsite sewer treatment plants could lead to leachate contaminating surrounding soil, affecting plant growth and soil health. Repairs done to construction vehicles should be conducted on hardened surfaces. Soil Erosion	
Probability of occurrence:	Soil pollution: Unlikely Soil Erosion: Unlikely	Soil pollution: Unlikely Soil Erosion: Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Loss of topsoil, Irreplaceable	Irreplaceable	N/A
Degree to which the impact can be reversed:	Non-reversible	Non-reversible	N/A
Indirect impacts:	Sedimentation and contamination of Freshwater resources conserved on site, caused by inadequate stormwater management on the site; Inadequate storage and handling of dangerous goods; Poor management of sewage, effluent and waste.	Sedimentation and contamination of Freshwater resources conserved on site, caused by inadequate stormwater management on the site; Inadequate storage and handling of dangerous goods; Poor management of sewage, effluent and waste.	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	Indirect impacts from the multiple sewer treatment plants includes potential biodiversity loss on nearby ecosystems, including wetlands and wildlife habitats, due to habitat fragmentation and altered water quality, potentially leading to loss of biodiversity. Changes in water flow and nutrient loading from the multiple sewer treatment plants can create favorable conditions for invasive species, further disrupting local ecosystems.	Indirect impacts from the multiple sewer treatment plants includes potential biodiversity loss on nearby ecosystems, including wetlands and wildlife habitats, due to habitat fragmentation and altered water quality, potentially leading to loss of biodiversity. Changes in water flow and nutrient loading from the multiple sewer treatment plants can create favorable conditions for invasive species, further disrupting local ecosystems.	
Cumulative impact prior to mitigation:	High negative	High negative	No impact
Significance rating of impact *prior to* mitigation:	High negative (3)	High negative (3)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Modern sewer treatment methods (e.g., membrane bioreactors, constructed wetlands) should be used on site, that offer higher efficiency in removing contaminants. Where possible, design sewer treatment systems that rely on gravity to minimize energy use and reduce operational failures. Conduct regular inspections and maintenance of the individual sewer treatment plants to ensure they are functioning correctly and to	Modern sewer treatment methods (e.g., membrane bioreactors, constructed wetlands) should be used on site, that offer higher efficiency in removing contaminants. Where possible, design sewer treatment systems that rely on gravity to minimize energy use and reduce operational failures. Conduct regular inspections and maintenance of the individual sewer treatment plants to ensure they are functioning correctly and to	N/A None required

	Preferred Alternative	Alternative 2	No-Go Option
	identify any potential leaks or failures early. Each erf owner and / or tenant of the erf who is held responsible for the maintenance and operation of the individual package plant on site, must Implement a comprehensive monitoring program for water quality in the treated effluent and surrounding water bodies, including parameters such as nutrients, pathogens, and other pollutants. Treated effluent must be discharged in a controlled manner, preferably to designated areas that can absorb or utilize the water without causing runoff or pooling. Each erf owner and / or tenant of the erf who is held responsible for the maintenance and operation of the individual package plant on site must conduct regular soil testing around treatment sites, to detect potential contamination early and implement corrective measures if necessary. Erosion control measures (e.g., silt fences, sediment basins) must be implemented on each individual erf to prevent soil erosion during construction and operation of the sewer treatment plant, as applicable. Each erf owner and / or tenant of the erf who is held	identify any potential leaks or failures early. Each erf owner and / or tenant of the erf who is held responsible for the maintenance and operation of the individual package plant on site, must Implement a comprehensive monitoring program for water quality in the treated effluent and surrounding water bodies, including parameters such as nutrients, pathogens, and other pollutants. Treated effluent must be discharged in a controlled manner, preferably to designated areas that can absorb or utilize the water without causing runoff or pooling. Each erf owner and / or tenant of the erf who is held responsible for the maintenance and operation of the individual package plant on site must conduct regular soil testing around treatment sites, to detect potential contamination early and implement corrective measures if necessary. Erosion control measures (e.g., silt fences, sediment basins) must be implemented on each individual erf to prevent soil erosion during construction and operation of the sewer treatment plant, as applicable.	

	Preferred Alternative	Alternative 2	No-Go Option
	responsible for the maintenance and operation of the individual package plant on site must develop and implement contingency plans for sewer spills or system failures, including immediate response protocols and long-term remediation strategies. Under no circumstances should oil, diesel or any other chemical be disposed of at the site. Implement adequate stormwater management on site to prevent accelerated flow of rainwater from the site. Develop an Emergency Preparedness and Response Plan to deal with sewage leakages or operational failures that may cause environmental pollution.	Each erf owner and / or tenant of the erf who is held responsible for the maintenance and operation of the individual package plant on site must develop and implement contingency plans for sewer spills or system failures, including immediate response protocols and long-term remediation strategies. Under no circumstances should oil, diesel or any other chemical be disposed of at the site. Implement adequate stormwater management on site to prevent accelerated flow of rainwater from the site. Develop an Emergency Preparedness and Response Plan to deal with sewage line leakages or operational failures that may cause environmental pollution.	
Residual impacts:	Loss of topsoil Water pollution Ecosystem disruption Health hazard anticipated.	Loss of topsoil Water pollution Ecosystem disruption Health hazard	N/A
Cumulative impact post mitigation:	Moderate to Low	Moderate to Low	N/A
Significance rating of impact after mitigation:	Moderate (2) to Low (1)	Moderate (2) to Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Soil erosion removes the top layer of soil, which is rich in organic matter and nutrients. This loss of topsoil reduces the overall soil depth and quality, affecting its ability to support plant growth and sustain agriculture.	Soil erosion can cause damage to infrastructure such as roads, bridges, and buildings. Eroded soil can clog drainage systems, block culverts, and undermine the stability of structures. This can lead to increased maintenance costs.

	Construction	Operation
	Erosion disrupts the natural structure and composition of the soil. The removal of the protective topsoil layer exposes the underlying soil to degradation, compaction, and reduced water-holding capacity. Soil erosion can result in changes to the physical landscape. The removal of soil can lead to the formation of gullies, or channels, altering the natural topography of the land. These features can negatively impact land use, restrict access, and affect the overall aesthetic value of the landscape. Eroded soil particles, along with attached pollutants such as pesticides, can enter nearby water bodies through runoff. This sedimentation can degrade water quality by increasing turbidity, reducing light penetration, and negatively impacting aquatic habitats. It can also contribute to the eutrophication of water bodies, leading to oxygen depletion and harm to aquatic organisms. Soil erosion reduces the soil's ability to absorb and retain water. As a result, there is an increased risk of flooding as runoff flows more rapidly over the surface, overwhelming natural drainage systems. Additionally, eroded soil particles carried by runoff can deposit in rivers, reservoirs, and other water bodies, leading to sedimentation. Excessive sedimentation reduces water storage capacity, affects aquatic ecosystems, and impacts water management. Soil erosion can directly affect infrastructure and human-made structures. As soil erodes, it can undermine the stability of slopes, embankments, and foundations, increasing the risk of landslides, slope failures, and structural damage. This poses a threat to buildings, roads, bridges, pipelines, and other infrastructure systems.	Eroded soil is often carried by runoff into rivers, streams, and other water bodies. The deposition of sediment in water bodies can affect aquatic habitats, and can lead to the siltation of river tributaries. Sedimentation can also impact water quality by carrying pollutants from eroded soil into water sources. Soil erosion can affect water quality by carrying pollutants from the land surface into water bodies. This can result in contamination of drinking water sources, aquatic ecosystems, and negatively impact aquatic biodiversity. Additionally, erosion can reduce water availability by decreasing the soil's ability to retain water, leading to increased runoff and reduced groundwater recharge. Soil erosion can contribute to increased flood risk. As eroded soil is transported and deposited in waterways, it can obstruct natural water flow, reduce channel capacity, and lead to the elevation of riverbeds. These factors can exacerbate the severity and frequency of floods, causing damage to infrastructure, property, and posing risks to human lives. If sewer treatment plants are not properly managed, pathogens may enter the wetland, affecting water quality and public health. Multiple sewer treatment plants can alter local hydrology, potentially affecting the wetland's water table and leading to habitat degradation. Improper sewer treatment plant management could lead to leachate contaminating surrounding soil, affecting plant growth and soil health. If any plant fails or requires maintenance, there's a risk of untreated wastewater entering the wetland, causing immediate harm. Increased nitrogen and phosphorus from effluent can lead to eutrophication in the

	Construction	Operation
		wetland, harming aquatic life and altering ecosystem dynamics.
Indirect	Once soil is disturbed by construction related activities, it becomes far more susceptible to erosion and a decrease in quality. Erosion of the soil surface greatly increases the risk of losing topsoil to erosion and impairing the soils ability to support vegetation growth. Nutrients and seed banks are lost to sun baking and humus content will often be reduced (oxidised). This makes future rehabilitation/re-vegetation difficult and favours colonising species like invasive aliens. Erosion can further be compounded by flooding. Increased erosion can be the result of natural vegetation removal, overgrazing or exotic vegetation encroachment. Soil contamination due to chemical spills (Waste, sewage, paints, herbicides etc) or leaks (Hydrocarbons) is a further issue which can result in a health hazard to both humans and local flora and fauna. Soil contamination can also compromise future rehabilitation of the site.	Eroded soil can lead to the loss of habitat for various plant and animal species, reduce biodiversity, and disrupt ecosystem functioning. Soil erosion can create challenges for water resource management. Erosion can contribute to sedimentation in rivers and streams, which can impair water quality and impact aquatic ecosystems. Indirect impacts on nearby ecosystems, including wetlands and wildlife habitats, can occur due to habitat fragmentation and altered water quality, potentially leading to loss of biodiversity. Changes in water flow and nutrient loading can create favorable conditions for invasive species, further disrupting local ecosystems.
Cumulative	Continuous soil erosion leads to the gradual degradation of soil quality. As topsoil, which is rich in organic matter and nutrients, is lost, the remaining soil becomes less fertile and less capable of supporting plant growth. This degradation can result in diminished ecosystem functioning, and a decline in soil health. Soil erosion contributes to sedimentation in water bodies, which can lead to reduced water quality. Sediments, along with associated pollutants can enter rivers, lakes, and streams, impacting aquatic ecosystems and compromising water supplies for human consumption. Poor water quality can harm aquatic organisms, disrupt ecological balance, and create challenges for water treatment processes. Soil erosion can disrupt the natural balance of nutrients in ecosystems. As eroded soil carries away nutrients it can lead to nutrient imbalances in downstream areas. Excessive nutrient runoff can contribute to eutrophication, a process in which water bodies become enriched with nutrients, causing algal blooms, oxygen depletion, and ecological degradation. Soil erosion can negatively impact biodiversity. As soil is eroded, it can result in the loss of habitat for various plant and animal species. Soil erosion can disrupt ecological processes, reduce plant	

	Construction	Operation
	diversity, and negatively affect soil microorganisms and invertebrates critical for ecosystem functioning. The loss of biodiversity can have ripple effects on ecosystem resilience, food webs, and overall ecosystem health. Soil erosion can exacerbate the impacts of climate change. Soil erosion can decrease water infiltration, leading to increased surface runoff and reduced groundwater recharge, exacerbating the effects of drought and water scarcity. The combined discharge from multiple on site sewer treatment plants, can lead to increased nutrient loading (nitrogen and phosphorus) in nearby water bodies, promoting eutrophication and degrading water quality. Cumulative effluent can result in higher concentrations of contaminants, including pathogens and heavy metals, posing risks to aquatic ecosystems and human health. The presence of several treatment plants can disrupt local hydrology, impacting groundwater recharge and surface water flows, which can affect wetlands and other ecosystems.	

J 3.3 Water quality and quantity

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Pollution of groundwater/ surface water Stormwater and runoff on site Water quantity	Pollution of groundwater/ surface water Stormwater and runoff on site Water quantity	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and medium term	Local and medium term	N/A
Consequence of impact or risk	Pollution of water resources	Pollution of water resources	
Probability of occurrence:	Unlikely	Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	N/A
Degree to which the impact can be reversed:	Partially Reversible	Partially Reversible	N/A
Indirect impacts:	Inadequate management of onsite sewer systems can result in leachate entering the groundwater, which can migrate and impact drinking water sources and nearby ecosystems.	Inadequate management of onsite sewer systems can result in leachate entering the groundwater, which can migrate and impact drinking water sources and nearby ecosystems.	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	Disruption of aquatic ecosystems, Disruption in the ecological balance, Impact on the availability and quality of water resources, rendering water bodies unsuitable for various purposes, including drinking water supply.	Disruption of aquatic ecosystems, Disruption in the ecological balance, Impact on the availability and quality of water resources, rendering water bodies unsuitable for various purposes, including drinking water supply.	
Cumulative impact prior to mitigation:	High negative	High negative	No impact
Significance rating of impact prior to mitigation:	High negative (3)	High negative (3)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Pollution of ground and surface water: Implement advanced treatment technologies (e.g., membrane bioreactors, sequencing batch reactors) that effectively remove nutrients, pathogens, and contaminants from wastewater. Create vegetated buffer zones around treatment plants to filter runoff and absorb excess nutrients before they reach water bodies. Restore natural vegetation along waterways to enhance filtration and habitat. Chemical toilets must be provided by the contractor in accordance with DWS requirements. Machine maintenance of the equipment must as far as possible be undertaken off site.	Pollution of ground and surface water: Implement advanced treatment technologies (e.g., membrane bioreactors, sequencing batch reactors) that effectively remove nutrients, pathogens, and contaminants from wastewater. Create vegetated buffer zones around treatment plants to filter runoff and absorb excess nutrients before they reach water bodies. Restore natural vegetation along waterways to enhance filtration and habitat. Chemical toilets must be provided by the contractor in accordance with DWS requirements. Machine maintenance of the equipment must as far as	None required

	Preferred Alternative	Alternative 2	No-Go Option
	Freshwater resource must be avoided and a buffer implemented. Hazardous substances must be stored away from the buffer areas surrounding any water bodies on site to avoid pollution. No mixed concrete may be deposited outside of the designated construction footprint; As far as possible, concrete mixing should be restricted to the contractor laydown area. Additionally, batter / dagga board mixing trays and impermeable sumps should be provided, onto which any mixed concrete can be deposited while it awaits placing; and Concrete spilled outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site. Stormwater runoff: Implement storm water management measures as stipulated in the Storm Water Management Report Regular maintenance of the onsite system must be carried out to ensure that blockages of the pipes do not occur. Divert stormwater away from the construction footprint area. Stormwater must not be discharged directly into the freshwater resource on site.	possible be undertaken off site. Freshwater resource must be avoided and a buffer implemented. Hazardous substances must be stored away from the buffer areas surrounding any water bodies on site to avoid pollution. No mixed concrete may be deposited outside of the designated construction footprint; As far as possible, concrete mixing should be restricted to the contractor laydown area. Additionally, batter / dagga board mixing trays and impermeable sumps should be provided, onto which any mixed concrete can be deposited while it awaits placing; and Concrete spilled outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site. Stormwater runoff: Implement storm water management measures as stipulated in the Storm Water Management Report Regular maintenance of the onsite system must be carried out to ensure that blockages of the pipes do not occur. Divert stormwater away from the construction footprint area. Stormwater must not be	

	Preferred Alternative	Alternative 2	No-Go Option
	Implement SUDS to manage stormwater runoff effectively and reduce pollutant loads. Use silt fences and sediment basins during construction to minimize erosion and sediment transport. Water quantity: Put water saving measures in place Limit the wastage of water Plant indigenous plant species in the open spaces.	discharged directly into the freshwater resource on site. Implement SUDS to manage stormwater runoff effectively and reduce pollutant loads. Use silt fences and sediment basins during construction to minimize erosion and sediment transport. Water quantity: Put water saving measures in place Limit the wastage of water Plant indigenous plant species in the open spaces.	
Residual impacts:	Long-lasting effects on aquatic ecosystems, polluted water will harm aquatic organisms, disrupt food chains, and lead to biodiversity loss. Water pollution can contaminate groundwater, which is a crucial source of drinking water for the surrounding communities who use boreholes.	Long-lasting effects on aquatic ecosystems, polluted water will harm aquatic organisms, disrupt food chains, and lead to biodiversity loss. Water pollution can contaminate groundwater, which is a crucial source of drinking water for the surrounding communities who use boreholes.	N/A
Cumulative impact post mitigation:	Medium to low	Medium to low	N/A
Significance rating of impact after mitigation:	Medium (2) to low (1)	Medium (2) to low (1)	N/A

Project Life-cycle	**Operational Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Pollution of groundwater and surface water from multiple onsite sewer treatment plants Stormwater and runoff on site Water quantity	Pollution of groundwater and surface water from onsite sewer treatment plants Stormwater and runoff on site Water quantity	Status quo remains. No development will be undertaken.

	Preferred Alternative	Alternative 2	No-Go Option
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and medium term	Local and medium term	N/A
Consequence of impact or risk	Pollution of, and waste of water	Pollution of, and waste of water	N/A
Probability of occurrence:	Unlikely	Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	N/A
Degree to which the impact can be reversed:	Partially Reversible	Partially Reversible	N/A
Indirect impacts:	The cumulative discharge of treated effluent can increase nitrogen and phosphorus levels in nearby water bodies, leading to algal blooms. These blooms deplete oxygen and can create dead zones, harming aquatic life. If treatment plants are not adequately maintained, pathogens may enter surface waters, posing risks to human health, especially for communities relying on these water sources for recreational activities or drinking water. The cumulative impact of multiple treatment facilities can change local hydrology, affecting natural water flow patterns. This may lead to reduced dilution of pollutants and changes in the ecosystem's ability to self-regulate. Inadequate management of onsite systems can result in leachate entering the groundwater, which can migrate and impact drinking water sources and nearby ecosystems.	The cumulative discharge of treated effluent can increase nitrogen and phosphorus levels in nearby water bodies, leading to algal blooms. These blooms deplete oxygen and can create dead zones, harming aquatic life. If treatment plants are not adequately maintained, pathogens may enter surface waters, posing risks to human health, especially for communities relying on these water sources for recreational activities or drinking water. The cumulative impact of multiple treatment facilities can change local hydrology, affecting natural water flow patterns. This may lead to reduced dilution of pollutants and changes in the ecosystem's ability to self-regulate. Inadequate management of onsite systems can result in leachate entering the groundwater, which can migrate and impact drinking water sources and nearby ecosystems.	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	Bank incision or erosion at release point of stormwater into the seep wetland. Contaminated water bodies can impact industries such as agriculture, tourism, and manufacturing, leading to revenue losses, reduced productivity, and increased production costs. Polluted water sources cause risks to human health.	Bank incision or erosion at release point of stormwater into the seep wetland. Contaminated water bodies can impact industries such as agriculture, tourism, and manufacturing, leading to revenue losses, reduced productivity, and increased production costs. Polluted water sources cause risks to human health.	
Cumulative impact prior to mitigation:	High negative	High negative	No impact
Significance rating of impact prior to mitigation:	High negative (3)	High negative (3)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Implement advanced treatment technologies (e.g., membrane bioreactors, sequencing batch reactors) that effectively remove nutrients, pathogens, and contaminants from wastewater. Incorporate constructed wetlands as part of the treatment process to enhance natural filtration and improve effluent quality. Establish a robust monitoring program to regularly assess effluent quality and nearby water bodies for key indicators such as nutrients, pathogens, and chemical contaminants.	Implement advanced treatment technologies (e.g., membrane bioreactors, sequencing batch reactors) that effectively remove nutrients, pathogens, and contaminants from wastewater. Incorporate constructed wetlands as part of the treatment process to enhance natural filtration and improve effluent quality. Establish a robust monitoring program to regularly assess effluent quality and nearby water bodies for key indicators such as nutrients, pathogens, and chemical contaminants.	None required

	Preferred Alternative	Alternative 2	No-Go Option
	Implement strict maintenance schedules to ensure all treatment plants are operating efficiently and effectively. Wastewater to be recycled and re-used as far as possible to ensure that minimum amounts are required for aspects like irrigation. Manage the timing and location of effluent discharge to minimize impacts on water quality, especially during wet weather when runoff is highest. Develop and implement emergency response plans to address potential spills or system failures promptly. Good monitoring and management measurements to be set in place for service infrastructure. The proponent is encouraged to incorporate Sustainable Drainage Systems (SuDS) principles into the design of the proposed development to manage stormwater during the operational phase. The use of SuDS principles such as bioswales in addition to the attenuation ponds to manage stormwater will further assist in preventing significant impacts on the hydrological functioning of the wetlands, reduce the risk of flooding during high flow periods and reduce the risk of increased erosion. The use of swales or similar attenuating features	Wastewater to be recycled and re-used as far as possible to ensure that minimum amounts are required for aspects like irrigation. Implement strict maintenance schedules to ensure all treatment plants are operating efficiently and effectively. Wastewater to be recycled and re-used as far as possible to ensure that minimum amounts are required for aspects like irrigation. Manage the timing and location of effluent discharge to minimize impacts on water quality, especially during wet weather when runoff is highest. Develop and implement emergency response plans to address potential spills or system failures promptly. Good monitoring and management measurements to be set in place for service infrastructure. The proponent is encouraged to incorporate Sustainable Drainage Systems (SuDS) principles into the design of the proposed development to manage stormwater during the operational phase. The use of SuDS principles such as bioswales in addition to the attenuation ponds to manage stormwater will further assist in preventing significant impacts on the hydrological	

	Preferred Alternative	Alternative 2	No-Go Option
	that ensure a diffuse outflow of stormwater into the GDARDE setback areas are seen as critical to replicating the subsurface and surface inflows that will be altered by the proposed development, thus assisting in retaining the hydrology of the downgradient seep wetland.	functioning of the wetlands, reduce the risk of flooding during high flow periods and reduce the risk of increased erosion. The use of swales or similar attenuating features that ensure a diffuse outflow of stormwater into the GDARDE setback areas are seen as critical to replicating the subsurface and surface inflows that will be altered by the proposed development, thus assisting in retaining the hydrology of the downgradient seep wetland.	
Cumulative impact post mitigation:	Medium to low	Medium to low	N/A
Significance rating of impact after mitigation:	Medium (2) to low (1)	Medium (2) to low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Surface water pollution can directly degrade the quality of freshwater resources within the development. Pollutants such as sediment, nutrients, pesticides, fertilizers, chemicals, and household waste can enter surface waters through stormwater runoff, improper disposal practices, or malfunctioning wastewater treatment systems. This contamination can lead to elevated levels of pollutants, reduced oxygen levels, altered pH levels, and overall degradation of surface and groundwater water quality. Elevated nutrient levels, particularly from excessive fertilizers or wastewater discharges, can lead to eutrophication, causing algal blooms and oxygen depletion in water bodies. Surface water pollution can cause direct habitat destruction within the open spaces of the development. Sedimentation from erosion or construction activities can smother aquatic	If not properly maintained, onsite treatment plants can lead to the release of untreated or inadequately treated wastewater into nearby wetlands. This can introduce pathogens, nutrients, and pollutants, negatively affecting water quality and the health of aquatic ecosystems. Excessive nutrients, particularly nitrogen and phosphorus from wastewater, can cause algal blooms in wetlands. This can deplete oxygen levels in the water, harming fish and other aquatic organisms and disrupting the natural balance of the ecosystem. Leakage or overflow from onsite treatment systems can contaminate surrounding soil and groundwater. This can affect both the wetland ecosystem and any nearby water supplies. Construction and operation of onsite treatment facilities can disturb local habitats.

	Construction	Operation
	habitats, such as the conserved wetlands on site, and disrupt the natural flow of water. This can lead to the loss of critical habitats for various species, impacting their reproduction, feeding, and overall survival. Surface water pollution in a residential development can directly contaminate drinking water sources, such as groundwater or surface water intakes. If pollutants infiltrate groundwater sources, it can affect boreholes and public water supply systems. Contaminated drinking water can pose health risks to residents, including exposure to harmful pathogens, chemicals, heavy metals, or other contaminants. Direct impacts of surface water pollution can affect recreational activities and the aesthetics of open spaces within the residential development. Algal blooms or foul odors caused by pollution can discourage recreational use and reduce the aesthetic appeal of water bodies, impacting the quality of life for residents.	This may result in loss of biodiversity and alterations in wildlife patterns, especially if the wetlands are home to sensitive species. Treatment plants can impact the natural hydrology of wetlands. Changes in water flow patterns can affect wetland hydrodynamics, potentially leading to changes in wetland size, function, and health.
Indirect	The success of onsite treatment plants will encourage more development in the area, leading to further habitat loss and increased runoff, which can negatively impact wetland ecosystems. Disturbance from construction of treatment plants can facilitate the introduction and spread of invasive species, which can outcompete native flora and fauna in wetland areas. Wetlands provide critical ecosystem services like flood control, water filtration, and carbon sequestration. Indirect impacts from treatment plants can disrupt these functions, leading to broader environmental consequences. Poor management of onsite treatment systems may lead to costly environmental remediation efforts, affecting local economies and property values, especially if water quality declines.	Surface water pollution from urban development can lead to environmental degradation. Runoff from construction sites and improperly managed stormwater can carry sediment, pollutants, and nutrients into nearby water bodies, causing water pollution. This pollution can harm aquatic ecosystems, degrade water quality, and negatively impact flora and fauna in the surrounding area. It can also lead to the loss of habitat for aquatic species and a decline in the remaining biodiversity on site. Surface water pollution can cause damage to the infrastructure in a built environment. Excessive runoff carrying sediment and debris can clog drainage systems, leading to flooding, erosion, and damage to roads, driveways, and sidewalks. This can result in increased maintenance costs, potential safety hazards, and inconvenience for residents.

	Construction	Operation
		Surface water pollution can raise concerns about the quality and safety of the water supply for built developments. If water sources are contaminated, there may be a need for additional water treatment processes to ensure that the water supplied to residents meets the required standards. This can lead to increased costs for water treatment and potentially affect the reliability and availability of clean water for residents. Indirectly, surface water pollution can raise public health concerns for residents. Contaminated water sources can pose risks to human health through direct contact or consumption of contaminated water or seafood. Pathogens, harmful chemicals, or toxins present in polluted surface waters can cause waterborne diseases, gastrointestinal illnesses, or other health issues. This can lead to increased healthcare costs and potential long-term health impacts on residents.
Cumulative	Degradation of water bodies: Continuous surface water pollution from a built development can lead to the cumulative degradation of nearby water bodies. Persistent inputs of pollutants, such as sediment, nutrients, chemicals, and contaminants, can gradually impair water quality, disrupt aquatic ecosystems, and degrade the overall health of the conserved wetlands. This cumulative degradation can result in the loss of biodiversity, reduced ecosystem services, and long-term harm to aquatic habitats. Cumulative surface water pollution can affect the availability and quality of water resources within and around the built development. Over time, the pollution can accumulate in water bodies, making them unsuitable for various uses, including drinking water supply. This can lead to increased costs for water treatment, limited access to clean water, and potential conflicts over water resource allocation. Surface water pollution from a built development can have cumulative impacts on groundwater quality. Contaminants and pollutants from surface waters can infiltrate the underlying aquifers over time, leading to persistent contamination of groundwater sources. This can pose risks to drinking water supplies and require costly remediation measures to restore water quality. Cumulative surface water pollution can result in the loss of habitats and biodiversity in the surrounding ecosystems. The ongoing pollution inputs can lead to the decline or elimination of sensitive species, disruption of food chains, and alteration of natural habitats. These cumulative impacts can cause long-term ecological imbalances, reduce overall biodiversity, and hinder the recovery of affected ecosystems.	

	Construction	Operation
	The cumulative impacts of surface and ground water pollution can pose risks to human health over time. Persistent exposure to contaminated waters, whether through direct contact or consumption of polluted drinking water, can result in adverse health effects. Contaminants such as pathogens, heavy metals, chemicals, and toxins can accumulate in the environment and enter the human body, leading to waterborne diseases, toxicological effects, and increased risks of chronic illnesses. The degradation of water bodies and reduced water quality can negatively impact local industries. This can result in economic losses, reduced job opportunities, and diminished quality of life for residents.	

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	**Construction Phase**		
	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Clearing of natural vegetation and resultant loss of floral and faunal habitat and diversity	Clearing of natural vegetation and resultant loss of floral and faunal habitat and diversity	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Site and long term	Site and long term	Site and long term
Consequence of impact or risk	Loss of fauna, floral, herpetofauna and avi-faunal biodiversity	Loss of fauna, floral, herpetofauna and avi-faunal biodiversity	If the site is not managed, further ecological losses will be suffered, including the proliferation of alien invasive species, and destructive impacts to wetlands (cattle grazing and trampling)
Probability of occurrence:	Definite	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	Irreplaceable
Degree to which the impact can be reversed:	Irreversible	Irreversible	Reversible
Indirect impacts:	Loss of ecosystem services, increased dust pollution, reduced water quality, Reduced biodiversity, Increased invasive species, Climate change impacts, Impacts on human health and well-being: through increased heat stress, and degraded air quality	Loss of ecosystem services, increased air pollution, reduced water quality, Reduced biodiversity, Increased invasive species, Climate change impacts, Impacts on human health and well-being: through increased heat stress, and degraded air quality	None
Cumulative impact prior to mitigation:	Low negative	Low negative	Low negative

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	**Construction Phase**		
	Preferred Alternative	Alternative 2	No-Go Option
Significance rating of impact prior to mitigation:	Medium (2)	Medium (2)	Low negative
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	High
Degree to which the impact can be managed:	Very limited (low) opportunity for impact management	Very limited (low) opportunity for impact management	High
Degree to which the impact can be mitigated:	Low	Low	High
Proposed mitigation:	- The construction footprint must be kept as small as possible in order to minimise impact on the surrounding environment (edge effect management); - No construction, storage of material or associated waste (e.g., dumping of associated construction material) must be allowed outside of the development footprint (i.e., natural habitat, including the Seep Wetland and surrounding Grassland Habitat); - Removal of vegetation must be restricted to what is absolutely necessary and must remain within the approved development footprint; - Vehicles must be restricted to travelling only on designated roadways to limit the ecological footprint of the construction activities. Additional road construction must be limited to what is absolutely necessary, and the footprint thereof kept to a minimal;	- The construction footprint must be kept as small as possible in order to minimise impact on the surrounding environment (edge effect management); - No construction, storage of material or associated waste (e.g., dumping of associated construction material) must be allowed outside of the development footprint (i.e., natural habitat, including the Seep Wetland and surrounding Grassland Habitat); - Removal of vegetation must be restricted to what is absolutely necessary and must remain within the approved development footprint; - Vehicles must be restricted to travelling only on designated roadways to limit the ecological footprint of the construction activities. Additional road construction must be limited to what is absolutely necessary, and the footprint thereof kept to a minimal;	The applicant is held responsible for maintaining the property and removing alien invasive species. However, if the owner cannot derive income from the property, it is highly unlikely that the applicant will be able to maintain the property. This will lead the site to fall into disrepair.

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	Construction Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	- No collection of indigenous floral species must be allowed by construction personnel, especially with regards to floral SCC and medicinal species; - Care must be taken during the construction of the proposed development to limit edge effects to surrounding natural habitat. This can be achieved by: - Demarcating all footprint areas during construction activities (especially the Seep Wetland and associated buffers); - Demarcating sensitive species and habitat that must be maintained as open space - A rehabilitation plan must be prepared and implemented, and all rehabilitation actions must be adhered to in order to mitigate edge effects on the receiving environment and surrounds; - Ensure that no unnatural preferential flow paths are created during construction, i.e., implement appropriate stormwater management must be implemented to ensure that no unnatural preferential flow paths are created and to prevent erosion and siltation;	- No collection of indigenous floral species must be allowed by construction personnel, especially with regards to floral SCC and medicinal species; - Care must be taken during the construction of the proposed development to limit edge effects to surrounding natural habitat. This can be achieved by: - Demarcating all footprint areas during construction activities (especially the Seep Wetland and associated buffers); - Demarcating sensitive species and habitat that must be maintained as open space - A rehabilitation plan must be prepared and implemented, and all rehabilitation actions must be adhered to in order to mitigate edge effects on the receiving environment and surrounds; - Ensure that no unnatural preferential flow paths are created during construction, i.e., implement appropriate stormwater management must be implemented to ensure that no unnatural preferential flow paths are created and to prevent erosion and siltation; - All soils compacted (outside of planned footprints) because of construction activities must be ripped and profiled and re-seeded; and	

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	Construction Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	- All soils compacted (outside of planned footprints) because of construction activities must be ripped and profiled and re-seeded; and - No dumping of litter, rubble or cleared vegetation on site must be allowed. Infrastructure and rubble removed because of the construction activities must be disposed of at an appropriate registered dump site away from the development footprint. No temporary dump sites must be allowed in areas with natural vegetation. Waste disposal containers and bins must be provided during the construction phase for all construction rubble and general waste. Vegetation cuttings must be carefully collected and disposed of at a separate waste facility or garden refuge site; - If any spills occur, they must be immediately cleaned up to avoid soil contamination that can hinder floral rehabilitation later down the line. Spill kits must be kept on-site within workshops. In the event of a breakdown, maintenance of vehicles must take place with care, and the recollection of spillage must be practised, preventing the ingress of hydrocarbons into the topsoil;	- No dumping of litter, rubble or cleared vegetation on site must be allowed. Infrastructure and rubble removed because of the construction activities must be disposed of at an appropriate registered dump site away from the development footprint. No temporary dump sites must be allowed in areas with natural vegetation. Waste disposal containers and bins must be provided during the construction phase for all construction rubble and general waste. Vegetation cuttings must be carefully collected and disposed of at a separate waste facility or garden refuge site; - If any spills occur, they must be immediately cleaned up to avoid soil contamination that can hinder floral rehabilitation later down the line. Spill kits must be kept on-site within workshops. In the event of a breakdown, maintenance of vehicles must take place with care, and the recollection of spillage must be practised, preventing the ingress of hydrocarbons into the topsoil; - No illicit fires must be allowed during the construction of the proposed development; - Any areas outside of the approved development area that have been left bare because of the construction activities must be rehabilitated using indigenous species; and	

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	Construction Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	- No illicit fires must be allowed during the construction of the proposed development; - Any areas outside of the approved development area that have been left bare because of the construction activities must be rehabilitated using indigenous species; and - Upon completion of construction activities, it must be ensured that no bare areas remain, and that indigenous species be used to revegetate the disturbed area. - Edge effects arising from the proposed development, such as erosion and AIP species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of Category 1b AIP species (as listed in the NEMBA Alien species lists, 2020), in line with the NEMBA Alien and Invasive Species Regulations (2020); - Ongoing AIP monitoring and clearing/control must take place throughout the construction (and operational) phase of the development (especially to prevent further spread into surrounding Grassland and Freshwater Habitats); and - Alien vegetation that is removed must not be allowed to lay on unprotected ground as	- Upon completion of construction activities, it must be ensured that no bare areas remain, and that indigenous species be used to revegetate the disturbed area. - Edge effects arising from the proposed development, such as erosion and AIP species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of Category 1b AIP species (as listed in the NEMBA Alien species lists, 2020), in line with the NEMBA Alien and Invasive Species Regulations (2020); - Ongoing AIP monitoring and clearing/control must take place throughout the construction (and operational) phase of the development (especially to prevent further spread into surrounding Grassland and Freshwater Habitats); and - Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. All cleared plant material to be disposed of at a licensed waste facility which complies with legal standards. - If reptiles are encountered during operational activities, harmless species should be carefully	

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	Construction Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	seeds might disperse upon it. All cleared plant material to be disposed of at a licensed waste facility which complies with legal standards. - If reptiles are encountered during operational activities, harmless species should be carefully relocated by a suitably nominated construction personnel. For larger venomous snakes, a suitably trained professional or site personnel should be contacted to assist in the relocation of the species, should it not move off on its own. No reptiles are to be killed or harmed; - No hunting/trapping or persecution of faunal SCC must be allowed, should they be noted on site; and - Should any faunal SCC be encountered (albeit considered unlikely given the current ecological condition of the study area), construction should be halted, and a suitably qualified specialist consulted to help ascertain the best way forward.	relocated by a suitably nominated construction personnel. For larger venomous snakes, a suitably trained professional or site personnel should be contacted to assist in the relocation of the species, should it not move off on its own. No reptiles are to be killed or harmed; - No hunting/trapping or persecution of faunal SCC must be allowed, should they be noted on site; and - Should any faunal SCC be encountered (albeit considered unlikely given the current ecological condition of the study area), construction should be halted, and a suitably qualified specialist consulted to help ascertain the best way forward.	
Residual impacts:	Edge effects such as habitat fragmentation and AIP proliferation;	Edge effects such as habitat fragmentation and AIP proliferation;	None

J 3.4 Terrestrial Biodiversity: Flora and Fauna

Project Life-cycle	**Construction Phase**		
	Preferred Alternative	Alternative 2	No-Go Option
	The loss of SCC and suitable habitat for such species; and Disturbed areas not rehabilitated to an ecologically functioning state.	The ongong loss of SCC and suitable habitat for such species; and Disturbed areas not rehabilitated to an ecologically functioning state.	
Cumulative impact post mitigation:	Low negative	Low negative	Low negative
Significance rating of impact after mitigation:	Low negative (1)	Low negative (1)	Low negative

Project Life-cycle	Operational Phase		
	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Clearing of natural vegetation and resultant loss of floral and faunal habitat and diversity	Clearing of natural vegetation and resultant loss of floral and faunal habitat and diversity	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Site and long term	Site and long term	Site and long term
Consequence of impact or risk	Edge effects such as habitat fragmentation and AIP proliferation; Disturbed areas not rehabilitated to an ecologically functioning state	Edge effects such as habitat fragmentation and AIP proliferation; Disturbed areas not rehabilitated to an ecologically functioning state	Proliferation of alien invasive species, and destructive impacts to wetlands
Probability of occurrence:	Definite	Definite	Definite
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	Irreplaceable
Degree to which the impact can be reversed:	Reversible	Reversible	Reversible
Cumulative impact prior to mitigation:	Low negative	Low negative	Low negative
Significance rating of impact prior to mitigation:	Low (1)	Low (1)	Low negative
Degree to which the impact can be avoided:	AIP proliferation can be avoided Seep wetland can be protected	AIP proliferation can be avoided Seep wetland can be protected	High
Degree to which the impact can be managed:	High	High	High
Degree to which the impact can be mitigated:	Low	Low	High
Proposed mitigation:	- Fence off the conserved wetland on site, otherwise landless people will continue to utilize the open space - No dumping of litter or (cleared) vegetation and/or garden refuse must be allowed on-site. As such it is advised that vegetation cuttings from landscaped/garden areas (if	- Fence off the conserved wetland on site, otherwise landless people will continue to utilize the open space - No dumping of litter or (cleared) vegetation and/or garden refuse must be allowed on-site. As such it is advised that vegetation cuttings from landscaped/garden areas	The applicant is held responsible for maintaining the property and removing alien invasive species.

Project Life-cycle	Operational Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	present) be carefully collected and disposed of at a separate waste facility; - Stormwater management systems must be designed and implemented; - If any fires break out, they must be extinguished immediately. Fire extinguishers and hoses must be easily accessible through the proposed infrastructure development to allow for quick use in the case of fire. This is of particular importance given that the study area is surrounded by grassland habitat (which may catch a light easily). - Edge effects arising from the proposed development, such as erosion and alien plant species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of Category 1b AIP species (as listed in the NEMBA Alien species lists, 2020), in line with the NEMBA Alien and Invasive Species Regulations (2020); - Ongoing AIP monitoring and clearing/control must take place throughout the operational phase, and the project perimeters must be regularly checked for AIP establishment to prevent spread into surrounding natural areas; and - Alien vegetation that is removed must not be allowed to lay on	(if present) be carefully collected and disposed of at a separate waste facility; - Stormwater management systems must be designed and implemented; - If any fires break out, they must be extinguished immediately. Fire extinguishers and hoses must be easily accessible through the proposed infrastructure development to allow for quick use in the case of fire. This is of particular importance given that the study area is surrounded by grassland habitat (which may catch a light easily). - Edge effects arising from the proposed development, such as erosion and alien plant species proliferation, which may affect adjacent natural areas, need to be strictly managed. Specific mention in this regard is made of Category 1b AIP species (as listed in the NEMBA Alien species lists, 2020), in line with the NEMBA Alien and Invasive Species Regulations (2020); - Ongoing AIP monitoring and clearing/control must take place throughout the operational phase, and the project perimeters must be regularly checked for AIP establishment to prevent spread into	

Project Life-cycle	Operational Phase		
	Preferred Alternative	Alternative 2	No-Go Option
	unprotected ground as seeds might disperse upon it. All cleared plant material to be disposed of at a licensed waste facility, which complies with legal standards.	surrounding natural areas; and Alien vegetation that is removed must not be allowed to lay on unprotected ground as seeds might disperse upon it. All cleared plant material to be disposed of at a licensed waste facility, which complies with legal standards.	
Cumulative impact post mitigation:	Low negative	Low negative	Low negative
Significance rating of impact after mitigation:	Low negative (1)	Low negative (1)	Low negative

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Habitat loss, Increased stormwater runoff from hard surfaces, potential reduced water quality through irresponsible resident activities and poorly maintained infrastructure.	Maintenance of conserved open spaces and on-going management of AIP proliferation on site.
Indirect	Loss of ecosystem services, increased air pollution, reduced water quality, Reduced biodiversity, Increased invasive species, Climate change impacts, Impacts on human health and well-being: through increased heat stress, and degraded air quality.	
Cumulative	Apart from urban expansion, the greatest threat to the floral ecology within the Study Area is the continued proliferation of AIP species, resulting in the overall loss of native floral communities within the local area. The proposed development will increase the movement of humans within the area and could lead to increased harvesting of floral SCC and / or the degradation of suitable floral habitat for SCC due to continued exposure to anthropogenic disturbances. The proposed development will result in the clearance of vegetation within the study area, leading to further displacement of faunal species within the local area. Furthermore, ineffective control and monitoring of edge effects can result in the further degradation of the surrounding habitats not earmarked for development. Further degradation of the wetland habitats will not only impact the habitat within the study area, but also the downstream habitat outside thereof.	

	The anticipated activities are likely to reduce faunal habitat and lower local abundances. This could result in the migration of existing faunal residents toward the adjacent vegetated areas, which are already limited due to urban and peri-urban environments. Consequently, this may escalate competition for territories and breeding sites. Moreover, there is a potential for a cascading dispersal effect, leading to increased competition for resources and a potential rise in mortality rates. The overall outcome may be a decline in species abundance and a potential loss of species diversity. The most prominent threat to the faunal ecology within the study area is increased human presence in the area, during construction and once the development is operational, which could potentially lead to illegal hunting (snares) and persecution of fauna in undeveloped areas and the adjacent habitat. There is also an increased risk of fire frequency, which could negatively impact faunal communities and habitat outside the development footprint.

J 3.5 Wetlands and Aquatic biodiversity impacts

The seep wetland and its associated 30m buffer zone *will be conserved on site,* excluded from permanent development*, except for the temporary* installation of the bulk stormwater system "Drainage 2" proposal.

This activity may temporarily disturb 10 cubic metres of the seep wetland on site. Drainage 2 will drain to the lowest north-eastern corner of the site. From this point, a field inlet structure will be constructed, where stormwater will connect onto a new proposed channel to be constructed to service all northern neighbouring sites and eventually discharge into the downstream river. A WULA has been submitted for this activity. See adjacent figure.

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Changes to the sociocultural and service provision; Impacts on the hydrology and sediment balance of the wetlands; and Impacts on water quality.	Changes to the sociocultural and service provision; Impacts on the hydrology and sediment balance of the wetlands; and Impacts on water quality.	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Local and Long term	Local and Long term	N/A
Consequence of impact or risk	Impaired ecoservices of the wetland habitat	Impaired ecoservices of the wetland habitat	N/A
Probability of occurrence:	Unlikely if SWMP provisions and SUDS are in place	Unlikely if SWMP provisions and SUDS are in place	N/A

	Preferred Alternative	Alternative 2	No-Go Option
Degree to which the impact may cause irreplaceable loss of resources:	A wetland resource is Irreplaceable	A wetland resource is Irreplaceable	N/A
Degree to which the impact can be reversed:	Reversible	Reversible	N/A
Indirect impacts:	Increased impervious surfaces from construction can lead to greater runoff carrying nutrients and pollutants into the wetland, potentially degrading water quality. Erosion during construction can increase sedimentation in the wetland, impacting aquatic plants and animals. Construction activities can alter groundwater recharge patterns, affecting the water table and hydrology of the wetland. Changes in land use can lead to increased stormwater runoff, affecting the wetland's ability to absorb water and regulate flows. Soil disturbance during construction can create opportunities for invasive species to establish themselves, which can outcompete indigenous vegetation and alter the wetland's ecosystem. Changes in water quality, hydrology, and habitat can diminish the wetland's ability to provide ecosystem services such as carbon storage, water purification, and habitat for wildlife.	Increased impervious surfaces from construction can lead to greater runoff carrying nutrients and pollutants into the wetland, potentially degrading water quality. Erosion during construction can increase sedimentation in the wetland, impacting aquatic plants and animals. Construction activities can alter groundwater recharge patterns, affecting the water table and hydrology of the wetland. Changes in land use can lead to increased stormwater runoff, affecting the wetland's ability to absorb water and regulate flows. Soil disturbance during construction can create opportunities for invasive species to establish themselves, which can outcompete indigenous vegetation and alter the wetland's ecosystem. Changes in water quality, hydrology, and habitat can diminish the wetland's ability to provide ecosystem services such as carbon storage, water purification, and habitat for wildlife.	Unmanaged and un-mitigated anthropogenic activities 9cattle trampling and grazing, dumping, soil excavations) will continue and proliferate in the wetland system on site
Cumulative impact prior to mitigation	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Medium (2) to Low (1), given the low Ecological Importance and	Medium (2) to Low (1), given the low Ecological Importance and	No impact

	Preferred Alternative	Alternative 2	No-Go Option
	Sensitivity (EIS) ratings of the wetland unit on site	Sensitivity (EIS) ratings of the wetland units on site	
Degree to which the impact can be avoided	Low	Low	N/A
Degree to which the impact can be managed:	High	high	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	- The delineated freshwater ecosystem which does not form part of the development, must be clearly demarcated on site and remain off-limits to all non-essential activities. - Careful planning of the construction footprint must be undertaken. It should be ensured that laydown areas are to remain outside of the delineated wetlands and the associated setback areas; - Construction and associated activities must preferably take place outside of the wet season in order to minimise the risk of increased and sediment-laden runoff reaching the wetland as a result of these activities; - The construction area must be clearly demarcated before any construction activity take place and signage must be displayed during construction phase to inform and prevent the contractors and workers from entering the wetland; - It must be ensured that the sediment traps between the wetland and construction areas are installed to manage sediment laden runoff; - Removed vegetation must be stockpiled outside of the delineated boundary of the wetland,	- The delineated freshwater ecosystem which does not form part of the development must be clearly demarcated on site and remain off-limits to all non-essential activities. - Careful planning of the construction footprint must be undertaken. It should be ensured that laydown areas are to remain outside of the delineated wetlands and the associated setback areas; - Construction and associated activities must preferably take place outside of the wet season in order to minimise the risk of increased and sediment-laden runoff reaching the wetland as a result of these activities; - The construction area must be clearly demarcated before any construction activity take place and signage must be displayed during construction phase to inform and prevent the contractors and workers from entering the wetland; - It must be ensured that the sediment traps between the wetland and construction areas are installed to manage sediment laden runoff; - Removed vegetation must be stockpiled outside of the delineated boundary of the wetland, - The footprint areas and height of these stockpiles must be kept	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	- The footprint areas and height of these stockpiles must be kept to a minimum (not higher than 2m). Should the vegetation not be suitable for reinstatement after the construction phase or be alien/invasive vegetation species, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site; - Dust suppression techniques must be implemented to prevent smothering of freshwater vegetation; - The delineated freshwater ecosystem which does not form part of the development must be clearly demarcated on site and remain off-limits to all non-essential activities. It is recommended that a geotextile mesh be used to demarcate the system, (e.g. Geojute or hessian sheeting) in order to prevent erosion and sedimentation of the freshwater ecosystem; - An Environmental Control Officer (ECO) must be appointed in order to ensure all water related aspects are adequately mitigated during the construction phase; - No mixed concrete may be deposited outside of the designated construction footprint; - As far as possible, concrete mixing should be restricted to the contractor laydown area. Additionally, batter / dagga board mixing trays and impermeable sumps should be provided, onto which any	to a minimum (not higher than 2m). Should the vegetation not be suitable for reinstatement after the construction phase or be alien/invasive vegetation species, all material must be disposed of at a registered garden refuse site and may not be burned or mulched on site; - Dust suppression techniques must be implemented to prevent smothering of freshwater vegetation; - The delineated freshwater ecosystem which does not form part of the development must be clearly demarcated on site and remain off-limits to all non-essential activities. It is recommended that a geotextile mesh be used to demarcate the system, (e.g. Geojute or hessian sheeting) in order to prevent erosion and sedimentation of the freshwater ecosystem; - An Environmental Control Officer (ECO) must be appointed in order to ensure all water related aspects are adequately mitigated during the construction phase; - No mixed concrete may be deposited outside of the designated construction footprint; - As far as possible, concrete mixing should be restricted to the contractor laydown area. Additionally, batter / dagga board mixing trays and impermeable sumps should be provided, onto which any mixed concrete can be deposited while it awaits placing; and - Concrete spilled outside of the demarcated area must be promptly removed and taken to	

	Preferred Alternative	Alternative 2	No-Go Option
	mixed concrete can be deposited while it awaits placing; and - Concrete spilled outside of the demarcated area must be promptly removed and taken to a suitably licensed waste disposal site. - The proponent is encouraged to incorporate Sustainable Drainage Systems (SuDS) principles into the design of the proposed development to manage stormwater during the operational phase. The use of SuDS principles such as bioswales in addition to the attenuation ponds to manage stormwater will further assist in preventing significant impacts on the hydrological functioning of the wetlands, reduce the risk of flooding during high flow periods and reduce the risk of increased erosion. Furthermore, vegetated swales with indigenous wetland or riparian species can assist with water polishing, trapping hydrocarbons from stormwater run-off from roads before this is released into the wetlands. Lastly, the use of swales or similar attenuating features that ensure a diffuse outflow of stormwater into the GDARD setback areas are seen as critical to replicating the subsurface and surface inflows that will be altered by the proposed development, thus assisting in retaining the hydrology of the downgradient seep wetland.	a suitably licensed waste disposal site. - The proponent is encouraged to incorporate Sustainable Drainage Systems (SuDS) principles into the design of the proposed development to manage stormwater during the operational phase. The use of SuDS principles such as bioswales in addition to the attenuation ponds to manage stormwater will further assist in preventing significant impacts on the hydrological functioning of the wetlands, reduce the risk of flooding during high flow periods and reduce the risk of increased erosion. Furthermore, vegetated swales with indigenous wetland or riparian species can assist with water polishing, trapping hydrocarbons from stormwater run-off from roads before this is released into the wetlands. Lastly, the use of swales or similar attenuating features that ensure a diffuse outflow of stormwater into the GDARD setback areas are seen as critical to replicating the subsurface and surface inflows that will be altered by the proposed development, thus assisting in retaining the hydrology of the downgradient seep wetland. - All swales must be constructed through excavation of the in-situ material, sloped to a ratio not steeper than 3:1 and lined with rocks and cobbles to assist with energy dissipation and prevent sedimentation and erosion as well as improve the aesthetic appeal of the swales and	

	Preferred Alternative	Alternative 2	No-Go Option
	- All swales must be constructed through excavation of the in-situ material, sloped to a ratio not steeper than 3:1 and lined with rocks and cobbles to assist with energy dissipation and prevent sedimentation and erosion as well as improve the aesthetic appeal of the swales and stormwater infrastructure (Figure B); - Swales must be vegetated with indigenous obligate and facultative species suitable for seasonal saturation. This will assist with energy dissipation and prevent sedimentation and erosion as well as improve habitat provision; and Swales must be designed to allow diffuse discharge of stormwater into the environment to encourage re-infiltration of such water into the soil profile. - No plastic lining may be used as part of the swale and stormwater infrastructure construction as this has various ecological impacts, with special mention of impacts to faunal assemblages. - All stormwater channels must be designed to allow stormwater to disperse across the channel before releasing into the wetland. This will prevent incision and scouring; and - Regularly inspect vehicles for leaks to prevent hydrocarbon spills in freshwater ecosystems	stormwater infrastructure (Figure B); - Swales must be vegetated with indigenous obligate and facultative species suitable for seasonal saturation. This will assist with energy dissipation and prevent sedimentation and erosion as well as improve habitat provision; and Swales must be designed to allow diffuse discharge of stormwater into the environment to encourage re-infiltration of such water into the soil profile. - No plastic lining may be used as part of the swale and stormwater infrastructure construction as this has various ecological impacts, with special mention of impacts to faunal assemblages. - All stormwater channels must be designed to allow stormwater to disperse across the channel before releasing into the wetland. This will prevent incision and scouring; and - Regularly inspect vehicles for leaks to prevent hydrocarbon spills in freshwater ecosystems - Release of stormwater into the freshwater environment must not result in further bank incision or erosion and must be done in a diffused manner - A Water Use License Application (WULA) has been submitted to the Department of Water and Sanitation.	

	Preferred Alternative	Alternative 2	No-Go Option
	- Release of stormwater into the freshwater environment must not result in further bank incision or erosion and must be done in a diffused manner - A Water Use License Application (WULA) has been submitted to the Department of Water and Sanitation.		
Residual impacts:	Long-lasting effects on aquatic ecosystems, polluted water will harm aquatic organisms, disrupt food chains, and lead to biodiversity loss. Water pollution can contaminate groundwater, which is a crucial source of drinking water for the surrounding communities who use boreholes. Contaminated water bodies can impact industries such as agriculture, tourism, and manufacturing, leading to revenue losses, reduced productivity, and increased production costs. Long-term changes in groundwater levels can affect the hydrological balance of the wetland, potentially leading to drying out or saturation. Residual pollutants from construction activities, such as oils, metals, and chemicals, can persist in the soil and water, impacting aquatic life.	Long-lasting effects on aquatic ecosystems, polluted water will harm aquatic organisms, disrupt food chains, and lead to biodiversity loss. Water pollution can contaminate groundwater, which is a crucial source of drinking water for the surrounding communities who use boreholes. Contaminated water bodies can impact industries such as agriculture, tourism, and manufacturing, leading to revenue losses, reduced productivity, and increased production costs. Long-term changes in groundwater levels can affect the hydrological balance of the wetland, potentially leading to drying out or saturation. Residual pollutants from construction activities, such as oils, metals, and chemicals, can persist in the soil and water, impacting aquatic life.	N/A
Cumulative impact post mitigation:	Medium to low	Medium to low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Project Life-cycle	Operational Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	- Decreased infiltration and increase surface runoff from impervious surfaces - Increased water inputs to the freshwater environment at unnatural rates; - Impacted soil and water quality condition within the wetland; - Altered hydroperiod of the wetland; - Potential change in wetland hydrograph due to modified surrounding landscape.	- Decreased infiltration and increase surface runoff from impervious surfaces - Increased water inputs to the freshwater environment at unnatural rates; - Impacted soil and water quality condition within the wetland; - Altered hydroperiod of the wetland; - Potential change in wetland hydrograph due to modified surrounding landscape.	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact
Extent and duration of impact:	Local and Long term	Local and Long term	N/A
Consequence of impact or risk	General human interference and impact resulting in the loss of protected freshwater resource and associated habitat.	General human interference and impact resulting in the loss of protected freshwater resource and associated habitat.	N/A
Probability of occurrence:	Unlikely if mitigated properly	Unlikely if mitigated properly	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Low irreplaceability	Low irreplaceability	N/A
Degree to which the impact can be reversed:	Moderate	Moderate	N/A
Cumulative impact prior to mitigation	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Medium (2) to Low (1), given the Low Ecological Importance and Sensitivity (EIS) ratings of the wetland units on site	Medium (2) to Low (1), given the Low Ecological Importance and Sensitivity (EIS) ratings of the wetland units on site	No impact
Degree to which the impact can be avoided	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation:	- Fence off the conserved wetland on site	- Fence off the conserved wetland on site	N/A

	Preferred Alternative	Alternative 2	No-Go Option
• Mitigation measures stated in the EMPr must be implemented	- A stormwater management plan must be incorporated into the design of the development, using SUDS; - Release of stormwater into the freshwater environment must not result in further bank incision or erosion and must be done in a diffused manner - Ensure that regular maintenance of on site sewer plants takes place to prevent failure; - Develop emergency response plan to be implemented in case of emergency for the on site sewer treatment systems; - Only existing roadways must be utilised during maintenance and repairs to avoid indiscriminate movement of vehicles within the freshwater ecosystem. - Signatures indicating hydropedologically active soils were observed within the moist grassland adjacent to the wetland which must be considered, and the stormwater management plan must be designed to mimic these processes as far as practically possible to reduce impact on the receiving freshwater resource. - To sustain the wetland on site, the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, or at least, to	- A stormwater management plan must be incorporated into the design of the development, using SUDS; - Release of stormwater into the freshwater environment must not result in further bank incision or erosion and must be done in a diffused manner - Ensure that regular maintenance of on site sewer plants takes place to prevent failure; - Develop emergency response plan to be implemented in case of emergency for the on site sewer treatment systems; - Only existing roadways must be utilised during maintenance and repairs to avoid indiscriminate movement of vehicles within the freshwater ecosystem. - Signatures indicating hydropedologically active soils were observed within the moist grassland adjacent to the wetland which must be considered, and the stormwater management plan must be designed to mimic these processes as far as practically possible to reduce impact on the receiving freshwater resource. - To sustain the wetland on site, the inflow of water into the soil (recharge) must be maintained by limiting or mitigating sealing of the soil surface, or at least, to encourage water infiltration into deeper rock layers; - discharge into the wetland must be controlled by a Stormwater Management Plan. - Construction on the site should not prevent any lateral water	

	Preferred Alternative	Alternative 2	No-Go Option
	encourage water infiltration into deeper rock layers; - discharge into the wetland must be controlled by a Stormwater Management Plan. - Construction on the site should not prevent any lateral water movement towards the watercourse. - These measures will help ensure that development structures will not be affected by excess water in the rainy season. - Hydraulic connectivity of soils on the site should be taken into consideration by the geotechnical engineer or engineering geologist to address and incorporate any ecological constraints into the site development plan.	movement towards the watercourse. - These measures will help ensure that development structures will not be affected by excess water in the rainy season. Hydraulic connectivity of soils on the site should be taken into consideration by the geotechnical engineer or engineering geologist to address and incorporate any ecological constraints into the site development plan.	
Cumulative impact post mitigation:	Medium to low	Medium to low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Loss of floral and faunal habitat, Increase in sediment laden and catchment wide runoff (potentially of a deteriorated water quality), AIP proliferation within the receiving environment due to regular entry of surface water inputs, disturbance of soil and removal of indigenous vegetation, and the alteration of the natural pattern of water in the landscape. Increased stormwater runoff if not attenuated on site, loss of surface and subsurface water recharge to groundwater, Impacts on the catchment downstream of the site.	Increase in sediment laden and catchment wide runoff (potentially of a deteriorated water quality), AIP proliferation within the receiving environment due to regular entry of surface water inputs, disturbance of soil and removal of indigenous vegetation, and the alteration of the natural pattern of water in the landscape. Hydrological impacts result in a knock-on impact on geomorphological state with
Indirect		

		increased channelisation and erosion often occurring. Other indirect impacts include an increase in alien and invasive species entering the system due to regular disturbance of soil and removal of indigenous vegetation. Regular maintenance and monitoring by the municipality is required as part of the proposed development, to ensure stormwater is adequately managed and that no sewage spills and leakages occur within the study area which will further contribute to the degradation of freshwater ecosystems in the region.
Cumulative	Freshwater ecosystems within the region and local area are under continued threat due to rapid development of urban infrastructure, in particular high density residential development. Such changes to landuse from smallholdings or from farmland are associated with direct and indirect impacts, including changes to the hydrology of wetlands, primarily related to changes in catchment runoff associated with increased coverage of hardened surfaces and decreased infiltration and direct stormwater discharges. Hydrological impacts result in a knock-on impact on geomorphological state with increased channelisation and erosion often occurring. Other indirect impacts include an increase in alien and invasive species entering the system due to regular disturbance of soil and removal of indigenous vegetation. This results in greater inputs of sediment, and nutrients from runoff that are of higher concentrations. Provided that the proposed development avoids encroaching on the wetland and with appropriate management of stormwater from the development, it is considered unlikely that the development will contribute significantly to the above-mentioned impacts as modifications have occurred within the wetland.	

J 3.6 Visual Impacts

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Alteration of the visual character of the site and the sense of place.	Alteration of the visual character of the site and the sense of place.	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and Long term	Local and Long term	N/A

	Preferred Alternative	Alternative 2	No-Go Option
Consequence of impact or risk	Increased availability of light industrial warehousing, economic growth and improved infrastructure to an area, changes to the character and identity of a neighbourhood, influx of new residents, demographic shifts, and changes in neighbourhood relationships.	Increased availability of housing units, economic growth and improved infrastructure to an area, changes to the character and identity of a neighbourhood, influx of new residents, demographic shifts, and changes in neighbourhood relationships.	
Probability of occurrence:	Definite	Definite	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	N/A
Degree to which the impact can be reversed:	Reversible	Reversible	N/A
Indirect impacts:	Changes to the overall landscape character of an area, Loss of open space can impact the visual quality of the area, sense of overcrowding or loss of natural beauty. The architectural choices made in the development can significantly impact the overall visual impression of the area. Perceived sense of visual clutter and a sense of congestion. Changes in skyline and views.	Changes to the overall landscape character of an area, Loss of open space can impact the visual quality of the area, sense of overcrowding or loss of natural beauty. The architectural choices made in the development can significantly impact the overall visual impression of the area. Perceived sense of visual clutter and a sense of congestion. Changes in skyline and views.	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Medium negative (2)	Medium negative (2)	No impact
Degree to which the impact can be avoided:	Low	Low	N/A
Degree to which the impact can be managed:	Moderate	Moderate	N/A
Degree to which the impact can be mitigated:	Moderate	Moderate	N/A

	Preferred Alternative	Alternative 2	No-Go Option
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Establish design guidelines and standards that ensure the architectural design of the buildings within the development is visually appealing and cohesive. Incorporate extensive landscaping and green spaces within and around the development. Well-designed green areas, parks, gardens, and tree-lined streets can soften the visual impact of high-density buildings and create a more visually appealing environment. Greenery also provides visual relief and contributes to the overall livability and attractiveness of the development. Emphasize pedestrian-friendly design principles to enhance the visual experience at ground level. Wide sidewalks, attractive paving materials, street furniture, and landscaping along walkways. By creating an inviting and visually pleasing pedestrian environment, the perceived visual impacts of high-density development can be mitigated. Implement visual screening techniques to minimize the direct visual impact of high-density buildings on neighboring properties or public spaces. This can include the strategic placement of trees, hedges, fences, or walls to create visual buffers and	Establish design guidelines and standards that ensure the architectural design of the buildings within the development is visually appealing and cohesive. Variations in building heights can create visual interest and reduce the perceived bulkiness of high-density structures. Breaking up the visual monotony can help integrate the buildings more harmoniously into the surrounding environment. Incorporate extensive landscaping and green spaces within and around the development. Well-designed green areas, parks, gardens, and tree-lined streets can soften the visual impact of high-density buildings and create a more visually appealing environment. Greenery also provides visual relief and contributes to the overall livability and attractiveness of the development. Emphasize pedestrian-friendly design principles to enhance the visual experience at ground level. Wide sidewalks, attractive paving materials, street furniture, and landscaping along walkways. By creating an inviting and visually pleasing pedestrian environment, the perceived visual impacts of high-density development can be mitigated.	None required

	Preferred Alternative	Alternative 2	No-Go Option
	privacy for both residents and surrounding areas. Integrate public art installations, sculptures, murals, or other aesthetic enhancements within the development. These features can serve as focal points, create visual appeal, and contribute to a sense of community identity and pride. Lighting design within the development can ensure safe and visually appealing night time environments. Proper illumination of public spaces can contribute to the visual quality and ambiance of the development.	Implement visual screening techniques to minimize the direct visual impact of high-density buildings on neighbouring properties or public spaces. This can include the strategic placement of trees, hedges, fences, or walls to create visual buffers and privacy for both residents and surrounding areas. Integrate public art installations, sculptures, murals, or other aesthetic enhancements within the development. These features can serve as focal points, create visual appeal, and contribute to a sense of community identity and pride. Lighting design within the development can ensure safe and visually appealing night time environments. Proper illumination of public spaces can contribute to the visual quality and ambiance of the development.	
Residual impacts:	Skyline and landscape changes Disruption of natural or rural vistas, Changes in neighbourhood character, Visual contrast and compatibility, Visual impact on nearby properties	Skyline and landscape changes Disruption of natural or rural vistas, Changes in neighbourhood character, Visual contrast and compatibility, Visual impact on nearby properties	N/A
Cumulative impact post mitigation:	Moderate	Moderate	N/A
Significance rating of impact after mitigation:	Low negative (1) with the lapse of time	Low negative (1) with the lapse of time	N/A

Project Life-cycle	Operational Phase		
	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Visual impact of buildings on surrounding residents, working tenants, tourists and motorists.	Visual impact of buildings on surrounding residents, working tenants, tourists and motorists.	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and Long term	Local and Long term	N/A
Consequence of impact or risk	The proposed development will be highly visible from adjacent rural-residential, formal and informal houses and facilities in immediate proximity to the perimeter of the site and may intrudeon the visual character of the naturalenvironment. Large buildings, warehouses, and infrastructure can contribute to visual clutter, leading to a perception of "visual pollution." Change in sense of place of the site, can be addressed through good design, resulting in an improved urban character and will positively enhance the site and surrounding urban context potentially raising economic value of surrounding areas.	The proposed development will be highly visible from adjacent rural-residential, formal and informal houses and facilities in immediate proximity to the perimeter of the site, and may intrude on the visual character of the naturalenvironment. Change in sense of place of the site, however appropriate and good design will result in an improved urban character and will positively enhance the site and surrounding urban context potentially raising economic value of surrounding areas	
Probability of occurrence:	Definite	Definite	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Significant Loss	Significant Loss	N/A
Degree to which the impact can be reversed:	Fully reversible if all the buildings and infrastructure were removed from the site and the land rehabilitated. This is unlikely to occur.	Fully reversible if all the buildings and infrastructure were removed from the site and the land rehabilitated. This is unlikely to occur.	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Medium negative (2)	Medium negative (2)	No impact

Degree to which the impact can be avoided:	Low	Low	N/A
Degree to which the impact can be managed:	Moderate	Moderate	N/A
Degree to which the impact can be mitigated:	Moderate	Moderate	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	- Architectural guidelines (including aspects of roof and wall finishes, colors, heights of buildings, and lighting), as well as Landscape Architectural guidelines (screening, buffering, functioning, aesthetics etc.) for the development must be developed to promote the enhancement of the complimentary light industrial urban area, creating new and valuable places with a modified and positive urban mixed-use sense of place that is vibrant and diverse. - Indigenous, water-wise vegetation must be used as far as possible. - Low level, unobtrusive and contextually appropriate signage must be used. - All areas disturbed or affected by construction activities, must be rehabilitated (including topsoil and re- vegetation) after construction. - Internal roads and	- Architectural guidelines (including aspects of roof and wall finishes, colors, heights of buildings, and lighting), as well as Landscape Architectural guidelines (screening, buffering, functioning, aesthetics etc.) for the development must be developed to promote the enhancement of the complimentary light industrial urban area, creating new and valuable places with a modified and positive urban mixed-use sense of place that is vibrant and diverse. - Indigenous, water-wise vegetation mustbe used as far as possible. - Low level, unobtrusive and contextually appropriate signage must be used. - All areas disturbed or affected by construction activities, must be rehabilitated (including topsoil and re- vegetation) after construction. - Internal roads and drainage for runoff should be appropriately stabilised to avoid erosion and visual scars.	None required

	drainage for runoff should be appropriately stabilised to avoid erosion and visual scars. - Sufficient funds must be allocated to ensure ongoing maintenance of communal landscaped areas.	• Sufficient funds must be allocated to ensure ongoing maintenance of communal landscaped areas.	
Residual impacts:	Skyline and landscape changes Disruption of natural or rural vistas, Changes in neighbourhood character, Visual contrast and compatibility, Visual impact on nearby properties	Skyline and landscape changes Disruption of natural or rural vistas, Changes in neighbourhood character, Visual contrast and compatibility, Visual impact on nearby properties	N/A
Cumulative impact post mitigation:	Moderate	Moderate	N/A
Significance rating of impact after mitigation:	Low negative (1) with the lapse of time	Low negative (1) with the lapse of time	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	The presence of construction equipment, such as cranes, excavators, bulldozers, and trucks, can significantly change the visual appearance of the vacant land. These large machines and vehicles can be visually dominant and may alter the scale and character of the site. Construction sites require the installation of temporary structures, including construction trailers, temporary offices, storage containers, and fencing. These structures may not blend harmoniously with the surrounding environment and can alter the visual aesthetics of the site. Dust and debris during excavation, grading, or demolition. Dust particles in the air can reduce visibility and create a hazy or dirty appearance in the vicinity of the construction site. Debris from demolition or construction materials can also contribute to a cluttered visual environment.	Changes to the overall landscape character of an area, Loss of open space can impact the visual quality of the area, sense of overcrowding or loss of natural beauty. The architectural choices made in the development can significantly impact the overall visual impression of the area. Perceived sense of visual clutter and a sense of congestion. Changes in skyline and views.

	Piles of construction materials such as bricks, concrete blocks, steel, lumber, and other building materials may be stored on-site during construction. These materials can create visual clutter and may not be aesthetically pleasing, especially when they are exposed and not organized. The grading and excavation required for construction can result in changes to the topography and landform of the vacant land. The removal or redistribution of soil, levelling of slopes can alter the natural contours and visual appearance of the site.	
Indirect	The transformation of vacant land into a built environment can alter the landscape of an area. The visual landscape contributes to the community's identity. The introduction of additional industrial parks can shift this identity towards a more industrialized character, which may not align with residents' values or preferences Disruption of natural or rural vistas. The introduction of another light industrial corporate park development can alter the visual character of a neighbourhood. This may include changes in architectural styles, building heights, building materials, and overall urban design elements. The visual cohesion and continuity of the neighbourhood may be impacted, which can lead to changes in perceived identity and aesthetics. The new development may create visual contrast or clash with the existing architectural styles, land uses, or design patterns. This can affect the overall visual harmony and cohesiveness of the area. Construction of new roads, sidewalks, street lighting, and utility installations. These changes can impact the visual experience of the area, particularly in terms of visual clutter, traffic flow, and overall streetscape design. Vacant land characterized by open spaces and natural vegetation. When transformed into a built development, the loss of these green spaces and vegetation can impact the visual quality and ecological value of the area. The absence of natural	

	elements may result in a more built-up environment with reduced visual relief.	
Cumulative	The construction of any new built development alters the visual character of the area by introducing new built structures, roads, and infrastructure. Over time, as the Lanseria Smart City gains momentum and more construction takes place, the cumulative effect can lead to a significant transformation of the built environment. This will result in a denser, more urbanized, or suburbanized landscape. Loss of natural features and open space can impact the visual diversity, sense of natural beauty, and ecological balance of the surrounding environment. Building heights, landscaping, and overall urban design elements can affect the visual coherence, continuity, and aesthetics of the neighbourhood.	

J 3.7 Noise Impacts

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Elevated noise levels	Elevated noise levels	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Site and medium term	Site and medium to long term	N/A
Consequence of impact or risk	Physical and mental human health affecting adjacent residents and work tenants quality of life	Physical and mental human health affecting adjacent residents and work tenants quality of life	
Probability of occurrence:	Highly likely	Highly likely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	N/A	N/A	N/A
Indirect impacts:	High noise levels can cause interference and nuisance to people in places of work and residence adjacent to the site. Construction noise and urban development can fragment natural habitats, creating barriers for wildlife movement	High noise levels can cause interference and nuisance to people in adjaent places of work and residence adjacent to the site. Construction noise and urban development can fragment natural habitats, creating	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	and reducing habitat connectivity.	barriers for wildlife movement and reducing habitat connectivity.	
Cumulative impact prior to mitigation:	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Low negative (1)	Low negative (1)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Noise regulations and mitigation measures, such as sound barriers, noise-reducing technologies, and urban planning strategies, can help minimize the extent and duration of the impact of elevated noise levels on both humans and the environment.	Noise regulations and mitigation measures, such as sound barriers, noise-reducing technologies, and urban planning strategies, can help minimize the extent and duration of the impact of elevated noise levels on both humans and the environment.	None required
Residual impacts:	Long-term exposure to elevated noise levels can make individuals more sensitive to even moderate levels of noise, leading to discomfort and reduced quality of life. Stress and Anxiety, Sleep disruption, and unmitigated noise pollution can influence social patterns within communities, affecting communication habits, recreational choices, and community dynamics.	Long-term exposure to elevated noise levels can make individuals more sensitive to even moderate levels of noise, leading to discomfort and reduced quality of life. Stress and Anxiety, Sleep disruption, and unmitigated noise pollution can influence social patterns within communities, affecting communication habits, recreational choices, and community dynamics.	N/A
Cumulative impact post mitigation:	Low	Low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Project Life-cycle	Operational Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Elevated noise levels	Elevated noise levels	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Site and medium term	Site and medium to long term	N/A
Consequence of impact or risk	As the site will be established, no major impacts are expected. However, if the development is phased over a long period of time, the construction activities will continue for a lengthy period, and cause on going noise impacts. Increased traffic noise, mechanical ventilation and other sources of noise from the developments – HVAC system, extractor fans and back up generators.	As the site will be established, no major impacts are expected. However, if the development is phased over a long period of time, the construction activities will continue for a lengthy period, and cause on going noise impacts. Increased traffic noise, mechanical ventilation and other sources of noise from the developments – HVAC system, extractor fans and back up generators.	
Probability of occurrence:	Highly likely	Highly likely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	N/A	N/A	N/A
Cumulative impact prior to mitigation:	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Moderate (2)	Moderate (2)	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr must be implemented	Noise regulations and mitigation measures, such as sound barriers, noise-reducing technologies, and urban planning strategies, can help minimize the extent and duration of the impact of	Noise regulations and mitigation measures, such as sound barriers, noise-reducing technologies, and urban planning strategies, can help minimize the extent and duration of the impact of	None required

	Preferred Alternative	Alternative 2	No-Go Option
	elevated noise levels on both humans and the environment.	elevated noise levels on both humans and the environment.	
Cumulative impact post mitigation:	Low	Low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct Indirect	Elevated construction noise can cause significant disturbance to nearby residents and workers, interfering with their daily routines, sleep patterns, and overall quality of life. Construction noise and urban development can fragment natural habitats, creating barriers for wildlife movement and reducing habitat connectivity.	High noise levels can interfere with social interactions and gatherings. Health issues arising from prolonged exposure to noise pollution can lead to increased healthcare expenses for individuals.
Cumulative	Cumulative exposure to elevated noise levels can intensify the physiological and psychological stress response, leading to an increased risk of stress-related health conditions such as cardiovascular issues, mental health disorders, and sleep disturbances. Cumulative negative impact on community well-being, includes diminished social cohesion, reduced quality of life, and decreased satisfaction with the living environment.	

J 3.8 Air Quality

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Dust and air pollutants	Dust and air pollutants	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and short term	Local and medium term	N/A
Consequence of impact or risk	Construction-related dust Diesel emissions Chemical contaminants that can release volatile organic compounds (VOCs) into the air.	Construction-related dust Diesel emissions Chemical contaminants that can release volatile organic compounds (VOCs) into the air.	
Probability of occurrence:	Highly Probable	Highly Probable	N/A

	Preferred Alternative	Alternative 2	No-Go Option
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	Partly reversible	Partly reversible	N/A
Indirect impacts:	Poor air quality resulting from construction activities can affect the health of nearby residents and workers. Construction-related air pollutants can have indirect impacts on ecosystems, including damage to vegetation, soil contamination, and disruption of ecological processes. Airborne pollutants can deposit onto nearby water bodies and soil, contributing to water pollution and affecting the quality of soil and vegetation in the surrounding area.	Poor air quality resulting from construction activities can affect the health of nearby residents and workers. Construction-related air pollutants can have indirect impacts on ecosystems, including damage to vegetation, soil contamination, and disruption of ecological processes. Airborne pollutants can deposit onto nearby water bodies and soil, contributing to water pollution and affecting the quality of soil and vegetation in the surrounding area.	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Medium negative (2)	Medium negative (2)	No impact
Degree to which the impact can be avoided:	Medium	Medium	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr	- Apply water to construction sites and areas prone to dust generation using water trucks, sprinklers, to suppress dust particles. - Erect windbreaks or barriers, such as mesh fences or temporary walls, to reduce the spread of dust to surrounding areas.	- Apply water to construction sites and areas prone to dust generation using water trucks, sprinklers, to suppress dust particles. - Erect windbreaks or barriers, such as mesh fences or temporary walls, to reduce the spread of dust to surrounding areas.	None required

	Preferred Alternative	Alternative 2	No-Go Option
must be implemented	- Use mulch, gravel, or other ground covers to stabilize exposed soil and minimize dust generation. - Protect and maintain existing vegetation on and around the construction site to act as a natural dust barrier. - Employ construction machinery and vehicles with low-emission engines, such as those compliant with the latest emission standards. - Maintain construction equipment and vehicles properly to ensure optimal performance, including routine engine maintenance, filter replacements, and fuel system checks. - Implement policies that discourage unnecessary idling of construction vehicles and equipment to minimize emissions. - Properly cover and store construction materials, such as sand, soil, or aggregate, to prevent wind erosion and minimize dust generation. - Provide training to construction workers on best practices for dust and emission control, including proper equipment operation, dust suppression techniques, and the	- Use mulch, gravel, or other ground covers to stabilize exposed soil and minimize dust generation. - Protect and maintain existing vegetation on and around the construction site to act as a natural dust barrier. - Employ construction machinery and vehicles with low-emission engines, such as those compliant with the latest emission standards. - Maintain construction equipment and vehicles properly to ensure optimal performance, including routine engine maintenance, filter replacements, and fuel system checks. - Implement policies that discourage unnecessary idling of construction vehicles and equipment to minimize emissions. - Properly cover and store construction materials, such as sand, soil, or aggregate, to prevent wind erosion and minimize dust generation. - Provide training to construction workers on best practices for dust and emission control, including proper equipment operation, dust	

	Preferred Alternative	Alternative 2	No-Go Option
	importance of emission reduction.	suppression techniques, and the importance of emission reduction.	
Residual impacts:	- Prolonged exposure to poor air quality can lead to the development or worsening of respiratory conditions such as asthma, bronchitis. - Persistent air pollution can disrupt ecosystems, impacting plant and animal life, biodiversity, and the overall ecological balance. - Air pollutants can deposit onto land and water bodies, contaminating soil, water sources, and aquatic ecosystems. - Certain air pollutants, such as sulfur dioxide (SO2) and nitrogen oxides (NOx), can contribute to acid rain, which can damage vegetation, harm aquatic life, and degrade buildings and infrastructure. - Lingering effects of poor air quality can negatively impact the overall quality of life for individuals and communities, causing discomfort, reduced outdoor activities, and limited access to clean and healthy environments. - Residual impacts of poor air quality may disproportionately affect vulnerable populations, including low-income communities and marginalized groups,	- Prolonged exposure to poor air quality can lead to the development or worsening of respiratory conditions such as asthma, bronchitis. - Persistent air pollution can disrupt ecosystems, impacting plant and animal life, biodiversity, and the overall ecological balance. - Air pollutants can deposit onto land and water bodies, contaminating soil, water sources, and aquatic ecosystems. - Certain air pollutants, such as sulfur dioxide (SO2) and nitrogen oxides (NOx), can contribute to acid rain, which can damage vegetation, harm aquatic life, and degrade buildings and infrastructure. - Lingering effects of poor air quality can negatively impact the overall quality of life for individuals and communities, causing discomfort, reduced outdoor activities, and limited access to clean and healthy environments. - Residual impacts of poor air quality may disproportionately affect vulnerable populations, including low-income communities and	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	exacerbating existing social inequities.	marginalized groups, exacerbating existing social inequities.	
Cumulative impact post mitigation:	Medium	Medium	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Project Life-cycle	**Operational Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Dust and air pollutants	Dust and air pollutants	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and medium term	Local and medium to long term	N/A
Consequence of impact or risk	Due to the anticipated phased nature of the project, construction activities and vehicles on site will be continued during the operational phases of the greater development	Due to the anticipated phased nature of the project, construction activities and vehicles on site will be continued during the operational phases of the greater development	
Probability of occurrence:	Highly Probable	Highly Probable	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	Partly reversible	Partly reversible	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Low negative (1)	Low negative (1)	No impact
Degree to which the impact can be avoided:	Medium	Medium	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	Medium	Medium	N/A
Proposed mitigation: • Mitigation measures stated in the EMPr	The final built township will have asphalt roads which will be	The final built township will have asphalt roads which will	None required

	Preferred Alternative	Alternative 2	No-Go Option
must be implemented	paved, and dust will thus be eliminated.	be paved, and dust will thus be eliminated.	
Cumulative impact post mitigation:	Medium	Medium	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Construction-related dust Diesel emissions Chemical contaminants that can release volatile organic compounds (VOCs) into the air	Poor air quality can lead to discomfort and irritation for adjacent residents. Certain forms of renewable energy, such as solar power, can be affected by poor air quality when high levels of air pollution reduce the amount of sunlight reaching solar panels.
Indirect	Poor air quality can lead to a higher incidence of respiratory illnesses, cardiovascular diseases, and other health conditions. This results in increased healthcare expenditures, including medical treatments, hospitalizations, and medication. Certain groups, such as children, the elderly, and individuals with pre-existing health conditions, are more susceptible to the indirect impacts of poor air quality, leading to greater health risks and healthcare needs. Poor air quality can lead to decreased property values in affected areas, as potential buyers may be deterred by health concerns and the perceived lower quality of living. Poor air quality can harm ecosystems by damaging vegetation, and disrupting the balance of species. Air pollutants can deposit onto soil and water bodies, leading to contamination and degradation of these vital resources. This can impact water quality, and aquatic ecosystems. The indirect impact of poor air quality on the global climate can result in long-term environmental consequences, including altered weather patterns and rising temperatures.	
Cumulative	As above	

J 3.9 Heritage

Project Life-cycle	Construction Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Loss of sites, features, or objects of cultural heritage significance	Loss of sites, features, or objects of cultural heritage significance	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Site and permanent	Site and permanent	N/A
Consequence of impact or risk	Loss of sites, features, or objects of cultural heritage significance	Loss of sites, features, or objects of cultural heritage significance	
Probability of occurrence:	Unlikely	Unlikely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	Irreplaceable	Irreplaceable	N/A
Degree to which the impact can be reversed:	Irreversible	Irreversible	N/A
Indirect impacts:	Loss of sites, features, or objects of cultural heritage significance	Loss of sites, features, or objects of cultural heritage significance	N/A
Cumulative impact prior to mitigation:	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Low negative	Low negative	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation:	Mitigation measures stated in the EMPr for chance finds must be implemented	Mitigation measures stated in the EMPr for chance finds must be implemented	None required
Residual impacts:	No residual impacts anticipated.	No residual impacts anticipated.	N/A
Cumulative impact post mitigation:	Low	Low	N/A
Significance rating of impact after mitigation:	Low	Low	N/A

Project Life-cycle	Operational Phase

Although highly doubtful, should any potentially culturally significant artefacts or graves, etc. be found during the operational phase, the development management is to be informed and a Cultural Heritage practitioner is to be contacted to decide on a way forward

Direct, Indirect and Cumulative Impact discussion:
The probability of resources of high cultural significance being found on site, above or underground, are highly unlikely. As such, no direct, indirect or cumulative impacts are anticipated.

J 3.10 Social Impacts

Project Life-cycle	**Construction Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	• Investment and the contribution to the national, regional and local economy; • Creation of employment, income and skills; • Impact on adjacent property values • Impact on Daily Living and Movement Patterns, Impact on Social Networks • Health Safety and Security Risks	• Investment and the contribution to the national, regional and local economy; • Creation of employment, income and skills; • Pressures on community fabric and resources due to an influx of jobseekers; • Accommodating workforce on site • Impact on adjacent property values • Impact on Daily Living and Movement Patterns, Impact on Social Networks • Health Safety and Security Risks	Status quo remains. No development will be undertaken.
Nature of impact:	Positive and Negative	Positive and Negative	No impact.
Extent and duration of impact:	Regional and Long term	Regional and Long term	N/A
Consequence of impact or risk	If the township leads to increased land values or development pressure, existing residents may face displacement or be priced out of their homes, disrupting community ties. While new jobs can be created, they may not always match the skills of the local workforce. This can lead to a mismatch between job availability and local	Mixed land use development (as part of mixed land use developments) can help meet the growing demand for housing in and adjacent to densely populated areas. Mixed land use developments can put a strain on existing infrastructure, including transportation networks, utilities (water, electricity, sewage), and public services	

	Preferred Alternative	Alternative 2	No-Go Option
	employment needs, potentially increasing unemployment or underemployment. An influx of workers and logistics traffic can lead to increased congestion, affecting residents' daily lives, commute times, and overall accessibility. Industrial activities can lead to heightened noise levels and pollution, which may affect the quality of life for nearby residents, potentially leading to health issues and decreased well-being. The new development may put additional pressure on local infrastructure (roads, healthcare services), potentially leading to overcrowding and diminished service quality for existing residents. Increased industrial activity may raise concerns about health risks related to air quality, water contamination, and noise pollution, potentially leading to health disparities in the community. While some may benefit from job creation, others might not, leading to increased economic inequality within the community. If low-income or marginalized communities are disproportionately affected by the negative impacts of industrial development, it can lead to social injustice issues.	(schools, healthcare facilities). This can result in overcrowding, increased congestion, and inadequate access to essential services, impacting the quality of life for residents. The introduction of Mixed land use developments can alter the character and social dynamics of existing neighbourhoods. This can lead to changes in community cohesion, social interactions, and a sense of place, potentially impacting social relationships and community well-being. Mixed land use developments can create economic opportunities through increased demand for local businesses, job creation in construction and related sectors, and improved urban vitality. However, there can also be challenges in ensuring that economic benefits are inclusive and accessible to all residents.	

	Preferred Alternative	Alternative 2	No-Go Option
Probability of occurrence:	Likely	Likely	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	N/A	N/A	N/A
Indirect impacts:	The establishment of a light industrial township can lead to economic diversification, creating opportunities for local businesses to thrive and attract new investments. As industrial development occurs, surrounding property values may rise, which can be beneficial for some homeowners but may also lead to affordability issues for others. The influx of workers and businesses can alter the demographic composition of the area, potentially leading to cultural shifts and changes in community dynamics. An increase in population and workforce can put pressure on community services such as schools, healthcare, and recreational facilities, affecting the quality of life for existing residents. The focus on industrial development may shift the local economy away from agriculture or tourism, impacting traditional livelihoods and community identity. Economic growth can lead to increased community engagement and volunteerism as local organizations and	Mixed land use development can place indirect pressure on infrastructure such as roads, public transportation systems, water and sewage systems, and utilities. This may require additional investments in infrastructure to accommodate the increased population density and meet the demand for services. The influx of residents in Mixed land use developments can lead to increased demand for public services, including schools, healthcare facilities, police, and emergency services. Adequate provision of these services may require additional resources and planning. Mixed land use developments can create opportunities for local businesses, such as retail stores, restaurants, and services, by generating increased customer demand and foot traffic. This can contribute to economic growth and job creation. The presence of Mixed land use developments can potentially impact property values in the surrounding area. Depending on factors such as location, design, and desirability, property values may rise or decline, which can have	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	businesses work together to address new challenges and opportunities. New residents and workers may bring different cultural backgrounds and perspectives, which can enrich community interactions but may also lead to social tensions. The need for improved infrastructure (roads, utilities) can lead to better overall community facilities, benefiting both new and existing residents. An influx of people and economic activity can lead to higher crime rates, necessitating enhanced security measures and community policing. Industrial activities can indirectly affect public health by influencing lifestyle changes, increasing access to jobs, or causing environmental changes that impact community health. New job opportunities may not be accessible to all residents, leading to social stratification and tensions between different economic groups within the community.	implications for existing homeowners and renters. Mixed land use development can influence the dynamics of community interactions. The proximity of residents in densely populated areas may foster social connections, promote community engagement, and enhance neighbourhood cohesion. Conversely, it may also present challenges in terms of privacy, noise levels, and conflicting interests among residents. Mixed land use can provide opportunities for diverse populations to live in close proximity, fostering cultural exchange and inclusivity. However, it is important to ensure that housing remains affordable and accessible to all income groups to prevent exclusion and social stratification. Mixed land use development can encourage more efficient land use, reduce urban sprawl, and promote sustainable practices. However, it is crucial to address the indirect impacts on the environment, such as increased energy consumption, waste generation, and potential strain on local ecosystems. Mixed land use developments often lead to increased transportation demand, requiring efficient and sustainable transportation options. This may include	

	Preferred Alternative	Alternative 2	No-Go Option
		improvements in public transportation infrastructure, pedestrian and cycling facilities, and transportation demand management strategies to minimize congestion and reduce reliance on private vehicles.	
Cumulative impact prior to mitigation:	Low negative and high positive	Moderate negative and high positive	No impact
Significance rating of impact prior to mitigation:	Low negative (2) and high positive ++	Moderate negative (2) and high positive ++	No impact
Degree to which the impact can be avoided:	High	High	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	High	High	N/A
Proposed mitigation:	Addressing the potential consequences requires careful urban planning, community engagement, and policy interventions. This includes providing adequate infrastructure and services, promoting sustainable development practices, fostering social inclusion, and implementing strategies to minimize negative impacts on existing communities. Effective collaboration among stakeholders, including government agencies, developers, community organizations, and residents, is essential to mitigate potential socio-economic risks and maximize the positive impacts of a light industrial development.	Addressing the potential consequences requires careful urban planning, community engagement, and policy interventions. This includes ensuring affordable housing options, providing adequate infrastructure and services, promoting sustainable development practices, fostering social inclusion, and implementing strategies to minimize negative impacts on existing communities. Effective collaboration among stakeholders, including government agencies, developers, community organizations, and residents, is essential to mitigate potential socio-economic risks and maximize the positive impacts of high-density residential development.	None required
Residual impacts: Long-term effects that persist after the initial development and integration of the township	New job opportunities may lead to sustained economic growth, impacting the local economy and potentially reducing	Mixed land use development can contribute to rising housing costs, making it less affordable for lower-income individuals	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	unemployment in the long term. Over time, the influx of new residents and businesses can create divisions within the community, leading to a loss of cohesion among long-term residents and newcomers. The demographic changes brought about by industrial development can result in a blending of cultures, potentially enriching the community but also leading to conflicts over values and lifestyles. The industrial character of the area may redefine the community's identity, moving it away from its previous agricultural or natural heritage and leading to a shift in how residents perceive their home. Continued population growth and industrial activity can result in ongoing pressures on local infrastructure, such as roads and public services, requiring ongoing investment and maintenance. Any environmental degradation caused by the industrial activities can have lasting effects on public health and local ecosystems, necessitating long-term remediation efforts. Over time, the relationship between the community and developers or local authorities may evolve, influenced by how well concerns are addressed and the perceived benefits of the development.	and exacerbating socio-economic inequalities. As property values increase in Mixed land use areas, existing residents, particularly those with lower incomes, may face challenges in affording housing and may be at risk of displacement, potentially leading to social and economic disruption. Mixed land use development can result in changes to the character and identity of a neighbourhood. This may include alterations to architectural styles, the mix of housing types, and the demographics of the community, which can impact social relationships and community cohesion. Rapid urbanization and high-density development can lead to the loss of cultural heritage and the erosion of local identity as communities and traditional structures are replaced by newer developments. Over time, Mixed land use developments can place additional strain on existing infrastructure, leading to the deterioration of roads, utilities, and public facilities. This requires ongoing maintenance and investment to ensure that infrastructure keeps pace with the needs of the community. As Mixed land use areas continue to develop and expand, the need for	

	Preferred Alternative	Alternative 2	No-Go Option
	If job opportunities are not equitably distributed, long-term economic disparities may persist, leading to a stratified community with varying levels of access to resources and opportunities. Depending on the commitment to sustainable development, the community may either benefit from or suffer due to the long-term implementation (or lack thereof) of green practices and responsible industrial management.	infrastructure upgrades and expansion may arise, requiring significant investments and potentially straining public resources. Mixed land use development can increase the demand for natural resources, such as water and energy. This may place additional strain on already limited resources and require sustainable management strategies to mitigate environmental impacts. Densification of residential areas can lead to reduced availability of green spaces, such as parks and gardens, impacting the quality of life and access to recreational areas for residents. Mixed land use development can exacerbate existing socio-economic disparities by creating unequal access to essential services, such as education, healthcare, and public transportation. Lower-income residents may face challenges in accessing these services and opportunities.	
Cumulative impact post mitigation:	High positive	High positive	N/A
Significance rating of impact after mitigation:	High positive ++	High positive ++	N/A

Project Life-cycle	Operational Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	- Decrease in unemployment and crimes related to unemployment - BEE development opportunities - Decrease in unemployment and empowerment of local trade and industry - Increase in taxes raised on property	- Decrease in unemployment and crimes related to unemployment - BEE development opportunities - Decrease in unemployment and empowerment of local trade and industry - Increase in taxes raised on property	Status quo remains. No development will be undertaken.
Nature of impact:	Positive and Negative	Positive and Negative	No impact.
Extent and duration of impact:	Regional and Long term	Regional and Long term	N/A
Consequence of impact or risk	- Employment of workers during the operational phase – business sector, landscaping and maintenance, cleaning, medical staff, etc. - Local demand for goods and services - Increase in service delivery and number of erven	- Employment of workers during the operational phase – business sector, landscaping and maintenance, cleaning, medical staff, etc. - Local demand for goods and services - Increase in service delivery and number of erven	N/A
Probability of occurrence:	Highly Probable	Highly Probable	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A	N/A	N/A
Degree to which the impact can be reversed:	N/A	N/A	N/A
Cumulative impact prior to mitigation:	High positive	High positive	No impact
Significance rating of impact prior to mitigation:	High positive	High positive	No impact
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	N/A
Degree to which the impact can be managed:	Partly	Partly	N/A
Degree to which the impact can be mitigated:	Partly	Partly	N/A

	Preferred Alternative	Alternative 2	No-Go Option
Proposed mitigation: • Mitigation measures stated in the SIA, appendix 21, must be implemented	- Local labour and employees to be made use of as far as possible for all aspects of the operational phase - Local training and capacity building programmes - BEE companies to be trained and involved in during the operational phase of the development – e.g. Management of retail facilities, maintenance, landscaping, etc. - Local products, goods and services to be utilised as far as possible during the operational phase – shops, craft centre, etc. - Local training and capacity building programmes	- Local labour and employees to be made use of as far as possible for all aspects of the operational phase - Local training and capacity building programmes - BEE companies to be trained and involved in during the operational phase of the development – e.g. Management of retail facilities, maintenance, landscaping, etc. - Local products, goods and services to be utilised as far as possible during the operational phase – shops, craft centre, etc. - Local training and capacity building programmes	None required
Cumulative impact post mitigation:	High positive	High positive	N/A
Significance rating of impact after mitigation:	High positive	High positive	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Cumulative	From a socio-economic perspective, the proposed development will not result in unacceptable cumulative impacts.	

J 3.11 Traffic

Project Life-cycle	Construction Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk: Construction and operation	Additional traffic resulting from the construction vehicles accessing the site. Potential impact on traffic flow in the areaduring operation.	Additional traffic resulting from the construction vehicles accessing the site. Potential impact on traffic flow in the areaduring operation.	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and short term	Local and short term	N/A
Consequence of impact or risk	Potential safety risks for road users during the construction phase.	Potential safety risks for road users during the construction phase.	
Probability of occurrence:	Definite	Definite	N/A
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources	No loss of resources	N/A
Degree to which the impact can be reversed:	Irreversible	Irreversible	N/A
Indirect impacts:	None	None	N/A
Cumulative impact prior to mitigation:	Low negative	Low negative	No impact
Significance rating of impact prior to mitigation:	Moderate negative (2)	Moderate negative (2)	No impact
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	Partly mitigate	Partly mitigate	N/A
Proposed mitigation:	Developing and implementing long-term transportation plans that consider the projected growth in the area and prioritize sustainable modes of transportation. Investing in infrastructure improvements, such as expanding road capacity, enhancing public transit systems, and improving	Developing and implementing long-term transportation plans that consider the projected growth in the area and prioritize sustainable modes of transportation. Investing in infrastructure improvements, such as expanding road capacity, enhancing public transit systems, and improving	None required

	Preferred Alternative	Alternative 2	No-Go Option
	pedestrian and cycling infrastructure. Promoting alternative transportation options to reduce the reliance on single-occupancy vehicles. Encouraging smart growth principles that promote mixed land use, compact development, and the creation of walkable neighborhoods to reduce the need for long-distance travel. Implementing traffic management techniques, including traffic signal optimization, intelligent transportation systems, and congestion pricing, to improve traffic flow and reduce congestion. Constructing the intersection upgrades and accesses, as per the Traffic Impact Assessment, Appendix 6.	pedestrian and cycling infrastructure. Promoting alternative transportation options to reduce the reliance on single-occupancy vehicles. Encouraging smart growth principles that promote mixed land use, compact development, and the creation of walkable neighborhoods to reduce the need for long-distance travel. Implementing traffic management techniques, including traffic signal optimization, intelligent transportation systems, and congestion pricing, to improve traffic flow and reduce congestion. Constructing the intersection upgrades and accesses, as per the Traffic Impact Assessment, Appendix 6	
Residual impacts:	The residual impacts of traffic include ongoing costs associated with infrastructure maintenance and repairs. High traffic volumes can lead to accelerated deterioration of roads, bridges, and other transportation infrastructure, requiring continuous investment in repairs and upgrades to ensure their proper functioning. Vehicle emissions, such as greenhouse gases, particulate matter, and pollutants, continue to affect air quality,	The residual impacts of traffic include ongoing costs associated with infrastructure maintenance and repairs. High traffic volumes can lead to accelerated deterioration of roads, bridges, and other transportation infrastructure, requiring continuous investment in repairs and upgrades to ensure their proper functioning. Vehicle emissions, such as greenhouse gases, particulate matter, and pollutants, continue to affect air quality,	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	contributing to climate change and negative health effects for residents. Properties located in areas with high traffic volumes, noise pollution, and safety concerns may experience reduced demand and lower market values, impacting property owners' investments.	contributing to climate change and negative health effects for residents. Properties located in areas with high traffic volumes, noise pollution, and safety concerns may experience reduced demand and lower market values, impacting property owners' investments.	
Cumulative impact post mitigation:	Moderate to low	Moderate to low	N/A
Significance rating of impact after mitigation:	Moderate (2)	Moderate (2)	N/A

Project Life-cycle	**Operational Phase**

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk: Construction and operation	Increase of work force and users of the area	Increase of residents and users of the area	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Local and short term	Local and short term	N/A
Consequence of impact or risk	Additional vehicles on road	Additional vehicles on road	
Probability of occurrence:	Definite	Definite	N/A
Degree to which the impact may cause irreplaceable loss of resources:	No loss of resources	No loss of resources	N/A
Degree to which the impact can be reversed:	Irreversible	Irreversible	N/A
Cumulative impact prior to mitigation:	No impact.	No impact.	No impact
Significance rating of impact prior to mitigation:	Low negative	Low negative	No impact
Degree to which the impact can be avoided:	Unavoidable	Unavoidable	N/A
Degree to which the impact can be managed:	High	High	N/A
Degree to which the impact can be mitigated:	Partly mitigate	Partly mitigate	N/A
Proposed mitigation:	• All requirements of local municipality to be adhered to	• All requirements of local municipality to be adhered to	None required

	Preferred Alternative	Alternative 2	No-Go Option
	• All improvements to road infrastructure as recommended by traffic engineer to be adhered to	• All improvements to road infrastructure as recommended by traffic engineer to be adhered to	
Cumulative impact post mitigation:	Moderate to low	Moderate to low	N/A
Significance rating of impact after mitigation:	Low (1)	Low (1)	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	Construction activities often require the movement of construction vehicles, delivery trucks, and equipment, which can contribute to increased traffic congestion in and around the construction site. Lane closures, road diversions, or reduced road capacity due to construction activities can disrupt the normal flow of traffic and result in delays for commuters and other road users. Construction-related traffic can lead to longer travel times for motorists due to congestion and delays caused by construction activities. This can result in inconvenience and potential productivity losses for commuters and businesses. Construction-related traffic can create safety hazards for both drivers and construction workers. The presence of construction vehicles, equipment, and temporary traffic control measures can increase the risk of accidents, especially if proper safety precautions are not in place. Lane closures, temporary detours, and changes in road conditions can also confuse drivers and increase the likelihood of collisions or other traffic incidents. Construction-related traffic can impact access to businesses, residences, and public facilities in the vicinity of the construction site. Temporary road closures, restricted	Traffic Congestion: High-density residential developments typically have a higher concentration of residents and vehicles within a limited space. This can lead to increased traffic congestion, especially during peak travel times. Congestion can result in slower traffic flow, longer travel times, and increased frustration for residents and commuters. Limited Parking Availability: High-density residential developments often have limited parking spaces relative to the number of residents and vehicles. This can result in parking shortages, difficulty finding parking spaces, and increased competition for limited parking spots. Insufficient parking availability can lead to congestion, inconvenience, and conflicts among residents. Safety Hazards: Higher traffic volumes in a high-density residential development can increase the risk of accidents and safety hazards. The presence of more vehicles and pedestrians in close proximity can lead to a higher likelihood of collisions, especially if there are inadequate traffic control measures, pedestrian crossings, or signage. Pedestrian and Cyclist Safety: Higher traffic volumes and congestion can pose risks to pedestrians and cyclists within a high-

	Construction	Operation
	access, or limited parking availability can affect the mobility and convenience of local residents, visitors, and businesses. Construction projects may require the implementation of detours or route changes to redirect traffic around the construction site. This can lead to confusion, longer travel distances, and increased travel times for drivers, as well as potential inconvenience for local residents and businesses along the detour routes. Construction-related traffic can disrupt public transportation services, including buses, trams, or trains, which may need to modify their routes or schedules to accommodate the construction activities. This can affect the accessibility and reliability of public transportation for commuters and passengers.	density residential development. Insufficient infrastructure for pedestrians and cyclists, such as sidewalks, crosswalks, or bike lanes, can make it more challenging and unsafe for them to navigate the area. Access and Mobility: The high density of residents and vehicles can impact access and mobility within the development. Narrow roads, limited entry and exit points, and congestion can make it more difficult for residents to enter or leave the development, as well as hinder the movement of emergency vehicles. Impact on Public Transportation: Increased traffic within a high-density residential development can affect the efficiency and reliability of public transportation services. Congestion and delays can result in longer travel times for buses or trams, affecting the accessibility and attractiveness of public transit for residents.
Indirect	Construction-related traffic contributes to increased emissions of air pollutants, including particulate matter, nitrogen oxides (NOx), and volatile organic compounds (VOCs). These pollutants can have detrimental effects on air quality, and negative impacts on ecosystems. Construction-related traffic, including the movement of vehicles and equipment, can generate significant noise levels. Prolonged exposure to construction-related noise can lead to annoyance, sleep disturbances, stress, and potential health impacts for nearby residents and workers. Indirectly, construction-related traffic can result in economic costs. Delays and disruptions caused by traffic congestion can impact businesses, productivity, and supply chains. Increased travel times and fuel consumption for commuters and transporters can also lead to higher transportation costs.	Air Pollution and Health Effects: Increased traffic in a high-density residential development can contribute to higher levels of air pollution, including emissions of particulate matter, nitrogen oxides (NOx), and volatile organic compounds (VOCs). Higher traffic volumes in mixed land use developments can lead to increased noise levels, which can disturb residents and affect their well-being. Noise pollution from vehicles, horns, engines, and traffic-related activities can impact the overall quality of life, sleep patterns, and mental health of residents. High traffic volumes and congestion can negatively affect the walkability and attractiveness of a mixed land use development. The presence of heavy traffic, lack of pedestrian-friendly infrastructure, and safety concerns may discourage residents from walking or

	Construction	Operation
	Disruption to Local Businesses: Construction-related traffic can create challenges for local businesses located near construction sites. Reduced accessibility, limited parking options, and decreased foot traffic due to congestion or detours can result in a decline in customer visits and revenue for businesses. Construction-related traffic can cause social disruptions and inconvenience for residents and communities. Increased congestion, road closures, detours, and changes in traffic patterns can affect daily routines, access to amenities, and overall mobility. This can lead to frustration, stress, and a decreased sense of well-being among residents. Construction-related traffic can contribute to environmental degradation through the destruction of natural habitats, soil erosion, and disturbance to remaining ecosystems. The expansion of road networks to accommodate increased traffic can result in the loss of green spaces and fragmentation of ecosystems. The increased emissions from construction-related traffic contribute to greenhouse gas emissions, contributing to climate change. These emissions can result from the burning of fossil fuels by construction vehicles and equipment, as well as the increased energy consumption associated with longer travel times due to congestion.	cycling, leading to reduced physical activity levels and increased reliance on vehicles. Excessive traffic within a mixed land use development can lead to a sense of community fragmentation. Increased noise, congestion, and perceived safety risks can discourage social interactions among residents, hinder community cohesion, and reduce the livability of the neighborhood. Heavy traffic and congestion can negatively impact property values in a high-density development. The presence of excessive traffic noise, pollution, and safety concerns can make properties less desirable, potentially leading to decreased property values and investment attractiveness. Traffic congestion and delays can result in economic costs and productivity losses for residents and businesses in a high-density residential development. Increased travel times, reduced accessibility, and limited mobility can lead to inefficiencies, missed appointments, and decreased productivity for individuals and companies operating within the area. Increased traffic in a high-density development can have indirect environmental impacts. The emission of greenhouse gases from vehicles contributes to climate change, while the expansion of road networks and infrastructure can lead to habitat loss and fragmentation of ecosystems.
Cumulative	Increased Traffic Congestion, Declining Air Quality, Noise Pollution, accelerated wear and tear on roads, bridges, and other transportation infrastructure. The cumulative effects of higher traffic volumes, limited road capacity, and potential conflicts between vehicles, pedestrians, and cyclists can contribute to an increased risk of accidents and injuries. Congestion and delays can result in lost productivity, increased fuel consumption, higher transportation costs, and inefficiencies in supply chains. These factors can negatively impact local businesses, reduce economic activity, and affect the overall economic vitality of the area.	

J 3.12 Infrastructure and Services

Project Life-cycle	Construction Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Added pressure on basic services and social and economic infrastructure	Added pressure on basic services and social and economic infrastructure	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Regional and long term	Regional and long term	N/A
Consequence of impact or risk	Negative impact on water and power services and social and economic infrastructure	Negative impact on water and power services and social and economic infrastructure	N/A
Probability of occurrence:	Definite	Definite	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A if alternative energy solutions are provided in the development	N/A if alternative energy solutions are provided in the development	N/A
Degree to which the impact can be reversed:	Reversible	Reversible	N/A
Indirect impacts:	Investment into improving economic infrastructure	Investment into improving economic infrastructure	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Low to medium negative	Low to medium negative	No impact
Degree to which the impact can be avoided:	Partly	Partly	N/A
Degree to which the impact can be managed:	Partly	Partly	N/A
Degree to which the impact can be mitigated:	Partly	Partly	N/A
Proposed mitigation: Mitigation measures stated in the EMPr must be implemented	Comprehensive urban planning that considers the projected population growth and aligns infrastructure development with the anticipated needs of the community. Collaboration between developers, local authorities, and utility providers to ensure infrastructure capacity matches the demands of the high-density residential development.	Comprehensive urban planning that considers the projected population growth and aligns infrastructure development with the anticipated needs of the community. Collaboration between developers, local authorities, and utility providers to ensure infrastructure capacity matches the demands of the high-density residential development.	None required

	Preferred Alternative	Alternative 2	No-Go Option
	Investment in upgrading and expanding existing infrastructure, such as water supply systems, power grids, transportation networks, and public service facilities. Implementation of smart city technologies and innovative solutions to optimize the use of resources and improve the efficiency of basic services.	Investment in upgrading and expanding existing infrastructure, such as water supply systems, power grids, transportation networks, and public service facilities. Implementation of smart city technologies and innovative solutions to optimize the use of resources and improve the efficiency of basic services.	
Residual impacts:	The increased demand for water, electricity, and other utilities in any urban development can strain the capacity of existing infrastructure. Water supply systems may require upgrades to meet the increased demand, and power grids may face challenges in ensuring a stable and reliable electricity supply. Development can lead to increased pressure on transportation systems, including roads, public transit, and parking facilities. Public safety services may face challenges in effectively responding to emergencies and maintaining adequate levels of service. The added pressure on basic services and infrastructure can have economic impacts on local businesses. If the existing infrastructure cannot support the increased population, businesses may face challenges in meeting the needs of customers and may struggle to expand their operations. This	The increased demand for water, electricity, and other utilities in a high-density residential development can strain the capacity of existing infrastructure. Water supply systems may require upgrades to meet the increased demand, and power grids may face challenges in ensuring a stable and reliable electricity supply. A high-density development can lead to increased pressure on transportation systems, including roads, public transit, and parking facilities. The influx of residents in a high-density development can strain public services, such as healthcare, education, and public safety. Increased demand for healthcare facilities and schools may result in overcrowding, longer wait times, and decreased service quality. Similarly, public safety services may face challenges in effectively responding to emergencies and maintaining adequate levels of service.	N/A

	Preferred Alternative	Alternative 2	No-Go Option
	can affect employment opportunities, economic growth, and overall business vitality in the area.	The pressure on basic services and infrastructure can impact housing affordability and availability in a high-density development. Increased demand for housing may lead to rising prices, making it more challenging for some residents to afford suitable housing options. Additionally, limited availability of housing units may result in housing shortages or increased competition for housing resources. The added pressure on basic services and infrastructure can have economic impacts on local businesses. If the existing infrastructure cannot support the increased population, businesses may face challenges in meeting the needs of customers and may struggle to expand their operations. This can affect employment opportunities, economic growth, and overall business vitality in the area. The added pressure on basic services and infrastructure can lead to social strain within the high-density residential development. Insufficient access to public amenities, overcrowded facilities, and limited community resources may impact residents' quality of life, social cohesion, and overall satisfaction with the neighbourhood.	
Cumulative impact post mitigation:	Medium impact during the *construction* phase	Medium impact during the *construction* phase	N/A
Significance rating of impact after mitigation:	Medium impact during the *construction* phase	Medium impact during the *construction* phase	N/A

Project Life-cycle	Operational Phase

	Preferred Alternative	Alternative 2	No-Go Option
Potential impact and risk:	Added pressure on basic services and social and economic infrastructure	Added pressure on basic services and social and economic infrastructure	Status quo remains. No development will be undertaken.
Nature of impact:	Negative	Negative	No impact.
Extent and duration of impact:	Regional and long term	Regional and long term	N/A
Consequence of impact or risk	Operational activities may not negatively influence the availability of services to surrounding land and business owners	Operational activities may not negatively influence the availability of services to surrounding land and business owners	N/A
Probability of occurrence:	Unlikely if municipal provision and capacity is proven and confirmed	Unlikely if municipal provision and capacity is proven and confirmed	N/A
Degree to which the impact may cause irreplaceable loss of resources:	N/A if municipal services can be feasibly and sustainably provided to the development	N/A if municipal services can be feasibly and sustainably provided to the development	N/A
Degree to which the impact can be reversed:	Reversible	Reversible	N/A
Cumulative impact prior to mitigation:	Medium negative	Medium negative	No impact
Significance rating of impact prior to mitigation:	Low to medium negative if municipal provision and capacity is proven and confirmed	Low to medium negative if municipal provision and capacity is proven and confirmed	No impact
Degree to which the impact can be avoided:	Partly	Partly	N/A
Degree to which the impact can be managed:	Partly	Partly	N/A
Degree to which the impact can be mitigated:	Partly	Partly	N/A
Proposed mitigation: Mitigation measures stated in the EMPr must be implemented	The engineers compiling the services report and designing services are to ensure that adequate measures are in place to ensure adequate service delivery that does not negatively affect surrounding areas All requirements by local municipality to be adhered to	The engineers compiling the services report and designing services are to ensure that adequate measures are in place to ensure adequate service delivery that does not negatively affect surrounding areas All requirements by local municipality to be adhered to	None required

	Preferred Alternative	Alternative 2	No-Go Option
	regarding service reticulation and delivery	regarding service reticulation and delivery	
Cumulative impact post mitigation:	Low negative if municipal provision and capacity is proven and confirmed	Low negative if municipal provision and capacity is proven and confirmed	N/A
Significance rating of impact after mitigation:	Low negative if municipal provision and capacity is proven and confirmed	Low negative if municipal provision and capacity is proven and confirmed	N/A

Direct, Indirect and Cumulative Impact discussion:

	Construction	Operation
Direct	See Table above	
Indirect	See Table above	
Cumulative	Overburdened Infrastructure: The cumulative impacts of added pressure on basic services and infrastructure can result in the overburdening of existing systems. Over time, the strain on water supply networks, electricity grids, transportation systems, and other infrastructure may exceed their design capacity, leading to reduced efficiency, increased maintenance requirements, and potential system failures. Inadequate Service Delivery: The cumulative impacts can result in inadequate service delivery, as the increased demand outpaces the capacity of public services and infrastructure. This can manifest as longer wait times, reduced service quality, overcrowded facilities, and limited access to essential services like healthcare, education, public safety, and recreational amenities. Declining Environmental Quality: The cumulative impacts of added pressure on basic services and infrastructure can have adverse effects on the environment. Increased energy consumption, waste generation, and resource depletion may lead to environmental degradation, including higher emissions, pollution, and depletion of natural resources, which can negatively impact air and water quality, biodiversity, and overall ecological health. Rising land and rent Costs: Cumulative impacts can result in rising costs for residents, businesses, and local authorities. The need for infrastructure upgrades, expanded services, and maintenance can require significant financial investments. Additionally, residents may face increased costs for utilities, housing, and other essential services as demand grows and supply struggles to keep up. Inequitable Distribution of Impacts: The cumulative impacts may exacerbate existing social inequalities, with certain groups or neighborhoods experiencing a disproportionate burden of inadequate infrastructure and services. This can lead to disparities in access to essential resources, exacerbating social divisions and perpetuating inequities within the community.	

Conclusion and recommendations from the Impact Assessment

The mitigation measures that are proposed must be implemented and monitored, both during the construction and operational phases.

- Risks and potential impacts related to the construction and operational phases have been thoroughly addressed.
- The proposed development will not cause significant alterations in the hydrology and biodiversity status, if the detailed mitigation measures are effectively implemented and monitored on site.
- The operation of multiple onsite sewer treatment plants may introduce risks of nutrient loading and pollutant discharge into the wetland, leading to eutrophication and degradation of the seep wetland on site, if the detailed mitigation measures provided in this report, the EMPr and the specialist reports, are not effectively implemented and monitored on site.
- The combined effects of multiple treatment plants, along with stormwater runoff from the light industrial site, could exacerbate water quality issues and negatively impact the wetland's ecological functions, if the detailed mitigation measures provided in this report, the EMPr and the specialist reports, are not effectively implemented and monitored on site.
- The wetland and buffer area must be cordoned off on site prior to construction activities, to minimize encroachment on the wetland, and preserving critical habitat areas which will reduce direct impacts.
- Effective stormwater management practices, such as green infrastructure (SUDS), must be incorporated into the stormwater design for the township, to reduce runoff and protect water quality in the wetland.
- Hydraulic connectivity of soils on the site must be taken into consideration by the engineering geologist to address and incorporate the hydropedological requirements of the site development plan. To sustain the seep wetland on site, the inflow of water into the soil (recharge) must be maintained by encouraging water infiltration into deeper rock layers. Construction on the site should not prevent any lateral water movement towards the watercourse.
- State-of-the-art wastewater treatment technologies must be used for onsite sewer plants to minimize the release of contaminants into groundwater resources and ensure high-quality effluent.
- A comprehensive sewer treatment plant monitoring program must be developed and established by each erf owner / tenant, to monitor the long-term water quality and ecological health of the wetland, allowing for adaptive management strategies to address any negative impacts promptly.
- The Environmental Management Program (EMPr) should be strictly adhered to during construction activities, thereby mitigating impacts as far as possible.

By incorporating these conclusions and recommendations, this EIA provides a balanced approach to managing the potential impacts of the light industrial development on the receiving environment.

SECTION K: ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

This section provides a description of assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

1. Identified by the EAP

No impact assessment can be completely certain of the exact nature and extent of the identified impacts, that would result from a given development activity, over an extended period. However, the assessment conducted for Lanseria X 81 has tried to limit any uncertainties by optimising the collection of base data, using historical data as a comparative reference to any changes on site, and by following a credible and detailed impact assessment methodology. Consequently, the EAP assumes that the uncertainty in this study would be limited to changes in the development circumstances at a scale that is beyond this locally focussed impact assessment exercise. Such would include major environmental issues not recorded or observable and/or drastic changes to the economic climate that alters the viability of the proposal. In addition to the above, the specialists have included relevant assumptions and limitations in their reports.

For this report it is assumed that:

- All information provided by the applicant and the appointed specialists is correct and valid at the time it was provided;
- The scope of this investigation was accurate and has assessed the potential environmental and socio-economic impacts which would be reasonably associated with the proposed activity.
- The methodology of the assessment and the findings presented in this report are valid and present sufficient detail and information that allows for the objective assessment and decision on the application.
- The EAP does not accept any responsibility if additional information comes to light at a later stage of the process, which has a major bearing on the outcome of the impact assessment.

All mitigation, management, and monitoring measures prescribed in this EIA Report and the accompanying EMPr will be implemented by the developer. Management of the site is essential, and the mitigation measures recommended by the specialists must be implemented. This has a major bearing on the reliability of the predictions of significance of impact.

The construction and management of this proposed activity will be in line with the recommendations in this report, which will be enforced by the implementation of the detailed EMPr. The long-term success of the project lies in the effective implementation of the measures prescribed in the EMPr. Uncertainties result when mitigation measures are proposed and must be implemented. The management and implementation of these mitigation measures must be monitored and managed correctly to ensure that all mitigation measures identified are brought to fruition.

2. Identified in the Terrestrial biodiversity Assessment

Flora:

- The floral assessment is confined to the study area and does not include the neighbouring and adjacent properties. The immediate surroundings were, however, included in the desktop analysis;
- The screening tool provides the names of sensitive species that are likely to be present within the study area and its surrounds. Within the DFFE screening tool outcome, the names of some species are not provided, and these species are rather assigned a number keeping them unidentifiable (e.g., Sensitive species 1). This procedure is followed because of the vulnerability of the species to threats such as illegal harvesting and overexploitation. According to the best practise guidelines provided by the South African National Biodiversity Institute (SANBI), the name of sensitive species may not appear in the final Environmental Impact Assessment (EIA) report nor any of the specialist reports released into the public domain. However, the conservation threat status of such species has been provided;
- Sections of the study area (including areas that overlap with the Degraded Grassland and the Moist Grassland) had been recently burnt. Although the veld had started to recover, it is likely that species were missed or identification not possible (grass species);
- As a low sensitivity for the Plant Species Theme was verified, impacts to floral SCC within the study area are deemed highly unlikely. As such, the impact assessment only pertains to impacts associated with the '*floral habitat and diversity*' and not with impacts pertaining to SCC. However, to meet the requirements of the Terrestrial Plant Species Compliance Statement, a compliance statement and impact statement for floral SCC have been provided in this report; and
- Sampling by its nature means that not all individuals are assessed and identified. With ecology being dynamic and complex, some aspects (some of which may be important) may have been overlooked. A field assessment was undertaken from the 24th of October 2023 (spring). According to the Species Environmental Assessment Guidelines (SANBI, 2020) assessments between October and Marh are ideal for the Grassland Biomes (i.e., Egoli Granit Grassland in which the study area is located), however peak flowering time is anticipated to occur between November and February. According to the minimum requirements as stipulated by the Gauteng Department of Agriculture and Rural Development (GDARD) Directorate's, surveys should ideally be conducted from the beginning of November to the end of April. To account for seasonal limitations, on-site data were augmented with all available desktop data, historic studies (e.g., Galago Environmental (2012), STS 190066 (2020), STS 22-2073 (2022), and STS 22-2055 (2023)), together with project experience in the area.

Fauna:
The following assumptions and limitations are applicable to this report:

- The faunal assessment is confined to the study area and does not include the neighboring and adjacent properties, these were however considered as part of the desktop assessment;
- With ecology being dynamic and complex, some aspects (some of which may be important) may have been overlooked. It is, however, expected that most faunal communities have been accurately assessed and as such the information provided herein is considered sufficient to allow informed decision making to take place and facilitate integrated environmental management;
- The proponent has advised STS that all development layouts will remain outside of the Seep Wetland and associated buffers/setbacks . As such, the impact assessment has been undertaken under the assumption that the study area (barring the Seep Wetland and associated buffers) will be transomed for development purposes. If layouts are amended and footprint creep occurs within the Wetland and/or buffers, then the impact assessment will need to be updated accordingly by the biodiversity specialist;
- Due to the nature and habits of most faunal taxa and the high level of surrounding anthropogenic activities, it is unlikely that all species would have been observed during a field assessment of limited duration (during spring). Therefore, site observations were compared with literature studies where necessary;
- Sampling by its nature, means that not all individuals are assessed and identified. Some species and taxa within the footprint area may therefore have been missed during the assessment;
- A more comprehensive assessment would require that assessments take place in all seasons of the year. However, on-site data was significantly augmented with all available desktop data and specialist experience in the area; and
- As part of the assessment, a field investigation was undertaken on the 24th of October 2023 to determine the ecological status of the study area and to “ground-truth” the results of the desktop assessment. On-site data was significantly augmented with all available desktop data, historic studies ((e.g., Galago Environmental (2012), STS 190066 (2020), STS 22-2073 (2022), and STS 22-2055 (2023)) and specialist experience in the area. The findings of this assessment are an accurate reflection of the ecological characteristics associated with the locality of the study area.

3. Identified in the SAS Freshwater Ecosystem Assessment

The following assumptions and limitations are applicable to this report:

- The determination of the freshwater ecosystem boundaries is confined to the freshwater ecosystems that are situated within the footprint of the study area and the associated investigation area;

- A degree of transformation (infilling, alteration to the natural soil due to the development of linear infrastructure and historical modifications), made the precision and accuracy of the delineation of the outer boundary of the freshwater ecosystems challenging. As a result, the freshwater ecosystems within the study area were delineated in fulfilment of GN 4167 of 2023 as it relates to the National Water Act (Act No. 36 of 1998) using the method advocated by DWAF (2008) and augmented with various desktop methods including use of topographic maps, historical and current digital satellite imagery, 5 m contours as well as aerial photographs. Freshwater ecosystems within the investigation area were, however, considered on a desktop level only;
- Input on the final delineation was provided by Galago Environmental upon request of the proponent and was considered in preparation of the final delineation by SAS. This delineation by Galago Environmental is considered acceptably accurate and is considered as the best estimate of the wetland boundary when soil characteristics are considered with more emphasis and not the presence of facultative wetland vegetation being considered as the key indicator in the landscape as initially prepared by SAS;
- Should the proposed development change from the layout provided and assessed in this report, or should details pertaining to the construction and use of materials change, the Risk Assessment Matrix will need to be revised and potentially amended based on the new design layout and specifics;
- It is important to note that although all data sources used provide useful and often verifiable, high-quality data, the various databases used do not always provide an entirely accurate indication of the actual site characteristics within the study area at the as background information to the study;
- Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur. If more accurate assessments are required, the freshwater ecosystems will need to be surveyed and pegged according to surveying principles and with surveying equipment;
- Wetland, riparian and terrestrial zones create transitional areas where an ecotone is formed as vegetation species change from terrestrial to obligate/facultative species. Within this transition zone, some variation of opinion on the freshwater ecosystems' boundaries may occur. However, if the DWAF (2008) method is followed, all assessors should get largely similar results; and
- With ecology being dynamic and complex, certain aspects (some of which may be important) may have been overlooked. It is, however, expected that the freshwater ecosystem that may be affected by the proposed activities within the study area have been accurately assessed and considered, based on the site observations undertaken in terms of the freshwater ecosystems' ecology.

4. Identified in the Hydropedology report

The observations, conclusions and recommendations made in this report are based on the best available data and on best scientific and professional knowledge of the directors of INDEX (Pty) Ltd. The report is based on GIS programming and corrected

drome photogrammetry to map survey points. Survey points are normally accurate to within 3 metres.

5. Identified in the Heritage Impact Assessment

Factors that can have an influence on the investigation:

- It is assumed that the description of the proposed project, provided by the client, is accurate;
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that it does not have to be repeated as part of the HIA;
- It is assumed that the information contained in existing databases, reports and publications is correct.
- The unpredictability of buried archaeological remains;
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities;
- The vegetation cover encountered during a site visit can have serious limitations on ground visibility, obscuring features (artefacts, structures) that might be an indication of human settlement.
- None of the available maps or aerial images (e.g. Google Earth) reflects the current development on the site.

6. Identified in the Traffic Impact Assessment

None provided.

SECTION L: ENVIRONMENTAL IMPACT STATEMENT

The impact assessments undertaken have indicated that the significance of the negative impacts associated with the construction phase would largely be of a Medium to Low significance, assuming full mitigation measures are implemented. These impacts are readily and practically mitigable.

Impacts on the bio-physical environment remain within the acceptable limits of moderate to low impact significance, as no development is proposed in the seep wetland or its buffer. The proposed development will have several social and economic benefits during the construction and operational phases.

L 1. Summary of Potential Impacts and Risks

The following tables summarise all the potential impacts anticipated during the planning, design and construction phases, as well as the operational phase of the proposed development.

L 1.1 Planning, Design and Construction Phases

All potential impacts anticipated during the planning, design and construction phase of the proposed development are provided in the following table.

Environmental Impacts identified for the Rabie Lanseria X 81 mixed land use township	Impact significance Rating			
	PREFERRED ALTERNATIVE		NO-GO OPTION	
	Without Mitigation	With Mitigation *and monitoring*	Without Mitigation	With Mitigation
Geotechnical and Soil stability impacts	Low negative	Low negative	No impact	N/A
Soil Erosion and Contamination	Moderate to Low negative	Low negative	No impact	N/A
Water Quality and Quantity	Moderate to Low negative	Low negative	No impact	N/A
Terrestrial Biodiversity	Low negative	Low negative	Low negative	N/A
Wetland and Aquatic biodiversity, including hydropedology	Moderate negative	Low negative	Low negative	N/A
Visual Impacts	Moderate to Low negative	Moderate to Low negative	No impact	N/A
Noise Impacts	Low negative	Low negative	No impact	N/A
Air Quality	Low negative	Low negative	No impact	N/A
Heritage	Low negative	Low negative	No impact	N/A
Social impacts	High to Low positive impacts	High to Low positive impacts	No impact	N/A
Traffic Impacts	Moderate negative	High to Moderate negative	No impact	N/A
Infrastructure and Services	Low negative ** if municipal bulk services are available and alternative renewable energy programmes are incorporated into the	Low negative ** if municipal bulk services are available and alternative renewable energy programmes are incorporated into the phased development	No impact	N/A

Environmental Impacts identified for the Rabie Lanseria X 81 mixed land use township	Impact significance Rating			
	PREFERRED ALTERNATIVE		NO-GO OPTION	
	Without Mitigation	With Mitigation *and monitoring*	Without Mitigation	With Mitigation
	phased development			

L 1.2 Operational Phase

Environmental Impacts identified for the Rabie Ridge X 7 mixed land use township	Impact significance Rating			
	PREFERRED ALTERNATIVE		NO-GO OPTION	
	Without Mitigation	With Mitigation *and monitoring*	Without Mitigation	With Mitigation
Wetland and Aquatic biodiversity	Moderate negative if not managed and mitigated properly	Moderate to Low negative if management efforts to conserve the wetland properly are in place	Low negative	N/A
Visual Impacts	Low negative	Low negative	No impact	N/A
Noise Impacts	Low negative	Low negative	No impact	N/A
Air Quality	Low negative	Low negative	No impact	N/A
Social impacts	High to Low positive impacts	High to Low positive impacts	No impact	N/A
Traffic Impacts	High to Moderate negative	Moderate to Low negative	No impact	N/A
Infrastructure and Services	Moderate to Low negative if council approves the development, but bulk services are not adequate for the development	Low negative ** if municipal bulk services are available and alternative renewable energy programmes are incorporated into the	No impact	N/A

Environmental Impacts identified for the Rabie Ridge X 7 mixed land use township	Impact significance Rating			
	PREFERRED ALTERNATIVE		NO-GO OPTION	
	Without Mitigation	With Mitigation *and monitoring*	Without Mitigation	With Mitigation
		phased development		

SECTION M: CONDITIONS OF AUTHORISATION

It is recommended that the following items be included as conditions of authorisation:

1. All the recommended mitigation and monitoring measures provided in Section I & J of this report must be adhered to.
2. A suitably experienced ECO must be appointed to oversee the construction phase of the proposed development as well as the implementation of the EMPr and any applicable conditions of the environmental authorisation (if granted).
3. Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities above, all works must immediately be stopped in the immediate area of the discovery, SAHRA must be notified the same day of discovery.
4. The implementation of the EMPr is essential in managing the negative environmental and social impacts in the implementation of the project.
5. The 30m wetland buffer zone of the seep wetland must be pegged and demarcated by a wetland specialist, prior to the commencement of any construction activities.
6. All construction related impacts (including service roads, site camp, temporary ablution, disturbance of natural habitat, storing of equipment/building materials/vehicles or any other activity), save for installation of services and related infrastructure, must be excluded from the wetland area.
7. Flora of conservation importance must be relocated in accordance with the GDARDE's biodiversity management directorate.
8. All foundations for buildings and structures or infrastructure services must be designed according to the site specific Geotechnical findings and recommendations, and in integrated consultation with the Geotechnical specialist.
9. A Water Use Authorisation must be obtained from the Department of Water and Sanitation for all activities affecting the wetlands on site, stormwater discharge and any other activities that trigger a requirement for a water use licence.
10. The design of buildings and structures must incorporate the green building standards that promote optimal resource efficiency.
11. An integrated waste management approach must be implemented that is based on waste minimisation and must incorporate avoidance, reduction, recycling, re-use and disposal where appropriate. The contractor may not place, dump or store refuse or

builders rubble generated on the construction site, on adjacent properties or public open space during or after construction.

12. A suitably qualified and experienced (independent) Environmental Control Officer (ECO) must be appointed to monitor compliance with environmental laws as well as to ensure that the mitigation /rehabilitation measures and recommendations in the EMPr are implemented during the construction phase of the development.

M1. Validity of the EA

SEC recommends that the development and construction of the authorised activities, must commence within 10 years from the date of signature of the EA, if granted. There should be no time frame imposed on the applicant for the full completion of the construction of the township, due to real estate market conditions and economic fluctuations that could result in changes in economic conditions, interest rates, and demand. A fixed timeline may not account for these changes, and developers may face challenges in securing financing or attracting buyers within a specific period. Flexibility in timelines can allow the project to adjust to these conditions. Further, a phased township construction typically involves significant planning, infrastructure development, and coordination with various stakeholders (e.g., utilities, contractors, local authorities). These projects can face delays due to unforeseen circumstances. A rigid timeline may not allow developers the necessary flexibility to address these challenges effectively. Natural disasters, political instability, or other unexpected events can delay construction projects. A rigid timeline may penalize developers for these events, even if they were beyond their control, potentially leading to financial loss or legal complications.

M2. Compliance Monitoring

The Developer and Contractor(s) will be responsible for monitoring all construction activities on a day-to- day basis to ensure compliance with the EMPr, EA (if granted) and other applicable environmental related approvals and/or permits, throughout the construction phase of the development.

A suitably experienced ECO must be appointed to oversee the construction phase of the proposed development as well as the implementation of the EMPr and any applicable conditions of the environmental authorisation. ECO monitoring (site visits) must be undertaken at least once a week, until such time that the construction phase is completed.

SECTION N: CONCLUSION

The Environmental Impact Assessment (EIA) process has been undertaken in accordance with the EIA Regulations, 2014 (as amended) published in terms of Section 24 (5) of the National Environmental Management Act (Act No 107 of 1998) (as amended). To ensure that this application considers relevant laws, all applicable legislation has been considered. Specialist studies, input from stakeholders and historical data of the site has informed the identification and development of appropriate options and management measures that should be, if the activity is authorised, implemented. This report aims to ensure that the project is

environmentally and socially acceptable, and that the township is feasible and sustainable in terms of long term service provision to the site.

The conclusions of this draft EIAR, including comments and concerns from Interested and Affected Parties (I&APs), are the result of a comprehensive Scoping and EIA study, including multiple specialists' assessments. These studies were informed by the past and present site characteristics, and issues identified in the Environmental Scoping Study as well as the Scoping Phase public participation process.

This draft EIAR provides both potential benefits and the negative impacts likely to result from the implementation of the project. From a socio-economic perspective, positive impacts that include creation of employment opportunities, increased economic activities, provision of upgraded infrastructure and services, increase in municipal taxes, alignment with municipal and provincial spatial planning frameworks, as well as support of integrated development, were identified.

The study area is located within the primary development zone of the Greater Lanseria Smart City Development Proposal. The site is situated within an area that has been classified as Industrial in terms of the Nodal Review 2020 Policy document. The study area is in line with the spatial transformation plans and vision for the municipal jurisdiction and will be directly associated with the development of the Lanseria node through private investment. The site is identified in the municipal strategic planning for future development, and municipal services and infrastructure have been planned around the site for the type of development proposed.

An iterative process has been followed by the project team to avoid significant environmental impacts by using authority comments and the specialists' constraints analyses, to inform the preferred development layout. Where impacts cannot be avoided, measures have been recommended to minimise the potential impacts. The GDE approval of the FSR requested a legible, layout plan overlain by a composite sensitivity map on site with a legend easily linked to activity components must be included in the Draft EIA Report, with the relevant buffers assigned. The Layout plan must show the position of services, electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure (where possible) and the attenuation ponds. This plan has been provided in Appendix 17.

After considering and assessing the potential environmental impacts associated with the proposed development, it can be concluded the multiple onsite sewer treatment plants, and their direct and indirect impacts to the seep wetland on site, that are the highest risks and potentially negative impacts to the township. State-of-the-art wastewater treatment technologies must be used for onsite sewer plants to minimize the release of contaminants into groundwater resources and ensure high-quality effluent. A comprehensive sewer treatment plant monitoring program must be developed and established by each erf owner / tenant, to monitor the long-term water quality and ecological health of the wetland, allowing for adaptive management strategies to address any negative impacts promptly.

There are no biophysical constraints / significant negative impacts on the biophysical environment, that could result in fatal flaws for the project. The seep wetland will be conserved on site and excluded from all development. Hydraulic connectivity of soils on the site must be taken into consideration by the engineering geologist to address and incorporate the hydropedological requirements of the development. To sustain the seep wetland on site, the inflow of water into the soil (recharge) must be maintained by encouraging water infiltration into deeper rock layers. Construction on the site should not prevent any lateral water movement towards the watercourse.

The preferred alternative assessed in this report is feasible and reasonable, provided municipal services, bulk infrastructure upgrades and electrical power supply can be feasibly and sustainably secured for the long term. The light industrial land use proposal is in line with the planning policies and guidelines for the area. All the mitigation, management and monitoring measures provided under Section J of this report must be implemented, should the proposed development be approved.

The project can be supported for authorisation. SEC recommends that the application be authorised, subject to the compilation and submission of the Final Environmental Impact Assessment Report, The Final Environmental Management Program (EMPr), and all specialist studies. Applicable legislation must be followed, and applicable licenses obtained prior to any construction occurring on site.

SECTION O ***APPENDICES***

Appendix 1 *EAP Declaration and CV*
Appendix 2: *Screening Report*
Appendix 3: *JN Civil Consulting Engineers, Engineering Services report*
Appendix 4: *Cupro Consulting electrical services report*
Appendix 5: *CivilConcepts Consulting Civil and Structural Engineers Floodline statement*
Appendix 6: *Corli Havenga Transportation Engineers Traffic Impact Assessment (TIA)*
Appendix 7 *Scientific Terrestrial Services (Pty) Ltd. were appointed to conduct a terrestrial biodiversity assessment*
Appendix 8 *Scientific Aquatic Services (SAS) were appointed to conduct a freshwater ecosystem assessment*
Appendix 9: *Heritage Impact Assessment (HIA)*
Appendix 10 *Geoid Geotechnical Engineers (GGE) geotechnical investigation*
Appendix 11 *Hydropedological study conducted by INDEX (Pty) Ltd*
Appendix 12 *Public Participation Process:*
Appendix 13: *Comments and Response Report*
Appendix 14: *GDE Approval of the Final Scoping Report*
Appendix 15: *COJ Comments on the Scoping Report*
Appendix 16: *Draft EMPr*
Appendix 17: *Present Preferred layout plan*
Appendix 18: *Johannesburg Water Comments on the Outline Scheme Report*

APPENDIX 1: EAP DECLARATION AND CV

EAP DECLARATION AND AFFIRMATION

I, Stephanie Cliff, declare that:

- I act as the independent environmental practitioner in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in regulation 8 of the Regulations when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not;
- I will provide the competent authority any information that is provided by the EAP to interested and affected parties and any responses; by the EAP to comments or inputs made by interested or affected parties;

- The information provided in this scoping report has been sourced from relevant literature, legislation, previous studies and specialist input and is therefore believed to be correct;
- I will perform all other obligations as expected from a registered environmental assessment practitioner in terms of the Regulations; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Furthermore, I, Stephanie Cliff, herewith confirm, under oath, affirmation in relation to-

- the correctness of the information provided in the reports;
- 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 or affected parties.

Signed

Date

Place

Commissioner Stamp:

Designation:

Date:

APPENDIX 2: SCREENING REPORT

APPENDIX 3: JN CIVIL CONSULTING ENGINEERS, ENGINEERING SERVICES REPORT

APPENDIX 4: CUPRO CONSULTING ELECTRICAL SERVICES REPORT

APPENDIX 5: CIVILCONCEPTS CONSULTING CIVIL AND STRUCTURAL ENGINEERS FLOODLINE STATEMENT

APPENDIX 6: CORLI HAVENGA TRANSPORTATION ENGINEERS TRAFFIC IMPACT ASSESSMENT (TIA)

APPENDIX 7 SCIENTIFIC TERRESTRIAL SERVICES (PTY) LTD. TERRESTRIAL BIODIVERSITY ASSESSMENT

APPENDIX 8 SCIENTIFIC AQUATIC SERVICES (SAS) FRESHWATER ECOSYSTEM ASSESSMENT

APPENDIX 9: HERITAGE IMPACT ASSESSMENT (HIA)

APPENDIX 10 GEOID GEOTECHNICAL ENGINEERS (GGE) GEOTECHNICAL INVESTIGATION

APPENDIX 11 HYDROPEDOLOGICAL STUDY CONDUCTED BY INDEX (PTY) LTD

APPENDIX 12 EIA PHASE PUBLIC PARTICIPATION PROCESS:

Proof of IAP notification of availability of the DEIAR will be included in the Final EIA Report

IAP DATABASE

ENVIRONMENTAL IMPACT ASSESSMENT FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, GAUTENG PROVINCE

I&APS DATABASE

Table 1: Commenting Authorities

No:	Surname	Initials	Company/ Farm/ Community	Position	Contact No:
1	Tshimange	Tshilidzi	City of Johannesburg Environment, Infrastructure & Services Department	Reviewing Official	011 802 7945 071 485 5309 TshilidziT@joburg.org.za
2	Ms Mdekazi	Cebisa	Cradle of Humankind World Heritage Site Management Authority Department of Economic Development	Deputy Director: National Environmental Management: Protected Areas Act	Tel: 011 085 2495 Cell: 081 882 8116 E-mail: Cebisa.Mdekazi@gauteng.gov.za
3	Siwelane	Lilian	Dept Water and Sanitation	Control Environmental Officer	SiwelaneL@dws.gov.za 012 392 1367 078 421 9386
4	Khoza	Doris	Civil Aviation Authority	Inspector: Obstacles Aerodrome Infrastructure	Tel: +27 11 545 1071 Cell: 083 451 2643 Email:Khozad@caa.co.za
5	Mthembu	Sbusiso	Ward 96 DA Councillor		T) 011 464 5111 C) 071 295 8290 sbusiso1025@gmail.com
6	Crocodile River Reserve				communications@crocodileriverreserve.co.za environment@crocodileriverreserve.co.za deputychair@crocodileriverreserve.co.za>

No:	Surname	Initials	Company/ Farm/ Community	Position	Contact No:
7	ESKOM		Eskom Distribution		wayleaveJHB@eskom.co.za
8	Mr. Manana	Banele	Gauteng Roads and Transport	Directorate: Transport Infrastructure Planning	Banele.Manana@gauteng.gov.za; 011-3557255 066 472 6403

Table 2: Land Owners notified via Email and Community Forum Whatsapp Group

No:	Name	Land Owner Portion	Contact No:
	Rampa Rammopa	Lanseria International Airport	rampa@lanseria.co.za
	Polla Scholtz	GrowthPoint Properties	AScholtz@growthpoint.co.za 27 72 111 8975
	Hilton Carty Mark Boyd	Aperture Properties	hcarty@aperturepropertiies.co.za 079-916-3982 mboyd@aperturepropertiies.co.za 082-801-3569
	Bothongo Group	P 32/533 JQ	lisa@3rdstorey.com
	Ray Knoetzen	Portion 5 / 533 JQ	ray.knoetzen@vodamail.co.za
	Bart Joshua	Portion 6 / 533 JQ	btboerdery@gmail.com
	Martin Fiebiger	Portion 7 / 533 JQ	fiebiger@iafrica.com
	Peter Wallach	Portions 151 – 155 Bultfontein 533 JQ Portions 164 – 166 Bultfontein 533 JQ RE Portion 53 Bultfontein 533 JQ	peter.wallach@me.com 061 463 4414 Attorney of estate: Nicole Sutcliff 082 447 0804
	Jürgen Erhart	Lanseria Corporate Estate	Cell: 082 555 9999 jerhart@efcon.co.za
		Total Energies Lanseria	0116597878
		GZ Adventures Lanseria	0848816404 010 001 4253 067 727 6521

No:	Name	Land Owner Portion	Contact No:
			info@gzadventures.com
		Shumba Valley Lodge	0117908000 http://www.shumbavalleylodge.co.za/
		Community Rep	Victor 063-117-5315 vikkyfana@gmail.com
	Gary and Clive Bruyns	GB Properties	082 443 6956 gary@gbp.co.za 082 458 3634 clive@gbp.co.za
	Yvette	Filling Station	072 061 2513 lanseria@fuelerama.co.za

COMMENTS AND RESPONSE REPORT: COMMENTS RECEIVED FROM THE *SCOPING PHASE*

COMMENTS RECEIVED FROM NOTIFIED PARTIES

A previous Scoping & EIA application for the exact same project, and the same applicant, was initiated in April 2024, Gaut 002/24-25/E3970.

This application lapsed, and the applicant was instructed to submit a new Scoping & EIA application for the *exact same project*.

This Draft Scoping Report (DSR) is the initiation of the new Scoping & Environmental Impact Assessment process, GAUT 002/24-25/E4121 to address the potential impacts associated with the project.

The IAP's who were notified and who registered for the April 2024 S&EIA process, were informed of the new application for the *exact same project*. Many/most of the IAP's referred to their comments delivered in April 2024. As such, the comments received from the notified IAP's in April 2024 have been included in this report.

1. COJ IMPACT MANAGEMENT

From: Katlego Kale <KatlegoK@joburg.org.za>
Sent: Thursday, 14 November 2024 08:44
To: stephweb@mweb.co.za
Cc: EISD Applications <eisdapplications@joburg.org.za>; Gift Mabasa <GiftMab@joburg.org.za>; Tumelo Marota <TumeloMar@joburg.org.za>
Subject: RE: P/72 Bultfontein Draft Scoping Report

Good day Stephanie,

Based on the content on the report being the same as the previous one, the Department's comments on the Draft Scoping Report sent in May 2024 are still valid.

Regards,

Katlego Kale
Senior Specialist :Impact Management
Environment & Infrastructure Services Department
6th Floor, Traduna Building
118 Jorissen Street, Braamfontein
Email:KatlegoK@joburg.org.za | **Tel: 011 084 9819** | **Ext: 19147** | **Cell: 083 702 7686**
www.joburg.org.za
@CityofJoburgZA
CityofJohannesburg

From: stephweb@mweb.co.za <stephweb@mweb.co.za>
Sent: Wednesday, November 6, 2024 2:30 PM
To: EISD Applications <eisdapplications@joburg.org.za>
Cc: Katlego Kale <KatlegoK@joburg.org.za>
Subject: RE: P/72 Bultfontein Draft Scoping Report

Dear COJ,
Please use this link for the documents: The Draft Scoping Report (DSR), as part of the Environmental Impact Assessment process to assess the potential impacts associated with the project, is available again for comments on the SEC website: SEEDCRACKER, from 6 Nov 2024 till the 5 Dec 2024.
All the best,

STEPHANIE CLIFF

SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487

From: stephweb@mweb.co.za <stephweb@mweb.co.za>
Sent: Wednesday, 06 November 2024 13:18
To: 'EISD Applications' <eisdapplications@joburg.org.za>
Cc: 'Katlego Kale' <KatlegoK@joburg.org.za>
Subject: RE: P/72 Bultfontein Draft Scoping Report

Dear COJ Environment,

RE-NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:

FOR THE PROPOSED "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSION 81, Located on PORTION 72 of THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, Gauteng Province

Please see attached the Background Information Document, township layout plan and locality map for the above referenced project. A previous Scoping & EIA application for the same project, and the same applicant, was initiated in April 2024.

This application lapsed, and the applicant was instructed to submit a new Scoping & EIA application for the exact same project. See attached GDARDE correspondence.

The Draft Scoping Report (DSR), as part of the new Scoping & Environmental Impact Assessment process to assess the potential impacts associated with the project, is available again for comments on the SEC website: www.seedcrackers.co.za/publications, from 6 Nov 2024 till the 5 Dec 2024.

Please feel free to contact me for any further information or assistance. Your comments on the application, would be appreciated by the 5 Dec 2024. Please indicate if the comments sent on the April/May 2024 DSR remain the same, as nothing has changed.

All the best,

STEPHANIE CLIFF

SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487
Cell: 082 626 4117
WWW.SEEDCRACKERS.CO.ZA

a world class African city

City of Johannesburg
118 Jorissen Street | PO Box 1049 | Tel +27(0) 11 595 4712
Traduna House | Johannesburg
Braamfontein | South Africa | www.joburg.org.za

UNIT: IMPACT MANAGEMENT & COMPLIANCE MONITORING

Our Reference: **EIM29/04/2024**
Contact: **Andiswa NP Khumalo**
CoJ Region: **A**
Tel: **(011) 595 4712**

Seedcracker Environmental Consulting
228 Ashwood Drive
Centurion

Stephweb@mweb.co.za

Attention: Stephanie Cliff

DRAFT SCOPING REPORT AND PLAN OF STUDY FOR EIA, FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, THE CITY OF JOHANNESBURG, GAUTENG PROVINCE.

The Draft Scoping Report dated April 2024 refers.

Description of the project:

The applicant proposes to establish an Industrial 1 township that will be comprised of 21 erven varying in sizes to cater for the large and smaller light industrial buildings. The site is to be known as Lanseria X 81 measuring 32.2722Ha in extent. The study area is located 1 kilometre (km) south of the Lanseria airport. The N14 is located 2.3 km southeast of the study area, directly east of the R512 and directly south of the existing Lanseria Corporate Estate.

Guidelines, by-laws, and policies:

The City of Johannesburg Spatial Development Framework 2040 (SDF 2040) states that the natural environment must be considered as an essential structuring asset that must be protected to make surrounding developed parts of the city more sustainable, liveable, and valuable. The proposed development is also in line with the SDF 2040 as the proposed development will promote infrastructure development, contribute to a sustainable environment, create jobs and encourage economic growth and future sustainability.

Description of alternatives:

According to the report, various alternatives were considered such as layout, technological, operational and activity alternative. The Department wishes to highlight that all the proposed layouts should avoid environmental sensitive areas.

The layout and alternatives must be informed by the specialist studies. These must be discussed and illustrated in greater detail and show sensitivities and applicable buffers in the final scoping report.

Description and assessment of the identified environmental issues:

The CoJ Wetland Audit layers show that the north-eastern corner of the site is affected by a hillslope seepage and unchannelled valley bottom wetlands. The screening assessment conducted by the applicant's specialist has also confirmed the existence of the wetland on the Northeastern part of the site. The City's Catchment Management Policy (2009) prohibits development of infrastructure within 1:100-year floodline or 30 metres (within the urban edge) and 50 metres (outside the urban edge) buffer zone of any watercourse or whichever is greatest. The FSR my address whether the property is located within or outside the urban edge.

In terms of the CoJ Biodiversity Sector Plan 2021, part of the proposed development site is mapped as a Critical Biodiversity Areas (CBA). These are highly sensitive areas of which its development should be avoided. The aerial photograph shows signs of degradation on the south-western part of the site, where developed structure exists. Based on the results of the environmental sensitivity screening of the site conducted by the applicant's appointed specialist, the environmental sensitivities footprint for the proposed development as identified, are indicative only and they must be verified on site by a suitably qualified person to confirm the screening environmental sensitivities of the site.

The report mentions that the property is affected by the Johannesburg dome granites, previously called the Halfway house granites. A Hydropedology study must be compiled which considers lateral flows, assesses potential impacts, and proposes mitigation measures.

The proposed development triggers the requirements for a Water Use License in terms of Section 21 (c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998). An application in this regard must be submitted.

Evaluation and presentation of mitigation measures:

Identification and assessment of environmental impacts will be based on the results of the specialist studies. The Department requires that all possible impacts and mitigation measures be outlined and a Draft EMPr be included in the DEIR.

Public Participation:

The Public Participation (PP) must be undertaken is in line with the requirements as specified in the EIA Regulations, 2014 (as amended).

Recommendations:

Having noted the above, the Department acknowledges the draft scoping report submitted, would like amendments made in the FSR. The following studies as outlined in the report as well as those deemed necessary by the Department must be included in the DEIR:

- Existing land uses and status of approval;

- Location of the site in relation to the CoJ urban edge;
- Hydropedology study;
- Terrestrial Assessments including fauna, flora, and Avi Fauna;
- Freshwater Ecosystem Assessment i.e., Wetland Assessment, wetland delineation and Impact Assessment;
- Heritage Impact Assessment;
- Geotechnical Report;
- Engineering Services report indicating the availability of bulk services. This must include the proposed 'small Waste Water Treatment Plants on each stand;
- Stormwater management plan;
- WUL application; and
- Traffic and access impact study

- The report must take into consideration relevant policies, by-laws, and strategies. This includes the use of the CoJ policies such as the Catchment Management Policy (2009) requirements in terms of the wetland buffer outside the urban edge.
- A legible map that shows the development in relation to the sensitivities on the site should be complied.
- A Stormwater management plan of the proposed development, which complies with the City of Johannesburg Stormwater By-law and the associated Design Manual.

Further comments will be made upon the review of the final scoping report. Should you have any queries or require any further information, please do not hesitate to contact the Department.

Regards,

Nozipho Maduse
Head: Impact Management
Tel: 011 082 7943
Email: NoziphoM@joburg.org.za
Date: 2024/05/23

2. DEPARTMENT OF ROADS AND TRANSPORT

Draft Scoping Report_Bultfontein P/72 _April 2024

ENVIRONMENTAL IMPACT ASSESSMENT FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, GAUTENG PROVINCE

INTERESTED AND AFFECTED PARTIES REGISTRATION AND COMMENTS FORM

Please complete & return this form to Seedcracker Environmental Consulting CC on or before ***24 May 2024***

TITLE	Mr
NAME	Barele
SURNAME	Manana
RESIDENTIAL ADDRESS	45 Commissioner Street Department of Roads & Transport
POSTAL CODE	
TEL	011 355 7255 / 066 472 6403
EMAIL	Barele.Manana@gauteng.gov.za

Please formally register me as an interested and affected party (I&AP) so that I may receive further information and notifications during the Environmental Impact Assessment process	YES ✓	NO

In terms of this Public Participation process I disclose below any direct business, financial, personal, or other interest that I may have in the approval or refusal of the application:

.....

COMMENTS ON THE BACKGROUND INFORMATION DOCUMENT (Pls use additional pages if required)

Kindly note that the Gauteng Strategic Transportation Network provincial Road(s): K29 is affected.

NAME: Barele Manana SIGNATURE: [signature] DATE: 22/05/2024

Seedcracker Environmental Consulting CC: Member: Stephanie Cliff
Reg no: CK2008/012791/23

3. SA CIVIL AVIATION AUTHORITY

SOUTH AFRICAN CIVIL AVIATION AUTHORITY

Physical Address:
Ikhaya Lokundiza
Treur Close
Waterfall Park
Bekker Street
Midrand

Postal Address:
Private Bag X 73
Halfway House
1685

Telephone Number:
+27 0860 267 435

Fax Number:
+27 11 545 1465

E-mail Address:
mail@caa.co.za

Website Address:
www.caa.co.za

Southern Region Office:
PO Box 174
Cape Town
International Airpo
Tel. Number:
+27 21 934 4744
Fax Number:
+27 21 934 1326

Aviation Environmental Compliance
Tel No: +27 11 545 1199
Email: environment@caa.co.za
Enquiries: Ms. Pamela Madondo

14 November 2024

Attention: Stephanie Cliff

Dear Sir/ Madam

RE: AVIATION ENVIRONMENTAL PROTECTION COMMENTS FOR THE PROPOSED DEVELOPMENT OF THE LANSERIA EXTENSION 81

We acknowledge receipt of email dated 06 November 2024. The South African Civil Aviation Authority (CAA) is an agency of the Department of Transport (DoT). The Civil Aviation Act 13 of 2009 provides for the establishment of the CAA as a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security throughout the civil aviation industry. The CAA exercises this mandate through the Civil Aviation Regulations (CARs).

Please see our comments below:

The proposed site for the development of the Lanseria extension 81, may require formal obstacle assessment for approval. This assessment will evaluate whether development will affect the safety of flights. Kindly lodge an application with the approved obstacle assessment providers as published on the SACAA website: www.caa.co.za/industryinformation/obstacles/. The list and contact details of the approved obstacles assessment services providers can be obtained from the CAA website: www.caa.co.za.

Yours sincerely,

Aviation Environmental Compliance Department

4. BOSTON ASSOCIATES, URBAN PLANNERS: ON BEHALF OF THE LANSERIA CORPORATE ESTATE

From: Boston Associates <boston@pixie.co.za>
Sent: Wednesday, 06 November 2024 15:06
To: stephweb@mweb.co.za
Cc: 'Jürgen Erhart' <jerhart@efcon.co.za>
Subject: RE: NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:

Stephanie

As per our telecom you confirmed that ***the comments we made before will still be valid and still apply. We stand by that.***

In this regard please be advised that your client's town planners amended the layout in accordance with our comments (copy attached). Kindly incorporate it into the Scoping & Environmental Impact Assessment Process.

Kindly acknowledge receipt.

Regards
G D Nagy Pr. Pln
BOSTON ASSOCIATES
URBAN PLANNERS
Office : +27 11 803 8437
Facsimile : +27 11 803 7807
Mobile : +27 83 6000 025
Efax : +27 86 5793 057
Email : boston@pixie.co.za

From: stephweb@mweb.co.za <stephweb@mweb.co.za>
Sent: Wednesday, 06 November 2024 12:27
To: 'Boston Associates' <boston@pixie.co.za>
Cc: 'Jürgen Erhart' <jerhart@efcon.co.za>
Subject: RE: NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:

Dear Interested and Affected Party,

RE-NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:

FOR THE PROPOSED "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSION 81, Located on PORTION 72 of THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, Gauteng Province

Please see attached the Background Information Document, township layout plan and locality map for the above referenced project.

A previous Scoping & EIA application for the same project, and the same applicant, was initiated in April 2024. This application lapsed, and the applicant was instructed to submit a new Scoping & EIA application for the exact same project.

The Draft Scoping Report (DSR), as part of the Environmental Impact Assessment process to assess the potential impacts associated with the project, is available again for comments on the SEC website: www.seedcrackers.co.za/publications, from 6 Nov 2024 till the 5 Dec 2024.

Please feel free to contact me for any further information or assistance. Your comments on the application, would be appreciated by the 5 Dec 2024. Please indicate if the comments sent on the April / May 2024 notice remain the same.

All the best,

STEPHANIE CLIFF

SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487
Cell: 082 626 4117
WWW.SEEDCRACKERS.CO.ZA

5. ENVIRONMENTAL HEALTH

From: Magabane, Louisa (GPHealth) <Louisa.Magabane@gauteng.gov.za>
Sent: Wednesday, 06 November 2024 15:28
To: stephweb@mweb.co.za; Motlhamme, Thabiso (gphealth) <Thabiso.Motlhamme@gauteng.gov.za>
Subject: RE: EIA Lanseria ext 81

Dear Stephanie
Your mail is received, thank you.
Regards
L Magabane

From: stephweb@mweb.co.za <stephweb@mweb.co.za>
Sent: Wednesday, 06 November 2024 14:29
To: Motlhamme, Thabiso (gphealth) <Thabiso.Motlhamme@gauteng.gov.za>
Cc: Magabane, Louisa (GPHealth) <Louisa.Magabane@gauteng.gov.za>
Subject: RE: EIA Lanseria ext 81

Dear Interested and Affected Party,

Please use this link for the documents: The Draft Scoping Report (DSR), as part of the Environmental Impact Assessment process to assess the potential impacts associated with the project, is available again for comments on the SEC website: SEEDCRACKER, from 6 Nov 2024 till the 5 Dec 2024.

All the best,
STEPHANIE CLIFF

SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487
Cell: 082 626 4117
WWW.SEEDCRACKERS.CO.ZA

From: stephweb@mweb.co.za <stephweb@mweb.co.za>
Sent: Wednesday, 06 November 2024 12:24
To: 'Motlhamme, Thabiso (gphealth)' <Thabiso.Motlhamme@gauteng.gov.za>; 'Beverley Oosthuizen' <tph@tph.co.za>
Cc: 'Magabane, Louisa (GPHealth)' <Louisa.Magabane@gauteng.gov.za>
Subject: RE: EIA Lanseria ext 81

Dear Interested and Affected Party,

RE-NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:

FOR THE PROPOSED "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSION 81, Located on PORTION 72 of THE FARM BULTFONTEIN 533 JQ, CITY OF JOHANNESBURG METRO MUNICIPALITY, Gauteng Province

Please see attached the Background Information Document, township layout plan and locality map for the above referenced project. A previous Scoping & EIA application for the same project, and the same applicant, was initiated in April 2024. This application lapsed, and the applicant was instructed to submit a new Scoping & EIA application for the exact same project.

The Draft Scoping Report (DSR), as part of the Environmental Impact Assessment process to assess the potential impacts associated with the project, is available again for comments on the SEC website: www.seedcrackers.co.za/publications, from 6 Nov 2024 till the 5 Dec 2024.

Please feel free to contact me for any further information or assistance. Your comments on the application, would be appreciated by the 5 Dec 2024. Please indicate if the comments sent on the April 2024 notice remain the same.

All the best,

STEPHANIE CLIFF

SEEDCRACKER ENVIRONMENTAL CONSULTING
Reg EAP. (EAPASA) 2019/487
Cell: 082 626 4117
WWW.SEEDCRACKERS.CO.ZA

From: Motlhamme, Thabiso (gphealth) <Thabiso.Motlhamme@gauteng.gov.za>
Sent: Friday, 07 June 2024 08:32
To: Beverley Oosthuizen tph@tph.co.za
Cc: Magabane, Louisa (GPHealth) Louisa.Magabane@gauteng.gov.za
Subject: FW: EIA Lanseria ext 81

Morning Mam
Please find attached documents.
Kind Regards
Mrs.Thabiso Motlhamme
Assistant Director: Environmental Health Service
JHB Health District
Office 104,Hiilbrow CHC (admin block)
065 744 6464
011 694 3922

From: Kgomotso Leola <Kgomotso.Leola@gauteng.gov.za>
Sent: Wednesday, June 5, 2024 11:21 AM
To: Motlhamme, Thabiso (gphealth) <Thabiso.Motlhamme@gauteng.gov.za>
Subject: EIA Lanseria ext 81

Good day.

Please receive the attached EIA report.

Regards

Kgomotso

Disclaimer
The Gauteng Provincial Government does not take responsibility for Gauteng Provincial Government users' personal views. Gauteng Provincial Government services available online at www.gauteng.gov.za. This message from Thabiso.Motlhamme@gauteng.gov.za is confidential and may be legally privileged. It is intended solely for use by the named recipient(s). If you are not the named recipient(s) , you are hereby notified that any disclosure, copying, distribution or taking action in reliance of the contents of this information is strictly prohibited and may be unlawful.

Disclaimer
The Gauteng Provincial Government does not take responsibility for Gauteng Provincial Government users' personal views. Gauteng Provincial Government services available online at www.gauteng.gov.za. This message from Louisa.Magabane@gauteng.gov.za is confidential and may be legally privileged. It is intended solely for use by the named recipient(s). If you are not the named recipient(s) , you are hereby notified that any disclosure, copying, distribution or taking action in reliance of the contents of this information is strictly prohibited and may be unlawful.

GAUTENG PROVINCE
HEALTH
REPUBLIC OF SOUTH AFRICA

Enquiries: Ms K Leola
Tel: 011 694 3917/22
Office FF1,1st floor
Email: Kgomotso.leola@gauteng.gov.za
Hillbrow CHC(Admin Block)
Date: 31/05/2024

To: The Manager
Corpclo 1462 (Pty) Ltd
PO Box 1403
Lanseria
2043

Cc: Ms. Louisa Magabane
AD: Environmental Health Services
Gauteng Department of Health (provincial Office)

Cc: Mrs. VT Motlhamme
AD: Environmental Health Services
JHB Health District

SUBJECT: COMMENTS ON ENVIRONMENTAL IMPACT ASSESSMENT FOR A PROPOSED COMMERCIAL TOWNSHIP- A PORTION OF PORTION 72 (A PORTION OF PORTION 2) OF THE FARM BULTFONTEIN 533JQ TO BE KNOWN AS LANSERIA EXTENSION 81.

Background:
On the 21 May 2024, an Environmental Impact Assessment application was received at JHB Health District: Environmental Health directorate from the Environmental Health section at central office. Corpclo 1462 (Pty) Ltd, proposes to build a commercial/Industrial township for purposes of industrial uses that will fit in with the surrounding character of the area. The proposed area is situated along Malibongwe Road, south of the Lanseria International Airport within the jurisdiction of City of Johannesburg Metropolitan Municipality. The application site is a natural extension to the already approved and operational Lanseria Extensions 26, 45, 46 and 75. Access to the application site will be an extension to and integrated with the existing road network within Lanseria Extension 26. The property measures 32.2772ha in extent. The township will only be established over a portion thereof measuring approximately 30.7995ha in extent.

On the 31st of May 2024, Environmental Health Practitioners conducted a site visit at the proposed area.

The following were the findings:

- Plot located in an industrial park.
- Plot located near a wetland.

- Plot is a plain grass field with no trees or observed indigenous plants.
- Plot is located near Lanseria airport.
- There's a nearby water reservoir.
- Plots entrance will be connected to the existing nearby main road.
- There is no sewage line nearby, wastewater treatment methods will be utilized.
- The proposed industrial park will use both electricity and solar as energy sources.

Possible environmental health effects that may results during construction of the above proposed project:

- There could be air pollution because of dust emitted during the construction.
- Rubble produced during construction could pollute the land.
- Noise pollution during construction process could affect the nearby industrial area occupants.
- There may be too much wind blowing as there was no vegetation on or next to the proposed area.
- Contamination of ground water.

Comments:

- Water should be sprinkled (water suppression) regularly throughout the duration of the construction to minimize air pollution and reduce inhalable dust.
- Rubble should be removed and disposed of in an environmentally friendly way so that it does not encourage dumping around the construction site.
- Underground water pipes and underground water sources should be identified around the proposed areas prior to digging, to prevent contamination.
- Ablution facilities must be provided for use during construction.
- Proper protective clothing should be provided to the workers.

Conclusion:

The proposed Industrial township will not cause harm to the environment during use, provided it is built in accordance with all the relevant statutory requirements. The possible environmental health effects would be those arising from the construction process, which also would not cause significant harm to the environment and the workers, provided sufficient mitigation measures are implemented.

Yours in service:

_____

KP Leola
Environmental Health Practitioner
HI no :0068497.
JHB Health District

6. GDARDE: Comments on the Draft Scoping Report

GAUTENG PROVINCE
ENVIRONMENT
REPUBLIC OF SOUTH AFRICA

Reference: Gaut 002/24-25/E4121
Enquiries: Caroline Sithi
Telephone: 011 240 - 3394
E-mail: Caroline.Sithi@gauteng.gov.za

SEEDCRACKER ENVIRONMENTAL CONSULTING CC
401 Lawley Street
Pretoria
0181 1

Email: stephweb@mweb.co.za
Tel: 082 626 4117

Dear Stephanie Cliff,

COMMENTS ON DRAFT SCOPING REPORT: THE PROPOSED LANSERIA EXTENSION 81 "INDUSTRIAL 1" TOWNSHIP ESTABLISHMENT, ON PORTION 72 OF THE FARM BULTFONTEIN 533-JQ, CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY

Regarding the above-mentioned Draft Scoping Report received by this Department on 06 December 2024, please herewith find comments from the Department.

1. The Final Scoping Report must comply with Regulation 21 of the EIA Regulations,2014 (as amended), to be submitted to this Department for review and acceptance.
2. All activities to be undertaken on site must be described with details and the impacts that will have on the physical, biological, social, economic and cultural aspects of the environment must be adequately assessed.
3. The public participation process must be undertaken in accordance with the EIA Regulations, 2014 (as amended). Comments from all relevant stakeholders including the City of Johannesburg Metropolitan Municipality which has jurisdiction over the proposed site must be sought. All comments must be adequately addressed and submitted to this Department for review.
4. At least one, layout plan (for all alternatives considered if any) overlain by a composite sensitivity map, depicting the extent of activities on the layout plan with a legend easily linked to activity components must also be included in the Final Scoping Report. The layout plan must be to scale, clear, legible and indicate legend which corresponds with activities components. All maps must be in colour, visible and to the correct scale.
5. All specialist studies noted in the Draft Scoping Report to be undertaken during the Environmental Impact Assessment (EIA) stage must be indicated also in Final Scoping Report as part of the Plan of Study. The undertaking of independent specialist studies must be in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR 326), as amended.
6. It is noted that the plan of study is included in the Draft Scoping Report. Appendix 2 of NEMA: EIA Regulations, 2014 (as amended), requires a plan of study to be submitted as part of the report. The plan of study must include all the information stipulated in item 2 (l) of the abovementioned Appendix 2.
7. The Screening Report indicates that the overall site has a High Terrestrial Biodiversity, Department notes the Biodiversity Assessment to be conducted as listed in the Plan of Study.
8. In accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326), reasonable and feasible alternatives including, but not limited to site and technology alternatives, as well as the "do-nothing" alternative should be considered. The Department of Forestry, Fisheries and the Environment (DFFE) Guidelines for determining alternatives

states that the key criteria for consideration when identifying alternatives are that they should be "practicable", "feasible", "relevant", "reasonable" and "viable".

9. **Issues Noted:**

- The Department notes the layout has been included in the Draft Scoping. However, a legible, layout plan overlain by a composite sensitivity map on site with a legend easily linked to activity components must be included in the Final Scoping Report. The Layout plan must show the position of services, electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure (where possible).
- Page 21 states the project entails the development of a township including stormwater attenuation and discharge, as well as WWTW's within the regulated area of a wetland. Clarity is required in this regard as to what work exactly will be done near or in the wetland/non-perennial river. It must be noted that the Department does not support any to be done on the wetland recommends that the 32-meter buffer be assigned. According to the Gauteng C-Plan, and page 44 of the Draft Scoping Report the study area is traversed by a non-perennial river buffer, and there are three wetland buffers within the 500m investigation area. Clarity is required as to how these wetlands are affected by the development as they fall outside the parameters of the site application.
- According to the Departmental Conservation Plan Version 3.3, the proposed development entails a River Buffer on the Northeastern part of the site. The reason for this is because the proposed development is located near Jukskei river existing on the northern side of the site. Therefore, GDARD Minimum Requirements for the Biodiversity Assessment must be followed: -

  Rivers
  All specialist studies must be undertaken by suitably qualified specialists who (1) are SASS5 accredited through DWAF, (2) are registered in accordance with the Natural Scientific Professions Act (2003) as Professional Natural Scientists within the field of Ecological or Aquatic Science (3) have attended DWAF's Riparian Delineation and Management course as well as DWAF's EcoStatus Determination course. River specialist studies must include the following:
  - An ecological study, with specific emphasis on ecological processes and connectivity at the landscape level.
  - Delineation of the riparian zone according to "DWAF, 2005: A practical field procedure for the identification and delineation of Wetland and Riparian areas".
  - Delineation of a 100m buffer zone from the edge of the riparian zone for rivers/streams outside urban areas and a 32m buffer zone from the edge of the riparian zone for rivers/streams within urban areas.
  - Impact assessment of the proposed development on the hydrological regime and the change thereof, including the effect of that change on the downstream habitat and integrity of the system.
  - Surface runoff and stormwater management plan indicating the management of all surface runoff generated as a result of the development prior to entering any natural drainage system (i.e., stormwater and flood retention ponds). This must also consider the possible alteration of run-off rate, possible volume of debris and siltation problems.
  - A sensitivity map where riparian zones and buffer zones are designated as sensitive.

- Based on the above, the Department request that the Layout Plan be amended, overlain by sensitivity map indicating all the relevant buffer zones related to existing river buffer, and its perennial river on site. The layout plan must form part of the Final Scoping Report to be submitted to the Department. The area designated as a river buffer zone must be excluded from development activities and must be amended to be identified as such.

The layout plan must be to scale, clear, legible and indicate legend which corresponds with activities components.

- Page 43 of the Draft Scoping Report indicates that the proposed project entails the construction of a light industrial development, it is important to determine suitable foundations for the proposed structures, a geotechnical study be undertaken. This study will also confirm the site Geology and soils, determine any unknown geotechnical stability issues. The Geotechnical study must be submitted as part of the Final Scoping Report.
- The application pertains to an industrial township, and there is a need to know as to whether hazardous, dangerous goods would be stored on site. If there is, the department needs storage capacity.

Notwithstanding the above, your attention is drawn to the fact that the success of the application may be prejudiced by failure to provide relevant information as requested above.

If you have any queries regarding the contents of this letter, please contact the official of the Department at the number indicated above.

Yours faithfully

Mrs. C. Sithi
Control Environmental Officer Grade B – Environmental Impact Management
Date: 28/01/2025

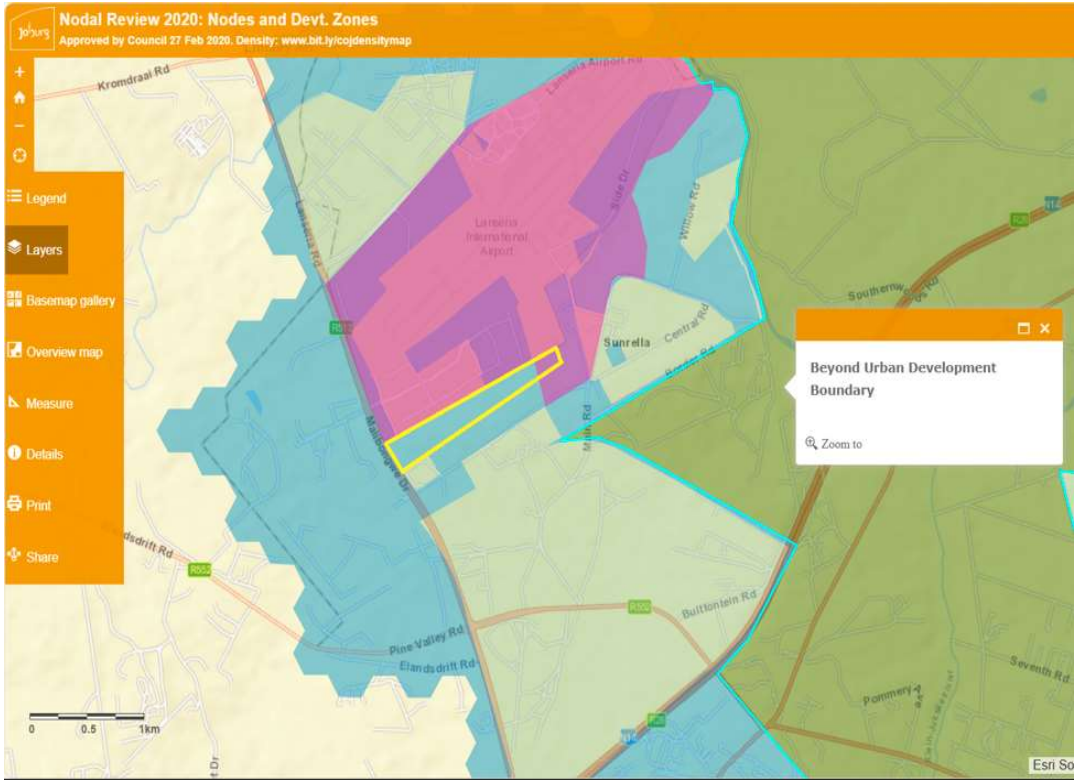
Gaut 002/24-25/E4121– Draft Scoping Report Industrial Township City Johannesburg Municipality.

COMMENTS AND RESPONSE REGISTER

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
1.	Kindly note that the Gauteng Strategic Transportation Network Provincial Road K29 is affected	22/05/2024 Email	Banele Manana Department of Roads and Transport	Noted. Comments are appreciated. The Traffic Engineer will include this potential impact in the Traffic Report, to be included in the forthcoming EIA reports.
2.	**DRAFT SCOPING REPORT AND PLAN OF STUDY FOR EIA, FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, THE CITY OF JOHANNESBURG, GAUTENG PROVINCE.** The Draft Scoping Report dated April 2024 refers. **Description of the project:** The applicant proposes to establish an Industrial 1 township that will be comprised of 21 erven varying in sizes to cater for the large and smaller light industrial buildings. The site is to be known as Lanseria X 81 measuring 32.2722Ha in extent. The study area is located 1 kilometre (km) south of the Lanseria airport. The N14 is located 2.3 km southeast of the study area, directly east of the R512 and directly south of the existing Lanseria Corporate Estate. **Guidelines, by-laws, and policies:**	23/05/2024	Nozipho Maduse Head: COJ Impact Management	Comments received, the Final Scoping Report will include the COJ Environment requirements.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	The City of Johannesburg Spatial Development Framework 2040 (SDF 2040) states that the natural environment must be considered as an essential structuring asset that must be protected to make surrounding developed parts of the city more sustainable, liveable, and valuable. The proposed development is also in line with the SDF 2040 as the proposed development will promote infrastructure development, contribute to a sustainable environment, create jobs and encourage economic growth and future sustainability. **Description of alternatives:** According to the report, various alternatives were considered such as layout, technological, operational and activity alternative. The Department wishes to highlight that all the proposed layouts should avoid environmental sensitive areas. The layout and alternatives must be informed by the specialist studies. These must be discussed and illustrated in greater detail and show sensitivities and applicable buffers in the final scoping report. **Description and assessment of the identified environmental issues:** The CoJ Wetland Audit layers show that the north-eastern corner of the site is affected by a hillslope seepage and unchannelled valley bottom wetlands. The screening assessment conducted by the applicant's specialist has also confirmed the existence of the wetland on the Northeastern part of the site. The City's Catchment Management Policy (2009) prohibits development of infrastructure within 1:100-year floodline or 30 metres (within the urban edge) and 50 metres (outside the urban edge) buffer zone of any watercourse or whichever is greatest. The FSR my address whether the property is located within or outside the urban edge.			Comments regarding the description of alternatives is noted and will be included in the Draft EIR. The property is located *inside* the urban edge**,** illustrated in the image below, extracted from the City of JHB Nodal Review 2020, Nodes and Development nodes.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**

	 In terms of the CoJ Biodiversity Sector Plan 2021, part of the proposed development site is mapped as a Critical Biodiversity Areas (CBA). These are highly sensitive areas of which its development should be avoided. The aerial photograph shows signs of degradation on the south-western part of the site, where developed structure exists. Based on the results of the environmental sensitivity screening of the site conducted by the applicant's appointed specialist, the environmental sensitivities footprint for the			Noted. A Hydropedology Assessment wil be conducted for the property. The report will be included in the Draft EIR. A Water Use License Application has been submitted to the DWS for the project. Noted. Noted.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	proposed development as identified, are indicative only and they must be verified on site by a suitably qualified person to confirm the screening environmental sensitivities of the site. The report mentions that the property is affected by the Johannesburg dome granites, previously called the Halfway house granites. A Hydropedology study must be compiled which considers lateral flows, assesses potential impacts, and proposes mitigation measures. The proposed development triggers the requirements for a Water Use License in terms of Section 21 (c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998). An application in this regard must be submitted. **Evaluation and presentation of mitigation measures:** Identification and assessment of environmental impacts will be based on the results of the specialist studies. The Department requires that all possible impacts and mitigation measures be outlined and a Draft EMPr be included in the DEIR. **Public Participation:** The Public Participation (PP) must be undertaken is in line with the requirements as specified in the EIA Regulations, 2014 (as amended). **Recommendations:**			Mrs Cliff has telephonically clarified with the COJ official, that the recommendations are to be included in the **DEIAR.** All these specialist studies are currently being conducted for the application. Noted

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	Having noted the above, the Department acknowledges the draft scoping report submitted, would like amendments made in the FSR. The following studies as outlined in the report as well as those deemed necessary by the Department must be included in the DEIR: • Existing land uses and status of approval; • Location of the site in relation to the CoJ urban edge; • Hydropedology study; • Terrestrial Assessments including fauna, flora, and Avi Fauna; • Freshwater Ecosystem Assessment i.e., Wetland Assessment, wetland delineation and Impact Assessment; • Heritage Impact Assessment; • Geotechnical Report; • Engineering Services report indicating the availability of bulk services. This must include the proposed 'small Waste Water Treatment Plants on each stand; • Stormwater management plan; • WUL application; and • Traffic and access impact study • The report must take into consideration relevant policies, by-laws, and strategies. This includes the use of the CoJ policies such as the Catchment Management Policy (2009) requirements in terms of the wetland buffer outside the urban edge.			Noted The stormwater management plan for the development will be included in the DEIR. Mrs Cliff has telephonically clarified with the COJ official, that the recommendations are to be included in the DEIAR. The Draft EIAR will be submitted to the COJ Environment, for comments.

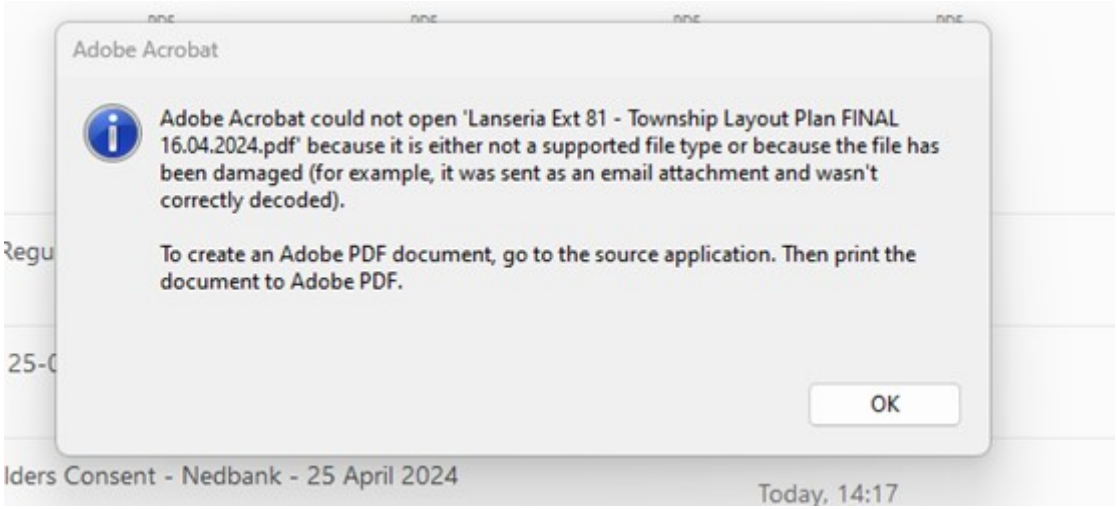
LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	• A legible map that shows the development in relation to the sensitivities on the site should be complied. • A Stormwater management plan of the proposed development, which complies with the City of Johannesburg Stormwater By-law and the associated Design Manual. • Further comments will be made upon the review of the final scoping report. Should you have any queries or require any further information, please do not hesitate to contact the Department.			
3.	Good day Kindly direct your request to environment@caa.co.za Regards, Doris	26/04.2024 Email	Doris Khoza SACAA	Noted and actioned
	Dear Sir/ Madam **RE: AVIATION ENVIRONMENTAL PROTECTION COMMENTS FOR THE PROPOSED DEVELOPMENT OF THE LANSERIA EXTENSION 81** We acknowledge receipt of email dated 06 November 2024. The South African Civil Aviation Authority (CAA) is an agency of the Department of Transport (DoT). The Civil Aviation Act 13 of 2009 provides for the establishment of the CAA as a stand-alone authority mandated with controlling, promoting, regulating, supporting, developing, enforcing and continuously improving levels of safety and security	14/11/2024 Email	Aviation Environmental Compliance Department Pamela Madondo	Comments noted. The Lanseria x 81 Light Industrial Township is in line with the approved surrounding land uses, is located topographically lower than its adjacent Corporate Estate neighbour, and as such does

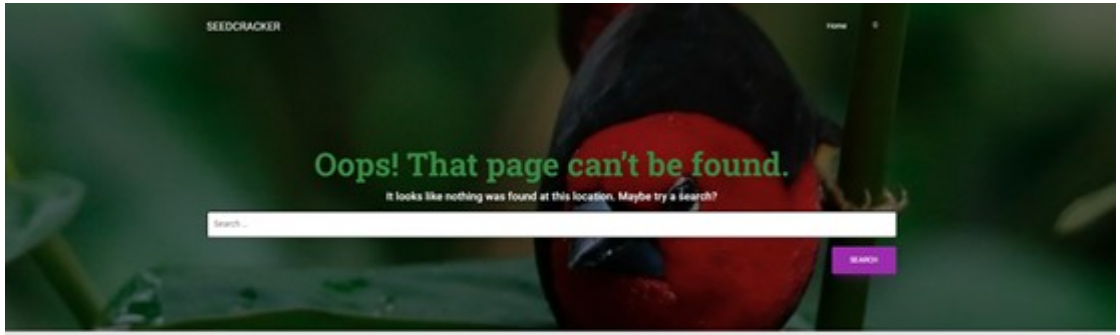
LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	throughout the civil aviation industry. The CAA exercises this mandate through the Civil Aviation Regulations (CARs). Please see our comments below: The proposed site for the development of the Lanseria extension 81, may require formal obstacle assessment for approval. This assessment will evaluate whether development will affect the safety of flights. Kindly lodge an application with the approved obstacle assessment providers as published on the SACAA website: www.caa.co.za/industryinformation/obstacles/. The list and contact details of the approved obstacles assessment services providers can be obtained from the CAA website: www.caa.co.za.			not pose a safety risk to flights at the LIA.
4.	Background: On the 21 May 2024, an Environmental Impact Assessment application was received at JHB Health District: Environmental Health directorate from the Environmental Health section at central office. Corpclo 1462 (Pty) Ltd, proposes to build a commercial/Industrial township for purposes of industrial uses that will fit in with the surrounding character of the area. The proposed area is situated along Malibongwe Road, south of the Lanseria International Airport within the jurisdiction of City of Johannesburg Metropolitan Municipality. The application site is a natural extension to the already approved and operational Lanseria Extensions 26, 45, 46 and 75. Access to the application site will be an extension to and integrated with the existing road network within Lanseria Extension 26. The property measures 32.2772ha in extent. The township will only be established over a portion thereof measuring approximately 30.7995ha in extent.		KP Leola Environmental Health Practitioner HI no :0068497. JHB Health District	Comments will be addressed in the forthcoming EIA report and EMPr.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	On the 31st of May 2024, Environmental Health Practitioners conducted a site visit at the proposed area. The following were the findings: • Plot located in an industrial park. • Plot located near a wetland. • Plot is a plain grass field with no trees or observed indigenous plants. • Plot is located near Lanseria airport. • There's a nearby water reservoir. • Plots entrance will be connected to the existing nearby main road. • There is no sewage line nearby, wastewater treatment methods will be utilized. • The proposed industrial park will use both electricity and solar as energy sources. Possible environmental health effects that may results during construction of the above proposed project: • There could be air pollution because of dust emitted during the construction. • Rubble produced during construction could pollute the land. • Noise pollution during construction process could affect the nearby industrial area occupants. • There may be too much wind blowing as there was no vegetation on or next to the proposed area. • Contamination of ground water.			

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	Comments: • Water should be sprinkled (water suppression) regularly throughout the duration of the construction to minimize air pollution and reduce inhalable dust. • Rubble should be removed and disposed of in an environmentally friendly way so that it does not encourage dumping around the construction site. • Underground water pipes and underground water sources should be identified around the proposed areas prior to digging, to prevent contamination. • Ablution facilities must be provided for use during construction. • Proper protective clothing should be provided to the workers. Conclusion: The proposed Industrial township will not cause harm to the environment during use, provided it is built in accordance with all the relevant statutory requirements. The possible environmental health effects would be those arising from the construction process, which also would not cause significant harm to the environment and the workers, provided sufficient mitigation measures are implemented. Yours in service: _____ KP Leola			

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
5.	Me Stephanie Cliff I refer to your email of 25 April 2024 directed to Lanseria Corporate Estate. I act for and on behalf of Lanseria Trust One (Registration Number 4027/1995) and Lanseria Trust Two (Registration Number 4028/1995) the developer of the Lanseria Corporate Estate. Furter, we wish to in terms of regulation 42(b) of Government Notice R326, to register as an Interested and Affected Party (I&APs). To enable you to add Lanseria Trust One (Registration Number 4027/1995) and Lanseria Trust Two (Registration Number 4028/1995) to the register, I furnish the following information: 1. Contact details: boston@pixie.co.za 2. Full name: Geza Douglas Nagy 3. Address: 15 Tabit Street, Midstream Ridge, Olifantsfontein, Ekhurhuleni, 1692 4. Postal: Postnet Suite 2078, Private Bag X1007, Lyttleton, 0140 5. Contact number: 083 6000 025	25/04/2024 Email	BOSTON ASSOCIATES URBAN PLANNERS G D NAGY	Dear GD, Many thanks for the registration. Apologies we have had numerous IT glitches with the uploads today. It should however all be sorted out now. Pls do visit SEEDCRACKER (seedcrackers.co.za) again, alternatively I can send the report to you via wetransfer link. I have also sent the attached pdf to all informed parties. All the best, STEPHANIE CLIFF SEEDCRACKER ENVIRONMENTAL CONSULTING

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	I confirm that I have no direct business, financial, personal or other interest in the approval or refusal of the application. Emanating please be advised that the pdf of the township layout plan could not be opened, and message received in this regard is as follows:  Please be further advised that the Draft Scoping Report (DSR), as part of the Environmental Impact Assessment process to assess the potential impacts associated with the project, is not available for			Reg EAP. (EAPASA) 2019/487 BSc (Hons) Animal Science, BSc (Hons) Wildlife Management Cell: 082 626 4117

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	comments on the SEC website: www.seedcrackers.co.za/publications, as purported, and message received in this regard is as follows:  For good order and governance kindly confirm receipt of this email. Regards,			
	Subject: RE: NOTICE OF THE SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT PROCESS : PUBLIC PARTICIPATION PROCESS AND REVIEW OF THE DRAFT SCOPING REPORT:	6/11/2024 Email	*G D Nagy Pr. Pln*	Comments received and noted.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	Stephanie *As per our telecom you confirmed that* ***the comments we made before will still be valid and still apply. We stand by that.*** *In this regard please be advised that your client's town planners amended the layout in accordance with our comments (copy attached). Kindly incorporate it into the Scoping & Environmental Impact Assessment Process.* *Kindly acknowledge receipt.* *Regards*		*BOSTON ASSOCIATES URBAN PLANNERS* *Office : +27 11 803 8437* *boston@pixie.co.za*	
	The Department notes the layout has been included in the Draft Scoping. However, a legible, layout plan overlain by a composite sensitivity map on site with a legend easily linked to activity components must be included in the Final Scoping Report. The Layout plan must show the position of services, electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure (where possible).	28/01/2025 Email	***GDARDE*** *Caroline Sithi* *011 240 3394*	Pls see Appendix 6 of this FSR.

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	Page 21 states the project entails the development of a township including stormwater attenuation and discharge, as well as WWTW's within the regulated area of a wetland. Clarity is required in this regard as to what work exactly will be done near or in the wetland/non-perennial river. It must be noted that the Department does not support any to be done on the wetland recommends that the 32-meter buffer be assigned.			The Lanseria x 81 development will include on site stormwater attenuation and discharge, as well as on-site waste water treatment plants located within the *500m radius* of the delineated seep wetland identified in the north eastern corner of the site. No WWTW, roads or buildings are located *within* the seep wetland on the application site. Only a linear stormwater pipe will traverse the wetland on the application site, which will tie in with

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	According to the Gauteng C-Plan, and page 44 of the Draft Scoping Report the study area is traversed by a non-perennial river buffer, and there are three wetland buffers within the 500m investigation area. Clarity is required as to how these wetlands are affected by the development as they fall outside the parameters of the site application.			the approved Lanseria X 11 stormwater culvert, for which a WULA is being applied. The Site Sensitivity and October 2023 field verification for the aquatic biodiversity theme for the proposed light industrial development, confirmed the presence of the seep wetland on site, but no non-perennial river. The wetland systems located outside of the application site (Portion 72 of the Farm Bultfontein 533 JQ) will not be impacted by the

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
				proposed Lanseria X 81 development. The 500m investigation area for the Freshwater study is in accordance with the Government Notice 4167 [as published in the Government Gazette 49833 of 08 December 2023 as it relates to the NWA (Act 36 of 1998) as amended], where a regulated area of a watercourse in terms of water uses as listed in Section 21(c) and 21(i) is, amongst others, defined as 500 m radius around the delineated boundary (extent) of any wetland, including pans. So although

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
				the proposed Lanseria x 81 development will not impact on the wetlands identified within a 500m investigation area, the Freshwater Assessment must still identify these resources, and the WULA for the development must include their presence.
	According to the Departmental Conservation Plan Version 3.3, the proposed development entails a River Buffer on the Northeastern part of the site. The reason for this is because the proposed development is located near Jukskei river existing on the northern side of the site. Therefore, GDARD Minimum Requirements for the Biodiversity Assessment must be followed.	28/01/2025 Email	*GDARDE Caroline Sithi 011 240 3394*	Noted
	Based on the above, the Department request that the Layout Plan be amended, overlain by sensitivity map indicating all the relevant buffer zones related to existing river buffer, and its perennial river on site. The layout plan must form part of the Final Scoping Report to be submitted to the Department. The area designated as a river buffer zone must be excluded from development activities and must be amended to be identified as such. The layout plan			The Site Sensitivity and October 2023 field verification for the aquatic biodiversity theme for the proposed light industrial

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
	must be to scale, clear, legible, and indicate a legend which corresponds with activities components.			development, confirmed the presence of the seep wetland on site only (not a river buffer zone). A seep wetland is defined as a wetland area located on gently to steeply sloping land and dominated by colluvial (i.e. gravity-driven), unidirectional movement of water and material down-slope. There are no rivers within the study and 500m investigation area. The Jukskei River is located approximately 1,6 km east of the study area. According

LANSERIA X 81 COMMENTS AND RESPONSE REPORT				
	Comments / Issues raised during review of draft Basic Assessment Report			
No.	**Issue Raised**	**Date and How Issue Was Raised**	**Commentator**	**Response**
				to the NFEPA Database the river is largely modified. A detailed Freshwater Assessment will be included in the EIA reports.
	Page 43 of the Draft Scoping Report indicates that the proposed project entails the construction of a light industrial development, it is important to determine suitable foundations for the proposed structures, a geotechnical study be undertaken. This study will also confirm the site Geology and soils, determine any unknown geotechnical stability issues. The Geotechnical study must be submitted as part of the Final Scoping Report.	28/01/2025 Email	*GDARDE Caroline Sithi 011 240 3394*	Geoid Geotechnical Engineers PTY LTD have been appointed to conduct the soil investigation for township development on the property. See Appendix 7.
	The application pertains to an industrial township, and there is a need to know as to whether hazardous, dangerous goods would be stored on site. If there is, the department needs storage capacity.			No hazardous or dangerous goods will be stored on the site.

APPENDIX 14: GDE CONDITIONS OF APPROVAL OF THE FINAL SCOPING REPORT

GAUTENG PROVINCE
ENVIRONMENT
REPUBLIC OF SOUTH AFRICA

Reference: Gaut 002/24-25/E4121
Enquiries: Caroline Sithi
Telephone: 011 240 - 3394
E-mail: Caroline.Sithi@gauteng.gov.za

SEEDCRACKER ENVIRONMENTAL CONSULTING CC
401 Lawley Street
Pretoria
0181

Email: stephweb@mweb.co.za
Tel: 082 626 4117

Dear Stephanie Cliff,

FINAL SCOPING REPORT AND PLAN OF STUDY ACCEPTED: THE PROPOSED LANSERIA EXTENSION 81 "INDUSTRIAL 1" TOWNSHIP ESTABLISHMENT, ON PORTION 72 OF THE FARM BULTFONTEIN 533-JQ, CITY OF JOHANNESBURG METROPOLITAN MUNICIPALITY

The Scoping Report and Plan of Study for Environmental Impact Assessment which was submitted in respect of the above-mentioned application and received by the Department on 10 February 2025 has been accepted. You may accordingly proceed with undertaking the Environmental Impact Assessment in accordance with the tasks that are outlined in the Plan of Study for Environmental Impact Assessment.

Notwithstanding the above, your attention is drawn to the following requirements that must be addressed in the Environmental Impact Assessment Report (EIAR).

1. The Environmental Impact Assessment Report (EIAR) must comply with Regulation 23 of the EIA Regulations, 2014 (as amended).
2. All activities to be undertaken on site must be described in detail and the impacts that will have on the physical, biological, social, economic and cultural aspects of the environment must be adequately assessed.
3. The public participation process must be undertaken in accordance with the EIA Regulations, 2014 (as amended). Comments from all relevant stakeholders including the City of Johannesburg Metropolitan Municipality which has jurisdiction over the proposed site must be sought. All comments must be adequately addressed and submitted to this Department for review.
4. At least one, layout plan (for all alternatives considered if any) overlain by a composite sensitivity map, depicting the extent of activities on the layout plan with a legend easily linked to activity components must also be included in the EIA Report. The layout plan must be to scale, clear, legible and indicate legend which corresponds with activities components. All maps must be in colour, visible and to the correct scale.
5. All specialist studies depicted on Page 87 of the Final Scoping Report as part of the Plan of Study must be undertaken during the Environmental Impact Assessment (EIA) stage. The undertaking of independent specialist studies must be in accordance with Appendix 6 of the EIA Regulations, 2014 (GNR 326), as amended.
6. In accordance with the requirements of Appendix 2 of the 2014 EIA Regulations (GNR 326), reasonable and feasible alternatives including, but not limited to site and technology alternatives, as well as the "do-nothing" alternative should be considered. The Department of Forestry, Fisheries and the Environment (DFFE) Guidelines for determining alternatives

states that the key criteria for consideration when identifying alternatives are that they should be "practicable", "feasible", "relevant", "reasonable" and "viable".

7. **Issues Noted:**

- The Department notes the layout plan has been included in the Final Scoping Report in Appendix 6. However, a legible, layout plan overlain by a composite sensitivity map on site with a legend easily linked to activity components must be included in the Draft EIA Report with the relevant buffers assigned. The Layout plan must show the position of services, electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure (where possible) and the attenuation ponds.
- It is noted on page 17 that Activity 12 (i) of Listing Notice 1 is included as part of the activities applied for. The Department requires clarity as to within how many meters of the watercourse will the attenuation ponds be located (the exact location within the watercourse and its buffer zone). The location of such must be indicated on the above requested layout plan.
- Annexure A, Appendix 4 (services layout plan) and Appendix 6 Layout Plan for the site development seem not to align when superimposed to one another. Annexure A is noted as being the services layout plan, these layout plans do not correspond with each other. It is noted and presumed by the Department that the site development layout plan has assigned the relevant buffer for the river noted on site, however, the services layout plan has no reflection of the buffers. Where possible, the Department requests that all the structures within the river buffer be removed in the services layout plan and alternative route be considered for the proposed storm water pipe.
- According to the Departmental Conservation Plan Version 3.3, the proposed development entails a River Buffer on the Northeastern part of the site because the proposed development is located near Jukskei River that is situated on the northeastern side of the site. Therefore, GDARD Minimum Requirements for the Biodiversity Assessment must be followed: -

Rivers

All specialist studies must be undertaken by suitably qualified specialists who (1) are SASS5 accredited through DWAF, (2) are registered in accordance with the Natural Scientific Professions Act (2003) as Professional Natural Scientists within the field of Ecological or Aquatic Science (3) have attended DWAF's Riparian Delineation and Management course as well as DWAF's EcoStatus Determination course. River specialist studies must include the following:

- An ecological study, with specific emphasis on ecological processes and connectivity at the landscape level.
- Delineation of the riparian zone according to "DWAF, 2005: A practical field procedure for the identification and delineation of Wetland and Riparian areas".
- Delineation of a 100m buffer zone from the edge of the riparian zone for rivers/streams outside urban areas and a 32m buffer zone from the edge of the riparian zone for rivers/streams within urban areas.
- Impact assessment of the proposed development on the hydrological regime and the change thereof, including the effect of that change on the downstream habitat and integrity of the system.
- Surface runoff and stormwater management plan indicating the management of all surface runoff generated as a result of the development prior to entering any natural drainage system (i.e., stormwater and flood retention ponds). This must also consider the possible alteration of run-off rate, possible volume of debris and siltation problems.
- A sensitivity map where riparian zones and buffer zones are designated as sensitive.

- Based on the above, the Department request that the Layout Plan be amended, overlain by sensitivity map indicating all the relevant buffer zones related to existing river buffer, and its perennial river on site. The layout plan must form part of the Draft EIA Report to be submitted to the Department. The area designated as a river buffer zone must be excluded from development activities and must be amended to be identified as such. The layout plan must be to scale, clear, legible and indicate legend which corresponds with activities components.
- Kindly note that this application has been forwarded to this Department's Biodiversity directorate for comment. Should Biodiversity directorate have any further suggestions or recommendations that need to be implemented or communicated to the applicant (through the EAP), the applicant will be notified of such comments and will be sent as an addendum.

Wetlands

- All specialist studies must be undertaken by suitably qualified specialists who (1) are registered in accordance with the Natural Scientific Professions Act (2003) as Professional Natural Scientists within the field of Ecological or Aquatic Science (2) have specific post-graduate qualifications relating to wetlands. In the absence of the latter, the specialist must have attended an appropriate course on wetland rehabilitation and delineation (copy of certificate must be provided).
- The wetland delineation procedure must identify the outer edge of the temporary zone of the wetland, which marks the boundary between the wetland and adjacent terrestrial areas and is that part of the wetland that remains flooded or saturated close to the soil surface for only a few weeks in the year, but long enough to develop anaerobic conditions and determine the nature of the plants growing in the soil.
- Delineation must be undertaken according to "DWAF, 2003: A practical Guideline Procedure for the Identification and Delineation of Wetlands and Riparian Zones".
- Locating the outer edge of the temporary zone must make use of four specific indicators including the terrain unit indicator, the soil form indicator, the soil wetness indicator and the vegetative indicator.
- The wetland and a protective buffer zone, beginning from the outer edge of the wetland temporary zone, must be designated as sensitive in a sensitivity map (refer to Sensitivity Mapping rules for Biodiversity Assessments).

The catchment of all pan wetlands must be demarcated. Please note that GDARD's sensitivity project is an internal one and that a shapefile of these pans may be requested from (Albertina.Setsiba@gauteng.gov.za).

The report must include the following information (but not restricted to):

- The present ecological state of the wetland.
- The impacts which are likely to occur due to the proposed development, and recommendations to avoid or minimize such impacts.
- If the wetland is degraded, a rehabilitation plan must be included (all wetlands must be conserved and rehabilitated if necessary; their destruction for development purposes will not be supported).
- The delineation procedure that has been applied.
- Conservation worthy/valuable biota identified in the wetland or surrounding areas.
- Sensitivity map showing the outer edge of the temporary wetland and the buffer in relation to the proposed development.
- A plan indicating how the stormwater that will be generated by the proposed development will be managed.

NB: A shapefile (see Appendix 1 for shapefile requirements) of the delineated wetland must be e-mailed to Albertina.Setsiba@gauteng.gov.za for GDARD's records.

Gaut 002/24-25/E4121– Final Scoping Report Industrial 1 township City of Johannesburg

All wetland habitats must be surveyed for the following mammal species: *Chrysospalax villosus, Mystromys albicaudatus, Lutra maculicollis, Amblysomus septentrionalis, Dasymys incomtus*. Minimum requirements for mammal studies apply.

The edge of the wetland must be clearly demarcated in the field with pegs or poles that will last for the duration of the construction phase, colour-coded as follows:

- **RED** – Indicating the edge of the wetland (Note: This includes the permanent, seasonal and temporal wetlands, or parts thereof; and no vehicles or building materials are allowed in this zone) [These should be put along the entire length of the property/site.],
- **ORANGE** – Indicating the edge of the buffer zone (30m within urban areas and 50m outside urban areas). However, allowance must be made for sensitive species that require larger areas, e.g. Grass Owl, Giant Bullfrog, etc.

Notwithstanding the above, your attention is drawn to the fact that the success of the application may be prejudiced by failure to provide relevant information as requested above.

If you have any queries regarding the contents of this letter, please contact the official of the Department at the number indicated above.

Yours faithfully

Mrs. C. Sithi
Control Environmental Officer Grade B – Environmental Impact Management
Date: 24/02/2025

Gaut 002/24-25/E4121– Final Scoping Report Industrial 1 township City of Johannesburg

APPENDIX 15: COJ COMMENTS ON THE FINAL SCOPING REPORT

City of Johannesburg
Environment and Infrastructure Services Department
158 Jorissen Street | PO Box 10849 | Tel: +27(0) 11 595 4712
Trafalgar House | Johannesburg
Braamfontein | South Africa | www.joburg.org.za
2000

a world class African city

UNIT: IMPACT MANAGEMENT & COMPLIANCE MONITORING

Our Reference: **EIM04/06/2024**
Contact: **Andiswa NP Khumalo**
CoJ Region: **A**
Tel: **(011) 595 4712**

Seedcracker Environmental Consulting
226 Ashwood Drive
Centurion

Stephweb@mweb.co.za

Attention: Stephanie Cliff

FINAL SCOPING REPORT AND PLAN OF STUDY FOR EIA, FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, THE CITY OF JOHANNESBURG, GAUTENG PROVINCE.

The Final Scoping Report compiled by Seedcracker Environmental Consulting dated June 2024 refers. The Department received a draft scoping report in April 2024 and subsequently commented on 23 May 2024. Comments made are still applicable. The Department reviewed the FSR and noted that its comments were considered for inclusion in the FSR and DEIR where applicable. The Department will make recommendations on the Environmental Impact Report.

Should you have any queries or require any further information, please do not hesitate to contact the Department.

Regards,

Nozipho Maduse
Head: Impact Management
Tel: 011 062 7943
Email: NoziphoM@joburg.org.za
Date: 27/05/2024

Cc: Gauteng Department of Agriculture and Rural Development (GDARD)
Email: Mulalo.Mukwevho2@gauteng.gov.za
Joshua.Mahada@gauteng.gov.za
Tebo.Leku@gauteng.gov.za
Caroline.Stimi@gauteng.gov.za

COJ COMMENTS ON THE DRAFT SCOPING REPORT

Joburg
a world class African city

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Treidoria House | Johannesburg
Braamfontein | South Africa | www.joburg.org.za

UNIT: IMPACT MANAGEMENT & COMPLIANCE MONITORING

Our Reference: **EIM29/04/2024**
Contact: **Andiswa NP Khumalo**
CoJ Region: **A**
Tel: **(011) 595 4712**

Seedcracker Environmental Consulting
228 Ashwood Drive
Centurion

Stephweb@mweb.co.za

Attention: Stephanie Cliff

DRAFT SCOPING REPORT AND PLAN OF STUDY FOR EIA, FOR AN "INDUSTRIAL 1" TOWNSHIP, LANSERIA EXTENSON 81, LOCATED ON PORTION 72 OF THE FARM BULTFONTEIN 533 JQ, THE CITY OF JOHANNESBURG, GAUTENG PROVINCE.

The Draft Scoping Report dated April 2024 refers.

Description of the project:

The applicant proposes to establish an Industrial 1 township that will be comprised of 21 erven varying in sizes to cater for the large and smaller light industrial buildings. The site is to be known as Lanseria X 81 measuring 32.2722Ha in extent. The study area is located 1 kilometre (km) south of the Lanseria airport. The N14 is located 2.3 km southeast of the study area, directly east of the R512 and directly south of the existing Lanseria Corporate Estate.

Guidelines, by-laws, and policies:

The City of Johannesburg Spatial Development Framework 2040 (SDF 2040) states that the natural environment must be considered as an essential structuring asset that must be protected to make surrounding developed parts of the city more sustainable, liveable, and valuable. The proposed development is also in line with the SDF 2040 as the proposed development will promote infrastructure development, contribute to a sustainable environment, create jobs and encourage economic growth and future sustainability.

Description of alternatives:

According to the report, various alternatives were considered such as layout, technological, operational and activity alternative. The Department wishes to highlight that all the proposed layouts should avoid environmental sensitive areas.

The layout and alternatives must be informed by the specialist studies. These must be discussed and illustrated in greater detail and show sensitivities and applicable buffers in the final scoping report.

Description and assessment of the identified environmental issues:

The CoJ Wetland Audit layers show that the north-eastern corner of the site is affected by a hillslope seepage and unchannelled valley bottom wetlands. The screening assessment conducted by the applicant's specialist has also confirmed the existence of the wetland on the Northeastern part of the site. The City's Catchment Management Policy (2009) prohibits development of infrastructure within 1:100-year floodline or 30 metres (within the urban edge) and 50 metres (outside the urban edge) buffer zone of any watercourse or whichever is greatest. The FSR my address whether the property is located within or outside the urban edge.

In terms of the CoJ Biodiversity Sector Plan 2021, part of the proposed development site is mapped as a Critical Biodiversity Areas (CBA). These are highly sensitive areas of which its development should be avoided. The aerial photograph shows signs of degradation on the south-western part of the site, where developed structure exists. Based on the results of the environmental sensitivity screening of the site conducted by the applicant's appointed specialist, the environmental sensitivities footprint for the proposed development as identified, are indicative only and they must be verified on site by a suitably qualified person to confirm the screening environmental sensitivities of the site.

The report mentions that the property is affected by the Johannesburg **dome granites**, previously called the Halfway house granites. A Hydropedology study must be compiled which considers lateral flows, assesses potential impacts, and proposes mitigation measures.

The proposed development triggers the requirements for a Water Use License in terms of Section 21 (c) and (I) of the National Water Act, 1998 (Act No. 36 of 1998). An application in this regard must be submitted.

Evaluation and presentation of mitigation measures:

Identification and assessment of environmental impacts will be based on the results of the specialist studies. The Department requires that all possible impacts and mitigation measures be outlined and a Draft EMPr be included in the DEIR.

Public Participation:

The Public Participation (PP) must be undertaken is in line with the requirements as specified in the EIA Regulations, 2014 (as amended).

Recommendations:

Having noted the above, the Department acknowledges the draft scoping report submitted, would like amendments made in the FSR. The following studies as outlined in the report as well as those deemed necessary by the Department must be included in the DEIR:

- Existing land uses and status of approval;

- Location of the site in relation to the CoJ urban edge;
- Hydropedology study;
- Terrestrial Assessments including fauna, flora, and Avi Fauna;
- Freshwater Ecosystem Assessment i.e., Wetland Assessment, wetland delineation and Impact Assessment;
- Heritage Impact Assessment;
- Geotechnical Report;
- Engineering Services report indicating the availability of bulk services. This must include the proposed 'small Waste Water Treatment Plants on each stand;
- Stormwater management plan;
- WUL application; and
- Traffic and access impact study

- The report must take into consideration relevant policies, by-laws, and strategies. This includes the use of the CoJ policies such as the Catchment Management Policy (2009) requirements in terms of the wetland buffer outside the urban edge.
- A legible map that shows the development in relation to the sensitivities on the site should be compiled.
- A Stormwater management plan of the proposed development, which complies with the City of Johannesburg Stormwater By-law and the associated Design Manual.

Further comments will be made upon the review of the final scoping report. Should you have any queries or require any further information, please do not hesitate to contact the Department.

Regards,

Nozipho Maduse
Head: Impact Management
Tel: 011 062 7943
Email: NoziphoM@joburg.org.za
Date: 2024/05/23

Cc: Gauteng Department of Agriculture, Rural Development, and Environment (GDARDE)
Email: Mulalo.Mukwevho2@gauteng.gov.za
Joshua.Mahada@gauteng.gov.za
Tebo.Leku@gauteng.gov.za
Caroline.Sithi@gauteng.gov.za

APPENDIX 16: DRAFT EMPR

APPENDIX 17: PRESENT AND PREFERRED PROPOSED LAYOUT PLAN

APPENDIX 18: JOHANNESBURG WATER COMMENTS ON THE OUTLINE SCHEME REPORT

City of Johannesburg
Johannesburg Water SOC Ltd
Turbine Hall
65 Ntemi Piliso Street
Newtown
Johannesburg
Johannesburg Water
PO Box 61542
Marshalltown
2107
Tel +27(0) 11 688 1400
Fax +27(0) 11 688 1528
www.johannesburgwater.co.za

01 October 2024

JN CIVIL CONSULTING ENGINEERS
8 LAUREL VALLEY
SILVERLAKES GOLF ESTATES
PRETORIA
0001

ATTENTION: JANES BRITS

Dear Sir / Madam

SCHEME REPORT:
LANSERIA EXT.81 PTN 72 BULTFONTEIN 533-JR

Johannesburg Water acknowledges receipt of the scheme report for the proposed development.

Your scheme report dated July 2024 refers. Johannesburg Water responds as follows:

Water:

The proposed development falls within the Lanseria Tower distribution zone. The corrected anticipated domestic AADD from the proposed development is 441kl/d (Calculated according to JW standard Guidelines and used for this water hydraulic impact assessment). There is an existing 160mm diameter water pipe traversing the proposed development along airbus close that can be utilized for connection into the existing network.

After modelling the anticipated domestic peak flow, the hydraulic analysis shows that the peak demand pressure will not be sufficient to supply the Proposed development. The pipe sizes downstream and storage capacity of the Lanseria Tower are sufficient, however due to the topology of the area, there is not enough pressure buildup for the proposed development to be supplied sufficiently resulting in 0m peak head for portions of the proposed development. It therefore proposed that the developer considers installing a booster pump station at their own cost and maintenance if this development is to proceed.

a world class African city

City of Johannesburg

Johannesburg Water SOC Ltd

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Johannesburg

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PO Box 61542
Marshalltown
2107

Tel +27(0) 11 688 140
Fax +27(0) 11 688 152

www.johannesburgwater.co.za

Sewer:

The proposed Lanseria Ext 81 will fall within the Future Lanseria drainage Basin which is a future master plan item not yet in progress, however in the current scenario the developer is proposing to service the proposed development privately by means of a package plant because there is no existing sewer infrastructure within the vicinity of the proposed development. The Engineer will be required to do a package plant report for submission before it can be approved.

The report / comments are valid for 5 years from date of this letter.

DISCLAIMER BY JOHANNESBURG WATER (SOC) LTD IN RESPECT OF APPROVALS GRANTED IN:

Scheme Reports

Relating to environmentally sensitive areas and adherence to Water Use License Approval requirements. Johannesburg Water (SOC) Ltd (JW) in approving the Scheme Report and or Construction Drawings makes no representation or warranties of any kind, express or implied, as to the information, content and or material relating to compliance with environmental laws and water use licences for the development for which such approval is granted. It is the Developer's responsibility and obligation to ensure the accuracy, compliance with applicable statute(s) or regulations, fitness of purpose of any plans or construction information approved by JW prior to use thereof. In the event that any liability is imposed on JW as a result of the use of such approval by the third party, you as the third party indemnifies JW against such liability. Any use of such approval/s by such third party is done at their own risk. The third party should have the Scheme Reports and Construction Drawings reviewed by a professional environmental engineer before the start of construction. It is the third party's responsibility to ensure compliance with applicable statute(s) or regulations, without limitation, such as environmental laws and water use licences. The approval of the Scheme Reports and Construction Drawings by JW do not represent an endorsement or recommendation of compliance with applicable statute(s) or regulations, or water use licenses.

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JW shall not be held liable for any errors, omissions, or deficiencies in any form by any party whatsoever in terms of such approval.
Should any additional information be required please do not hesitate to contact the writer.

Refiloe Comakae 0116881633 refiloe.comakae@jwater.co.za

Yours faithfully,

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(R. Comakae)
Development Engineering Officer (IPAM)