63 Wessel Road, Rivonia, 2128 PO Box 2597, Rivonia, 2128 South Africa
Tel: +27 (0) 11 803 5726 **Fax:** +27 (0) 11 803 5745 **Web:** www.gcs-sa.biz

Evaton West – I Housing Project, Remainder of Erf 14540, Extension 7

Draft Revised Basic Assessment Report

Version – 01

31 May 2021

Phumaf Holdings (Pty) Ltd

GCS Project Number: 19-0921

Client Reference: Evaton West – Project I

GDARD Ref No: GAUT 002/21-22/E2906 (previous ref: GAUT 002/20-21/E0031)

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	Name	**Signature**	**Date**
Author	Lehlogonolo Mashego		**April 2021**
Document Reviewer	Gerda Bothma Pr. Sci. Nat 117348		**May 2021**

Disclaimer

Information contained in this report relating to the project description is based on information supplied by the client and other client-appointed sources. It is assumed that the information provided to GCS is correct.

Environmental and social data, as well as Environmental Impact Assessment, provided in this report is based on information supplied by specialists in their respective fields, as well as existing information pertaining to the area in question (including previous site investigation data and information from the Department of Environment, Forestry and Fisheries' Online Screening Tool). It has been assumed that the information provided to GCS to perform the outcomes of this report is correct.

No responsibility is accepted by GCS for incomplete or inaccurate data supplied by others (the client and external sources). Where gaps have been identified these are listed for consideration by the responsible decision-makers.

GCS's opinions, conclusions and recommendations are based upon information that existed at the time of the start of the production of this document.

EXECUTIVE SUMMARY

GCS Water and Environmental Consultants (Pty) Ltd (GCS) was appointed by Phumaf Holdings (Pty) Ltd (Phumaf) to conduct the Environmental Authorisation (EA) process for the proposed Evaton West Project I stand (Erf 14540, Extension 7), Emfuleni Local Municipality (ELM), in Gauteng. This application for EA is being undertaken on behalf of the Gauteng Department of Human Settlements (DHS) and, as such, will be submitted to the Gauteng Department of Agriculture and Rural Development (GDARD) as the competent authority.

NEED AND DESIRABILITY

The site falls within the Urban Development Zone of the Gauteng Provincial Environmental Management Framework (GPEMF) (Gauteng Department of Agriculture and Rural Development, 2014). Zone 1 is intended to streamline urban development activities and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the Gauteng SDF (GSDF), to establish a more effective and efficient city region that will minimise urban sprawl into rural areas.

SITE DESCRIPTION

The site is 4.32 hectares (ha). The site has recently erected informal dwellings and small businesses with only two small areas that have open access. The western section of the site is a small open field, situated on the edge of the R553. There are multiple piles of dumped household refuse and building rubble. The area also contains large boulders that seem to have been cleared from the areas where the informal houses were built. The site forms part of the proclaimed township of Evaton West Extension 7 (General Plan 11480/1998) with SG Diagram 8750/2000 (Metroplan Town Planners and Urban Designers, 2020) in the southern parts of Gauteng Province in the Sedibeng District Municipality.

DEVELOPMENT COMPONENTS

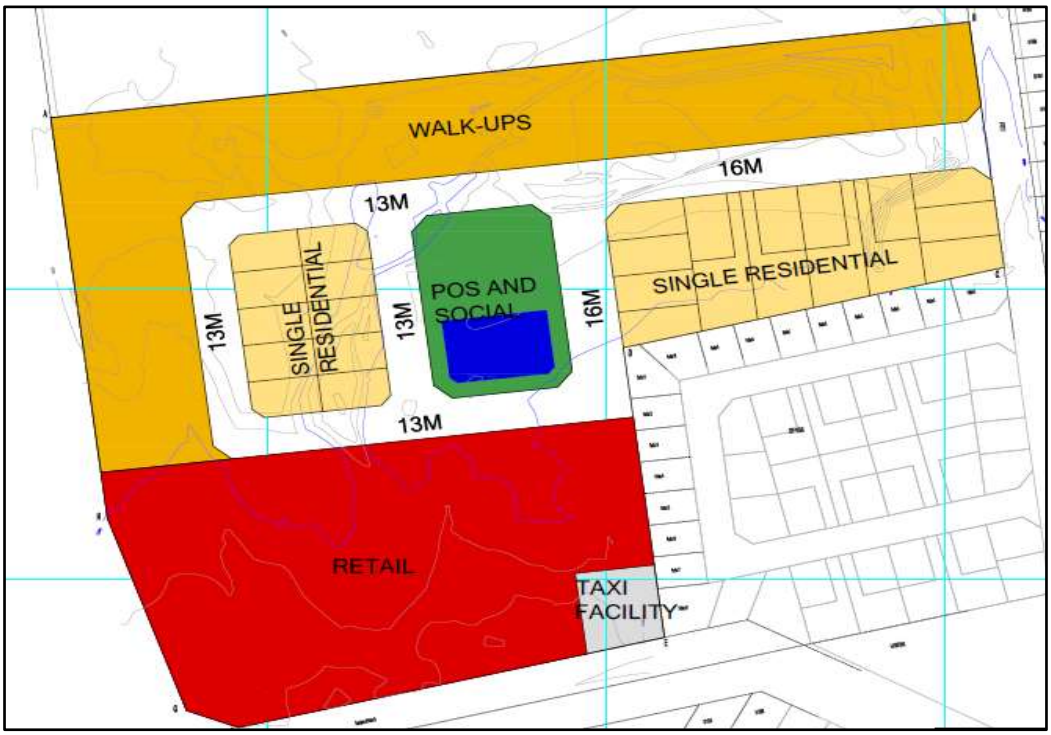
The detailed site layout plans and civil engineering service plans are included in Appendix C and E. Additional services (roads, stormwater, water and sewer) would need to be installed to accommodate the proposed development. Four alternative development concepts have been proposed.

Given that there are existing informal housing structures and businesses on the property, in order for the site to be released for housing development and/or retail development, a Resettlement Action Plan must be compiled and facilitated by a social specialist and in communication with the affected residents.

A number of development options were investigated for the site. The 4 design concepts are summarised in the table below.

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
Erf size	4.3ha	4.3ha	4.3ha	4.3ha
Portion of site used for residential purposes	3.5ha	3.3ha	2.1ha	1.97ha
Walk-up/ row housing dwelling units	475	196 dwelling units 1.9ha area Net density: 100 du/ha	346	131 dwelling units 1.23ha area Net density: 107 du/ha
250m² erven	0	49 dwelling units 1.4ha area Net density: 35 du/ha	0	25 dwelling units 0.74ha area Net density: 34du/ha
Total nr of units	475	245	346	156
Site residential density	110 du/ha	57 du/ha	115 du/ha (excluding retail site)	52 du/ha (excluding retail site)
Net residential density	135 du/ha	74 du/ha	156 du/ha (excluding retail site)	70 du/ha (excluding retail site)
Retail	0m²	0m²	1.3ha GLA of 3 600m² filling station	1.29ha GLA of 3 915m² filling station
Layout plan				

The preferred development option, which has been further investigated, is "Preferred Development Alternative", which consists of 156 dwelling units made up of 131 dwelling units in walk-up flats and 25 erven of 250m2. The south-western portion of the site contains a retail development of 3 915 GLA as per the market study. The overall density on the erf is 52 du/ha. A taxi facility is also proposed at the retail area, to ensure proper accessibility. Refer to the figure below for an illustration of the above.



LISTED ACTIVITIES

The site falls within Zone 1 (Urban Development Zone) of the Gauteng Provincial Environmental Management Framework (GPEMF), adopted by the MEC in terms of regulation 5(4) of the Environmental Management Framework Regulations, 2010 under Government Notice No.1655 of 22 May 2015. As such, certain listed activities are excluded.

Listed activities in terms of the 2014 NEMA EIA regulations, as amended:

Notice	Activity	Description of related activity	Applicability
Listing Notice 1	30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	Applicable – Threatened Ecosystem - Soweto Highveld Grassland = Vulnerable BASIC ASSESSMENT
Listing Notice 3	4	The development of a road wider than 4 metres with a reserve less than 13,5 metres… c. Gauteng v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004). xii. Sites zoned for conservation use or public open space or equivalent zoning.	Applicable - Threatened Ecosystem - Soweto Highveld Grassland = Vulnerable, Not CBA/ESA, Zoning = "Public Open Space" Road widths would vary from 13 - 16m according to UDF report (Appendix E). BASIC ASSESSMENT
Listing Notice 3	12	The clearance of an area of 300 square metres or more of indigenous vegetation .. c. Gauteng. 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.	Applicable - The proposed development site is 4.3 ha in extent. Zoning = "Public Open Space" BASIC ASSESSMENT
Listing Notice 3	15	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use.	Applicable - The proposed development site is 4.3 ha in extent. Zoning = "Public Open Space" BASIC ASSESSMENT

SPECIALIST STUDIES

A specialist Phase 1 Heritage Impact Assessment and Desktop Palaeontological Study were commissioned. The results indicate that there are no cultural heritage features on the site and the likelihood of fossil finds is low.

Due to the potential presence of a wetland on the site, as identified during the initial screening assessment, an investigation focusing on potential aquatic ecological features on the site, has been undertaken. The results indicate that there are no aquatic features (wetlands or watercourses) within or within 500m of the development site, As such, the development on the site will not impact on any aquatic features. From an aquatic ecological point of view, it is the specialist's opinion that there are no fatal flaws that will prevent the development to be authorised.

A specialist Traffic Impact Assessment was also undertaken to assess the traffic impact at surrounding intersections, due to the additional traffic that the development will generate together with measures to mitigate the impact. The results indicate that, from a traffic engineering perspective, the proposed development is regarded as feasible and sustainable.

PUBLIC PARTICIPATION PROCESS

An initial commenting period for the Draft Basic Assessment Report, ran from Friday, 12 February to Monday, 15 March 2021. Project flyers were distributed with the assistance of the ward councillor and a ward committee representative. Three site notices detailing information about the project and the BA Process, as well as an invitation to register as I&APs, were placed at three strategic locations on Friday, 12 February 2021. A newspaper advertisement for the registration and participation of I&APs was also placed in the Vaal Weekblad.

The Draft Revised Basic Assessment Report will be available for comment from Friday, 28 May 2021 to Monday, 28 June 2021. All registered I&APs will be notified of the availability of this Revised Draft Basic Assessment Report for comment.

ENVIRONMENTAL IMPACT STATEMENT

The following impacts associated with the proposed project are considered Medium (Negative) significance (post-mitigation):

Construction phase:

- Increase in soil erosion and sedimentation associated with earthworks for the establishment of foundations for housing units and associated access road and service infrastructure and grading of roads;
- GHG emissions during the construction activities associated with vehicle, plant and

machinery emissions, waste management, and increased carbon footprint through the use of electricity, fuel, and generation of waste;

- Visual impact and loss of sense of place associated with the establishment of the construction camp/s, stockpiling, storage of equipment and machinery, and the storage of reflective materials;
- Increase in ambient noise levels associated with movement and operation of construction-related heavy machinery, vehicles and workers;

Operational phase:

- Increase in hardened catchment surfaces, and an associated increase in surface runoff which will largely be released into the environment, and associated erosion and sedimentation;
- Potential increased water turbidity due to sediment inputs and/or erosion, which is linked to the alteration of hydrological and geomorphological processes (erosion and sediment);
- Potential for contaminated surface runoff/stormwater flows from roads and for improper sewage infrastructure (spillages) and solid waste management (i.e. dumping into natural areas);
- Risk of alien plant encroachment into areas disturbed post-construction;
- Loss of Soweto Highveld Grassland vegetation through direct physical destruction and/or modification of terrestrial habitat and invasive alien plant invasion;
- Visual impact and loss of sense of place associated with the establishment of the housing development and/or retail development; and
- Additional strain on existing services, including water, sewage, waste collection, and roads.

The following impacts associated with the proposed project are considered of **Positive** significance:

Construction phase:

- Control and Reduction of illegal dumping associated with removal of waste from the development footprint, and access control to the Works area; and
- Job creation and economic growth - For the social housing component, 330 employment opportunities will be created in the construction phase of the project. For the retail centre component, 230 employment opportunities will be created in the construction phase of the project.

Operational phase:

- Job creation and associated local economic growth - For the social housing component, 207 employment opportunities will be created in the operational phase of the project. For the retail centre component, 362 employment opportunities will be created in the operational phase of the project; and
- Improved quality of life associated with the provision of formal housing, electrification

and provision of sewage and water infrastructure.

ENVIRONMENTAL MANAGEMENT PROGRAMME

An Environmental Management Programme (EMPr) related to the construction and operational phases of the proposed housing and/or retail development is included as Appendix I.

CONCLUSION

The EAP is confident that all major impacts associated with the proposed housing and/or retail development have been adequately described and mitigated. Given the generally medium-low impacts associated with the proposed housing and/or retail development and the implementation of the proposed mitigation measures including those in the detailed EMPr (Appendix I), the EAP is confident that the project can proceed without significant impact on the receiving environment.

YOUR OPPORTUNITY TO PARTICIPATE

This Revised Draft Basic Assessment Report will be made available to all registered I&APs for public review and comment from **03 June 2021** (comment period ending **05 July 2021**). I&AP's will be notified of the availability and will be sent an electronic copy on request. Copies will also be available for download from the GCS website: www.gcs-sa.biz.

Any comments on the Revised Draft Basic Assessment Report must be submitted in writing or email (including any additional supporting material) on or before **05 July 2021** directly to Lehlogonolo Mashego, Environmental Assessment Practitioner, by means of the following:

Tel: 011 803 5726
Fax: 011 803 5232
E-mail: lehlo@gcs-sa.biz

PO Box 2597
Rivonia
Johannesburg
2128

CONTENTS PAGE

List of Figures

List of Tables

List of Appendices

ACRONYMS AND ABBREVIATIONS

BA	Basic Assessment
BAR	Basic Assessment Report
BID	Background Information Document
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CC	Closed Corporation
CoJ	City of Johannesburg
CR	Critically Endangered
CRR	Comments and Responses Report
DEFF	Department of Environment, Forestry and Fisheries
DRBAR	Draft Revised Basic Assessment Report
DHS	Department of Human Settlements
du	Dwelling units
DHSWS	Department of Human Settlement, Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environment Conservation Act, 1989 (Act No. 73 of 1989)
ECO	Environment Control Officer
EIA	Environmental Impact Assessment
ELM	Emfuleni Local Municipality
EMPr	Environmental Management Programme report

EN	Endangered
ESA	Ecological Support Area
GCS	GCS Water and Environmental Consultants (Pty) Ltd
GDARD	Gauteng Department of Agriculture and Rural Development
GHG	Greenhouse gas
GN	Government Notice
GPEMF	Gauteng Provincial Environmental Management Framework
GPS	Global Positioning System
GSDF	Gauteng Spatial Development Framework
ha	Hectares
HIA	Heritage Impact Assessment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
km	kilometres
kVa	Kilovolt-amps
L	Litres
m	Metres
m^3	Cubic metres
mamsl	Metres above mean sea level
mm	Millimetres
NEMA	National Environmental Management Act
NEM: BA	National Environmental Management: Biodiversity Act
NFEPA	National Freshwater Ecosystem Priority Area
NHRA	National Heritage Resources Act
NWA	National Water Act
OHSA	Occupational Health and Safety Act
PHRA	Provincial Heritage Resources Agency
PM	Project Manager

PPP	Public Participation Process
RLRP	Rapid Land Release Programme
SABS	South African Bureau of Standards
SAHRA	South African Heritage Resources Agency
SANBI	South African National Biodiversity Institute
SANS	South African National Standard
SAPS	South African Police Services
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SEIA	Scoping and Environmental Impact Assessment
SP	Significance Points
SPLUMA	Spatial Planning and Land Use Management Act
SWMP	Stormwater Management Plan
TOP/TOPS	Threatened or Protected / Species
VU	Vulnerable

1 INTRODUCTION

1.1 Background and Overview

GCS Water and Environmental Consultants (Pty) Ltd (GCS) was appointed by Phumaf Holdings (Pty) Ltd (Phumaf) to conduct the Environmental Authorisation (EA) process for the proposed Evaton West Project I stand (Erf 14540, Extension 7, Emfuleni Local Municipality (ELM), in Gauteng. See Figure 1 and 2.

This application for EA is being undertaken on behalf of the Gauteng Department of Human Settlements (DHS) and, as such, will be submitted to the Gauteng Department of Agriculture and Rural Development (GDARD) as the competent authority.

The proposed housing development and/or retail development forms part of the Gauteng Rapid Land Release Programme (GRLRP) of the Gauteng DHS, which aims to fast track the release of serviced stands from state-owned land to qualifying beneficiaries, to address housing, economic, social and agricultural needs in the province. In addition to availing land for housing, the programme also seeks to make available land for other commercial uses including urban agriculture. Several stands in Gauteng were identified as potential development sites (Metroplan Town Planners and Urban Designers, 2020).

Owing to the nature and scale of the project, an Application for EA is required. The Application for EA has been undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). This report has been prepared per the 2014 Environmental Impact Assessment (EIA) Regulations, as amended.

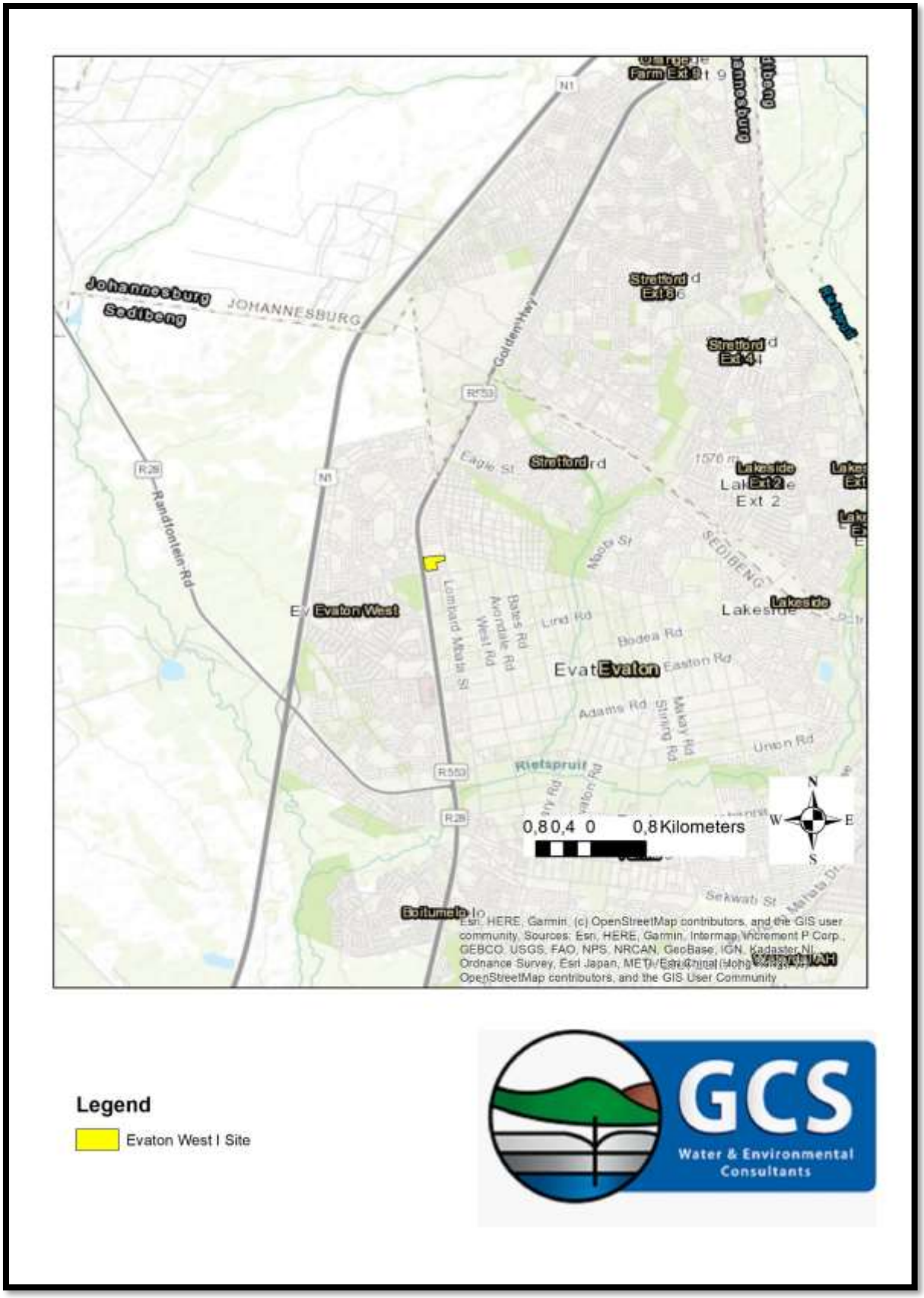


Figure 1: Regional Locality Map

Figure 2: Site Locality Map

1.2 Details of Applicant and Environmental Assessment Practitioner (EAP)

The details of the applicant are provided in Table 1.

Table 1: Contact details for applicant

ITEM	DETAILS
Company Name	Gauteng DHS
Company Representative	Daniel Molokomme
Contact Persons	Daniel Molokomme
Telephone No.	+27 (0)11 085 2593
Facsimile No.	+27 (0)11 355 6211
E-mail Address	Daniel.Molokomme@gauteng.gov.za
Postal Address	Private Bag X79, Marshalltown, 2001

The contact details of the EAP are provided in Table 2 and the EAP's CV is attached as Appendix A.

Table 2: Contact details for EAP

ITEM	DETAILS
Company Name	GCS Water and Environmental Consultants (Pty) Ltd
Company Representative	Gerda Bothma
Telephone No.	+27 (0)11 803 5726
Facsimile No.	+27 (0)11 803 5745
E-mail Address	Gerdab@gcs-sa.biz
Postal Address	PO Box 2597, Rivonia, 2128

2 Project Description

2.1 Site description

2.1.1 Existing and Adjacent Land Uses

The site is 4.32 hectares (ha). See Figure 3 for adjacent land uses. The site has recently erected informal dwellings and small businesses not yet visible on areal images of the study area with only two small areas that have open access. The western section of the site is a small open field, situated on the edge of the R553. The area doesn't seem to be used apart from illegal dumping marked by multiple piles of dumped household refuse and building rubble. The area also contains large boulders that seem to have been cleared from the areas where the informal houses were built. See site photographs in Figures 4-9. The site forms part of the proclaimed township of Evaton West Extension 7 Evaton West Extension 7 (General Plan 11480/1998), with

SG Diagram 8750/2000) (Metroplan Town Planners and Urban Designers, 2020) in the southern parts of Gauteng Province in the Sedibeng District Municipality.

Figure 3: Adjacent Land Uses (Metroplan Town Planners and Urban Designers, 2020)

The site is within a densely built-up area, which is mostly residential in character. To the west (Evaton West) is medium density residential erven (40du/ha) of approximately 250m2 in extent and to the east (Evaton Proper) is lower density residential erven (2 du/ha) of approximately 4 000m 2 in extent. To the east is a cemetery. To the north is vacant land.

Orange Farm and Ennerdale are located to the north of the site, and Sebokeng is situated to the south. The site is within a densely built-up area, which is mostly residential in character.

The site is located within the urban edge, according to the 2030 Gauteng Spatial Development Frameworks (SDFs) (Figure 10), within the Orange Farm – Sebokeng 'urban cluster' (Metroplan Town Planners and Urban Designers, 2020). There are no servitudes that affect the site.

Figure 4. Northern border.

Figure 5. Southern border.

Figure 6. Eastern border.

Figure 7. Western border.

Figure 8. Western section of the study area.

Figure 9. Western Section of the study area.

2.1.2 Historical Land Uses

Aerial imagery from Google Earth suggests that the fist informal structures were erected on the site circa 2014. The site appears to have been impacted by pedestrian movement and illegal dumping of waste.

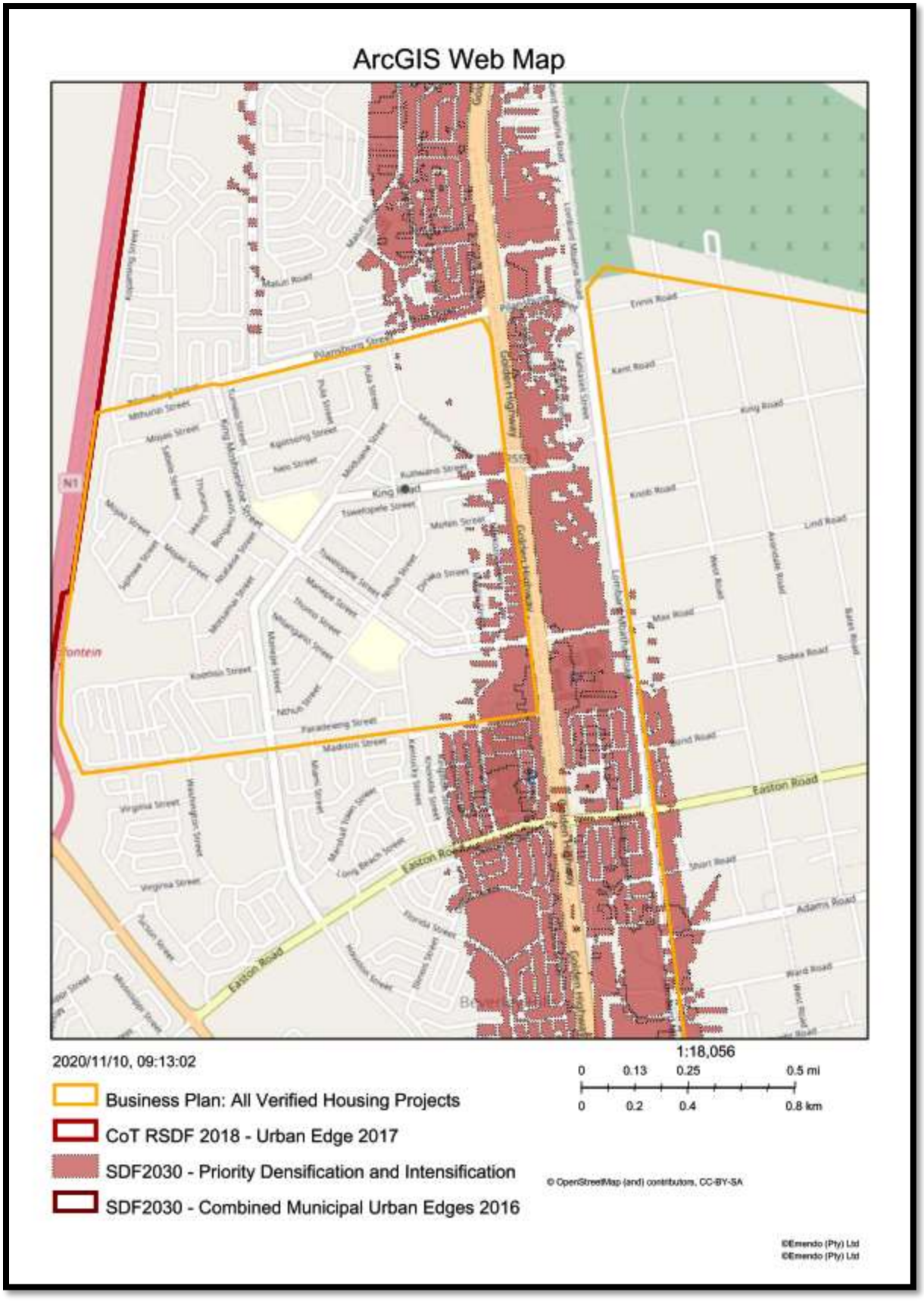


Figure 10: Site in relation to the 2030 Gauteng SDF

2.1.3 GPS Coordinates

The Global Positioning System (GPS) coordinates of the proposed housing development and/or retail development are provided in Table 3 with a corresponding map of GPS points in Figure 11. The approximate mid-point of the proposed area to be developed is at 26°30'52.90"S 27°49'37.27"E.

Table 3: GPS coordinates

Point	Latitude	Longitude
Point 1	26°30'50.18"S	27°49'33.39"E
Point 2	26°30'49.38"S	27°49'43.30"E
Point 3	26°30'51.75"S	27°49'43.62"E
Point 4	26°30'52.71"	27°49'39.69"E
Point 5	26°30'56.08"S	27°49'39.85"E
Point 6	26°30'56.93"S	27°49'35.65"E
Point 7	26°30'55.48"S	27°49'34.14"E

Figure 11: Map indicating GPS points

2.1.4 Civil Aviation Sensitivity

The site is located within an area designated as "Medium" in terms of sensitivity for civil aviation (Figure 12), based on the Department of Environment, Forestry and Fisheries (DEFF) online screening tool (Appendix G) (Department of Environment, Forestry and Fisheries, 2017). However, it seems that this sensitivity rating applies to commercial-scale wind energy installations. The medium rating applies to the eastern portions of the site which are located between 8 and 15 km of other civil aviation aerodrome. In addition, based on the site investigation, the sensitivity is considered "Low" as the proposed housing development and/or retail development is a logical extension of the existing settlements, and poses a low risk to aircraft. The buildings will range from two- to three-storeys, depending on which layout option is selected (Section 2.4.1).

Figure 12: Civil Aviation Sensitivity Map (from DEFF online screening tool, accessed 14 November 2020)

2.2 Land Ownership

The identified property is owned by Department of Human Settlements (DHS) – Gauteng Provincial Government.

2.3 Zoning

The Evaton West Project I site (Erf 14540, Extension 7), located in Emfuleni Local Municipality (ELM), was identified for the development of a housing project (Figure 1 and 2). The site is

currently zoned as "Public Open Space". However, according to paragraph 1(d) of title deed T48565/2017, the use zone for erf 14540 Evaton West Extension 7 is 'Residential'. The permissible coverage for 'Residential' is 60% with a height restriction of 2 storeys. The site is adjacent to existing residential settlements.

According to the results of the DEFF online screening assessment (14 November 2020), the site is designated "public place" (Appendix G).

According to the Emfuleni SDF 2017-2025, 2017 Erf 14540 Evaton West Ext 7 is designated as Urban Residential. In terms of Land Use Management, the site falls within a 'Medium Density Residential Zone' (Zone 2). The objective of a medium-density residential zone is defined as: 'to encourage residential densities that allow affordable housing development and support road-based public transport. A maximum residential density of 60 units per ha is allowed within Zone 2. Such densities typically allow for the development of a range of affordable housing typologies within this zone.

Residential-supporting land uses to be accommodated within Zone 2 include educational facilities and medical facilities. Zone 2 also allows for the establishment of micro-enterprises to support and promote SMMEs within this zone. Consent for the establishment of micro-enterprises is strictly managed by the micro-enterprises management system'.

If the site is fully developed at 60 dwelling units (du) per ha, the approximate yield will be 258 units (Metroplan Town Planners and Urban Designers, 2020).

The Evaton West SDF also designates the site as Medium Density Residential, similar to the areas to the east and the south. To the north is the City of Johannesburg (CoJ) Consolidation Zone and to the south is the Evaton Node. To the west of the N1 is an area designated as Agriculture and Conservation Plan.

The site must be rezoned to "Residential 1 and 2" to accommodate the proposed development. Given the proposed development, a rezoning will probably be applicable to accommodate the mix of typologies and land uses.

2.4 Description of Proposed Activity

This section outlines the components of the proposed housing development and/or retail development including services infrastructure. Detailed site layout plans and civil engineering service plans are included in Appendix C and D. Additional services (roads, stormwater, water and sewer) would need to be installed to accommodate the proposed development.

2.4.1 Housing Development – 4 options

Given that there are existing informal housing structures and businesses on the property, in order for the site to be released for housing development and/or retail development, a Resettlement Action Plan must be compiled and facilitated by a social specialist and in communication with the affected residents.

Based on a residential market study (Metroplan Town Planners and Urban Designers, 2020), the site is considered suitable for the development of social housing, specifically 3 to 4 storey walk-up units, with unit sizes of between 30 m² - 60 m².

Four concepts have been developed:

OPTION 1 (Figure 13): higher density residential development in line with the residential market study that identified the demand for 200 social housing dwelling units. The units would be within 3-storey walk-up blocks. There is provision for 240 m² communal social facility and 0.3 ha of open space. The total footprint of the proposed development is 3.5 ha. An estimated 475 dwelling units can be provided translating into a site density of roughly 110 du/ha and a net density of 135 du/ha.

Figure 13: Option 1 Layout - high density residential

OPTION 2 (Figure 14): medium density housing consisting of a mix of residential typologies at a density of 60 du/ha as prescribed by the SDF. A mix of walkup flats and single residential erven with a minimum erf size of 250m ^{2}. Two storey buildings would be placed on the periphery of the site and the main streets and enclose the single residential development. There is a tapering of building height to form a transition from the walk-up flats to the abutting residential development. An estimated 245 dwelling units can be provided at this density.

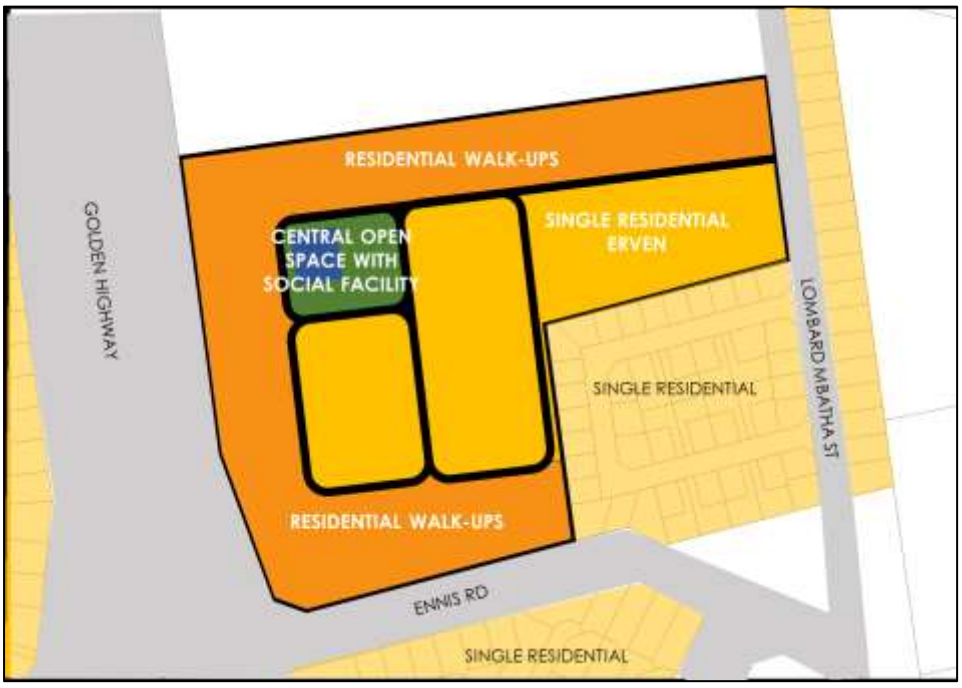


Figure 14: Option 2 Layout - medium density residential

OPTION 3 (Figure 15): higher density mixed-use development in line with the residential market study that identified the demand for 200 social housing dwelling units, as well as a retail component with a GLA of 3 500m^2 (1.6ha). ▪ An estimated 346 dwelling units can be provided translating into a site density of roughly 115du/ha and a net density of 156du/ha (both excluding the retail site).

Figure 15: Option 3 Layout- higher density mixed-use development

OPTION 4: medium-density mixed-use development consisting of a mix of residential typologies at a density of 60du/ha as prescribed by the SDF. A mix of walk-up flats and single residential erven with a minimum erf size of 250m^2. In addition, a retail component with a GLA of 3 500m^2 (1.6ha) was accommodated as in line with the market study. The bulk of the site (1.9ha of 4.3ha is used for residential development). The northern and western perimeter of the site is earmarked for two-storey walk-ups. The walk-ups are located on 1.2 ha and approximately 131 units can be achieved with a resultant net density of 173du/ha. The central and southeastern periphery of the site is earmarked for single residential erven. These are placed adjacent to the abutting residential properties to form a buffer between the walk-up flats and the surrounding low-density development. A total of 24 dwelling units with a minimum erf size of 250m^2 can be achieved. This takes up 0.7 ha of the site and a resultant net density of 38 du/ha.

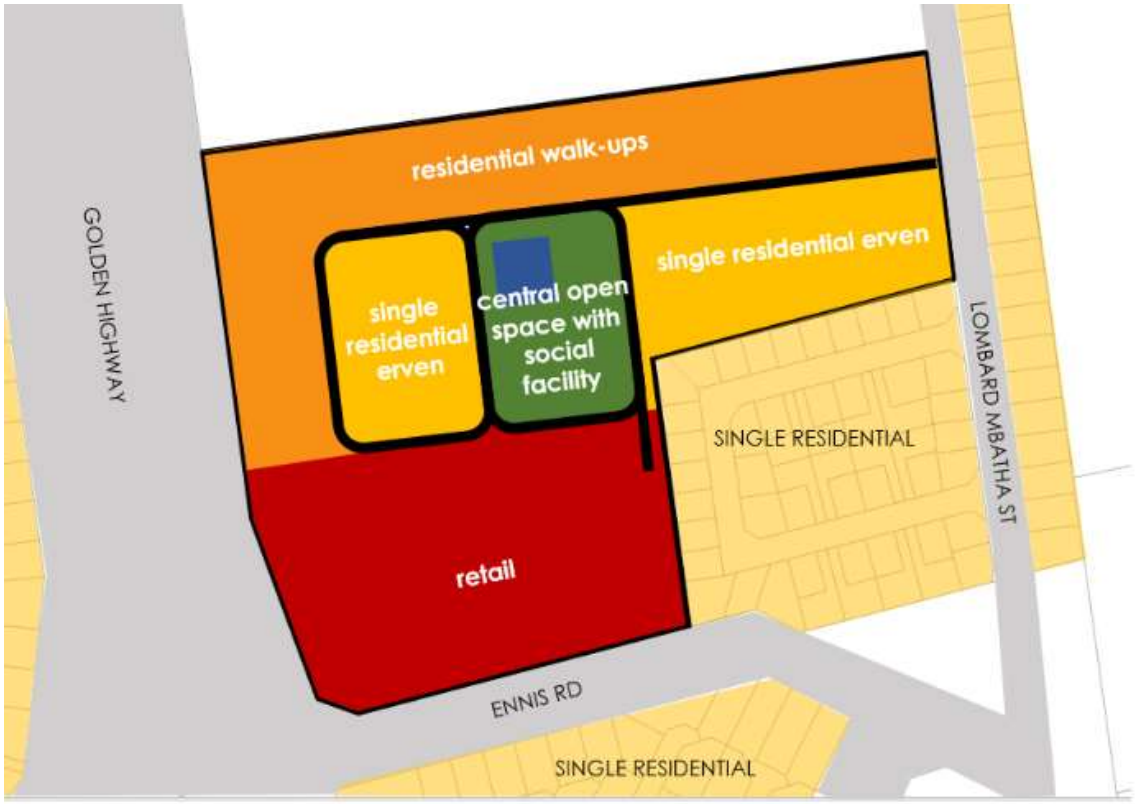


Figure 16: Option 4 Layout - medium density mixed-use development

Figure 17 provides a summary comparison of the 4 layout options. The footprint of the layout options is similar. The net residential density varies from 74 du/ ha (Option 2) to the maximum 156 du/ha (Option 3). The existing residential environment is, however, dominated by freestanding freehold houses. No medium to higher density residential developments are located within the market area (specifically 3 to 4 storey walk-up units). The site would need to be fenced off from the R553 to enhance security, improve the safety of the site, and to prevent the use of the site as an informal lay bye for public transport. Option 3 and 4 could result in high volumes of traffic using the access road to visit the retail centre and filling station, possibly endangering the lives of the residents.

	OPTION 1	OPTION 2	OPTION 3	OPTION 4
Erf size	4.3ha	4.3ha	4.3ha	4.3ha
Portion of site used for residential purposes	3.5ha	3.3ha	2.1ha	1.97ha
Walk-up/ row housing dwelling units	475	196 dwelling units 1.9ha area Net density: 100 du/ha	346	131 dwelling units 1.23ha area Net density: 107 du/ha
250m² erven	0	49 dwelling units 1.4ha area Net density: 35 du/ha	0	25 dwelling units 0.74ha area Net density: 34du/ha
Total nr of units	475	245	346	156
Site residential density	110 du/ha	57 du/ha	115 du/ha (excluding retail site)	52 du/ha (excluding retail site)
Net residential density	135 du/ha	74 du/ha	156 du/ha (excluding retail site)	70 du/ha (excluding retail site)
Retail	0m²	0m²	1.3ha GLA of 3 600m² filling station	1.29ha GLA of 3 915m² filling station
Layout plan				

Figure 17: Summary of 4 layout options

2.4.2 Local Convenience Centre

For layout options 3 and 4, a 1.3 ha site would be required for the convenience retail development and potentially a filling station, should traffic counts affirm its viability (Metroplan Town Planners and Urban Designers, 2020).

An assessment of existing retail centres and filling stations revealed that:

- There 3 filling stations within 6 km of the site, including Engen (Adams Road), Shell (Adas Road) and unnamed filling station on Sebe Street (OpenStreetMap data); and
- There are three formal retail centres within a 5-minute drive from the proposed development site: Evaton Mall, Evagold, Fair Price. Two formal retail centres are located just beyond the border of the trade area in the north/north-east: Palm Springs Mall and Spar (in Stretford) (Appendix D: Mixed Use Market Study).

The Mixed-Use Market Study found that a centre of ±3 600m² GLA could be sustained at the proposed development site at a future market entry point beyond 2022. A centre of this size classifies as a local convenience centre. Provision should be made for public transport drop-off point/ the inclusion of a taxi rank. The site may be less appealing to motorists given that access cannot be taken from the R553 (Golden Highway).

From the financial analysis by Demacon (Appendix D), it is clear that the retail centre will generate substantial revenue for the ELM in the long term through property rates and taxes, as compared with social housing.

2.4.3 Internal Roads (Conceptual)

A traffic impact assessment was deemed necessary to determine any additional capacity required on the roads (Metroplan Town Planners and Urban Designers, 2020). The ELM Roads and Stormwater Department is responsible for the provision and maintenance of roads and stormwater infrastructure in its area of jurisdiction.

The Civil Engineering Report compiled by Phumaf (7 July 2020) (Appendix C) states that a new road network system, parking, and stormwater pipe systems will be constructed within the proposed site connecting to the existing roads and stormwater infrastructure.

According to the Urban Development Framework report (Appendix E), access to the site is limited. No access can be obtained from the north and portions of the east and the south of the site due to abutting erven. There is no direct access from the Golden Highway as it is a K-route and has a mobility function. The site boundary along Ennis Road is 130m long. This gives an insufficient distance from the intersection of Golden Highway and Ennis Road. Access from a road intersecting with a K-route must be at least 100m from such intersection.

The only access can be obtained from Lombard Mbatha Street in the east (Figure 18). The boundary of the site in the east is only 80m in length and only one point of access will be viable.

Figure 18: Proposed Road Access Point

Access to the retail site will be via a 16 m width road from Lombard Street that forms a T-intersection towards the south and the site is accessed from the north. The internal street/s providing residential development is 13 m in width (Metroplan Town Planners and Urban Designers, 2020). A total road length of 0.581 km is proposed.

There are no bus and taxi bays planned for the development.

There is 3 formal taxi rank in Evaton 2 (Two) along Adams Road approximately 9.5 km away and one in Sebokeng along Vilakazi Street which is 9.3km away from Evaton West – Project F. There are no Public transport lay-bys on roads located along these routes There are no formal pedestrian sidewalks located along the development boundary. According to the National Household Travel Survey (NHTS), 1.5km is the ideal limit that one should expect a pedestrian to walk to a public transport facility.

2.4.4 Sewage Infrastructure (Conceptual)

The Civil Engineering Services Report compiled by Phumaf (7 July 2020) (Appendix C) reports that the proposed development falls under the ELM (Metsi-A-Lekoa) Water jurisdiction. Information obtained from Emfuleni Spatial Development Framework 2017-2025 (ESDF), compiled on Behalf of the ELM by Urban Dynamics Gauteng, dated September 2017, Project SNM/2012 Civil Engineering Services Master Planning Volume 2 Sewage Disposal, first edition dated August 2013 and Southern Corridor Regional Implementation Plan indicates that the existing bulk sanitation network is old, and it is overworked due to the demand for sanitation services therefore new infrastructure needs to be constructed. There is reportedly insufficient capacity in the wastewater treatment works to accommodate the proposed development and densities (Metroplan Town Planners and Urban Designers, 2020). In terms of the Gauteng Spatial Master Plan, the site is located within an area classified as "treatment capacity exceeded, no spare capacity" (Gauteng Spatial Master Plan: GIS Portal, n.d.). An upgrade to the existing sewer network is necessary to accommodate the proposed development. The extent of such an upgrade will be determined during the design stages of the project.

Sewer design flow is estimated at approximately 80% of the water consumption plus 15% stormwater infiltration. New sewer reticulation design within the erf and in the road, reserves will be constructed for this proposed development. The proposed development layout plan / site development plan (SDP) is currently being prepared to establish the suitability and capacity of the services for the connection point. Additional Studies such as the GLS masterplan will be required to determine the capacity analysis of the existing pipes once an SDP has been completed and approved.

The pipes will be 160 mm diameter uPVC (Heavy Duty) Class 34 and the manholes will be 1 000mm to 1500mm diameter precast rings with concrete covers. The length of internal Sewer pipelines as per the current proposed draft layout for this project approximately 0,814 km. The proposed designs were done according to the yield provided from the draft proposed layout.

2.4.5 Stormwater Management (Conceptual)

Stormwater drainage is an important consideration. The design will impact on the quality and quantity of stormwater. No formal stormwater management system exists on the site. In terms of the conceptual Stormwater Management Plan (SWMP) in the Civil Engineering Report compiled by Phumaf (7 July 2019), a new stormwater pipe system will be constructed within the proposed site discharging to nearby outlets and natural watercourses.

There is no existing stormwater infrastructure in the areas adjacent to the planned development. The new proposed stormwater systems will discharge to the nearest natural watercourses. The minimum stormwater pipe size will be from 450 mm diameter within the erf and 600 mm on road reserves. The total pipe length of the proposed stormwater pipes is approximately 0.895 km.

The Rational Method was used to calculate the stormwater runoff for this site. The stormwater will be drained along the road reserve, mainly in open, unlined V-drain channels, with underground piped systems only where surface drainage is not possible or deemed to be impractical. Designs will be such that the 1:5-year minor storm and the 1:25 year major storm are accommodated in the canals and the road structure without overtopping.

From Figure 23, which shows a cross-section profile from the southern to the northern end of the site, it is clear that the site is predominately flat. Additional stormwater management infrastructure would be required to facilitate drainage.

2.4.6 Internal Water Reticulation Network (Conceptual)

The proposed development falls under the ELM (Metsi-A-Lekoa) Water jurisdiction. Although the proposed housing development and/or retail development is planned to be serviced by the municipal water network, there is reportedly currently insufficient capacity in the existing reservoirs to accommodate the proposed development and densities (Metroplan Town Planners and Urban Designers, 2020). In terms of the Gauteng Spatial Master Plan (Gauteng Spatial Master Plan: GIS Portal, n.d.), the site is located within an area where the water services capacity is not known. The Civil Engineering Services Report compiled by Phumaf (7 July 2020) (Appendix C) states that the infrastructure is old (between 60 -70 years) across the municipal area and there are no backlogs in the supply of water connections. New water bulk infrastructure will be required to accommodate the proposed development and other future developments.

The bulk supply system to Sebokeng and Evaton is reportedly overextended resulting in areas with insufficient peak flow pressures.

Internal water reticulation network will be designed at the conceptual/ planning level in line with the ELM (Metsi-A-Lekoa) Design Criteria and Internal Services Standards the DHS, the CSRI 'Red Book' - The Neighbourhood Planning and Design Guide (2019) and relevant South African National Standards (SANS). The finalisation of the route and design will take place during the detailed design phase and is subject to all necessary approvals being obtained and any changes to the Settlement Plan which may occur.

The proposed layout plan/site development plan (SDP) is currently being prepared to establish the suitability and capacity of the services for the connection point. GLS Water Masterplan report will be required to determine the capacity analysis of the existing pipes once an SDP has been finalised and approved.

A proposed internal water reticulation network is shown in the Civil Engineering Services report (Appendix C). It must be noted that the total pipe length and the correct pipe sizes of the water services will, therefore, be confirmed through a preliminary and final design process when the proposed layout is completed and approved.

2.4.7 Electrification

A bulk electrical services report has been prepared by Phumaf (20 September 2019) based on 200 housing opportunities. Evaton West is supplied directly by Eskom. There is an existing Eskom substation which has sufficient bulk capacity to supply the project. The total bulk electricity requirements for the project is 728 kVA (200 housing units and street lighting) and is available from the existing network which is being currently run and maintained by Eskom. The works required to be executed to make the supply available under this Project will include the following:

- Design, manufacture, supply, supply, installation and commissioning of two 1,000kVA 11/0.4kV mini substations, including associated RMUs and underground 11kV XLPE cable. The extra capacity in the mini substations will cater for limited future expansion of the project; and
- All other works associated with tying into the Eskom 11 kV network in Evaton West.

The installation of street and area lighting will be done as part of the LV reticulation work package to the housing units. This will be carried out in line with Eskom specifications and standards.

3 LEGAL FRAMEWORK

This chapter details applicable legal provisions and aims to provide a review of relevant national and provincial legislation and regulations, and policy documents, which apply to, or have implications for, the proposed Evaton West-Project I housing project.

3.1 The Constitution of South Africa, 1996

The legal reference source for environmental law in South Africa is found in the Constitution of the Republic of South Africa, 1996 (Act No.108 of 1996). All environmental aspects should be interpreted within the context of the Constitution. The Constitution has enhanced the status of the environment since environmental rights have been established (Section 24) and other rights created in the Bill of Rights which impact on environmental management.

3.2 NEMA EIA regulations (2014) as amended

The NEMA, 1998 (Act No. 107 of 1998) is South Africa's overarching framework for environmental legislation. Of particular importance is the requirement of 'duty of care' with regards to environmental remediation stipulated in Section 28 of NEMA:

Duty of care and remediation of environmental damage: "(1) Every person who causes has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

Regulations promulgated under NEMA include the EIA Regulations (2014) published under Government Notice Regulation (GNR) 982, as amended 4 April 2017, and the associated Listing Notices Listing Notice 1, 2 and 3. Section 24(5) of NEMA stipulates that certain "listed activities" require environmental authorisation by way of either a Basic Assessment (BA) or a full Scoping and Environmental Impact Assessment (SEIA) as defined in the Listing Notices. Activities listed under Listing Notice 1 and 3 require a BA process to be undertaken while those listed under Listing Notice 2 require a full Scoping and SEIA process. Table 6 provides an assessment of the applicable listed activities.

3.2.1 Assumptions in Review of Applicable Listed Activities

The following assumptions underpin the list of applicable listed activities:

- The site is considered an urban area as the site is located within the urban edge (Figure 9) and adjacent to existing built-up areas. As such, many of the listed activities relating to bulk services infrastructure and roads are not applicable;
- The listed activities have been based on available design information and an initial GIS

assessment and were discussed with GDARD, the competent authority, at the pre-application consultation meeting held on 5 August 2020 (Appendix F);

- It is assumed that the project scope does not include bulk electricity generation facilities or transmission lines or wastewater treatment facilities;
- The overall footprint of the development will range from 3.3 – 3.5 ha; and
- The study area is assumed to not have been used previously for mining or heavy industrial activities.

3.2.2 Screening and Initial Site Sensitivity Verification

Based on the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA, when applying for EA (GN R320 of 20 March 2020) (the Protocols), the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the EIA Regulations promulgated under sections 24(5) and 44 of the NEMA, where a specialist assessment is required.

An Initial Site Sensitivity Verification must be undertaken by an EAP or a registered specialist with expertise in the relevant environmental theme being considered. The Initial Site Sensitivity Verification must be undertaken through the use of:

- A desktop analysis, using satellite imagery; and
- A preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web-based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

- Confirms or disputes the current use of the land and environmental sensitivity as identified by the national web-based environmental screening tool;
- Contains motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
- Is submitted together with the relevant assessment report prepared following the requirements of the EIA Regulations.

The site has several sensitivities and associated reporting requirements, as shown in Table 4. The assessment was based on the property description, using the DEFF online screening tool (14 November 2020) (Appendix G).

Table 4: Site Sensitivities (based on the property description) from DEFF online screening tool

THEME	VERY HIGH	HIGH	MEDIUM	LOW
Agriculture Theme		X		
Animal Species Theme			X	
Aquatic Biodiversity Theme				X
Civil Aviation Theme			X	
Plant Species Theme			X	
Defence Theme				X
Terrestrial Biodiversity Theme	X			

The results of the Initial Site Verification are indicated in Table 5.

Table 5: Initial Site Verification

THEME	INITIAL SITE VERIFICATION SENSITIVITY (VS DEFF STATUS)	MOTIVATION	REPORTING REQUIREMENTS[1]
Agriculture Theme	LOW (vs HIGH)	Most of the site is classified as "high". Given that the site is immediately adjacent to dense residential settlements, is used for informal settlement, businesses, and pedestrian access, and falls within the GPEMF Zone 1 - Urban Development Zone, where crop production and animal production are not considered suitable, the site is rated "low". Further limitations to agricultural production include soil disturbance and dumped urban waste.	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of "very high" or "high" sensitivity for agricultural resources must submit an Agricultural Agro- Ecosystem Specialist Assessment. **It is motivated that given the context of the site and the "low" scoring from the initial site verification, that such a specialist study is not deemed necessary.**
Animal Species Theme	LOW (vs MEDIUM)	Most of the site is classified as having "medium" sensitivity in terms of this theme. However, the site is located adjacent to the existing settlement with high	Where Species of Conservation Concern (SCC) are found on site or have been confirmed to be likely present, a Terrestrial Animal Species Specialist Assessment must be submitted. Similarly, where no SCC are found on site during the site inspection or the

[1] Based on the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the NEMA, when applying for EA (GN R320 of 20 March 2020).

THEME	INITIAL SITE VERIFICATION SENSITIVITY (VS DEFF STATUS)	MOTIVATION	REPORTING REQUIREMENTS[1]
		levels of disturbance across much of the site.	presence is confirmed to be unlikely, a Terrestrial Animal Species Compliance Statement must be submitted. **It is motivated that given the context of the site and the "low" scoring from the initial site verification, that such a specialist study is not deemed necessary.**
Aquatic Biodiversity Theme	LOW (vs LOW)	There are no watercourses or National Freshwater Ecosystem Priority Areas (NFEPA) wetlands on or adjacent to the site. Site is located adjacent to the existing settlement with high levels of disturbance across much of the site.	An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of "low sensitivity" for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement. **It is motivated that given the context of the site and the "low" scoring from the initial site verification, that such a specialist study is not deemed necessary.**
Archaeological and Cultural Heritage Theme	None (not applicable)	A Phase 1 Heritage Impact Assessment (HIA) was prepared by HCAC - Heritage Consultants (Appendix B-1), and no cultural heritage resources were identified on site. A desktop paleontological assessment (Appendix B-2) was undertaken for the site by Prof. Marion Bamford. The likelihood of fossil finds is deemed low.	Not specified.
Civil Aviation Theme	LOW (vs MEDIUM)	See Section 2.1.4 and Figure 11. The proposed housing development and/or retail development is a logical extension of the existing settlements and poses a low risk to aircraft. In both option 1 and 2, the buildings will range from two- to three-storeys. Notably, it seems that the DEFF sensitivity rating applies to commercial-scale wind energy installations.	For "low" sensitivity, no further assessment requirements are identified.
Plant Species Theme	LOW (vs MEDIUM)	Site is located adjacent to the existing settlement with high levels of disturbance across much of the site.	An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "low" sensitivity for terrestrial plant species, must submit a Terrestrial Plant Species Compliance Statement.

THEME	INITIAL SITE VERIFICATION SENSITIVITY (VS DEFF STATUS)	MOTIVATION	REPORTING REQUIREMENTS[1]
			It is motivated that given the context of the site and the "low" scoring from the initial site verification, that such a specialist study is not deemed necessary.
Defence Theme	LOW (same)	Not applicable	For sites with low" sensitivity, no further assessment requirements are identified.
Terrestrial Biodiversity Theme	LQW (vs VERY HIGH)	Site is located adjacent to the existing settlement with high levels of disturbance across much of the site.	Where the information gathered from the site sensitivity verification differs from the designation of "very high" terrestrial biodiversity sensitivity on the screening tool and it is found to be of a "low" sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted. **It is motivated that given the context of the site and the "low" scoring from the initial site verification, that such a specialist study is not deemed necessary.**

The following site-specific characteristics derived from the DEFF online screening tool (14 November 2020) have informed the applicable listed activities:

- According to the Gauteng CPlan Version 3.3 (GDARD, 2011), there are no Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) on or adjacent to the site (Figure 19);
- The study area is classified as part of a Threatened Ecosystem (Soweto Highveld Grassland– Vulnerable) (Appendix G); and
- The site is not located within 500 m of NFEPA wetlands or watercourses (Figure 20).

3.2.3 Applicable Listed Activities

At a joint pre-application meeting held on 19 August 2020 with GDARD for Gauteng Rapid Land Release Programme (GRLRP) – Unitas Park – Extension 16 and Evaton West – for Projects F, G, H and I, the potential applicable listed activities were presented (Appendix F). The following specialist studies were recommended by GCS:

- Aquatic/Ecology/Wetland Assessment –(Appendix B-1);
- Heritage Impact Assessment (Appendix B-2) including Palaeontological Assessment (Appendix B-3); and
- Soils, land use, land capability Assessment – a specialist study was not deemed applicable after the pre-application meeting, as the site has been subject to high levels

of disturbance over a period of more than 10 years, based on an analysis of aerial imagery.

The site falls within Zone 1 (Urban Development Zone) of the Gauteng Provincial Environmental Management Framework (GPEMF), adopted by the MEC in terms of regulation 5(4) of the Environmental Management Framework Regulations, 2010 under Government Notice No.1655 of 22 May 2015 (Figure 21). As such, certain listed activities are excluded.

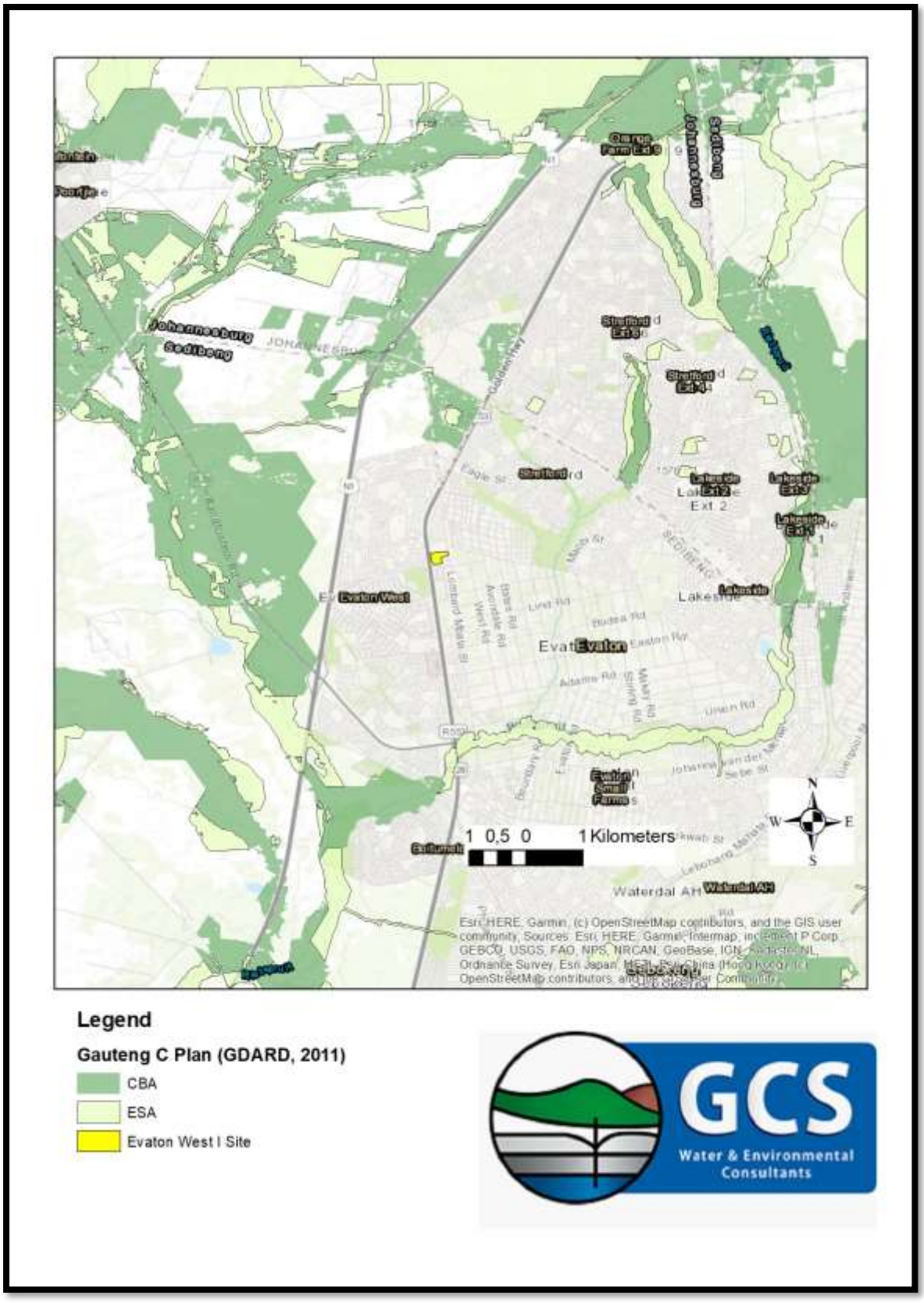


Figure 19: Site in relation to Gauteng C Plan (GDARD, 2011)

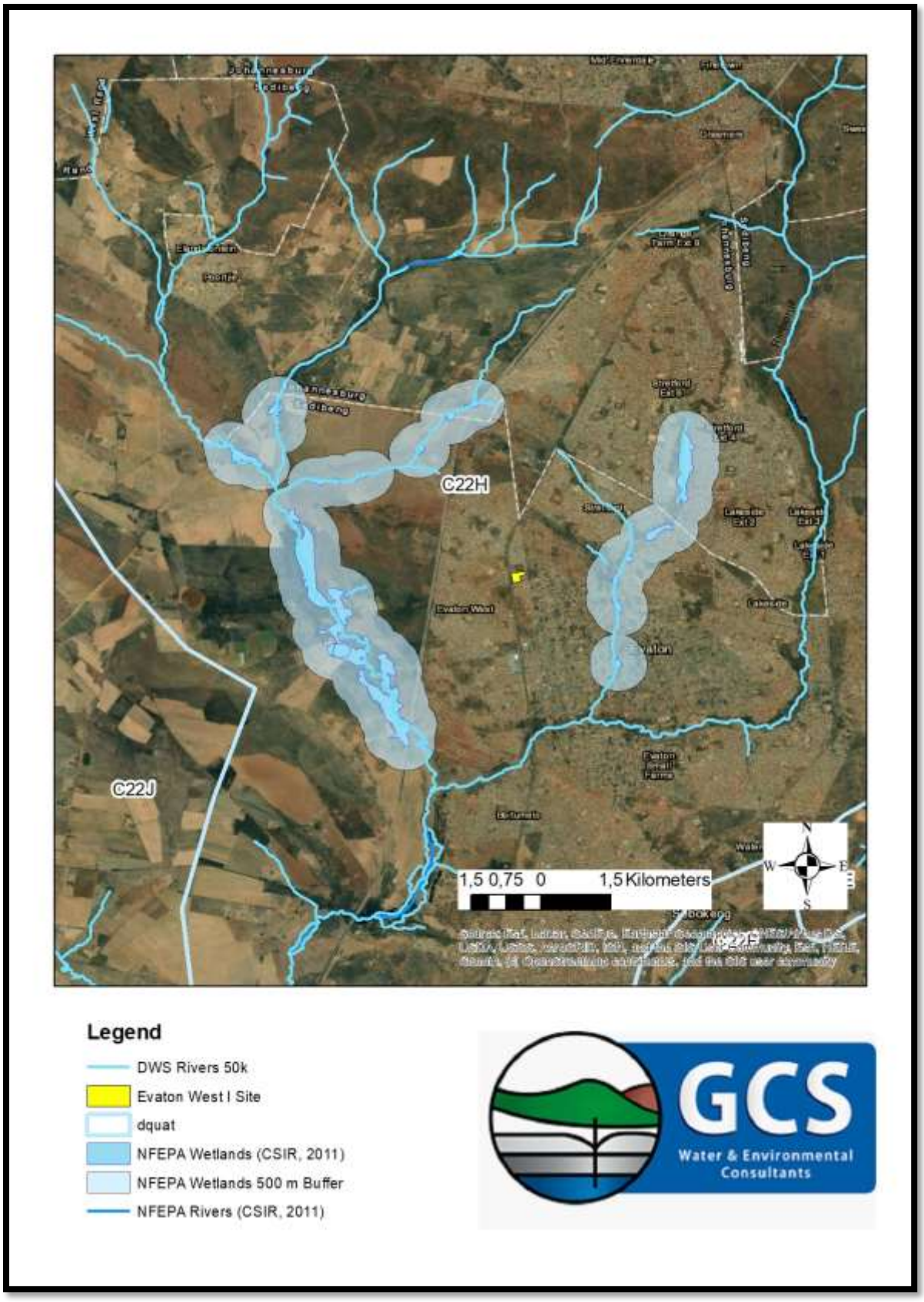


Figure 20: Map showing the local hydrological setting within the catchment of the development site

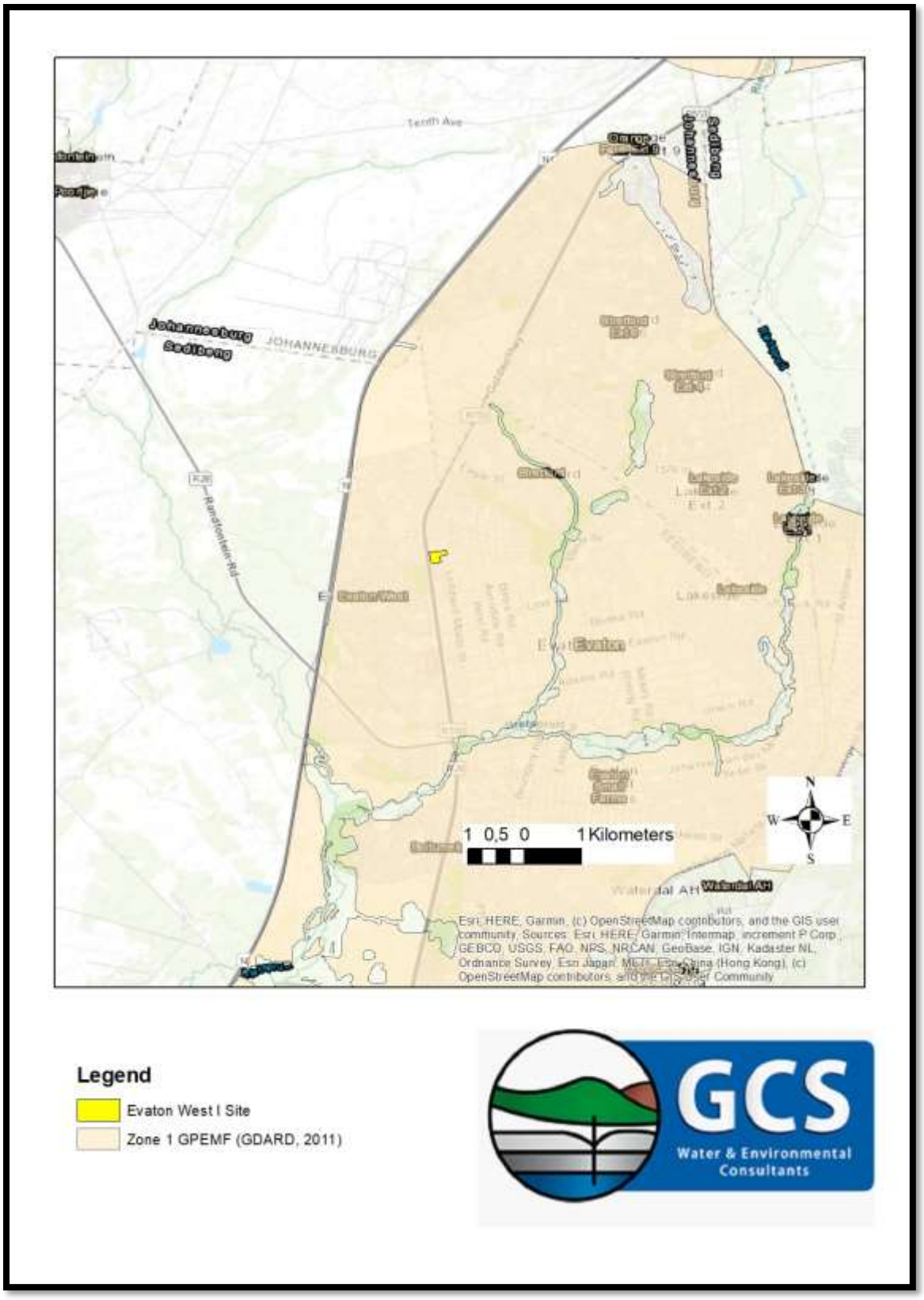


Figure 21: Site in relation to GPEMF Zone 1 (GDARD, 2011)

The site falls within Zone 1 (Urban Development Zone) of the Gauteng Provincial Environmental Management Framework (GPEMF), adopted by the MEC in terms of regulation 5(4) of the Environmental Management Framework Regulations, 2010 under Government Notice No.1655 of 22 May 2015 (Figure 21). As such, certain listed activities are excluded.

Table 6: Listed activities in terms of the 2014 NEMA EIA regulations, as amended

NOTICE	ACTIVITY NO.	ACTIVITY	APPLICABILITY
1	30	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	**Applicable -** Threatened Ecosystem - Soweto Highveld Grassland = Vulnerable
3	4	The development of a road wider than 4 metres with a reserve less than 13,5 metres… c. Gauteng v. Sites identified within threatened ecosystems listed in terms of the National Environmental Management Act: Biodiversity Act (Act No. 10 of 2004). xii. Sites zoned for conservation use or public open space or equivalent zoning.	**Applicable -** Threatened Ecosystem - Soweto Highveld Grassland = Vulnerable, Not CBA/ESA, Zoning = "park", which falls under "open space" according to the draft Emfuleni Land Use Scheme (March 2020). Road widths would vary from 13 -16m according to UDF report (Appendix E).
3	12	The clearance of an area of 300 square metres or more of indigenous vegetation .. c. Gauteng. 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.	**Applicable -** The proposed footprint varies in Options 1-4 from 3.3 ha to 3.5 ha. Zoning = "park", which falls under "open space" according to the draft Emfuleni Land Use Scheme (March 2020).
3	15	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use where such land was zoned open space, conservation or had an equivalent zoning, on or after 01 August 2010. b. Gauteng i. All areas.	**Applicable -** The proposed footprint varies in Options 1-4 from 3.3 ha to 3.5 ha. Zoning = "park", which falls under "open space" according to the draft Emfuleni Land Use Scheme (March 2020).

As such, a BA process is deemed applicable for the proposed housing development and/or retail development.

3.3 National Environmental Management: Biodiversity Act, 2004

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA) provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. This Act allows for the protection of species and ecosystems that warrant national protection, the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources and the establishment and functions of the South African National Biodiversity Institute (SANBI).

The national list of ecosystems that are threatened or in need of protection was published in GN 1002 of 9 December 2011. Ecosystems are classified as critically endangered (CR), endangered (EN), vulnerable (VU), or protected. The purpose of listing threatened ecosystems is primarily to reduce the rate of ecosystem and species extinction. This includes preventing further degradation and loss of structure, function and composition of threatened ecosystems. The purpose of listing protected ecosystems is primarily to preserve witness sites of exceptionally high conservation value. The site is located within a vulnerable threatened ecosystem (Soweto Highveld Grassland), based on the DEFF screening tool (14 November 2020) (Appendix G).

In accordance with Section 57(1) of the NEMBA, a person may not carry out a restricted activity involving a specimen of a listed threatened or protected species (TOPS) without a permit.

3.4 National Water Act, 1998

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) is the fundamental law for managing South Africa's water resources. The NWA provides the legal basis upon which to develop tools such as the authorisation of water uses as defined in Chapter 4 of the NWA. Section 21 of the NWA lists water uses which can only be legitimately undertaken through the water use authorisation issued by the regional Department of Water and Sanitation (DWS). Although areas which resembles wet areas were observed on historical areal imagery, no watercourses or wetlands are located within the study area as observed from current areal imagery and confirmed within the Wetland Assessment Report (Appendix B-1). No scheduled water uses are anticipated through the proposed housing and/or retail development.

3.5 National Heritage Resources Act, 1999

The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) requires that all heritage resources, that is, all places or objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. In terms of Section 38 (1) of the NHRA, subject to the provisions of subsections (7), (8) and (9), the following activities trigger the need for an HIA:

- The construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length (applicable to this development);
- The construction of a bridge or similar structure exceeding 50 m in length;
- Any development or other activity which will change the character of a site (applicable to this development);
- The re-zoning of a site exceeding 10 000 m² in extent (applicable to this development); or
- Any other category of development provided for in regulations by the South African Heritage Resources Agency (SAHRA) or a Provincial Heritage Resources Agency (PHRA).

As such, a Phase 1 HIA was prepared and is included as Appendix B-1.

4 PROJECT MOTIVATION AND NEED & DESIRABILITY

The site falls within Zone 1, the Urban Development Zone of the Gauteng Provincial Environmental Management Framework (GPEMF) (Gauteng Department of Agriculture and Rural Development, 2014). Zone 1 is intended to streamline urban development activities and to promote development infill, densification and concentration of urban development within the urban development zones as defined in the Gauteng SDF (GSDF), to establish a more effective and efficient city region that will minimise urban sprawl into rural areas. The boundary of this zone is the effective equivalent of an "urban edge" as envisaged by the GSDF and incorporated in the GPEMF. It should be used as such for the purposed of interpreting the EIA Regulations. As such, the proposed housing and/or retail development is in line with the zonation in the GPEMF.

In terms of the Gauteng Provincial Environmental Management Framework (GPEMF) (Gauteng Department of Agriculture and Rural Development, 2014), certain activities in Zone 1 are exempt from

The site also falls within a built-up area and an area designated as priority densification and intensification according to the GSDF (Gauteng Spatial Master Plan: GIS Portal, n.d.).

The location of the proposed Evaton West- I housing project seeks to maximise the residential component on the site, allowing for densification to avoid urban sprawl. The site is located adjacent to existing residential settlements. As such, the proposed housing and/or retail development is a logical extension of the existing settlements.

A residential market study was undertaken by Demacon in February 2020 (Appendix D), the site is deemed suitable for social housing, especially medium to high-density housing options. The study found that the proposed project size of 200 units could be accommodated by the primary trade area within an average period of 3.7 years, given a market share of 5-8% (Demacon, 2020).

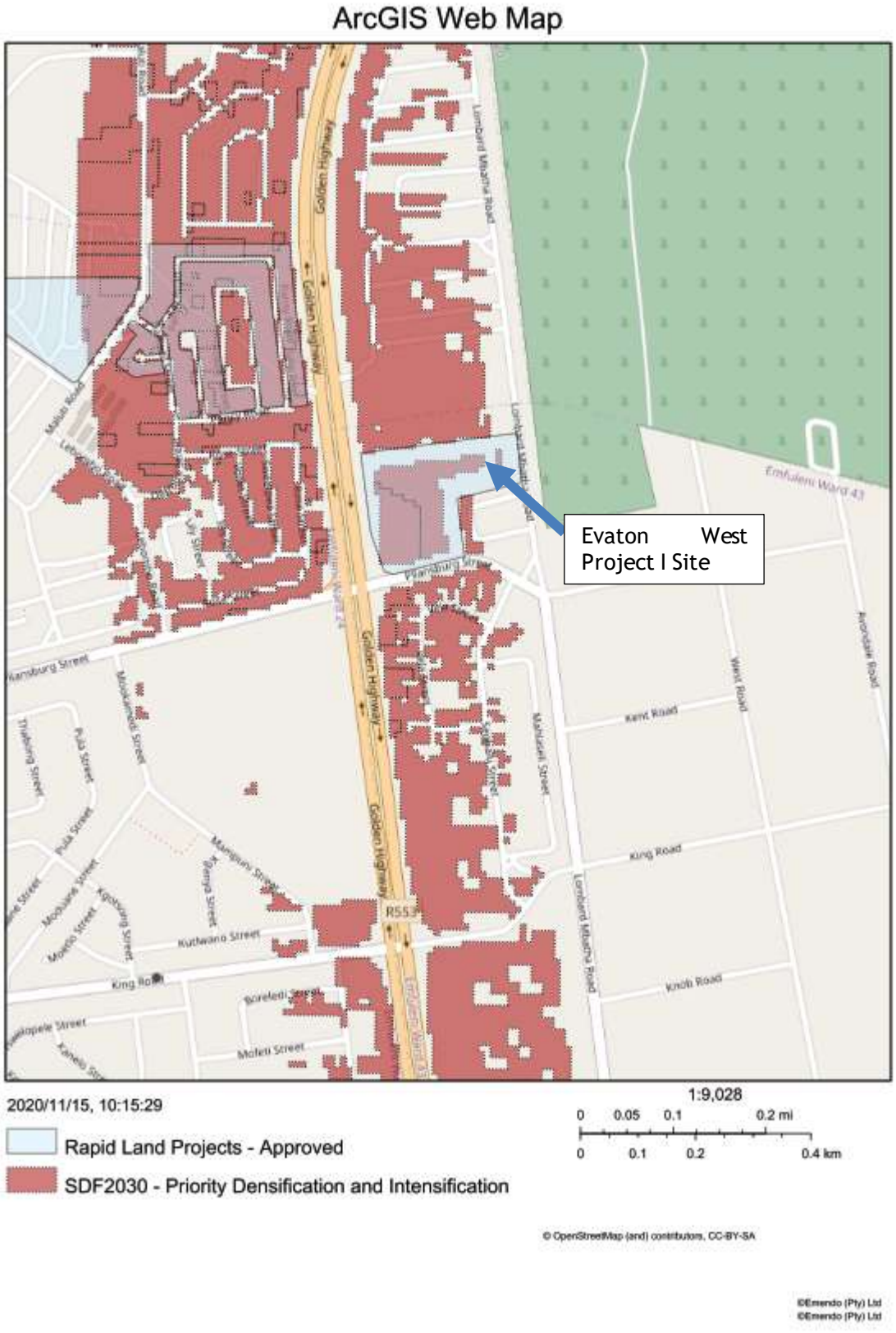


Figure 22: Site in relation to priority densification and infill areas (Gauteng SDF 2030)

5 DEVELOPMENT ALTERNATIVES

Development alternatives are defined in relation to a proposed activity as different means of meeting the general purposes and requirements of the activity, which may include alternatives to –

- The property on which, or location where it is proposed to undertake the activity;
- The type of activity to be undertaken;
- The design or layout of the activity;
- The technology to be used in the activity;
- The operational aspects of the activity; and
- The option of not implementing the activity.

5.1 Alternate Development Layouts

Four alternative development concepts have been proposed (see layout plans in Appendix E):

Four concepts have been developed:

OPTION 1 (Figure 13): higher density residential development in line with the residential market study that identified the demand for 200 social housing dwelling units. The units would be within 3-storey walk-up blocks. There is provision for 240 m^2 communal social facility and 0.3 ha of open space. The total footprint of the proposed development is 3.5 ha. An estimated 475 dwelling units can be provided translating into a site density of roughly 110 du/ha and a net density of 135 du/ha.

OPTION 2 (Figure 14): medium density housing consisting of a mix of residential typologies at a density of 60 du/ha as prescribed by the SDF. A mix of walkup flats and single residential erven with a minimum erf size of 250m^2. Two storey buildings would be placed on the periphery of the site and the main streets and enclose the single residential development. There is a tapering of building height to form a transition from the walk-up flats to the abutting residential development. An estimated 245 dwelling units can be provided at this density.

OPTION 3 (Figure 15): higher density mixed-use development in line with the residential market study that identified the demand for 200 social housing dwelling units, as well as a retail component with a GLA of 3 500m^2 (1.6ha). An estimated 346 dwelling units can be provided translating into a site density of roughly 115du/ha and a net density of 156du/ha (both excluding the retail site).

OPTION 4: medium-density mixed-use development consisting of a mix of residential typologies at a density of 60du/ha as prescribed by the SDF. A mix of walk-up flats and single residential erven with a minimum erf size of 250m^2. In addition, a retail component with a GLA of 3 500m^2 (1.6ha) was accommodated as in line with the market study. The bulk of the site (1.9ha of

4.3ha is used for residential development). The northern and western perimeter of the site is earmarked for two-storey walk-ups. The walk-ups are located on 1.2 ha and approximately 131 units can be achieved with a resultant net density of 173du/ha. The central and southeastern periphery of the site is earmarked for single residential erven. These are placed adjacent to the abutting residential properties to form a buffer between the walk-up flats and the surrounding low-density development. A total of 24 dwelling units with a minimum erf size of 250m^2 can be achieved. This takes up 0.7 ha of the site and a resultant net density of 38 du/ha.

From the financial analysis by Demacon (Appendix D), it is clear that the retail centre will generate substantial revenue for the ELM in the long term through property rates and taxes, as compared with housing.

The footprint of the layout options is similar (3.3- 3.5 ha). The net residential density varies from 74 du/ ha (Option 2) to the maximum 156 du/ha (Option 3). The existing residential environment is, however, dominated by freestanding freehold houses. No medium to higher density residential developments are located within the market area (specifically 3 to 4 storey walk-up units). The site would need to be fenced off from the R553 to enhance security, improve the safety of the site, and to prevent the use of the site as an informal lay bye for public transport. Option 3 and 4 could result in high volumes of traffic using the access road to visit the retail centre and filling station, possibly endangering the lives of the residents.

5.2 Alternate Development Types

No alternate development types have been proposed or investigated as the project aims to fulfil the housing requirements of the ELM, in line with DHS standards.

5.3 Alternate Designs

No alternate design types have been proposed or investigated as the project aims to comply with the design standards of the ELM and DHS.

5.4 No Go Alternative

The “no-go” option would result in the proposed activity not being implemented and the status quo on the property remaining.

Should the proposed Evaton West- I housing and/or retail development not go-ahead, the existing informal settlements will likely extend further into the proposed developable footprint. Dumping of waste, land invasion and informal settlements may continue across the site impacting on the health and safety of adjacent residents and contributing to contamination of the soil, groundwater and surface water resources.

5.5 Preferred Development Alternative

In determining the preferred alternative it must be noted that the mandate of Department of Human Settlement is to maximise the development oppertunities by making use of the available

stands for township establishment. The number of available sites and their proximity make it even more challenging considering the consistent nature of characteristics and prospects for development. To the west (Evaton West) is medium density residential erven of approximately 250m^2 in extent and to the east (Evaton Proper) is lower density residential erven of approximately 4 000m^2 in extent. There are a number of social facilities in the surroundings: schools, both primary and secondary, to the west, and other social facilities, such as churches to the north-west. Many of the sites earmarked for social facilities are still vacant. Ample land in close proximity to the site is designated as public open space. These spaces are however not maintained and detract from the amenity of the neighbourhood rather than functioning as an asset. It is to be noted that some of the vacant sites have now been invaded.

Given the aforementioned, one site was identified for the proposed development being the preferred based on the assessments conducted, engagement and departmental mandate. However, there were four different site layouts proposed with different designs for consideration in the construction and operational phases. The basis for the layout was mainly driven by the need analysis and economic environment of the site. The layout took into consideration environmental aspects; accounting for the environmental sensitivities, social; accounting for the demographic make-up and social dynamics, and finally economics; accounting the economic value and prospect opportunities. More so, a technical criteria and evaluation was managed to ensure sustainability for the proposed development and feasibility in what is proposed. It is imperative to note that the developed Urban Development Framework (UDF) added value in determining the site layout. The UDF further accounted for the following design principles in proposing the different site layouts:

- Mixed-use – The primary aim is to address a range of needs within walking distance thus reducing the need for vehicular travel and secondly to ensure a 24-hour city.
- Mixed residential typology – aimed at addressing the needs of different income groups and different household types thereby creating socio-economic integration.
- Permeability - Necessitates direct routes and short walking distances.
- Sense of place – The aim being to addresses aspects such as gateways, landmarks, vistas.
- Multi-functionality/ adaptability – aimed at using space for more than one function and the ability to use space in different ways over time.
- Human scale – The primary aim being to ensure that the environment fits to the scale of its users.

The Preferred Alternative for this Project is described as follows and illustrated in Figure 23:

It is proposed to develop Option 4, a medium-density mixed-use development consisting of a mix of residential typologies at a density of 60du/ha as prescribed by the SDF. A mix of walk-up flats and single residential erven with a minimum erf size of 250m². In addition, a retail component with a GLA of 3 500m² (1.6ha) was accommodated as in line with the market study. A communal open space is proposed at the centre of the development. A small social facility, such as a community hall or creche should be developed within the public open space. The bulk of the site (1.9ha of 4.3ha is used for residential development). The northern and western perimeter of the site is earmarked for two-storey walk-ups. The walk-ups are located on 1.2 ha and approximately 131 units can be achieved with a resultant net density of 173du/ha. The central and southeastern periphery of the site is earmarked for single residential erven. These are placed adjacent to the abutting residential properties to form a buffer between the walk-up flats and the surrounding low-density development. A total of 24 dwelling units with a minimum erf size of 250m² can be achieved. This takes up 0.7 ha of the site and a resultant net density of 38 du/ha. The retail component proposed for the development will only consist of a local convenience centre as the proposed filling station was not deemed feasible at this point in time.

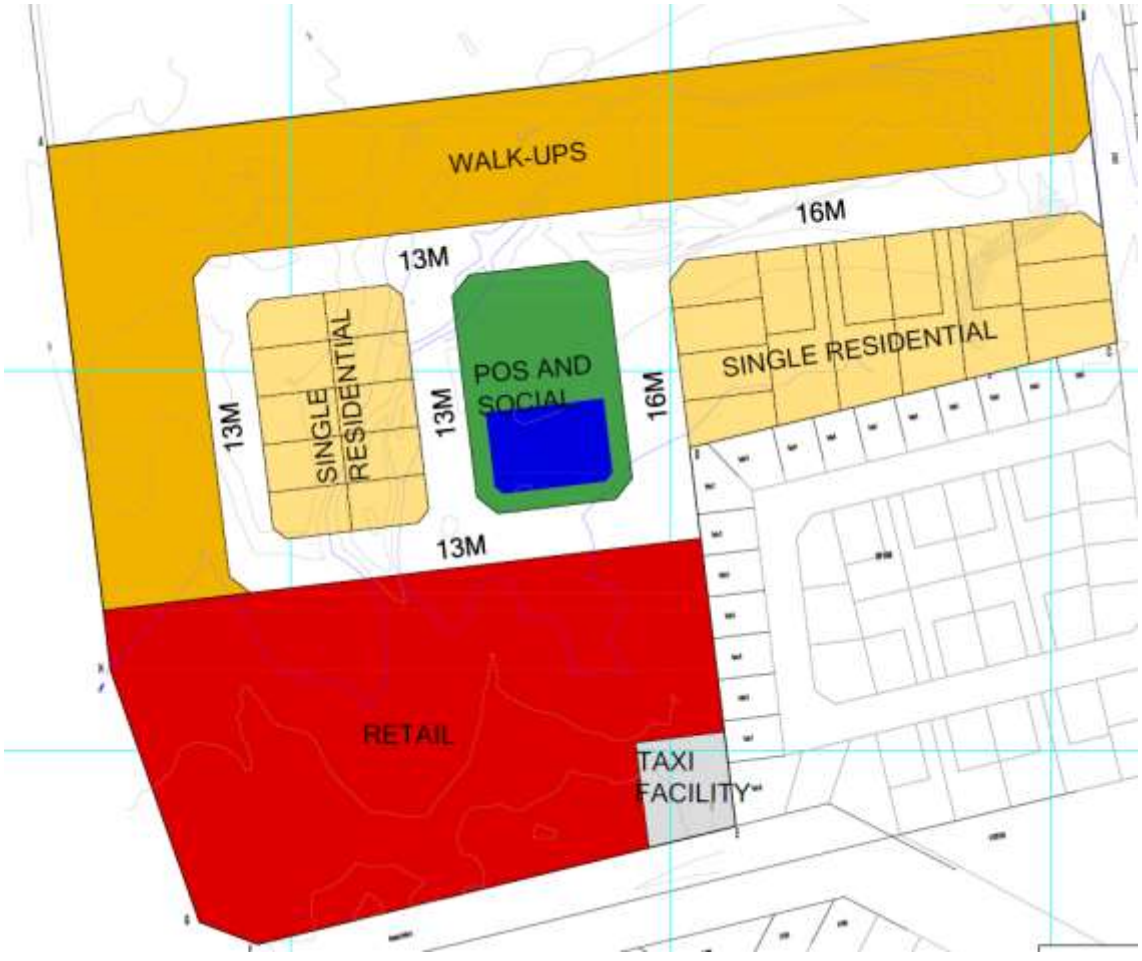


Figure 23: Site in relation to priority densification and infill areas (Gauteng SDF 2030)

The Preferred Alternative is deemed the most feasible and reasonable alternative and has been thoroughly assessed in this Report. Please kindly refer to Section 8 for the impact assessment.

6 ENVIRONMENTAL ATTRIBUTES

This section outlines the environmental attributes of the study area and indicates any environmental sensitivities that must be considered in planning and design, and the impact assessment process.

6.1 Topography

The proposed site can be considered to be flat with the lowest point on the site is recorded as being in the south at approx. 1540 meters above mean sea level (mamsl), to 1543 masl in the north (Figure 23). The site rises gently from 1541 mamsl in the west to 1544 mamsl in the east (Figure 24). According to the Civil Engineering Services Report prepared by Phumaf (7 July 2019) (Appendix C), available topographic contours show a gentle regional dip slope south-westward with a gradient of merely 1:75(0.8° or 1.3%). This is largely representative of the site, which is comparatively undisturbed at the ground surface and dips gently south-westwards, with a general absence of noticeable fill at ground level, which is characteristic of several other open sites in Evaton.

Much of the proposed housing and/or retail development would be visible to road users of the R553 (Golden Highway) and adjacent roads based on the relatively flat topography of the site (Figure 25). The site would also be visible from the formal settlements immediately adjacent to the site. From Figure 24, which shows a cross-section profile from the southern to the northern end of the site, it is clear that the site is predominately flat.

Figure 24: View Profile from south to north across the site

Figure 25: View Profile from west to east across the site

6.2 Climate

In the Evaton area, the highest average monthly maximum temperature occurs in January (30.2 ºC) and the lowest average monthly maximum temperature occurs in July (21.1 ºC). The highest average monthly minimum temperature occurs in June/ July (-1.9 ºC) and the highest average monthly minimum temperature occurs in January (11 ºC). Evaton West falls within a summer rainfall area where precipitation is highest on average in January (125 mm) and lowest in July (4 mm) (Meteovista, 2020).

The climate is characterised by warm, wet summers and cool, dry winters; this, combined with the effects of altitude, results in a long growing season (centred over summer) lasting about six to seven months, alternating with unproductive winter and early spring seasons. There is also high primary productivity leading to a rapid build-up of biomass, resulting in a high fuel load and potentially intense fires (SANBI, 2013).

6.3 Geology

The diverse geology underlying Mesic Highveld Grassland correlates closely with high levels of plant species richness and endemism. The soils derived from the diverse types of parent rock vary in texture from sandy to clayey and the sandier soils tend to support lower basal cover but higher plant species diversity than less sandy ones (SANBI, 2013).

Geoid Geotechnical Engineers (Pty) Ltd was appointed to conduct a GFSH2 - Phase 1 Geotechnical Site Investigation for Erf 14540, Evaton West Ext.7. The information below is extracted from the recommendations from the Geotechnical Investigation Report (Appendix C). Several foundation strategies are presented in the report. The selection of a foundation solution will require appropriate consideration of the relative stiffness and deformation potential with that of the top-structure in each instance, as well as environmental issues inclusive of potential disturbance to neighbouring developments from compaction vibrations, noise, space for stockpiling excavated materials, etc.

Test pits profiling indicates that there is limited colluvial material which may satisfy nominally G6-G7 standards, with the remainder of the natural soils rated as poor to very poor quality in terms of their engineering applications. As such, none of these soils, other than the pebble marker, should be relied upon for high-quality soil mattress construction.

In addition, all of the landfill material encountered is completely unsuitable for reuse and would need to be fully removed and replaced beneath individual structures. Moreover, the loose boulders so prevalent on-site are poorly suited to an earthwork's solution – unless this were to be fragmented and crushed on-site to generate a suitable engineered fill material. Indications are, however, that the unweathered boulders on-site may have a UCS in the order of 400MPa, making a crushing operation on-site unviable.

Depending on the foundation solution to be adopted, concrete surface beds may be required where not suspended. These should be constructed on a consistent bed of at least three 150mm layers of imported / colluvial gravel if the landfill is retained, and these compacted to 95% Mod AASHTO density to prevent cracking induced by differential support. Where the pebble marker cannot be harvested, nor the bouldery fill crushed to provide this material, provision should be made for suitable G5/G6 materials to be imported from commercial quarries.

Given the site classification, the general drainage precautions presented in Appendix C should be strictly applied to obviate any unnecessary/avoidable saturation of the profile immediately adjacent to the structures. The drainage patterns of the site under the present surface must, however, be formally investigated to assess the surface water challenges, as the site observations suggest that there may be some internal drainage problems induced by the landfill deposits.

Despite the level site, individual structures may necessitate the removal and replacement of the landfill in box cuts, introducing localised slope stability concerns. The sidewalls of any deep services trenches or box cuts should be appropriately battered or propped during construction. The surcharging of cut sidewalls by way of spoil heaps, construction materials, and equipment (including those with outrigger jacks) should be strictly avoided as being highly-detrimental to cut stability, particularly when workers are present in trenches/box excavations over 1.5 m deep.

6.4 Biodiversity

This section provides an overview of the terrestrial and aquatic biodiversity features of the development site. A combined sensitivity map has been compiled illustrating the site's proximity to sensitive features. Refer to Figure 28.

6.4.1 Terrestrial Features

According to Mucina and Rutherford (2006) the proposed development area falls within the Soweto Highveld Grassland vegetation unit. This vegetation unit has been classified as 'endangered' with almost half already having been impacted or transformed due to cultivation, urban sprawl, mining and building of road infrastructure (Mucina and Rutherford, 2006). Despite the ongoing impacts to this vegetation unit, only 0.2% is protected which is far below the conservation target of 24%.

According to the Gauteng CPlan Version 3.3 (GDARD, 2011), there are no CBAs or ESAs on or adjacent to the site (Figure 19).

The site is located within an area classified as part of the Threatened Ecosystem (Soweto Highveld Grassland– Vulnerable). Soweto Highveld Grassland is a form of Mesic Highveld Grassland (SANBI, 2013). In this landscape, there is a high natural incidence of fire, owing to

frequent storms, and lightning strikes. The natural occurrence of fire, combined with the effects of frost and hail storms, maintains the open, largely treeless character of these grasslands (SANBI, 2013).

The site shows very little of the original prevailing vegetation types as it has been altered over an extended period. Vegetation amongst the structures is sparse and limited to patchy grass with scattered small bush dotted around the site.

6.4.2 Aquatic Features

A Wetland Assessment was undertaken in May 2021 (Appendix B-1) in order to investigate the potential presence of watercourses in the development property.

The NFEPA database indicated that there are no aquatic features (wetlands and watercourses) present of on the development site or within a 500m radius of the development site. According to this database, the nearest aquatic features to the development site is approximately 1.6km to the west of the site.

Figure 26: Location of the NFEPA wetlands (shown in blue) in relation to the development site

The SANBI National Wetland Database (2008) indicated that there are not aquatic features (wetlands and watercourses) present of on the development site or within a 500m radius of the

development site. According to this database, the nearest aquatic features to the development site is approximately 1.6km to the west of the site.

Figure 27: Location of the SANBI wetlands (shown in green) in relation to the development site

The Gauteng Critical Biodiversity Areas and Ecological Support Areas database indicated that there are no Critical Biodiversity Areas or Ecological Support Areas present on the development site or within a 500m radius of the development site.

The site visit conducted on 15 April 2021 confirms that absence of any aquatic features (wetlands and watercourse) within the development site and within a 500m radius of the development site.

As no aquatic features have been identified within the development site or within a 500m radius of the development site, no management and mitigation measures are required.

Based on the findings of the assessment the Specialist concluded that there are no reasons that the development should not be authorised from an aquatic ecological perspective.

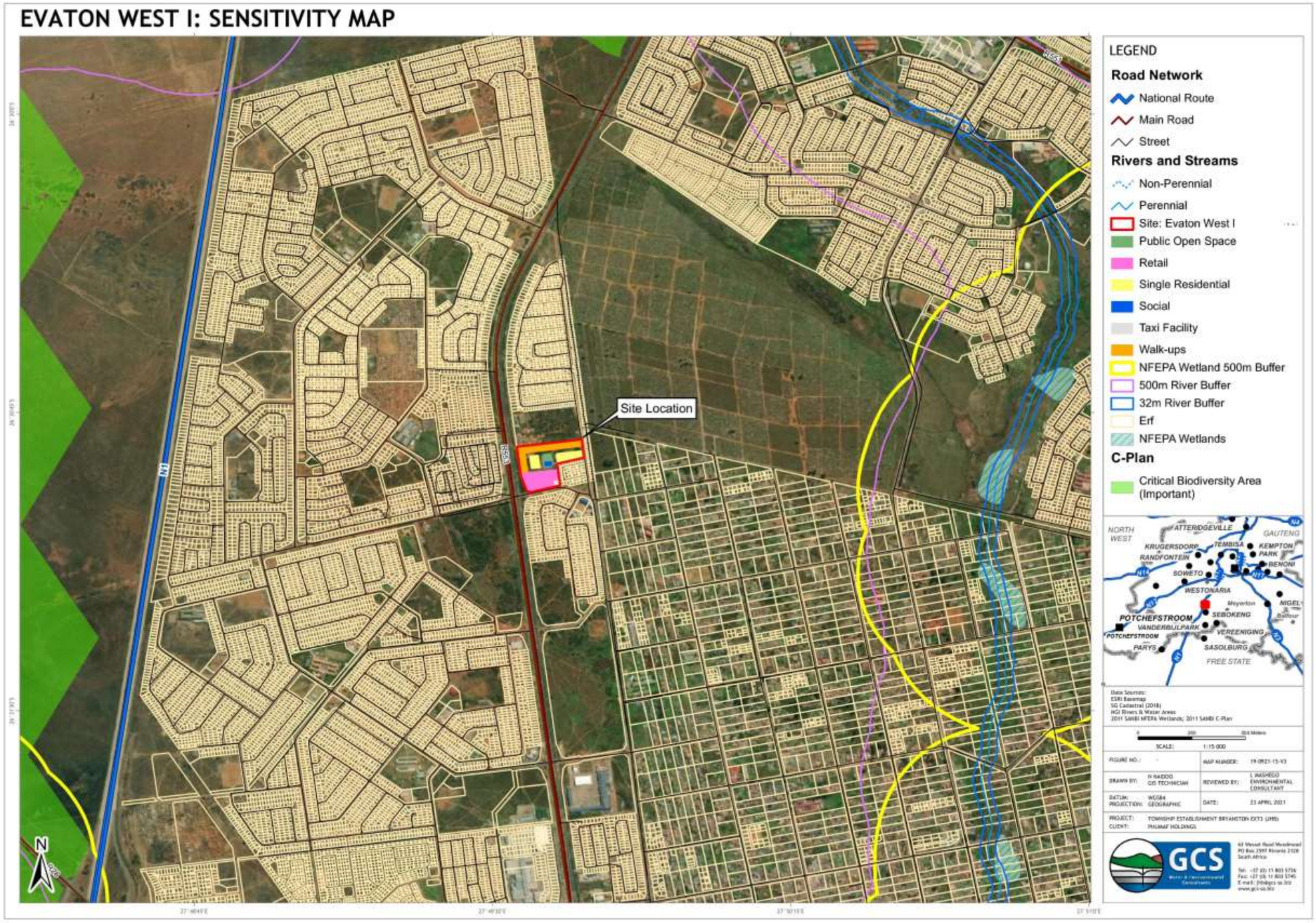


Figure 28: Sensitivity Map

6.5 Hydrology

The site is located within DWS Quaternary Catchment C22H, in the Vaal Water Management Area (WMA).

No watercourses or wetlands are located within the proposed site. No scheduled water uses are anticipated through the proposed housing and/or retail development. The Rietspruit River runs south of the site, and its associated tributaries and wetland systems are located east and west of the site. The site does not fall within 500 m regulated of the NFEPA wetlands (Figure 20).

The site is located in a high rainfall region. The characteristically dense vegetation in mesic grassland landscapes cover traps surface water, slowing runoff and allowing more time for water to drain vertically through the porous soil profile; this water is then stored as sub-surface water by the impermeable rock layers that lie beneath the subsoil. This sub-surface water drains slowly as clean water into the many wetland systems that occur throughout this ecosystem (as a result of its flattish topography), replenishing streams and rivers almost year-round. The supply of good quality water from these ecosystems is important for domestic, agricultural, industrial and commercial water users both in South Africa and neighbouring countries (SANBI, 2013).

From the topographic profile of the site in Figures 23 and 24, it is clear that the site is predominately flat (around 1540 mamsl across the site). Additional stormwater management infrastructure would be required to facilitate drainage.

6.6 Socio-Economic Context

According to the Sedibeng Growth and Development Strategy 2 (Sedibeng District Municipality, 2012), the Evaton population is of low-Living Standards Measurement with low access to services. This places the community as vulnerable to impact. The community also has a high unemployment rate. These factors must be considered when proposing development within Evaton West. The community is not positioned to address impacts to their human health, living conditions or environment. Therefore, the developer must communicate with neighbouring community members to minimize the negative impacts of the development. This will be focused on the construction phase of the project. It must be noted that neighbouring households are located within 15m of the proposed development area.

Stats SÁ provides the following information: According to Census 2011, ELM has a total population of 721 663, of which 85,4% are black African, 12% are white, 1,2% are coloured, and 1,0% are Indian/Asian. Of those 20 years and older, 3,6 % completed primary school, 36,7% have some secondary education, 32,4% completed matric, and 12,9% have some form of higher education. The percentage with no form of schooling is 4,0%. Of the population, 202 543 people are economically active (employed or unemployed but looking for work) and, of these, 34,7%

are unemployed. Of the 85 594 economically active youth (15–35 years) in the area, 45% are unemployed.

6.7 Cultural Heritage Resources

A Phase 1 HIA was undertaken in March 2020 by HCAC - Heritage Consultants (Appendix B-1) in terms of the NHRA.

The lack of significant heritage resources in the study area was confirmed by a survey of the impact areas of the proposed project, and no heritage sites were identified.

An independent paleontological study (Bamford 2020) (Appendix B-2) concluded that the proposed site lies on the volcanic rocks (lava, basalt, andesite, tuff) of the Hekpoort Formation, Pretoria Group, Transvaal Supergroup, of early Proterozoic age that does not preserve fossils. Based on the geological record and literature it is recommended that no palaeontological site visit is required and the project can proceed and the study included a Fossil Chance Find Protocol.

Due to the apparent lack of significant heritage resources in the study area, the impact of the proposed project on heritage resources is considered to be low and it is recommended that the proposed project can commence on the condition that the following recommendations are implemented as part of the Environmental Management Programme (EMPr) (Appendix I) and based on approval from SAHRA:

- Implementation of a chance find procedure (archaeological and paleontological).

6.8 Traffic

A Traffic Impact and Access Study was undertaken (Appendix B-4). The proposed site is within the Orange Farm - Sebokeng 'urban cluster'. This cluster is a deprivation area that straddles the Emfuleni and City of Johannesburg municipal areas. 15 – 20km to the north are Lenasia and Ennerdale. The closest urban node is Vanderbijlpark and Vereeniging which are 15 - 20km to the south. The site is located between the N1 to the west and Golden Highway (R553) to the east, which provides it with high levels of regional accessibility. On the sub-regional level accessibility is impaired by the lack of connector roads to the N1: access to the N1 is approximately 16.3km or 20 minutes' drive from the development site. It is to be noted that the surrounding area has a well-developed street network. It is however a curvilinear layout that limits permeability for pedestrians.

7 PUBLIC PARTICIPATION PROCESS

The Public Participation Process (PPP) is a legislated requirement environmental authorisation procedure. Refer to Appendix H for related documentation.

7.1 Objectives of Public Participation

The procedures followed during the undertaking of the PPP for the proposed Application for Amendment of EA must adhere to the NEMA principle whereby the participation of all Interested and Affected Parties (I&APs) in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation, and involvement by vulnerable and disadvantaged individuals must be ensured [NEMA, Section 2(1)(f).

The primary objectives of the PPP are to:

- Identify key stakeholders (i.e. Non-Governmental Organisations [NGOs], municipalities, government departments, traditional authorities) and I&APs (i.e. surrounding businesses, residents, landowners, interested members of the public);
- Inform I&APs about the proposed Application for EA;
- Establish lines of communication between I&APs and the project team to deal with potentially contentious issues;
- Provide ample opportunity to all parties to exchange information and express their views and raise issues and concerns; and
- Obtain contributions of I&APs and ensure that all issues, concerns and questions raised are fully documented and assessed as part of the BA process.

7.2 Public Participation Process

7.2.1 Public Review of Draft BAR

The initial public participation process for the Draft Basic Assessment Report (BAR) included the following activities:

- An electronic I&AP database was developed, which is maintained and updated throughout the project. Appendix H-1 contains a copy of the latest I&AP database;
- An English advertisement for the registration and participation of I&APs was placed in the Vaal Weekblad on Wednesday, 10 February 2021. Refer to Appendix H-2 for a copy of the media notice;
- Three English notice boards (Appendix H-3) detailing information about the project and the BA Process, as well as invitation to register as I&APs, were placed at three strategic points around the development site on 12 February 2021. All notice boards were designed to the specification of Section 54 (3) of the NEMA EIA Regulations. Refer to Appendix H-3 for a copy of site notice;
- Email notifications have been circulated to all I&APs on the database (as applicable) inviting comments from 12 February 2021 to 15 March 2021. Refer to Appendix H-4;
- A meeting was held with the ward councillor, members of the ward committee and

residents on 5 September 2020 at the Fairview Hall. Attendees registered and received a copy of the isiZulu flyer (Appendix H-5);

- English flyers were distributed to residents of Shayamoya, Mandilini and Fairview settlements via the members of the ward committee between 5 – 14 September 2020. Signed registers are included in Appendix H-5.

Whilst additional specialist investigations were in the process of being concluded, the legislated BAR application timeframe lapsed, resulting in the resubmission of the application (this report) which requires additional public participation as outlined in the section below.

7.2.2 Public Review of Revised Draft BAR

The Revised Draft Basic Assessment Report (DBAR) will be made available for public comment for 30 days. The Revised DBAR has been submitted for public review from 03 June 2021 until 05 July 2021 (30 days). Due to COVID-19 restrictions, no hard copies of the report will be available for review at public venues. However, the report is available electronically via the GCS Website (www.gcs-sa.biz) or a CD can be made available upon request.

7.3 Comments and Responses

All comments received during the application process will be captured in a Comments and Responses Report (CRR). This CRR will be updated on a continuous basis and will be presented to the authorities and other I&APs together with the consultation and final reports as a full record of issues raised, including responses on how the issues were considered during the application process.

Please note that original comments received thus far is appended in Appendix H6 and Version 1 of the CRR as appended in Appendix H7, reflects the comments and responses received to date on this project proposal.

8 IMPACT ASSESSMENT

This section outlines the anticipated environmental impacts associated with each phase of the proposed housing and/or retail development. These impacts are later rated in terms of significance.

8.1 Methodology

Possible impacts were identified through comments from I&APs, specialist reports, and from the EAP's experience.

To ensure uniformity, the assessment of potential impacts is addressed in a standard manner so that a wide range of impacts are comparable. For this reason, a clearly defined rating methodology has been used to assess the impacts identified in each specialist study.

Each impact identified must be assessed in terms of probability (likelihood of occurring), scale (spatial scale), magnitude (severity) and duration (temporal scale). To enable a scientific approach to the determination of the environmental significance (importance), a numerical value is linked to each rating scale.

The following criteria must be applied:

Occurrence

- Probability of occurrence (how likely is it that the impact may occur?); and
- Duration of occurrence (how long the impact may last).

Severity

- Magnitude (severity) of impact (will the impact be of high, moderate or low severity?); and
- Scale/extent of impact (will the impact affect the national, regional or local environment or only that of the site).

To assess each of these factors for each impact, the ranking scales are presented in Table 9 were used.

Table 7: Impact Assessment Scoring

Probability (P)	Duration (D)
5 – Definite / Don't know	5 – Permanent
4 – Highly probable	4 – Long-term (ceases with operational life)
3 – Medium probability	3 – Medium-term (5 – 15 years)
2 – Low probability	2 – Short-term (0 – 5 years)
1 – Improbable	1 – Immediate
0 – Not applicable/None/Negligible	0 – Not applicable/None/Negligible
Scale (S)	**Magnitude (M)**
5 – International	10 – Very high / Don't know
4 – National	8 – High
3 – Regional	6 – Moderate
2 – Local	4 – Low
1 – Site only	2 – Minor
0 – Not applicable/None/Negligible	0 – Not applicable/None/Negligible

Status of Impact

Positive: + (A benefit to the receiving environment)

Negative: - (A cost to the receiving environment)

Neutral: N (No cost or benefit to the receiving environment)

The following formula was applied to calculate the impact significance, or Significance Points (SP) after the factors were ranked for each impact:

SP = (magnitude + duration + scale) x probability

The maximum value that can be achieved is 100 SP. Environmental effects were rated as per Table 10.

Table 8: Impact Significance Ratings

SIGNIFICANCE	ENVIRONMENTAL SIGNIFICANCE POINTS (SP)	COLOUR CODE
High (positive)	>60	H
Medium (positive)	30 to 60	M
Low (positive)	<30	L
Neutral	0	N
Low (negative)	>-30	L
Medium (negative)	-30 to -60	M
High (negative)	<-60 (max = 100)	H

The significance of an impact gives one an indication of what mitigation measures need to be taken to control negative impacts and reduce environmental damage during the construction and operational phases. Suitable and appropriate mitigation measures were identified for each of the potential impacts based on specialist recommendations and GCS expertise.

Activities to be undertaken during the construction and operation phases have the potential to cause environmental impacts.

The following information/documentation was reviewed to inform the assessment of impacts related to the proposed housing and/or retail development project:

- Appendix B: Wetland Assessment, Heritage Assessment, Paleontological Assessment, Traffic Impact & Access Study Reports respectively;

- Appendix C: Civil Engineering Services Report;
- Appendix D: Mixed Use Market Study; and
- Appendix E: Urban Design Framework Including Layout Plans.

The impact descriptions and assessment are based on the author's understanding of the proposed development based on the information provided.

8.1.1 Planning and Design Phase

This phase includes the planning and siting of the position of the construction camp, access routes for construction vehicles, contractors' camp and lay down areas, excavations, placement of chemical toilets, site offices, topsoil and spoil stockpiles, rubble and waste rock storage sites, spoil areas, solid waste storage and disposal sites, construction materials stores, equipment stores, hazardous materials and waste storage sites and fuel stores. The location of the proposed construction camp/s is not known at this stage.

Given the nature of the site, there are no environmental or topographic features that must be considered in the final layout planning to mitigate impacts.

The establishment of the construction camp/s may result in a localised visual impact through the stockpiling, storage of equipment and machinery, and the storage of reflective materials. This can be partly mitigated by erecting a shade cloth fence around the construction camp/s. No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located within the mapped primary degraded grassland areas.

The following tasks are to be undertaken during the planning and design phase:

- Final layout plan and final service infrastructure designs;
- Implementation of the Draft EMPr and conditions of the SPLUMA approval and EA.

8.1.2 Construction Phase

The construction phase impacts related to the proposed layout and design of the housing and/or retail development are discussed below, and the significance rating for each impact are presented in Table 11. Construction activities are understood to include the following:

- Clearing of vegetation and grading of the site: Vegetation clearing, soil stripping and earthworks for the foundations for housing units and associated access road and service infrastructure will take place on the property. The clearing of vegetation would expose bare soils to erosive elements leading to increased runoff.
- Construction of residential housing and service infrastructure: Once the site has been cleared and graded, construction of the roads and building infrastructure will take place. This will likely require bulk earthworks, cement/concrete mixing and infrastructure construction. It is anticipated that roads will be gravel surfaced. The installation of water and sewer pipelines to reticulate potable water and domestic

wastewater will also take place at this stage, with the water and sewer pipelines within the road reserves (Appendix C). Pipelines will reticulate wastewater to the municipal sewer tie-in point. Open space will be retained in the north of the site.

8.1.2.1 Impact on Topography and Soil Erosion

Given the flat topography of the site, the proposed activity will not significantly alter the topography of the area. Any excavations could pose a safety risk to people and animals. The topographical impact is an unavoidable project-related impact. Excavations to be limited to the designated works areas.

The significance of the impact on the site topography is anticipated to be **Medium** and through the implementation of the proposed mitigation measures, the rating remains **Low**.

To minimise the safety impact of excavations and construction activities, ensure proper access control to the development area:

- Fencing.
- Security.
- Barriers.

Additionally, ensure warning signs are erected on the perimeter of these areas in isiZulu. Structural safety to be ensured according to engineering standards.

Given the flat topography, there is a low risk of soil erosion associated with the construction activities. However, most of the impacts can be mitigated through the implementation of the EMPr (Appendix I). The impact of the proposed housing and/or retail development on soil erosion is considered of **Medium** significance pre-mitigation. Through effective soil erosion prevention measures (terracing, operations on contour), the impact will remain **Medium**.

During construction, erosion control measures must be implemented in areas sensitive to erosion such as exposed soil, trenches cut for construction, etc. These measures include but are not limited to – the use of sandbags, hessian sheets, silt fences and retention or replacement of vegetation.

8.1.2.2 Impact on Air Quality and Climate

Localised impacts on ambient air quality are anticipated through the generation of inhalable particulate matter (PM10) and (PM2.5) and larger total suspended particulates (TSP) through the following activities:

- Construction of housing top structures, and the installation of pipelines and the movement of heavy construction vehicles, equipment and personnel along gravel roads/ tracks and subsequent compaction and erosion of soil;
- Excavation using heavy machinery/ vehicles; and
- Transportation of construction materials.

The impact of dust generation can be mitigated through the implementation of dust control measures and dust suppression. A water cart could be used to wet all affected areas during the construction phase. Watering for dust suppression should be undertaken twice daily, or as needed.

Based on the scale of the development, the impact on local air quality associated with construction activities is anticipated to be **Medium**, and with the implementation of the proposed mitigation measures and the EMPr (Appendix I), will remain **Medium**.

Greenhouse gases (GHGs), which contribute to global climate change, will be generated throughout the construction phase of the project. Direct GHG emissions include exhaust fumes from equipment, vehicles and backup generators (when required). Indirect sources include those of supplier/services related activities such as commercial electricity generation, materials manufacturing and logistics. The use of non-renewable electricity on site for operation of machinery, lighting and general construction activities would increase the overall carbon footprint during the construction phase.

The anticipated impact of the construction activities on GHG emissions and climate is anticipated to be **Medium** and can be reduced to **Low** with the implementation of the proposed mitigation measures.

Fuel-saving and energy efficiency measures should be implemented, including optimal vehicle and equipment use scheduling, servicing and maintenance, use of fuel-saving technology and high-efficiency generators, and use of low carbon and sulphur fuels will reduce this impact. Waste management through reuse and recycling will additionally reduce the projects overall carbon footprint.

8.1.2.3 Contamination of soils

Soil loss and contamination could occur due to improper stormwater management, erosion control, vegetation stripping, poor management of construction activities, poor waste management (there is evidence of illegal dumping on site and this may continue or increase), spillages and uncontrolled maintenance of vehicles and machinery.

The impact of soil contamination due to construction activities is anticipated to be **Low and** will remain **Low** if the development footprint area is restricted to the works area, clearly demarcated, and the movement of construction activities outside of this area is restricted. Edge effects of construction activities need to be carefully and actively managed through ensuring good housekeeping and strict management of activities, with specific consideration to erosion control and alien floral species management.

If any spills occur, they should be immediately cleaned up and in the event of a breakdown, maintenance of vehicles must take place with care and the recollection of spillage should be

practised preventing the ingress of hydrocarbons into the topsoil. All hazardous materials should be stored within a bund capable of containing 110% of the stored capacity to prevent potential spillages and soil contamination. Maintenance should not be conducted on site, and bunds and spill kits should be available, particularly during refuelling. Appropriate sanitary facilities must be provided during the construction phase and all waste must be removed to an appropriate waste facility.

Clean up of the site and removal of litter and illegal dumping waste will improve the status quo, and reduce the potential for soil contamination. Removal of contaminated soil in the vicinity of dumping of oils or greases may be required. This impact is positive and is rated as **Low** significance.

8.1.2.4 Impact on Land use

The current land use on the site comprises illegal waste dumping, excavations and pedestrian pathways. The proposed construction activity will have a short-term, negative impact due to the temporary change in land use from open space to construction due to the restriction on access through fencing and securing of the Works area, an influx of construction staff, machinery, equipment and the establishment of a site office, construction camp/s and laydown area/s.

Vehicle and employee movement should be restricted to within the construction footprint. Working hours should be limited and an open channel of communication with surrounding residents and landowners must be ensured, mitigate all intrusive impact and complaints. A complaints register should be available on site to ensure that all complaints are addressed.

The proposed construction activities may impact on existing land use, and the impact is anticipated to be **Medium** given the scale of the footprint of the works area. The works area will be rehabilitated to pre-construction specifications. With the implementation of the proposed mitigation measures, the impact on land use will be **Low**.

8.1.2.5 Impact on vegetation

The proposed clearing and excavation of the footprint areas will result in the clearing of vegetation. This impact refers to the direct physical destruction and/or modification of terrestrial habitat and includes habitat loss impacts, habitat and vegetation degradation impacts (e.g. species composition and abundances changes) and invasive alien plant invasion.

The housing and/or retail development will result in the permanent and irreversible transformation of areas of grassland vegetation on the site. The process will involve vegetation clearing, excavations and bulk earthworks for the development. Given the highly disturbed nature of the site, which has been subject to illegal dumping of waste, and the erection of informal structures and businesses, the impact intensity is likely to be **Low**.

8.1.2.6 Impact on Fauna

Impacts on fauna and faunal habitats are linked to the proposed footprint and clearing as well as general disturbance levels during construction. Given that the site is close to existing formal residential settlements, and there are existing disturbances, the impact on fauna is anticipated to be **Low**. Should clearing and activities be restricted to existing disturbed areas, and limited to the designated works areas, the impact on fauna can be mitigated and the impact will be **Low**. Additional measures to limit disturbance are detailed in the EMPr (Appendix I).

8.1.2.7 Alteration of hydrological and geomorphological processes (erosion and sediment)

Construction activities in the catchment areas of on site watercourses will result in a temporary reduction in catchment vegetation cover which could be associated with increased runoff and increased sediment supply to downstream watercourses or wetlands associated with the Rietspruit system, especially where bare soils are exposed during peak rainfall periods. Should these impacts occur they are however likely to be temporary and are unlikely to significantly affect long-term ecological processes associated with off-site watercourses. The catchment is already impacted by dense residential settlements, roads and generation of stormwater and pollution associated with these activities. Hydrological and geomorphological impacts could be of a **Medium** ecological significance but can be reduced to **Low** through the implementation of mitigation measures.

Recommended mitigation measures include:

- Construction activities are to be limited to the dry (winter) season where possible, to reduce erosion and sediment risks (June/ July);
- Potential erosion and sedimentation risks must be addressed on site through the implementation of Best Management Practices (BMPs) in erosion and sediment control;
- Temporary erosion and sediment control measures are to be implemented, with a greater level of need if construction proceeds into the summer (wet/rainy) period. Temporary erosion/sediment control to remain in place until construction has been completed and operational stormwater management infrastructure is suitably in place and operating correctly.
- Any erosion or vegetation clearing impacts must be rehabilitated as soon as practically possible; and
- A Construction phase method statement(s) is to be developed and finalised prior to construction taking place, taking into consideration the requirements of the EMPr (Appendix I).

8.1.2.8 *Impacts on water quality*

Water quality impacts during construction will likely be limited to potential increased surface water turbidity due to sediment inputs and/or erosion and physio-chemical pollution related to

potential spillages of cement and fuels during construction. Turbidity impacts are likely to be limited given the temporary nature of onsite earthworks. Spillages of fuel and other harmful substances could alter the physio-chemical and biological characteristic of surface water and contaminate watercourse substrate, with potential consequences for both fauna and flora communities. If poorly managed, impacts to water quality could be of **Medium** significance where turbidity and sediment and/or pollution risks are not effectively mitigated. Where best practical mitigation is implemented, this can be potentially limited to **Low** and environmentally acceptable level.

Recommended mitigation measures include:

- Limit construction activities to the dry (winter) season where possible, to reduce erosion and sediment risks (June/ July);
- Address potential erosion and sedimentation risks on site through the implementation of BMPs in erosion and sediment control;
- Address potential spill and pollution risks on site through the implementation of BMPs in spill and pollution control and hazardous substances management;
- Rehabilitate any spill-related impacts as soon as practically possible;
- Suitable spill response and remediation plan to be developed for the construction phase; and
- Construction phase method statement(s) to be developed and finalised prior to construction taking place, taking into consideration the requirements of the EMPr (Appendix I).

8.1.2.9 Visual Impacts

Given the flat topography of the site, much of the proposed housing development would be visible to road users of the R553 (Golden Highway) and adjacent roads based on the relatively flat topography of the site (Figure 23 and 24). The site would also be visible from the formal settlements immediately adjacent to the site. From Figure 24, which shows a cross-section profile from the southern to the northern end of the site, it is clear that the site is predominately flat.

The establishment of the construction camp/s may result in a localised visual impact through the stockpiling, storage of equipment and machinery, and the storage of reflective materials. This can be partly mitigated by erecting a shade cloth fence around the construction camp/s.

The visual impact of the construction activities is rated as **Medium**, given the scale of the development and number of possible visual receptors. This impact remains **Medium**, post-mitigation.

Mitigation measures include limiting the construction footprint to the designated works area, minimising construction duration, reinstating and rehabilitating disturbed areas as soon as possible, limiting construction to working hours, and minimising night lighting.

8.1.2.10 Noise Impacts

Movement of construction-related heavy machinery and workers on the site during the construction phase will impact on the residents, and the housing density adjacent to the site is high. This impact is rated **Medium** and will be maintained at **Medium** with the implementation of the proposed mitigation measures.

8.1.2.11 Socio-Economic Impacts

Positive impacts on the social environment related to the construction phase are anticipated to include job creation and associated local economic growth. The financing for the project will come from the National Treasury. Table 11 provides a summary of the economic benefits associated with the social housing and retail centre developments, based on the Mixed Use market Study undertaken by Demacon (2020) (Appendix D).

Table 9: Economic Benefits of the Proposed Development Types (Demacon, 2020)

Development Type	**Social Housing**		**Retail**	
Development Phase	**Construction Phase**	**Operational Phase**	**Construction Phase**	**Operational Phase**
Capital Investment Value	±R79.2 million	±R48.6 million	±R71.3 million	R86.4 million
Additional Business Sales	R255.8 million	R160.1 million	R230.2 million	R278.3 million
Additional GGP	R102.8 million	R75.7 million	R92.5 million	R138.6 million
Additional Jobs (includes direct, indirect and induced)	330	207	230	362
Property rates and taxes contributions towards the ELM	-	R240 570 per annum		R 1.8 million per annum

This is a positive impact is rated **Medium**. Though ensuring open channels of communication with surrounding landowners to address all complaints, and by maintaining a complaint register on site, this impact will be **Medium** (positive).

8.1.2.12 Heritage Impacts

Given that the Phase 1 HIA (Appendix B-1) did not identify heritage resources on site and the likelihood of fossil finds was rated low (Appendix B-2), there is not anticipated to be a direct impact on palaeontological or cultural heritage resources. The impact is thus rated **Low**.

It is recommended that the construction of the project may continue as long as the recommendations and mitigation measures provided in the HIA report are adhered to.

Table 10: Construction Phase Impacts

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
TOPOGRAPHY AND SOIL EROSION																	
Alterations to the topography	Development footprint	Earthworks for the foundations for housing units and associated access road and service infrastructure Grading of roads	6	2	1	4	36	-	M	• The topographical impact is an unavoidable project-related impact. Excavations to be limited to the Works areas. • To minimise the safety impact of excavations and construction activities, ensure proper access control to the development area: o Fencing. o Security. o Barriers. • Additionally, ensure warning signs are erected on the perimeter of these areas: o Signage in the most prevalent local language. o Structural safety to be ensured according to engineering standards.	6	2	1	3	27	-	L
Increase in soil erosion and sedimentation	Quaternary catchment C22H	Earthworks for the establishment of foundations for housing units and associated access road and service infrastructure Grading of roads	6	2	2	4	40	-	M	A suitable SWMP and erosion control measures must be implemented. Vegetation stripping must be restricted to a minimum and all removed soils must be stockpiled separately for use during rehabilitation. Upon completion of construction activities, it must be ensured that no bare areas remain and that indigenous grassland species are reintroduced Pipelines must be buried at a sufficient depth to not interfere with surface water movement leading to erosion. Keep vehicle movement to designated access roads to avoid spreading the impact to wider areas. Erosion control measures must be implemented in areas sensitive to erosion. These measures include but are not limited to - the use of sandbags, geotextiles such as soil cells which are used in the protection of slopes, silt fences and retention or replacement of vegetation. Construct silt traps to stop sediments from reaching the stormwater channels.	6	2	2	3	30	-	M
AIR QUALITY & CLIMATE																	
GHG emissions during the construction activities	Regional	Vehicle, plant and machinery emissions Waste management Increased carbon footprint through the use of electricity, fuel, and generation of waste	4	3	3	4	40	-	M	• Fuel-saving through optimal vehicle and equipment use scheduling • Servicing and maintenance of vehicles, plant and machinery • Use of fuel-saving technology and high-efficiency generators • Use of low carbon and sulphur fuels • Waste management through reuse and recycling	4	3	3	3	30	-	M
Generation of inhalable PM2.5, PM10 ad TSP and impacts on health	Adjacent residential areas, dwellings adjacent to access roads	Construction activities and the installation of pipelines and the movement of heavy construction vehicles, equipment and personnel along gravel roads/ tracks and subsequent compaction and erosion of soil Excavation using heavy machinery/ vehicles Transportation of construction materials	6	2	3	3	33	-	M	• The use of heavy machinery is to be limited on site, and hand trenching undertaken where possible. Regular inspection and wet suppression of stockpiles where necessary (including wind shielding or complete enclosure, storage away from site boundaries, and restricted height of stockpiles) • Ensuring that vehicles carrying dry soil and other materials are covered during travel • Best practices adopted to control emissions from loading and dumping material include water application, minimisation of drop heights and suspension or modification of activities during adverse weather conditions • Restricting vehicle speeds on access routes and other unsurfaced areas of the worksite • Increase frequency of site inspections by the responsible person for air quality and dust issues on site when activities with a high potential to produce dust are being carried out • Restrict vehicle access to defined areas to avoid unnecessary off-road vehicle movements outside of the active work sites • Implement methods of reducing wind speed around potentially dusty activities/areas. Early planting of site perimeter areas with native tree species could potentially screen the site and reduce wind speed across the site.	6	2	3	2	22	-	L

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
CONTAMINATION OF SOILS																	
Soil Contamination	Development footprint	Movement of construction vehicles and machinery Storage of hazardous waste and substances Maintenance activities Installation and emptying of temporary ablutions (chemical toilets) Generation and storage of general waste Mixing of soil layers during excavation or stockpiling Improper stormwater management and erosion control Evidence of illegal dumping on site and this may continue or increase	4	2	1	4	28	-	L	• Restrict movement of construction employees outside of construction areas • Restrict vehicles to travel only on designated roadways • Park construction vehicles in areas lined with concrete or fitted oil traps • Ensure vehicles are in good condition and not leaking fuel or oil when entering the mining areas • Regular vehicle and equipment inspections • Use of bunds during refuelling • Maintenance to be done off-site Suitable spill prevention measures to be in place	2	2	1	2	10	-	L
Control and Reduction of illegal dumping	Development footprint	Removal of waste from the development footprint A Access control to the Works area	4	2	1	3	21	+	L	Upfront environmental training for all construction personnel to prevent litter on site and in adjacent areas, particularly the primary degraded grassland areas. Clearing and removal of waste from the site prior to construction with disposal to a licensed landfill site.	4	2	1	3	21	+	L
LAND USE																	
Temporary change in land use from open space to construction	Development footprint	• Construction activities • General vehicular movement • movement of construction vehicles and machinery • Activities increasing noise pollution • Increased human activity • Site clearing • Site camp establishment and equipment storage Restriction of access, fencing and securing of the site	4	2	2	4	32	-	M	Vehicle and employee movement should be restricted to within the construction footprint. Working hours should be limited and an open channel of communication with surrounding residents and landowners must be ensured, mitigate all intrusive impact and complaints. A complaints register should be available on site to ensure that all complaints are addressed. All areas disturbed by construction activities must be subject to landscaping and rehabilitation.	4	2	1	3	21	-	L
VEGETATION																	
Loss of grassland vegetation (Soweto Highveld Grassland) Direct physical destruction and/or modification of terrestrial habitat and invasive alien plant invasion	Development footprint	Clearing and excavation of the footprint areas Permanent and irreversible transformation of areas of grassland vegetation	4	5	2	2	22	-	L	No temporary construction site camps, vehicle parking or material stockpiling / laydown areas to be located outside the designated works areas;	4	5	2	2	22	-	L
IMPACT ON FAUNA																	
Disturbance of locally common wetland-dependent species such as amphibians, reptiles, birds, and small mammals	Development footprint and adjacent habitats/ecosystems	Presence of workers and machinery on site Noise and vibration disturbances	4	4	3	2	22	-	L	Restrict worker and machinery access to the active construction site and construction site camp areas only; Prohibit the poaching of animals and/or collection of plants and biota from natural areas; Temporary erosion/sediment control to be removed once construction has been completed and operational stormwater management infrastructure is suitably in place and operating correctly; and Rehabilitate any erosion or vegetation clearing impacts as soon as practically possible.	4	3	2	2	22	-	L

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
Loss of habitat Disturbance of fauna	Development footprint and adjacent habitats/ecosystems	Clearing and excavation of the footprint areas Movement of construction vehicles and machinery	4	4	3	2	22	-	L	Restrict the development to designated works areas; and Prohibit the poaching of animals and/or collection of plants and biota from natural areas;	4	4	3	2	22	-	L
ALTERATION OF HYDROLOGICAL AND GEOMORPHOLOGICAL PROCESSES (EROSION AND SEDIMENT)																	
Temporary reduction in catchment vegetation cover which could be associated with increased runoff and increased sediment supply to downstream wetlands Alteration of the geomorphic structure and hydrological regime of on site wetlands	Quaternary catchment C22H	Clearing and excavation of the footprint areas Exposure of bare soil during peak rainfall periods	4	4	3	3	33	-	M	Construction activities are to be limited to the dry (winter) season where possible, to reduce erosion and sediment risks (May to September); Potential erosion and sedimentation risks must be addressed on site through the implementation of BMPs in erosion and sediment control; Temporary erosion and sediment control measures are to be implemented, with a greater level of need if construction proceeds into the summer (wet/rainy) period. Temporary erosion/sediment control to remain in place until construction has been completed and operational stormwater management infrastructure is suitably in place and operating correctly. Any erosion or vegetation clearing impacts must be rehabilitated as soon as practically possible; A Construction phase method statement(s) is to be developed and finalised prior to construction taking place, taking into consideration the wetland impact mitigation measures and requirements of the EMPr (Appendix I).	4	4	3	2	22	-	L
WATER QUALITY																	
Increased surface water turbidity due to sediment inputs and/or erosion Physio-chemical pollution related to potential spillages of cement and fuels during construction Alteration of the physio-chemical and biological characteristic of surface water and contamination of watercourse substrate	Quaternary catchment C22H	Clearing and excavation of the footprint areas Exposure of bare soil during peak rainfall periods Storage and handling of cement and fuels	4	4	3	3	33	-	M	Limit construction activities to the dry (winter) season where possible, to reduce erosion and sediment risks (May to September); Address potential erosion and sedimentation risks on site through the implementation of BMPs in erosion and sediment control; Address potential spill and pollution risks on site through the implementation of BMPs in spill and pollution control and hazardous substances management; Rehabilitate any spill-related impacts as soon as practically possible; Suitable spill response and remediation plan to be developed for the construction phase; Construction phase method statement(s) to be developed and finalised prior to construction taking place, taking into consideration the wetland impact mitigation measures and requirements of the EMPr (Appendix I).	4	4	3	2	22	-	L
VISUAL IMPACTS																	
Visual impact and loss of sense of place	Road users on N1 and local road networks Adjacent residents	Establishment of the construction camp/s Stockpiling, storage of equipment and machinery, and the storage of reflective materials	6	2	3	4	44	-	M	Limit the construction footprint to the designated works area. Limit the construction duration. Reinstating and rehabilitating disturbed areas as soon as possible. Limiting construction to working hours. Minimising night lighting.	4	2	3	3	33	-	M
NOISE IMPACTS																	
Increase in ambient noise levels	Adjacent settlements	Movement and operation of construction-related heavy machinery, movement of vehicles and workers	6	2	3	4	44	-	M	The Contractor must keep noise level within acceptable limits. Comply with the Noise Control Regulations in terms of Section 25 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) (ECA) (GN R154 of 10 January 1992) and all local noise bylaws. Restrict the use of sound amplification equipment for communication and emergency only; All vehicles and machinery must be fitted with appropriate silencing technology and must be properly maintained; Any complaints received by the Contractor regarding noise must be recorded and communicated to the Environmental Control Officer (ECO) and Project Manager (PM). Develop a Code of Conduct for the construction phase in terms of the behaviour of construction staff.	4	4	3	3	33	-	M

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
										Operating hours as determined by the environmental authorisation are adhered to during the development phase. Where not defined, it must be ensured that development activities must still meet the impact management outcome related to noise management.							
SOCIOECONOMIC IMPACTS																	
Job creation and associated local economic growth. For the social housing component, 330 employment opportunities will be created in the construction phase of the project. For the retail centre component, 230 employment opportunities will be created in the construction phase of the project.	Local businesses and industries Unemployed skilled and unskilled labourers	Employment of construction workers Procurement of construction supplies	6	2	3	4	44	+	M	Ensure open channels of communication with surrounding landowners to address all complaints Maintaining a complaint register on site	6	2	3	4	44	+	M
CULTURAL HERITAGE																	
Destruction or damage to potential heritage site s	Development footprint and adjacent areas	Establishment of the construction camp/s Movement and operation of construction-related heavy machinery, movement of vehicles and workers Clearing and excavation of the footprint areas	4	5	1	1	10	-	L	For any chance finds of heritage resources, such as graves, all work must cease in the affected area and the Contractor must immediately inform the Project Manager/Developer. A heritage specialist must be called to site for inspection. The relevant heritage resource agency (the Institute) must also be informed about the finding. The heritage specialist will assess the significance of the resource and guide the way forward. Written permission must be obtained from the Institute if heritage resources are to be removed, destroyed or altered. All heritage resources found close to the construction area must be protected by a 5 m buffer in which no construction can take place. The buffer material (danger tape, fencing, etc.) must be highly visible to construction crews. Under no circumstances may any heritage material be destroyed or removed from the site unless under the direction of a heritage specialist. Should any recent remains be found on site that could potentially be human remains, the South African Police Service (SAPS) as well as the Institute must be informed. No SAPS official may remove remains until the correct permit/s have been obtained. The recommendations and mitigation measures included in the desktop palaeontological study must be implemented and adhered to.	4	5	1	1	10	-	L

8.1.3 Operational Phase

The impacts identified during the construction phase is discussed below and the significance rating for each impact is presented in Table 13.

Operational activities which may have environmental impacts include:

- Management of stormwater runoff from residential housing and/or retail development (roofs, roads)
- Discharge of stormwater runoff to the environment, leading to increased volumes and velocities of runoff water;
- Management of domestic solid waste (rubbish)- Litter/waste entrained in stormwater and solid waste dumping; and
- Operation of sewer pipelines - Potential for spills due to malfunction or accidental failure of sewer pipeline.

8.1.3.1 Alteration of hydrological and geomorphological processes (erosion and sediment)

The housing development and/or retail development will increase hardened catchment surfaces and an associated increase in surface runoff which will largely be released into the environment as part of the operation of the formal stormwater management system. This could potentially result in erosion and sedimentation, affecting downstream watercourses and wetlands. The controlled release of high stormwater runoff volumes (during storms etc.) by planned attenuation structures must be implemented to aid in preventing erosion and sedimentation associated with increased flow volumes. It is also important that the stormwater system be designed to have a limited impact on base / low flows to mitigate operation phase hydrological and geomorphological impacts associated with the development. Due to domestic water being obtained from the local municipality, there will be no reduction in water within the onsite and downstream watercourses (no direct abstraction of water).

If poorly mitigated through inappropriate stormwater outfall and attenuation structure design, this impact could be of **Medium** significance. Where best practical ecological design is incorporated to allows flows and sediment fluxes to remain largely unimpeded, this impact will be maintained at **Medium**.

Key mitigation recommendations:

- Operational SWMP to be compiled and implemented, based on best practice stormwater management design, including erosion protection at outfalls;
- Stormwater and energy dampening systems to be designed and implemented to decreases the risk of erosion;
- Maintain stormwater infrastructure as necessary through unblocking of drains, desilting where required, etc; and
- Implement and adhere to buffer zones for wetlands.

8.1.3.2 Impacts on Water Quality

Water quality impacts during the operation of on site infrastructure will be limited to potential increased water turbidity due to sediment inputs and/or erosion, which is linked to the alteration of hydrological and geomorphological processes (erosion and sediment). There is also the potential for contaminated surface runoff/stormwater flows from roads to enter downstream watercourses and for improper solid waste management (i.e. dumping into natural areas). If turbidity and/or pollution risks are not effectively mitigated, impacts to water quality associated with the operation of onsite infrastructure could be of **Medium** significance. Where sewer pipelines are properly designed and installed with adequate risk mitigation, the probability of spillage of raw sewage is likely to be low, however, blockage and surcharging of sewer manholes and pollution of the environment could occur. Where best practical mitigation is implemented, this can be maintained at **Medium**.

Key mitigation recommendations:

- Implement best practice stormwater management design;
- Design and construct sewer pipeline as per industry standards;
- Water and sewer pipelines to be buried below ground to prevent exposure and damage; and
- Rules to provide for the operation of flush toilet systems to prevent blockage of sewer pipelines/manholes.

8.1.3.3 Alien plant encroachment

During the operational phase, there is also a risk of alien plant encroachment into areas disturbed post-construction, and this could affect wetlands and their buffer zones, where poorly managed. Under both the poor and good mitigation scenarios, this impact is rated as **Medium**.

Key mitigation recommendations:

- Implementation of an approved alien and invasive plant control and eradication plan;
- Only a registered pest control operator may apply herbicides on a commercial basis and commercial application must be carried out under the supervision of a registered pest control operator, supervision of a registered pest control operator or is appropriately trained;
- A daily register must be kept of all relevant details of herbicide usage; and
- Alien invasive vegetation must be removed and disposed of at a licensed waste management facility.

8.1.3.4 Impact on vegetation

This impact refers to the direct physical destruction and/or modification of terrestrial habitat and includes habitat loss impacts, habitat and vegetation degradation impacts (e.g. species composition and abundances changes) and invasive alien plant invasion.

During the operational phase, impacts to grassland adjacent to and outside of the housing and/or retail development area may occur as a result of increased human activity and disturbance, including:

- Increased levels of alien plants following disturbance; and
- Ongoing solid waste dumping and burning of waste, leading to loss of vegetation/biodiversity and more frequent veld fires that can negatively affect grassland composition and structure.

As these impacts are already taking place in the area, the impact significance is likely to be **Medium** significance and will be maintained at **Medium** through mitigation measures.

Key mitigation recommendations:

- Control alien plants on the site and surrounds;
- Formalise municipal waste management plan to service the site;
- Remove and rehabilitate informal solid waste dumping sites; and
- Work with livestock owners to reduce/control indiscriminate grazing practices on remaining primary grassland patches.

8.1.3.5 Visual Impacts

Much of the proposed housing and/or retail development would be visible to road users of the R553 (Golden Highway) and adjacent roads based on the relatively flat topography of the site (Figure 23 and 24). The site would also be visible from the formal settlements immediately adjacent to the site. From Figure 24, which shows a cross-section profile from the southern to the northern end of the site, it is clear that the site is predominately flat. The top structures will vary from double to triple storey buildings. The impact significance of the impact on the sense of place is likely to be of **Medium** significance.

8.1.3.6 Socio-Economic Impacts

Table 13 provides a summary of the economic benefits associated with the social housing and retail centre developments, based on the Mixed Use market Study undertaken by Demacon (2020) (Appendix D). The retail centre will generate substantial revenue for the ELM in the long term through property rates and taxes, as compared with social housing.

The long term socio-economic benefits include the creation of 207 employment opportunities during the operational phase of the project relating to the social housing component and 362 employment opportunities during the operational phase of the project relating to the retail centre component. This impact is rated positive and **Medium**.

The addition of housing units in the neighbourhood would place strain on existing services, including water, sewage, waste collection, and roads. Given the scale of the proposed housing and/or retail development, this negative impact is rated **Medium**.

Local qualifying beneficiaries will benefit from improved quality of life associated with formal housing, electrification and provision of sewage and water infrastructure. This impact is rated positive and **Medium**.

Table 11: Socio-Economic Benefits

Anticipated CAPEX of the project on completion	TBC	
What is the expected capital value of the activity on completion?	TBC	
What is the expected yearly income that will be generated by or as a result of the activity?	Capital Investment: Approximate R178.2 million (Construction)	
Will the activity contribute to service infrastructure?	YES	NO
Will the activity contribute to a public amenity	YES	NO
Total number of new employment opportunities to be created in the **construction phase** of this activity.	Approximately 750	
Of these opportunities how many are:		
Women	Approximately 40%	
People with disabilities		
Female	Approximately 5%	
Male	Approximately 5%	
Youth		
Female	Approximately 25%	
Male	Approximately 25%	
What is the expected value of the employment opportunities during the construction phase?	TBC	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 75%	
How many new skilled employment opportunities created in the construction phase of the project?	Approximately 30%	
How many new un-skilled employment opportunities created in the construction phase of the project?	Approximately 70%	
Total number of new employment opportunities to be created in the **operational phase** of this activity.	Approximately 468	
Of these opportunities how many are:		
Women	Approximately 50%	
People with disabilities		
Female	Approximately 5%	
Male	Approximately 5%	
Youth		
Female	Approximately 25%	
Male	Approximately 25%	
What is the expected current value of the employment opportunities during the first 10 years?	TBC	
What percentage of this will accrue to previously disadvantaged individuals?	Approximately 75%	
How many new skilled employment opportunities created in the operational phase of the project?	-	
How many un-skilled employment opportunities created in the operational phase of the project?	30%	

Table 12: Operational Phase Impacts

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
ALTERATION OF HYDROLOGICAL AND GEOMORPHOLOGICAL PROCESSES (EROSION AND SEDIMENT)																	
Increase in hardened catchment surfaces, and an associated increase in surface runoff which will largely be released into the environment Erosion and sedimentation No reduction in water within the onsite and downstream watercourses (no direct abstraction of water)	Quaternary catchment C22H	Operation of the formal stormwater management system Inappropriate stormwater outfall and attenuation structure design	6	4	3	3	39	-	M	Implementation of controlled release of high stormwater runoff volumes (during storms etc.) by planned attenuation structures to aid in preventing erosion and sedimentation associated with increased flow volumes. Stormwater system to be designed to have a limited impact on base / low flows to mitigate operation phase hydrological and geomorphological impacts associated with the development. Best practical ecological design is incorporated to allows flows and sediment fluxes to remain largely unimpeded. Operational SWMP to be compiled and implemented, based on best practice stormwater management design, including erosion protection at outfalls and allow for unimpeded base flows to downstream wetlands; Stormwater and energy dampening systems to be designed and implemented to decreases the risk of erosion; Maintain stormwater infrastructure as necessary through unblocking of drains, desilting where required, etc.	4	4	3	3	33	-	M
WATER QUALITY																	
Potential increased water turbidity due to sediment inputs and/or erosion, which is linked to the alteration of hydrological and geomorphological processes (erosion and sediment) Potential for contaminated surface runoff/stormwater flows from roads and for improper solid waste management (i.e. dumping into natural areas) Spillage of raw sewage	Quaternary catchment C22H	Operation of the formal stormwater management system Inappropriate stormwater outfall and attenuation structure design Improper solid waste management (i.e. dumping into natural areas) Operation of sewerage system	6	4	3	3	39	-	M	Implement best practice stormwater management design; Design and construct sewer pipeline as per industry standards, avoiding crossings of wetlands; Water and sewer pipelines to be buried below ground to prevent exposure and damage; and Rules to be provided for the operation of flush toilet systems to prevent blockage of sewer pipelines/manholes.	4	4	3	3	33	-	M
ALIEN PLANT ENCROACHMENT																	
Risk of alien plant encroachment into areas disturbed post-construction	Adjacent areas	Presence of humans Extent of domesticated animals in the area	6	4	3	4	52	-	M	No solid waste dumping. Implementation of the approved alien and invasive plant control and eradication plan.	6	4	3	3	39	-	M
VEGETATION STRUCTURE AND PLANT SPECIES COMPOSITION																	
Loss of grassland vegetation Direct physical destruction and/or modification of terrestrial habitat and invasive alien plant invasion	Development footprint	Increased levels of alien plants following disturbance; Ongoing solid waste dumping and burning of waste, leading to loss of vegetation/biodiversity and more frequent veld fires that can negatively affect grassland composition and structure.	6	5	2	4	52	-	M	Control alien plants on the site and surrounds; Formalise municipal waste management plan to service the site; Remove and rehabilitate informal solid waste dumping sites; and	4	5	2	4	44	-	M
VISUAL IMPACTS																	
Visual impact and loss of sense of place	Road users on N1 and local road networks Adjacent residents	Establishment of housing and/or retail development	6	4	3	4	52	-	M	No mitigation proposed.	6	4	3	4	52	-	M

POTENTIAL ENVIRONMENTAL IMPACT	APPLICABLE AREA	ACTIVITY	ENVIRONMENTAL SIGNIFICANCE BEFORE MITIGATION							RECOMMENDED MITIGATION MEASURES	ENVIRONMENTAL SIGNIFICANCE AFTER MITIGATION						
			M	D	S	P	TOTAL	STATUS	SP		M	D	S	P	TOTAL	STATUS	SP
NOISE IMPACTS																	
Increase in ambient noise levels	Adjacent settlements	Establishment of housing and/or retail development	4	4	3	2	22	-	L	No mitigation proposed. Local noise bylaws apply.	4	4	3	2	22	-	L
SOCIOECONOMIC IMPACTS																	
Job creation and associated local economic growth For the social housing component, 207 employment opportunities will be created in the operational phase of the project. For the retail centre component, 362 employment opportunities will be created in the operational phase of the project.	Local businesses and industries Unemployed skilled and unskilled labourers	Employment of operational workers	4	4	3	4	44	+	M	No mitigation proposed.	4	4	3	4	44	+	M
Additional strain on existing services, including water, sewage, waste collection, and roads	Municipal services infrastructure	Establishment of housing and/or retail development	6	4	3	4	52	-	M	Services infrastructure to be upgraded to accommodate the proposed development.	6	4	3	4	52	-	M
Improved quality of life	Qualifying beneficiaries (450 or 200 households)	Provision of formal housing, electrification and provision of sewage and water infrastructure	6	4	3	4	52	+	M	No mitigation proposed.	6	4	3	4	52	+	M

8.1.4 Decommissioning Phase

The decommissioning of the site is not foreseen to take place. However, should the site be decommissioned at some point, environmental impacts are anticipated to be similar to those identified for the construction phase, specifically in terms of topography, soil, surface water contamination, waste management, and impacts on vegetation.

8.1.5 Cumulative Impacts

Section 2 of the NEMA requires the consideration of cumulative impacts as part of the environmental assessment process. EIAs have traditionally, however, failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires co-ordinated institutional arrangements; and
- EIA's are typically carried out on specific developments, whereas cumulative impacts result from broader biophysical, social and economic considerations, which typically cannot be addressed at the project level.

Cumulative impacts associated with this type of development could lead to initial, incremental or augmentation of existing types of environmental degradation, including impacts on the air, soil and water present within the available habitat. Pollution of these elements might not always be immediately visible or readily quantifiable, but incremental or fractional increases might rise to levels where biological attributes could be affected adversely on a local or regional scale. In most cases, these effects are not bound and are dispersed or diluted over an area that is much larger than the actual footprint of the causal factor. These impacts are usually most prevalent in areas where continuous and long-term impacts have been experienced.

One of the key cumulative impacts relates to the cumulative loss of the Soweto Highveld Grassland, a Threatened Ecosystem (vulnerable). Any further cumulative loss of this type is likely to reduce the capacity to meet provincial and national conservation targets. Loss of grassland in this area (given the threat status of the vegetation type) may be considered significant. However, the site has been exposed to illegal dumping, excavations, and pedestrian activity, and is adjacent to existing formal settlements. As such, the loss of the grassland on site is not considered significant.

Another consideration is the cumulative impact on the provision of municipal services in the local area. Sewage and water infrastructure are reported as being insufficient to accommodate the proposed housing and/or retail development, which would necessitate upgrades to bulk water and sewage infrastructure.

9 REQUIRED INFORMATION REQUESTED BY THE COMPETENT AUTHORITY

This section provides information pertaining to any specific requests, requirements or comments received form the Competent Authority GDARD. Comments received on the DBAR from the Department is highlighted below and responses provided in ***blue italics***:

1.Description of the site

The proposal entails development of social housing on an area that measures approximately 4, 32 hectares in extent. There are existing informal housing structures and businesses on-the site. The site does not display any environmental sensitivities according to the Departmental GIS and Gauteng Conservation Plan version 3.3. The site falls within an Environmental Management Zone 1 of the Gauteng Provincial Environment Management Framework 2015.

The Department's understanding of the project scope is correct.

2.Listed activities applied for

N.B Please note that Activity 19 Listing Notice 1 as highlighted in the application form is not included in the draft basic assessment report. Activity 30 of Listing Notice 1 and Activity 10 of Listing Notice 3 are included in the draft basic assessment report but not in the application form. The abovementioned issues must be corrected, either the application form must be amended to reflect the all activities applied for and the same activities must be reflected in the draft report.

Noted, the activities within the revised application form and the Revised DBAR has been aligned and includes all the correct activities being applied for within this application process.

3. Specialist studies

There are no environmental sensitivities on site according to Departmental GIS and C-plan version 3.3, however, it is indicated on the application form that there is a potential watercourse on site, therefore ecological studies must be undertaken by the suitable qualified specialist in order to detect if there is an actual watercourse on site and should form part of the final Basic Assessment Report. All other specialist studies included in the draft report must also form part of the final report.

All available specialist studies undertaken in support of this development is appended to the Revised DBAR, including the Wetland Assessment undertaken to investigate the presence of water courses on site.

Appendix B-1 – Wetland Assessment

Appendix B-2 – Phase 1 HIA

Appendix B-2 – Palaeontological Study

Appendix B-4 – Traffic study

Appendix C – Civil Engineering Services Report

Appendix D – Residential Market Study

Appendix E – Urban Design Framework

4. Services required

Water and sewer will be sourced from the Local Municipality and electricity from Eskom. Both the Local Municipality and Eskom must comment on the proposed development.

All interested and affected parties, including the service providers have been approached for their comments. However, to date no formal responses has been received. GCS will endeavour to obtain such comments during the review period of the Revised DBAR.

5. Assessment of alternatives

Four alternative options outlined in the draft report is noted, however it must be thoroughly assessed in such a way that it must inform decision making process on the final BAR.

Noted, the identified preferred alternative has been thoroughly assessed within the Revised DBAR. Refer to Section 8 in the Report.

6. Maps, layout plans, services route positioning

A color layout plans showing all four (4) alternative options (in an A3 page) indicating the position of all the proposed activities on site with a legend clearly linked to activities components must be included in the final report. It should be clear and legible.

Noted, please refer to Appendix E of the Report.

7. Public Participation Process

The Public Participation Process must be done in accordance to the minimum requirements of EIA Regulations 2014. Stakeholders must be consulted through delivery of draft amendment report, but electronic methods of delivery of reports are encouraged. The Department is encouraged that the Public Participation Process will include virtual activities as far as possible as per the minutes of pre-consultation meeting. Note that all comments from registered interested and affected parties must be incorporated on the comments and response report to be attached in the final report and must be adequately addressed. Please note that the application may be prejudiced by not addressing issues raised by the registered interested and affected parties and all aspects raised in this letter.

Proof of correspondence (site notice, newspaper advertisement, email, fax, delivery etc.) with stakeholders must be included in the final report. Should you be unable to submit comments, proof of attempts that were made to obtain comments must be submitted to this Department. Any other information that needs to be added that will benefit the decision-making process must be included in the final report.

Noted, Public Participation for the initial DBAR has been undertaken in accordance with the requirements of the EIA Regulations 2014 (as amended) and the intended participation process for the Revised DBAR will be undertaken in accordance with the requirements of the EIA Regulations 2014 (as amended). Please refer o Appendix H for a record of the process undertaken to date.

8. Other aspects to be considered

a) The proposed development includes a filling station which is applicable only for alternative options 3 and 4. Therefore it should be thoroughly assessed, if not, a separate application for a filling station must be submitted to this Department.

Noted. However, please be advised that the preferred option is not inclusive of a filling station and as such no assessment of a filling station has been undertaken.

b) A zoning certificate from the relevant municipality must also be attached to the final BAR.

Noted, the required zoning certificate has been requested from the municipality and the project team is awaiting response in this regard.

c) According to the minutes of the pre-consultation meeting (19 August 2020), the proposal will make provision for a package sewage plant. The proposed sewage pa ckage plant must be commented on by Ekurhuleni Metropolitan Municipality and the Department of Human Settlement, Water and Sanitation {DHSWS).

Please be advised that the Pre-application Meeting was held to discuss various projects located within the Emfuleni Municipality's jurisdiction. The proposed sewage package plant is proposed for the Unitas Park – Extension 16 (Erf 2630) Development Application and therefore will be assessed within that separate environmental application process.

d) The proposal for the new storm water systems to be discharged to the nearest natural watercourses must also be commented on by DHSWS.

Please see comment above, the proposed discharge into

e) A detailed storm water management plan for the proposed site (including storm water management measures to be implemented temporarily during the construction phase and permanent measures to be installed for the operational phase) must be developed by a suitably qualified engineer and approved by the Local Municipality.

Noted, the appointed engineering team is in consultation with the Emfuleni Municipality in order to ensure that their requirements is addressed within the SWMP development.

f) Principles of sustainable development will need to be incorporated into the proposed development during both its construction phase and the operational phase. Aspects such as green building techniques, energy (renewable energy proposal is commended) and water efficiency measures as well as waste minimization techniques, needs attention.

Noted, the principles of sustainable development will form an integral part of the development and the developer will endeavour to implement various measures during the construction and operational phases of the project.

9. Environmental Management Programme (EMPr)EMPr is not attached in the draft report therefore it must be included in the final Report. The EMPr must comply with the content requirements as stipulated in Appendix 4 of the Environmental Impact Assessment (EIA) Regulations, 2014. The EMPr needs to address impacts that may arise as a result of the proposed activity and must be practical, site specific and easily enforceable. It is a binding document and all the conditions in it should be enforceable, it is therefore important that words that do not emphasise enforcement be avoided.

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

Noted, please refer o Appendix I of the Report.

10 ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE

Information in this report has been obtained from various sources. The following gaps, uncertainties or assumptions have been identified:

- This geotechnical report (included in Appendix C) is based on preliminary investigations within the area with minimal representative test locations and the recommendations given are based on information gathered from this. It should be borne in mind that other conditions which were not encountered during this specific investigation may exist. Detailed investigations by an Engineering Geologist or Geotechnical Engineer are recommended during the construction phase of this project, to determine the site-specific geotechnical characteristics;
- The proposed development layout plan/ SDP is currently being prepared to establish the suitability and capacity of the services connections. Additional studies such as the GLS masterplan will be required to determine the capacity analysis of the existing infrastructure once an SDP has been completed and approved;
- A conceptual SWMP has been prepared (Appendix C);
- The finalisation of the infrastructure route and design will take place during the detailed design phase and is subject to all necessary approvals being obtained and any changes to the SDP which may occur;
- Information pertaining to the ecological aspects for the site has been derived from the Wetland Assessment Report (Appendix B-1);
- No faunal verification was undertaken and no formal faunal sampling or searches were undertaken; and
- No formal vegetation study was undertaken.

The impact descriptions and assessment are based on the author's understanding of the proposed development based on the information provided.

11 ENVIRONMENTAL IMPACT STATEMENT

11.1 Negative Impacts

The following impacts associated with the proposed project are rated as **Medium** (**Negative**) significance (**post-mitigation**):

11.1.1 Construction phase:

- Increase in soil erosion and sedimentation associated with earthworks for the establishment of foundations for housing units and associated access road and service infrastructure and grading of roads;
- GHG emissions during the construction activities associated with vehicle, plant and machinery emissions, waste management, and increased carbon footprint through the use of electricity, fuel, and generation of waste;
- Visual impact and loss of sense of place associated with the establishment of the construction camp/s, stockpiling, storage of equipment and machinery, and the storage of reflective materials;
- Increase in ambient noise levels associated with movement and operation of construction-related heavy machinery, vehicles and workers;

11.1.2 Operational phase:

- Increase in hardened catchment surfaces, and an associated increase in surface runoff which will largely be released into the environment, and associated erosion and sedimentation;
- Potential increased water turbidity due to sediment inputs and/or erosion, which is linked to the alteration of hydrological and geomorphological processes (erosion and sediment);
- Potential for contaminated surface runoff/stormwater flows from roads and for improper sewage infrastructure (spillages) and solid waste management (i.e. dumping into natural areas);
- Risk of alien plant encroachment into areas disturbed post-construction;
- Loss of Soweto Highveld Grassland vegetation through direct physical destruction and/or modification of terrestrial habitat and invasive alien plant invasion;
- Visual impact and loss of sense of place associated with the establishment of the housing and/or retail development; and
- Additional strain on existing services, including water, sewage, waste collection, and roads.

11.2 Positive Impacts

The following impacts associated with the proposed project are considered of **Positive** significance:

11.2.1 Construction phase:

- Control and Reduction of illegal dumping associated with removal of waste from the development footprint, and access control to the Works area; and
- Job creation and economic growth - For the social housing component, 330 employment opportunities will be created in the construction phase of the project. For the retail centre component, 230 employment opportunities will be created in the construction phase of the project.

11.2.2 Operational phase:

- Job creation and associated local economic growth- For the social housing component, 207 employment opportunities will be created in the operational phase of the project. For the retail centre component, 362 employment opportunities will be created in the operational phase of the project.; and
- Improved quality of life associated with the provision of formal housing, electrification and provision of sewage and water infrastructure.

12 IMPACT MITIGATION AND EMPR

An EMPr related to the construction and operational phases of the proposed housing and/or retail development is included as Appendix I.

13 MOTIVATION OF THE EAP

The EAP is confident that all major impacts associated with the proposed housing and/or retail development have been adequately described and mitigated. Given the generally medium-low impacts associated with the proposed housing and/or retail development and the implementation of the proposed mitigation measures including those in the detailed EMPr (Appendix I), the EAP is confident that the project can proceed without significant impact on the receiving environment.

APPENDICES