

**DRAFT**  
**BASIC ASSESSMENT REPORT**  
**FOR COMMENT**

**Expansion of the existing Shoprite Checkers**  
**distribution centre situated on Erf 8741,**  
**Wells Estate, Eastern Cape**  
*DEDEA Reference Number: ECM1/C/LN1&3/M/16-2022*



**MAY 2022**

## **Executive Summary**

### **1. Introduction and Background**

*PHS Consulting has been appointed by Shoprite Checkers (Pty) Ltd for the Application for Environmental Authorisation (Basic Assessment) for the expansion of the existing Shoprite Checkers Distribution Centre situated on Erf 8741 Wells Estate, located approximately 15 kilometres north from the CBD of Gqeberha, east of Motherwell and west of the Coega IDZ. The property is traversed by the R102 (the Old Grahamstown Road) and M Kaulela Street. Erf 8741 is owned by Shoprite Checkers (Pty) Ltd (Reg. Nr. 1929/001817/07) and comprise 82 ha. The total size of the proposed development expansion footprint is approximately 19 ha.*

### **2. Proposed Development**

*The proposed development will entail additions and alterations to the existing distribution centre, including a new office building, new workshop and truck wash, new guardhouses and additions to the dry goods warehouse; returns warehouse and perishables warehouse including the installation of additional subsurface diesel storage containers (4x 83 000l tanks). The existing 78 000l diesel tank on site will not be decommissioned. The combined volume of all diesel storage containers on site will be less than 500,000 litres. The existing development on site has access to water; sewer; electrical; and waste removal services.*

*Access to the property will be gained from the Old Grahamstown Road (R102). The proposed access will be directly opposite M. Kaulela Street. The existing access south of M. Kaulela Street will remain open for access to the staff and visitors car park. An emergency road is proposed from the R102 Old Grahamstown Road at a point approximately 430 m south of the proposed staff access. This access will remain closed and will only be used in an emergency.*

*Stormwater management will entail the provision for subsoil drains to address the shallow groundwater table that could be encountered during construction. The proposed subsoil network will consist of 110 mm diameter perforated pipes connecting to the stormwater system. Stormwater run-off from the impervious areas will be routed via roadside channels, as well as low points with inlets towards the underground stormwater pipe network into the attenuation facilities, located on the western and southern boundary of the site. The internal stormwater system consists mainly of an underground gravity pipe and culvert network, Q-drain channels, roadside channels in the parking area and inlet*

structures that drain the roads and marshaling yards. This system was designed to have sufficient capacity to convey a 1:5-year rainfall event. During rainfall events with a return period larger than 1:5-years, the proposed roads, marshaling yards, parking areas and channels will act as overland flow routes that will channel, attenuate and ultimately discharge the surface runoff via predetermined escape routes into the attenuation facilities. The design of these dams will make allowance to adequately manage the 1:50-year rainfall event. Two stormwater attenuation facilities/dams will be constructed on the south and western boundaries of the site and will operate as a dry extended detention facility. The attenuation dam outlets will be connected to the existing stormwater channel to the southeast of the site. The outlet capacity of the attenuation dams will be capped at 1400l/s by limiting the outlet pipe sizing. Note that the existing dam will be incorporated into the new dam design.

The layout of the proposed development takes into consideration all recommendations made by the various specialists and aims to limit the impact on the 'sensitive flora area' as far as possible. The proposed layout is supported by the various appointed specialists on condition that recommended mitigation measures are implemented. Note that all recommended mitigation measures have been included in the CEMPr and OEMPr.

### **3. Alternative (Rejected) Considered –**

The Alternative layout (rejected) comprise additions and alterations to the existing distribution centre, including a new office building, new workshop and truck wash, new guardhouses and additions to the dry goods warehouse; returns warehouse and perishables warehouse including the installation of additional subsurface diesel storage containers (4x 83 000l tanks). The existing 78 000l diesel tank will not be decommissioned. The combined volume of all containers on site will be less than 500,000 litres.

Access to the property will be gained from the Old Grahamstown Road (R102). The proposed access will be located north of the M. Kaulela Street intersection. A second access road is proposed (south of M. Kaulela Street) from the R102 Old Grahamstown Road for access to the staff and visitors car park.

Although the impacts of the rejected alternative is similar in nature to the proposed development, this alternative is rejected due to the positioning of the 'Drygoods' and 'Freshmark' buildings which occupy a larger portion of the 'sensitive terrestrial flora' area. Furthermore the proposed stormwater management pond is rejected as it does not fully utilise the existing stormwater pond on site and its design (shape/hard edges) is not sensitive to its environment. The proposed access is rejected seeing that it is not adequate in terms of capacity and safety.

#### 4. NEMA Listed Activities Considered

Listing Notice 1	
<p><b>LN1 (14)</b> - <i>The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.</i></p>	<p><b>Not Applicable –</b></p> <p>The current existing 78 000l diesel storage will not be decommissioned. Additional diesel storage containers (4 x83 000l) will be installed on site at a distance of approximately 250 m from the existing storage area. The diesel storage capacity on site will thus be increased to 410m<sup>3</sup> and is viewed as an “expansion”. LN1(51) is applicable.</p>
<p><b>LN1 (19)</b> - <i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving—</i></p> <ul style="list-style-type: none"> <li><i>a) will occur behind a development setback;</i></li> <li><i>b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</i></li> <li><i>c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</i></li> <li><i>d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</i></li> <li><i>e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</i></li> </ul>	<p><b>Not Applicable –</b></p> <p>The definition of a “<b>watercourse</b>” –</p> <ul style="list-style-type: none"> <li>(a) a river or spring;</li> <li>(b) a natural channel in which water flows regularly or intermittently;</li> <li>(c) a wetland, pan, lake or dam <u>into which, or from which, water flows</u>; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and a reference to a watercourse includes, where relevant, its bed and banks; and</li> </ul> <p>“wetland” means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.</p> <p>The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The pond is in a largely modified ecological condition and is considered of low ecological importance and sensitivity. The pond is man-made and has been constructed in the past as part of the stormwater management system for the existing facility on the property. The proposed expansion entails enlarging the</p>

	<p>existing retention pond.</p> <p>The pond is not fed by a natural water source. The only water that enters the artificial wetland is stormwater runoff associated with occasional rain events.</p> <p>Taking the aforementioned definitions in terms of NEMA into account, this activity does not apply seeing that the pond is artificial and not fed by a natural watercourse.</p>
<p><b>LN1 (27)</b> - <i>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</i></p>	<p><b>Applicable</b> - The clearance of indigenous vegetation comprising approximately 19 ha.</p> <p>Coordinates: 33°49.043'S, 25° 37.206'E</p>
<p><b>LN1 (51)</b> - <i>The expansion and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where the capacity of such storage will be expanded by 80 cubic metres or more.</i></p>	<p><b>Applicable</b> - The current existing 78 000l diesel storage will not be decommissioned. Additional diesel storage containers (4 x83 000l) will be installed on site at a distance of approximately 250 m from the existing storage area. The diesel storage capacity on site will thus be increased to 410m<sup>3</sup> and is viewed as an “expansion”.</p> <p><i>“expansion” means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.</i></p> <p>Coordinates: 33° 48.851'S, 25° 37.148'E</p>
<p><b>Listing Notice 2 -</b></p>	
<p><b>Not Applicable</b></p>	
<p><b>Listing Notice 3 -</b></p>	
<p><b>LN3 (12)</b> - <i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><i>a. Eastern Cape</i></p> <p><i>i. Within any critically endangered or endangered ecosystem listed</i></p>	<p><b>Not Applicable</b> - ‘Geographical areas based on environmental attributes’ do not apply.</p>

<p><i>in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>ii. Within critical biodiversity areas identified in bioregional plans;</i></p> <p><i>iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;</i></p> <p><i>iv. Outside urban areas, within 100 metres inland from an estuarine functional zone; or</i></p> <p><i>v. 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.</i></p>	
<p><b>LN3 (22)</b> - <i>The expansion and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage facilities or infrastructure will be expanded by 30 cubic metres or more but no more than 80 cubic metres.</i></p> <p><i>a. Eastern Cape</i></p> <p><i>ii. Inside urban areas:</i></p> <p><i>(aa) Areas zoned for use as public open space;</i></p> <p><i>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose;</i></p> <p><i>(cc) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;</i></p> <p><i>(dd) Within 500 metres of an estuarine functional zone, excluding areas falling behind the development setback line; or</i></p> <p><i>(ee) Within a watercourse.</i></p>	<p><b>Not Applicable</b> - 'Geographical areas based on environmental attributes' do not apply.</p>

## **5. Need and desirability of the activity**

*The proposed development is in line with the NMBM Spatial Development Framework (2009), which identifies the site for Industrial use. Erf 409 was registered in 1965 for industrial use and has been developed/utilised for industrial purposes with an Industrial II zoning that involved continued industrial expansion on the property since 1965. In 2011 Erf 409 was subdivided (Erven 8741; 8740 and 8739) and the erven maintained the Industrial II zoning from the mother Erf. Erf 8741 forms part of the built up area as such it is regarded as inside the urban area as per NEMA definition.*

*The earliest development evident according to available historic aerial photography is before 1971 with the establishment of the now GM SA facility (now located on Erf 8740 and 8739) which has expanded over the years and now covers the entire extent of these Erven. The Current Checkers DC facility located on Erf 8741 was constructed in 2012 with no further development since then.*

*The proposed development will result in substantial investment in the area and will provide numerous employment opportunities which are required in this region. Beyond the sizable investment into the Gqebeha economy, the project will create employment opportunities during construction, and when completed an approximately 1 500 permanent job opportunities are expected to be created within the completed facility.*

*In addition to the above, there will also be indirect employment opportunities related Maintenance and Catering, which could be in the order of 50 -100 staff.*

*The proposed development will not contradict or conflict with the municipal IDP and SDF as the proposed site occurs within an industrial area.*

*The development will entail the expansion of an existing facility within in urban areas for which access and services are currently available.*

*There is a definite need for the proposed activity given the magnitude of the development and positive economic impact for the Nelson Mandela Bay Metro as a whole.*

*Various specialists assessed the site and the potential impacts associated with the proposed expansion and found that all identified impacts could be mitigated to acceptable levels. All recommended mitigation measures have been included in the CEMPr and OEMPr.*

*According to the NMBM IDP (2021), Nelson Mandela Bay Municipality continues to suffer the consequences of the most persistent drought in its history coupled with the impacts of the COVID-19 pandemic which began in early 2020. The impacts are exacerbated by the fact that the City has high*

levels of poverty, joblessness, homelessness, a declining fiscus caused *inter alia* by decreased grant funding from National Treasury as well as a weakened national and local economy. Job creation and restoring the economy has been identified as a key priority. Emphasis is placed on economic turnaround through *inter alia*, the creation of an enabling environment for private sector investments to create jobs.

Spatial targeting and the elimination of spatial inequalities, as envisaged in the National Development Plan, is an underlying principle of the Urban Network approach, hence the focus of the IDP on the catalytic development of under-serviced city areas. The Urban Network Strategy identifies a number of network elements (CBD, hubs, growth areas) and allows for the identification of Integration Zones that link CBDs and hubs in which catalytic development is encouraged. Wells Estate, amongst other areas, has been identified as a growth area (secondary urban hub).

The proposed development will have a positive local and regional economic impact, benefiting society in general.

## **6. Regional and Local Context**

### **Terrestrial Flora -**

The site falls within the Albany Centre of Floristic Endemism (Van Wyk & Smith, 2001), which constitutes the south-western portion of the Maputaland–Pondoland–Albany Biodiversity Hotspot (Mittermeier et al., 2011). This hotspot is considered the second richest floristic region in southern Africa (after the Cape Floristic Region) and the second richest floristic region in Africa, relative to its size (CEPF, 2010). The site forms part of the Subtropical Thicket Biome (Rutherford et al., 2006). The vegetation of this biome, in a general sense, is dense a dense, woody, semi-succulent and thorny shrubland with an average height of 2–3 m (Vlok et al., 2003; Hoare et al., 2006). Within the Subtropical Thicket Biome, primary drainage basins act as regional biogeographic units (Potts et al., 2013), and so the thicket vegetation in the study area, which is associated with the broader Algoa Basin (comprising the Sundays, Coega and Swartkops basins), belongs to the Sundays Thicket regional unit (Vlok et al., 2003).

The site also forms part of geologically youthful coastal landscapes of the Cape Floristic Region (CFR) that harbour a diverse array of calcicolous plant species (Grobler and Cowling, 2021). These species are intimately associated with coastal dunes and limestones and have evolved in the region over the past five million years. While not as rich in localized calcicolous species as the Agulhas and Riversdale coastal plains in the western CFR, the Coega–Grassridge area supports several species restricted to

*limestone substrata, many of which are endemic to the area (Grobler and Cowling, 2021). The Coega–Grassridge coastal plain also harbours limestone-endemic species with marked longitudinal disjunctions in their distributions and forms the easternmost range limit for many of these species.*

*The NMBM BP (Stewart, 2014) does not identify the site as a Critical Biodiversity Area (CBA) or a Critical Ecosystem Support Area (CESA). According to the most recent NPAES (REF), no protected areas or priority focus areas for protected area expansion occur within 1 km of the site.*

*VEGMAP (Dayaram et al., 2019; SANBI, 2006–2018, 2018a) identifies a single vegetation type historically occurring in the study area, namely AT 39 Grassridge Bontveld. This vegetation is restricted to the lower Algoa Basin where it occurs on moderately undulating plains above the lower reaches of the Swartkops, Coega and Sundays rivers. Grassridge Bontveld is associated with shallow, lime-rich soils overlying limestones (calcarenites) of the Alexandria and Nanaga geological formations. It comprises a mosaic of low (2–3 m) thicket bush clumps of variable size embedded in a matrix of low (0.2–0.8 m) grassy dwarf-shrubland (Grobler et al., 2018). The species present in the shrubland are a mixture of Fynbos, Grassland and Karroid elements.*

*Grassridge Bontveld is moderately protected, with approximately 10% of its original extent lost to cultivation, mining, urban development, and road building; as such, the vegetation type is assigned a threat status of Least Concern (SANBI, 2018b, 2019; Skowno et al., 2019). The conservation target for Grassridge Bontveld is 19% of the ecosystem’s original extent.*

#### *Site Ecological Importance –*

- The proposed development area is situated entirely in the Grassridge Bontveld vegetation type, which is a non-threatened ecosystem type.*
- The site contains six terrestrial vegetation units and four other habitat types relevant to flora, with three of these representing relatively undisturbed natural habitat of importance for plants, namely intact Grassridge Bontveld, degraded Bontveld and Thicket Clumps.*
- Subpopulations of one Critically Endangered, one Endangered and one Vulnerable species were recorded during the field survey. All these threatened species occur in intact Grassridge Bontveld, particularly in the south-western portion of the site.*
- Additionally, subpopulations of two Near Threatened species were located in intact Grassridge Bontveld (associated with threatened species) and a Thicket Clump in the northern portion of the site, respectively.*

- *The proposed development area comprises terrestrial habitats of very low, low and medium Site Ecological Importance.*
- *The recommended mitigation measure for these SEI classes involve minimisation and restoration of environmental impacts associated with development activities*

### **Terrestrial Flora -**

*A total of 333 faunal species (22% butterflies, 3% amphibians, 14% reptiles, 12% mammals, and 49% birds) were identified to potentially occur naturally in the vicinity of the project area. Approximately 2.7% of these species are SCC, meaning that they either have restricted distribution ranges, Red Data (Global or Regional) listing, or TOPS listing.*

*No amphibian or butterfly SCC are known to occur in the project area and most SCC likely have their distributions limited to the Limestone bontveld habitats of the site. Notable exceptions include the African striped weasel *Poecilogale albinucha* and three species of bird of prey (lanner falcon *Falco biarmicus*, African marsh harrier *Circus ranivorus*, black harrier *Circus maurus*) with wide habitat tolerances that might include Grassy-karoo mosaic habitats.*

*The likely occurrence of SCC is inferred from the presence of suitable habitat and the extent of current threats (i.e., not project related). Thus, while suitable habitat might occur in the project area, meaning high likelihood of occurrence of SCC, this coincides with threats to faunal communities. By association, this also means threats to the ecological processes facilitated by fauna, including trophic– (browsing, frugivory, predation), transport– (pollination, seed dispersal, nutrient dispersal), habitat architecture– (plant forms, path opening), and biopedturbation (digging, hoof action) processes. In thicket habitats, such as those of the project area, herbivory by large mammals is probably the most important driver of ecological patterns and processes. For example, herbivore feeding preferences are known to influence the abundance and distribution of plants, competitive interactions between plants, and seed dispersal patterns. Large herbivores also change plant community composition by trampling and enriching the soil with their dung (Kerley et al. 1995, Kerley & Landman 2006).*

*Because indigenous medium- and large-sized herbivore communities in the project area have all collapsed in response to various anthropogenic threats, the ecological processes facilitated by these species in particular are undoubtedly also disrupted.*

*For reptile SCC, probability of occurrence in the project area is expected to be relatively high given the presence of potentially suitable habitat and the fact that these species are not known to be vulnerable to the direct influences of humans. Although all the reptile SCC have restricted distribution ranges,*

these species are also generally common (Bates et al. 2013). However, probability of occurrence declines for the medium- and large-sized mammals and birds. That is, while potentially suitable habitat exists, populations of these species are vulnerable to habitat transformation and fragmentation, disturbances, and the direct influences of humans in close proximity of the project area.

### **Aquatic -**

The study area is within the lower catchment of the Coega River (Quaternary catchment M30B), close to the watershed with the adjacent Swartkops River (Quaternary catchment M10D). The site is situated within the Nelson Mandela Metropolitan Municipality near Port Elizabeth, in the Eastern Cape. Coega is a Nguni word that means 'ground water'. The area is underlain by an artesian aquifer that is formed by sandstones and quartzites of the Table Mountain Group and recharged from the Winterhoek Mountains to the north. This aquifer is, however, is unlikely to have any interaction with the aquatic features on the site. The topography at the site is generally flat.

The mean annual rainfall for the area is approximately 483 mm which is received throughout the year. The drier months are December and January when approx. 24 mm and 22 mm are received respectively. The months of late winter to spring; August, September and October, receive higher rainfall than the rest of the year, with an average monthly rainfall of 34 mm, 35 mm and 38 mm respectively. The area is relatively moderate with the monthly average day time midday temperature varying by only 5.9°C between the hottest month; February (25.2°C), and the coldest month; July (19.3°C). Winds are predominantly from the west and west-south-west (41% combined frequency) all year round, and from the east (15%) from October through to March.

The aquifer that occurs in the area is indicated to be a minor fractured aquifer with yields of 0.1 to 0.5 l/s and electrical conductivity of 150 to 370 mS/m. The average depth to the groundwater table is about 22 m below ground level. Recharge is approx. 11 mm/a. The aquifer is classified as having a medium to high susceptibility to contamination from anthropogenic activities. A groundwater assessment undertaken by SRK (2021) for this project, determined the groundwater levels in the area to be shallow (<4 mbgl) with the general drainage being towards the southeast and southwest.

The Coega and Swartkops Rivers are the most significant surface water features within the wider study area with the Coega River being approx. 7 km to the northeast of the site and the Swartkops River about 3 km to the southwest. The site is located on the plateau adjacent to the Coega River Catchment. Several small depression wetland areas or pans occur on the flat plateau between the two river systems. No wetland areas are mapped as occurring within the site.

Two sets of conservation mapping results are of relevance to the national and provincial identification of the ecological importance that has been attributed to the aquatic ecosystems in the study area: The National Freshwater Ecosystem Priority Areas map; and the Nelson Mandela Bay Municipality Critical Biodiversity Areas (CBA) map (that was a product of the Provincial Fine Scale mapping process undertaken at a local authority level).

FEPAs are intended to provide strategic spatial priorities for conserving South Africa's freshwater ecosystems and supporting the sustainable use of water resources and have been determined through a process of systematic biodiversity planning. The Coega River catchment is a Phase 2 FEPA river. Phase 2 FEPAs are considered to be moderately modified and should not be allowed to be degraded or modified further as they may need to be rehabilitated to meet biodiversity targets. The site largely falls outside of the Phase 2 FEPA river sub-catchment. Several pans occur on the plateau adjacent to the Coega River that is mapped as FEPA Wetland clusters. Some small depression wetlands are mapped to the east and west of the site. The closest wetland, approximately 270m east of the site, is mapped as part of the wetland cluster however it is within an area that has recently been developed. The proposed development is unlikely to impact the FEPA River status or the adjacent FEPA wetlands.

In terms of the CBA map, the larger catchment in which the Coega River and the adjacent wetland clusters are mapped is mapped as an aquatic CBA2. CBA2 areas should be maintained in a natural (or near-natural state if this is the current condition of the site) that secures the retention of biodiversity patterns and ecological processes. If land-use activities are unavoidable in these areas and depending on the condition of the site, set-aside areas must be designed in the layout and implemented. **The site falls outside of the CBA mapped area.**

It can thus be said that the proposed development is unlikely to impact the ecological integrity of the larger river and wetland systems mapped as being of aquatic biodiversity conservation value.

### **Geohydrology -**

According to the publication "The Geology of the Port Elizabeth-Uitenhage Area" by F.G le Roux of the Council for Geoscience (2000), the geology underlying the Site is mainly the Alexandria Formation of the Algoa Group. The Alexandria Formation is underlain by the older Sundays River Formation of the Uitenhage Group, which is exposed in the northern section of the Site.

The Alexandria Formation consists of alternating layers of calcareous sandstone, conglomerate and coquinite and has an average thickness of 9 m. The conglomerates contain pebbles and cobbles that

are set in a fine to medium-grained sand matrix. The coquinites are pebbly in places and consist of 70% invertebrate shell remains that is commonly recrystallised.

The Sundays River Formation comprises grey to bluish green mudstone, siltstone and sandstone. The thickest known intersection of this formation is 1 863 m near Addo.

According to the publication "An Explanation of the 1:500 000 General Hydrogeological Map of Port Elizabeth 3324" by P.S Meyer of the Department of Water Affairs and Forestry (1998), the Algoa Group aquifer (which includes the Alexandria Formation) is a unique intergranular aquifer, where water seeps through the porous, sandy and pebbly material until it comes into contact with underlying, usually impervious pre-Algoa rocks (e.g. the Sundays River Formation). From here, it moves in the basal Alexandria conglomerate towards the sea, where it may daylight as springs at the coast. There is hardly any build-up in groundwater level (due to its high permeability) and the water level encountered within the conglomerate is likely its true piezometric level.

A borehole yield analysis revealed that 60% of boreholes in this formation yields less than 0.5 L/s, which implies that 40% of boreholes yield more than 0.5 L/s.

Groundwater quality is generally regarded potable, with conductivity measuring <300 mS/m. Sodium, calcium and chloride often exceeds maximum recommended limits.

The water level in an intergranular aquifer, such as this one, is often directly dependent on rainfall and may change depending on the volumes of rainfall received.

According to the above-mentioned document, the Uitenhage Group (of which the Sundays River Formation forms a part) is a dense mass of rock with generally low permeability, with a limited groundwater potential. Many boreholes have been drilled unsuccessfully into this formation. The groundwater quality is also considered poor, with conductivity commonly measuring above 300 mS/m. Sodium, calcium, chloride and magnesium is also normally above the allowable limits for drinking water.

#### *Surface Water and Groundwater Drainage -*

Elevations range between 45 and 40 mamsl. Higher elevations are present towards the north of the Site, and lower elevations in the centre and towards the south. There are higher elevations of around 48 mamsl to the northwest and southeast of the Site.

Surface water will accumulate in the lowest lying areas, towards the centre and south of the Site.

Deeper groundwater will most likely move towards the Swartkops River in the southwest; and the sea in the southeast.

## **Heritage –**

*Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.*

*Most excavations on site are unlikely to have serious consequences for fossil heritage. As such, it is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.*

### **7. Identified Potential Impacts – Proposed Development**

*Direct, indirect, and cumulative impacts to the terrestrial and aquatic ecosystems and socio-economic environment that may arise during the construction and operational phases of the proposed development expansion has been considered and respective mitigation measures recommended. All recommended mitigation measures have been included in the CEMPr and OEMPr.*

#### **Impacts on the Aquatic Environment -**

*The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity. The wetland on the site will be modified and replaced with the proposed two new stormwater ponds within the site to meet the stormwater management requirements of the proposed development. Because the wetland on the site is artificial and has formed in the existing pond constructed to mitigate stormwater runoff from the currently developed area on the site, new wetland habitat will likely form within the new stormwater ponds proposed for the south and southwestern portions of the site. There would thus be no loss of wetland functionality (given that the primary wetland function is stormwater mitigation) or wetland habitat within the site. The surface area of the combined two new stormwater ponds is 0.5 ha, an increase from the existing 0.35 ha.*

*Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.*

*Identified Potential Impacts:*

- Modification of aquatic habitat (Construction Phase)*
- Disturbance and modification of aquatic habitat; flow modification (Operational Phase).*

*The following mitigation measures are recommended:*

- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;*
- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;*
- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and*
- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.*

#### *Impacts on Terrestrial Flora -*

*Based on the advantages and disadvantages of the development layout alternatives , the preferred layout will likely result in less severe environmental impacts due to the smaller area covered by the proposed footprint in comparison with the alternative layout . The advantages/disadvantages associated with the No-Go option (i.e., not proceeding with development) are based on current impacts that are likely to continue in the study area.*

*Construction Phase -*

- Clearing of Grassridge Bontveld impacting on plant SCC*
- Damage caused to individuals of plant SCC during vegetation clearance*
- Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance*

- *Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion*
- *Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime*
- *Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance*
- *Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching*

*Operational Phase -*

- *Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance*
- *Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site*

*The following mitigation measures are recommended:*

*Construction Phase -*

- *Limit vegetation clearing to areas within the approved development footprints.*
- *Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.*
- *Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.*
- *All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.*
- *Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) must be obtained from the relevant authorities.*
- *The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.*
- *Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.*

- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.
- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.
- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.
- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.
- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).
- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.
- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.
- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.
- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.
- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.
- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.
- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.
- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.
- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.

- Existing major roads should be used as transport corridors to and from the site.
- Operational Phase –
- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.
- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).
- Existing major roads should be used as transport corridors to and from the site.
- Speed limits for vehicles (< 40 km/h) must be implemented on site.

Impacts on Terrestrial Fauna -

- Disturbances on and mortalities of faunal species (Construction Phase)
- Loss and transformation of faunal habitats (Construction Phase)
- Disturbances on and mortalities of faunal species (Operational Phase)
- Loss and transformation of faunal habitats (Operation Phase)
- Disruption of ecological patterns and processes facilitated by fauna (Operation Phase)
- Habitat loss and transformation and impact on ecological processes (Cumulative)

The following mitigation measures are recommended:

Construction phase -

- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.
- Limit construction activities in sensitive Limestone bontveld habitats to a minimum
- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.

- *Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.*
- *Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.*
- *Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.*
- *Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.*
- *Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.*
- *Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.*
- *Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.*

Operational Phase:

- *Locate infrastructure in already transformed habitats as much as possible.*
- *Limit clearing of sensitive Limestone bontveld habitats to a minimum.*
- *Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.*
- *Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.*
- *Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.*

- *Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.*
- *Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.*
- *Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.*
- *Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.*
- *Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.*
- *Ensure strict poaching control.*
- *Exclude all domestic/feral dogs and cats.*
- *Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.*
- *Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-lighting to reduce light spill.*

Impacts on Geohydrology –

- *Pollution of groundwater (Operational Phase)*

*Due to the nature of the geological formations on which the fuel station will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high. It is advised that the pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact*

*with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.*

*The following mitigation measures are recommended:*

- Pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.*
- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.*
- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.*
- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.*

#### *Impact on Heritage Resources –*

- Destruction of heritage resources (Construction Phase)*

*Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.*

*It is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.*

*The following mitigation measures are recommended:*

No further heritage studies are recommended for this proposed development on condition that; should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified; and the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

## 7. Summary of Impact Assessment Findings -

Identified Potential Impact	Significance before Mitigation	Significance after Mitigation
<b>PREFERRED ALTERNATIVE</b>		
<b>A) AQUATIC ENVIRONMENT</b>		
A1) Modification of aquatic habitat (Construction Phase)	Low	Very Low
A2) Disturbance and modification of aquatic habitat; flow modification (Operational Phase)	Low	Very Low to negligible
<b>B) IMPACTS ON TERRESTRIAL FLORA</b>		
B1) Clearing of Grassridge Bontveld impacting on plant SCC	High	Medium
B2) Damage caused to individuals of plant SCC during vegetation clearance	High	Medium
B3) Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance	Low (+)	Medium (+)
B4) Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion	High	Low
B5) Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime	Medium	Negligible
B6) Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance	High	Low
B7) Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching	Medium	Negligible
B8) Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance	Medium	Low
B9) Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site	Medium	Low
<b>C) IMPACTS ON TERRESTRIAL FAUNA</b>		
C1) Disturbances on and mortalities of faunal species (Direct Impact)	Low	Very low
C2) Loss and transformation of faunal habitats (Indirect impact)	Medium	Low
C3) Disturbances on and mortalities of faunal species (Direct impact)	Low	Very low
C4) Loss and transformation of faunal habitats (Indirect impact)	Medium	Low
C5) Disruption of ecological patterns and processes facilitated by fauna (Indirect impact)	Low	Very low
<b>D) IMPACTS ON GEOHYDROLOGY</b>		
D1 – Pollution of groundwater (Operational Phase)	High	Low
<b>E) IMPACT ON HERITAGE RESOURCES</b>		
E1) Destruction of heritage resources (Construction Phase)	Low	Negligible
<b>F) SOCIO-ECONOMIC IMPACTS</b>		
F1) Noise nuisance caused by the operation of heavy construction vehicles on site	Negligible	Negligible
F2) Dust nuisance caused by the operation of heavy construction vehicles on site	Negligible	Negligible
F3) Contribution to job creation and economic development	High (+)	-

## **8. Environmental Impact Statement**

*It need to be noted that the site is part of a developed industrial area with development rights, as such densification and development of the area is expected based on sustainability principles and weighing all three impact pillars namely social, economic and environment. The project relate to a R 1.5 Billion investment into the area clearly providing for a massive socio-economic injection and benefit for the Eastern Cape. This is the expected output and purpose of industrial/commercial areas. Based on the advantages and disadvantages of the development layout alternatives ito the environmental context, the preferred layout will result in less severe environmental impacts due to better layout and site orientation and the smaller area covered with better internal ecological connectivity, providing for a search and rescue and landscape environment around the hard development footprint by the proposed footprint in comparison with the alternative rejected layout. The areas on the site not proposed for development as per preferred alternative is regarded as open areas to remain natural, where search and rescue fauna and flora can be planted or released. The advantages/disadvantages associated with the No-Go option (i.e., not proceeding with development) are based on current impacts that are likely to continue in the study area.*

*The most significant impacts on terrestrial flora relate to the direct and cumulative loss of Grassridge Bontveld vegetation and its associated SCC during the construction phase. In general, the proposed development is likely to have moderate potential to negatively impact on terrestrial biodiversity and plant SCC in the study area as most potential impacts were evaluated to be of Low and Medium significance following the implementation of appropriate mitigation measures. The implementation of an AIP management plan, which is recommended as a mitigation measure, will further have a positive impact on the terrestrial biodiversity and plant species on site.*

*The proposed development will likely influence faunal species, the habitats that they occupy, and the ecological processes facilitated by these species. Of the 333 faunal species that potentially occur naturally in the vicinity of the project area, nine (four reptiles, four birds, and a single mammal species) are SCC. While the Limestone bontveld habitats occurring in the fenced portion of the project area likely support SCC, its distribution is fragmented beyond the site, meaning fragmented faunal communities. Additionally, current threats to fauna and faunal-mediated processes in these habitats are diverse, reducing the sensitivity of the project area for fauna. Potential impacts from the proposed project on fauna may, therefore, be within acceptable limits, provided that the appropriate mitigation measures are applied.*

*While the preferred project layout makes provision for minimising impacts on sensitive faunal habitats, it will also be important to reduce current threats to ensure the long-term persistence of the remaining bontveld ecosystem. This may, in part, be achieved through the continuous removal of alien invasive plants. The alternative (i.e., not controlling alien invasives) will likely lead to increased habitat transformation and fragmentation.*

*The Species Environmental Assessment Guidelines (SANBI 2020) recommends that for Endangered or Vulnerable species, in particular, no further loss of habitat should be permitted as the species are likely to go extinct in the near future if current pressures continue. Because the likely presence of these species in the project area could only be inferred from the available suitable habitat and broad records of occurrence, appropriate habitat exclusion buffers (i.e., No-Go buffers) could not be applied for the project area. Furthermore, because the presence of sensitive species is not confirmed, population sizes are not known, and accurate spatial information on the geographic distribution of these species is often not available (important when evaluated against the availability of potentially suitable habitat within the project area), calculation of the Site Ecological Importance (as per the Species Assessment Guidelines) is problematic.*

*Nevertheless, through appropriate mitigation, both the direct and indirect impacts of the proposed project on fauna can be kept to a minimum. Risks to faunal species as a result of the specific activity may, therefore, be expected to be low.*

*The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity.*

*Provided the recommended mitigation measures are implemented, the potential aquatic ecosystem impacts and the risks of the proposed development altering the integrity of the artificial depression wetland would be low to very low such that the proposed activities could be approved in terms of the General Authorisation for Section 21(c) and (i) water use activities.*

*In terms of the geohydrology, the Site is underlain by geological formations that carries shallow groundwater, and shallow water levels have been measured on Site. Therefore, the perceived risk to groundwater contamination is high. There are no known significant groundwater users currently in the immediate area around the Site. Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions. It is*

*standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected. If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.*

*No further heritage studies are recommended for this proposed development on condition that; should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified; and the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.*

*All nuisance impacts on the surrounding environment will be reduced to acceptable levels through implementing the recommended mitigation measures.*

*The proposed development will have a high positive significant impact on the socio-economic environment through job creation and economic development.*

***It is recommended that the proposed development is approved on condition that recommended mitigation measures are implemented.***

## TABLE OF CONTENTS

SECTION A:	ACTIVITY INFORMATION.....	2
SECTION B:	SITE/AREA/PROPERTY DESCRIPTION.....	16
SECTION C:	PUBLIC PARTICIPATION.....	22
SECTION D:	IMPACT ASSESSMENT.....	25
SECTION E:	RECOMMENDATIONS OF PRACTITIONER.....	72

## LIST OF FIGURES

FIGURE 1:	Locality Plan.....	2
FIGURE 2:	Proposed SDP.....	4
FIGURE 3:	Proposed and existing diesel storage.....	4
FIGURE 4:	Alternative layout (Rejected).....	5
FIGURE 5:	Proposed Access Points.....	8
FIGURE 6:	The assessed development footprint and no-go area.....	34

## APPENDICES

Appendix A:	Locality Plan
Appendix B:	Photographs
Appendix C:	Facility illustration(s)
Appendix D:	Specialist reports
	Appendix D-1: Aquatic Specialist Impact Assessment Report
	Appendix D-2: Terrestrial Flora Specialist Impact Assessment Report
Appendix D-3:	Terrestrial Fauna Specialist Impact Assessment Report
Appendix D-4:	Geohydrology Specialist Impact Assessment Report
Appendix D-5:	Geotechnical Report
Appendix D-6:	Heritage Screener and Fossil Finds Procedure
Appendix D-7:	Engineer Services Report
Appendix D-8:	TIA
Appendix D-9:	Stormwater Management Plan
Appendix E:	Public Participation Information – To be included after public participation

Appendix F: Environmental Management Programme (EMPr)

Appendix F1: CEMPr

Appendix F2: OEMPr

Appendix G: Municipal Confirmation of services

Appendix H: Specialist Declarations

Appendix I: Impact Assessment Methodology

## **ACRONYMS**

BA	-	Basic Assessment
CLO	-	Community Liaison Officer
CV	-	Curriculum Vitae
EA	-	Environmental Authorisation
EAP	-	Environmental Assessment Practitioner
ECPHRA	-	Eastern Cape Provincial Heritage Resources Authority
EIA	-	Environmental Impact Assessment
EMPr	-	Environmental Management Programme
DEDEAT	-	Department of Economic Development, Environmental Affairs & Tourism
DWS	-	Department of Water and Sanitation
HIA	-	Heritage Impact Assessment
I&AP	-	Interested and Affected Party
NEMA	-	National Environmental Management Act (Act 107 of 1998)
NFEPA	-	National Freshwater Ecosystem Priority Area
NWA	-	National Water Act (Act 36 of 1998)
PES	-	Present Ecological State
SAHRIS	-	South African Heritage Resources Information System
WMA	-	Water Management Area
WULA	-	Water Use Licence Application

## BASIC ASSESSMENT REPORT

(For official use only)

File Reference Number:

NEAS Number:

Date Received:


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

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### Kindly note that:

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

## SECTION A: ACTIVITY INFORMATION

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

YES x

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

Any specialist reports must be contained in Appendix D. (Refer to Appendix D for all specialist studies)

### 1. ACTIVITY DESCRIPTION

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

#### **Expansion of the existing Shoprite Checkers Distribution Centre situated on Erf 8741, Wells Estate, Eastern Cape Province.**

PHS Consulting has been appointed by Shoprite Checkers (Pty) Ltd for the Application for Environmental Authorisation (Basic Assessment) for the expansion of the existing Shoprite Checkers Distribution Centre situated on Erf 8741 Wells Estate, located approximately 15 kilometres north from the CBD of Gqeberha, east of Motherwell and west of the Coega IDZ. The property is traversed by the R102 (the Old Grahamstown Road) and M Kaulela Street (**Figure 1 and Appendix A**). Erf 8741 is owned by Shoprite Checkers (Pty) Ltd (Reg. Nr. 1929/001817/07) and comprise 82 ha. The total size of the proposed development expansion footprint is approximately 19 ha.



**Figure 1: Locality Plan**

The proposed development expansion will entail additions and alterations to the existing distribution centre, including a new office building, new workshop and truck wash, new guardhouses and additions to the dry goods warehouse; returns warehouse and perishables warehouse (**Figure 2 and Appendix C**) including the installation of additional subsurface diesel storage containers (4x 83 000l tanks) (**Figure 3 and Appendix C**). The existing 78 000l diesel tank on site will not be decommissioned. The combined volume of all diesel storage containers on site will be less than 500,000 litres. The existing development on site has access to water; sewer; electrical; and waste removal services (**Refer to Appendix G: Mun Confirmation of Services**).

Access to the property will be gained from the Old Grahamstown Road (R102). The proposed access will be directly opposite M. Kaulela Street. The existing access south of M. Kaulela Street will remain open for access to the staff and visitors car park. An emergency road is proposed from the R102 Old Grahamstown Road at a point approximately 430 m south of the proposed staff access. This access will remain closed and will only be used in an emergency (**Refer to Appendix D-8: TIA**).

Stormwater management will entail the provision for subsoil drains to address the shallow groundwater table that could be encountered during construction. The proposed subsoil network will consist of 110 mm diameter perforated pipes connecting to the stormwater system. Stormwater run-off from the impervious areas will be routed via roadside channels, as well as low points with inlets towards the underground stormwater pipe network into the attenuation facilities, located on the western and southern boundary of the site. The internal stormwater system consists mainly of an underground gravity pipe and culvert network, Q-drain channels, roadside channels in the parking area and inlet structures that drain the roads and marshaling yards. This system was designed to have sufficient capacity to convey a 1:5-year rainfall event. During rainfall events with a return period larger than 1:5-years, the proposed roads, marshaling yards, parking areas and channels will act as overland flow routes that will channel, attenuate and ultimately discharge the surface runoff via predetermined escape routes into the attenuation facilities. The design of these dams will make allowance to adequately manage the 1:50-year rainfall event. Two stormwater attenuation facilities/dams will be constructed on the south and western boundaries of the site and will operate as a dry extended detention facility. The attenuation dam outlets will be connected to the existing stormwater channel to the southeast of the site. The outlet capacity of the attenuation dams will be capped at 1400l/s by limiting the outlet pipe sizing. Note that the existing dam will be incorporated into the new dam design (**Refer to Appendix D-9: Stormwater Management Plan**).

The layout of the proposed development takes into consideration all recommendations made by the various specialists and aims to limit the impact on the 'sensitive flora area' as far as possible. The proposed layout is



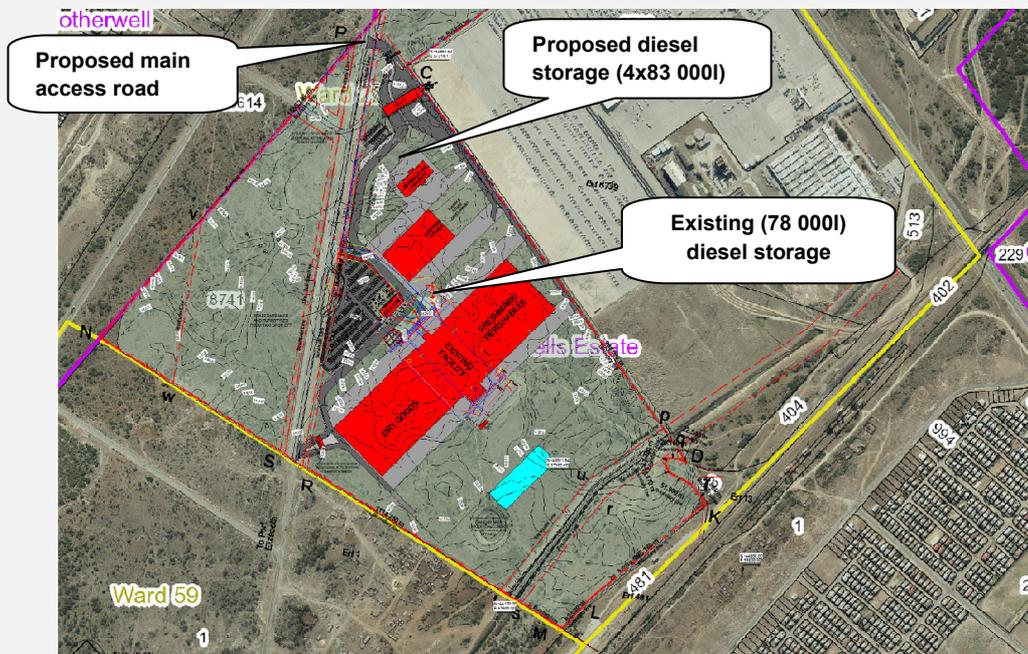
**Rejected Alternative (Footprint area 19.5ha)–**

The following Alternative layout and site access has been considered:

The Alternative layout (rejected) comprise additions and alterations to the existing distribution centre, including a new office building, new workshop and truck wash, new guardhouses and additions to the dry goods warehouse; returns warehouse and perishables warehouse (**Figure 4 and Appendix C**) including the installation of additional subsurface diesel storage containers (4x 83 000l tanks). The existing 78 000l diesel tank will not be decommissioned. The combined volume of all containers on site will be less than 500,000 litres.

Access to the property will be gained from the Old Grahamstown Road (R102). The proposed access will be located north of the M. Kaulela Street intersection. A second access road is proposed (south of M. Kaulela Street) from the R102 Old Grahamstown Road for access to the staff and visitors car park.

Although the impacts of the rejected alternative is similar in nature to the proposed development, this alternative is rejected due to the positioning of the ‘Drygoods’ and ‘Freshmark’ buildings which occupy a larger portion of the ‘sensitive terrestrial flora’ area. Furthermore the proposed stormwater management pond is rejected as it does not utilise the existing stormwater pond on site and its design (shape/hard edges) is not sensitive to its environment. The proposed access is rejected seeing that it is not adequate in terms of capacity and safety.



**Figure 4: Alternative layout (Rejected)**

**2. FEASIBLE AND REASONABLE ALTERNATIVES**

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

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

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

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

**3. ACTIVITY POSITION**

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

List alternative sites if applicable.

	Latitude (S):		Longitude (E):	
<b>Alternative:</b> Alternative S1 <sup>1</sup> ( <b>preferred and only site alternative</b> )	33°	49.043'	25°	37.206'
Alternative S2 (if any)				
Alternative S3 (if any)				

**In the case of linear activities: Not Applicable**

	Latitude (S):		Longitude (E):	
<b>Alternative:</b> Alternative S1 (preferred or only route alternative)				
• Starting point of the activity				

<sup>1</sup> “Alternative S..” refer to site alternatives.

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


Alternative S2 (if any)

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


Alternative S3 (if any)

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


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

#### 4. PHYSICAL SIZE OF THE ACTIVITY

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

**Alternative:**

Alternative A1<sup>2</sup> (Preferred)

Alternative A2 (Rejected)

Alternative A3 (if any) **Not Applicable**

**Size of the activity:**

19 ha
19.5 ha

or, for linear activities: **Not Applicable**

**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

**Length of the activity:**

--

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

**Alternative:**

Alternative A1 (Preferred)

Alternative A2 (Rejected)

Alternative A3 (if any) **Not Applicable**

**Size of the site/servitude:**

82 ha
82 ha

#### 5. SITE ACCESS

Does ready access to the site exist?

YES x	
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<sup>2</sup> "Alternative A.." refer to activity, process, technology or other alternatives.



## **6. SITE OR ROUTE PLAN**

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

The site or route plans must indicate the following:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
  - rivers;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.10 the positions from where photographs of the site were taken.

## **7. SITE PHOTOGRAPHS**

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

## **8. FACILITY ILLUSTRATION**

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

**9. ACTIVITY MOTIVATION**

**9(a) Socio-economic value of the activity**

What is the expected capital value of the activity on completion?	Approx. R1.5 Bn
What is the expected yearly income that will be generated by or as a result of the activity?	Currently unknown
Will the activity contribute to service infrastructure?	NO x
Is the activity a public amenity?	NO x
How many new employment opportunities will be created in the development phase of the activity?	Approx. 200
What is the expected value of the employment opportunities during the development phase?	Approx. R8m
What percentage of this will accrue to previously disadvantaged individuals?	50%
How many permanent new employment opportunities will be created during the operational phase of the activity?	Currently unknown.
What is the expected current value of the employment opportunities during the first 10 years?	Currently unknown.
What percentage of this will accrue to previously disadvantaged individuals?	96.85%

**9(b) Need and desirability of the activity**

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

The proposed development is in line with the NMBM Spatial Development Framework (2009), which identifies the site for Industrial use. Erf 409 was registered in 1965 for industrial use and has been developed/utilised for industrial purposes with an Industrial II zoning that involved continued industrial expansion on the property since 1965. In 2011 Erf 409 was subdivided (Erven 8741; 8740 and 8739) and the erven maintained the Industrial II zoning from the mother Erf. Erf 8741 forms part of the built up area as such it is regarded as inside the urban area as per NEMA definition.

The earliest development evident according to available historic aerial photography is before 1971 with the establishment of the now GM SA facility (now located on Erf 8740 and 8739) which has expanded over the

years and now covers the entire extent of these Erven. The Current Checkers DC facility located on Erf 8741 was constructed in 2012 with no further development since then.

The proposed development will result in substantial investment in the area and will provide numerous employment opportunities which are required in this region. Beyond the sizable investment into the Gqebeha economy, the project will create employment opportunities during construction, and when completed an approximately 1 500 permanent job opportunities are expected to be created within the completed facility.

In addition to the above, there will also be indirect employment opportunities related Maintenance and Catering, which could be in the order of 50 -100 staff.

The proposed development will not contradict or conflict with the municipal IDP and SDF as the proposed site occurs within an industrial area.

The development will entail the expansion of an existing facility within in urban areas for which access and services are currently available.

There is a definite need for the proposed activity given the magnitude of the development and positive economic impact for the Nelson Mandela Bay Metro as a whole.

Various specialists assessed the site and the potential impacts associated with the proposed expansion and found that all identified impacts could be mitigated to acceptable levels. All recommended mitigation measures have been included in the CEMPr and OEMPr.

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

According to the NMBM IDP (2021), Nelson Mandela Bay Municipality continues to suffer the consequences of the most persistent drought in its history coupled with the impacts of the COVID-19 pandemic which began in early 2020. The impacts are exacerbated by the fact that the City has high levels of poverty, joblessness, homelessness, a declining fiscus caused inter alia by decreased grant funding from National Treasury as well as a weakened national and local economy. Job creation and restoring the economy has been identified as a key priority. Emphasis is placed on economic turnaround through inter alia, the creation of an enabling environment for private sector investments to create jobs.

Spatial targeting and the elimination of spatial inequalities, as envisaged in the National Development Plan, is an underlying principle of the Urban Network approach, hence the focus of the IDP on the catalytic development of under-serviced city areas. The Urban Network Strategy identifies a number of network elements (CBD, hubs, growth areas) and allows for the identification of Integration Zones that link CBDs and hubs in which catalytic development is encouraged. Wells Estate, amongst other areas, has been identified as a growth area (secondary urban hub).

The proposed development will have a positive local and regional economic impact, benefiting society in general.

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

The benefit for local communities associated with the proposed development will mainly be economic / job creation as detailed above.

### 10. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:

Administering authority: Date:

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act No. 107 of 1998) (NEMA):	DEDEA	1998 as amended
EIA Regulations, 2014, promulgated in terms of NEMA	DEDEA	2014 as amended
National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	DEFF	2004 as amended
National Heritage Resources Act (Act No. 25 of 1999) (NHRA)	SAHRA	1999 as amended
National Water Act (Act No. 36 of 1998) (NWA)	DWS	1998 as amended
Nelson Mandela Bay Municipality By-Laws	NMBM	-
EC Vision 2030 – Provincial Development Plan	NMBM	2014
Metropolitan Spatial Development Framework (MSDF)	NMBM	2015
Nelson Mandela Bay Municipal Bioregional Plan	NMBM	2016
Nelson Mandela Bay Municipal IDP	NMBM	2021
EC Biodiversity Conservation Plan	DEDEA	2017

### 11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

#### 11(a) Solid waste management

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

YES x	
-------	--

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

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

Construction waste to be removed from site and disposed of at the nearest approved waste disposal facility.

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

Construction waste to be removed from site and disposed of at the nearest approved waste disposal facility.

Will the activity produce solid waste during its operational phase?

YES x

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

Waste Stream	Annually (Tons)
General Waste (landfill)	626
Wet Waste (landfill)	242
Total Cardboard (recycled)	7816
Total Plastic (recycled)	1051

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

General and wet waste to be removed from site and disposed of at the nearest approved waste disposal facility.

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

Cardboard and plastic waste to be removed from site and disposed of at the nearest approved recycling facility.

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

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

NO x

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

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

NO x

If yes, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. **Not Applicable**

### 11(b) Liquid effluent

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

NO x

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

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

NO x

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. **Not Applicable**

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

	NO x
--	---------

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

Postal code:

Telephone:

Cell:

E-mail:

Fax:

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

--

**11(c) Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

	NO x
--	---------

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

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

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

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**11(d) Generation of noise**

Will the activity generate noise?

YES x	
	NO x

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

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

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

Anticipated noise is related to construction vehicles during the construction phase and delivery vehicles during the operational phase.

During the construction phase, the anticipated noise level at the adjacent properties will be approximately 50 dBA when all the construction machinery will be operational which is highly unlikely and thus the noise level is expected to be lower and thus at an acceptable level.

During the operational phase the only source of noise will be due to additional delivery vehicles accessing the DC. Noise impact significance during the operational phase is expected to be low after mitigation due to the property being located within an industrial area and the distance from residential areas.

## 12. WATER USE

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

<b>Municipal</b> x	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

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

**Registration of a  
General Authorisation  
is applicable.**

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

Note that a Water Use Licence will not be required in terms of the National Water Act, 1998 (NWA). The Act aims to regulate the use of water and activities (as defined in Part 4, Section 21 of the NWA), which may impact on water resources through the categorisation of 'listed water uses' encompassing water abstraction and flow attenuation within catchments as well as the potential contamination of water resources, where the DWS is the administering body in this regard. The water uses most likely to be associated with the proposed activities are as follows:

- *Section 21(c) - Impeding or diverting flow of water in a watercourse.* Works adjacent to the artificial wetland (SW pond) is likely to trigger this water use.
- *Section 21(i) - Altering the bed, banks, course or characteristics of a watercourse.* Any works within or adjacent to any of the mapped aquatic features is likely to trigger this water use.

The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity.

Provided the recommended mitigation measures are implemented, the potential aquatic ecosystem impacts and the risks of the proposed development altering the integrity of the artificial depression wetland would be low to very low such that the proposed activities could be approved in terms of the **General Authorisation** for Section 21(c) and (i) water use activities.

### 13. ENERGY EFFICIENCY

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

The Applicant undertakes the following:

- Obtain EDGE Green Building Certification.
- Compliance with the South African National Standards (SANS) 10400-XA (minimum requirements of the South African National Building Regulations on energy efficiency and environmental sustainability in building design).

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

The proposed development will include x 1 KVA PV installation.

## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

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

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



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

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

YES x	<input checked="" type="checkbox"/>
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If YES, please complete form XX for each specialist thus appointed:

All specialist reports must be contained in Appendix D.

### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

**Alternative S1:**

The site has a flat cross fall of approximately 0.25% on average to the south-east. The highest portion of the site is situated at the northern corner with a mean sea level of approximately 44,5 AMSL; whilst the lowest part of the site is situated in the south-eastern corner with an approximate low point of 41 AMSL.

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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**Alternative S2 (if any): Not Applicable**

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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**Alternative S3 (if any): Not Applicable**

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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### 2. LOCATION IN LANDSCAPE

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

- 2.1 Ridgeline
- 2.2 Plateau
- 2.3 Side slope of hill/mountain
- 2.4 Closed valley
- 2.5 Open valley

**2.6 Plain**

- 2.7 Undulating plain / low hills
- 2.8 Dune
- 2.9 Seafront

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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

#### 4. GROUNDCOVER

Indicate the types of groundcover present on the site:

4.1 Natural veld – good condition <sup>E</sup>

**4.2 Natural veld – scattered aliens** <sup>E</sup>

4.3 Natural veld with heavy alien infestation <sup>E</sup>

4.4 Veld dominated by alien species <sup>E</sup>

4.5 Gardens

4.6 Sport field

4.7 Cultivated land

**4.8 Paved surface**

**4.9 Building or other structure**

4.10 Bare soil

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

Natural veld - good condition <sup>E</sup>	<b>Natural veld with scattered aliens<sup>E</sup></b>	Natural veld with heavy alien infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup>	<b>Gardens</b>
Sport field	Cultivated land	<b>Paved surface</b>	<b>Building or other structure</b>	Bare soil

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

## 5. LAND USE CHARACTER OF SURROUNDING AREA

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

**5.1 Natural area** – The development property is bounded by undeveloped areas to the north, west and south. Specialist studies confirmed no impact on these areas. The development property is bounded by vacant industrial sites with heavily degraded natural areas used as informal dumpsites to the north, to the west is informal farming and housing with some open degraded natural areas to the south is channel pipe and road infrastructure. Specialist studies confirmed no impact on these areas.

5.2 Low density residential

**5.3 Medium density residential** – The Motherwell residential area is located north-west of the application property. The residential area will not impact on the proposed development. Due to the nature of the proposed expansion and the “Industrial” zoning of the property, the proposed development will not impact on the residential area.

**5.4 High density residential** - The Motherwell residential area is located north-west of the application property. The residential area will not impact on the proposed development. Due to the nature of the proposed expansion and the “Industrial” zoning of the property, the proposed development will not impact on the residential area.

**5.5 Informal residential** - The informal farming area to the west consist of some informal residential structures.

**5.6 Retail commercial & warehousing** – The Isuzu Motors Technical Centre is located adjacent to the development property to the north-east. Due to the nature of the proposed development and the industrial zoning of the area, the proposed expansion will not have an impact on the neighbouring facility. Similarly the proposed expansion will not impact on the neighbouring facility.

**5.7 Light industrial** – Industrial development located north-east of the development site, within the Markman industrial area will not impact on the proposed expansion and vice versa.

5.8 Medium industrial<sup>AN</sup>

5.9 Heavy industrial<sup>AN</sup>

5.10 Power station

5.11 Office/consulting room

5.12 Military or police base/station/compound

5.13 Spoil heap or slimes dam<sup>A</sup>

5.14 Quarry, sand or borrow pit – **There is a quarry located 1.6 km west of the site.**

5.15 Dam or reservoir

5.16 Hospital/medical centre

5.17 School

5.18 Tertiary education facility

5.19 Church

5.20 Old age home

5.21 Sewage treatment plant<sup>A</sup>

5.22 Train station or shunting yard<sup>N</sup>

**5.23 Railway line<sup>N</sup>** – Transnet railway line located to the south of the industrial area/ property will not be impacted on by the proposed development and vice versa.

**5.24 Major road (4 lanes or more)<sup>N</sup>** – The R335 runs along the north-eastern property boundary – No impact. Access will be gained from the R102, located along the north and north-eastern boundaries of the development. No impact as confirmed in the TIA.

5.25 Airport<sup>N</sup>

5.26 Harbour

5.27 Sport facilities

5.28 Golf course

5.29 Polo fields

5.30 Filling station<sup>H</sup>

5.31 Landfill or waste treatment site - **Informal landfill and dumping occur to the north of the site.**

5.32 Plantation

5.33 Agriculture

5.34 River, stream or wetland

5.35 Nature conservation area

5.36 Mountain, koppie or ridge

5.37 Museum

5.38 Historical building

5.39 Protected Area

5.40 Graveyard

5.41 Archaeological site

5.42 Other land uses (describe)

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

**See above.**

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity. **Not Applicable.**

If YES, specify and explain:

If YES, specify:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity. **Not Applicable.**

If YES, specify and explain:

If YES, specify:

6. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or palaeontological sites, on or close (within 20m) to the site?

	NO x
--	------

If YES, explain:

**Not Applicable.**

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

Briefly explain the findings of the specialist:

Heritage Specialist findings:

- Based on the extensively disturbed nature of the area proposed for development as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.
- It is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.
- No further heritage studies are recommended for this proposed development on condition that:
  - Should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.
  - The Chance Finds Procedure must be adopted and implemented throughout the construction phase of the development.

**Note that a Heritage Screener has been submitted to SAHRA on SAHRIS. No comment received to date. SAHRA has been identified as an I&AP and will be afforded the opportunity to comment on the DBAR.**

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

	NO x
--	------

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

	NO x
--	------

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

## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT

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

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

### 2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

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

### **3. PLACEMENT OF ADVERTISEMENTS AND NOTICES**

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

Advertisements and notices must make provision for all alternatives.

### **4. DETERMINATION OF APPROPRIATE MEASURES**

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

### **5. COMMENTS AND RESPONSE REPORT**

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

### **6. AUTHORITY PARTICIPATION**

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

List of authorities informed:

This Report is the Draft BAR, thus this section will only be completed after public participation.

The following authorities have been identified –

- EC Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) (Competent Authority)
- The Nelson Mandela Bay Metropolitan Municipality (various relevant departments)
- National Department of Water and Sanitation
- The South African Heritage Resources Agency (SAHRA)
- Transnet Ltd
- Ward (23) Councillor
- EC Department of Public Works

List of authorities from whom comments have been received:

This Report is the Draft BAR, thus this section will only be completed after public participation.

## 7. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

Has any comment been received from stakeholders?

NO x

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

This Report is the Draft BAR, thus this section will only be completed after public participation.

## SECTION D: IMPACT ASSESSMENT

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

### 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

This Report is the Draft BAR, thus this section will only be completed after public participation.

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

This Report is the Draft BAR, thus this section will only be completed after public participation.

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

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

#### 1. PREFERRED ALTERNATIVE

This assessment considers direct, indirect, and cumulative impacts to the natural and socio-economic environment that may arise during the construction and operational phases of the proposed development/expansion. Each of the impacts are explained below along with respective mitigation measures, and results of the impact assessment are provided in Table 1.

#### A – IMPACTS ON THE AQUATIC ENVIRONMENT (Refer to Appendix D-1)

The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity. The wetland on the site will be modified and replaced with the proposed two new stormwater ponds within the site to meet the stormwater management requirements of the proposed development. Because the wetland on the site is artificial and has formed in the existing pond constructed to mitigate stormwater runoff from the currently developed area on the site, new wetland habitat will likely form within

the new stormwater ponds proposed for the south and southwestern portions of the site. There would thus be no loss of wetland functionality (given that the primary wetland function is stormwater mitigation) or wetland habitat within the site. The surface area of the combined two new stormwater ponds is 0.5 ha, an increase from the existing 0.35 ha.

Wetland habitat within the new stormwater infrastructure at the site should be created to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

**Identified Potential Impacts:**

**A1) Modification of aquatic habitat (Construction Phase)**

**A2) Disturbance and modification of aquatic habitat; flow modification (Operational Phase)**

**The following mitigation measures are recommended:**

- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;
- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;
- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and
- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

Provided the recommended mitigation measures are implemented, the potential aquatic ecosystem impacts and the risks of the proposed development altering the integrity of the artificial depression wetland would be low to very low such that the proposed activities could be approved in terms of the General Authorisation for Section 21(c) and (i) water use activities.

**B – IMPACTS ON TERRESTRIAL FLORA (Refer to Appendix D-2)**

Based on the advantages and disadvantages of the development layout alternatives , the preferred layout will likely result in less severe environmental impacts due to the smaller area covered by the proposed footprint in comparison with the alternative layout . The advantages/disadvantages associated with the No-Go option (i.e., not proceeding with development) are based on current impacts that are likely to continue in the study area.

**Construction Phase -**

**B1) Clearing of Grassridge Bontveld impacting on plant SCC**

**B2) Damage caused to individuals of plant SCC during vegetation clearance**

**B3) Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance**

**B4) Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion**

**B5) Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime**

**B6) Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance**

**B7) Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching**

**Operational Phase -**

**B8) Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance**

**B9) Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site**

**The following mitigation measures are recommended:**

**Construction Phase -**

- Limit vegetation clearing to areas within the approved development footprints.
- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.
- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.
- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.
- Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) must be obtained from the relevant authorities.
- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.
- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.
- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.
- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.
- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.

- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.
- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).
- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.
- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.
- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.
- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.
- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.
- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.
- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.
- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.
- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.
- Existing major roads should be used as transport corridors to and from the site.

#### Operational Phase –

- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.
- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).
- Existing major roads should be used as transport corridors to and from the site.
- Speed limits for vehicles (< 40 km/h) must be implemented on site.

The most significant impacts relate to the direct and cumulative loss of Grassridge Bontveld vegetation and its associated SCC during the construction phase. In general, the proposed development is likely to have moderate potential to negatively impact on terrestrial biodiversity and plant SCC in the study area as most potential impacts were evaluated to be of Low and Medium significance following the implementation of appropriate mitigation

measures. The implementation of an AIP management plan, which is recommended as a mitigation measure, will further have a positive impact on the terrestrial biodiversity and plant species on site. Therefore, it is the terrestrial biodiversity and plant species specialists' opinion that the development project may be approved, but only if mitigations are stringently implemented and this is verified by an appointed Environmental Control Officer or similarly qualified person.

## **C – IMPACTS ON TERRESTRIAL FAUNA (Refer to Appendix D-3)**

**C1) Disturbances on and mortalities of faunal species (Construction Phase)**

**C2) Loss and transformation of faunal habitats (Construction Phase)**

**C3) Disturbances on and mortalities of faunal species (Operational Phase)**

**C4) Loss and transformation of faunal habitats (Operation Phase)**

**C5) Disruption of ecological patterns and processes facilitated by fauna (Operation Phase)**

**C6) Habitat loss and transformation and impact on ecological processes (Cumulative)**

### **The following mitigation measures are recommended:**

Construction phase -

- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.
- Limit construction activities in sensitive Limestone bontveld habitats to a minimum
- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.
- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.

- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.

Operational Phase:

- Locate infrastructure in already transformed habitats as much as possible.
- Limit clearing of sensitive Limestone bontveld habitats to a minimum.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.
- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.
- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.
- Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.
- Ensure strict poaching control.
- Exclude all domestic/feral dogs and cats.
- Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.
- Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-lighting to reduce light spill.

## **D – IMPACTS ON GEOHYDROLOGY (Refer to Appendix D-4)**

### **D1 – Pollution of groundwater (Operational Phase)**

Due to the nature of the geological formations on which the fuel storage will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high. It is advised that the pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.

#### **The following mitigation measures are recommended:**

- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.
- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.
- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.

## **E – IMPACT ON HERITAGE RESOURCES (Refer to Appendix D-6)**

### **E1) Destruction of heritage resources (Construction Phase)**

Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.

It is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

#### **The following mitigation measures are recommended:**

- No further heritage studies are recommended for this proposed development on condition that; should any

archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified; and the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

**Table 1: Impact Assessment Table**

<b>PREFERRED ALTERNATIVE</b>	
<b>A. AQUATIC ENVIRONMENT</b>	
<b>A1) Modification of aquatic habitat (Construction Phase)</b>	
<b>Impact Description</b>	The wetland on the site will be modified and replaced with the proposed two new stormwater ponds within the site to meet the stormwater management requirements of the proposed development. This will require Infilling and shaping of the site and the stormwater ponds for development.
<b>Intensity</b>	Medium to low
<b>Duration</b>	Short Term
<b>Extent</b>	Localised
<b>Probability</b>	Definite
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;</li> <li>- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;</li> <li>- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and</li> <li>- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.</li> </ul>
<b>Indirect Impacts</b>	-
<b>Cumulative</b>	<b>Low</b>

<i>Impact prior to mitigation</i>	
<i>Cumulative impact post mitigation</i>	Very Low to insignificant
<b>A2) Disturbance and modification of aquatic habitat; flow modification (Operational Phase)</b>	
<i>Impact Description</i>	Disturbance and modification of aquatic habitat; flow modification caused by Stormwater run-off generated on-site.
<i>Intensity</i>	Low
<i>Duration</i>	Short Term
<i>Extent</i>	Localised
<i>Probability</i>	Possible
<i>Reversibility</i>	Medium
<i>Significance before Mitigation</i>	Low
<i>Significance after mitigation</i>	Very Low to Insignificant
<i>Mitigation measures</i>	Wetland habitat within the new stormwater infrastructure at the site should be created to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.
<i>Indirect Impacts</i>	Facilitating the spread of alien vegetation
<i>Residual Impacts</i>	Aquatic habitat modification
<i>Cumulative impact prior to mitigation</i>	Low
<i>Cumulative impact prior to mitigation</i>	Very Low to insignificant
<b>B - IMPACTS ON TERRESTRIAL FLORA</b>	
<b>Construction phase (Direct Impacts)-</b>	
<b>B1) Clearing of Grassridge Bontveld impacting on plant SCC</b>	
<i>Impact Description</i>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by clearing.
<i>Intensity</i>	High

<b>Duration</b>	Permanent
<b>Extent</b>	Site specific
<b>Probability</b>	Definite
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit vegetation clearing to areas within the approved development footprints.</li> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.</li> <li>- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.</li> <li>- Permits for the destruction of protected plant species (SCC and Sideroxyloninerm) must be obtained from the relevant authorities.</li> <li>- The No-Go area must be excluded from development and managed for conservation (Figure 6).</li> </ul>



**Figure 6: The assessed development footprint and No-Go area to be set aside for**

	<b>conservation at the site. Also indicated is the general area into which rescued plant SCC must be translocated.</b>
<b>B2) Damage caused to individuals of plant SCC during vegetation clearance</b>	
<b>Impact Description</b>	Individuals of plant SCC (including three threatened species) will be negatively affected by destruction or damage caused during vegetation clearing.
<b>Intensity</b>	High
<b>Duration</b>	Permanent
<b>Extent</b>	Site-specific
<b>Probability</b>	Definite
<b>Reversibility</b>	Irreversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Permits for the removal and translocation of plant SCCs should be obtained from the appropriate authorities.</li> <li>- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species <i>Bergeranthus addoensis</i>, <i>Corpuscularialeh mannii</i> and <i>Rhombophyllum rhomboideum</i>.</li> <li>- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose (Figure 6).</li> <li>- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.</li> <li>- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.</li> <li>- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.</li> <li>- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).</li> </ul>
<b>B3) Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance</b>	
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including three threatened species) will be positively affected by destruction of alien invasive plants (AIP) during vegetation clearing.
<b>Intensity</b>	Low
<b>Duration</b>	Permanent

<b>Extent</b>	Site specific
<b>Probability</b>	Almost certain
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	Low (+)
<b>Significance after mitigation</b>	Medium (+)
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.</li> <li>- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.</li> <li>- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.</li> </ul>
<b>Construction phase (Indirect Impacts)-</b>	
<b>B4) Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by increased soil erosion.
<b>Intensity</b>	Medium
<b>Duration</b>	Long Term
<b>Extent</b>	Site specific
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	High
<b>Significance after mitigation</b>	Low
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, lay-down and stockpile areas, personnel rest areas and site offices.</li> <li>- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.</li> <li>- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should</li> </ul>

	<p>be created in the portions of the site not proposed for development.</p> <ul style="list-style-type: none"> <li>- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.</li> </ul>
<b>B5) Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by the establishment of an ecologically inappropriate fire regime.
<b>Intensity</b>	High
<b>Duration</b>	Medium term (10 – 15 years)
<b>Extent</b>	Local
<b>Probability</b>	Low
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	- No open fires must be allowed on site.
<b>B6) Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by increased alien plant invasion due to disturbance.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	- An AIP management plan, which aims to eradicate and control the spread of AIPs, must be developed for the site and implemented during the Construction and Operational

	<p>phases of the project.</p> <ul style="list-style-type: none"> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.</li> <li>- Follow-up clearing of AIPs should take place on a yearly basis.</li> </ul>
<b>B7) Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching</b>	
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by plant poaching.
<b>Intensity</b>	Medium
<b>Duration</b>	Short term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.</li> <li>- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.</li> </ul>
<b>Operational Phase (Direct impacts)-</b>	
<b>B8) Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance</b>	
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by infrastructure maintenance.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site specific
<b>Probability</b>	High
<b>Reversibility</b>	Partially reversible
<b>Significance</b>	<b>Medium</b>

<b>before Mitigation</b>	
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.</li> <li>- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).</li> </ul>
<b>B9) Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site</b>	
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by disruption of pollinator networks through increased vehicular traffic around the site.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Existing major roads should be used as transport corridors to and from the site.</li> <li>- Speed limits for vehicles (&lt; 40 km/h) must be implemented on site.</li> </ul>
<b>Cumulative Impacts</b>	
<b>Impact Description</b>	The regional vegetation variant (Grassridge Bontveld) and its component plant SCC populations will be negatively affected by loss of natural vegetation cover (through direct damage to plants, increased wind erosion, increased plant invasion). Vegetation clearing on site will contribute to transformation of Grassridge Bontveld in the surrounding landscape, which further includes past and future vegetation transformation on adjacent properties.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	Regional
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance</b>	<b>High</b>

<b>before Mitigation</b>	
<b>Significance after mitigation</b>	<b>Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The No-Go area should be set aside and managed for conservation (Figure 6).</li> <li>- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.</li> <li>- Disturbance to intact vegetation should be limited by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.</li> <li>- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.</li> </ul>
<b>Impact Description</b>	<b>Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by further impairment of ecological connectivity.</b>
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site specific
<b>Probability</b>	High
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Clearing of vegetation must be restricted to approved development footprints.</li> <li>- The No-Go area must be set aside and managed for conservation to maintain connectivity within this patch.</li> <li>- Existing major roads should be used as transport corridors to and from the site.</li> </ul>
<b>C – IMPACTS ON TERRESTRIAL FAUNA</b>	
<b>Construction Phase -</b>	
<b>C1) Disturbances on and mortalities of faunal species (Direct Impact)</b>	
<b>Impact Description</b>	Direct impacts (disturbances and mortalities) on faunal species during the construction phase caused by construction activities on site.
<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Local

<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.</li> <li>- Limit construction activities in sensitive Limestone bontveld habitats to a minimum/development footprint.</li> <li>- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.</li> <li>- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.</li> <li>- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.</li> </ul>
<b>C2) Loss and transformation of faunal habitats (Indirect impact)</b>	
<b>Impact Description</b>	Loss and transformation of sensitive Limestone bontveld habitats during the construction of project infrastructure.
<b>Intensity</b>	Medium
<b>Duration</b>	Permanent
<b>Extent</b>	Site
<b>Probability</b>	Definite
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.</li> <li>- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.</li> <li>- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of</li> </ul>

	<p>appropriately offsite.</p> <ul style="list-style-type: none"> <li>- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.</li> <li>- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.</li> </ul>
<b>Operational Phase -</b>	
<b>C3) Disturbances on and mortalities of faunal species (Direct impact)</b>	
<b>Impact Description</b>	Direct impacts (disturbances and mortalities) on faunal species during the operational phase.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.</li> <li>- Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.</li> <li>- Ensure strict poaching control.</li> <li>- Exclude all domestic/feral dogs and cats.</li> <li>- Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.</li> <li>- Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-lighting to reduce light spill.</li> </ul>
<b>C4) Loss and transformation of faunal habitats (Indirect impact)</b>	
<b>Impact Description</b>	Transformation of sensitive Limestone bontveld habitats through 1) maintenance activities, and 2) establishment of invasive plants in disturbed areas.

<b>Intensity</b>	Medium
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.</li> <li>- Ensure control of staff movements to clearly designated areas and access routes.</li> <li>- Prohibit fuel-wood collections.</li> <li>- Prohibit campfires.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.</li> </ul>
<b>C5) Disruption of ecological patterns and processes facilitated by fauna (Indirect impact)</b>	
<b>Impact Description</b>	Direct (disturbances and mortalities) and indirect (habitat loss and transformation) impacts on faunal species may alter the ecological patterns and processes facilitated by fauna, including trophic– (browsing, frugivory, predation), transport– (seed dispersal, nutrient dispersal), habitat architecture– (plant forms, path opening), and biped turbation (digging, hoof action) processes.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Locate infrastructure in already transformed habitats as much as possible.</li> <li>- Cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.</li> </ul>

	- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.
<b>Cumulative Impacts –</b>	
<b>Cumulative habitat loss and transformation and impact on ecological processes</b>	
<b>Impact Description</b>	The project area has appreciable current impacts (i.e., habitat loss, transformation and fragmentation; disturbances to fauna), and the proposed project would potentially contribute to further impacts on faunal habitats and the interruption of ecological processes.
<b>Intensity</b>	Medium
<b>Duration</b>	Permanent
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Locate infrastructure in already transformed habitats as much as possible.</li> <li>- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist. Monitoring of the plan should be conducted by the Environmental Control Officer.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.</li> </ul>
<b>D – IMPACTS ON GEOHYDROLOGY</b>	
<b>D1 – Pollution of groundwater (Operational Phase)</b>	
<b>Impact Description</b>	Due to the nature of the geological formations on which the fuel station will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high.
<b>Intensity</b>	High
<b>Duration</b>	Medium
<b>Extent</b>	Local
<b>Probability</b>	Low
<b>Reversibility</b>	Low

<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.</li> <li>- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.</li> <li>- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.</li> <li>- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.</li> </ul>
<b>E – IMPACT ON HERITAGE RESOURCES</b>	
<b>E1) Destruction of heritage resources (Construction Phase)</b>	
<b>Impact Description</b>	Destruction of heritage /paleontology resources during construction activities
<b>Intensity</b>	High
<b>Duration</b>	Permanent
<b>Extent</b>	Site specific
<b>Probability</b>	Unlikely
<b>Reversibility</b>	Partially
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.</li> <li>- The Chance Finds Procedure must be adopted and implemented throughout the construction phase of the development.</li> </ul>
<b>F – SOCIO-ECONOMIC IMPACTS</b>	

<b>F1) Noise nuisance caused by the operation of heavy construction vehicles on site</b>	
<b>Impact Description</b>	Presence and operation of heavy machinery on site will generate noise at the site.
<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Limited
<b>Probability</b>	Unlikely
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Negligible</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Minimize access routes to site by using set access ways to enter the site.</li> <li>- Limit the amount of trips and working hours where possible.</li> </ul>
<b>F2) Dust nuisance caused by the operation of heavy construction vehicles on site</b>	
<b>Impact Description</b>	The operation of heavy machinery on site could generate dust.
<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Limited
<b>Probability</b>	Unlikely
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Negligible</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The proponent must take appropriate measures to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) where required.</li> <li>- Watering of exposed working areas may be considered for the control of dust during windy conditions, although great care must be taken that this does not result in excessive run-off, and erosive action.</li> </ul>
<b>F3) Contribution to job creation and economic development</b>	

<b>Impact Description</b>	The proponent is a leading retail group in South Africa, contributing significantly to job creation and economic development.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	-
<b>Probability</b>	-
<b>Reversibility</b>	-
<b>Significance before Mitigation</b>	High (+)
<b>Significance after mitigation</b>	-
<b>Mitigation measures</b>	-

## 2. REJECTED ALTERNATIVE IMPACT ASSESSMENT

This assessment considers direct, indirect, and cumulative impacts to the natural and socio-economic environment that may arise during the construction and operational phases of the proposed development/ expansion. Each of the impacts are explained below along with respective mitigation measures, and results of the impact assessment are provided in Table 2.

### G – IMPACTS ON THE AQUATIC ENVIRONMENT (Refer to Appendix D-1)

The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity. The wetland on the site will be replaced with the proposed larger stormwater pond within the site to meet the stormwater management requirements of the proposed development. Because the wetland on the site is artificial and has formed in the existing pond constructed to mitigate stormwater runoff from the currently developed area on the site, new wetland habitat will likely form within the new stormwater pond. There would thus be no loss of wetland functionality (given that the primary wetland function is stormwater mitigation) or wetland habitat within the site.

Wetland habitat within the new stormwater infrastructure at the site should be created to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous

sedges and rushes.

**Identified Potential Impacts:**

**G1) Modification of aquatic habitat (Construction Phase)**

**G2) Disturbance and modification of aquatic habitat; flow modification (Operational Phase)**

**The following mitigation measures are recommended:**

- Consideration to be given to the design of the large pond so that it has a more natural and less intrusive shape/edges.
- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;
- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;
- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and
- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

Provided the recommended mitigation measures are implemented, the potential aquatic ecosystem impacts and the risks of the proposed development altering the integrity of the artificial depression wetland would be low to very low such that the proposed activities could be approved in terms of the General Authorisation for Section 21(c) and (i) water use activities.

**H – IMPACTS ON TERRESTRIAL FLORA (Refer to Appendix D-2)**

Based on the advantages and disadvantages of the development layout alternatives, the rejected layout will likely result in more severe environmental impacts due to the larger area covered by the proposed footprint in comparison with the preferred layout. The advantages/disadvantages associated with the No-Go option (i.e., not proceeding with development) are based on current impacts that are likely to continue in the study area.

**Construction Phase -**

**H1) Clearing of Grassridge Bontveld impacting on plant SCC**

**H2) Damage caused to individuals of plant SCC during vegetation clearance**

**H3) Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance**

- H4) Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion
- H5) Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime
- H6) Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance
- H7) Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching

**Operational Phase -**

- H8) Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance
- H9) Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site

**The following mitigation measures are recommended:**

**Construction Phase -**

- Limit vegetation clearing to areas within the approved development footprints.
- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.
- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.
- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.
- Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) must be obtained from the relevant authorities.
- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.
- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.
- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.
- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.
- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.

- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.
- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).
- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.
- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.
- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.
- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.
- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.
- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.
- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.
- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.
- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.
- Existing major roads should be used as transport corridors to and from the site.

**Operational Phase –**

- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.
- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).
- Existing major roads should be used as transport corridors to and from the site.
- Speed limits for vehicles (< 40 km/h) must be implemented on site.

The most significant impacts relate to the direct and cumulative loss of Grassridge Bontveld vegetation and its associated SCC during the construction phase. In general, the rejected alternative is likely to have a high to moderate potential to negatively impact on terrestrial biodiversity and plant SCC in the study area as most potential impacts were evaluated to be of Low and Medium significance following the implementation of appropriate

mitigation measures. The implementation of an AIP management plan, which is recommended as a mitigation measure, will further have a positive impact on the terrestrial biodiversity and plant species on site.

## **I – IMPACTS ON TERRESTRIAL FAUNA (Refer to Appendix D-3)**

### **I1) Disturbances on and mortalities of faunal species (Construction Phase)**

### **I2) Loss and transformation of faunal habitats (Construction Phase)**

### **I3) Disturbances on and mortalities of faunal species (Operational Phase)**

### **I4) Loss and transformation of faunal habitats (Operation Phase)**

### **I5) Disruption of ecological patterns and processes facilitated by fauna (Operation Phase)**

### **I6) Habitat loss and transformation and impact on ecological processes (Cumulative)**

#### **The following mitigation measures are recommended:**

##### **Construction phase -**

- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.
- Limit construction activities in sensitive Limestone bontveld habitats to a minimum
- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.
- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.

- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.

**Operational Phase:**

- Locate infrastructure in already transformed habitats as much as possible.
- Limit clearing of sensitive Limestone bontveld habitats to a minimum.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.
- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.
- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.
- Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.
- Ensure strict poaching control.
- Exclude all domestic/feral dogs and cats.
- Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.
- Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-

lighting to reduce light spill.

## **J – IMPACTS ON GEOHYDROLOGY (Refer to Appendix D-4)**

### **J1) – Pollution of groundwater (Operational Phase)**

Due to the nature of the geological formations on which the fuel storage will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high. It is advised that the pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.

#### **The following mitigation measures are recommended:**

- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.
- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.
- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.

## **K – IMPACT ON HERITAGE RESOURCES (Refer to Appendix D-6)**

### **K1) Destruction of heritage resources (Construction Phase)**

Based on the extensively disturbed nature of the area proposed for development, as well as the already constructed structure on the property, it is very unlikely that the proposed development will impact on significant, in situ archaeological resources. In addition, there are clearly no structures of any kind located within the proposed development area which may have heritage significance. As such, it is recommended that no further archaeological assessments are required. However, should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.

It is very unlikely that significant palaeontological resources will be impacted by the proposed development. However, it is recommended that the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

**The following mitigation measures are recommended:**

No further heritage studies are recommended for this proposed development on condition that; should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified; and the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

**Table 2: Impact Assessment Table**

<b>REJECTED ALTERNATIVE</b>	
<b>G. AQUATIC ENVIRONMENT (Rejected Alternative)</b>	
<b>G1) Modification of aquatic habitat (Construction Phase)</b>	
<b>Impact Description</b>	The wetland on the site will be modified and replaced with a larger stormwater pond within the site to meet the stormwater management requirements of the proposed development. This will require Infilling and shaping of the site and the stormwater pond for development.
<b>Intensity</b>	Medium to low
<b>Duration</b>	Short Term
<b>Extent</b>	Localised
<b>Probability</b>	Definite
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer;</li> <li>- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse;</li> <li>- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design; and</li> <li>- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.</li> </ul>
<b>Indirect Impacts</b>	-
<b>Cumulative</b>	<b>Low</b>

<i>impact prior to mitigation</i>	
<i>Cumulative impact post mitigation</i>	<b>Very Low to insignificant</b>
<b>G2) Disturbance and modification of aquatic habitat; flow modification (Operational Phase)</b>	
<b>Impact Description</b>	Disturbance and modification of aquatic habitat; flow modification caused by Stormwater run-off generated on-site.
<b>Intensity</b>	Low
<b>Duration</b>	Short Term
<b>Extent</b>	Localised
<b>Probability</b>	Possible
<b>Reversibility</b>	Medium
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very Low to Insignificant</b>
<b>Mitigation measures</b>	Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.
<b>Indirect Impacts</b>	Facilitating the spread of alien vegetation
<b>Residual Impacts</b>	Aquatic habitat modification
<b>Cumulative impact prior to mitigation</b>	<b>Low</b>
<b>Cumulative impact prior to mitigation</b>	<b>Very Low to insignificant</b>
<b>H - IMPACTS ON TERRESTRIAL FLORA (Rejected Alternative)</b>	
<b>Construction phase (Direct Impacts)-</b>	
<b>H1) Clearing of Grassridge Bontveld impacting on plant SCC</b>	
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including four threatened species) will be negatively affected by clearing.
<b>Intensity</b>	High

<b>Duration</b>	Permanent
<b>Extent</b>	Site specific
<b>Probability</b>	Definite
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>High to Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit vegetation clearing to areas within the approved development footprints.</li> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.</li> <li>- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.</li> <li>- Permits for the destruction of protected plant species (SCC and Sideroxyloninerme) must be obtained from the relevant authorities.</li> <li>- The No-Go area must be excluded from development and managed for conservation.</li> </ul>
<b>H2) Damage caused to individuals of plant SCC during vegetation clearance</b>	
<b>Impact Description</b>	Individuals of plant SCC (including four threatened species) will be negatively affected by destruction or damage caused during vegetation clearing.
<b>Intensity</b>	High
<b>Duration</b>	Permanent
<b>Extent</b>	Site-specific
<b>Probability</b>	Definite
<b>Reversibility</b>	Irreversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>High to Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Permits for the removal and translocation of plant SCCs should be obtained from the appropriate authorities.</li> <li>- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species <i>Bergeranthus addoensis</i>, <i>Corpuscularialeh mannii</i> and <i>Rhombophyllum rhomboideum</i>.</li> <li>- Rescued SCCs should be translocated to the No-Go area where specific microhabitats</li> </ul>

	<p>of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.</p> <ul style="list-style-type: none"> <li>- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.</li> <li>- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.</li> <li>- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.</li> <li>- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).</li> </ul>
<b>H3) Indigenous vegetation (Grassridge Bontveld) positively affected by alien invasive plant clearance</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be positively affected by destruction of alien invasive plants (AIP) during vegetation clearing.
<b>Intensity</b>	Low
<b>Duration</b>	Permanent
<b>Extent</b>	Site specific
<b>Probability</b>	Almost certain
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Low (+)</b>
<b>Significance after mitigation</b>	<b>Medium (+)</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.</li> <li>- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.</li> <li>- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.</li> </ul>
<b>Construction phase (Indirect Impacts)-</b>	
<b>H4) Indigenous vegetation (Grassridge Bontveld) degradation due to increased soil erosion</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by increased soil erosion.
<b>Intensity</b>	Medium
<b>Duration</b>	Long Term

<b>Extent</b>	Site specific
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, lay-down and stockpile areas, personnel rest areas and site offices.</li> <li>- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.</li> <li>- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.</li> <li>- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.</li> </ul>
<b>H5) Indigenous vegetation (Grassridge Bontveld) degradation due to an ecologically inappropriate fire regime</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by the establishment of an ecologically inappropriate fire regime.
<b>Intensity</b>	High
<b>Duration</b>	Medium term (10 – 15 years)
<b>Extent</b>	Local
<b>Probability</b>	Low
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	- No open fires must be allowed on site.
<b>H6) Indigenous vegetation (Grassridge Bontveld) degradation due to increased alien plant invasion caused by disturbance</b>	

<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by increased alien plant invasion due to disturbance.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- An AIP management plan, which aims to eradicate and control the spread of AIPs, must be developed for the site and implemented during the Construction and Operational phases of the project.</li> <li>- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.</li> <li>- Follow-up clearing of AIPs should take place on a yearly basis.</li> </ul>
<b>H7) Indigenous vegetation (Grassridge Bontveld) degraded by plant poaching</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by plant poaching.
<b>Intensity</b>	Medium
<b>Duration</b>	Short term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>

<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.</li> <li>- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.</li> </ul>
<b>Operational Phase (Direct impacts)-</b>	
<b>H8) Indigenous vegetation (Grassridge Bontveld) degradation caused by infrastructure maintenance</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by infrastructure maintenance.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site specific
<b>Probability</b>	High
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.</li> <li>- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).</li> </ul>
<b>H9) Indigenous vegetation (Grassridge Bontveld) degradation caused by disruption of pollinator networks through increased vehicular traffic around the site</b>	
<b>Impact Description</b>	Indigenous vegetation (GrassridgeBontveld) that provides habitat to plant SCC (including three threatened species) will be negatively affected by disruption of pollinator networks through increased vehicular traffic around the site.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance</b>	<b>Medium</b>

<b>before Mitigation</b>	
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Existing major roads should be used as transport corridors to and from the site.</li> <li>- Speed limits for vehicles (&lt; 40 km/h) must be implemented on site.</li> </ul>
<b>Cumulative Impacts</b>	
<b>Impact Description</b>	The regional vegetation variant (GrassridgeBontveld) and its component plant SCC populations will be negatively affected by loss of natural vegetation cover (through direct damage to plants, increased wind erosion, increased plant invasion). Vegetation clearing on site will contribute to transformation of GrassridgeBontveld in the surrounding landscape, which further includes past and future vegetation transformation on adjacent properties.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	Regional
<b>Probability</b>	Medium
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>High</b>
<b>Significance after mitigation</b>	<b>Medium</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The No-Go area should be set aside and managed for conservation.</li> <li>- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.</li> <li>- Disturbance to intact vegetation should be limited by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.</li> <li>- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.</li> <li>- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.</li> </ul>
<b>Impact Description</b>	Indigenous vegetation (Grassridge Bontveld) that provides habitat to plant SCC (including four threatened species) will be negatively affected by further impairment of ecological connectivity.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site specific
<b>Probability</b>	High

<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Clearing of vegetation must be restricted to approved development footprints.</li> <li>- The No-Go area must be set aside and managed for conservation to maintain connectivity within this patch.</li> <li>- Existing major roads should be used as transport corridors to and from the site.</li> </ul>
<b>I – IMPACTS ON TERRESTRIAL FAUNA (Rejected Alternative)</b>	
<b>Construction Phase -</b>	
<b>I1) Disturbances on and mortalities of faunal species (Direct Impact)</b>	
<b>Impact Description</b>	Direct impacts (disturbances and mortalities) on faunal species during the construction phase caused by construction activities on site.
<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Local
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.</li> <li>- Limit construction activities in sensitive Limestone bontveld habitats to a minimum/ development footprint.</li> <li>- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.</li> <li>- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.</li> <li>- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.</li> </ul>
<b>I2) Loss and transformation of faunal habitats (Indirect impact)</b>	
<b>Impact</b>	Loss and transformation of sensitive Limestone bontveld habitats during the construction of

<b>Description</b>	project infrastructure.
<b>Intensity</b>	Medium
<b>Duration</b>	Permanent
<b>Extent</b>	Site
<b>Probability</b>	Definite
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.</li> <li>- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.</li> <li>- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.</li> <li>- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.</li> <li>- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.</li> </ul>
<b>Operational Phase -</b>	
<b>I3) Disturbances on and mortalities of faunal species (Direct impact)</b>	
<b>Impact Description</b>	Direct impacts (disturbances and mortalities) on faunal species during the operational phase.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible

<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.</li> <li>- Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.</li> <li>- Ensure strict poaching control.</li> <li>- Exclude all domestic/feral dogs and cats.</li> <li>- Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.</li> <li>- Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-lighting to reduce light spill.</li> </ul>
<b>I4) Loss and transformation of faunal habitats (Indirect impact)</b>	
<b>Impact Description</b>	Transformation of sensitive Limestone bontveld habitats through 1) maintenance activities, and 2) establishment of invasive plants in disturbed areas.
<b>Intensity</b>	Medium
<b>Duration</b>	Long term
<b>Extent</b>	Local
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.</li> <li>- Ensure control of staff movements to clearly designated areas and access routes.</li> <li>- Prohibit fuel-wood collections.</li> <li>- Prohibit campfires.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.</li> </ul>
<b>I5) Disruption of ecological patterns and processes facilitated by fauna (Indirect impact)</b>	

<b>Impact Description</b>	Direct (disturbances and mortalities) and indirect (habitat loss and transformation) impacts on faunal species may alter the ecological patterns and processes facilitated by fauna, including trophic– (browsing, frugivory, predation), transport– (seed dispersal, nutrient dispersal), habitat architecture– (plant forms, path opening), and bipedurbation (digging, hoof action) processes.
<b>Intensity</b>	Low
<b>Duration</b>	Long term
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Reversible
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Very low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Locate infrastructure in already transformed habitats as much as possible.</li> <li>- Cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.</li> </ul>
<b>Cumulative Impacts – Cumulative habitat loss and transformation and impact on ecological processes</b>	
<b>Impact Description</b>	The project area has appreciable current impacts (i.e., habitat loss, transformation and fragmentation; disturbances to fauna), and the proposed project would potentially contribute to further impacts on faunal habitats and the interruption of ecological processes.
<b>Intensity</b>	Medium
<b>Duration</b>	Permanent
<b>Extent</b>	Site
<b>Probability</b>	Highly probable
<b>Reversibility</b>	Partially reversible
<b>Significance before Mitigation</b>	<b>Medium</b>
<b>Significance after mitigation</b>	<b>Low</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Limit clearing of sensitive Limestone bontveld habitats to a minimum.</li> <li>- Locate infrastructure in already transformed habitats as much as possible.</li> </ul>

	<ul style="list-style-type: none"> <li>- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist. Monitoring of the plan should be conducted by the Environmental Control Officer.</li> <li>- Develop and implement an invasive plant control and management plan to eradicate these species on a continuous basis. Monitoring should be conducted by the Environmental Officer.</li> </ul>
<b>J – IMPACTS ON GEOHYDROLOGY (Rejected Alternative)</b>	
<b>J1 – Pollution of groundwater (Operational Phase)</b>	
<b>Impact Description</b>	Due to the nature of the geological formations on which the fuel station will be established, and the encounter of shallow / seasonal groundwater beneath the Site, the risk to pollution of groundwater, should a fuel leak or spillage occur, is considered high.
<b>Intensity</b>	High
<b>Duration</b>	Medium
<b>Extent</b>	Local
<b>Probability</b>	Low
<b>Reversibility</b>	Low
<b>Significance before Mitigation</b>	High
<b>Significance after mitigation</b>	Low
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.</li> <li>- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.</li> <li>- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.</li> <li>- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.</li> </ul>
<b>K – IMPACT ON HERITAGE RESOURCES (Rejected Alternative)</b>	
<b>K1) Destruction of heritage resources (Construction Phase)</b>	

<b>Impact Description</b>	Destruction of heritage /paleontology resources during construction activities
<b>Intensity</b>	High
<b>Duration</b>	Permanent
<b>Extent</b>	Site specific
<b>Probability</b>	Unlikely
<b>Reversibility</b>	Partially
<b>Significance before Mitigation</b>	<b>Low</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.</li> <li>- The Chance Finds Procedure must be adopted and implemented throughout the construction phase of the development.</li> </ul>
<b>L – SOCIO-ECONOMIC IMPACTS (Rejected Alternative)</b>	
<b>L1) Noise nuisance caused by the operation of heavy construction vehicles on site</b>	
<b>Impact Description</b>	Presence and operation of heavy machinery on site will generate noise at the site.
<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Limited
<b>Probability</b>	Unlikely
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Negligible</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- Minimize access routes to site by using set access ways to enter the site.</li> <li>- Limit the amount of trips and working hours where possible.</li> </ul>
<b>L2) Dust nuisance caused by the operation of heavy construction vehicles on site</b>	
<b>Impact Description</b>	The operation of heavy machinery on site could generate dust.

<b>Intensity</b>	Low
<b>Duration</b>	Short term
<b>Extent</b>	Limited
<b>Probability</b>	Unlikely
<b>Reversibility</b>	High
<b>Significance before Mitigation</b>	<b>Negligible</b>
<b>Significance after mitigation</b>	<b>Negligible</b>
<b>Mitigation measures</b>	<ul style="list-style-type: none"> <li>- The proponent must take appropriate measures to minimise the generation of dust and mud on the site, by supplying suitable stabilisation (such as mulch or straw stabilisation) where required.</li> <li>- Watering of exposed working areas may be considered for the control of dust during windy conditions, although great care must be taken that this does not result in excessive run-off, and erosive action.</li> </ul>
<b>L3) Contribution to job creation and economic development</b>	
<b>Impact Description</b>	The proponent is a leading retail group in South Africa, contributing significantly to job creation and economic development.
<b>Intensity</b>	High
<b>Duration</b>	Long term
<b>Extent</b>	-
<b>Probability</b>	-
<b>Reversibility</b>	-
<b>Significance before Mitigation</b>	<b>High (+)</b>
<b>Significance after mitigation</b>	-
<b>Mitigation measures</b>	-

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

**Environmental Impact Statement:**

It need to be noted that the site is part of a developed industrial area with development rights, as such densification and development of the area is expected based on sustainability principles and weighing all three impact pillars namely social, economic and environment. The project relate to a R 1.5 Billion investment into the area clearly providing for a massive socio-economic injection and benefit for the Eastern Cape. This is the expected output and purpose of industrial/commercial areas. Based on the advantages and disadvantages of the development layout alternatives ito the environmental context, the preferred layout will result in less severe environmental impacts due to better layout and site orientation and the smaller area covered with better internal ecological connectivity, providing for a search and rescue and landscape environment around the hard development footprint by the proposed footprint in comparison with the alternative rejected layout. The areas on the site not proposed for development as per preferred alternative is regarded as open areas to remain natural, where search and rescue fauna and flora can be planted or released. The advantages/disadvantages associated with the No-Go option (i.e., not proceeding with development) are based on current impacts that are likely to continue in the study area.

The most significant impacts on terrestrial flora relate to the direct and cumulative loss of Grassridge Bontveld vegetation and its associated SCC during the construction phase. In general, the proposed development is likely to have moderate potential to negatively impact on terrestrial biodiversity and plant SCC in the study area as most potential impacts were evaluated to be of Low and Medium significance following the implementation of appropriate mitigation measures. The implementation of an AIP management plan, which is recommended as a mitigation measure, will further have a positive impact on the terrestrial biodiversity and plant species on site.

The proposed development will likely influence faunal species, the habitats that they occupy, and the ecological processes facilitated by these species. Of the 333 faunal species that potentially occur naturally in the vicinity of the project area, nine (four reptiles, four birds, and a single mammal species) are SCC. While the Limestone bontveld habitats occurring in the fenced portion of the project area likely support SCC, its distribution is fragmented beyond the site, meaning fragmented faunal communities. Additionally, current threats to fauna and faunal-mediated processes in these habitats are diverse, reducing the sensitivity of the project area for fauna. Potential impacts from the proposed project on fauna may, therefore, be within acceptable limits, provided that the

appropriate mitigation measures are applied.

While the preferred project layout makes provision for minimising impacts on sensitive faunal habitats, it will also be important to reduce current threats to ensure the long-term persistence of the remaining bontveld ecosystem. This may, in part, be achieved through the continuous removal of alien invasive plants. The alternative (i.e., not controlling alien invasives) will likely lead to increased habitat transformation and fragmentation.

The Species Environmental Assessment Guidelines (SANBI 2020) recommends that for Endangered or Vulnerable species, in particular, no further loss of habitat should be permitted as the species are likely to go extinct in the near future if current pressures continue. Because the likely presence of these species in the project area could only be inferred from the available suitable habitat and broad records of occurrence, appropriate habitat exclusion buffers (i.e., No-Go buffers) could not be applied for the project area. Furthermore, because the presence of sensitive species is not confirmed, population sizes are not known, and accurate spatial information on the geographic distribution of these species is often not available (important when evaluated against the availability of potentially suitable habitat within the project area), calculation of the Site Ecological Importance (as per the Species Assessment Guidelines) is problematic.

Nevertheless, through appropriate mitigation, both the direct and indirect impacts of the proposed project on fauna can be kept to a minimum. Risks to faunal species as a result of the specific activity may, therefore, be expected to be low.

The aquatic feature at the proposed development site comprises a small artificial depression wetland associated with a stormwater pond on the site. The wetland is in a largely modified ecological condition and is considered of low ecological importance and sensitivity.

Provided the recommended mitigation measures are implemented, the potential aquatic ecosystem impacts and the risks of the proposed development altering the integrity of the artificial depression wetland would be low to very low such that the proposed activities could be approved in terms of the General Authorisation for Section 21(c) and (i) water use activities.

In terms of the geohydrology, the Site is underlain by geological formations that carries shallow groundwater, and shallow water levels have been measured on Site. Therefore, the perceived risk to groundwater contamination is high. There are no known significant groundwater users currently in the immediate area around the Site.

Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions. It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected. If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.

No further heritage studies are recommended for this proposed development on condition that; should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified; and the Chance Finds Procedure be adopted and implemented throughout the construction phase of the development.

All nuisance impacts on the surrounding environment will be reduced to acceptable levels through implementing the recommended mitigation measures.

The proposed development will have a high positive significant impact on the socio-economic environment through job creation and economic development.

**It is recommended that the proposed development is approved on condition that recommended mitigation measures are implemented.**

## SECTION E. RECOMMENDATIONS OF PRACTITIONER

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

YES x	
YES x	

Is an EMPr attached?

The EMPr must be attached as Appendix F.

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

**Not Applicable.**

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

## **AQUATIC ENVIRONMENT –**

### Construction Phase:

- The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project, and implemented by an on-site Environmental Officer.
- The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as the use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the watercourse.
- Where necessary pre-treatment areas such as oil, sediment and litter traps should be included in the stormwater management design.
- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

### Operational Phase:

- Wetland habitat within the new stormwater infrastructure at the site should be constructed to mitigate the loss of the existing stormwater pond wetland habitat. The facilities should be planted with a mixed community of indigenous sedges and rushes.

## **TERRESTRIAL (FLORA) –**

### Construction Phase -

- Limit vegetation clearing to areas within the approved development footprints.
- Disturbance to intact vegetation must be restricted by demarcating those areas that will be cleared during construction, including access roads, haul roads, and lay-down and stockpile areas.
- Lay-down areas should be contained within the planned clearance areas and should not be placed in the surrounding intact vegetation.
- All construction personnel active on site must be notified of the importance of avoiding disturbance to intact vegetation outside of demarcated clearance areas.
- Permits for the destruction of protected plant species (SCC and *Sideroxylon inerme*) must be obtained from

the relevant authorities.

- The No-Go area should be clearly demarcated prior to any construction personnel, machinery or vehicles entering the site, and no clearing should be permitted within these areas.
- Prior to vegetation clearing, demarcated development footprints must be surveyed for threatened plant SCC by an Environmental Control Officer or similarly qualified person and a search-and-rescue operation undertaken for species that are suitable for translocation – this includes the succulent species *Bergeranthus addoensis*, *Corpuscularia lehmannii* and *Rhombophyllum rhomboideum*.
- Rescued SCCs should be translocated to the No-Go area where specific microhabitats of the translocated species; areas in the southeast of the site where these SCC occur should suffice for this purpose.
- Care must be taken to not disturb any individuals of plant SCC that is not to be translocated.
- Translocation should occur during cooler and wetter periods of the year (e.g., autumn or winter) to minimize stress on the plants.
- Plants must be watered once every week for the first two months following translocation to enhance their survival potential.
- Survival of all translocated plants must be monitored and recorded monthly for the first year following translocation; these results must be reported to the authors of this report (which are to be shared with the South African National Biodiversity Institute).
- An AIP management plan must be developed for the site and implemented during the Construction and Operational phases of the project. This plan should aim to eradicate and control the spread of AIPs within the portions of the site that are not proposed for development.
- Any AIP material removed during clearing of the development footprints must be removed from the site and destroyed so that reestablishment on site is avoided.
- Areas disturbed during construction must be inspected for establishing AIPs on a regular basis, and these should be removed and destroyed as soon as possible before setting seed to limit their spread.
- Follow-up clearing for AIPs within the intact vegetation should take place on a yearly basis.
- Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place.

- Existing vehicle tracks should be used as far as possible, and no new roads/tracks should be created in the portions of the site not proposed for development.
- A stormwater management plan must be designed and implemented for the Construction and Operational phases of the project.
- Access to areas of intact vegetation, particularly in the No-Go area, should be restricted.
- Construction workers must be notified of the prohibition of poaching plants and a fine system implemented.
- Existing major roads should be used as transport corridors to and from the site.

#### Operational Phase –

- Any activity associated with maintenance should take place in areas where vegetation has already been cleared and must not encroach on intact vegetation, especially in the No-Go area.
- Mowing/brush cutting of vegetation along roads/fire breaks should be minimal. Mowed strips must not exceed 2 m (average height of vegetation).
- Existing major roads should be used as transport corridors to and from the site.
- Speed limits for vehicles (< 40 km/h) must be implemented on site.

#### **TERRESTRIAL (FAUNA) –**

##### Construction Phase:

- Conduct a pre-construction walk through (search and rescue) of the project footprint to identify fauna threatened by construction activities. Threatened fauna should be removed to similar habitat within close proximity of the project area by the Environmental Control Officer or other suitably qualified individual.
- Limit construction activities in sensitive Limestone bontveld habitats to a minimum
- Construction camps: 1) ensure strict control of staff movements to reduce faunal disturbances, 2) ensure strict poaching control, 3) exclude all domestic/feral dogs and cats. Domestic dogs and cats present on site should be removed to a suitable facility.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.

- Construction staff should undergo environmental induction before construction commences to raise awareness and reduce potential faunal impacts.
- Conservation-orientated clauses should form part of construction contracts, complete with penalty clauses for non-compliance.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All refuse should be disposed of appropriately offsite.
- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.
- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.

Operational Phase:

- Locate infrastructure in already transformed habitats as much as possible.
- Limit clearing of sensitive Limestone bontveld habitats to a minimum.
- Clearly demarcate all construction areas to avoid any unplanned loss and transformation of sensitive habitats.
- Temporary equipment stockpiles must be located in transformed habitats or at existing construction sites and away from sensitive habitats.
- Construction camps: 1) ensure these are located in transformed habitats away from sensitive habitats, 2) ensure camps are fenced to control staff movements, 3) prohibit fuel-wood collections 4) prohibit campfires, and 5) ensure the provision of appropriate refuse facilities for staff, and monitor refuse removal weekly. All

refuse should be disposed of appropriately offsite.

- Where appropriate, cleared areas should be rehabilitated or landscaped with indigenous vegetation according to an appropriately formulated plan, developed by an appropriately qualified specialist.
- Develop and implement an invasive plant control and management plan to eradicate these species on site. The plan should be developed by an appropriately qualified specialist, and monitored by the Environmental Control Officer.
- Hazardous materials (chemicals, fuels, oils) should be stored appropriately to prevent contamination. Accidental spills that occur on site should be cleaned up immediately and appropriately.
- Develop and implement an environmental awareness programme for staff. The plan should be developed by an appropriately qualified specialist, and implemented and monitored by the SHE Officer.
- Ensure control of staff movements to clearly designated areas and access routes to limit disturbances to fauna.
- Ensure strict poaching control.
- Exclude all domestic/feral dogs and cats.
- Ensure appropriate waste (particularly food) management to prevent increases in the incidence of opportunistic species (e.g., vervet monkeys, pied crows, starlings, sparrows, and rats and mice) that displace other indigenous fauna, and come into conflict with humans: 1) cover temporary waste storage facilities appropriately, and 2) empty temporary storage facilities regularly.
- Reduce light pollution through the use of low UV-emitting LEDs that attract fewer insects, and use down-lighting to reduce light spill.

#### **GEOHYDROLOGY –**

- Pollutants (fuel) should not come into direct contact with the ground surface beneath the Site; and also, should not leak into the permeable soils and Alexandria Formation (from the USTs). Once pollutants have come into contact with the Alexandria Formation, it could come into contact with shallow groundwater table (directly or within rainwater or storm water) and migrate towards the Swartkops River and / or the sea.
- Because of the perceived high risk to contamination of groundwater for this area, the USTs and all holding and working areas of the fuels must be contained and lined so that no pollutants can come into contact with

the underlying soils or geology. If this is done, the risk of pollutants getting into the groundwater environment is greatly reduced, under normal conditions.

- It is standard practice to install small diameter monitoring wells in the excavations where USTs are installed, so that leakage of fuel can be detected.
- If a spillage or leakage event occurs, it should be reported to the relevant authorities and the necessary actions taken to contain the fuel and reduce any negative impact.

#### **HERITAGE RESOURCES –**

- Should any archaeological resources or human remains be uncovered during the course of construction, work must cease and ECPHRA must be notified.
- The Chance Finds Procedure must be adopted and implemented throughout the construction phase of the development.

## SECTION F: APPENDICES

The following appendixes must be attached as appropriate:

**Appendix A: Locality Plan**

**Appendix B: Photographs**

**Appendix C: Facility illustration(s)**

**Appendix D: Specialist reports**

**Appendix D-1: Aquatic Specialist Impact Assessment Report**

**Appendix D-2: Terrestrial Flora Specialist Impact Assessment Report**

**Appendix D-3: Terrestrial Fauna Specialist Impact Assessment Report**

**Appendix D-4: Geohydrology Specialist Impact Assessment Report**

**Appendix D-5: Geotechnical Report**

**Appendix D-6: Heritage Screener and Fossil Finds Procedure**

**Appendix D-7: Engineer Services Report**

**Appendix D-8: TIA**

**Appendix D-9: Stormwater Management Plan**

**Appendix E: Public Participation Information – To be included after public participation**

**Appendix F: Environmental Management Programme (EMPr)**

**Appendix F1: CEMPr**

**Appendix F2: OEMPr**

**Appendix G: Municipal Confirmation of services**

**Appendix H: Specialist Declarations**

**Appendix I: Impact Assessment Methodology**

