

# BASIC ASSESSMENT REPORT

PROPOSED DEVELOPMENT OF A FUEL STATION WITH A CONVENIENCE STORE AND RESTAURANT ON  
REMAINDER OF PORTION 25 OF THE FARM VLAKFONTEIN, 523 JR, CITY OF TSHWANE METROPOLITAN



**PROJECT #** : EM00010\_JCJ\_BAR\_V0.0\_11\_04\_18  
**GDARD #** : Gaut002/18-19/E0022  
**DATE** : 21 May 2018  
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**BASIC ASSESSMENT REPORT**  
**PROPOSED DEVELOPMENT OF A FUEL STATION WITH A CONVENIENCE**  
**STORE AND RESTAURANT ON REMAINDER OF PORTION 25 OF THE FARM**  
**VLAKFONTEIN, 523 JR, CITY OF TSHWANE METROPOLITAN**




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| DOCUMENT CONTROL     |   |   |   |
|----------------------|---|---|---|
| Document             | EM00010_JCJ_BAR_V0.0_11_04_18   |   |   |
| Date                 | 21 May 2018   |   |   |
| Submitted to         | GDARD   |   |   |
| Distribution         | 1 X GDARD<br>1 X JCJ<br>1 X I-CAT   |   |   |
| QUALITY CONTROL      |   |   |   |
|                      | Prepared  | Reviewed  | Approved  |
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| Date                 | 19/04/2018  | 13/05/2018  | 14/05/2018  |

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## EXECUTIVE SUMMARY

### 1. Introduction and project description

I-CAT Environmental Solutions (Pty) Ltd was appointed as independent Environmental Assessment Practitioner (EAP) by JCJ Developments (Pty) Ltd to complete the Construction and Operational Environmental Management Programme (EMPr) for the proposed development of a fuel station with a convenience store and restaurant on remainder of Portion 25 of the Farm Vlakfontein, 523 JR, City of Tshwane Metropolitan Municipality.

A Basic Assessment process was triggered due to the nature of the proposed activities and will be conducted according to the National Environmental Management Act, 1998 (Act No. 107 of 1998) NEMA and the EIA Regulations 2014. The proposed development triggers listed activity 14 of GN 983 4 December 2014 promulgated in terms of the NEMA Act No. 107 of 1998. The BAR will be submitted to the Gauteng Department of Agriculture and Rural Development (GDARD) for authorisation of an Environmental Authorisation (EA).

The proposed development triggers an application for an Integrated Water Use License (IWUL) in terms of the *National Water Act, 1998 (NWA) (No. 36 of 1998)*. The following S21 water use activities will form part of the application.

(a) - Taking water from a water resource;

(g) - Disposing of waste in a way that can detrimentally impact on a water resource.

The fuel station will have a combined storage capacity of 120 000 ℓ of fuel. It is proposed that the fuel station will have the following ancillary infrastructure:

- Concrete forecourt and canopy;
- Stand-by generators;
- Pump islands and dispensers;
- Convenience store;
- Restaurant;
- ATM;
- Staff change rooms and first aid facilities;
- Firefighting equipment and facilities;
- JOJO tanks for storage of potable water from existing boreholes (2 x 10 000 ℓ);
- Electricity supply from Eskom;

- Storm water infrastructure and a contamination sump;
- Conservancy tank;
- Rest rooms;
- Paved access roads and parking facilities;
- Site access point (via Dam Road)
- Underground storage tanks (120 000 l).

## 2. Legislative requirements

The main legislation considered during the BA Application process includes the following (Refer to Table 1).

**Table 1: Legislative framework**

| Legislation   | Purpose/Requirements  |
|---|---|
| <p><b>National Environmental Management Act 107 of 1998 (NEMA) and the Environmental Impact Assessment Regulations (2014)</b></p> | <p>The purpose of NEMA is to provide for co-operative environmental governance. NEMA provides principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and measures for co-ordinating environmental functions exercised by organs of state. NEMA provides guidance to the administration and enforcement of other environmental management laws and matters connected therewith.</p> <p>The proposed mixed use development triggers the following activities:</p> <p><i>Activity 51, GN 983: The expansion of facilities for the storage, or storage and handling of a dangerous good, where the capacity will be expanded by more than 80 cubic meters from 0,078 cubic meters to 120 cubic meters.</i></p> <p><i>Activity 27, GN 983: The clearance of an area of 11 ha of indigenous vegetation.</i></p> <p><i>Activity 30, GN 983: Any process or activity identified in terms of Section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</i></p> <p><i>Activity 12(a)(i), GN 985: The clearance of 1132470000 m<sup>2</sup> of indigenous vegetation within (i) any critically endangered ecosystem.</i></p> <p><i>Activity 15(a)(i), GN 985: The transformation of land of 57 658 190 000 m<sup>2</sup> in size to residential, retail, commercial, industrial or</i></p> |

|  |  |
|--|--|
|  | <i>institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010.</i> |
|--|--|

### **Other legislation**

Other legislation considered during the Basic Assessment application process:

- Constitution of the Republic of South Africa (Act no. 108 of 1996) [as amended];
- National Water Act, 1998 (Act No. 36 of 1998)
- National Environmental Management: Air Quality Act 39 Of 2004 (NEM:AQA);
- National Dust Control Regulations, 2013 (GN 827);
- National Noise Control Regulations, 1998 (PN 627);
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended];
- National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)
- Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA);
- Promotion of Access to Information Act, 2000 (Act No. 2 of 2000);
- Hazardous Chemical Substances Regulations, 1995 (GN 1179); and
- City of Tshwane Metropolitan Municipality Solid Waste By-Laws.

### **1. Alternatives**

Alternative 1 was found as the preferred and only alternative for the proposed development. Table 2 indicates the alternatives that were considered throughout the BA process.

**Table 2: Alternatives assessment**

| Alternative type     | Alternative   |
|----------------------|---|
| Location Alternative | <p><b>Proposal (Preferred Alternative)</b></p> <p>No alternative property or sites on the same property have been investigated due to the client already finalising the purchase agreement for the site, and also having existing commercial interests on a different section of the site. The site is easily accessible from the existing Dam Road.</p> <p>According to the Traffic Study, Volumetric Analysis and Economic Viability Assessment by Prodeo (2016), the site is ideally situated in terms of local traffic support to justify the development of a fuel station (Prodeo</p> |

|                              |  |
|------------------------------|--|
|                              | <p>Business Consultants, 2016).</p> <p>All grasslands on the proposed development site are severely disturbed and hosts few species due to previous agricultural activities.</p> <p>Taking the above into consideration no other location alternative are existing or considered. The Proposal (Preferred Alternative) was the only alternative assessed in the impact assessment below.</p>   |
| Activity Alternative         | <p><b>Proposal (Preferred Alternative):</b> The preferred alternative includes a fuel station, convenience store and restaurant development on the development site. The preferred alternative reduces the footprint of the development and the impact on the vegetation directly surrounding the Bronkhorstspuit River (Refer to Section 7 of the BAR for an explanation on sensitive habitats near the Bronkhorstspuit River).</p> <p><b>Alternative 1:</b> Includes a fuel station, truck stop, convenience store, restaurant and retail centre. Due to the location of the site outside of the town of Bronkhorstspuit there will not be a big need for a retail centre at this stage, as most clients to the proposed new development will be passers-by traveling on the R25 or Dam Roads. This activity alternative may encroach on the sensitive habitat close to the <i>Bronkhorstspuit</i>.</p> <p>Therefore Alternative 1 is not deemed to be viable as this Alternative will not be economically feasible and may encroach on the sensitive habitat close to the Bronkhorstspuit River. The Proposal (Preferred Alternative) was the only Alternative assessed in the impact assessment below.</p> |
| Design or layout alternative | <p><b>Proposal (Preferred alternative):</b> The preferred alternative is designed in such a way to not intersect vegetation classified as having an ecological support function surrounding the River. The design includes a fuel station with a restaurant and convenience store with one primary access point.</p> <p>The proposed development will be accessed via the existing Road 02254, Bronkhorstspuit Dam Road, 320 m south of the R25/Dam Road intersection.</p> <p>The site context informed the design in terms of architectural language and building placement. Aesthetically the design was informed by the sculptural context (natural and man-made – Anton Smit.) The placement of the buildings were determined by the following:</p> <ul style="list-style-type: none"> <li>• The position where the petrol station will be the most visible from the main roads around the intersection was chosen. In other words, the north western corner of the site.</li> <li>• The services of the buildings were positioned to the west and the public facade was orientated towards the petrol pumps for accessibility reasons.</li> </ul>   |

|                           |   |
|---------------------------|---|
|                           | <p><b>Alternative 1:</b><br/>The design included a fuel station with an office area, retail park, parking and restaurant. Aesthetically the design had a different look and feel than the Proposal (Preferred Alternative) which affected accessibility to the site. This alternative's orientation and layout was not found to promote visibility from the main roads. Also the design layout intersected with an area identified as having an ecological support function surrounding the Bronkhorstspruit River.</p> <p><b>Alternative 2:</b><br/>Proposed that the development will be served by two accesses. The primary access is proposed of Dam Road, approximately 320 m south of the R25 / Dam Road intersection. This primary access will comprise of one lane in and one line out and will be stop controlled. A secondary partial access is proposed off the R25 Road comprising of a left in only. This slip lane intersects with the 1:100 year floodline which will trigger a WULA in terms of the NWA (Act no. 36 of 1998). This slip lane was also prohibited by Gautrans.</p> <p><b>Alternative 3:</b><br/>Proposed that the development will be served by two accesses. The primary access is proposed of Dam Road, approximately 320 m south of the R25 / Dam Road intersection. This primary access will comprise of one lane in and one line out and will be stop controlled. A secondary partial access is proposed off the R25 Road comprising of a left in only. The partial access is proposed approximately 345 m east off the R25 Road / Dam Road intersection. This intersection is proposed to be situated outside of the 1:100 year floodline, but this alternative was not found to be feasible as the access from the R25 is prohibited due to current Gautrans restrictions.</p> <p>Alternative 1, 2 and 3 was found not to be feasible due to encroachment on the ecological support area, intersection with the 1:100 year floodline and restriction of a second access point by Gautrans. Due the above only the Proposal (Preferred Alternative) was assessed in the impact assessment below.</p> |
| Technological alternative | <p><b>Proposal (Preferred alternative):</b><br/>Certain areas of the filling station may be contaminated with grease, oil, petrol and other contaminants from time to time. The floor surface of the contamination areas (forecourt) will be sloped towards grid covered traps which will drain the contaminated water to a holding sump. The sump will be emptied daily by a registered waste water disposal contractor.</p> <p><b>Alternative 1:</b><br/>Storm water which may contain hydrocarbons from the</p>  |



|                     |  |
|---------------------|--|
|                     | <p>forecourt will be channelled to a retention pond system with an oil water separator. The storm water from the retention pond will be discharged to the southern side of the R25. This inlet is below water level therefore the inlet will be pressurized and will contain a friction head. Discharged water will follow the natural water course moving to the natural waterway.</p> <p><b>Alternative 2:</b><br/>Storm water which may contain hydrocarbons will be channelled to a retention pond system containing an oil water separator. The water in the retention pond will be used for irrigation of the gardens.</p> <p>Alternative 1 was not found to be feasible as it might lead to pollution of the Bronkhorstspruit River should the oil water separator fail, causing several cumulative environmental impacts downstream. Alternative 2 was not found to be feasible as the water will require daily testing and possible treatment to ensure that it conforms to specified standards for irrigation. The Proposal (Preferred Alternative) was found to be feasible due to it containing the least latent environmental risk and being more cost effective. Due to the above only the Proposal (Preferred Alternative) was assessed in the impact assessment below.</p> |
| Routing alternative | <p><b>Proposal (Preferred Alternative)</b><br/>Only the routing and access point described in the Proposal (Preferred Alternative) at 4. Design or Layout Alternative above has been assessed in the impact assessment below. No further alternatives were feasible due to other routing alternatives encroaching on the ecological support area surrounding the River, intersecting with the 1:100 year floodline and restriction by Gautrans to develop an access road / slipway from the R25.</p>   |

## 2. Description of the receiving environment

The proposed development will be located on remainder of Portion 25 of the Farm Vlakfontein, 523 JR, City of Tshwane Metropolitan Municipality and forms part of the Olifants Water Management Area. The Bronkhorstspruit River stretches along the eastern and northern side of the site and is bordered by agricultural land. The proposed site is located in the town of Bronkhorstspruit next to the R25 provincial road which connects Johannesburg with Groblersdal via Kempton Park and Bronkhorstspruit.

The site falls within the 2528 Pretoria 1:250 000 geology series and is underlain by quartzite with interlayers of shale and sub-greywacke of the Rayton Formation of the Pretoria Group, Transvaal Supergroup. The average depth to the water table across the area is 8.5 mbgl and groundwater flow occurs in a westerly direction. The soil profile of the proposed site was

classified as comprising of loose sand overlying medium dense clayey sand from between 1,3 m and 2 m.

The proposed site falls within the Grassland Biome of Southern Africa, more specifically the Rand Highveld Grassland (Gm11) vegetation unit. No vegetation or fauna of major importance (red data species) were identified on the site. T

he presence of a wetland was verified during field investigations and one hydrogeomorphic wetland type was identified namely a valley bottom without a channel. The wetland covers 5.2 ha and is located approximately 300 m to the north east of the proposed development.

Table 3 indicates the specialist studies that were undertaken as part of the BA process and is appended to Appendix G.

**Table 3: Specialist Studies**

|   |
|---|
| Aquatic Assessment (Knight Piesold, October 2016)                                   |
| Floodline Assessment (Knight Piesold, October 2016)                                 |
| Land Capability Classification (SFP Townplanning, n/d)                              |
| Grazing Capacity (SFP Townplanning, n/d)  |
| Biodiversity Report (GEM Science, September 2016)                                   |
| Phase 1 Archaeological Impact Assessment (Agri Civils, September 2016)              |
| Hydrogeological Investigation (Geo Pollution Technologies, September 2016)          |
| Traffic Study, Volumetric Analysis and Economic Viability Assessment (Prodeo, 2016) |
| Traffic Impact Assessment (SMEC, March 2018)  |
| Geotechnical Report (SMEC, February 2017)   |
| Supplementary Civil Engineering Service Report (SMEC, March 2018)                   |

### 3. Public Participation

The Public Participation Process (PPP) conducted for the proposed BA application process adheres to Chapter 6 of the NEMA EIA Regulations 2014.

The PPP tasks conducted to date include:

- Identification of Interested and Affected Parties (I&AP's) and other stakeholders including;
  - Adjacent landowners/occupiers of land;
  - The current landowner;
  - Provincial government;

- Other state organs;
  - Municipal ward councillor;
  - Local and district municipalities;
  - NGO's; and
  - Other stakeholders
- Registration of all I&AP's in a stakeholder database;
  - Formal notification of the I&AP's for the BA application on 09 -10 May 2018, by means of written notice send per email and registered mail;
  - The Draft BAR and Environmental Management Programme (EMPr) will be released for 60 day public comment (21 May 2018 - 23 July 2018);
  - All comments received will be formerly recorded and responded to in the Comments and Responses Report.

#### **4. Impact assessment**

Below follows a summary of the impacts that were identified during the BA application process:

- Storm water pollution (-)
- Soil contamination (-)/soil erosion (-)/ soil compaction (-)
- Ground water contamination (-)
- Air pollution (dust pollution and other emissions) (-)
- Increase in waste generated(-)
- Noise pollution (-)
- Health and safety (-)
- Socio-economic (+)
- Traffic (-)
- Biodiversity (-)

Most impacts identified for the construction and operational phases received a rating of low (-) – very low (-), this leads to an overall rating of low (-) after the application of mitigation measures. All identified impacts can be mitigated and managed to acceptable levels, resulting in a low overall negative impact after mitigation measures has been applied.

Positive impacts to the proposed development include socio-economic development specifically relating to job and skills development in the surrounding community.

All identified impacts will be mitigated by the proposed management and mitigation measures stipulated in the BAR and EMPr.

## **5. Conclusion and recommendations**

Through cautious consideration, research and various specialist studies it is the opinion of I-CAT that the identified negative impacts to the proposed site can be mitigated to acceptable levels. The proposed development was found to have positive socio-economic impacts attached to its construction and operation, and I-CAT believes that jobs and skills development will take place throughout the construction and operational phases of the proposed development. It is therefore recommended that the Competent Authority kindly authorise same, accompanied by the necessary sensitive planning, design and sustainable environmental management conditions.

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## **ANNEXURES**

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Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information



Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (Version 1)

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**Kindly note that:**

1. This **Basic Assessment Report** is the standard report required by GDARD in terms of the EIA Regulations, 2014.
  2. This application form is current as of 8 December 2014. It is the responsibility of the EAP to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
  3. **A draft Basic Assessment Report must be drawn relating to a matter likely to be affected by the activity to be undertaken.**
  4. **A draft Basic Assessment Report (1 hard copy and two CD's) must be submitted, for purposes of comments within a period of thirty (30) days, to a Competent Authority empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application.**
  5. Five (5) copies (3 hard copies and 2 CDs-PDF) of the final report and attachments must be handed in at offices of the relevant competent authority, as detailed below.
  6. 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.
  7. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
  8. An incomplete report may lead to an application for environmental authorisation being refused.
  9. **Any report that does not contain a titled and dated full colour large scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation being refused.**
  10. 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 application for environmental authorisation being refused.
  11. No faxed or e-mailed reports will be accepted. Only hand delivered or posted applications will be accepted.
  12. Unless protected by law, and clearly indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
  13. Although pre-application meeting with the Competent Authority is optional, applicants are advised to have these meetings prior to submission of application to seek guidance from the Competent Authority.
- 

**DEPARTMENTAL DETAILS**

Gauteng Department of Agriculture and Rural Development  
Attention: Administrative Unit of the of the Environmental Affairs Branch  
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| <b>File Reference Number:</b> |  |  |  |  |  |  |
| <b>Application Number:</b>    |  |  |  |  |  |  |
| <b>Date Received:</b>         |  |  |  |  |  |  |

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

N/A

Is a closure plan applicable for this application and has it been included in this report? **No**  
 if not, state reasons for not including the closure plan.

If and when applicable, decommissioning will be investigated and the necessary application will be applied for in terms of the relevant legislation pertaining to the decommissioning of a fuel station.

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? **Yes, this report is the Draft BAR**

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? **Yes**

Refer to Appendix 9 within Appendix E for the copy of the I&APs register containing a list of State Departments and their contact details.

If no, state reasons for not attaching the list.

N/A

Have State Departments including the competent authority commented? **NO**  
 If no, why?

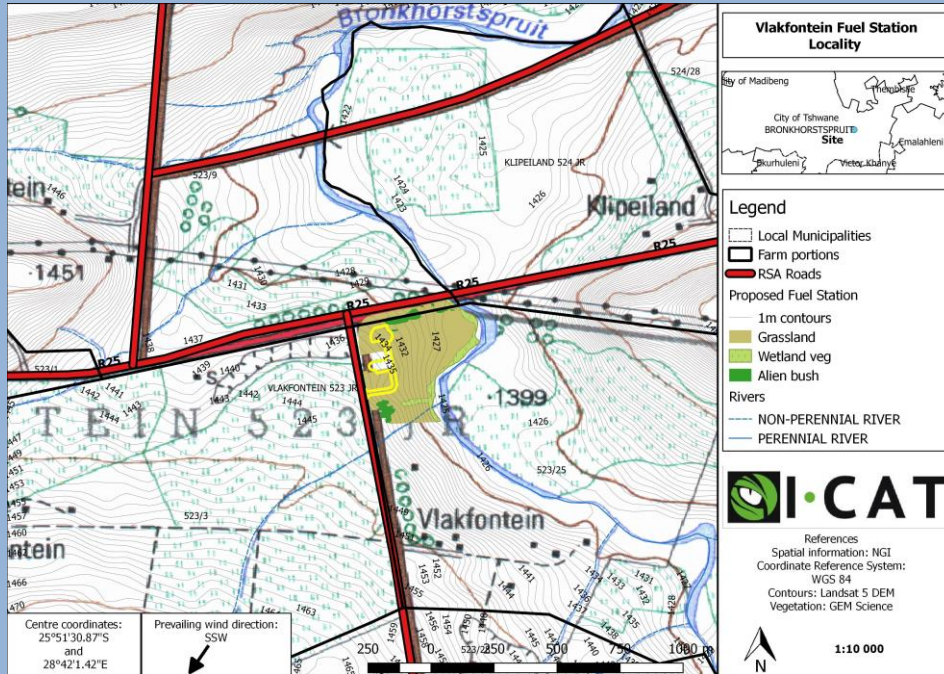
- Will comment during the Public Participation Process (PPP) running from 21 May 2018 – 23 July 2018.
- Comments will be included in the final BAR.

**SECTION A: ACTIVITY INFORMATION**

**1. PROPOSAL OR DEVELOPMENT DESCRIPTION**

Project title (must be the same name as per application form):

The proposed development of a fuel station with a convenience store and restaurant on the remainder of Portion 25 of the farm Vlakfontein, 523 JR, City of Tshwane Metropolitan Municipality (Refer to Figure 1 for the locality map).



**Figure 1: Locality map**

Select the appropriate box

The application is for an upgrade of an existing development

The application is for a new development

Other, specify

Does the activity also require any authorisation other than NEMA EIA authorisation?

YES  NO

If yes, describe the legislation and the Competent Authority administering such legislation

**National Water Act, 1998 (NWA) (No. 36 of 1998):** Application for an Integrated Water Use License (IWUL) in terms of the *National Water Act, 1998 (NWA) (No. 36 of 1998)* (Republic of South Africa, 1998b). The proposed site falls within the Olifants Water Management Area (Catchment B20D) and the Competent Authority is the DWS Nelspruit Regional Office, but will be submitted to the Bronkhorstspruit Office. The following S21 water use activities will form part of the Application:

- (a) - Taking water from a water resource;
- (g) - Disposing of waste in a way that can detrimentally impact on a water resource.

**Spatial Planning and Land Use Management Act, 2013 (No. 16 of 2013):** Rezoning of the remainder of Portion 25 of the farm Vlakfontein 523 JR. The Competent Authority will be the City of Tshwane Metropolitan Municipality (Republic of South Africa, 2013b).

**Petroleum Products Act, 1977 (No. 120 of 1977) (as amended):** Application for a petroleum retail licence from the Department of Energy.

If yes, have you applied for the authorisation(s)?

|   |           |
|---|-----------|
| <b>YES.<br/>Applications<br/>in progress.</b> | NO        |
| YES   | <b>NO</b> |

If yes, have you received approval(s)? (attach in appropriate appendix)

## 2. 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:

| <b>Title of legislation, policy or guideline</b>   | <b>Administering authority</b> | <b>Promulgation Date</b> |
|--|--------------------------------|--------------------------|
| Constitution of the Republic of South Africa, 1996 (Act no. 108 of 1996) [as amended]                      | National                       | 18 December 1996         |
| National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended].                            | National & Provincial          | 27 November 1998         |
| National Water Act, 1998 (Act No. 36 of 1998) [as amended]   | National & Provincial          | 26 August 1998           |
| Environmental Impact Assessment (EIA) Regulations (GN R 982 of 2014) [as amended]                          | National and Provincial        | 12 April 2014            |
| Guideline on Transitional Arrangements, EIA Guideline and Information Document Series, March 2013          | Provincial                     | March 2013               |
| Hazardous Substances Amendment Act, 1992 (Act No.53 of 1992) (as amended)                                  | National                       | 4 April 1973             |
| Gauteng Provincial Environmental Management Framework 2014   | Provincial                     | November 2014            |
| National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)                              | National & Provincial          | 24 February 2005         |
| National Dust Control Regulations (No. R. 827 of 2013)   | National                       | 1 November 2013          |
| Occupational Health and Safety Act, 1993 (Act No. 2 of 1993)   | National & Provincial          | 23 June 1993             |
| Petroleum Products Act, 1977 (Act No. 120 of 1977)   | National                       | 16 September 1977        |
|  |                                |                          |
| National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) [as amended]                       | National                       | 10 March 2009            |
| National Heritage Resources Act, 1999 (Act No. 25 of 1999)   | National & Provincial          | 28 April 1999            |
| National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)                             | National                       | 7 June 2004              |
| National Environmental Management :Biodiversity Act: Alien and Invasive Species Regulations (R598 of 2014) | National                       | 1 August 2014            |
| National Environmental Management :Biodiversity Act: Alien and invasive species list (No. 864 of 2016)     | National                       | 1 August 2014            |
| National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)  | National                       | 27 November 1998         |
| Hazardous Chemical Substances Regulations (GN 1179 of 1995) [as amended]                                   | National                       | 25 August 1995           |
| Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)   | National                       | 2 February 2000          |

|   |          |               |
|---|----------|---------------|
| SANS 10089 -3: 2010. The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations | National | 2010          |
| SANS 1535: 2007. Glass-reinforced Polyester-coated Steel Tanks For The Underground Storage Of Hydrocarbons And Oxygenated Solvents And Intended For Burial Horizontally             | National | 2007          |
| SANS 10400: 1990. The application of National Building Regulations  | National | 1990          |
| SANS 5667 - 1: 2008. Water quality  | National | 2008          |
| SANS 10103: 2008. The measurement and rating of environmental noise with respect to annoyance and to speech communication.  | National | 2008          |
| City of Tshwane Metropolitan Municipality By-Laws (as relevant)   | Local    | 17 April 2008 |

Description of compliance with the relevant legislation, policy or guideline:

| Legislation, policy of guideline  | Description of compliance  |
|---|--|
| Constitution of the Republic of South Africa, 1996 (Act no. 108 of 1996) [as amended] | <p>The Applicant has the overall responsibility to prevent pollution and ecological degradation throughout the life of landfill and to protect the environment for the benefit of natural resources for present and future generations.</p> <p>All stages of the project shall be managed in accordance with a detailed EMPr as well as the conditions of the relevant WML.</p> <p>The objectives of the EMPr are to:</p> <ul style="list-style-type: none"> <li>•Ensure compliance with regulatory authority stipulations and guidelines which may be local, provincial, national and/or international;</li> <li>•Ensure that there are sufficient allocation of resources on the project budget so that the scale of EMPr related activities (mitigation measures) are consistent with the significance of the project's impacts;</li> <li>•Verify environmental performance through information on impacts as they occur;</li> <li>•Respond to unforeseen events;</li> <li>•Provide feedback for continual improvement on environmental performance;</li> <li>•Identify a range of mitigation measures which could reduce and mitigate the potential impacts to minimal or insignificant level;</li> <li>•Detail specific actions deemed necessary to assist in mitigating the environmental impacts of the project;</li> <li>• Identify measures that could optimise beneficial impacts;</li> <li>•Create management structures that addresses the concerns and complaints of the I&amp;APs with regards to the development;</li> <li>•Establish a method of monitoring and auditing of</li> </ul> |

|   |   |
|---|---|
|   | <p>environmental management practices during all phases of the development;</p> <ul style="list-style-type: none"> <li>•Ensure that safety recommendations are complied with; and</li> <li>•Ensure to keep to specific time periods within which the measures contemplated in the final EMPr should be implemented, where possible.</li> </ul>  |
| National Environmental Management Act, 1998 (Act No. 107 of 1998) [as amended]                    | The Applicant shall ensure compliance with this Act through the application for Environmental Authorisation of relevant listed activities as per Section 24 of the Act. The Applicant shall ensure compliance with Section 28 by undertaking measures to prevent pollution in the NEMA Environmental Management Program (EMPr).   |
| National Water Act, 1998 (Act No. 36 of 1998) [as amended]  | The Applicant shall ensure compliance with this Act through the IWUL application as per S21 of this Act. The Applicant shall ensure compliance with S19 of this Act by undertaking measures to prevent pollution in the NEMA EMPr.  |
| Environmental Impact Assessment (EIA) Regulations (GN R982 of 2014) [as amended]                  | The Applicant ensures compliance with Sections in the Regulations relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for Environmental Authorisations for the activities applied for.  |
| Guideline on Transitional Arrangements, EIA Guideline and Information Document Series, March 2013 | This guideline was used as a supporting and supplementary guide to the EIA Regulations.   |
| Hazardous Substances Amendment Act, 1992 (Act No.53 of 1992)                                      | The Applicant shall ensure that the handling, selling and storage of hazardous substances during the construction and operational phases of the development is carried out in accordance with the Act.  |
| Gauteng Provincial Environmental Management Framework (2014)                                      | The Gauteng Provincial EMF was used to determine the land use character and landscape value of the proposed location.   |
| National environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)                     | The Applicant shall ensure compliance with this Act by keeping petroleum vapor emissions during the operational phase and dust fallout emissions during the construction phase below the limits as per Section 12 of the Act.   |
| National Dust Control Regulations (No. R. 827 of 2013)  | The Applicant shall ensure compliance with these Regulations as and when applicable.  |
| Occupational Health and Safety Act, 1993 (Act No. 2 of 1993)                                      | The Applicant shall ensure compliance with this Act by providing a working environment that is safe and free of risk to the health of its employees and other people that may be affected by the proposed development.  |
| Petroleum Products Act, 1977 (Act No. 120 of 1977)  | The Applicant shall ensure compliance with this Act by applying for a petroleum retailing license as per section 2B of the Act.   |
| National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)                           | The Applicant shall ensure compliance with this Act by avoiding the generation of waste where practically possible and where waste is generated the re-use, recycling and recovery of waste shall be encouraged. Furthermore, the Applicant shall ensure compliance with the storage of waste as per Section 21 of the Act. Mitigation measures for waste impacts are contained in the NEMA EMPr. |



|   |   |
|---|---|
| National Heritage Resources Act, 1999 (Act No. 25 of 1999)  | The Applicant shall ensure compliance with this Act by notifying the responsible heritage resources authority of the proposed project as per Section 38 of the Act.   |
| National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)  | The Applicant shall ensure compliance with this Act by ensuring that all sensitive species or red data species (if any) are conserved on site during the construction and operational phases of the development.  |
| National Environmental Management :Biodiversity Act: Alien and Invasive Species Regulations (R598 of 2014)  | The Applicant shall ensure compliance with these Regulations by managing Invasive alien species present on site. Invasive species will be controlled and eradicated as per the Regulations.   |
| National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)   | The Applicant shall ensure compliance with the requirements of Section 12 to prepare and maintain fire breaks. Furthermore, the Applicant shall ensure that all staff is trained in the case of a fire emergency as per Section 17 of the Act. Management and mitigation measures are contained in the NEMA EMPr. |
| Hazardous Chemical Substances Regulations (GN 1179 of 1995) [as amended]  | The Applicant shall ensure compliance with the requirements of this Act by controlling the wear of PPE by all applicable staff and regulating relevant training in terms of exposure to hazardous products in the workplace. Management measures will be contained in the NEMA EMPr.                              |
| Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)  | The Applicant shall ensure that all documents relating to the EA process are publically available as per the requirements of this Act.  |
| SANS 10089 -3: 2010. The installation, modification, and decommissioning of underground storage tanks, pumps/dispensers and pipework at service stations and consumer installations | The Applicant shall ensure that all belowground storage tanks, pumps and pipework will conform to the requirements of this standard.  |
| SANS 1535: 2007. Glass-reinforced Polyester-coated Steel Tanks for The Underground Storage Of Hydrocarbons And Oxygenated Solvents And Intended For Burial Horizontally             | The Applicant shall ensure that all below ground storage tanks will conform to the requirements as per this standard.   |
| SANS 10400: 1990. The application of National Building Regulations  | The Applicant shall ensure that the Construction phase of this proposed development will conform to the requirements as per this standard.  |
| SANS 5667 - 1: 2008. Water quality-Sampling   | The Applicant shall ensure that water for human consumption will be sampled in accordance with this standard.   |
| SANS 10103: 2008. The measurement and rating of environmental noise with respect to annoyance and to speech communication.  | The Applicant shall ensure that noise levels during the construction and operational phases of the proposed development conform to this standard.   |
| SANS 10108: 2014. The classification of hazardous locations and the selection of apparatus for use in such locations  | The Applicant shall ensure that an area classification will be conducted for explosive products as per the requirements of this standard.   |

|   |   |
|---|---|
| City of Tshwane Metropolitan Municipality By-Laws | The Applicant shall ensure compliance with the requirements of local by-laws. |
|---|---|

### 3. ALTERNATIVES

Describe the proposal and 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. The determination of whether the 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.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. **Do not include the no go option into the alternative table below.**

**Note:** 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.

Please describe the process followed to reach (decide on) the list of alternatives below

The below alternatives were identified taking into account all sensitive receptors on site, this was also informed by the specialist findings. Further, the alternatives were identified by making use of the EIA Guideline and Information Document Series Department of Environmental Affairs and Development Planning (DEADP, 2013), the Integrated Environmental Management Information Series: Criteria for determining Alternatives in EIA (Department of Environmental Affairs, 2004) and the NEMA EIA Regulations 2014 [as amended] (Republic of South Africa, 2014a). Insight from the following members of the project team were also used to inform the alternatives:

- Engineering team by making use of their design input;
- Client requirements; and
- The EAP by identification of the Best Practicable Environmental Option for the development.

Provide a description of the alternatives considered

| No. | Alternative type, either alternative: site on property, properties, activity, design, technology, energy, operational or other (provide details of "other") | Description   |
|-----|---|---|
| 1   | Proposal (Preferred Alternative)  | See below.  |
| 2   | Location Alternative  | <b>Proposal (Preferred Alternative)</b><br>No alternative property or sites on the same property have been investigated due to the client already finalising the purchase agreement for the site, and also having existing commercial |

|   |                              |  |
|---|------------------------------|--|
|   |                              | <p>interests on a different section of the site. The site is easily accessible from the existing Dam Road.</p> <p>According to the Traffic Study, Volumetric Analysis and Economic Viability Assessment by Prodeo (2016), the site is ideally situated in terms of local traffic support to justify the development of a fuel station (Prodeo Business Consultants, 2016).</p> <p>All grasslands on the proposed development site are severely disturbed and hosts few species due to previous agricultural activities.</p> <p>Taking the above into consideration no other location alternative are existing or considered. The Proposal (Preferred Alternative) was the only alternative assessed in the impact assessment below.</p>  |
| 3 | Activity Alternative         | <p><b>Proposal (Preferred Alternative):</b> The preferred alternative includes a fuel station, convenience store and restaurant development on the development site. The preferred alternative reduces the footprint of the development and the impact on the vegetation directly surrounding the Bronkhorstspuit River (Refer to Section 7 of the BAR for an explanation on sensitive habitats near the Bronkhorstspuit River).</p> <p><b>Alternative 1:</b> Includes a fuel station, truck stop, convenience store, restaurant and retail centre. Due to the location of the site outside of the town of Bronkhorstspuit there will not be a big need for a retail centre at this stage, as most clients to the proposed new development will be passers-by traveling on the R25 or Dam Roads. This activity alternative may encroach on the sensitive habitat close to the <i>Bronkhorstspuit</i>.</p> <p>Therefore Alternative 1 is not deemed to be viable as this Alternative will not be economically feasible and may encroach on the sensitive habitat close to the Bronkhorstspuit River. The Proposal (Preferred Alternative) was the only Alternative assessed in the impact assessment below.</p> |
| 4 | Design or layout alternative | <p><b>Proposal (Preferred alternative):</b> The preferred alternative is designed in such a way to not</p>   |

|  |   |
|--|---|
|  | <p>intersect vegetation classified as having an ecological support function surrounding the River. The design includes a fuel station with a restaurant and convenience store with one primary access point.</p> <p>The proposed development will be accessed via the existing Road 02254, Bronkhorstspuit Dam Road, 320 m south of the R25/Dam Road intersection.</p> <p>The site context informed the design in terms of architectural language and building placement. Aesthetically the design was informed by the sculptural context (natural and man-made – Anton Smit.) The placement of the buildings were determined by the following:</p> <ul style="list-style-type: none"> <li>• The position where the petrol station will be the most visible from the main roads around the intersection was chosen. In other words, the north western corner of the site.</li> <li>• The services of the buildings were positioned to the west and the public facade was orientated towards the petrol pumps for accessibility reasons.</li> </ul> <p><b>Alternative 1:</b></p> <p>The design included a fuel station with an office area, retail park, parking and restaurant. Aesthetically the design had a different look and feel than the Proposal (Preferred Alternative) which affected accessibility to the site. This alternative's orientation and layout was not found to promote visibility from the main roads. Also the design layout intersected with an area identified as having an ecological support function surrounding the Bronkhorstspuit River.</p> <p><b>Alternative 2:</b></p> <p>Proposed that the development will be served by two accesses. The primary access is proposed off Dam Road, approximately 320 m south of the R25 / Dam Road intersection. This primary access will comprise of one lane in and one line out and will be stop controlled. A secondary partial access is proposed off the R25</p> |
|--|---|

|   |                           |   |
|---|---------------------------|---|
|   |                           | <p>Road comprising of a left in only. This slip lane intersects with the 1:100 year floodline which will trigger a WULA in terms of the NWA (Act no. 36 of 1998). This slip lane was also prohibited by Gautrans.</p> <p><b>Alternative 3:</b></p> <p>Proposed that the development will be served by two accesses. The primary access is proposed off Dam Road, approximately 320 m south of the R25 / Dam Road intersection. This primary access will comprise of one lane in and one line out and will be stop controlled. A secondary partial access is proposed off the R25 Road comprising of a left in only. The partial access is proposed approximately 345 m east off the R25 Road / Dam Road intersection. This intersection is proposed to be situated outside of the 1:100 year floodline, but this alternative was not found to be feasible as the access from the R25 is prohibited due to current Gautrans restrictions.</p> <p>Alternative 1, 2 and 3 was found not to be feasible due to encroachment on the ecological support area, intersection with the 1:100 year floodline and restriction of a second access point by Gautrans. Due the above only the Proposal (Preferred Alternative) was assessed in the impact assessment below.</p> |
| 5 | Technological alternative | <p><b>Proposal (Preferred alternative):</b></p> <p>Certain areas of the filling station may be contaminated with grease, oil, petrol and other contaminants from time to time. The floor surface of the contamination areas (forecourt) will be sloped towards grid covered traps which will drain the contaminated water to a holding sump. The sump will be emptied daily by a registered waste water disposal contractor.</p> <p><b>Alternative 1:</b></p> <p>Storm water which may contain hydrocarbons from the forecourt will be channelled to a retention pond system with an oil water</p>  |

|   |                                   |  |
|---|-----------------------------------|--|
|   |                                   | <p>separator. The storm water from the retention pond will be discharged to the southern side of the R25. This inlet is below water level therefore the inlet will be pressurized and will contain a friction head. Discharged water will follow the natural water course moving to the natural waterway.</p> <p><b>Alternative 2:</b></p> <p>Storm water which may contain hydrocarbons will be channelled to a retention pond system containing an oil water separator. The water in the retention pond will be used for irrigation of the gardens.</p> <p>Alternative 1 was not found to be feasible as it might lead to pollution of the Bronkhorstspruit River should the oil water separator fail, causing several cumulative environmental impacts downstream. Alternative 2 was not found to be feasible as the water will require daily testing and possible treatment to ensure that it conforms to specified standards for irrigation.</p> <p>The Proposal (Preferred Alternative) was found to be feasible due to it containing the least latent environmental risk and being more cost effective. Due to the above only the Proposal (Preferred Alternative) was assessed in the impact assessment below.</p> |
| 6 | Demand alternative                | N/A  |
| 7 | Input alternative                 | N/A  |
| 8 | Routing alternative               | <p><b>Proposal (Preferred Alternative)</b></p> <p>Only the routing and access point described in the Proposal (Preferred Alternative) at 4. Design or Layout Alternative above has been assessed in the impact assessment below. No further alternatives were feasible due to other routing alternatives encroaching on the ecological support area surrounding the River, intersecting with the 1:100 year floodline and restriction by Gautrans to develop an access road / slipway from the R25.</p>  |
| 9 | Scheduling and timing alternative | N/A  |

|    |                     |     |
|----|---------------------|-----|
| 10 | Scale and Magnitude | N/A |
|----|---------------------|-----|

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

|     |
|-----|
| N/A |
|-----|

#### 4. PHYSICAL SIZE OF THE ACTIVITY

Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc.), impermeable surfaces and landscaped areas:

|  |                              |
|--|------------------------------|
|  | <b>Size of the activity:</b> |
| Proposed activity ( <b>Total environmental (landscaping, parking, etc.) and the building footprint</b> ) | 13 747 m <sup>2</sup>        |
| <b>Alternatives:</b>   |                              |
| Alternative 1 (if any)   |                              |
| Alternative 2 (if any)   |                              |
|  | Ha/ m <sup>2</sup>           |

or, for linear activities:

|                        |                                |
|------------------------|--------------------------------|
|                        | <b>Length of the activity:</b> |
| Proposed activity      |                                |
| <b>Alternatives:</b>   |                                |
| Alternative 1 (if any) |                                |
| Alternative 2 (if any) |                                |
|                        | m/km                           |

Indicate the size of the site(s) or servitudes (within which the above footprints will occur):

|                        |                                    |
|------------------------|------------------------------------|
|                        | <b>Size of the site/servitude:</b> |
| Proposed activity      | 1,7603 ha                          |
| <b>Alternatives:</b>   |                                    |
| Alternative 1 (if any) |                                    |
| Alternative 2 (if any) |                                    |
|                        | Ha/m <sup>2</sup>                  |

#### 5. SITE ACCESS

##### Proposal

Does ready access to the site exist, or is access directly from an existing road?

If NO, what is the distance over which a new access road will be built

|  |           |
|--|-----------|
| <b>YES</b>                                   | <b>NO</b> |
| Access will be directly from Dam Road. Refer |           |

below for  
further  
details.

Describe the type of access road planned:

#### **Study intersection and surrounding road network**

The Traffic Impact Assessment (TIA) and Supplementary Civil Engineering Service Report by SMEC (2018) (Attached in Appendix G) concludes:

The study intersection is at the corner of the R25 Provincial Road and Dam Road. The traffic from the east and west approaches along the R25 Road has a right of way, while the traffic from the south approach is stop controlled).

The road network and the associated hierarchy is as follows:

- The N4 Highway is a Class 1 national road located north of the development site with a posted speed of 120 km/h that links Gauteng to Mpumalanga. This highway is paved and consists of two lanes per direction;
- The R25 is a Class 2 provincial road with a posted speed of 100 km/h linking Bronkhorstspuit via Bapsfontein with Johannesburg, and the East Rand, as well as OR Tambo Airport. This provincial road is paved and consists of a single lane per direction;
- The R513 is a Class 2 provincial road which carries low volumes of traffic during critical peak hours and has a posted speed of 100 km/h. This one lane per direction provincial road is paved and is located west of the development site; and
- Dam Road is a paved Class 3 or 4 local road with a posted speed of 80 km/h and is located directly west of the development site. Dam Road carries low volumes of traffic during critical peak hours and consists of one lane per direction (SMEC, 2018b).

#### **Site access and site distance**

Access from the R25 on the northern boundary of the development site is prohibited due to Gautrans restrictions. The proposed access will be from the existing Road 02254, Bronkhorstspuit Dam Road, 320 m south of the R25/Dam Road intersection (Refer to Figure 2). The access intersection will be designed as per the Gauteng Department of Transport, Roads and Works' guidelines and standards with an exclusive right turn lane. This access has already been approved for the existing fuel depot (SMEC, 2018a, 2018b).

It is a requirement from the City of Tshwane Metropolitan Municipality (COT) that the access road should consist of a turnaround facility at the end of the proposed access road as indicated in Figure 2. The proposed access road will consist of a 7,4 m wide single carriage road. The road will be a Class 4a and will require a minimum road reserve width of 25 m. The portion of the access road after the left turn approaching the truck depo and proposed fuel station will be a Class 4b road with a 20 m road reserve. The road with will remain at 7,4 m (SMEC, 2018a).





**Table 1: Distance with which the design of a filling station access must comply with**

| Design speed (km/h) | Distance to perceive separate decision making points (Ss) (m) | Deceleration Distance (Sv) (m) | Gap acceptance distance for through traffic (Sv) (m) | Gap acceptance distance for turning traffic (Sg*) (m) |
|---------------------|---|--------------------------------|--|---|
| 60                  | 80  | 80                             | 117  | 73  |
| 70-80               | 115   | 115                            | 156  | 73  |
| 90                  | 135   | 135                            | 175  | 73  |
| 100                 | 155   | 155                            | 194  | 73  |
| 120                 | 210   | 210                            | 233  | 73  |

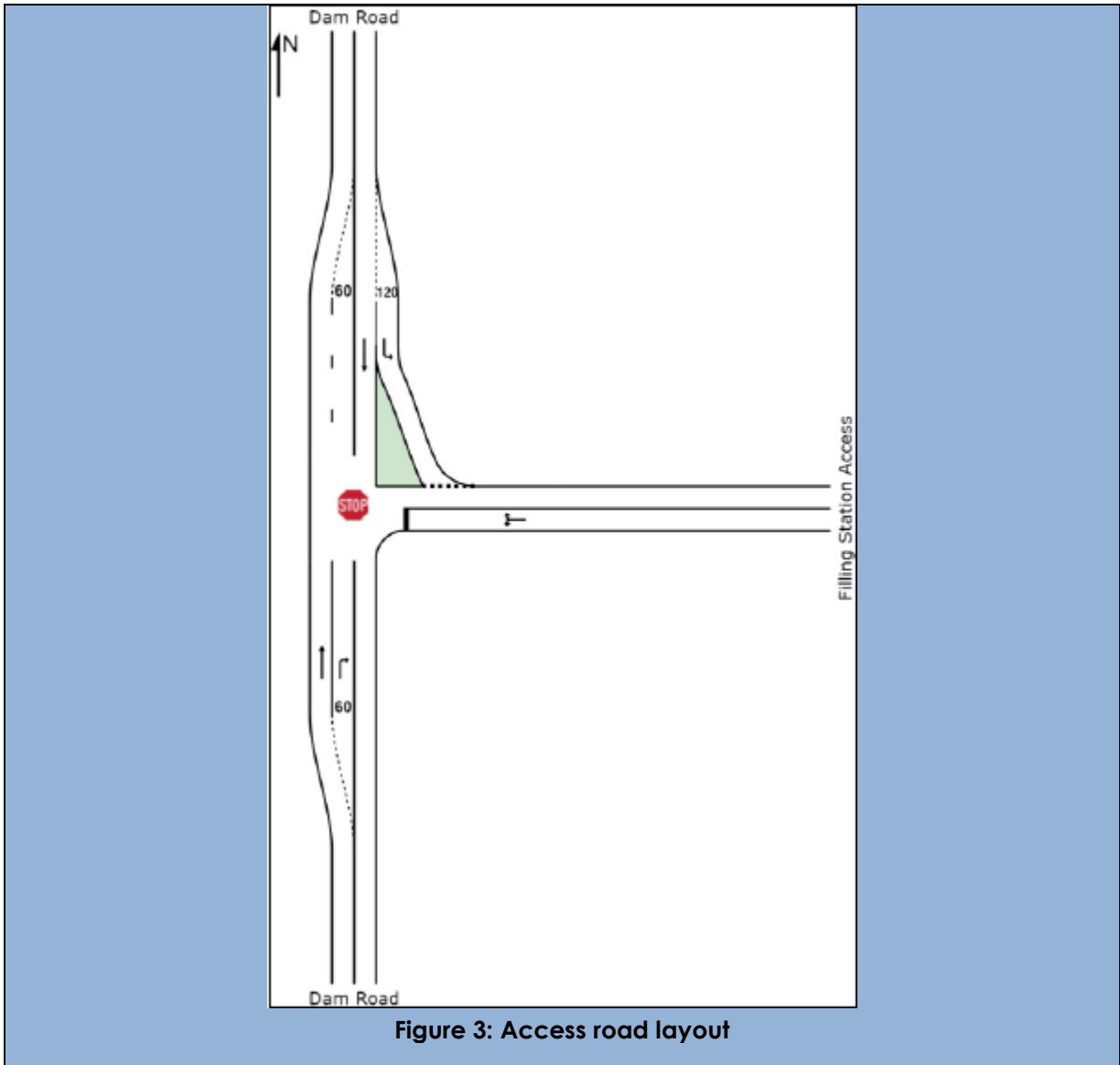
- This distance is independent of the design speed for the access

**Required stopping sight distance (Ss)**

The proposed filling station access is proposed at 320 m south of the R25 Road / Dam Road intersection on a relatively flat surrounding terrain where a vehicle approaching from either side of the intersection will be able to see a vehicle leaving the filling station from a minimum distance of 300 m, which will give it enough time to stop if need be (SMEC, 2018b).

**Deceleration Distance (Sv)**

A full access is proposed off Dam Road approximately 320 m south of the R25 Road/ Dam Road intersection. A 120 m exclusive right turn lane including taper on the south approach is proposed as shown in Figure 3 below. The proposed right turn lane will provide additional protection for vehicles accessing the filling station from the south approach. Further to this, a 120 m deceleration lane is proposed from the north approach to comply with the Gautrans Standard. In light of the above, the access will comply with the deceleration distance criteria (SMEC, 2018b).



**Figure 3: Access road layout**

Include the position of the access road on the site plan (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 1**

Does ready access to the site exist, or is access directly from an existing road?

|     |    |
|-----|----|
| YES | NO |
|     |    |

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**Alternative 2**

Does ready access to the site exist, or is access directly from an existing road?

|     |    |
|-----|----|
| YES | NO |
| N/A |    |

If NO, what is the distance over which a new access road will be built

Describe the type of access road planned:

|  |
|--|
|  |
|--|

Include the position of the access road on the site plan. (if the access road is to traverse a sensitive feature the impact thereof must be included in the assessment).

**PLEASE NOTE: Points 6 to 8 of Section A must be duplicated where relevant for alternatives**

Section A 6-8 has been duplicated

0

Number of times

(only complete when applicable)

## 6. LAYOUT OR ROUTE PLAN

A detailed site or route (for linear activities) plan(s) must be prepared for each alternative site or alternative activity. It must be attached to this document. The site or route plans must indicate the following:

- the layout plan is printed in colour and is overlaid with a sensitivity map (if applicable);
- layout plan is of acceptable paper size and scale, e.g.
  - A4 size for activities with development footprint of 10sqm to 5 hectares;
  - A3 size for activities with development footprint of > 5 hectares to 20 hectares;
  - A2 size for activities with development footprint of >20 hectares to 50 hectares);
  - A1 size for activities with development footprint of >50 hectares);
- The following should serve as a guide for scale issues on the layout plan:
  - A0 = 1: 500
  - A1 = 1: 1000
  - A2 = 1: 2000
  - A3 = 1: 4000
  - A4 = 1: 8000 (±10 000)
- shapefiles of the activity must be included in the electronic submission on the CD's;
- the property boundaries and Surveyor General numbers of all the properties within 50m of the site;
- the exact position of each element of the activity as well as any other structures on the site;
- the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, sewage pipelines, septic tanks, storm water infrastructure;
- servitudes indicating the purpose of the servitude;
- sensitive environmental elements on and within 100m of the site or sites (including the relevant buffers as prescribed by the competent authority) including (but not limited thereto):
  - Rivers and wetlands;
  - the 1:100 and 1:50 year flood line;
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation (even if it is degraded or infested with alien species);

- Where a watercourse is located on the site at least one cross section of the water course must be included (to allow the position of the relevant buffer from the bank to be clearly indicated)

Refer to Appendix A

#### **FOR LOCALITY MAP (NOTE THIS IS ALSO INCLUDED IN THE APPLICATION FORM REQUIREMENTS)**

- the scale of locality map must be at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map;
- the locality map and all other maps must be in colour;
- locality map must show property boundaries and numbers within 100m of the site, and for poultry and/or piggery, locality map must show properties within 500m and prevailing or predominant wind direction;
- for gentle slopes the 1m contour intervals must be indicated on the map and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the map;
- areas with indigenous vegetation (even if it is degraded or infested with alien species);
- locality map must show exact position of development site or sites;
- locality map showing and identifying (if possible) public and access roads; and
- the current land use as well as the land use zoning of each of the properties adjoining the site or sites.

Refer to Appendix D

### **7. SITE PHOTOGRAPHS**

Colour photographs from the center 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 the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

Refer to Appendix B

### **8. FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of 1:200 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 to be attached in the appropriate Appendix.

Refer to Appendix C

## **SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT**

**Note:** Complete Section B for the proposal and alternative(s) (if necessary)

### **Instructions for completion of Section B for linear activities**

- 1) For linear activities (pipelines etc) it may be necessary to complete Section B for each section of the site that has a significantly different environment.

- 2) Indicate on a plan(s) the different environments identified
- 3) Complete Section B for each of the above areas identified
- 4) Attach to this form in a chronological order
- 5) Each copy of Section B must clearly indicate the corresponding sections of the route at the top of the next page.

Section B has been duplicated for  times sections of the route

**Instructions for completion of Section B for location/route alternatives**

- 1) For each location/route alternative identified the entire Section B needs to be completed
- 2) Each alternative location/route needs to be clearly indicated at the top of the next page
- 3) Attach the above documents in a chronological order

Section B has been duplicated for  times location/route alternatives (complete only when appropriate)

**Instructions for completion of Section B when both location/route alternatives and linear activities are applicable for the application**

Section B is to be completed and attachments order in the following way

- All significantly different environments identified for Alternative 1 is to be completed and attached in a chronological order; then
- All significantly different environments identified for Alternative 2 is to be completed and attached chronological order, etc.

Section B - Section of Route  (complete only when appropriate for above)

Section B – Location/route Alternative No.  (complete only when appropriate for above)

**1. PROPERTY DESCRIPTION**

**Property description:** (Including Physical Address and Farm name, portion etc.)

The proposed development of a fuel station with a convenience store and restaurant on Remainder of Portion 25 of the farm Vlakfontein, 523 JR, City of Tshwane Metropolitan Municipality.

**2. 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 decimal degrees. The degrees should have at least six decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

|                     |   |  |
|---------------------|---|--|
| <b>Alternative:</b> | <b>Latitude (S):</b>  | <b>Longitude (E):</b>  |
|                     | <input style="width: 100%; height: 20px; border: 1px solid black;" type="text" value="S25 ° 51 '29,4''"/> | <input style="width: 100%; height: 20px; border: 1px solid black;" type="text" value="E28 ° 42 '4,2''"/> |

**In the case of linear activities:**

**Alternative:**

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

**Latitude (S):**

**Longitude (E):**

|  |   |  |   |
|--|---|--|---|
|  | ° |  | ° |
|  | ° |  | ° |
|  | ° |  | ° |

For route alternatives that are longer than 500m, please provide co-ordinates taken every 250 meters along the route and attached in the appropriate Appendix

Addendum of route alternatives attached

**N/A**

The 21 digit Surveyor General code of each cadastral land parcel

| PROPOSAL | T | O | J | R | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 2 | 3 | 0 | 0 | 0 | 2 | 5 |  |
|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|--|
| ALT. 1   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| ALT. 2   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |
| etc.     |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |  |

**3. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

|      |             |                    |             |              |             |                  |
|------|-------------|--------------------|-------------|--------------|-------------|------------------|
| Flat | 1:50 – 1:20 | <b>1:20 – 1:15</b> | 1:15 – 1:10 | 1:10 – 1:7,5 | 1:7,5 – 1:5 | Steeper than 1:5 |
|------|-------------|--------------------|-------------|--------------|-------------|------------------|

According to the Hydrogeological Investigation by Geo Pollution Technologies (2016) (Attached in Appendix G), the slope of the site is relatively flat with a general surface slope of 0.06 in a north westerly direction.

**4. LOCATION IN LANDSCAPE**

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

|           |         |                          |        |              |                            |                    |
|-----------|---------|--------------------------|--------|--------------|----------------------------|--------------------|
| Ridgeline | Plateau | Side slope of hill/ridge | Valley | <b>Plain</b> | Undulating plain/low hills | <b>River front</b> |
|-----------|---------|--------------------------|--------|--------------|----------------------------|--------------------|

**5. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE**

The Hydrogeological Specialist from Geo Pollution Technologies, confirmed the below:

a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)

Dolomite, sinkhole or doline areas

Seasonally wet soils (often close to water bodies)

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
| YES | <b>NO</b> |
| YES | <b>NO</b> |

Unstable rocky slopes or steep slopes with loose soil  
 Dispersive soils (soils that dissolve in water)  
 Soils with high clay content (clay fraction more than 40%)  
 Any other unstable soil or geological feature  
 An area sensitive to erosion

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
| YES | <b>NO</b> |
| YES | <b>NO</b> |
| YES | <b>NO</b> |
| YES | <b>NO</b> |

### **Hydrogeology**

The Hydrogeological Investigation conducted by Geo Pollution Technologies (2016) (Attached in Appendix G) concluded that the site falls within the 2528 Pretoria 1:250 000 geology series. The site is underlain by quartzite with interlayers of shale and sub-greywacke of the Rayton Formation of the Pretoria Group, Transvaal Supergroup. Around the site outcrops dolerite dykes or sills. At these outcrop areas, if weathered, the Pretoria Group quartzites tend to form extensive aquitards with improved porosity and permeability. Zones of weathering and fracturing within the quartzites will act as targets for potential groundwater exploration. Quartzite/shale and sandstone complexes are found to generally have low transmissivities, except if weathered and form extensive aquitards in outcrop areas. The sandy soil horizon is expected to allow for rapid infiltration into the vadose zone during precipitation events at recharge.

Both the porosity and the hydraulic conductivity of the Pretoria Group quartzites are known to be low. The commonly expected values of porosity and hydraulic conductivity are 0.035 and 0.01 m/day respectively. Movement of groundwater in this aquifer occurs primarily in secondary structures such as faults and fractures (Geo Pollution Technologies, 2016).

### **Geotechnical assessment**

A geotechnical assessment was conducted by SMEC in February 2017 and classified the soil profile as comprising of loose sand overlying medium dense clayey sand from between 1,3 m and 2 m. Lab results show that the soils of the development site are of low plasticity and have a low potential expansiveness (SMEC, 2017).

### **Hydrocensus survey**

Four privately owned abstraction boreholes were identified in the surrounding area. The dominant groundwater use in the area is human consumption, with minor livestock watering. The average depth to the water table across the area is 8.5 mbgl. It can generally be assumed that the groundwater table emulates the surface topography. Groundwater flow is therefore inferred to take place in a westerly direction (Geo Pollution Technologies, 2016).

### **Water Quality Assessment**

#### *Organic Analysis*

Six ground- and surface water samples were submitted for laboratory analysis for selected inorganic constituents and petroleum hydrocarbons associated with filling stations. No



targeted petroleum hydrocarbons were detected in any of the groundwater and Bronkhorstspuit samples.

Four groundwater samples and two surface water samples were submitted to UIS Analytical Services (Pty) Ltd. All the sampled boreholes and the Bronkhorstspuit upstream and downstream of the proposed development's water consistent concentrations comply with the SANS 241 limits for human consumption (Geo Pollution Technologies, 2016).

(Information in respect of the above will often be available at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by Geological Survey may also be used).

b) are any caves located on the site(s)

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):**

**Longitude (E):**

|   |   |
|---|---|
| ° | ° |
|---|---|

c) are any caves located within a 300m radius of the site(s)

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):**

**Longitude (E):**

|   |   |
|---|---|
| ° | ° |
|---|---|

d) are any sinkholes located within a 300m radius of the site(s)

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If yes to above provide location details in terms of latitude and longitude and indicate location on site or route map(s)

**Latitude (S):**

**Longitude (E):**

|   |   |
|---|---|
| ° | ° |
|---|---|

If any of the answers to the above are "YES" or "unsure", specialist input may be requested by the Department

## 6. AGRICULTURE

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?

|            |    |
|------------|----|
| <b>YES</b> | NO |
|------------|----|

The AGIS Comprehensive Atlas (AGIS, 2006) classifies this site as high potential arable land. According to the Land Capability Classification by SFP Townplanning (2016) (Attached in Appendix G), the site is also classified as high potential arable land. The Grazing Capacity for Portion 25 of the farm Vlakfontein was calculated by SFP Townplanning (2016) (Attached in Appendix G), as 7-8 ha/GVE and 5-6 ha/GVE. However a section of the site is already developed into a truck depo and the site is severely disturbed due to previous agricultural activities. The remainder of Portion 25 is still undeveloped, but overgrazed. Due to portions of the site already being developed, the area available for grazing is small and the actual grazing capacity will be less than the stated values above. According to the Biodiversity

Report compiled by Gem Science (2016) (Attached in Appendix G), the grassland vegetation present at the site is highly disturbed and the site contains patches of alien tree species with no specific land use. This will also decrease the grazing capacity of the site. No agricultural activities will be feasible at the site unless the exotic trees and alien and invasive species are eradicated as well as general rehabilitation of the study area is conducted (Gem Science, 2016).

**Please note:** The Department may request specialist input/studies in respect of the above.

## 7. GROUNDCOVER

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

**Indicate the types of groundcover present on the site and include the estimated percentage found on site**

|                                      |  |  |   |                                |
|--------------------------------------|--|--|---|--------------------------------|
| Natural veld - good condition<br>% = | <b>Natural veld with scattered aliens<br/>% =86%</b> | Natural veld with heavy alien infestation<br>% = | Veld dominated by alien species<br>% =      | Landscaped (vegetation)<br>% = |
| Sport field<br>% =                   | <b>Cultivated land<br/>% =</b>                       | Paved surface (hard landscaping)<br>% =          | <b>Building or other structure<br/>% =1</b> | <b>Bare soil<br/>% =13</b>     |

**Please note:** The Department may request specialist input/studies depending on the nature of the groundcover and potential impact(s) of the proposed activity/ies.

Are there any rare or endangered flora or fauna species (including red list species) present on the site

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If YES, specify and explain:

According to the Biodiversity Report by GEM Science (2016) (Attached in Appendix G) no vegetation or fauna of major importance (red data species) were identified on the site.

Are there any rare or endangered flora or fauna species (including red list species) present within a 200m (if within urban area as defined in the Regulations) or within 600m (if outside the urban area as defined in the Regulations) radius of the site.

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If YES, specify and explain:

According to the Biodiversity Report by GEM Science (2016) (Attached in Appendix G) no vegetation or fauna of major importance (red data species) were identified on or adjacent to the site. All the grassland areas were found to be very disturbed and hosts very few species. The Mpumalanga Biodiversity Conservation Plan (MBCP) was consulted to assign conservation priority values to all of the vegetation communities identified on site and adjacent to the site. Most areas falling within a 200 m buffer zone from the development site, are classified as “no natural habitat remaining”. The remainder of the areas fall within the “least concern” class (Gem Science, 2016).

Are there any special or sensitive habitats or other natural features present on the site?

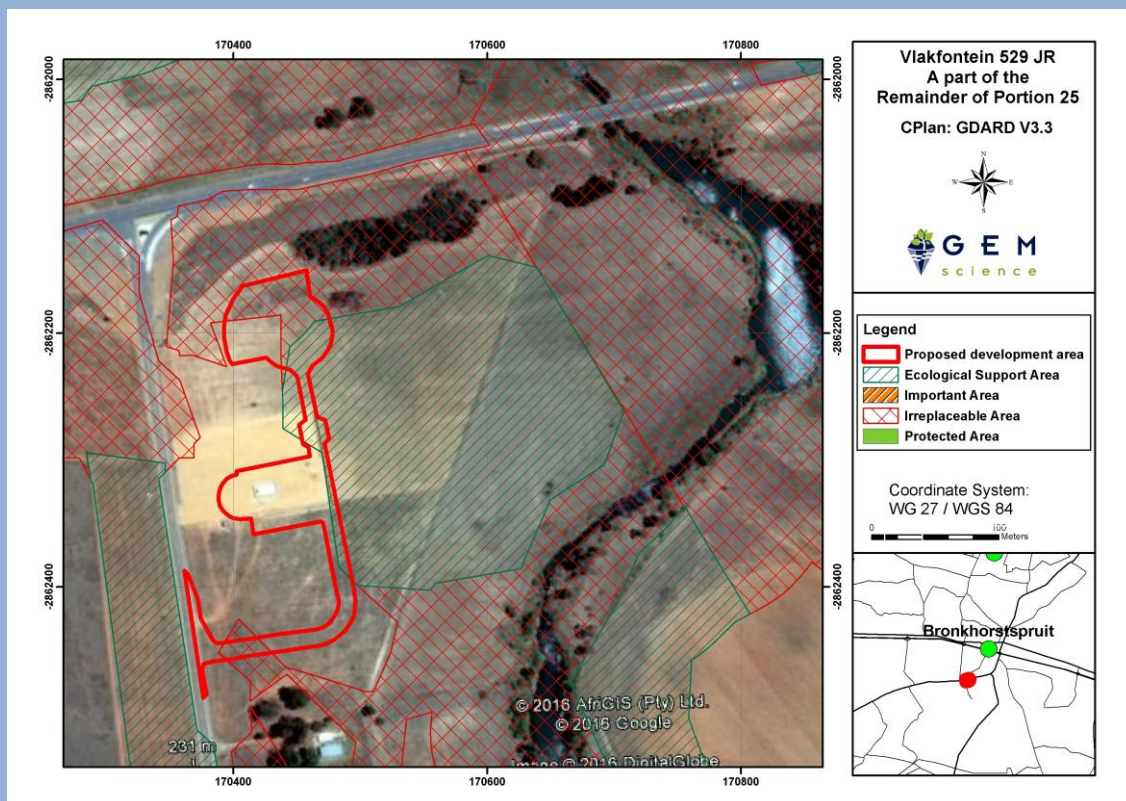
|     |    |
|-----|----|
| YES | NO |
|-----|----|

If YES, specify and explain:

**Gauteng Conservation Plan**

The findings of the Biodiversity Study by GEM Science (2016) (Attached in Appendix G) are concluded below.

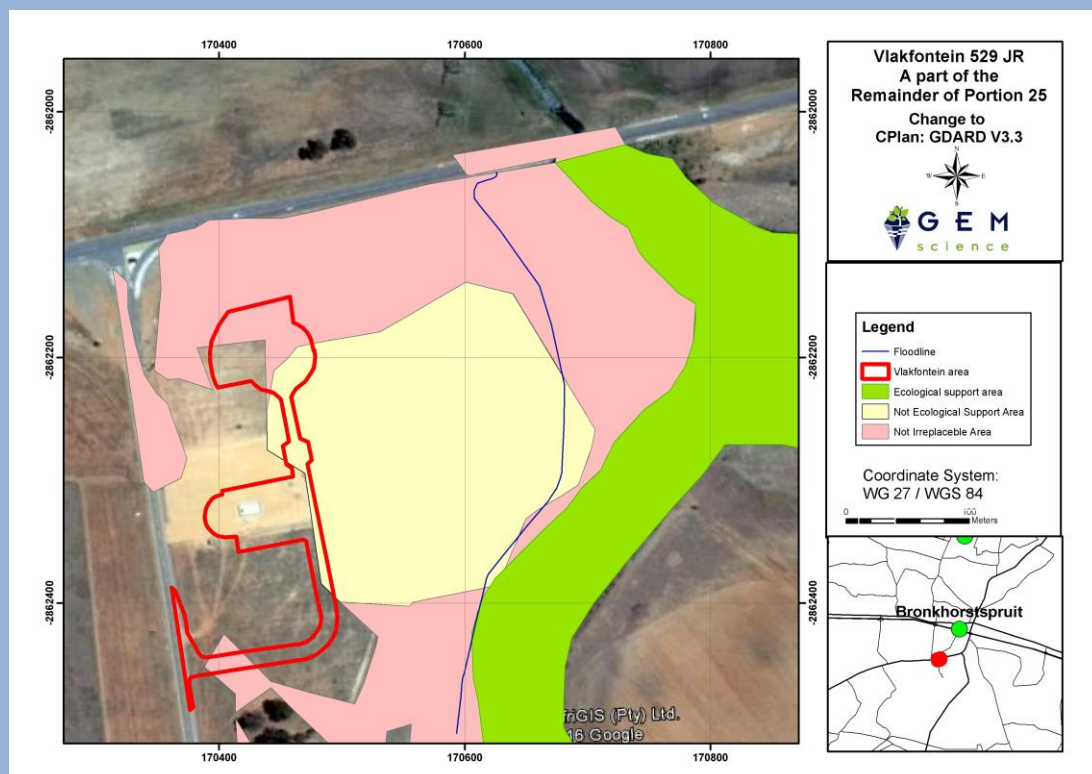
According to the C-Plan 3.3 parts of the site falls within “Ecological Support and Irreplaceable” categories (Figure 4). It classifies some areas as “least concern” near the site. Apart from the C-Plan classification a site visit has been conducted by the ecological specialist to confirm what is stated by the C-Plan. After ground truthing of the site the vegetation classification changed considerably (Gem Science, 2016).



**Figure 4: Conservation priority according to the GDARD C-Plan 3.3**

During this survey it was found that the classification by GDARD is not up to date, hence changes are proposed to the map:

- The area along the stream previously fell within the “Irreplaceable Area” – due to the high disturbance, high alien vegetation encroachment and little endemic species it cannot be classified as “Irreplaceable”. However, it does have a high ecological function and is a valuable ecological corridor; the area can be classified as: Ecological Support (Figure 5).
- The rest of the area previously classified as “Irreplaceable” is very disturbed with little ecological function; thus could not be classified at all (Figure 5).
- The area previously classified as “Ecological Support” is very disturbed with little ecological function; thus could not be classified at all (Figure 5).



**Figure 5: Changes to the C-Plan 3.3 of GDARD**

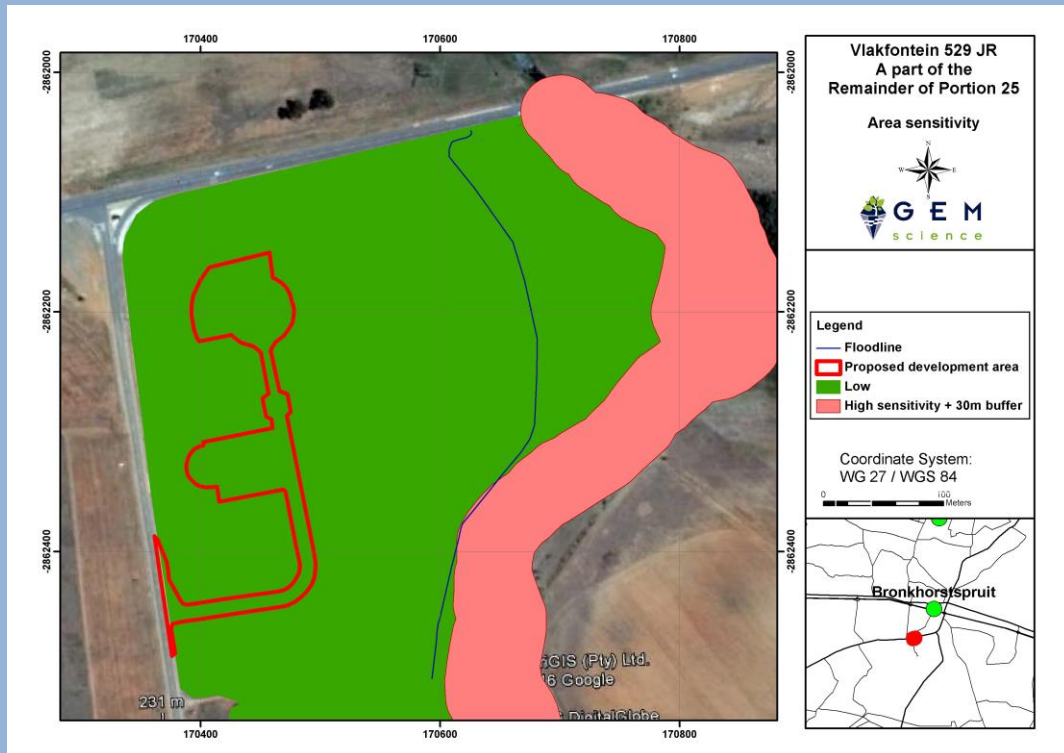
#### **Areas of high ecological importance and sensitivity**

The Biodiversity Report by GEM Science concludes (2016) that a perennial stream (Bronkhorstspuit) flows east of the site in a northern direction. The stream and directly adjacent area are areas of high ecological importance and sensitivity. These areas are important movement corridors for a variety of bird and mammal species. These linear systems will assist animals moving across the landscape, thereby facilitating gene exchange among different populations of the same species. Also it represents important short-term (daily) foraging networks for bird taxa flying between their foraging and roosting grounds (GEM Science, 2016).

#### **Areas of medium ecological importance**

A wetland is situated approximately 300 m away from the development site. Areas of medium ecological importance are represented by the disturbed wetland area near and

along the stream. However, it is composed of widespread species and probably a limited number of specialized species. These units are therefore regarded as functional entities that contribute mainly to short-term faunal dispersal, hence included within the corridor area (high sensitivity area represented by a 30 m buffer) (Refer to figure 6).



**Figure 6: Sensitivity map of study area**

### Areas of Low Ecological importance and sensitivity

All of the identified grassland areas fall within this class.

- These areas are not considered to be pristine and occurred on areas where severe disturbances took place;
- Many of these areas have alien and invader taxa, thus contributing little towards local biodiversity; and
- The vegetation assemblages are at an advanced state of degradation and will seldom (if ever) revert back to that of a late-successional unit which typifies the regional vegetation types (Gem Science, 2016).

### Conclusions

Six main plant communities were identified, one of which was assigned a medium sensitivity value. The overall area has been disturbed and degraded in the past. No vegetation or fauna of major importance (red data species) were identified on the site.

All the grassland areas are very disturbed and hosts very few species. The stream and directly surrounding area were found to be an important ecosystem, while the rest of the plant communities have a low sensitivity value.

No important vegetation or fauna species were recorded on the site.

It is suggested that even in the event that the development does not commence on the study area, the eradication of exotic trees, alien and invasive species, a decrease in the grazing pressure, better veld management as well as the general rehabilitation of the study area should be conducted (Gem Science, 2016).

Was a specialist consulted to assist with completing this section

|            |           |
|------------|-----------|
| <b>YES</b> | <b>NO</b> |
|------------|-----------|

If yes complete specialist details

|                                     |                               |  |  |
|-------------------------------------|-------------------------------|--|--|
| Name of the specialist:             | Stephan Veldsman (Pr.Sci.Nat) |  |  |
| Qualification(s) of the specialist: | MSC Plant Sciences            |  |  |
| Postal address:                     | PO Box 32748, Glenstantia     |  |  |
| Postal code:                        | 0010                          |  |  |

|            |                         |       |              |
|------------|-------------------------|-------|--------------|
| Telephone: | 012 361 6094            | Cell: | 084 222 1223 |
| E-mail:    | enviro@gemscience.co.za | Fax:  | 086 684 0141 |

Are any further specialist studies recommended by the specialist?

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If YES, specify: N/A

If YES, is such a report(s) attached?

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If YES list the specialist reports attached below

Biodiversity report compiled by GEM Science (5 September 2016) (Refer to Appendix G). No other specialist reports were requested by the specialist.

Signature of specialist:



Date: 5 September 2016

Please note; If more than one specialist was consulted to assist with the filling in of this section then this table must be appropriately duplicated

## Aquatic Assessment

The following findings were made in the Aquatic Assessment by Knight Piesold (Pty) Ltd during site assessments in October 2016 (Refer to Appendix G).

### Present Ecological State (PES)

#### *Macro Invertebrates*

The Present Ecological State of aquatic macroinvertebrate in the Bronkhorstspruit during the surveys in October 2016 ranged between Category C (Moderately Modified) downstream and Category D (Largely Modified) upstream of the proposed development. Not all sites presented suitable habitat availability for macro invertebrates. A large number of taxa sensitive to water quality were recorded in the Bronkhorstspruit.

#### *Fish*

The Present Ecological State of fish in the Bronkhorstspruit in 2016 ranged between a Category E (Severely Modified) at the impact site and a Category F (Critically Modified) at the control and downstream points. No alien fish were recorded. No IUCN significant fish species were recorded.

#### *Wetland*

The presence of a wetland was verified during field investigations and one hydrogeomorphic wetland type was identified namely a valley bottom without a channel. The wetland covers 5.2 ha and is located approximately 300 m to the north east of the proposed development.

The wetland area showed some signs of disturbance as it is situated on a livestock farm and was categorised as a PES of C, indicating a moderately modified state.

Overall Knight Piesold concluded that no negative impact is envisaged for the wetland due to the proposed development. However it is recommended that aquatic bio-monitoring should continue during the construction phase to ensure that the *Bronkhorstspruit* is not impacted on by the construction of the development. Also the below mitigation measures must be adhered to and implemented at all times to prevent any negative environmental impacts from occurring:

- Hazardous products should be stored off site;
- Vehicles should be parked on impermeable surfaces to prevent hydrocarbon spillages;
- General housekeeping and waste management measures should be implemented to avoid littering and dumping;
- Design surface water management infrastructure to minimise the surface water runoff impact on the *Bronkhorstspruit*;
- The extent of exposed soils at one time should be limited;
- Construction footprints should be minimised;
- Low-level berms and sediment traps should be placed at low gradient points on the

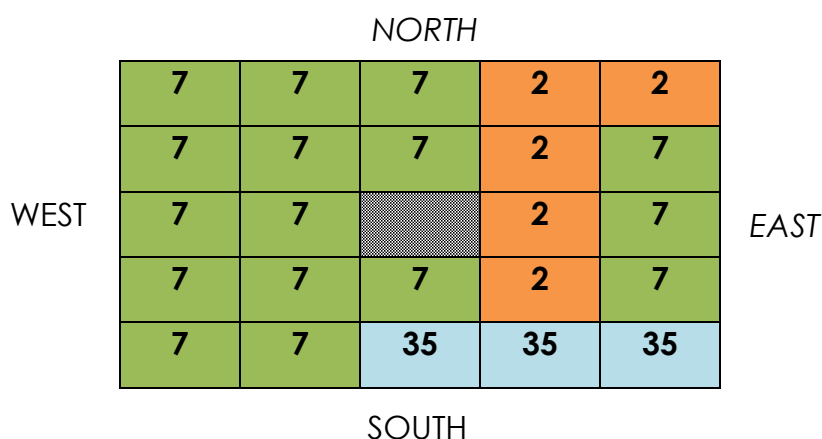
construction site (Knight Piesold Consulting, 2016a).

### 8. LAND USE CHARACTER OF SURROUNDING AREA

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

|   |   |   |                                       |   |
|---|---|---|---------------------------------------|---|
| 1. Vacant land                          | 2. River, stream, wetland                         | 3. Nature conservation area                     | 4. Public open space                  | 5. Koppie or ridge                            |
| 6. Dam or reservoir                     | 7. Agriculture                                    | 8. Low density residential                      | 9. Medium to high density residential | 10. Informal residential                      |
| 11. Old age home                        | 12. Retail  | 13. Offices                                     | 14. Commercial & warehousing          | 15. Light industrial                          |
| 16. Heavy industrial <sup>AN</sup>      | 17. Hospitality facility                          | 18. Church                                      | 19. Education facilities              | 20. Sport facilities                          |
| 21. Golf course/polo fields             | 22. Airport <sup>N</sup>                          | 23. Train station or shunting yard <sup>N</sup> | 24. Railway line <sup>N</sup>         | 25. Major road (4 lanes or more) <sup>N</sup> |
| 26. Sewage treatment plant <sup>A</sup> | 27. Landfill or waste treatment site <sup>A</sup> | 28. Historical building                         | 29. Graveyard                         | 30. Archeological site                        |
| 31. Open cast mine                      | 32. Underground mine                              | 33. Spoil heap or slimes dam <sup>A</sup>       | 34. Small Holdings                    |   |
| 35 Other land uses (Equestrian estate): |   |   |                                       |   |

**NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks**



**Note:** More than one (1) Land-use may be indicated in a block

**Please note:** The Department may request specialist input/studies depending on the nature of the land use character of the area and potential impact(s) of the proposed activity/ies. Specialist reports that look at health & air quality and noise impacts may be required for any



feature above and in particular those features marked with an “A” and with an “N” respectively.

Have specialist reports been attached

|  |    |
|--|----|
| <b>YES<br/>(Refer to<br/>Appendix<br/>G)</b> | NO |
|--|----|

If yes indicate the type of reports below

|  |
|--|
| Aquatic Assessment (Knight Piesold Consulting, 2016a)  |
| Floodline Assessment (Knight Piesold Consulting, 2016b)  |
| Land Capability Classification (SFP Townplanning, n/d)   |
| Grazing Capacity (SFP Townplanning, n/d)   |
| Biodiversity Report (Gem Science, 2016)  |
| Phase 1 Archaeological Impact Assessment (Coetzee, 2016)   |
| Hydrogeological Investigation (Geo Pollution Technologies, 2016)   |
| Traffic Study, Volumetric Analysis and Economic Viability Assessment (Prodeo Business Consultants, 2016) |
| Traffic Impact Assessment (SMEC, 2018b)  |
| Geotechnical Report (SMEC, 2017)   |
| Supplementary Civil Engineering Service Report (SMEC, 2018a)   |
| Groundwater Abstraction Assessment (Geo Pollution Technologies, 2017)                                    |

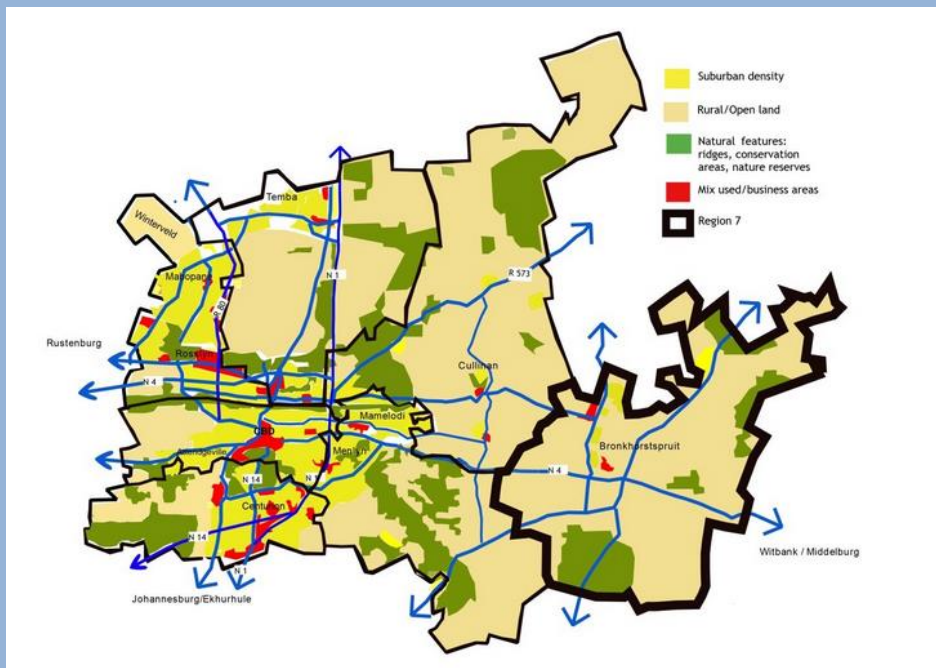
## 9. SOCIO-ECONOMIC CONTEXT

Describe the existing social and economic characteristics of the area and the community condition as baseline information to assess the potential social, economic and community impacts.

The development site falls in Ward 105 of Region 7 of the City of Tshwane Metropolitan Municipality (Refer to Figure 7). The urban areas of Bronkhorstspuit are more developed with modern infrastructure including water, electricity, roads, sanitation and communication networks. The area is known to have a weak spatial structure characterized by heavy traffic volumes, vast open spaces and small economic centers (City of Tshwane Metropolitan Municipality, 2014a, 2015). The socio-economic structure of Bronkhorstspuit is indicated in Table 3 below:

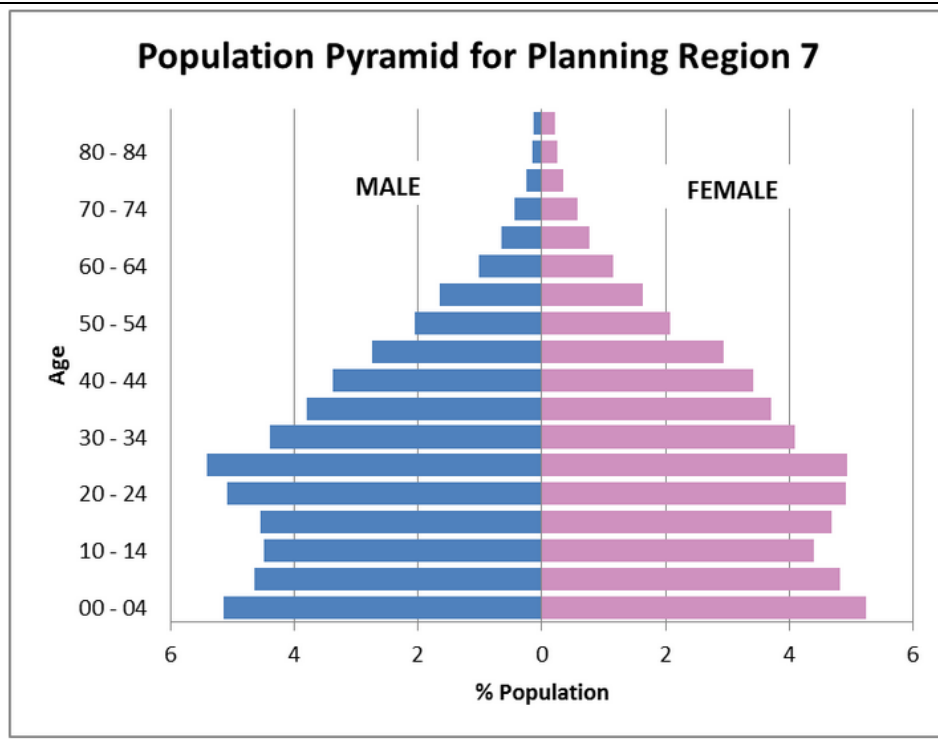
**Table 2: Socio-economic structure of ward 105**

| Wards | Population | Density per Ha | Dwelling Units | Average household size |
|-------|------------|----------------|----------------|------------------------|
| 105   | 26119      | 0.2            | 7048           | 3.7                    |



**Figure 7: Region 7 locality in the City of Tshwane Metropolitan Municipality (City of Tshwane Metropolitan Municipality, 2015)**

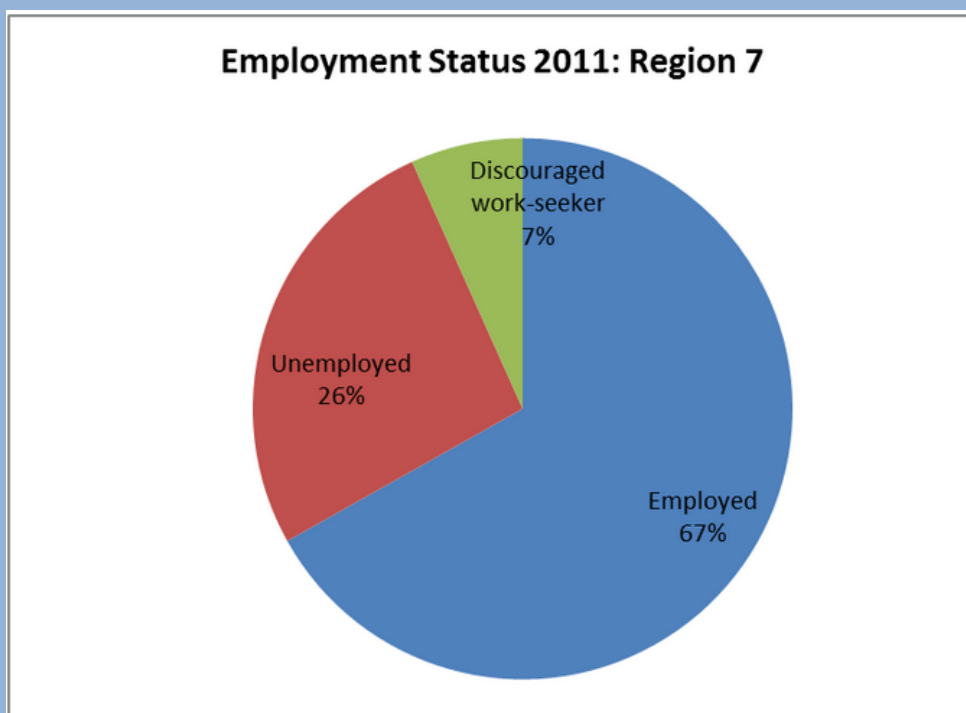
Bronkhorstspuit has an overall urban population of 99.7 %, with an overall young population of between 20 and 34 years (Refer to Figure 8) (Statistics South Africa, 2011; City of Tshwane Metropolitan Municipality, 2015)



**Figure 8: Population pyramid for Bronkhorstspuit (City of Tshwane Metropolitan Municipality, 2015)**

The region has low education levels, with few people having tertiary education. 7 % of adults have no schooling and 19 % are schooled up to matric level (City of Tshwane Metropolitan Municipality, 2015).

Up to 26 % of economically active persons in the region are unemployed, as per Figure 9 below.



**Figure 9: Employment status for Bronkhorstspuit (City of Tshwane Metropolitan Municipality,**

## 2015)

The main land use in the region consists of agricultural activities on commercial farms producing, maize, beef, groundnuts, cotton, sunflower and sorghum (City of Tshwane Metropolitan Municipality, 2014a).

The IDP of the City of Tshwane 2011 -2016 recognizes Bronkhorstspuit as an area that experiences infrastructure problems (City of Tshwane Metropolitan Municipality, 2011).

The main areas of funding for the City of Tshwane include:

- Government grants and subsidies (increased with 22.6 %);
- Water and electricity sales;
- Property rates;
- Licences and permits;
- Fines;
- Interests on outstanding debtors and external investments;
- Rental of facilities;
- Refuse removal; and
- Sanitation.

The fuel station responds to the Local Municipal Growth and Development strategy. It aims to stimulate local economy, fight unemployment and create job opportunities (skilled and un-skilled labor). The site creates an alternative investment stream for sustainable local economic development. The increased earning power of the employees appointed in the construction and operational phases of the development will lead to upliftment of the unemployed and improvement in living quality.

The site is located on a busy route, the R25, which is a provincial route connecting Johannesburg with Groblersdal. The proposed site is also situated on the route to the Bronkhorstspuit Dam; a popular tourist destination. Therefore there exists a demand for an additional fuel station in the area to meet the fuel needs of residents and passers-by.

Investment in this area is therefore feasible to fulfill the needs of motorists visiting or residing in this area. This proposed fuel station and associated service offerings will also serve the surrounding farmers and nearby urban residents. At present there is a limited amount of fuel stations with proper convenience facilities available for motorists travelling along the R25 or Dam Roads. There are no fuel stations situated within a 3 km radius from the proposed site. The nearest opposing fuel station, Godrich Motors, to the proposed site is approximately 8.4 km east of the site. This filling station is not directly located on, or visible from the R25, and it is entirely supported by the town traffic of Bronkhorstspuit (SMEC, 2018b).

Due to the high population and traffic density of this rapidly growing area, the proposed new filling station development will have no negative effect on Godrich Motors, and the latter will vice versa not have any competing effect on the proposed new development. The distance as well as the difference in support market and main catchment areas does not constitute a serious threat or risk to the license application. It is therefore not anticipated that significant economic competition will occur between the existing and

proposed fuel station (SMEC, 2018b).

## 10. CULTURAL/HISTORICAL FEATURES

Please be advised that if section 38 of the National Heritage Resources Act 25 of 1999 is applicable to your proposal or alternatives, then you are requested to furnish this Department with written comment from the South African Heritage Resource Agency (SAHRA) – Attach comment in appropriate annexure

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

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

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m<sup>2</sup> in extent; or

(ii) involving three or more existing erven or subdivisions thereof; or

(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

Are there any signs of culturally (aesthetic, social, spiritual, environmental) 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?

YES

NO

If YES, explain:

The Phase 1 Archaeological Impact Assessment conducted by Coetzee (2016) (Attached in Appendix G) indicates that no heritage resources were observed within the demarcated study area.

If uncertain, the Department may request that specialist input be provided to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist if one was already appointed:

**Introduction**

The Phase 1 Archaeological Impact Assessment found no material of heritage importance within the study area. There are no ruins, graves or other material of heritage importance on the area demarcated for development. Due to no visible material remains within the area demarcated for development pertaining to heritage resources and subject to adherence of the recommendations and approval by SAHRA, the development of the proposed mixed use development may continue (Coetzee, 2016).

**Recommendations**

The following recommendations are made in terms of the National Heritage resources Act (25 of 1999) in order to avoid the destruction of any heritage remains on the development site:

- It is recommended that during development, should any archaeological artefacts be encountered, all activities must be suspended pending further archaeological investigations. Should any skeletal remains be exposed during development, all activities should be suspended and the relevant heritage resources authority contacted.
- Should the need arise to expand the development a qualified archaeologist must conduct a full Phase 1 Archaeological Impact Assessment on the section beyond the demarcated areas
- From a heritage point of view, development may proceed on the demarcated portion, subject to the abovementioned conditions and recommendations (Coetzee, 2016).

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

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
| YES | <b>NO</b> |

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

If yes, please attached the comments from SAHRA in the appropriate Appendix

**SECTION C: PUBLIC PARTICIPATION (SECTION 41)**

- 1. The Environmental Assessment Practitioner must conduct public participation process in accordance with the requirement of the EIA Regulations, 2014.

**2. LOCAL AUTHORITY PARTICIPATION**

**Local 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 thirty (30) calendar days before the submission of the application to the competent authority.**

Was the draft report submitted to the local authority for comment? 

|     |    |
|-----|----|
| YES | NO |
|-----|----|

The local municipality previously known as Kungwini Local Municipality was dissolved and absorbed into the City of Tshwane Metropolitan Municipality. The Draft BA Report is currently made available to the City of Tshwane Metropolitan Municipality for comment as part of the PPP process running from 21 May 2018 – 23 July 2018. The final BAR will be submitted after incorporation of all comments received during the PPP.

If yes, has any comments been received from the local authority? 

|     |    |
|-----|----|
| YES | NO |
|-----|----|

If "YES", briefly describe the comment below (also attach any correspondence to and from the local authority to this application):

N/A

If "NO" briefly explain why no comments have been received or why the report was not submitted if that is the case.

60 Day commenting period in progress (21 May – 23 July 2018). Comments will be addressed in the Final BAR.

**3. CONSULTATION WITH OTHER STAKEHOLDERS**

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

Has any comment been received from stakeholders? 

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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

N/A

If "NO" briefly explain why no comments have been received

60 Day commenting period in progress. Comments will be addressed in the Final BAR.

#### **4. GENERAL PUBLIC PARTICIPATION REQUIREMENTS**

The Environmental Assessment Practitioner must ensure that the public participation process 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 and ratepayers associations. 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 flawed.

The EAP must record all comments and respond to each comment of the public / interested and affected party before the application report is submitted. The comments and responses must be captured in a Comments and Responses Report as prescribed in the regulations and be attached to this application.

#### **5. APPENDICES FOR PUBLIC PARTICIPATION**

All public participation information is to be attached in the appropriate Appendix. The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 – Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&Aps

#### **SECTION D: RESOURCE USE AND PROCESS DETAILS**

**Note:** Section D is to be completed for the proposal and alternative(s) (if necessary)



**Instructions for completion of Section D for alternatives**

- 1) For each alternative under investigation, where such alternatives will have different resource and process details (e.g. technology alternative), the entire Section D needs to be completed
- 4) Each alterative needs to be clearly indicated in the box below
- 5) Attach the above documents in a chronological order

Section D has been duplicated for alternatives

|   |
|---|
| 0 |
|---|

times

(complete only when appropriate)

Section D Alternative No.

|  |
|--|
|  |
|--|

(complete only when appropriate for above)

**1. WASTE, EFFLUENT, AND EMISSION MANAGEMENT**

**Solid waste management**

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

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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

|                   |
|-------------------|
| 45 m <sup>3</sup> |
|-------------------|

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

|  |
|--|
| <p>All building and demolition waste generated during the construction phase of the proposed development will be disposed of in a central waste disposal area within the contractor's camp. This waste will be removed by an authorized waste contractor and disposed of at a licensed landfill site. Construction waste will be the responsibility of the contractor during the construction phase.</p> <p>General domestic waste bins will be provided within the contractor's camp and will be collected on weekly intervals for disposal to a licensed municipal landfill site. Separation at source and recycling are encouraged for paper, glass, plastic, tins etc. Recyclables should be collected by a reputable recycling contractor.</p> <p>All hazardous wastes have to be separated from general waste. Hazardous waste has to be collected by a registered contractor for disposal at a licensed hazardous landfill site. Proof of safe disposal has to be provided by the independent contractor after disposal. All hazardous waste has to be accompanied by relevant Safety Data Sheets (SDSs).</p> |
|--|

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

|  |
|--|
| At the nearest licensed general landfill site permitted to take building and demolition waste. |
|--|

Will the activity produce solid waste during its operational phase?

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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

|                   |
|-------------------|
| 18 m <sup>3</sup> |
|-------------------|

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

General domestic waste bins will be provided across the site at strategic points. These bins will be emptied in waste skips at a central waste disposal area on-site. Waste skips will be collected on a weekly basis for disposal at a licensed municipal landfill site. Separation at source during the operational phase is encouraged. This will include bins for general non-recyclable waste and recyclable waste such as paper, glass, plastic, tins etc. Waste management at the proposed fuel station must conform to the waste hierarchy of minimization, reuse, recycle, recover and disposal of waste as per the National Environmental Management: Waste Act, 2008 (No. 59 of 2008) (NEM:WA) (Republic of South Africa, 2008).

All hazardous wastes have to be separated from other waste. Hazardous waste skips containing lids will be provided at the central waste disposal area. Hazardous waste has to be collected by a registered contractor for disposal at a licensed hazardous landfill site. Proof of safe disposal has to be provided by the independent contractor after disposal. All hazardous waste has to be accompanied by relevant Safety Data Sheets (SDSs).

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?

|  |    |
|--|----|
| YES According to the COTMM the Bronkhorstspuit landfill site has a life expectancy of 10 -15 years left. | NO |
|--|----|

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

All solid waste will be disposed of at the nearest licensed general landfill site.

**Note:** 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, 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?

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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?

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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.

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

Standard Operating Procedures pertaining to all waste generated on site will be encouraged together with a waste strategy to effectively manage waste and ensure the Best Practicable Environmental Option is incorporated at the fuel station.

Solid construction and demolition waste that is free from hazardous elements should be used as a filling material.

Recyclable general waste should be separated at source for recycling purposes. These wastes include tins, paper, plastic, glass, scrap metal, and used oil. All scrap metal and used oil should be collected by a registered contractor/recycler to be recycled.

Waste training should be provided to all employees and contractors to ensure effective management of waste as per the NEM:WA (No. 59 of 2008).

**Liquid effluent (other than domestic sewage)**

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

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

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

|                |  |
|----------------|--|
| m <sup>3</sup> |  |
|----------------|--|

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?

|     |    |
|-----|----|
| YES | NO |
|-----|----|

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

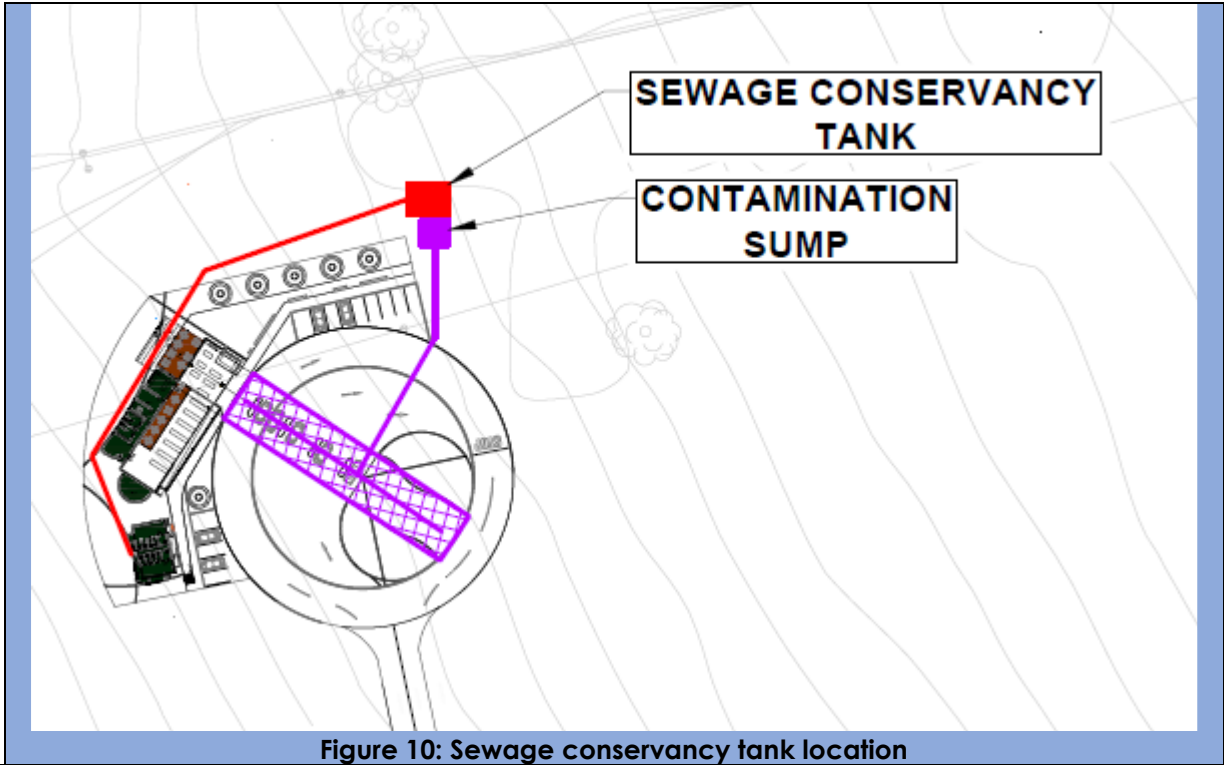
|            |    |
|------------|----|
| <b>YES</b> | NO |
|------------|----|

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

|                   |  |
|-------------------|--|
| 15 m <sup>3</sup> |  |
|-------------------|--|

If yes describe the nature of the effluent and how it will be disposed.

Certain areas of the filling station may be subject to contamination with grease, oil, petrol and other contaminants. These contamination areas include the service area in the vicinity of the fuel pumps as well as the bulk filling areas. The floor surface of the contamination areas will be sloped towards grid covered traps which will drain the contaminated water to a holding sump (Refer to Figure 10). The contaminated water will be removed and taken off site to an approved treatment facility. The sump will have a minimum volume of 1 m<sup>3</sup> (2 days storage) (SMEC, 2018a).



**Figure 10: Sewage conservancy tank location**

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

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

|  |    |
|--|----|
| <p><b>YES</b><br/>Collection, disposal and treatment will be conducted by and independent service provided. Save disposal certificates will be collected from the service provider and kept on record.</p> | NO |
|--|----|

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:

|  |  |
|--|--|
|  |  |
|  |  |
|  |  |

Postal code:

Telephone:

Cell:

E-mail:

Fax:

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

None.

**Liquid effluent (domestic sewage)**

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

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

|                |  |
|----------------|--|
| m <sup>3</sup> |  |
|----------------|--|

If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?

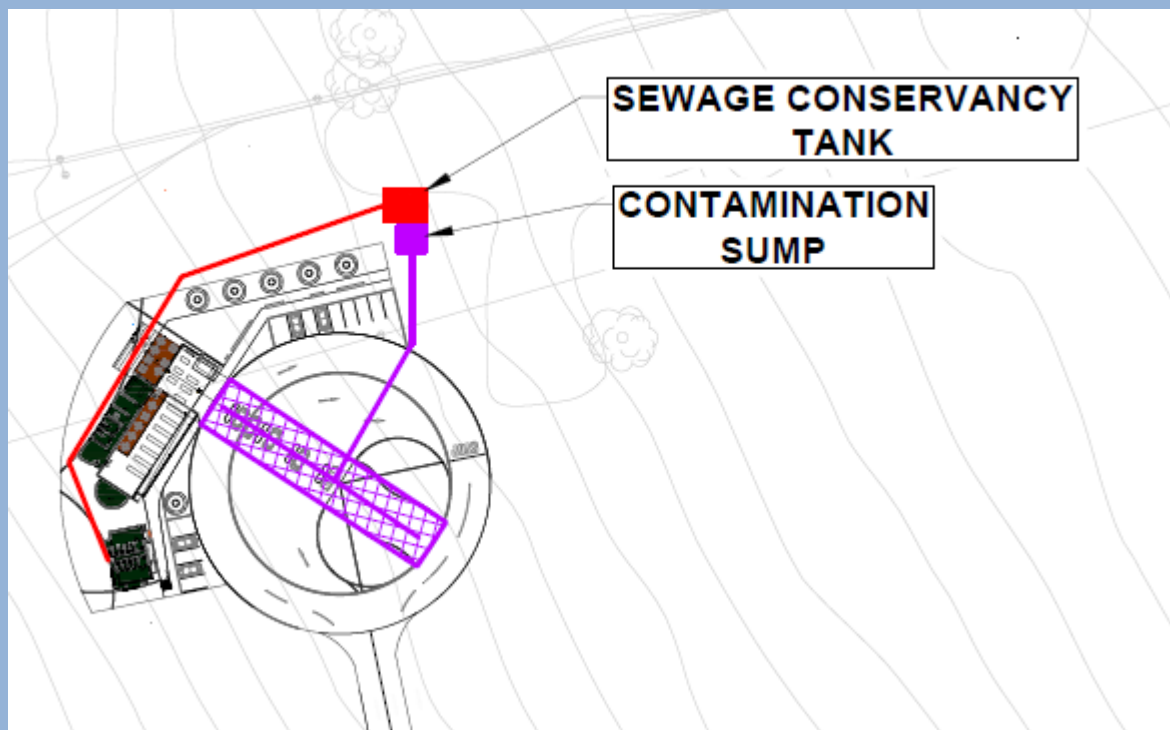
|     |    |
|-----|----|
| YES | NO |
|-----|----|

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

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

If yes describe how it will be treated and disposed off.

The proposed development will be serviced internally with a gravity sewer pipe and a conservancy tank, as indicated in Figure 11 below. The sewage will be collected on a daily basis by a honey sucker for off-site disposal/treatment (SMEC, 2018a).



**Figure 11: Sewage conservancy tank location**

**Emissions into the atmosphere**

Will the activity release emissions into the atmosphere?

|            |    |
|------------|----|
| <b>YES</b> | NO |
|------------|----|

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

|     |           |
|-----|-----------|
| YES | <b>NO</b> |
|-----|-----------|

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:

|   |
|---|
| <p><b>Dust emissions</b></p> <p>Dust emissions will be released during the construction phase of the proposed development, but will be deemed to comply with the requirements of the National Dust Control Regulations, No. R827 of 2013 (Republic of South Africa, 2013a). Dust emissions will be mitigated in accordance with the Environmental Management Plan (EMPr).</p> <p><b>Vapor emissions</b></p> <p>Concentrations of vapor emissions from the petroleum products (aliphatic and aromatic hydrocarbons) will be released into the atmosphere and will be regulated in terms of the National environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (Republic of South Africa, 2004).</p> |
|---|

## 2. WATER USE

Indicate the source(s) of water that will be used for the activity

|           |                           |                    |                            |       |                                 |
|-----------|---------------------------|--------------------|----------------------------|-------|---------------------------------|
| municipal | Directly from water board | <b>groundwater</b> | river, stream, dam or lake | other | the activity will not use water |
|-----------|---------------------------|--------------------|----------------------------|-------|---------------------------------|

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:

270 000 liters

If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix (**Refer to Appendix G for the Groundwater Abstraction Assessment**)

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

|            |    |
|------------|----|
| <b>YES</b> | NO |
|------------|----|

If yes, list the permits required

|   |
|---|
| <p>IWUL Application in terms of the National Water Act No. 36 of 1998 as amended for the following water uses as per S21:</p> <ul style="list-style-type: none"> <li>(a) Taking water from a water resource;</li> <li>2 X (g) Disposing of waste in a manner which may detrimentally impact on a water resource.</li> </ul> |
|---|

If yes, have you applied for the water use permit(s)?

|   |            |
|---|------------|
| <b>YES. The IWULA will be submitted after the 60 day PPP which will run concurrently with the PPP</b> | <b>NO.</b> |
|---|------------|

|   |    |
|---|----|
| for this BA.<br>The pre-application meeting was held on 07 February 2017. |    |
| YES   | NO |

If yes, have you received approval(s)? (attached in appropriate appendix)

### 3. POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

Electricity to the site is supplied by Eskom (Refer to the Eskom Acceptance Letter attached in Appendix F).

If power supply is not available, where will power be sourced from?

N/A

### 4. ENERGY EFFICIENCY

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

**Lighting**

Outdoor lights should be 70 W LED fittings (producing 6400 lumens at load current of 500 mA) and placed at strategic points to provide sufficient light.

**Water heaters/geysers**

Geyser blankets should be installed to prevent excessive heat loss.

**Air conditioners**

Energy efficient air conditioning and heating systems should be installed.

**Other electrical appliances**

Energy efficient electrical appliances e.g. fridges, should be sought.

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

None.

## SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014, 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 as well as the impacts of not implementing the activity (Section 24(4)(b)(i)).

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

Summarise the issues raised by interested and affected parties.

None to date. Will be provided in the final BAR after the 60 day PPP.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

See Appendix E, Appendix 6 for the Comments and Responses Report.

### 2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL PHASE

Briefly describe the methodology utilised in the rating of significance of impacts

I-CAT's impact rating methodology does fulfil and comply with the requirements of the EIA Regulations (2014). The significance of a potential impact is determined through the assessment of the relevant temporal and spatial scales determined of the Extent, Magnitude and Duration criteria associated with a particular impact. This method does not explicitly define each of the criteria but rather combines them and results in an indication of the overall significance.

**Table 3: Extent rating criteria**

| Extent Rating   |   |   |                                      |                     |
|---|---|---|--------------------------------------|---------------------|
| Footprint   | Site  | Local   | Regional                             | National            |
| Only as far as the activity, such as footprint occurring within the total site area | Only the site and/or 500m radius from the site will be affected | Local area / district (neighboring properties, transport routes and adjacent towns) is affected | Entire region / province is affected | Country is affected |

**Table 4: Magnitude Rating Criteria**

| Magnitude Rating |     |        |      |           |
|------------------|-----|--------|------|-----------|
| Zero             | Low | Medium | High | Very High |



|   |   |   |  |   |
|---|---|---|--|---|
| Natural and/or social functions and/or processes remain unaltered | Natural and/or social functions and/or processes are negligibly altered | Natural and/or social functions and/or processes are slightly altered | Natural and/or social functions and/or processes are notably altered | Natural and/or social functions and/or processes severely altered |
|---|---|---|--|---|

**Table 5: Duration Rating Criteria**

| Duration Rating    |   |   |
|--------------------|---|---|
| Short term         | Medium term   | Long term                                     |
| Construction phase | Operational phase and/or up to 3 years after construction | Up to or more than 6 years after construction |

**Table 6: Probability Rating Criteria**

| Probability Rating                                   |  |  |  |
|--|--|--|--|
| Unlikely   | Possible                                 | Probable                                       | Definite   |
| Unlikely to occur (0 – 25% probability of occurring) | May occur (26 – 50% chance of occurring) | Likely to occur (51 – 75% chance of occurring) | Will certainly occur (76-100% chance of occurring) |

**Table 7: Reversibility Rating Criteria**

| Reversibility Rating  |  |
|---|--|
| Reversible  | Irreversible   |
| Impacts can be reversed through the implementation of mitigation measures | Impacts are permanent and can't be reversed by the implementation of mitigation measures |

**Table 8: Irreplaceability Rating Criteria**

| Irreplaceability Rating |                            |                               |                            |
|-------------------------|----------------------------|-------------------------------|----------------------------|
| No Loss                 | Low                        | Medium                        | High                       |
| No loss of resources    | Marginal loss of resources | Significant loss of resources | Complete loss of resources |

**Table 9: Mitigation Rating Criteria**

| Mitigation Rating            |                       |                       |
|------------------------------|-----------------------|-----------------------|
| High                         | Medium                | Low                   |
| Impact can be mitigated 100% | Impact >50% mitigated | Impact <50% mitigated |

**Table 10: Confidence Rating Criteria**

| <b>Confidence Rating</b>  |   |   |
|---|---|---|
| <b>Certain</b>  | <b>Sure</b>   | <b>Uncertain</b>  |
| Amount of information on and/or understanding of the environmental factors that potentially influence the impact is unlimited and sound | Amount of information on and/or understanding of the environmental factors that potentially influence the impact is reasonable and relatively sound | Amount of information on and/or understanding of the environmental factors that potentially influence the impact is limited |

**Table 11: Cumulative Rating Criteria**

| <b>Cumulative Rating</b> |                             |                                |
|--------------------------|-----------------------------|--------------------------------|
| <b>Low</b>               | <b>Medium</b>               | <b>High</b>                    |
| Minor cumulative effects | Moderate cumulative effects | Significant cumulative effects |

**Table 12: Significance Rating Criteria**

|  | <b>Significance</b> |
|--|---------------------|
| Zero magnitude with any combination of extent and duration.  | <b>Neutral</b>      |
| Low magnitude with a site specific extent and short term duration;<br><br>Low magnitude with any combination of extent and duration except regional and long term duration.  | <b>Very Low</b>     |
| High magnitude with a site specific extent and short term duration;<br><br>Low magnitude with any combination of extent and duration except site specific and short term duration or regional and long term duration;<br><br>Medium magnitude with a site specific extent and short term duration;<br><br>Very low magnitude with a site specific extent and long term duration.   | <b>Low</b>          |
| High magnitude with a local extent and medium term duration;<br><br>High magnitude with a regional extent and short term duration / a site specific extent and long term duration;<br><br>High magnitude with a regional extent and short term duration / a site specific extent and long term duration;<br><br>High magnitude with either a local extent and construction period duration or a site specific extent and medium term | <b>Medium</b>       |

|   |                  |
|---|------------------|
| <p>duration;</p> <p>Low magnitude with a regional extent and long term duration;</p> <p>Medium magnitude with any combination of extent and duration extent site specific and construction period or regional and long term.</p>                                  |                  |
| <p>High magnitude with a regional extent and long term duration;</p> <p>High magnitude with either a regional extent and medium term duration / a local extent and long term duration;</p> <p>Medium magnitude with a regional extent and long term duration.</p> | <b>High</b>      |
| <p>High magnitude with a regional extent and long term duration;</p> <p>High magnitude with either a regional extent / long term duration.</p>  | <b>Very High</b> |

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

### Proposal

| Potential impacts:  | Significance rating of impacts (positive or negative): | Proposed mitigation:  | Significance rating of impacts after mitigation: | Risk of the impact and mitigation not being implemented |
|---|--|---|--|---|
| <b>Impact Ratings Construction Phase</b>  |  |   |  |   |
| <b>Soil Quality</b>   |  |   |  |   |
| <p><b>Soil Quality</b></p> <p>Soil contamination through the accidental spillage of hazardous substances, or waste on site.</p> | Low (-)  | <p><b>General</b></p> <p>1. All hazardous substances shall be stored within a demarcated area on site.</p> <p>2. The hazardous substances storage area should be locked when not in use and equipped with adequate health safety signage, as required by relevant legislation and regulations.</p> <p>3. All hazardous substances must be recorded in a hazardous material register.</p> <p>4. All hazardous substances must be stored in accordance with their SDS</p> | Very Low (-)                                     | Low   |

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|  |  | <p>requirements.</p> <p>5. All hazardous substances shall be stored in containers with lids, which are kept firmly shut to avoid spillage.</p> <p>6. All containers must be kept in such a condition as to be reasonably safe from damage and to prevent leakage.</p> <p>7. A SDS for all hazardous materials e.g. paints, thinners, oils, etc. must be kept on site and updated regularly.</p> <p>8. Where bunds are used (if applicable), they should be able to contain 110 % of the volume of the substance stored in the event spillages should occur. The bund should be fitted with a drainage control valve which is to remain closed except when the bund is being emptied.</p> <p>9. Temporary storage of hazardous waste must be avoided insofar possible.</p> <p>10. A designated bin for all hazardous waste must be made available on site.</p> <p>11. Cement must be stored in appropriate structures with impermeable flooring.</p> <p>12. Underground storage tanks must be inspected by an engineer before installation.</p> <p><b>Handling and decanting</b></p> <p>1. All excess hazardous chemicals, hydrocarbons and contaminated containers must be removed and collected by a certified hazardous waste removal company and disposed at a certified hazardous waste disposal site (if applicable). A safe disposal certificate should be issued on disposal.</p> <p>2. Should decanting be necessary the spill precaution as recommended on the SDS must be adhered to.</p> <p>3. Decanting of liquids will only be done over drip trays.</p> <p>4. Containers into which decanting is being done</p> |  |  |
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|   |         | <p>must be of the same material as the original substance container.</p> <p>5. PPE as recommended on the SDS must be used when decanting hazardous substances.</p> <p><b>Spillage incidents</b></p> <ol style="list-style-type: none"> <li>1. Development and implementation of emergency procedures to respond to the spillage of hydrocarbon based chemicals.</li> <li>2. Hazardous chemical spill kits should be present and accessible on site at all times.</li> <li>3. All construction materials prone to spillage are to be stored on appropriate structures with impermeable flooring.</li> <li>4. All hazardous material spills must be cleaned up immediately. Where spills occur, compromised soil/vegetation shall be treated as hazardous waste and disposed of accordingly.</li> <li>5. A register in which a record is maintained of the volume, nature, location, date, time and the clean-up action in the event of a spillage incident is to be kept on site.</li> <li>6. All construction vehicles, machinery and equipment must be maintained to prevent leaks.</li> <li>7. Vehicles and machinery have to be repaired and serviced over drip trays.</li> <li>8. Portable toilet facilities should be inspected once a week to prevent leakage or spillages into the natural environment.</li> </ol> |              |        |
| <p><b>Physical soil characteristics</b></p> <p>Compaction of the soil surface due to heavy machinery.</p>                     | Low (-) | <p><b>Soil compaction</b></p> <ol style="list-style-type: none"> <li>1. No heavy machinery should be allowed on natural areas that fall outside the proposed development footprint.</li> </ol>  | Low (-)      | Medium |
| <p><b>Soil erosion</b></p> <p>Soil erosion and loss of topsoil due to vegetation clearance during the construction phase.</p> | Low (-) | <p><b>Soil erosion</b></p> <ol style="list-style-type: none"> <li>1. Temporary storm water canals and cut-off trenches should be erected to adequately divert water away from the construction site and activities.</li> </ol>  | Very Low (-) | Medium |

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|  |  | <p>2. Netting should be erected around the construction site to prevent wind erosion.</p> <p>3. Concrete revetment structures such as berms and sediment traps should be erected on slopes to prevent erosion.</p> <p>4. Top soil and sub-soil stockpiles should be kept separated and adequately covered.</p> <p>5. Construction schedules should be prepared to indicate when specific areas may be cleared for construction.</p> <p>6. The top 20 cm of top soil should be preserved for rehabilitation and landscaping purposes.</p> <p>7. Vegetation clearing should be limited to areas that will be developed.</p> <p>9. The extent of exposed soils at any one time should be limited.</p> |  |  |
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**Water Quality**

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| <p><b>Storm water/ surface water and ground water quality</b></p> <p>Possible accidental spillages and incorrect handling of construction materials, general and hazardous waste. Hazardous materials may enter the stormwater/ Bronkhorstspruit/ groundwater</p> | Low (-) | <p><b>General</b></p> <p>1. All hazardous substances shall be stored within a demarcated area on site.</p> <p>2. The hazardous substances storage area should be locked when not in use and equipped with adequate health safety signage, as required by relevant legislation and regulations.</p> <p>3. All hazardous substances must be recorded in a hazardous material register.</p> <p>4. All hazardous substances must be stored in accordance with their SDS requirements.</p> <p>5. All hazardous substances shall be stored in containers with lids, which are kept firmly shut to avoid spillage.</p> <p>6. All containers must be kept in such a condition as to be reasonably safe from damage and to prevent leakage.</p> <p>7. A SDS for all hazardous materials e.g. paints, thinners, oils, etc. must be kept on site and</p> | Very Low (-) | Medium |
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|  |  | <p>updated regularly.</p> <p>8. Where bunds are used (if applicable), they should be able to contain 110 % of the volume of the substance stored in the event spillages should occur. The bund should be fitted with a drainage control valve which is to remain closed except when the bund is being emptied.</p> <p>9. Temporary storage of hazardous waste must be avoided insofar possible.</p> <p>10. A designated bin for all hazardous waste must be made available on site.</p> <p>11. Cement must be stored in appropriate structures with impermeable flooring.</p> <p>12. Vehicles should be parked on impermeable surfaces to prevent hydrocarbon spillages.</p> <p>13. The Bronkhorstspruit watercourse should be declared a no-go area for contractors.</p> <p>14. Underground storage tanks must be inspected by an engineer before installation.</p> <p><b>Handling and decanting</b></p> <p>1. All excess hazardous chemicals, hydrocarbons and contaminated containers must be removed and collected by a certified hazardous waste removal company and disposed at a certified hazardous waste disposal site (if applicable). A safe disposal certificate should be issued on disposal.</p> <p>2. Should decanting be necessary the spill precaution as recommended on the SDS must be adhered to.</p> <p>3. Decanting of liquids will only be done over drip trays.</p> <p>4. Containers into which decanting is being done must be of the same material as the original substance container.</p> <p>5. PPE as recommended on the SDS must be used when decanting hazardous substances.</p> |  |  |
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|   |         | <p><b>Spillage incidents</b></p> <ol style="list-style-type: none"> <li>1. Development and implementation of emergency procedures to respond to the spillage of hydrocarbon based chemicals.</li> <li>2. Hazardous chemical spill kits should be present and accessible on site at all times.</li> <li>3. All construction materials prone to spillage are to be stored on appropriate structures with impermeable flooring.</li> <li>4. All hazardous material spills must be cleaned up immediately. Where spills occur, compromised soil/vegetation shall be treated as hazardous waste and disposed of accordingly.</li> <li>5. A register in which a record is maintained of the volume, nature, location, date, time and the clean-up action in the event of a spillage incident is to be kept on site.</li> <li>6. All construction vehicles, machinery and equipment must be maintained to prevent leaks.</li> <li>7. Vehicles and machinery have to be repaired and serviced over drip trays.</li> <li>8. Portable toilet facilities should be inspected once a week to prevent leakage or spillages into the natural environment.</li> </ol> |              |        |
| <p><b>Surface water quality</b><br/>Siltation of natural water bodies due to erosion of soil</p>                          | Low (-) | <p><b>Erosion</b></p> <ol style="list-style-type: none"> <li>1. Refer to soil quality for soil erosion management and mitigation measures.</li> </ol>  | Very Low (-) | Medium |
| <p><b>Stormwater</b><br/>Increase in the velocity of storm water run-off across the site due to vegetation clearance.</p> | Low (-) | <p><b>Stormwater</b></p> <ol style="list-style-type: none"> <li>1. Divert storm water run-off away from the construction site by erecting adequate storm water infrastructure.</li> <li>2. All areas surrounding constructed infrastructure that have been subjected to soil compaction must be ripped if applicable.</li> <li>3. Keep stormwater infrastructure clear from littering or any other construction material.</li> <li>4. Do regular</li> </ol>  | Low (-)      | Low    |



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|   |            | <p>maintenance on stormwater infrastructure.</p> <p>5. Where necessary stone walls and gabions must be constructed.</p> <p>6. Re-vegetation should take place as soon as practically possible.</p>  |         |        |
| <p><b>Groundwater</b></p> <p>Impact on the groundwater levels due to ground water abstraction</p> | Medium (-) | <p><b>Groundwater abstraction</b></p> <p>1. Ensure compliance with the abstraction volumes that are permitted as per the IWUL.</p> <p>2. Ensure that all conditions of the IWUL are met.</p> <p>3. Quarterly groundwater monitoring must be conducted as per the conditions of the IWUL.</p> <p>4. No new boreholes may be drilled other than those approved by the IWULA and prior to authorization from DWS.</p>  | Low (-) | Low    |
| <b>Biodiversity</b>   |            |   |         |        |
| <p><b>Biodiversity</b></p> <p>Vegetation clearance, faunal displacement and habitat loss</p>      | Medium (-) | <p><b>Flora</b></p> <p>1. Ensure that workers do not unnecessarily trample vegetation whilst constructing fences, trenches, and or other infrastructure.</p> <p>2. Vegetation clearing should be limited to only the areas that will be developed on.</p> <p>3. Any areas which are marked with a high sensitivity value should be avoided and no unnecessary movement in these areas should occur.</p> <p>4. The development footprint should be kept to a minimum to reduce disturbance to vegetation.</p> <p><b>Fauna</b></p> <p>1. Ensure that no form of hunting, poaching, snaring or trapping of animals take place within the site or surrounding areas.</p> <p>2. Muffles for soundproofing of the machinery must be used as far as practically possible.</p> <p>3. The fence surrounding the construction site must be checked regularly for trapped animals.</p> | Low (-) | Medium |

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|   |              | <p>4.Snare register should be developed.</p> <p>5.If an animal is found in a trapped snare;</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Report the incident to your direct supervisor;</li> <li><input type="checkbox"/> Supervisor to report incident to ESM; and</li> <li><input type="checkbox"/> ESM to record the incident in Environmental Incident Register</li> <li><input type="checkbox"/> ESM to contact local SPCA / Vet to assess the situation and remove the animal and provide the necessary medical care ;</li> <li><input type="checkbox"/> If the animal is found to be dead, under no circumstances may it be slaughtered for its meat and the meat given to any person;</li> <li><input type="checkbox"/> Dead animals must be removed by the SPCA / Vet for incineration and proof of safe disposal to be kept by the ESM.</li> </ul> |              |        |
| <b>Waste</b>  |              |   |              |        |
| <p><b>Waste</b><br/>Generation, storage, handling and disposal of general and hazardous waste on site</p> | Very Low (-) | <p><b>General housekeeping</b></p> <ol style="list-style-type: none"> <li>1. The site and surrounding areas are to be maintained in a clean, orderly, presentable condition at all times.</li> <li>2. Burning and burying of waste on site is not permitted.</li> <li>3. Waste stream identification and classification (if applicable).</li> <li>4. All waste generated shall be separated into the relevant waste streams (i.e. general waste, hazardous waste; recyclables).</li> <li>5. Compliance with SANS 10234 requirements shall be adhered to (as required). In such instances, the following will apply: <ul style="list-style-type: none"> <li>o SDSs shall be kept for any hazardous waste in accordance with SANS 10234 requirements;</li> <li>o SDSs must be prepared</li> </ul> </li> </ol>   | Very Low (-) | Medium |

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|  |  | <p>in accordance with SANS 10234 for the product that the waste originates from;</p> <ul style="list-style-type: none"> <li>o SDSs must be prepared in accordance with SANS 10234 reflecting the details of the specific hazardous waste/s or hazardous chemicals in the waste; and</li> <li>o All SDSs must be kept on file.</li> </ul> <p>6. Keep records of safe disposal of hazardous waste by independent contractors.</p> <p><b>Waste management (collection, storage and handling)</b></p> <ol style="list-style-type: none"> <li>1. A central waste storage and transition area shall be established and maintained;</li> <li>2. This central waste storage and transition area shall be surfaced and adequately demarcated ;</li> <li>3. Portable wheelie bins shall be placed in demarcated areas;</li> <li>4. Wheelie bins shall be color coded and labelled to identify the waste stream for which it is intended. Colour coding is as follows: <ul style="list-style-type: none"> <li>o General Waste _ Green (Waste type labelling)</li> <li>o Hazardous Waste _ Red (Waste type labelling)</li> <li>o Recyclables _ White (Waste type labelling)</li> </ul> </li> <li>5. - Signs with English wording.</li> <li>6. - All waste containers on-site (bins, skips, drums, etc.) will be clearly labelled to show which wastes can be disposed of into each bin.</li> <li>7. The general waste (domestic) shall be removed by an independent service provider and shall be disposed of at a licensed waste landfill site.</li> <li>8. All hazardous waste shall be removed (within 30 days) by a licensed waste service provider and shall be disposed of at a licensed waste landfill site and records of safe disposal shall be supplied to the Applicant by the Contractor.</li> </ol> |  |  |
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|  |  | <p><b>Waste specific management measures</b></p> <p><i>General Waste:</i></p> <ol style="list-style-type: none"> <li>1. All domestic waste generated shall be disposed of into specifically demarcated and labelled bins for collection by an independent service provider.</li> <li>2. No staff shall be allowed to deposit waste / litter anywhere on the site except into the bins provided.</li> <li>3. Under no circumstances shall domestic waste be dumped in any unauthorised landfill site / waste site.</li> <li>4. Hazardous waste should be kept separate from general waste.</li> </ol> <p><i>Building rubble:</i></p> <ol style="list-style-type: none"> <li>1. The Contractor shall ensure that the contractors camp and working area is cleaned regularly.</li> <li>2. Clean rubble shall be temporarily stockpiled in a waste skip / central stockpile (away from any drainage / sensitive areas) . *No plastics, shrink wrap, paint buckets or any other debris that does not constitute clean building rubble, shall be stored at such stockpile sites.</li> </ol> <p><i>Timber:</i></p> <ol style="list-style-type: none"> <li>1. Should timber be generated from construction activities it must be collected and stored within the central waste storage/ transition area</li> <li>2. Wooden waste should not be mixed with other types of waste.</li> <li>3. The timber shall be kept free of any water (rain) and other hazardous contamination.</li> <li>4. The timber shall be collected and recycled insofar possible.</li> </ol> <p><i>Scrap metal:</i></p> <ol style="list-style-type: none"> <li>1. All ferrous and non-ferrous scrap metal shall be separated at source and stockpiled in the</li> </ol> |  |  |
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|  |  | <p>waste storage area.</p> <ol style="list-style-type: none"> <li>2. Scrap metal must not be mixed with other wastes.</li> <li>3. Recycling of metal is encouraged.</li> </ol> <p><i>Hazardous Waste:</i></p> <ol style="list-style-type: none"> <li>1. All hazardous waste generated shall be kept separate and shall not be mixed with general waste.</li> <li>2. All hazardous waste shall be stored within a sealed drum on an impermeable surfaced area within the central waste storage and transition area.</li> <li>3. All hazardous waste should have a SDS and such waste shall be disposed of as per the product SDS.</li> <li>4. Hazardous waste shall be collected by a licensed waste service provider and be disposed of at a licensed landfill site with certificates of safe disposal.</li> <li>5. The total quantity of hazardous waste stored at the site at any one time shall not exceed 35 m<sup>3</sup>.</li> </ol> <p><i>Hazardous liquid oil:</i></p> <ol style="list-style-type: none"> <li>1. All used oil shall be stored in approved sealed containers.</li> <li>2. All oil generated from the equipment shall be decanted into approved containers, returned to a central point designated for the correct storage of hazardous liquids and collected by an approved waste collection company.</li> <li>3. Under no circumstances may any oil be released directly into the natural environment. The design, construction and operation of all equipment and facilities, required for the effective collection, containment, control and disposal of used oil shall at all times comply with environmental legislation and standards to prevent pollution and/or contamination of the environment.</li> </ol> |  |  |
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|   |              | <p>4. All oil storage areas shall be bunded in accordance with the SANS specifications:</p> <ul style="list-style-type: none"> <li>- Minimum requirements for the volumetric capacity of the containment area (SANS 10131:2004);</li> <li>- Design capacity (SANS 10089-1:2003); and</li> <li>- Building material used (SANS 10227).</li> </ul> <p>5. Care shall be exercised when decanting old oil into containers to prevent spillages.</p> <p><i>Hydrocarbons (petrol and diesel fuels):</i></p> <p>1. All redundant liquid types shall be placed in clearly marked, sealed containers, (preferably the containers the material was supplied in) and sent to the flammable store area prior to disposal. Redundant fuels shall be stored separately to prevent:</p> <ul style="list-style-type: none"> <li>• Chemical reaction or fires;</li> <li>• Toxic fumes/gases; and</li> <li>• Pollution to the environment.</li> </ul> <p>2. Where possible, recycling should be implemented.</p> <p>3. An authorised and permitted hazardous waste removal contractor shall remove all redundant fuels from the Hazardous Waste Site, to a permitted hazardous waste disposal site.</p> |              |     |
| <b>Noise</b>  |              |  |              |     |
| <p><b>Noise</b><br/>Increase in noise levels during construction activities</p> | Very low (-) | <p><b>General</b></p> <p>1. Excessively noisy machinery must only be used during regular operating hours and not after hours where possible.</p> <p>2. Construction activities should only take place during normal working hours.</p> <p>3. Any noise complaints received must be recorded in a complaints register.</p> <p>4. The Contractor shall adhere to the local by-laws and regulations</p>   | Very Low (-) | Low |

|   |         | <p>regarding the noise and associated hours of operations.</p> <p>5. Noise levels should comply with the SANS Code of Practice 100103 - 0994.</p> <p>6. Equipment should be fitted with noise reduction devices as far as reasonably possible.</p> <p>7. A complaints register must be kept on site containing:</p> <ul style="list-style-type: none"> <li>• Name of complainant</li> <li>• Physical address</li> <li>• Telephone number</li> <li>• Date and time of complaint</li> </ul> <p>8. Provision of appropriate PPE.</p> <p>Training of staff on the use of PPE and the dangers involved in excessive noise exposure.</p>   |              |     |
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| Air quality   |         |  |              |     |
| <p><b>Dust</b></p> <p>Increased dust emissions due to material handling during the construction phase</p> | Low (-) | <p>1. Generation of dust shall be minimized and dust nuisance for the surrounding community shall be kept to a minimum wherever possible.</p> <p>2. Reasonable measures must be undertaken to ensure that any exposed areas and material stockpiles (if any) are adequately protected against the wind.</p> <p>3. Dust screens of a suitable height should be erected wherever possible.</p> <p>4. All exposed surfaces should be minimised in terms of duration of exposure to wind.</p> <p>5. Potable water shall not be used for the dust suppression of soil or sand stockpiles (if required).</p> <p>6. Speed limits should be implemented to limit the amount of dust pollution.</p> <p>7. Vegetation should only be cleared according to the construction schedule and just before construction commences on a specific portion of the site.</p> <p>8. All sand stockpiles must be covered.</p> | Very Low (-) | Low |

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|   |         | 9. Construction materials transported to site must be covered when necessary to prevent it from blowing of vehicles.   |              |     |
| <b>Health and Safety</b>  |         |  |              |     |
| <b>Health and Safety</b><br>Fire and chemical exposure during construction activities | Low (-) | <p><b>Fire prevention</b></p> <ol style="list-style-type: none"> <li>1. Contractor/s shall take all reasonable and active steps to avoid increasing the risk of fire through their activities on site.</li> <li>2. All workers (including sub-contractors) on-site will be made aware of possible fire risk associated with construction activities on site.</li> <li>3. The Developer shall ensure that the basic fire-fighting equipment is available on site and to the satisfaction of the local fire-fighting services.</li> <li>4. No fires for heating purposes shall be allowed.</li> <li>5. The Contractor shall be liable for all costs incurred by the organisations sub-contracted to extinguish all fires started by any person(s) under their control.</li> </ol> <p><b>Response to fire incidence on-site</b></p> <ol style="list-style-type: none"> <li>1. An Emergency Plan (including Fire Protection, Response and Evacuation Plan) is to be prepared and conveyed to all staff on the site. This shall identify: <ul style="list-style-type: none"> <li>- a fire marshal for the site;</li> <li>- all potential fire hazards;</li> <li>- fire-fighting equipment to be provided on site;</li> <li>- procedure in case of a fire;</li> <li>- a fire evacuation route and plan; and</li> <li>- emergency contact numbers.</li> </ul> </li> <li>2. Key staff members will be trained to deal with the control of fire-fighting equipment on site and to assist with evacuations as required.</li> <li>3. All staff is to be familiar with the position</li> </ol> | Very Low (-) | Low |



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|  |  | <p>of fire control equipment on site and response and evacuation procedures. This should be covered in the inductions for all new site staff and visitors.</p> <p>4. In the case of a fire occurring on site, the following actions are to be taken immediately:</p> <ul style="list-style-type: none"> <li>- Contact Local Fire Department response unit.</li> <li>- Warn adjacent landowners of potential danger.</li> </ul> <p><b>Safety and security</b></p> <p>1. All Construction activities undertaken on site should be carried out in accordance with all the requirements stipulated by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA).</p> <p>2. All personnel (Developer/ contractors) working on site shall wear the applicable PPE as required by the activity being undertaken.</p> <p>3. No personnel, except for security staff (if applicable), are allowed to stay / live on the site. Security staff is to be provided with accommodation and ablution facilities and communication equipment.</p> <p>4. The Developer must ensure safety representatives and managers are appointed and trained for all on-site work construction activities. All contractors/sub-contractors should appoint a safety officer. All applicable safety standards and regulations should be enforced. Training should include emergency procedures.</p> <p>5. Potentially hazardous areas must be clearly demarcated with adequate signage.</p> <p>6. Emergency contact details for the police, security company, ambulance and fire</p> |  |  |
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|   |         | department must be available at all times.  |              |     |
| <b>Health and Safety</b><br>Environmental emergencies occurring on-site | Low (-) | <p><b>Emergency management</b></p> <ol style="list-style-type: none"> <li>1. All accidents must be recorded in a register. Data about the accident must be provided within 24 hours after occurrence.</li> <li>2. Appropriate recording documents must be available on site together with a designated Health and Safety Officer.</li> <li>3. Appropriate authorities and law enforcement officers must be consulted in such instances if required.</li> <li>4. Steps must be identified to prevent recurrence of similar incidents. These steps must be recorded and monitored.</li> <li>5. Actions taken to address the occurrence of the incident and measures to avoid the recurrence of such must be recorded.</li> <li>6. Emergency contact details for the police, security company and fire department must be available at all times in case of an emergency situation.</li> <li>7. The application of the OHSA and associated regulations must be ensured. This includes the distribution and use of protective clothing and equipment to at least include safety shoes, overalls gloves, dust masks, and where appropriate ear muffs and eye/face protection shields (if required).</li> <li>8. The Safety Officer is to present emergency procedures during the mandatory Health and Safety induction presented to all new site staff, contractors and visitors.</li> <li>9. Appropriate SHE signs (symbolic safety signs) must be displayed on site.</li> <li>10. The following requirements would be the minimum for the</li> </ol> | Very Low (-) | Low |

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|  |  | <p>safety program:</p> <ul style="list-style-type: none"> <li>• Orientation of new employees including safety training and emergency contingency planning.</li> <li>• Thorough investigation and documentation of all accidents to ascertain the cause and future methods of preventing recurrence.</li> <li>• Mandatory first aid training for all staff members.</li> <li>• Regularly scheduled safety meetings.</li> <li>• Fire prevention and fire-fighting instructions.</li> <li>• Routine inspection and testing procedure for all safety and emergency equipment and protective devices, and routine walk through inspections conducted by the operator through all areas to identify and correct potential unsafe conditions.</li> <li>• Posting for safety bulletins and posters required by regulatory agencies and other materials concerning accident prevention and hazardous conditions.</li> <li>• The Applicant shall abide by all local, provincial and national safety</li> </ul> |  |  |
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|  |              | <p>requirements.</p> <ul style="list-style-type: none"> <li>The Applicant shall provide for a fire aid station and emergency medical response station for injured staff.</li> </ul>   |              |     |
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| Aesthetic Quality  |              |   |              |     |
| <p><b>Aesthetic quality</b><br/>Lack of housekeeping and waste management during construction activities</p> | Very low (-) | <p><b>General</b><br/>1. The site and surrounding areas are to be maintained in a clean, orderly, presentable condition at all times.<br/>2. Burning and burying of waste on site must be strictly prohibited.<br/>3. All construction and demolition waste must be collected by an authorised waste disposal contractor.</p> | Very Low (-) | Low |
| Traffic  |              |   |              |     |
| <p><b>Traffic</b><br/>Increase in traffic due to construction activities</p>                                 | Very low (-) | <p><b>General</b><br/>1. Ensure that construction vehicles are not congesting main roads during peak hours.<br/>2. Ensure that adequate road signage is placed at all roads affected by the construction activities.</p>  | Very Low (-) | Low |
| Social – economic development  |              |   |              |     |
| <p>Local jobs and skills development during the construction phase</p>                                       | Medium (+)   | <p>1. People from the local community must be sourced as employers by the contractor and sub-contractor as far as reasonably possible.</p>  | N/A          | Low |

| Operational Phase Impact Ratings   |            |   |         |        |
|--|------------|---|---------|--------|
| Soil Quality   |            |   |         |        |
| <p><b>Soil Quality</b><br/>Contamination of soil through disposal of general or hazardous waste or accidental spillages of petroleum products or other hazardous substances on site.</p> | Medium (-) | <p><b>General</b><br/>1. All hazardous substances shall be stored within a demarcated area on site.<br/>2. The hazardous substances storage area should be locked when not in use and equipped with adequate health safety signage, as required by relevant legislation and regulations.<br/>3. All hazardous</p> | Low (-) | Medium |

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|  |  | <p>substances must be recorded in a hazardous material register.</p> <p>4. All hazardous substances must be stored in accordance with their SDS requirements.</p> <p>5. All hazardous substances shall be stored in containers with lids, which are kept firmly shut to avoid spillage.</p> <p>6. All containers must be kept in such a condition as to be reasonably safe from damage and to prevent leakage.</p> <p>7. A SDS for all hazardous materials e.g. paints, thinners, oils, etc. must be kept on site and updated regularly.</p> <p>8. Where bunds are used (if applicable), they should be able to contain 110 % of the volume of the substance stored in the event spillages should occur. The bund should be fitted with a drainage control valve which is to remain closed except when the bund is being emptied.</p> <p>9. Temporary storage of hazardous waste must be avoided insofar possible.</p> <p>10. A designated bin for all hazardous waste must be made available on site.</p> <p>11. UST must be installed according to the specifications of SANS 10089, SANS 11535 and SANS 10731.</p> <p>12. Underground storage tanks must be inspected by an engineer before installation.</p> <p><b>Handling and decanting</b></p> <p>1. All excess hazardous chemicals, hydrocarbons and contaminated containers must be removed and collected by a certified hazardous waste removal company and disposed at a certified hazardous waste disposal site (if applicable). A safe disposal certificate should be issued on disposal.</p> <p>2. Should decanting be necessary the spill</p> |  |  |
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|  |  | <p>precaution as recommended on the SDS must be adhered to.</p> <p>3. Decanting of liquids will only be done over drip trays.</p> <p>4. Containers into which decanting is being done must be of the same material as the original substance container.</p> <p>5. PPE as recommended on the SDS must be used when decanting hazardous substances.</p> <p>6. Overfill and spillages during underground tank refueling and fuel dispensing should be prevented by the installation of automatic cut off devices.</p> <p><b>Spillage incidents</b></p> <p>1. Development and implementation of emergency procedures to respond to the spillage of hydrocarbon based chemicals. A spill response and clean-up contractor must be contacted immediately to assist in clean-up operations. An independent hydrogeologist must be commissioned to determine the lateral and vertical extent of the contamination plume. The Department of Water and Sanitation must be notified immediately of spillages larger than 200 liters.</p> <p>2. Hazardous chemical spill kits should be present and accessible on site at all times.</p> <p>3. All hazardous material spills must be cleaned up immediately. Where spills occur, compromised soil/vegetation shall be treated as hazardous waste and disposed of accordingly.</p> <p>4. A register in which a record is maintained of the volume, nature, location, date, time and the clean-up action in the event of a spillage incident is to be kept on site.</p> <p>5. Leak detectors with an automatic cut off valve have to be installed.</p> <p>6. A subsoil cut off drain should be installed to</p> |  |  |
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|   |            | channel any seepage from the underground storage tanks to a sump.<br>7. The fuel supplier must ensure that sufficient training is presented to all operators of the refueling area. Training must include general site operation, spill response, emergency procedures, and site safety.<br>8. Concrete containment slabs must be constructed around filler points and the dispensing area.  |              |        |
| <b>Soil quality</b><br>Contamination of soil due to tank failure.   | Medium (-) | 1. Ensure that Underground Storage Tanks are inspected on a regular basis by a registered engineer.<br>2. Leak detectors with an automatic cut off valve have to be installed.<br>3. A subsoil cut off drain should be installed to channel any seepage from the underground storage tanks to a sump.  | Low (-)      | Medium |
| <b>Water Quality</b>  |            |  |              |        |
| <b>Storm water/ surface water and ground water quality</b><br>Possible accidental spillage and incorrect handling of general and hazardous waste and other hazardous materials may enter into the stormwater/ Bronkhorstspuit/ groundwater. | Low (-)    | <b>General</b><br>1. All hazardous substances shall be stored within a demarcated area on site.<br>2. The hazardous substances storage area should be locked when not in use and equipped with adequate health safety signage, as required by relevant legislation and regulations.<br>3. All hazardous substances must be recorded in a hazardous material register.<br>4. All hazardous substances must be stored in accordance with their SDS requirements.<br>5. All hazardous substances shall be stored in containers with lids, which are kept firmly shut to avoid spillage.<br>6. All containers must be kept in such a condition as to be reasonably safe from damage and to prevent leakage.<br>7. A SDS for all hazardous materials e.g. paints, thinners, oils, etc. must | Very low (-) | Medium |

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|  |  | <p>be kept on site and updated regularly.</p> <p>8. Where bunds are used (if applicable), they should be able to contain 110 % of the volume of the substance stored in the event spillages should occur. The bund should be fitted with a drainage control valve which is to remain closed except when the bund is being emptied.</p> <p>9. Temporary storage of hazardous waste must be avoided insofar possible.</p> <p>10. A designated bin for all hazardous waste must be made available on site.</p> <p>11. Underground storage tanks must be installed according to the specifications of SANS 10089, SANS 11535 and SANS 10731.</p> <p><b>Handling and decanting</b></p> <p>1. All excess hazardous chemicals, hydrocarbons and contaminated containers must be removed and collected by a certified hazardous waste removal company and disposed at a certified Hazardous waste disposal site (if applicable). A safe disposal certificate should be issued on disposal.</p> <p>2. Should decanting be necessary the spill precaution as recommended on the SDS must be adhered to.</p> <p>3. Decanting of liquids will only be done over drip trays.</p> <p>4. Containers into which decanting is being done must be of the same material as the original substance container.</p> <p>5. PPE as recommended on the SDS must be used when decanting hazardous substances.</p> <p>6. Overfill and spillages during underground tank refueling and fuel dispensing should be prevented by the installation of automatic cut off devices.</p> <p><b>Spillage incidents</b></p> |  |  |
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|  |  | <p>1. Development and implementation of emergency procedures to respond to the spillage of hydrocarbon based chemicals. A spill response and clean-up contractor must be contacted immediately to assist in clean-up operations. An independent hydrogeologist must be commissioned to determine the lateral and vertical extent of the contamination plume. The Department of Water and Sanitation must be notified immediately of spillages larger than 200 liters.</p> <p>2. Hazardous chemical spill kits should be present and accessible on site at all times.</p> <p>3. All hazardous material spills must be cleaned up immediately. Where spills occur, compromised soil/vegetation shall be treated as hazardous waste and disposed of accordingly.</p> <p>4. A register in which a record is maintained of the volume, nature, location, date, time and the clean-up action in the event of a spillage incident is to be kept on site.</p> <p>5. Dirty surface water and spillages at the site operations must be channeled into a sump or oil-water separator.</p> <p>6. Leak detectors with an automatic cut off valve have to be installed.</p> <p>7. A subsoil cut off drain should be installed to channel any seepage from the underground storage tanks to a sump.</p> <p>8. The fuel supplier must ensure that sufficient training is presented to all operators of the refueling area. Training must include general site operation, spill response, emergency procedures, and site safety.</p> <p>9. Concrete containment slabs must be constructed around filler points and the dispensing area.</p> <p>10. Surface water management</p> |  |  |
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|  |            | infrastructure needs to contain oil traps and drains to intercept dirty water before entering the aquatic ecosystem.  |              |        |
| <p><b>Ground and surface water quality</b><br/>Contamination of ground and surface water resources due to tank failure.</p>  | Medium (-) | <p>4. Ensure that Underground Storage Tanks are inspected on a regular basis by a registered engineer.</p> <p>5. Leak detectors with an automatic cut off valve have to be installed.</p> <p>6. A subsoil cut off drain should be installed to channel any seepage from the underground storage tanks to a sump.</p>  | Low (-)      | Medium |
| <p><b>Groundwater</b><br/>Impact on the groundwater levels due to water abstraction from boreholes</p>                       | Medium (-) | <p><b>Groundwater abstraction</b></p> <p>1. Ensure compliance with the abstraction volumes that are permitted as per the IWUL.</p> <p>2. Ensure that all conditions of the IWUL are met.</p> <p>3. Quarterly groundwater monitoring must be conducted as per the conditions of the IWUL.</p>  | Low (-)      | Low    |
| <p><b>Surface water</b><br/>Impacts on surface water (river) quality due to dirty water run-off from the site operations</p> | Low (-)    | <p><b>Surface water quality</b></p> <p>1. Divert storm water run-off away from the site by erecting adequate storm water infrastructure.</p> <p>2. Position revetment structures along the eastern parts of the site to prevent dirty storm water run-off from flowing into the river/wetland.</p> <p>4. No dirty water from the containment sump should be discharged into the natural environment.</p> <p>5 All run-off from the forecourt areas has to be channeled into the containment sump.</p> | Very Low (-) | Medium |
| <p><b>Storm water</b><br/>Increased velocity of storm water runoff due to impermeable paved surfaces</p>                     | Medium (-) | <p><b>Storm water</b></p> <p>1. Divert storm water run-off away from the site by erecting adequate storm water infrastructure.</p> <p>2. All areas surrounding constructed infrastructure that have been subjected to soil compaction must be ripped.</p> <p>3. Keep storm water</p>  | Low (-)      | Low    |

|  |            | <p>infrastructure clear from litter or any other material.</p> <p>4. Do regular maintenance on storm water infrastructure.</p> <p>5. Re-vegetation of cleared areas should take place as soon as practically possible.</p> <p>6. Storm water control measures must be implemented including:</p> <ul style="list-style-type: none"> <li>• Channels and inlets;</li> <li>• Storm water pipes</li> <li>• Storm water culverts</li> <li>• Containment sump</li> <li>• Energy dissipating structures.</li> </ul>  |         |        |
|--|------------|---|---------|--------|
| <b>Waste</b>   |            |   |         |        |
| <p><b>Waste</b><br/>Generation, storage, handling and disposal of general and hazardous waste on site.</p> | Medium (-) | <p>The National Environmental Management: Waste Act (Act No. 59 of 2008) and any associated Regulations and Norms and Standards must be adhered to at all times.</p> <p><b>General housekeeping</b></p> <p>1. The site and surrounding areas are to be maintained in a clean, orderly, presentable condition at all times.</p> <p>2. Burning and burying of waste on site is not permitted.</p> <p>3. Waste stream identification and classification:</p> <ul style="list-style-type: none"> <li>• All waste generated shall be separated into the relevant waste streams (i.e. general waste; hazardous waste; recyclables);</li> <li>• Compliance with SANS 10234 requirements shall be adhered to (as required). In such instances, the following will apply: <ul style="list-style-type: none"> <li>o SDSs shall be kept for any hazardous waste in accordance with SANS 10234 requirements;</li> <li>o SDSs must be prepared in accordance with SANS 10234 for the product that the</li> </ul> </li> </ul> | Low (-) | Medium |

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|  |  | <p>waste originates from;</p> <ul style="list-style-type: none"> <li>o SDSs must be prepared in accordance with SANS 10234 reflecting the details of the specific hazardous waste/s or hazardous chemicals in the waste; and</li> <li>o All SDSs sheets must be kept on file.</li> </ul> <p>4. Keep records of safe disposal of waste by independent contractors.</p> <p><b>Waste management (collection, storage and handling)</b></p> <ol style="list-style-type: none"> <li>1. A central waste storage and transition area shall be established and maintained;</li> <li>2. This central waste storage and transition area shall be surfaced and adequately demarcated ;</li> <li>3. Portable wheelie bins shall be placed outside at a demarcated area;</li> <li>4. Wheelie bins shall be color coded and labelled to identify the waste stream for which it is intended.</li> </ol> <p>Color coding is as follows:</p> <ul style="list-style-type: none"> <li>o General Waste _ <b>Green</b></li> <li>(Waste type labelling)</li> <li>o Hazardous Waste _ <b>Red</b></li> <li>(Waste type labelling)</li> <li>o Recyclables _ <b>White</b></li> <li>(Waste type labelling)</li> </ul> <ol style="list-style-type: none"> <li>5. Signs with English wording.</li> <li>6. All waste containers on-site (bins, skips, drums, etc.) will be clearly labelled to show which wastes can be disposed into each bin.</li> <li>7. The general waste (domestic) shall be removed by a contractor and shall be disposed of at a licensed general waste landfill site.</li> <li>8. All hazardous waste shall be removed (within 30 days) by a licensed waste service provider and shall be disposed of at a licensed hazardous waste landfill site and records of safe disposal shall be supplied to the Applicant by the Contractor.</li> </ol> <p><b>Waste specific management measures</b></p> |  |  |
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|  | <p><i>General Waste:</i></p> <ol style="list-style-type: none"> <li>1. All domestic waste generated shall be disposed of into specifically demarcated and labelled bins for collection by a contractor.</li> <li>2. No staff shall be allowed to deposit waste / litter anywhere on the site except into the bins provided.</li> <li>3. Under no circumstances shall domestic waste be dumped in any unauthorised landfill site / waste site.</li> </ol> <p><i>Hazardous Waste:</i></p> <ol style="list-style-type: none"> <li>1. All hazardous waste generated shall be kept separate and shall not be mixed with general waste.</li> <li>2. All hazardous waste shall be stored within a sealed drum on an impermeable surfaced area within the central waste storage and transition area.</li> <li>3. All hazardous waste should have SDS and such waste shall be disposed of as per the product SDS.</li> <li>4. Hazardous waste shall be collected by a licensed waste service provider and be disposed of at a licensed landfill site with certificates of safe disposal.</li> <li>5. The total quantity of hazardous waste stored at the site at any one time shall not exceed 35 m<sup>3</sup>.</li> </ol> <p><i>Hazardous liquid oil:</i></p> <ol style="list-style-type: none"> <li>1. All used oil shall be stored in approved sealed containers.</li> <li>2. All oil generated from the equipment shall be decanted into approved containers, returned to a central point designated for the correct storage of hazardous liquids and collected by an approved waste collection company.</li> <li>3. Under no circumstances may any oil be released directly into the natural environment. The design,</li> </ol> |  |
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|  |            | <p>construction and operation of all equipment and facilities, required for the effective collection, containment, control and disposal of used oil shall at all times comply with environmental legislation and standards to prevent pollution and/or contamination of the environment.</p> <p>4. All oil storage areas shall be banded in accordance with the SANS specifications:</p> <ul style="list-style-type: none"> <li>- Minimum requirements for the volumetric capacity of the containment area (SANS 10131:2004);</li> <li>- Design capacity (SANS 10089-1:2003); and</li> <li>- Building material used (SANS 10227).</li> </ul> <p>5. Care shall be exercised when decanting old oil into containers to prevent spillage.</p> <p><i>Hydrocarbons (petrol and diesel fuels):</i></p> <p>1. All redundant liquid types shall be placed in clearly marked, sealed containers, (preferably the containers the material was supplied in) and sent to the flammable store area prior to disposal. Redundant fuels shall be stored separately to prevent:</p> <ul style="list-style-type: none"> <li>• Chemical reaction or fires;</li> <li>• Toxic fumes/gases; and</li> <li>• Pollution to the environment.</li> </ul> <p>2. Where possible, recycling should be implemented.</p> <p>3. An authorised and permitted hazardous waste removal contractor shall remove all redundant fuels from the hazardous waste site, to a permitted waste disposal site.</p> |         |     |
| <b>Health and Safety</b>                               |            |  |         |     |
| <b>Health and Safety</b><br>Fire and chemical exposure | Medium (-) | <b>Fire prevention</b><br>1. Employees shall take all reasonable and active steps to avoid increasing the risk of fire through their activities on site.   | Low (-) | Low |

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|  |  | <p>2. All workers (including sub-contractors) on-site will be made aware of possible fire risk associated with activities on site.</p> <p>3. The Applicant shall ensure that the basic fire-fighting equipment is available on site and to the satisfaction of the local firefighting services.</p> <p>4. No smoking shall be allowed on site except in designated smoking areas.</p> <p><b>Response to fire incidence on-site</b></p> <p>1. An Emergency Plan (including Fire Protection, Response and Evacuation Plan) is to be prepared and conveyed to all staff on the site. This shall identify:</p> <ul style="list-style-type: none"> <li>- a fire marshal for the site;</li> <li>- all potential fire hazards;</li> <li>- fire-fighting equipment to be provided on site;</li> <li>- procedure in case of a fire;</li> <li>- a fire evacuation route and plan; and</li> <li>- emergency contact numbers.</li> </ul> <p>2. Key staff members will be trained to deal with the control of fire-fighting equipment on site and to assist with evacuations as required.</p> <p>3. All staff is to be familiar with the position of fire control equipment on site and response and evacuation procedures. This should be covered in the inductions for all new site staff and visitors.</p> <p>4. In the case of a fire occurring on site, the following actions are to be taken immediately:</p> <ul style="list-style-type: none"> <li>- Contact Local Fire Department response unit.</li> <li>- Warn adjacent landowners of potential danger.</li> </ul> <p><b>Safety and security</b></p> <p>1. All activities undertaken on site should be carried out in</p> |  |  |
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|   |         | <p>accordance with all the requirements stipulated by the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) (OHSA).</p> <p>2. All personnel (Developer/contractors) working on site shall wear the applicable PPE as required by the activity being undertaken.</p> <p>4. All applicable safety standards and regulations should be enforced. Training should include emergency procedures.</p> <p>5. Potentially hazardous areas must be clearly demarcated with adequate signage.</p> <p>6. Emergency contact details for the police, security company and fire department must be available at all times.</p>   |             |     |
| <p><b>Health and Safety</b><br/>Environmental emergencies occurring on-site</p> | Low (-) | <p><b>Emergency management</b></p> <p>1. All accidents must be recorded in a register. Data about the accident must be provided within 24 hours after occurrence.</p> <p>2. Appropriate recording documents must be available on site together with a designated Health and Safety Officer.</p> <p>3. Appropriate authorities and law enforcement officers must be consulted in such instances if required.</p> <p>4. Steps must be identified to prevent recurrence of similar incidents. These steps must be recorded and monitored.</p> <p>5. Actions taken to address the occurrence of the incident and measures to avoid the recurrence of such must be recorded.</p> <p>6. Emergency contact details for the police, security company and fire department must be available at all times in case of an emergency situation.</p> <p>7. The application of the OHS Act and regulation</p> | Very Low(-) | Low |



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|  |  | <p>must be ensured. This includes the distribution and use of protective clothing and equipment.</p> <p>8. The Safety Officer is to present emergency procedures during the mandatory Health and Safety induction presented to all new site staff, contractors and visitors.</p> <p>9. Appropriate SHE signs (symbolic safety signs) must be displayed on site.</p> <p>10. The following requirements would be the minimum for the safety program:</p> <ul style="list-style-type: none"> <li>• Orientation of new employees including safety training and emergency contingency planning.</li> <li>• Thorough investigation and documentation of all accidents to ascertain the cause and future methods of preventing recurrence.</li> <li>• Mandatory first aid training for all staff members.</li> <li>• Regularly scheduled safety meetings.</li> <li>• Fire prevention and fire-fighting instructions.</li> <li>• Routine inspection and testing procedure for all safety and emergency equipment and protective devices, and routine walk through inspections conducted by the operator through all areas to identify and correct</li> </ul> |  |  |
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|  |              | <p>potential unsafe conditions.</p> <ul style="list-style-type: none"> <li>Posting for safety bulletins and posters required by regulatory agencies and other materials concerning accident prevention and hazardous conditions.</li> <li>The Applicant shall abide by all local, provincial and national safety requirements.</li> </ul> <p>11. The Applicant shall provide for a fires aid station and emergency medical response station for injured staff.</p> |              |     |
| <b>Aesthetic Quality</b>   |              |  |              |     |
| <p><b>Aesthetic quality</b><br/>Reduction of natural aesthetic quality/value of the site and surroundings.</p> | Very low (-) | <p><b>General</b></p> <p>1. The site and surrounding areas are to be maintained in a clean, orderly, presentable condition at all times.</p> <p>2. Ensure that landscaping provides for indigenous species in the gardens surrounding the site operations to minimize visual intrusion.</p> <p><b>Waste management</b></p> <p>Refer to Waste above for waste management measures.</p>  | Very low (-) | Low |
| <b>Traffic</b>   |              |  |              |     |
| <p><b>Traffic</b><br/>Possible increase in traffic</p>   | Low (-)      | <p><b>General</b></p> <p>1. All complaints must be recorded in a complaints register.</p>  | Very Low (-) | Low |
| <b>Noise</b>   |              |  |              |     |
| <p><b>Noise</b><br/>Increase in noise levels during operational phase</p>                                      | Low (-)      | <p><b>General</b></p> <p>1. Any noise complaints received must be recorded in a complaints register.</p> <p>2. Noise levels should comply with the SANS Code of Practice 100103 - 0994.</p> <p>3. A complaints register must be kept on site containing:</p> <ul style="list-style-type: none"> <li>Name of complainant</li> </ul>   | Very Low (-) | Low |

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|  |  | <ul style="list-style-type: none"> <li>• Physical address</li> <li>• Telephone number</li> <li>• Date and time of complaint</li> </ul> <p>4. No sound amplification equipment such as sirens, loud hailers or hooter to be used on site except during emergencies.</p> <p>5. Noise levels shall be kept within acceptable limits, and staff must abide to National applicable legislation and by-laws pertaining to noise.</p> |  |  |
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**Alternative 1**

*(REPEAT THIS TABLE FOR EACH ALTERNATIVE)*

| Potential impacts: | Significance rating of impacts (positive or negative): | Proposed mitigation: | Significance rating of impacts after mitigation: | Risk of the impact and mitigation not being implemented |
|--------------------|--|----------------------|--|---|
|                    |  |                      |  |   |
|                    |  |                      |  |   |
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|                    |  |                      |  |   |

**No Go**

| Potential impacts:  | Significance rating of impacts (positive or negative): | Proposed mitigation:  | Significance rating of impacts after mitigation: | Risk of the impact and mitigation not being implemented |
|---|--|---|--|---|
| <b>Socio-economic</b>   |  |   |  |   |
| No economic development for the proposed site, surroundings and municipality. | Medium (-)   | <p>1. Encourage economic development which will generate supplementary fiscal resources to better the economic state of the Bronkhorstspuit area and the Municipality.</p> <p>2. Promote tourist attraction mechanisms for the town of Bronkhorstspuit.</p> | Low (-)  | Low   |
| No job and skills development in the local communities surrounding the site.  | Medium (-)   | 1. Encourage new developments in the town of Bronkhorstspuit that will generate jobs  | Low (-)  | Low   |

|  |              | and associated skills.   |              |     |
|--|--------------|--|--------------|-----|
| Biodiversity                           |              |  |              |     |
| Increase in alien and invasive species | Very Low (-) | <p>Methods for the control of alien and invasive species include:</p> <ol style="list-style-type: none"> <li>1. Mechanical control methods. The removal of species by hand or with appropriate tools, instruments and machines.</li> <li>2. Chemical control methods. The optimal use of herbicides to control target species.</li> <li>3. Biological control. This involves the intentional use of populations of natural enemies of the target alien or invasive species or other methods that adversely affect the biological integrity of the target species.</li> <li>4. Habitat management uses measures such as prescribed burning, grazing and other activities.</li> <li>5. Integrated pest management (IPM). IPM involves a combination of the methods above.</li> <li>6. Ensure that a monitoring programme for alien invasive species is implemented.</li> <li>7. Resources and funds should be allocated to rehabilitate the areas in which alien and invasive species have been removed in order to prevent further destruction to the ecosystem.</li> <li>8. Remove weeds in the least affected areas and work outwards to the heavier infested areas, thus rapidly safeguarding relatively large areas.</li> <li>9. Remove weeds carefully and try to cover exposed soil with cut</li> </ol> | Very Low (-) | Low |

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|  |  | <p>vegetation or leaf litter that is free of weeds, and seeds that will not regrow if in contact with the soil.</p> <p>10. Wherever possible try to prevent weeds from producing seeds or fruit by controlling before they flower.</p> <p>11. Follow up control is essential.</p> |  |  |
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List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix. **(Refer to Appendix G)**

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| Aquatic Assessment (Knight Piesold Consulting, 2016a)  |
| Floodline Assessment (Knight Piesold Consulting, 2016b)  |
| Land Capability Classification (SFP Townplanning, n/d)   |
| Grazing Capacity (SFP Townplanning, n/d)   |
| Biodiversity Report (Gem Science, 2016)  |
| Phase 1 Archaeological Impact Assessment (Coetzee, 2016)   |
| Hydrogeological Investigation (Geo Pollution Technologies, 2016)   |
| Traffic Study, Volumetric Analysis and Economic Viability Assessment (Prodeo Business Consultants, 2016) |
| Traffic Impact Assessment (SMEC, 2018b)  |
| Geotechnical Report (SMEC, 2017)   |
| Supplementary Civil Engineering Service Report (SMEC, 2018a)   |

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

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|---|
| <p><b>Assumptions</b></p> <ul style="list-style-type: none"> <li>All information presented to the EAP by the Applicant, Specialists and I&amp;APs was correct and valid at the time that it was provided;</li> <li>Every effort was made to involve as many as possible I&amp;APs to participate in the EA process;</li> <li>All information included into the BAR was obtained from the Applicant and Specialists</li> </ul> |
|---|

and is therefore unbiased and accurate; and

- The proposed development will be undertaken in accordance with the management and mitigation measures contained in the EMPr (Refer to Appendix H).

**Gaps**

- The scope of this BAR is limited to assessing the environmental impacts associated with the construction and operational phases of the proposed fuel station development; and
- No feasible alternatives were obtained for the proposed development and therefore only environmental impacts for the Proposal (Preferred Alternative) were assessed.

**3. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE**

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the decommissioning and closure phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

N/A. If and when applicable, decommissioning will be investigated and the necessary application will be applied for in terms of the relevant legislation pertaining to the decommissioning of a fuel station.

**Proposal**

| Potential impacts: | Significance rating of impacts(positive or negative): | Proposed mitigation: | Significance rating of impacts after mitigation: | Risk of the impact and mitigation not being implemented |
|--------------------|---|----------------------|--|---|
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**Alternative 1**

| Potential impacts: | Significance rating of impacts(positive or negative): | Proposed mitigation: | Significance rating of impacts after mitigation: | Risk of the impact and mitigation not being implemented |
|--------------------|---|----------------------|--|---|
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**Alternative 2**

| <b>Potential impacts:</b> | <b>Significance rating of impacts (positive or negative):</b> | <b>Proposed mitigation:</b> | <b>Significance rating of impacts after mitigation:</b> | <b>Risk of the impact and mitigation not being implemented</b> |
|---------------------------|---|-----------------------------|---|--|
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List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

N/A

Where applicable indicate the detailed financial provisions for rehabilitation, closure and ongoing post decommissioning management for the negative environmental impacts.

N/A

**4. CUMULATIVE IMPACTS**

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

1. During the construction phase, building and demolition waste and other general or hazardous waste can result in soil pollution which can contaminate the groundwater and eventually the Bronkhorstspuit on the eastern side of the proposed development.
2. The clearing of natural vegetation during the construction phase may result in erosion and dust pollution which may lead to siltation of the river system.
3. Spillages of hydrocarbon or other hazardous substances can simultaneously lead to contamination of the soil, ground water, and Bronkhorstspuit River. Said pollution

can also affect the fauna and flora present in these areas.

4. The extraction of groundwater at the proposed development together with the surrounding agricultural holdings may pose a cumulative impact on the ground water levels.
5. Cumulative visual intrusion due to the construction activities, building rubble and construction vehicles on site.
6. The petroleum fumes released during petroleum decanting and fumes from vehicles may have a cumulative impact on air quality.

All cumulative impacts can effectively be eliminated, mitigated and managed as per the mitigation measures listed in the EMPr (Refer to Appendix H).

## **5. ENVIRONMENTAL IMPACT STATEMENT**

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposal 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.

### **Proposal**

Potential impacts were identified in consultation with I&APs, and through the technical expertise of I-CAT.

Impacts for the construction and operational phases were identified for the proposed extension and supporting facilities. Most impacts identified for the construction and operational phases received a rating of low (-) – very low (-), this leads to an overall rating of low (-) after the application of mitigation measures. Nine medium rated impacts were identified for the construction and operational phases. Through proper mitigation and management measures most medium (-) rated impacts can be reduced to a low (-) rating. Below follows a summary of the impacts and associated ratings before and after mitigation measures have been applied.



**Table 13: Construction phase impacts (Preferred alternative)**

| Construction Phase Impact Ratings   |           |            |            |             |               |                                 |            |            |            |                             |                              |
|---|-----------|------------|------------|-------------|---------------|---------------------------------|------------|------------|------------|-----------------------------|------------------------------|
| Aspect  | Extent    | Magnitude  | Duration   | Probability | Reversibility | Irreplaceable loss of resources | Mitigation | Confidence | Cumulative | Significance pre-mitigation | Significance post-mitigation |
| Soil Quality  |           |            |            |             |               |                                 |            |            |            |                             |                              |
| Contamination through the accidental spillage of petroleum/hydrocarbon products, or waste on site | Site      | Low        | Short term | Possible    | Reversible    | Low                             | High       | Sure       | Medium     | Low (-)                     | Very Low (-)                 |
| Compaction of the soil surface due to heavy machinery.  | Footprint | Short term | Long term  | Definite    | Reversible    | Low                             | Medium     | Certain    | Low        | Low (-)                     | Low (-)                      |
| Soil erosion and loss of topsoil due to vegetation clearance during the construction phase.       | Site      | Medium     | Short term | Probable    | Reversible    | Low                             | Low        | Certain    | Low        | Low (-)                     | Very Low (-)                 |

| Water Quality/Quantity  |       |        |            |          |            |     |      |         |        |            |              |
|---|-------|--------|------------|----------|------------|-----|------|---------|--------|------------|--------------|
| Impact on the groundwater levels due to ground water abstraction from boreholes   | Local | Medium | Short term | Probable | Reversible | Low | High | Certain | Medium | Medium (-) | Low (-)      |
| Increase in the velocity of storm water run-off across the site due to vegetation clearance.  | Site  | Medium | Short term | Definite | Reversible | Low | High | Certain | Medium | Low (-)    | Low (-)      |
| Siltation of natural water bodies due to soil erosion   | Site  | Low    | Short term | Possible | Reversible | Low | High | Certain | Low    | Low (-)    | Very Low (-) |
| Possible accidental spillages and incorrect handling of construction materials, general and hazardous waste and hazardous materials may enter into the stormwater/ Bronkhorstspuit/ | Site  | Medium | Short term | Possible | Reversible | Low | High | Certain | Low    | Low (-)    | Very Low (-) |

|  |      |     |            |          |              |        |        |         |        |              |              |
|--|------|-----|------------|----------|--------------|--------|--------|---------|--------|--------------|--------------|
| groundwater.   |      |     |            |          |              |        |        |         |        |              |              |
| <b>Biodiversity</b>  |      |     |            |          |              |        |        |         |        |              |              |
| Vegetation clearance, and faunal displacement, and habitat loss                                    | Site | Low | Long term  | Definite | Irreversible | Medium | Medium | Certain | Medium | Medium (-)   | Low (-)      |
| <b>Waste</b>   |      |     |            |          |              |        |        |         |        |              |              |
| Generation, storage, handling and disposal of general, hazardous and building rubble waste on site | Site | Low | Short term | Definite | Reversible   | Low    | High   | Certain | Low    | Very Low (-) | Very Low (-) |
| <b>Noise</b>   |      |     |            |          |              |        |        |         |        |              |              |
| Increase in noise levels during construction activities  | Site | Low | Short term | Probable | Reversible   | Low    | High   | Certain | Low    | Very low (-) | Very Low (-) |

| Air quality   |       |        |                    |          |            |         |        |         |     |              |              |
|---|-------|--------|--------------------|----------|------------|---------|--------|---------|-----|--------------|--------------|
| Increased dust emissions due to material handling during the construction phase | Site  | Low    | Construction phase | Definite | Reversible | Low     | Medium | Certain | Low | Low (-)      | Very Low (-) |
| Health and Safety   |       |        |                    |          |            |         |        |         |     |              |              |
| Environmental emergencies occurring on-site.                                    | Site  | Medium | Construction phase | Possible | Reversible | Low     | High   | Certain | Low | Low (-)      | Very Low (-) |
| Fire and chemical exposure during construction activities                       | Site  | High   | Construction phase | Unlikely | Reversible | Medium  | High   | sure    | Low | Low (-)      | Very Low (-) |
| Aesthetic Quality   |       |        |                    |          |            |         |        |         |     |              |              |
| Lack of housekeeping and waste management during construction activities        | Site  | Low    | Construction phase | Probable | Reversible | Low     | High   | Certain | Low | Very low (-) | Very Low (-) |
| Traffic   |       |        |                    |          |            |         |        |         |     |              |              |
| Increase in traffic due to construction activities                              | Site  | Low    | Construction phase | Probable | Reversible | No Loss | High   | Certain | Low | Very low (-) | Very Low (-) |
| Social – economic development   |       |        |                    |          |            |         |        |         |     |              |              |
| Local jobs and skills development during the                                    | Local | Medium | Construction phase | Definite | N/A        | No Loss | N/A    | N/A     | N/A | Medium (+)   | N/A          |

|                    |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|--|--|--|--|--|
| construction phase |  |  |  |  |  |  |  |  |  |  |  |  |
|--------------------|--|--|--|--|--|--|--|--|--|--|--|--|

**Table 14: Operational phase impacts (Preferred Alternative)**

| Operational Phase Impact Ratings   |        |           |             |             |               |                                 |            |            |            |                             |                              |
|--|--------|-----------|-------------|-------------|---------------|---------------------------------|------------|------------|------------|-----------------------------|------------------------------|
| Aspect   | Extent | Magnitude | Duration    | Probability | Reversibility | Irreplaceable loss of resources | Mitigation | Confidence | Cumulative | Significance pre-mitigation | Significance post-mitigation |
| Soil Quality   |        |           |             |             |               |                                 |            |            |            |                             |                              |
| Contamination of soil through disposal of general or hazardous waste or accidental spillages of petroleum products or other hazardous substances on site | Site   | Medium    | Medium term | Possible    | Reversible    | Low                             | Medium     | Certain    | Low        | Medium (-)                  | Low (-)                      |
| Contamination of soil due to tank failure.   | Site   | High      | Medium term | Unlikely    | Reversible    | Medium                          | Medium     | Sure       | Medium     | Medium (-)                  | Low (-)                      |

| Water Quality  |       |        |             |          |            |        |        |         |        |            |              |
|--|-------|--------|-------------|----------|------------|--------|--------|---------|--------|------------|--------------|
| Impact on the groundwater levels due to water abstraction from boreholes.                    | Local | Medium | Medium term | Possible | Reversible | Low    | Medium | Certain | Medium | Medium (-) | Low (-)      |
| Contamination of ground and surface water resources due to tank failure.                     | Local | High   | Medium term | Unlikely | Reversible | Medium | Medium | Sure    | Medium | Medium (-) | Low (-)      |
| Impacts on surface water (river) quality due to dirty water run-off from the site operations | Local | Medium | Medium term | Possible | Reversible | Low    | High   | Certain | Low    | Low (-)    | Very Low (-) |
| Increased velocity of storm water runoff due to impermeable paved surfaces                   | Site  | Medium | Long term   | Definite | Reversible | Low    | Medium | Certain | Low    | Medium (-) | Low (-)      |
| Possible accidental spillage and incorrect handling of general and hazardous waste and       | Site  | Medium | Medium term | Possible | Reversible | Low    | High   | Certain | Low    | Low (-)    | Very Low (-) |

|   |       |        |                    |          |            |         |        |         |     |              |              |  |
|---|-------|--------|--------------------|----------|------------|---------|--------|---------|-----|--------------|--------------|--|
| other hazardous materials.  |       |        |                    |          |            |         |        |         |     |              |              |  |
| <b>Waste</b>  |       |        |                    |          |            |         |        |         |     |              |              |  |
| Generation, storage, handling and disposal of general and hazardous waste on site | Local | Medium | Medium term        | Definite | Reversible | Low     | Medium | Certain | Low | Medium       | Low (-)      |  |
| <b>Noise</b>  |       |        |                    |          |            |         |        |         |     |              |              |  |
| Increase in noise levels during operational phase                                 | Site  | Low    | Long term          | Probable | Reversible | No Loss | High   | Certain | Low | Low (-)      | Very Low (-) |  |
| <b>Health and Safety</b>  |       |        |                    |          |            |         |        |         |     |              |              |  |
| Environmental emergencies occurring on-site.                                      | Site  | Medium | Construction phase | Possible | Reversible | Low     | High   | Certain | Low | Low (-)      | Very Low (-) |  |
| Fire and chemical exposure  | Site  | High   | Medium term        | Possible | Reversible | Medium  | High   | Certain | Low | Medium (-)   | Low (-)      |  |
| <b>Aesthetic Quality</b>  |       |        |                    |          |            |         |        |         |     |              |              |  |
| Reduction of natural aesthetic  | Site  | Low    | Medium term        | Possible | Reversible | Low     | High   | Certain | Low | Very low (-) | Very Low (-) |  |

|   |       |        |             |          |            |         |      |         |     |            |              |  |
|---|-------|--------|-------------|----------|------------|---------|------|---------|-----|------------|--------------|--|
| quality/value of the site and surroundings                  |       |        |             |          |            |         |      |         |     |            |              |  |
| <b>Traffic</b>  |       |        |             |          |            |         |      |         |     |            |              |  |
| Possible increase in traffic                                | Site  | Low    | Long term   | Probable | Reversible | No Loss | High | Certain | Low | Low (-)    | Very Low (-) |  |
| <b>Social – economic development</b>                        |       |        |             |          |            |         |      |         |     |            |              |  |
| Economic injection into the municipal area.                 | Local | Medium | Medium term | Probable | N/A        | No Loss | N/A  | N/A     | N/A | Medium (+) | N/A          |  |
| Job and skills development to surrounding local communities | Local | Medium | Medium term | Definite | N/A        | No Loss | N/A  | N/A     | N/A | Medium (+) | N/A          |  |



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**Alternative 1**

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**Alternative 2**

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**No-go (compulsory)**

The no-go alternative will result in no development on the proposed site. Existing infrastructure from the fuel depo situated on a section of the development site will be left in its current state and the rest of the portion will remain grazing land for animals.

Less positive socio-economic impacts are foreseen for the no-go alternative. The no-go alternative has an overall (-) medium rating. It would result in less economic development, and jobs and skills creation in the town of Bronkhorstspruit.

The no-go alternative will result in the site being left in its current state leading to more soil and vegetation degradation due to overgrazing.

Below follows a summary of the impacts and associated ratings before and after mitigation measures have been applied identified for the no-go alternative.

**Table 15: No-go**

| No Go Impact Ratings   |        |           |            |             |               |                                 |            |            |            |                             |                              |
|--|--------|-----------|------------|-------------|---------------|---------------------------------|------------|------------|------------|-----------------------------|------------------------------|
| Aspect   | Extent | Magnitude | Duration   | Probability | Reversibility | Irreplaceable loss of resources | Mitigation | Confidence | Cumulative | Significance pre-mitigation | Significance post-mitigation |
| <b>Socio-economic development</b>  |        |           |            |             |               |                                 |            |            |            |                             |                              |
| No economic development for the proposed site and surroundings and municipality. | Local  | Medium    | Long term  | Probable    | Reversible    | Low                             | High       | Certain    | Low        | Medium (-)                  | Low (-)                      |
| No job and skills development in the local communities surrounding the site.     | Local  | Medium    | Long term  | Probable    | Reversible    | Low                             | High       | Certain    | Low        | Medium (-)                  | Low (-)                      |
| <b>Biodiversity</b>  |        |           |            |             |               |                                 |            |            |            |                             |                              |
| Increase in alien and invasive species.  | Site   | Low       | Short term | Possible    | Reversible    | Low                             | High       | Certain    | Low        | Very low (-)                | Very low (-)                 |
| Overgrazing of the veld.   | Site   | Low       | Long term  | Probable    | Reversible    | Low                             | High       | Certain    | Low        | Very low (-)                | Very Low (-)                 |

## 6. IMPACT SUMMARY OF THE PROPOSAL OR PREFERRED ALTERNATIVE

For proposal:

Considering the proposed development occurs on disturbed land due to historic agricultural activities and land where a section is developed into a fuel depo, with scattered alien infestations occurring across the site, the development will not have a significant negative environmental impact on the site and surroundings.

Table 17 provides a summary of the impacts identified for the proposed development:

**Table 16: Construction Phase Impacts**

| <b>Construction phase</b>   |
|---|
| <b>Soil Quality</b>   |
| Compaction of the soil surface due to heavy machinery.  |
| Soil erosion and loss of topsoil due to vegetation clearance during the construction phase.   |
| Soil contamination through the accidental spillage of petroleum/ hydrocarbon products, or waste on site   |
| <b>Water Quality</b>  |
| Impacts on the groundwater levels due to ground water abstraction.  |
| Increase in the velocity of storm water run-off across the site due to vegetation clearance.  |
| Siltation of natural water bodies due to soil erosion.  |
| Possible accidental spillages and Incorrect handling of construction materials, general and hazardous waste and hazardous materials may enter into the storm water / Bronkhorstspuit/ groundwater |
| <b>Biodiversity</b>   |
| Vegetation clearance, faunal displacement and habitat loss  |
| <b>Waste</b>  |
| Generation, storage, handling and disposal of general, hazardous and building rubble waste on site  |
| <b>Noise</b>  |
| Increase in noise levels during construction activities   |
| <b>Air quality</b>  |
| Increased dust emissions due to material handling during the construction phase   |
| <b>Health and Safety</b>  |
| Environmental emergencies occurring on-site   |
| Fire and chemical exposure during construction activities   |
| <b>Aesthetic Quality</b>  |
| Lack of housekeeping and waste management during construction activities  |
| <b>Traffic</b>  |
| Increase in traffic due to construction activities  |

|  |
|--|
| <b>Social – economic development</b>   |
| Local jobs and skills development during the construction phase  |
| <b>Table 17: Operational Phase Impacts</b>   |
| <b>Soil Quality</b>  |
| Contamination of soil through disposal of general or hazardous waste or accidental spillages of petroleum products or other hazardous substances on site |
| Contamination of soil due to tank failure  |
| <b>Water Quality</b>   |
| Impact on the groundwater levels due to water abstraction for potable use  |
| Contamination of ground and surface water resources due to tank failure.   |
| Impacts on surface water (river) quality due to dirty water run-off from the site operations   |
| Increased velocity of storm water runoff due to impermeable paved surfaces   |
| Possible accidental spillage and incorrect handling of general and hazardous waste and other hazardous materials.  |
| <b>Waste</b>   |
| Generation, storage, handling and disposal of general and hazardous waste on site  |
| <b>Noise</b>   |
| Increase in noise levels during operational phase  |
| <b>Health and Safety</b>   |
| Environmental emergencies occurring on-site  |
| Fire and chemical exposure   |
| <b>Aesthetic Quality</b>   |
| Reduction of natural aesthetic quality/value of the site and surroundings  |
| <b>Traffic</b>   |
| Increase in traffic  |
| <b>Social – economic development</b>   |
| Economic injection into the municipal area   |
| Jobs and skills development to surrounding local communities   |

Based on a holistic overview of all impacts associated with the proposed development, it is concluded that the site is suitable for the proposed development. Sustainable development and positive impacts for the area of Bronkhorstspuit can be achieved through the proposed development if adequate mitigation and management measures are incorporated. It is therefore recommended that the EMP (Appendix H) be made a condition of the Environmental Authorisation (EA) should it be authorised by the Competent Authority (CA).

For alternative:

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

The application is considered viable and desirable for the following reasons:

- A section of the proposed site is already developed into a fuel depo;
- The site has been previously disturbed by agricultural practices. All the grassland areas are very disturbed and hosts very few species (Gem Science, 2016);
- No vegetation or fauna of major importance (red data species) were identified on the site (Gem Science, 2016);
- The site is covered with patches of alien tree species which will be eradicated and controlled during the construction and operational phases of the development;
- The proposed site is easily accessible via the R25 Provincial Road which connects Bronkhorstspuit via Bapsfontein with Johannesburg, and the East Rand, as well as OR Tambo Airport and which provides a convenient connection between these areas to the N4 connection at Bronkhorstspuit, leading to Mpumalanga;
- The proposed development will provide fuel and associated services to the surrounding farming communities, tourists visiting the Bronkhorstspuit Dam, and transient motorists;
- Due to the high population and traffic density of this rapidly growing area, the proposed new filling station development will have no negative affect on Godrich Motors, the nearest opposing filling station, and the latter will vice versa not have any competing effect on the proposed new development. Godrich Motors is fully supported by local town traffic, whereas the proposed new development's focus will lie with transient motorists (SMEC, 2018b);
- The nature of the proposed development is as such that no negative impacts are envisaged for the wetland area (Knight Piesold, October 2016);
- Underground storage tanks will comply with the latest standards and the necessary mitigatory measures and early warning systems will be put in place to minimize any potential impact on the environment as a result of possible product leakages and/or spillages.
- Environmental and social impacts can be successfully mitigated to acceptable levels with stringent implementation of the EMPr and conditions stipulated in the Environmental Authorisation (EA).

**7. SPATIAL DEVELOPMENT TOOLS**

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

- Gauteng Provincial Environmental Management Framework (Environomics, 2014)
- City of Tshwane Integrated Development Plan (IDP) 2011 -2016
- Region 7: Regional Integrated Development Plan, City of Tshwane, 2014-2015
- Regional Spatial Development Framework (RSDF) of 2014 (City of Tshwane Metropolitan Municipality, 2014b)

**8. RECOMMENDATION OF THE 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 as bound by professional ethical standards and the code of conduct of EAPASA).

|            |    |
|------------|----|
| <b>YES</b> | NO |
|------------|----|

If "NO", indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

|     |
|-----|
| N/A |
|     |
|     |
|     |

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:

I-CAT Environmental Solutions is of the opinion that all impacts to the environment, due to the proposed development, have been thoroughly assessed. Together with the assessment of any environmental impacts, I-CAT assessed all possible needs and the desirability associated with the proposed development. I-CAT believes that the proposed mixed used development will have a long-term positive socio-economic impact on the surrounding community and the town of Bronkhorstspuit. Should all the mitigation measures contained in the EMPr be implemented, adverse impacts can be mitigated to have a low negative impact on the surrounding environment. Taking said into consideration, I-CAT suggests that GDARD may authorise the EA.

Below follows suggested conditions and mitigation measures that should form part of the EA should GDARD authorise the proposed development. Note that the EMPr should serve as a guideline in formulating any additional conditions:

- No construction activities should occur within 100 m of the river riparian vegetation.
- All dirty water from the site operations should be diverted away from the river by adequate storm water infrastructure and collected in a sump for removal.
- No construction activities should take place within the 1:100 year flood line of the river or wetland.
- A fire emergency evacuation/response plan should be in place and all employees or site contractors must be properly trained in this regard.
- A comprehensive waste management plan should be developed for all wastes that will be generated on site.
- All conditions of the IWUL must be adhered to.
- The EMPr must be the regulatory document for all construction and operational phases of the development. All mitigation measures/recommendations contained in the specialist reports and EMPr must be strictly adhered to. All contractors should be bound to comply with the EMPr and it must form part of their contractual documents
- Environmental audits must be conducted and submitted to GDARD on a monthly basis throughout the construction phase.
- Water monitoring must be conducted as stipulated in the IWUL.
- Exposed soil should be kept to a minimum during construction activities and revegetation must be conducted throughout the construction phase.
- Construction signage/advert boards must comply with the relevant legislation and standards.
- If during construction any archaeological sites/artefacts or other heritage resources are discovered, operations must be halted and SAHRA must be informed.
- All tankage and equipment must comply with relevant SANS standards. In addition, all equipment must be installed using approved contractors.

- All fuel spillages on site must be addressed immediately.
- Installation of a groundwater monitoring borehole drilled up to 15 -20 m down-gradient of the storage tank(s) towards the *Bronkhorstspuit* to act as an early warning system to detect groundwater contamination. The drilling and construction of the borehole should be overseen by a hydrogeologist.
- Aquatic bio-monitoring should continue during the construction phase to ensure that the Bronkhorstspuit is not impacted on by the construction of the development.
- An Environmental Control Officer (ECO) must be appointed to oversee impacts to the environment and ensure compliance to the EMPr during the construction and operational phases of the proposed development.
- The holder of the authorisation must notify every registered I&AP within 14 days of receiving notice of the Department's decision to authorise the activity.
- Should any significant contamination be detected during commissioning, and operation of the fuel station, the DWS and GDARD should be notified within 24 hours of the incident.
- Ensure that the waste water sump is adequately maintained according to a maintenance register.
- Ensure that emergency procedures and fire drills are kept up to date.
- Confirmation that the basic firefighting equipment are available on site.
- Only waste transporters registered on the Department's Waste Information System must be used for removal of hazardous waste.
- All personnel must be trained and informed in fire-fighting and risk management measures.

**9. THE NEEDS AND DESIREBILITY OF THE PROPOSED DEVELOPMENT (AS PER NOTICE 792 OF 2012, OR THE UPDATED VERSION OF THIS GUIDELINE)**

| Need (Timing)   |   |
|---|---|
| <p><b>Question 1:</b><br/>Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority?</p> | <p>The proposed project aligns with the following strategic objective contained in the City of Tshwane Metropolitan Municipality's Integrated Development Plan (IDP) (2011-2016):</p> <ul style="list-style-type: none"> <li>✓ Strategic Objective 2: Economic growth and development, and job creation               <ul style="list-style-type: none"> <li>✓ Skills development to small and medium enterprises; and</li> <li>✓ Increased investment in the City of Tshwane.</li> </ul> </li> </ul> |
| <b>Yes</b>  | <b>No</b>   |



|   |  |  |
|---|--|--|
| <p><b>Question 2:</b><br/>Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?</p> |  | <p>The proposed site is already transformed and disturbed due to previous agricultural activities, and a portion of the site currently consists of a fuel depo. No material of heritage importance was found within the demarcated study area.</p> <p>The proposed expansion of the site may be of greater use to the already transformed site than just leaving the site fallow and covered with alien vegetation.</p> <p>The proposed development will reroute traffic from the main town at Church Street to the R25 outskirts as passers-by would not have to enter the town for fuel. This will decrease the burden on the road infrastructure and as such decrease municipal expenditure on said. The rerouting of traffic, especially trucks, to the outskirts of Bronkhorstspuit will also decrease exhaust emissions and noise pollution within the town.</p> |
| <p style="text-align: center;"><b>Yes</b></p>   | <p style="text-align: center;"><b>No</b></p> |  |

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| <p><b>Question 3:</b><br/>Does the community/area need the activity and the associated land concerned (is it a societal priority)?</p>   | <p>10.3% of residents of the town of Bronkhorstspuit earn no income. Increasing unemployment is identified as a weakness in the Regional Integrated Development Plan (IDP) (City of Tshwane, 2014-2015). The population of the City of Tshwane has grown by 3.1% in 2011 and will continue to increase due to urbanisation in South Africa, possibly leading to higher unemployment figures. The proposed development will have an impact on the socio-economic condition of the local communities surrounding the proposed site, by contributing to employment opportunities. The development will create several employment opportunities during both the construction and operational phases of the proposed development, specifically on a local level. The proposed development will also contribute in fulfilling the need for vibrant, equitable and sustainable rural communities – providing food and work opportunities, and provision of community services as well as economic infrastructure as stipulated in the Regional IDP (City of Tshwane Metropolitan Municipality, 2011). The proposed site and surrounding areas are classified as having a high tourism potential due to current and future tourism attractions (City of Tshwane, 2014-2015). The development will aid in providing a service to tourists visiting these tourism attractions e.g. the Bronkhorstspuit Dam. The nearest opposing fuel station is Godrich Motors located 8.4 km from the proposed site and mainly servicing the local town traffic. A need therefore exist for a fuel station specifically aimed at transient traffic on the R25 and Dam Roads.</p> |
| <p style="text-align: center;"><b>Yes</b></p>  | <p style="text-align: center;"><b>No</b></p>   |
| <p><b>Question 4:</b> Are the necessary services with the adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?</p> | <p>Eskom power was applied for and accepted for the proposed development site (Refer to Appendix F). No water and sanitation services are available on-site. It is proposed that groundwater will be abstracted from a borehole for potable and other uses and a conservancy tank will be installed for disposal of sewage. There are no waste disposal services available on-site. It is therefore</p>  |

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| <b>YES</b>   | <b>NO</b> | proposed that a private waste disposal supplier will be sourced to dispose of waste generated during the construction and operational phases.   |
| <b>Question 5:</b> Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? |           | N/A   |
| <b>Question 6:</b> Is the project part of a national program to address an issue of national concern or importance?  |           | N/A   |
| <b>Desirability (Placing)</b>  |           |   |
| <b>Question 1:</b> Is the development the best practicable environmental option for this land/site?  |           | The proposed site is already transformed and disturbed due to previous agricultural activities and a portion of the site currently consists of a fuel depo. No material of heritage importance was found within the demarcated study area.<br>Non-development of the site could lead to soil degradation, erosion and invasion of alien species. Through implementing good management and mitigation measures, the development can be beneficial to the environment and society in eradicating alien vegetation and providing jobs and skills development to the surrounding community. |
| <b>Yes</b>   | <b>No</b> |   |
| <b>Question 2:</b> Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities?   |           | The proposed project aligns with the following strategic objective contained in the City of Tshwane Metropolitan Municipality's Integrated Development Plan (IDP) (2011-2016):<br><ul style="list-style-type: none"> <li>✓ Strategic Objective 2: Economic growth and Development and job creation</li> <li>✓ Skills development to small and medium enterprises; and</li> <li>✓ Increased investment in the City of Tshwane.</li> </ul> The proposed project will not compromise the integrity of the IDP and SDF of the City of Tshwane.  |
| <b>Yes</b>   | <b>No</b> |   |
| <b>Question 3:</b> Would the approval of this application compromise the integrity of the existing environmental management priorities of the area (e.g. as defined in EMFs), and if so, can it be justified in terms of sustainability considerations?        |           | Even though Bronkhorstspruit is identified as an agricultural hub in the EMF the site has been severely disturbed and fallow for a number of years. The vegetation at the site consists of many scattered alien and invasive species. The   |

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| <b>Yes</b>   | <b>No</b> | proposed expansion of the site may be of greater use to the already transformed site than just leaving the site fallow/ undeveloped.   |
| <b>Question 4:</b> Do location factors favor this land use (associated with the activity applied for) at this place, etc.?   |           | No location alternatives are applicable to this project as this site was identified through a Traffic Study, Volumetric Analysis and Economic Viability Assessment. The site is ideally situated next to the R25 provincial road and close to the N4 highway.  |
| <b>Yes</b>   | <b>No</b> |  |
| <b>Question 5:</b> Will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)? |           | No material of heritage importance was found within the demarcated study area. No vegetation or fauna of major importance (red data species) were identified on the site. Grassland vegetation was found to be severely disturbed with scattered alien invasive species across the site. A valley bottom wetland was detected approximately 300 m to the north-east of the proposed development. The nature of the proposed development is of such that no impact is envisaged on the wetland area. No development will take place within the ecological support area surrounding the Bronkhorstspruit River. Any possible negative impacts to the Bronkhorstspruit River can be eliminated by implementing the mitigation measures as stipulated in the EMPr. |
| <b>Yes</b>   | <b>No</b> |  |
| <b>Question 6:</b> Will the development impact on people's health and wellbeing (e.g. in terms of noise, odors, visual character and sense of place, etc.)                           |           | Noise and dust emissions will increase during the construction phase of the development. Odors and vapors will increase during the operational phase of the proposed development. The proposed activities will impact on the visual character of the site, but with the implementation of adequate mitigation and management measures the impacts will be minimal.   |
| <b>Yes</b>   | <b>No</b> |  |
| <b>Question 7:</b> Will the activity or land use associated with the activity applied for, result in unacceptable opportunity costs?   |           | The opportunity costs associated with agriculture, which is the next best alternative to the proposed activity, are not significant due to the disturbed nature of the site. In the event should the development not commence on the study area, the eradication of exotic trees, alien and invasive species, a  |

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| <b>Yes</b>   | <b>No</b> | decrease in the grazing pressure, better veld management as well as the general rehabilitation of the study area should be conducted before any agricultural activities can commence on site. In its current state the site will not prove economically viable for any agricultural activities. |
| <b>Question 8:</b> Will the proposed land use result in unacceptable cumulative impacts? |           | Cumulative impacts that may result from the proposed development are stipulated in Chapter 4 of the BAR. Although these cumulative impacts are anticipated the implementation of good mitigation and management measures will keep these impacts to a minimum.                                  |
| <b>Yes</b>   | <b>No</b> |   |

**10. THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED (CONSIDER WHEN THE ACTIVITY IS EXPECTED TO BE CONCLUDED)**

20 years

**11. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) (MUST INCLUDE POST CONSTRUCTION MONITORING REQUIREMENTS AND WHEN THESE WILL BE CONCLUDED.)**

If the EAP answers "Yes" to Point 7 above then an EMP is to be attached to this report as an Appendix

EMPr attached

Yes

## **SECTION F: APPENDIXES**

The following appendixes must be attached as appropriate (this list is inclusive, but not exhaustive):

It is required that if more than one item is enclosed that a table of contents is included in the appendix

Appendix A: Site plan(s) – *(must include a scaled layout plan of the proposed activities overlain on the site sensitivities indicating areas to be avoided including buffers)*

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Route position information

Appendix E: Public participation information

Appendix F: Water use license(s) authorisation, SAHRA information, service letters from municipalities, water supply information

Appendix G: Specialist reports

Appendix H: EMPr

Appendix I: Other information

## **CHECKLIST**

To ensure that all information that the Department needs to be able to process this application, please check that:

- Where requested, supporting documentation has been attached;
- All relevant sections of the form have been completed.

## REFERENCES

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- SMEC (2018a) *Supplementary Civil Engineering Services Report*.
- SMEC (2018b) *Traffic Impact Assessment*.
- Statistics South Africa (2011) *Statistics South Africa, Bronkhorstspuit*. Available at: [http://www.statssa.gov.za/?page\\_id=4286&id=11403](http://www.statssa.gov.za/?page_id=4286&id=11403).

**APPENDIXES**

**APPENDIX A: SITE PLAN**



## APPENDIX B: PHOTOGRAPHS

**APPENDIX C: FACILITY ILLUSTRATION(S)**

## APPENDIX D: ROUTE POSITION INFORMATION

## APPENDIX E: PUBLIC PARTICIPATION INFORMATION

**APPENDIX 1 – PROOF OF SITE NOTICE**

**APPENDIX 2 – WRITTEN NOTICES ISSUED AS REQUIRED IN TERMS OF THE REGULATIONS**

## APPENDIX 3 – PROOF OF NEWSPAPER ADVERTISEMENTS

**APPENDIX 4 – COMMUNICATIONS TO AND FROM INTERESTED AND AFFECTED PARTIES**



**APPENDIX 5 – MINUTES OF ANY PUBLIC AND/OR STAKEHOLDER MEETINGS**

## APPENDIX 6 - COMMENTS AND RESPONSES REPORT

**APPENDIX 7 –COMMENTS FROM I&APS ON BASIC ASSESSMENT (BA) REPORT**

**APPENDIX 8 –COMMENTS FROM I&APS ON AMENDMENTS TO THE BA REPORT**

**APPENDIX 9 – COPY OF THE REGISTER OF I&APS**

**APPENDIX F: SERVICE LETTERS FROM MUNICIPALITIES**

## APPENDIX G: SPECIALIST REPORTS

## APPENDIX H: EMPR



**APPENDIX I: OTHER INFORMATION**

No other information was appended to Appendix I.