

DRAFT SCOPING REPORT FOR THE PROPOSED PRASA NIGEL MANUFACTURING PLANT

Prepared for:

**GIBB Engineering and Architecture (GIBB) on behalf of Passenger Rail
Agency of South Africa (PRASA)**

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Submitted to:

Department of Environmental Affairs



environmental affairs

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PURPOSE OF DOCUMENT

A period of **40 calendar days (Wednesday, 08 October 2014 to Monday, 17 November 2014)** has been provided to the **State Departments** and the **general public** for the review and commenting phase of the Draft Scoping Report. All Interested and Affected Parties (I&APs) as well as State Departments have been notified of this review period.

The Draft Scoping Report contains the following information:

- A description of the project, including project motivation;
- Discussion of applicable alternatives;
- A description of the environment affected by the project;
- The public participation process; and
- The plan of study for the Environmental Impact Reporting (EIR) phase.

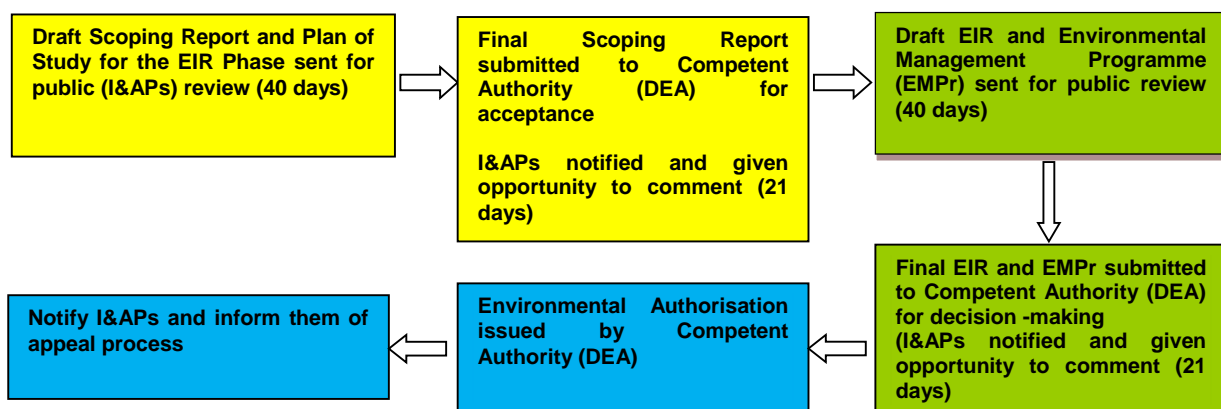
The Draft Scoping Report can be viewed at the following venue:

Name of public venue	Name of Contact Person	Contact Number(s)	Viewing Times
Dunnottar Public Library 47 Rhodes Street Dunnottar	Mr Vincent Moabelo,	Tel: (011) 999 9118/ 9116	Mon- Thurs: 08:00- 18:00 Fridays: 08:00- 16:30 Saturdays: 08:00 – 13:00

Should you wish to participate in the Scoping and Environmental Impact Reporting (S&EIR) process by contributing issues of concerns/comments, please register as an I&AP by completing the enclosed Registration and Comment Sheet or you can visit Strategic Environmental Focus (Pty) Ltd (SEF's) website at <http://www.sefsa.co.za>.

To register as an I&AP or comment on the project using SEF's website, click on **“Stakeholder Engagement”**. Click on the “register” button and complete the compulsory fields to register as an I&AP. On completion of these fields, click on the “register button” and you will see **“REGISTRATION SUCCESSFUL”**. Use your login details to login in and view the Draft Scoping Report for the proposed **PRASA Nigel Manufacturing Plant** and associated appendices. Should you have any problems in obtaining the information from the Internet, please feel free to contact SEF for assistance.

Following the commenting period, the Scoping Report will be updated and submitted to the Department of Environmental Affairs (DEA) for consideration. After the acceptance of the Scoping Report, the EIR phase will be initiated. The flow diagram below highlights the phases in the project where I&APs have the opportunity to participate within the process.



PROJECT SUMMARY	
Project Name	Proposed PRASA Nigel Manufacturing Plant
Farm Name and Portion	Portion 23 of the Farm Grootfontein 165 IR, Ekurhuleni Metropolitan Municipality (EMM), Gauteng Province.
Brief Development Overview	<p>Passenger Rail Agency of South Africa (PRASA) intends to develop a factory for the manufacturing of new rolling stock of train carriages all to be developed on Portion 23 of the Farm Grootfontein 165 IR, in Nigel.</p> <p>There will be two main construction areas:</p> <ul style="list-style-type: none"> • The main train manufacturing site; and • A nearby Industrial Park to integrate main suppliers and partners of the Site's activities. <p><i>The proposed project will involve the following <u>main manufacturing site activities</u>:</i></p> <p>The entire perimeter will be secured with a compound wall. Size and the location of buildings will be based on environmental and technical considerations. The design approach will be to have a single building structure basis identical for all aisles. The only exception will be the car body shell workshop and the training centre, which will both have the same structure as the others, but slightly higher for operational requirements.</p> <p>The tracks will have several characteristics depending on the area where they are installed.</p> <p><i>The proposed project will also involve the following <u>Supplier Park activities</u></i></p> <ul style="list-style-type: none"> • The Supplier Park is intended as an industrial zone, which will initially comprise 10 buildings, each building comprising of 4 x 1000m² units (complete with their own offices and ablutions). This will include the initial infrastructure development. There will be a capability to extend the supplier park with identical units at a later date if it is deemed necessary. • The total area for the Supplier Park equals 40 000 m² (4 ha) which will include all infrastructure and basic 'shells' in the form of workshop-type buildings. • The building will be built to easily reconfigure to allow for capacity improvement or new train products to be built, i.e. easily extendable in length and in width. <p><i>Some other elements are to be developed on-site or remotely, such as crèche, medical and sport centres. This will be confirmed and updated in the Draft Environmental Impact Assessment Report (EIR).</i></p>
Township Application Process	<p>The town planning and environmental studies are being undertaken concurrently. The Town Planning Application is being undertaken for purposes of subdividing a Portion of land approximately 104.197 hectares from Portion 23. The Township Application is being lodged for the establishment of a township and is submitted in terms of Section 96(1) (a) of the Town Planning and Townships Ordinance No. 15 of 1986.</p> <p>Thereafter the remainder will be appropriately subdivided and rezoned in terms of Section 56 of the Town Planning and Townships Ordinance No. 15 of 1986 to allow for an industrial type of development.</p>
Design Alternatives	<p>Alternative 1: Leadership in Energy and Environmental Design (LEED) (preferred alternative)</p> <p>Alternative 2: Green Star SA - Office V1/ Green Building</p> <p>Alternative 3: Conventional Building</p>
Site/ Location Alternatives	Portion of land to be developed is approximately 104.197 hectares from Portion 23 of the Farm Grootfontein 165 IR. Four site alternatives are being investigated.

	<p><u>Alternative 1: The proposed plant being situated west of the site.</u></p> <p><u>Alternative 2: Plant and residential development on the entire Portion 23.</u></p> <p><u>Alternative 3: Plant and other Industrial 1 development on the entire Portion 23.</u></p>
Municipal Bulk Services	<p><u>Water Supply</u></p> <p>Bulk water demand is estimated at 450 kl/day. It is currently assumed that the process water will be 3 m³/ day. The water connections will be connected to the municipal system. Connection will either be at the main entrance road at R51 intersection, or at a position to the north east corner of the site.</p> <p><u>Waste Management (Sewer)</u></p> <p>The bulk sewer discharge is estimated at 340 kl/day (excluding any savings that can be achieved through grey water harvesting). The sewer connections will be connected to the municipal system. Connection will either be at the main entrance road at R51 intersection, or at the southern corner of the site, with a possibility of dedicated outfall sewer align the eastern bank of the river to the Waste Water Treatment Works (WWTW).</p> <p><u>Stormwater Management</u></p> <p>Stormwater generated by the proposed development will have a low runoff factor. Stormwater runoff will be influenced mainly by the internal road network, structures and paved areas, and mitigation measures will focus on limiting the effect that the internal road network will exert on the post-development flood risk. Gutter systems will be installed to capture all stormwater falling on the structure's roof and redirecting it into the proposed stormwater open channels, pipes, retention ponds, attenuation ponds etc.</p> <p>Stormwater discharge will be at the southern corner of the proposed site, possibly, to discharge at the main entrance area at the R51 intersection, and also possible discharge points alongside the western site boundary.</p> <p>The attenuation pond will be situated at the lower corner of the proposed site.</p> <p><u>Electricity</u></p> <p>The bulk power supply is estimated to have a total load of ± 20 Megavolt ampere (MVA). Two options are being considered for electricity supply i.e.</p> <p>Option 1: The Dunnottar Substation, approximately 2.7 km from the site, is in the process of being upgraded. The internal investigation reveals that the required load can be made available from the EMM's Main supply. Option 2: The Council's 88 kV supply lines can handle and allow extension to accommodate the required load of 20 MVA.</p>
Development Footprint	The proposed portion./ site is approximately 295 hectares (ha) in extent; however the development footprint will be that of approximately 104.197 ha being used for the construction of the proposed manufacturing plant. The proposed development is to be called Dunnottar Extension 7.
Development Height	Detailed designs of the proposed development will be provided within the EIR. A site development plan is currently being developed for the proposed site.
Site Photographs	Refer to Appendix 2.

ENVIRONMENTAL ASSESSMENT PRACTITIONER

Strategic Environmental Focus (Pty) Ltd (SEF) is a privately owned company and was formed in 1997 with the objective of providing **expert solutions to pressing environmental issues. SEF is one of Africa’s largest multi-disciplinary environmental consultancies** assisting the private sector and government in managing the sustainability of our natural resources. SEF has been proactively providing these sustainable solutions for over 17 years, with offices located across the major centres of South Africa, as well as offering global expertise through years of experience providing these sustainable solutions on many international projects.

As a proudly South African company, SEF has been responding and resolving issues of environmental sustainability in the development sector, for over a decade and a half, and we have been privileged and honoured to have been part of the development of some of our country’s most prized national landmarks, in both the private and public domain.

As a business steeped in entrepreneurship, we pride ourselves on being innovative and future focussed, driven through our unique offering of having all types of environmental consultant specialists under one roof. SEF’s core environmental experts have extensive experience in dealing with Environmental Impact Assessments (EIAs), Public Participation Processes (PPPs), Architectural and Landscape Architecture, Mining and Environmental Management. SEF also has a team of specialist practitioners such as specialists in Heritage Impact Assessments (HIA), Wetland Delineation and Functional Assessments; Wetland/ Riparian Rehabilitation, Aquatic Assessments; Ecological (Fauna, Avifauna and Flora) Assessment, Visual Impact Assessments (VIAs), Soils and Agricultural Potential Assessments, Socio-Economic Assessments, etc.

SEF’s Vision

SEF is a national sustainability consultancy which provides integrated and innovative Social, Biophysical & Economic solutions while fostering strategic stakeholder relationships, underpinned by SEF’s core values.

SEF’s Mission

SEF offers holistic and innovative sustainable solutions in response to global challenges.

SEF is a Qualifying Small Enterprise (QSE) and a **Level 2 contributor in terms of the Broad Based Black Economic Empowerment Act, 2003 (Act No. 53 of 2003)** and has a procurement recognition level of 135%.

SEF commits itself to comply with the requirements and the implementation of a Quality Management System (QMS). The QMS will be reviewed and implemented to continually improve efficiency and effectiveness of the organisation.

SEF uses a “green” approach to anything we embark on. We believe in using technology to our and the environment’s best advantage. We encourage the use of green alternatives such as telephone and video conferencing instead of travelling for workshops and meetings and Compact Discs (CDs) instead of printed material, where possible.

The following project team members are involved in this S&EIR application process.

Table 1: Project Team Members

Name	Organisation	Project Role
Mr Craig Allen	SEF	Project Manager
Ms Mpho Manyabe	SEF	Environmental Manager
Mr Mandla Zuma	SEF	Environmental Assistant and facilitator for the Public Participation Process

Mr Craig Allen

Craig has been an Environmental Assessment Practitioner (EAP) for 7 years during which he has managed projects ranging in size and scope from small BAs to large-scale mining related EIAs throughout Southern Africa. Craig has excellent working knowledge of the NEMA and Minerals and Petroleum Resources Development Act (Act No. 28 of 2002) (MPRDA) and its Regulations and is the Executive Director of the Mining and Environment division within SEF. As such he provides technical supervision for projects, project leadership on large-scale environmental assessments and quality assurance on EIAs, Environmental Management Plans (EMPs), Environmental Management Programmes (EMPRs) and BAs.

Ms Mpho Manyabe

Mpho has obtained her National Diploma in Environmental Sciences from the Tshwane University of Technology (TUT) and is currently completing her BSc Honours Degree (Environmental Management) at the University of Southern Africa (UNISA). Mpho has 7 years of work experience in the field of environmental management from various consulting companies. Mpho has previously worked as an assistant environmental consultant conducting EIAs for the mining industries and service stations, and also other small industries. She has also been involved in numerous Public Participation Processes (PPPs) throughout the Gauteng Region. She previously had been employed as an environmental scientist where she was involved in environmental assessment projects, for Parastatals, National Departments and Municipalities from 2008. She has also been involved in Safety, Health and Environmental (SHE) management for private and public entities where she had been the overall project manager for such projects.

Ms Kagiso Motlhasedi

Kagiso has obtained her BSc Degree in Environmental Science with specialisation in Geology and Geography (University of Johannesburg- UJ) and is currently studying for her BSc Honours Degree at the UNISA. She was previously employed as a compliance officer for a waste management company. She is currently an Environmental Assistant at SEF, whereby her duties include the drafting of BA reports as well as both Scoping & Environmental Impact Assessment (EIA) Reports. In addition to the above, Kagiso is also actively involved in the development of Water Use License Applications (WULA) and PPPs as relevant to the NEMA and MPRDA.

Table 2: Contact Details of Environmental Assessment Practitioner

Name	Contact Details
Mr Craig Allen	Strategic Environmental Focus (Pty) Ltd Postal Address: PO Box 74785, Lynnwood Ridge, Pretoria, 0040 Tel: +27 12 349 1307 Fax: +27 12 349 1229 Email: craig@sefsa.co.za

EXECUTIVE SUMMARY

1 INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) have been appointed by GIBB Engineering and Architecture (GIBB) on behalf of Passenger Rail Agency of South Africa (PRASA) to undertake an environmental application process for the proposed Manufacturing Plant (Dunnottar Extension 7). The proposed development will be located on Portion 23 of the Farm Grootfontein 165 IR, Ekurhuleni Metropolitan Municipality (EMM), in Nigel, Gauteng Province.

A Scoping and Environmental Impact Reporting (S&EIR) process is being conducted for this project based on triggered listed activities within the Environmental Impact Assessment (EIA) Regulations of 2010 [Government Notice (GN) Regulation 544, 545 and 546] promulgated in terms of the amended National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The process is also for purposes of obtaining a Water Use License (WUL) in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

The purpose of the Scoping phase is to describe the proposed activity and those reasonable alternatives that have been identified as well as the receiving environment that may be affected by the proposed project. Based on the aforementioned aspects, the Scoping phase highlights the potential environmental impacts that may occur based on the proposed project. The Scoping phase then also dictates which specialist assessments must be undertaken, during the Environmental Impact Reporting (EIR) phase, to investigate and assess potential environmental impacts. The report further describes the required Public Participation Process (PPP) followed during the Scoping phase as well as how it will be carried out during the EIR phase.

All Interested and Affected Parties (I&APs) are being provided with an opportunity to comment on this Draft Scoping Report. Comments on the Draft Scoping Report will be addressed in the Final Scoping Report. The Final Scoping Report will then be submitted to registered I&APs, State Departments and the Competent Authority, in this case, the Department of Environmental Affairs (DEA), concurrently, for review. The DEA will, based on the forthcoming of the Final Scoping Report, with the Plan of Study (PoS) for the EIR phase, issue a decision on whether or not the application may proceed to the EIR phase.

2 BRIEF PROJECT DESCRIPTION

Passenger Rail Agency of South Africa (PRASA) intends to develop a factory for the manufacturing of new rolling stock of train carriages all to be developed on Portion 23 of the Farm Grootfontein 165 IR, in Nigel.

There will be two main construction areas:

- The main train manufacturing site; and
- A nearby Industrial Park to integrate main suppliers and partners of the Site's activities.

The proposed project will involve the following main manufacturing site activities:

The entire perimeter will be secured with a compound wall. Size and the location of buildings will be based on environmental and technical considerations. The design approach will be to have a single building structure basis identical for all aisles. The only exception will be the car body shell workshop and the training centre, which will both have the same structure as the others, but slightly higher for operational requirements as shown below.

The tracks will have several characteristics depending on the area where they are installed.

Stainless Steel car body shell manufacturing:

- Material warehouse;
- Primary parts and small sub-assemblies preparations;
- Large sub-assemblies and car erection; and
- “Closing” fittings (doors and windows) and water leakage test.

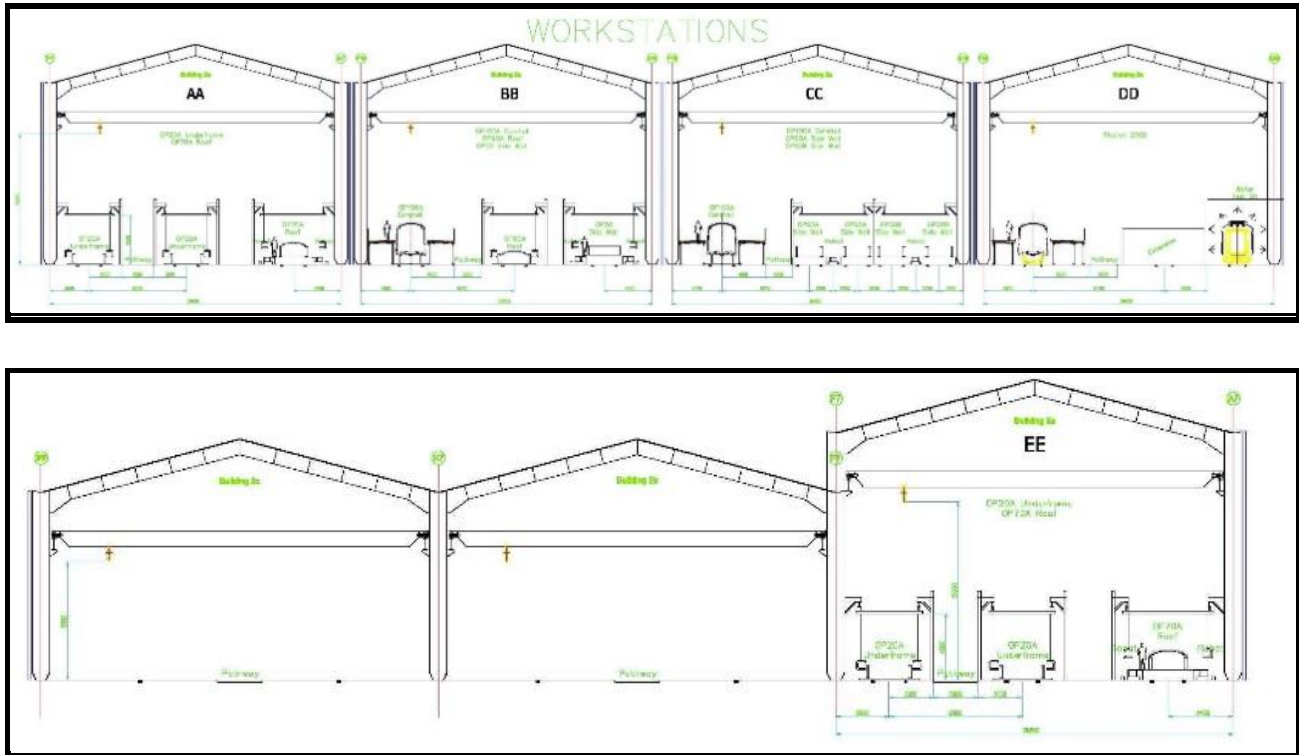


Figure 1: Car Body Shell showing varied heights (8m or 12m)

Warehouse and Fitting workshops:

- Main warehouse;
- Preparations workshop (large looming, driver cab assembly); and
- 2 Fitting lines.

Coupling and Static Test workshop:

- 2 Coupling lines; and
- 6 Static tests lines (tracks on pillars on integral pit).

Dynamic tests:

- 1 Dynamic test track.

Manufacturing site environment and common infrastructures:

- Offices, utilities and common services (canteen, cloak rooms, sanitary);
- Waste management area;
- Rain Water and other Water tanks (including fire fighting normative reserves); and
- Parking (cars, buses & 2-wheelers).

The proposed project will also involve the following *Supplier Park* activities

- The Supplier Park is intended as an industrial zone, which will initially comprise 10 buildings, each building comprising of 4 x 1000m² units (complete with their own offices and ablutions). This will include

the initial infrastructure development. There will be a capability to extend the supplier park with identical units at a later date if it is deemed necessary.

- The total area for the Supplier Park equals 40 000 m² (4 ha) which will include all infrastructure and basic ‘shells’ in the form of workshop-type buildings.
- The building will be built to easily reconfigure to allow for capacity improvement or new train products to be built, i.e. easily extendable in length and in width.

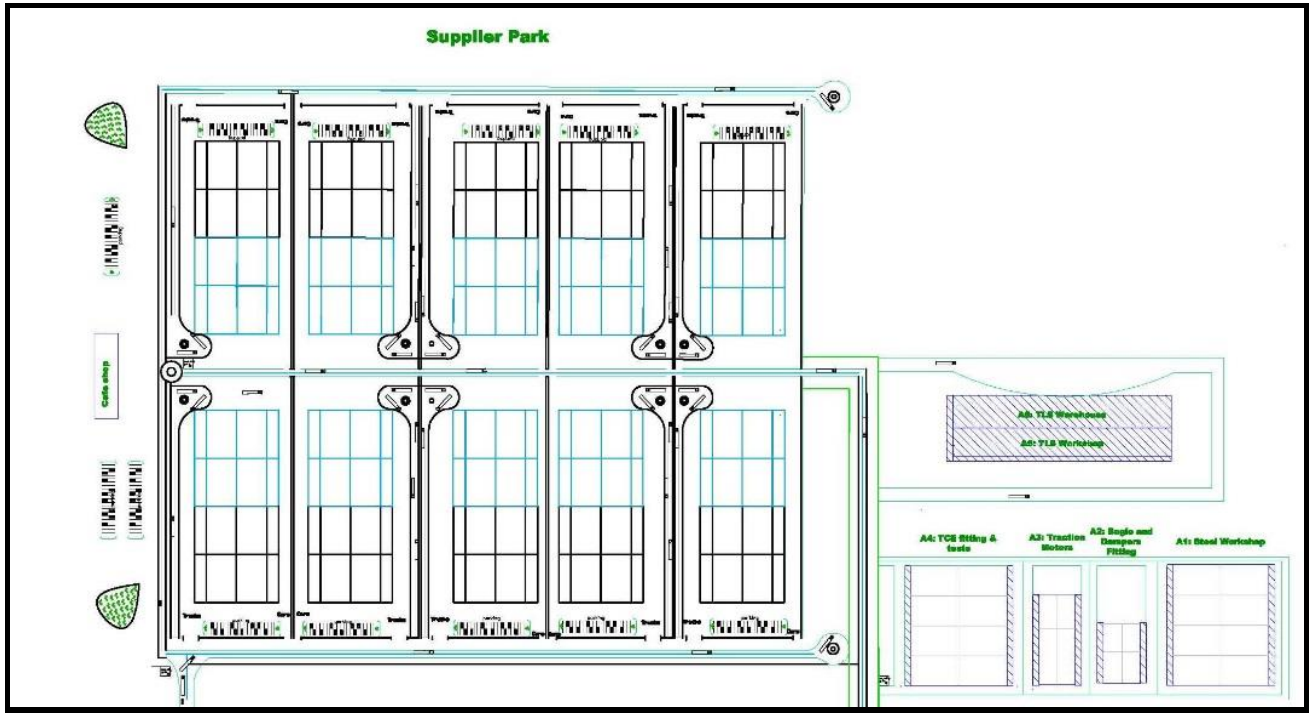


Figure 2: Supplier Park

Some other elements are to be developed on-site or remotely, such as crèche, medical and sport centres. This will be confirmed and updated in the Draft Environmental Impact Assessment Report (EIR).



Figure 3: Proposed Manufacturing Facility (Main Manufacturing Facility and the Supplier Park)

There will be two access points to the proposed development i.e. main access and the emergency access. All trips will be assigned to the main access. Access to the main road access will be via the M45 intersection along R51.

3 KEY IMPACTS

The following key impacts were identified and will be carried forward into the EIR phase for further investigation and assessment:

Biophysical Impacts:

- Potential impacts on surface water resources that occur in close proximity and on site (the existing wetland; pan, dam and river (Blesbokspruit 2.8 km south east of the proposed site));
- Potential impacts of increased surface water run-off (viz. increased soil erosion) associated with the establishment of hard surfaces and vegetation clearing (mainly during the construction phase);
- Potential impacts on ground and surface water quality due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impacts on soils due to hydrocarbon spillages from vehicles during the construction and operational phase of the development;
- Destruction of flora and fauna within the proposed area as the area falls within a Threatened Ecosystem, Critical Biodiversity Area, and Ecological Support Area. There is a potential for the presence of Giant Bullfrog, Grass Owl; and *Boophane disticha* (Poison Bulb), stemming from construction activities such as vegetation clearing and topsoil stripping within the site;
- Faunal displacement mainly during the construction phase of the project;
- Adverse impacts on avifauna with the presence of Marievale Bird Sanctuary, which is a provincial nature reserve and a RAMSAR-protected site, located approximately 2km east of the site. Birds within the Marievale Bird Sanctuary are not bound by the sanctuary only and could use the watercourses (including pans) on or in the vicinity of the site;
- Potential loss of agricultural land;

- Potential presence of dolomite; and
- Soil compaction due to the movement of vehicles on site.

Socio-Economic Impacts:

- The closure of the site from being used as an airfield used for paragliding (www.flytribe.co.za), micro-lights, touch-and-go training for small aircraft, and possible emergency landing zone for small aircraft to the OR Tambo International Airport (ORTIA). Old infrastructure (lights, markings) associated with a grassland airfield are present on the site;
- Prevention of illegal removal of copper cables from the site property;
- Potential traffic impacts associated with the road being used by the Military base as the main access road off the R51 provincial road. Potential sharing of the access road could lead to traffic impacts;
- Decreased dust generation during the operational phase;
- Increased visual impacts associated with additional industrial development activities. Potential visual impact as the new manufacturing facility will be constructed on a 2m high platform and will be up to 25m high;
- Increase in local employment and subsequently, number of job seekers, during both the construction and operational phases;
- Noise will be generated during track testing and track braking activities;
- The bus service proposed to be implemented for the project will have a potential impact on the existing taxi industry;
- LEED v4 platinum green building certification is being applied for, which will result in a potential impact on the natural and social environments which may also attract international funding or investment; and
- Air pollution from dust from nearby mines, discard dumps and storage facilities in the vicinity of the site.

Cumulative Impacts:

- Increased visual impacts associated with additional industrial development activities;
- Increase in local employment and subsequently, number of job seekers, during construction and operational phases; and
- Influx of people (looking for jobs) into the area.

4 PROJECT ALTERNATIVES

To give effect to the principles of the NEMA and Integrated Environmental Management (IEM), an EIA should assess a number of reasonable and feasible alternatives that may achieve the same end result as that of the preferred project alternative. The following alternatives have been identified as part of this Scoping exercise:

A. Design Alternatives

Alternative 1: Leadership in Energy and Environmental Design (LEED) (preferred alternative)

LEED is a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighbourhoods. Developed by the U.S. Green Building Council (USGBC), LEED is intended to help building owners and operators be environmentally responsible and use resources efficiently. LEED is transforming the way we think about how buildings and communities are designed, constructed, maintained and operated across the globe.

LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy.

LEED is a green building certification program that recognises best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels

of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

Each rating system groups requirements that address the unique needs of building and project types on their path towards LEED certification. Once a project team chooses a rating system, they'll use the appropriate credits to guide design and operational decisions.

There are five rating systems that address multiple project types:

- Building Design; and Construction;
- Interior Design and Construction;
- Building Operations and Maintenance;
- Neighbourhood Development; and
- Homes.

LEED has evolved since 1998 to more accurately represent and incorporate emerging green building technologies. The pilot version, LEED New Construction (NC) v1.0, led to LEED NCv2.0, LEED NCv2.2 in 2005, and LEED 2009 (previously named LEEDv3) in 2009. LEEDv4 was introduced in November, 2013. Until June 1, 2015, new projects may choose between LEED 2009 and LEEDv4.

New projects registering after June 1, 2015 must use LEEDv4.

Buildings can qualify for four levels of certification:

- Certified: 40–49 points
- Silver: 50–59 points
- Gold: 60–79 points
- Platinum: 80 points and above

LEED certified buildings are intended to use resources more efficiently when compared to conventional buildings simply built to code. However, analysis of energy and water use data from New York City shows that LEED certification does not necessarily make a building more energy or water efficient.

Often, when a LEED rating is pursued, the cost of initial design and construction rises. There may be a lack of abundant availability of manufactured building components that meet LEED specifications. Pursuing LEED certification for a project is an added cost in itself as well.

However, these higher initial costs can be effectively mitigated by the savings incurred over time due to the lower-than-industry-standard operational costs typical of a LEED certified building. This Life cycle costing is a method for assessing the total cost of ownership, taking into account all costs of acquiring, owning and operating, and the eventual disposal of a building. Additional economic payback may come in the form of employee productivity gains incurred as a result of working in a healthier environment. Studies have suggested that an initial up-front investment of 2% extra will yield over ten times the initial investment over the life cycle of the building.

The positive impacts that the LEED platinum certification may be able to achieve are as follows:

- 100% collection, use and reuse of all rainwater;
- 80% water metering for hot water applications to prevent water losses;
- The use of photovoltaic panels as shading for the parking area;
- On-site recycling or collection of all waste; and
- Use of daylight saving technologies.

The above is the preferred alternative for PRASA.

Alternative 2: Green Star SA - Office V1/ Green Building

Green building (also known as green construction or sustainable building) refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the design team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources;
- Protecting occupant health and improving employee productivity; and
- Reducing waste, pollution and environmental degradation.

Sustainably designed buildings cost less to operate and have excellent energy performance.

The environment is required to be sustainable and the facility should aim for a minimum of a 4-star Green Star Certified Rating as regulated and awarded by Green Building Council of South Africa (GBCSA).

Green concepts with regard to the facility will meet appropriate grade requirements and the life-cycle costs and principles established will reflect a sustainable environmentally efficient facility. When looking at the facility from a sustainable viewpoint there are two important factors:

- The potential effect of the facility on the environment; and
- The effect of the environment on the facility.

The following concepts/requirements will be included in the Output Specification write up:

- The building will be specified as a 4-star Green Star facility and needs to be designed and constructed accordingly.
- The design will be required to optimise natural ventilation, windows will be openable, and the design should ensure that there is a through draft, while ensuring that heated or cooled air does not escape unnecessarily.
- The building will have the following:
 - Dedicated parking spaces for car-pool vehicles;
 - Parking spaces for scooters/motorbikes;
 - Major public entrances;
 - Adequate road crossings for pedestrians will be provided (within 50m of the site);
 - Any taxi stops included will be designed with a vehicle stopping area that allows for safe and convenient passenger waiting and boarding (Drop off facilities); and
 - The design will demonstrate the safe, well-lit, dedicated pedestrian facilities are provided between the development and the adjacent street network.
- Timber to be used should be re-used, recycled or be a Forest Stewardship Council (FSC) certified timber;
- The design should look at the reduction of unplasticised polyvinyl chloride (uPVC) by replacing it with other materials.
- No incandescent lights will be used, only compact fluorescent or in special areas, 12V low voltage lamps with individual transformers limited to 30 Watts.
- Lighting to cellular offices, meeting rooms, stores etc. to be provided with light switches. An intelligent lighting control and optimal switching of unpopulated areas.

The following principles should be considered within the design:

- Naturally ventilated areas should demonstrate that 95% of the use-able area (UA) is naturally ventilated in accordance with SANS 10400-0.
- Mechanically ventilated spaces should demonstrate that 95% of the UA has outside air provided at rates greater than SANS 10400-0 (5 litres/second/person for offices).
- Naturally ventilated spaces should provide a distribution and laminar air flow pattern for at least 90% of each space in the direction of air flow for not less than 5% of standard hours of occupancy.
- Mechanically ventilated spaces should achieve an Air Change Effectiveness (ACE) of > 0.95 for at least 95% of the UA when measured in accordance with ASHRAE 129-1997: Measuring Air Change Effectiveness.
- Carbon dioxide monitoring and control to be provided.

Compared with the other buildings, the Green building will consume about 30% less electricity because of interventions including efficient lighting, solar water heating, and most importantly, the use of the chilled beam air conditioning systems. The building has water savings of about 79% when compared with the other buildings.

Alternative 3: Conventional Building

This will involve the construction of a conventional building, and will thus not entail the implementation of Greenstar principles.

The following philosophies will thus not be achieved by this alternative namely:

- Optimal energy efficiency;
- Greenhouse gas emission abatement;
- Water conservation;
- Waste avoidance, reuse and recycling;
- Pollution prevention - noise, water, air, soil and light;
- Enhanced biodiversity;
- Reduced natural resource consumption;
- Productive and healthier environments; and
- Flexible and adaptable spaces.

Although energy efficient measure will still be considered as part of the proposal, it will not achieve the level of energy efficiency as with the LEED design.

B. Site/ Location Alternatives

Portion of land to be developed is approximately 104.197 hectares from Portion 23 of the Farm Grootfontein 165 IR. Four site alternatives are currently being investigated.

Alternative 1: The proposed plant being situated west of the site.

Alternative 2: Plant and residential development on the entire Portion 23.

Alternative 3: Plant and other Industrial 1 development on the entire Portion 23.

C. No Development Alternative

PRASA have finalised a R51 billion contract with the Gibela empowerment consortium (GIBELA), of which Alstom Southern African Holdings is the largest shareholder, to deliver 600 Alstom trains consisting of six wagons each. The first 20 trains are being manufactured at Alstom's Lapa plant in Brazil.

The proposed plant would be designed to house an engineering centre and a training facility. Project goals included that a portion of the budget be spent on subcontracting to black-empowered entities, subcontracting to qualifying small enterprises, and subcontracting to entities owned by black women, training artisans and technicians, drivers during the life of the project, skills development initiatives.

As explained above, this option has the following disadvantages:

- A high demand for industrial and employment provision exists in this area, especially with respect to the proposed development characteristics. Should the site not be developed, a very viable opportunity to exploit the industrial market in the immediate area will be negated
- Illegal squatters or vagrants may potentially settle on the site, as severe pressure for housing in the lower income brackets also exist. Due to the presence of extensive development throughout the greater area it is possible that undeveloped, un-managed land may be illegally settled.

Should the site be left as is and that no development or alteration be done, the site's status quo will be retained.

5 CONCLUSIONS AND RECOMMENDATIONS

In accordance with GN No. R 543, the Draft Scoping Report for the proposed development is aimed at describing the proposed activity and those reasonable alternatives that have been identified, as well as the receiving environment that may be affected by the proposed project. In accordance with the EIA Regulations, an identification of relevant legislation and guidelines was also given, as well as a description of the public participation process that was and will be followed.

In conclusion, the Draft Scoping Report established the scope of the proposed project throughout its phases, as well as its key impacts on the receiving and surrounding environments. The project motivation has also been described. The Draft Scoping Report also sets out the proposed scope of the EIR phase that will be undertaken for the proposed project (Section F).

Comments and/or concerns identified by I&APs during the review period of the Draft Scoping Report will be incorporated into the Final Scoping Report for further investigation during the EIR phase to follow. The Final Scoping Report and PoS for the EIR phase will be submitted to the DEA for consideration. All comments received on the Final Scoping Report will also be forwarded to the DEA for consideration.

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LIST OF ABBREVIATIONS AND ACRONYMS

ASGISA	Accelerated Shared Growth Initiative for South Africa
BA	Basic Assessment
CD	Compact Disk
CRR	Comment and Response Report
DEA	Department of Environmental Affairs (previously DEAT)
DEAT	Department of Environmental Affairs and Tourism
DMR	Department of Mineral Resources
DW&S	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment

EIR	Environmental Impact Reporting
EMM	Ekurhuleni Metropolitan Municipality
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
FSC	Forest Stewardship Council
GBCSA	Green Building Council of South Africa
GDACE	Gauteng Department of Agriculture, Conservation and Environment
GDARD	Gauteng Department of Agriculture and Rural Development
GDS	Growth & Development Strategy
GIBELA	Gibela empowerment consortium
GNR	Government Notice Regulation
ha	Hectare
HDI	Historically Disadvantaged Individual
HIA	Heritage Impact Assessment
IEM	Integrated Environmental Management
IRP	Integrated Resource Plan
I&APs	Interested and Affected Parties
LEED	Leadership in Energy and Environmental Design
LPG	low pressure gas
ME	Mitigation Efficiency/ Effectiveness
MPRDA	Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MSA	Municipal Systems Act, 2000 (Act No. 32 of 2000)
MVA	Megavolt ampere
NGP	New Growth Path
NHRA	National Heritage Resources Act, (Act No. 25 of 1999)
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM: AQA	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NEM: BA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NSBA	National Spatial Biodiversity Assessment
NWA	National Water Act, 1998 (Act No. 36 of 1998)
ORTIA	OR Tambo International Airport
PoS	Plan of Study
PPP	Public Participation Process
PRASA	Passenger Rail Agency of South Africa
QMS	Quality Management System

QSE	Qualifying Small Enterprise
RDP	Reconstruction and Development Programme
SACAA	South African Civil Aviation Authority
SDF	Spatial Development Framework
SEF	Strategic Environmental Focus (Pty) Ltd
SFM	Significance Following Mitigation
SHE	Safety, Health and Environmental
S&EIR	Scoping and Environmental Impact Reporting
SoER	State of Environmental Report
TMA	Terminal Management Area
TUT	Tshwane University of Technology
UJ	University of Johannesburg
UNISA	University of Southern Africa
USGBC	U.S. Green Building Council
uPVC	polyvinyl chloride
UA	use-able area
VIA	Visual Impact Assessment
WM	With Mitigation Measures
WML	Waste Management License
WOM	Without Mitigation Measures
WUL	Water Use License
WULA	Water Use License Application
WWTW	Waste Water Treatment Works

GLOSSARY OF TERMS

Alternative	In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to— (a) the property on which or location where it is proposed to undertake the activity; (b) the type of activity to be undertaken; (c) the design or layout of the activity; (d) the technology to be used in the activity; (e) the operational aspects of the activity; and (f) the option of not implementing the activity.
Applicant	Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).
Contaminated water	Water contaminated by pollutants from on-site or off-site activities; for example, concrete-laden water and runoff from plant or personnel wash areas. Contaminated water must be treated to ensure water released into

	the receiving environment meets minimum standards and guidelines. Treated water should be recycled where possible (for example, used for dust suppression).
Cumulative Impact	Cumulative impact, in relation to an activity, means the impact of an activity that in itself may not be significant, but may become significant when added to the existing and potential impacts eventuating from similar or diverse activities or undertakings in the area.
Ecology	The study of the interrelationships between organisms and their environments.
Endangered Species	A species of organisms facing a very high risk of extinction.
Environment	The surroundings within which humans exist and that are made up of – (i) the land, water and atmosphere of the earth; (ii) micro-organisms, plant and animal life; (iii) any part or combination of (i) and (ii) and the interrelationships among and between them; and (iv) the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.
Environmental Impact Assessment	Systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR.
Environmental Management Programme	A working document on environmental and socio-economic mitigation measures, which must be implemented by several responsible parties during all the phases of the proposed project.
Flood line	The line or mark to which a flood could rise, every 50 (1:50 year flood line) or 100 (1:100 year flood line) years.
Flora	All species of vegetation found in a particular region or environment
Groundwater	The water that fills the natural openings in below-surface rock or unconsolidated sands.
Heritage resources	Any place or object of cultural, archaeological or paleontological significance in terms of the National Heritage Resources Act, 1999.
Indigenous Species	A species is defined as native (or indigenous) to a given region or ecosystem if its presence in that region is the result of only natural processes, with no human intervention.
Interested and Affected Party	Any person or groups of persons who may express interest in a project or be affected by the project, positively or negatively.
Land use	Characterised by the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it. The definition of land use in this way establishes a direct link between the land cover and the actions of people in their environment.
No-go/ Do nothing alternative	The option of not undertaking the proposed activity or any of its alternatives. The no-go alternative also provides the baseline against which the impacts of other alternatives should be compared.
Pollution	Any change in the environment caused by substances and/or noise, malodours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, geotechnical and geological investigation and the provision of services, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people, or that will have such an effect in the future
Red Data	A program by the International Union for Conservation of Nature's (IUCN) for evaluating the conservation status of plant and animal species. This is represented as the Red List of Threatened Species.
Stakeholder	Any person or group of persons whose live(s) may be affected by a project.
Succession	The natural restoration process of vegetation after disturbance.
Study Area	Refers to the entire study area encompassing all the alternatives as indicated on the study area or locality map.
State Department	Any department or administration in the national or provincial sphere of government exercising functions that involve the management of the environment.
Wetland	A wetland is defined as land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which under normal circumstances supports or would support vegetation typically adapted to life in saturated soil (National Water Act, 1998 (Act No. 36 of 1998) (NWA).

SECTION A: INTRODUCTION

Strategic Environmental Focus (Pty) Ltd (SEF) have been appointed by GIBB Engineering and Architecture (GIBB) on behalf of Passenger Rail Agency of South Africa (PRASA) to undertake an environmental application process for the proposed Manufacturing Plant (Dunnottar Extension 7). The proposed development will be located on Portion 23 of the Farm Grootfontein 165 IR, Ekurhuleni Metropolitan Municipality (EMM), in Nigel, Gauteng Province.

A Scoping and Environmental Impact Reporting (S&EIR) process is being conducted for this project based on triggered listed activities within the Environmental Impact Assessment (EIA) Regulations of 2010 [Government Notice (GN) Regulation. 543, 544, 545 and 546] promulgated in terms of the amended National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The process is also for purposes of obtaining a Water Use License (WUL) in terms of Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA).

The purpose of the Scoping phase is to describe the proposed activity and those reasonable alternatives that have been identified as well as the receiving environment that may be affected by the proposed project. Based on the aforementioned aspects, the Scoping phase highlights the potential environmental impacts that may occur based on the proposed project. The Scoping phase then also dictates which specialist assessments must be undertaken, during the Environmental Impact Reporting (EIR) phase, to investigate and assess potential environmental impacts. The report further describes the required Public Participation Process (PPP) followed during the Scoping phase as well as how it will be carried out during the EIR phase.

All Interested and Affected Parties (I&APs) are being provided with an opportunity to comment on this Draft Scoping Report. Comments on the Draft Scoping Report will be addressed in the Final Scoping Report. The Final Scoping Report will then be submitted to registered I&APs, State Departments and the Competent Authority, in this case, the Department of Environmental Affairs (DEA), concurrently, for review. The DEA will, based on the forthcoming of the Final Scoping Report, with the Plan of Study (PoS) for the EIR phase, issue a decision on whether or not the application may proceed to the EIR phase.

A-1 DESCRIPTION OF PROPOSED ACTIVITY

A-1.1 Property and Location

The proposed site is located on the Passenger Rail Agency of South Africa (PRASA) intends to develop a factory for the manufacturing of new rolling stock of train carriages all to be developed on Portion 23 of the Farm Grootfontein 165 IR, in Nigel, EMM, Gauteng Province. The study area is located just east of the R51, south of N17 and north of R42.

There will be two main construction areas

- The main train manufacturing site; and
- A nearby Industrial Park to integrate main suppliers and partners of the Site's activities.

The proposed portion/ site is approximately 295 hectares (ha) in extent; however the development footprint will be that of approximately 104.197 ha being used for the construction of the proposed manufacturing plant. The proposed development is to be called Dunnottar Extension 7.

A-1.2 Surrounding Land Use

The land use around the proposed site include urbanised areas which consist of suburbs, industrial areas and mines, abandoned borrow pits and railway lines. The study area is located just east of the R51, south of N17 and north of R42.

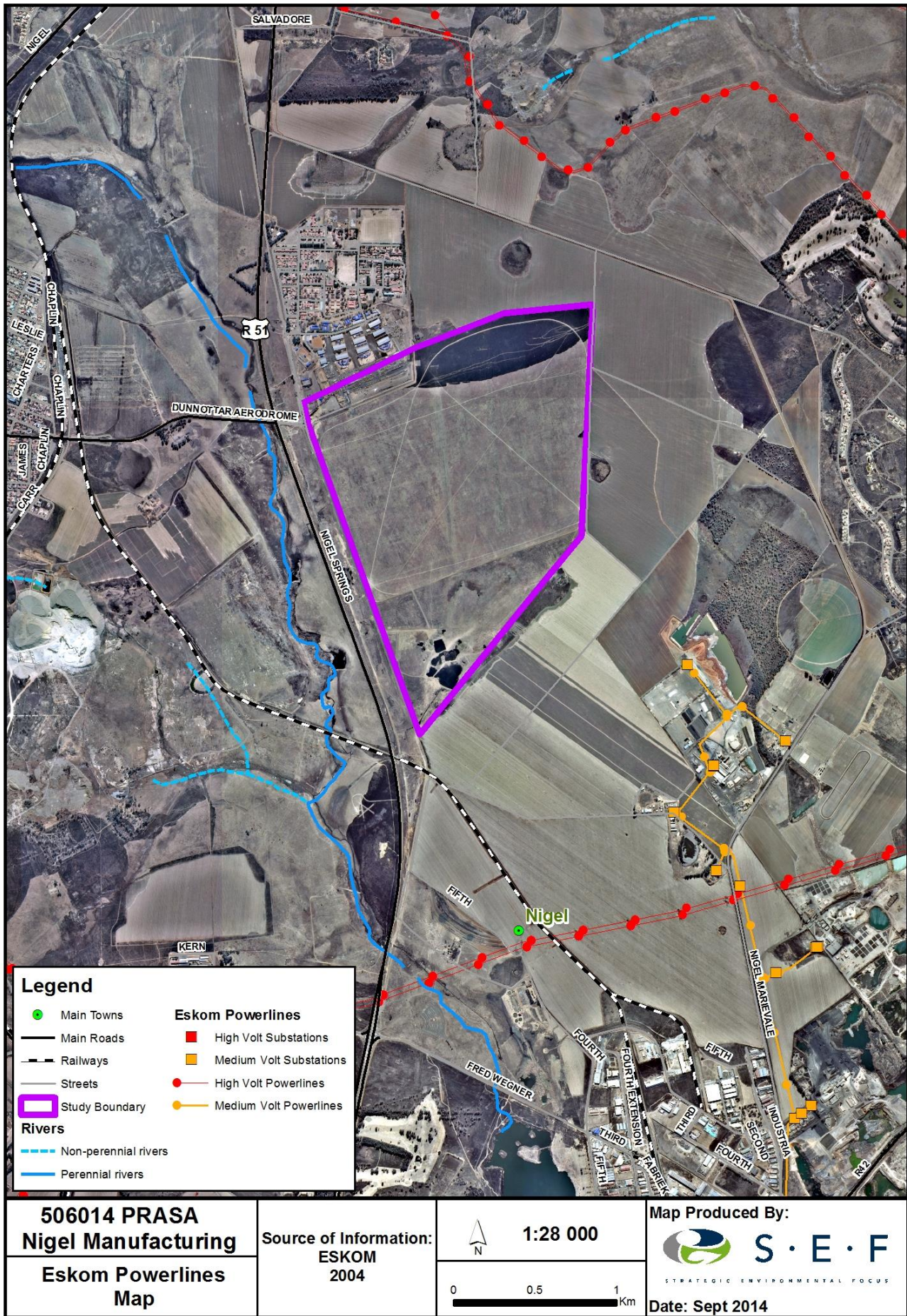


Figure 4: Eskom powerlines, substations and the railway line

Medium voltage Eskom substations and the medium voltage powerlines are located south east and south west of the proposed site (please refer to Figure 4 above). High voltage Eskom substations are located east to west of the proposed site. The high voltage Eskom powerlines are located all around the proposed site. The Bochabela Primary Farm is located north west of the proposed site, the Laer Skool Dunnottar lies east of the site, while happiness Primary is located east of the site. The following medical facilities are accessible from the proposed site.

- Dunnottar Clinic (north west);
- Nigel Hospital (west); and
- Duduza Clinic Health Centre, Duduza Clinic and Zamani Clinic (south west).

A-1.3 Presence of Servitudes

In summary, the following servitudes affect the proposed development and have been incorporated in the Layout Plan:

- 12 m-wide Sasol Gas Pipeline that contains low pressure gas (LPG) from west to the southern part of the farm (Figure 5);
- Geometric beacon on the eastern border;
- Transnet railway line south of the site (Figure 5 and Figure 6); and
- Old infrastructure (lights, markings) associated with the airfield.

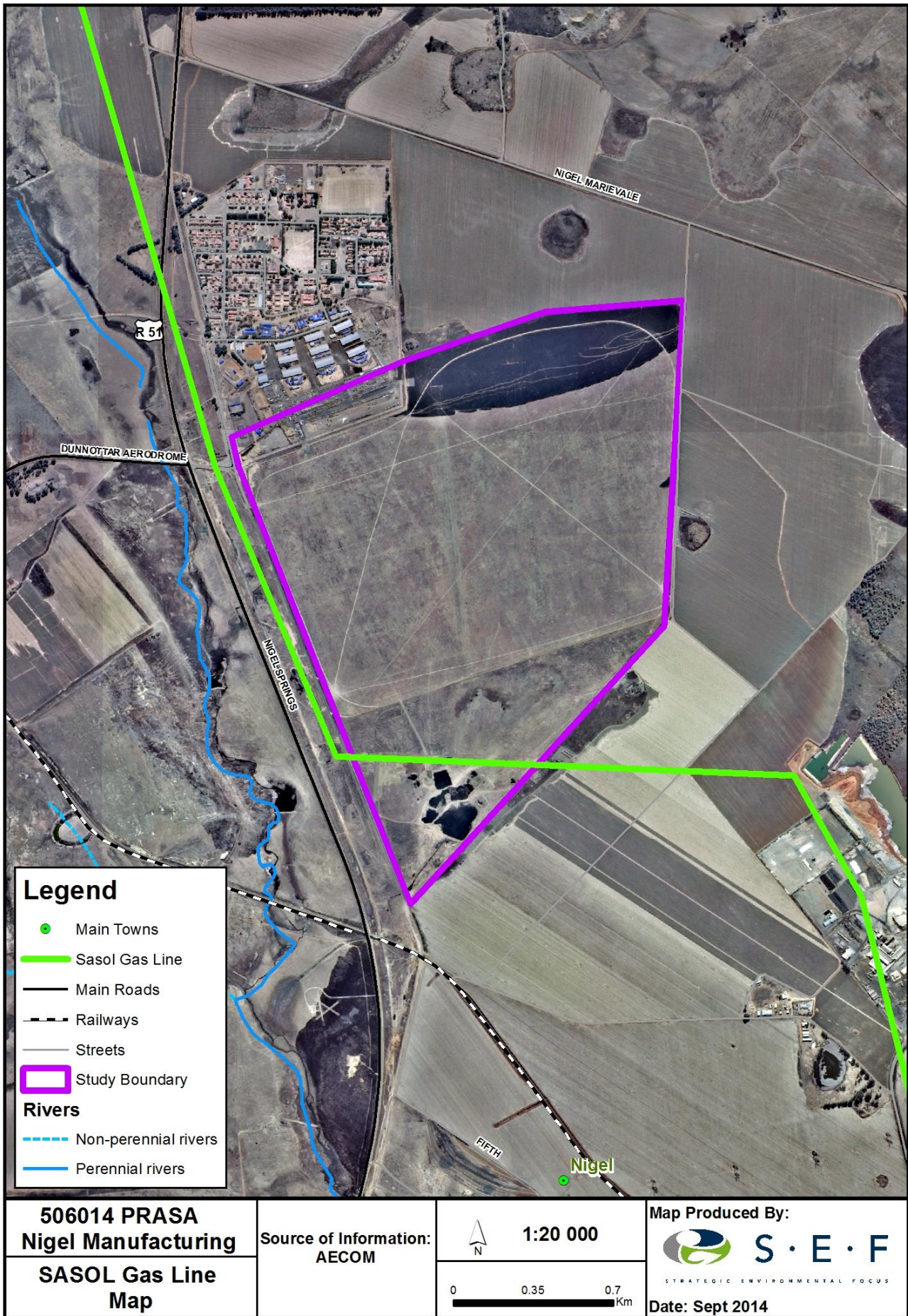


Figure 5: Sasol Gas Line affecting the proposed portion

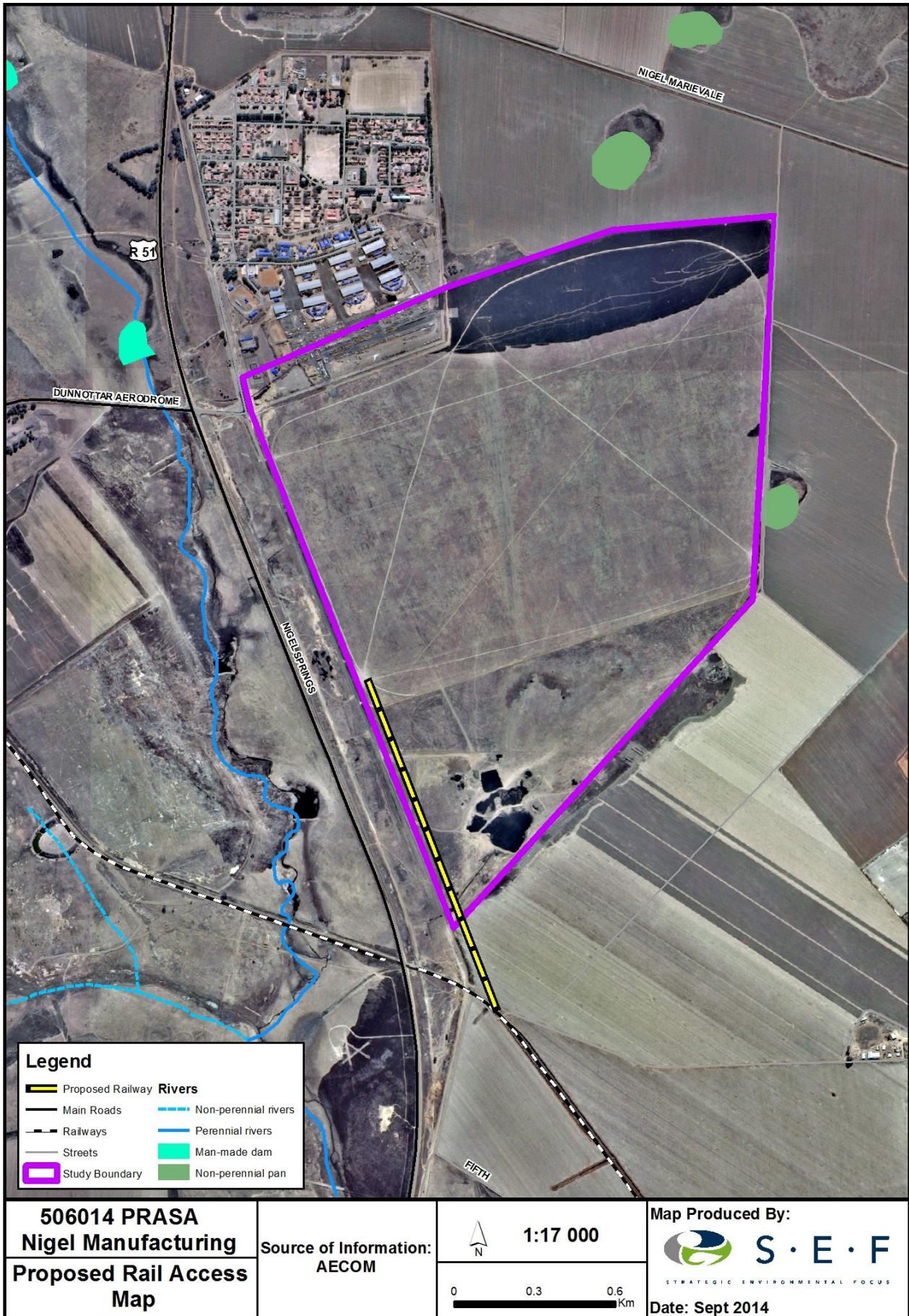


Figure 6: Proposed Railway Line

A-1.4 Details of the Project

Passenger Rail Agency of South Africa (PRASA) intends to develop a factory for the manufacturing of new rolling stock of train carriages all to be developed on Portion 23 of the Farm Grootfontein 165 IR, in Nigel.

There will be two main construction areas:

- The main train manufacturing site; and
- A nearby Industrial Park to integrate main suppliers and partners of the Site's activities.

The proposed project will involve the following main manufacturing site activities:

The entire perimeter will be secured with a compound wall. Size and the location of buildings will be based on environmental and technical considerations. The design approach will be to have a single building structure basis identical for all aisles. The only exception will be the car body shell workshop and the training centre, which will both have the same structure as the others, but slightly higher for operational requirements as shown below.

The tracks will have several characteristics depending on the area where they are installed.

Stainless Steel car body shell manufacturing:

- Material warehouse;
- Primary parts and small sub-assemblies preparations;
- Large sub-assemblies and car erection; and
- “Closing” fittings (doors and windows) and water leakage test.

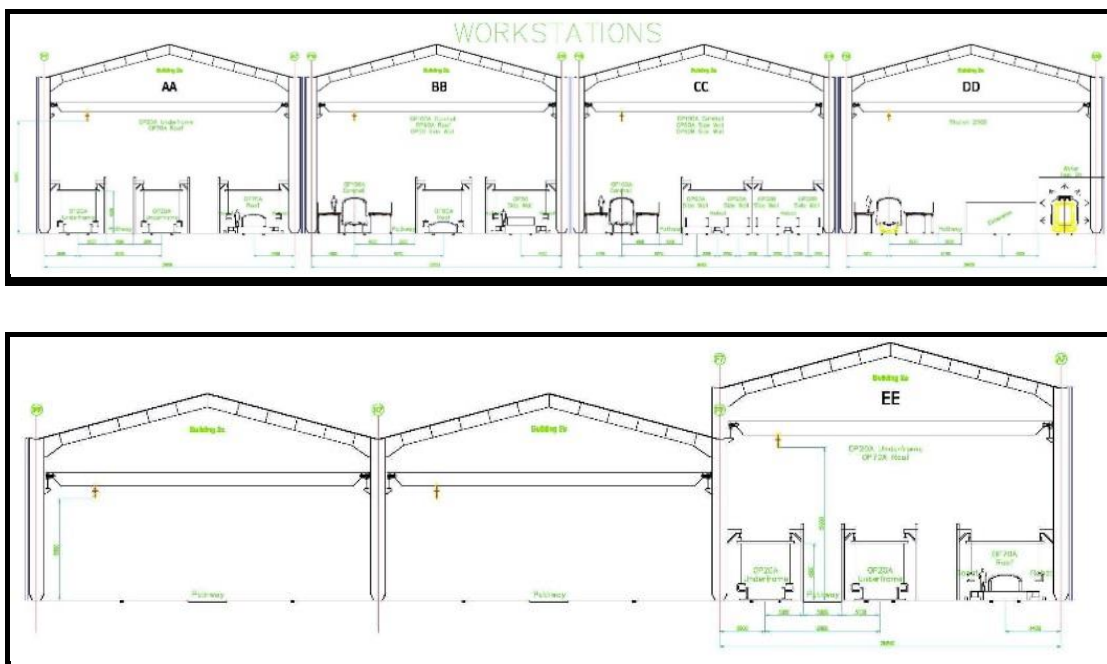


Figure 7: Car Body Shell: showing varied heights (8m or 12m)

Warehouse and Fitting workshops:

- Main warehouse;
- Preparations workshop (large looming, driver cab assembly); and
- 2 Fitting lines.

Coupling and Static Test workshop:

- 2 coupling lines; and
- 6 static tests lines (tracks on pillars on integral pit).

Dynamic tests:

- 1 Dynamic test track.

Manufacturing site environment and common infrastructures:

- Offices, utilities and common services (canteen, cloak rooms, sanitary);
- Waste management area;
- Rain Water and other Water tanks (including fire fighting normative reserves); and
- Parking (cars, buses & 2-wheelers).

The proposed project will also involve the following Supplier Park activities

- The Supplier Park is intended as an industrial zone, which will initially comprise 10 buildings, each building comprising of 4 x 1000m² units (complete with their own offices and ablutions). This will include the initial infrastructure development. There will be a capability to extend the supplier park with identical units at a later date if it is deemed necessary.
- The total area for the Supplier Park equals 40 000 m² (4 ha) which will include all infrastructure and basic 'shells' in the form of workshop-type buildings.
- The building will be built to easily reconfigure to allow for capacity improvement or new train products to be built, i.e. easily extendable in length and in width.

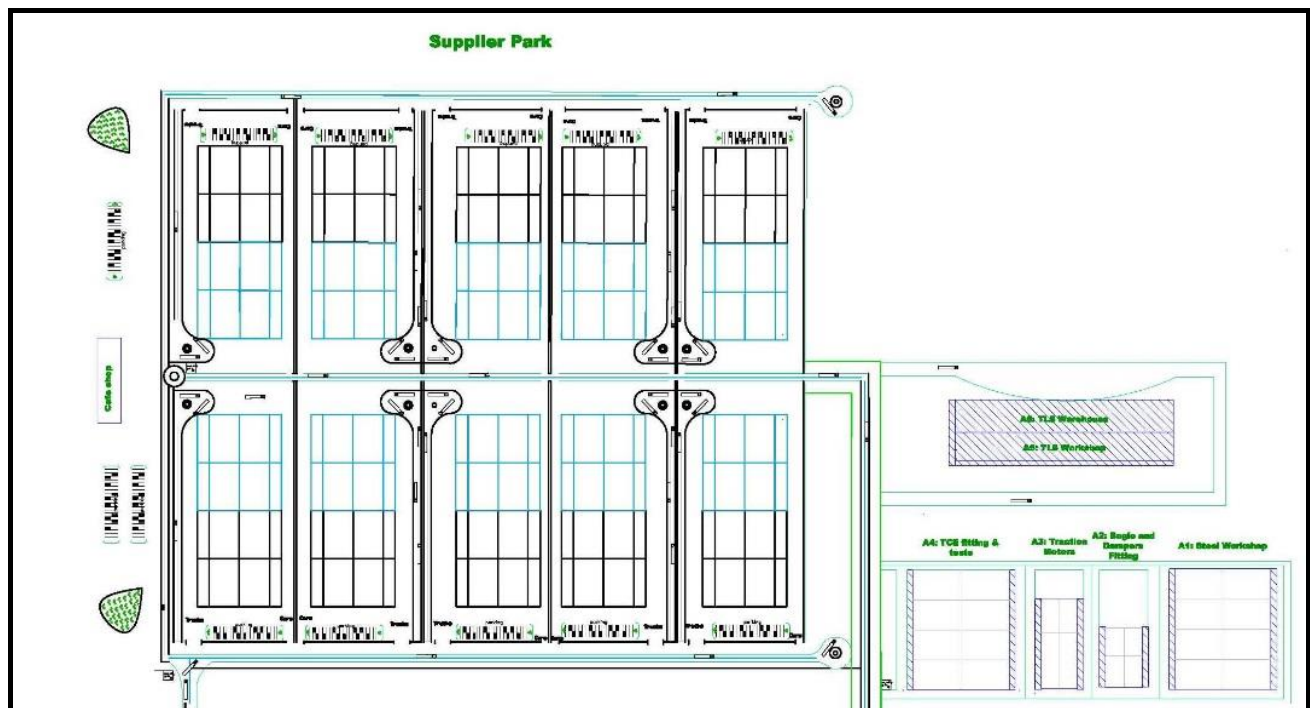


Figure 8: Supplier Park

Some other elements are to be developed on-site or remotely, such as crèche, medical and sport centres. This will be confirmed and updated in the Draft Environmental Impact Assessment Report (EIR).

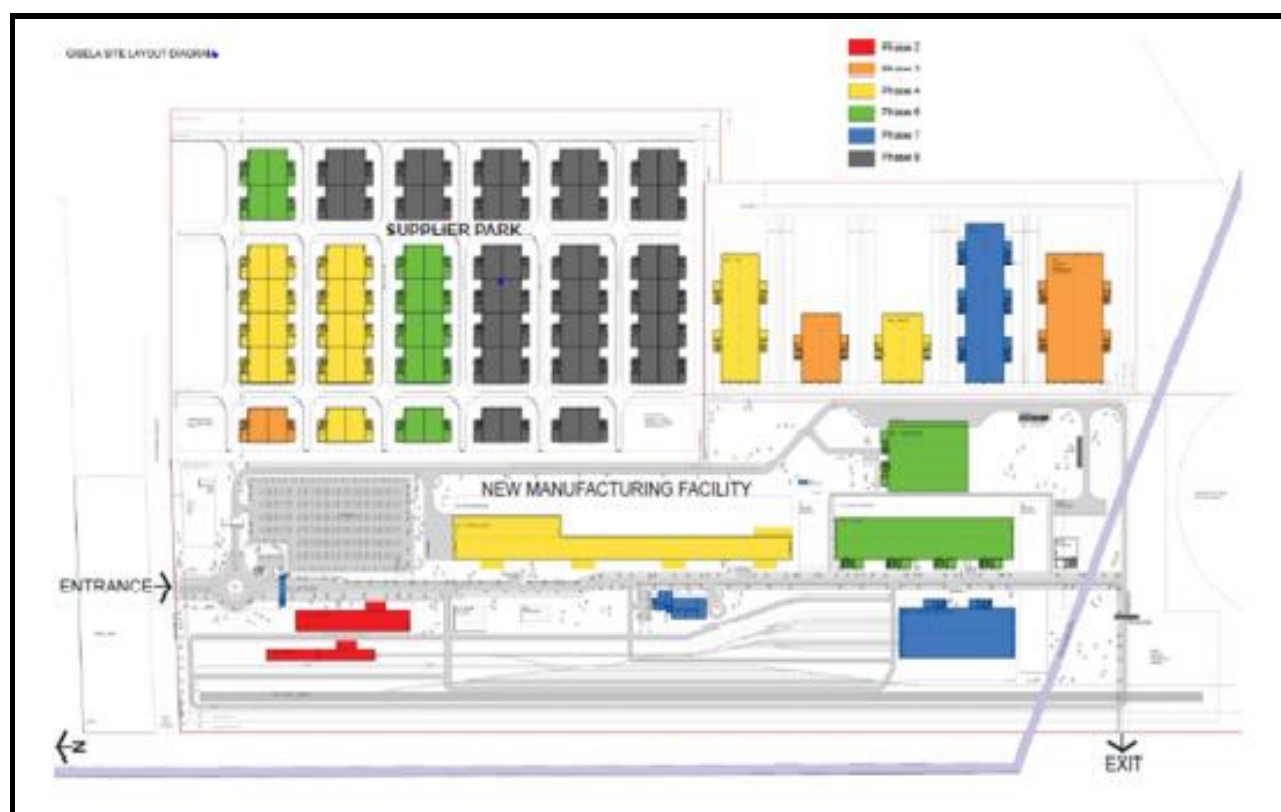


Figure 9: Proposed Manufacturing Facility (Main Manufacturing Facility and the Supplier Park)

There will be two access points to the proposed development i.e. main access and the emergency access. All trips will be assigned to the main access. Access to the main road access will be via the M45 intersection along R51.

The proposed project will also entail the construction of a railway line to the south west of the proposed site. Please refer to Figure 6 above. The proposed railway line (A - B) will join with the existing Transnet railway line south of the site. Private railway siding belonging to the mine to the west of the site.

A-2 LEGAL REQUIREMENTS APPLICABLE TO THIS APPLICATION

The application form informing the DEA of intent to obtain an Environmental Authorisation has been submitted. The DEA reference number has been indicated in this report. The legislation, guidelines and policies applicable to this project are as follows:

A-2.1 The National Environmental Management Act, 1998 (Act No. 107 of 1998) and Environmental Impact Assessment Regulations of 2010

The EIA Regulations, promulgated under the NEMA, focus primarily on creating a framework for co-operative environmental governance. NEMA provides for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by State Departments and to provide for matters connected therewith. In terms of the EIA Regulations of 2010 and activities listed in GN No. R 544 [requiring a Basic Assessment (BA) process], R 545 (requiring a S&EIR process) and R 546 (requiring a BA process) the following listed activities are deemed by the Environmental Assessment Practitioner (EAP) to be applicable to the proposed development based on the information provided by the client.

The mentioned listed activities are deemed to potentially have a detrimental impact on the social and biophysical state of an area and as such, are required to undergo a S&EIR process.

Table 3: List of Applicable EIA Activities

	Activity No	Listed activities:
NEMA Listed Activities Requiring Authorisation		
GN R 544, 18 June 2010	9	The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water – <ul style="list-style-type: none"> (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: <ul style="list-style-type: none"> a) such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b) where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.
	11	The construction of: <ul style="list-style-type: none"> (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; or (xi) infrastructure or structures covering 50 square metres or more <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>
	13	The construction of facilities or infrastructure for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 but not exceeding 500 cubic metres.
	22	The construction of a road, outside urban areas, <ul style="list-style-type: none"> (i) with a reserve wider than 13,5 metres or, (ii) where no reserve exists where the road is wider than 8 metres
	24	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this Schedule or thereafter such land was zoned open space, conservation or had an equivalent zoning.
	26	Any process or activity identified in terms of section 53 (1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
	47	The widening of a road by more than 6 metres, or the lengthening of a road by more than 1 kilometre - <ul style="list-style-type: none"> (i) where the existing reserve is wider than 13,5 metres; or (ii) where no reserve exists, where the existing road is wider than 8 metres.
GN R 545, 18 June 2010	3	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of more than 500 cubic metres.
	5	The construction of facilities or infrastructure for any process or activity which requires a permit or license in terms of national or provincial legislation governing the generation or release of emissions, pollution or effluent and which is not identified in Notice No. 544 of 2010 or included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.
	11	The construction of railway lines, stations or shunting yards, excluding - <ul style="list-style-type: none"> (i) railway lines, shunting yards and railway stations in industrial complexes or zones; (ii) underground railway lines in a mining area; and (iii) additional railway lines within the reserve of an existing railway line.

	15	Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for: <ul style="list-style-type: none"> (iv) linear development activities; or (v) agriculture or afforestation where activity 16 in this Schedule will apply.
GN R 546, 18 June 2010	3	The construction of masts or towers of any material or type used for telecommunication broadcasting or radio transmission purposes where the mast: <ul style="list-style-type: none"> (a) is to be placed on a site not previously used for this purpose, and (b) will exceed 15 metres in height, but excluding attachments to existing buildings and masts on rooftops. (b) In Gauteng: <ul style="list-style-type: none"> (i) A protected area identified in terms of NEMPAA, excluding conservancies; (ii) National Protected Area Expansion Strategy Focus areas; (iii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (iv) Sites or areas identified in terms of an International Convention; (v) Sites identified as irreplaceable or important sites in the Gauteng Conservation Plan; (vi) Areas larger than 2 hectares zoned for use as public open space; (vii) Areas zoned for a conservation purpose.
	4	The construction of a road wider than 4 metres with a reserve less than 13,5 metres (b) In Gauteng: <ul style="list-style-type: none"> (i) A protected area identified in terms of NEMPAA, excluding conservancies; (ii) National Protected Area Expansion Strategy Focus areas; (iii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (iv) Sites identified in terms of the Ramsar Convention; (v) Sites identified as irreplaceable or important in the Gauteng Conservation plan; (vi) Areas larger than 2 hectares zoned for use as public open space; (vii) Areas zoned for a conservation purpose. (viii) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989) and the Nature Conservation Ordinance (Ordinance 12 of 1983); (ix) Any site identified as land with high agricultural potential located (x) within the Agricultural Hubs or Important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006.
	10	The construction of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (c) In Gauteng: <ul style="list-style-type: none"> (i) A protected area identified in terms of NEMPAA, excluding conservancies; (ii) National Protected Area Expansion Strategy Focus areas; (iii) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (iv) Sites or areas identified in terms of an International Convention; (v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan; (vi) Within 100 metres of a watercourse or within 100 metres of wetland that is not linked to a watercourse; (vii) Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the Nature Conservation Ordinance (Ordinance 12 of 1983) and the NEMPAA.

	12	<p>The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation</p> <p>(a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>(b) Within critical biodiversity areas identified in bioregional plans.</p>
	13	<p>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation, except where such removal of vegetation is required for:</p> <p>(1) the undertaking of a process or activity included in the list of waste management activities published in terms of section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008), in which case the activity is regarded to be excluded from this list.</p> <p>(2) the undertaking of a linear activity falling below the thresholds mentioned in Listing Notice 1 in terms of GN No. 544 of 2010.</p> <p>(a) Critical biodiversity areas and ecological support areas as identified in systematic biodiversity plans adopted by the competent authority.</p> <p>(b) National Protected Area Expansion Strategy Focus areas</p> <p>(d) In Gauteng:</p> <p>(i) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(ii) National Protected Area Expansion Strategy Focus areas;</p> <p>(v) Sites identified as irreplaceable or important in the Gauteng Conservation Plan.</p>
	14	<p>The clearance of an area of 5 hectares or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation</p> <p>(a) In Eastern Cape, Free State, KwaZulu-Natal, Gauteng, Limpopo, Mpumalanga, Northern Cape, Northwest and Western Cape:</p> <p>(vi) All areas outside urban areas</p>
	16	<p>The construction of:</p> <p>(iv) infrastructure covering 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p> <p>(b) In Gauteng:</p> <p>(ii) National Protected Area Expansion Strategy Focus areas;</p> <p>(iii) Sites identified as irreplaceable or important in the Gauteng Conservation Plan;</p> <p>(vii) Areas zoned for a conservation purpose.</p>
	19	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</p> <p>(b) In Gauteng:</p> <p>(v) Any site identified as land with high agricultural potential located within the Agricultural Hubs or Important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006;</p> <p>(vii) All sites identified as irreplaceable or important in terms of the applicable Gauteng Conservation Plan;</p>

A-2.2 Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)

There is currently a borrow pit, south of the proposed site, which was used for the upgrading of the R51 by the SANRAL previously. Should the borrow pit be intended for use for the operation of the proposed plant, and may have previously been granted a permit/ right, a closure certificate application process would need to be undertaken for the borrow pit with view of developing an industrial use development.

According to the Mineral and Petroleum Resources Development Regulations of 2004, Government Notice (GN) Regulation. 527, promulgated in terms of the Mineral and Petroleum Resources Development Act, 2002 (Act

No. 28 of 2002) (MPRDA), *Section 57 (1) states that an application for a closure certificate by the holder of prospecting right, mining right, retention permit or mining permit in terms of Section 43 (4) of the Act must be completed in a form of Form P, contained in Annexure II.*

Furthermore, Section 57(2) states that the application form must be accompanied by the following documentation-:

- A Closure Plan;
- An Environmental Risk Report;
- A Final Performance Assessment Report; and
- An application to transfer environmental liabilities and responsibilities in Form O contained in Annexure II.

A-2.3 National Water Act, 1998 (Act No. 36 of 1998)

The National Water Act, 1998 (Act No. 36 of 1998) (NWA) aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in responsible ways.

Of specific importance to this application is Section 19 of the NWA, which states that *an owner of land, a person in control of land or a person who occupies or uses the land which thereby causes, has caused or is likely to cause pollution of a water resource must take all reasonable measures to prevent any such pollution from occurring, continuing or recurring and must therefore comply with any prescribed waste standard or management practices.*

Due to water resources identified on site (i.e. wetland, pan, dam), and the intention by the applicant to store water in the existing dams, the proposed development triggers the following water uses listed in Section 21 of the NWA, and an application for a Water Use License (WUL) will be lodged to the Department of Water and Sanitation (DW&S):

- b) Storage of water
- c) Altering the bed, banks, course or characteristics of a watercourse
- i) impeding or diverting the flow of water in a watercourse

The EMM have confirmed that they would be able to provide the project with water. Service letters will be made available during the Impact Assessment Phase.

A-2.4 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)

The Act aims to reform the law regulating waste management in order to protect the health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.

The NEM: WA came into effect in July 2009. Provisions have been made in the form of legislative and regulatory tools to facilitate and ensure implementation of the Act by all spheres of government. The Minister of the DEA published a Waste Management Activity List in July 2009 which had clear thresholds on waste activities that

needed authorisation prior to commencement. The published Waste Management Activity List effectively replaced Schedule 1 of the NEMA and all waste related activities listed in EIA lists. All waste-related activities listed in terms of section 24(2) of the NEMA were repealed at the same time that the Minister published the new list of waste management activities in order to align the NEM: WA and the EIA regulations and to avoid the necessity of submitting two applications for the same activity.

The DEA again amended the NEMA Listing Notices to include listed activities for the construction and expansion of facilities for waste water treatment works (WWTW) in Listing Notices 1 and 2 (GNR 544 - 545 of 18 June 2010) on 29 November 2013. These activities were previously contained in the NEM: WA list of activities and have been repealed from the NEM: WA list upon its insertion into the EIA Regulations Listing Notices.

Schedule 1 – Waste management activities in respect of which a waste management licence is required

The Acting Minister of the DEA under section 19 (1) of the NEM:WA, has published a List of Waste Management Activities which have, or are likely to have a detrimental effect on the environment in GN No.921 of 29 November 2013.

The schedule has listed activities in three different categories, i.e. Category “A”, Category “B” and Category “C”.

For Category “A” activities: a person who wishes to commence, undertake or conduct an activity listed under this Category, must conduct a BA process, as stipulated in the EIA regulations under section 24 (5) of the NEMA as part of a waste licence application.

For Category “B” activities: a person who wishes to commence, undertake or conduct an activity listed under this Category, must conduct a S&EIR process, as stipulated in the EIA regulations under section 24(5) of the NEMA as part of a waste licence application.

For Category “C” activities: a person who wishes to commence, undertake or conduct an activity listed under this Category, must comply with the relevant requirements or standards determined by the Minister listed below:

- a) Norms and Standards for Storage of Waste, 2013;
- b) Standards for Extraction, Flaring or Recovery of Landfill Gas, 2013; or
- c) Standards for Scrapping or Recovery of Motor Vehicles, 2013.

The proposed development will also entail a waste and recycling facility. Water will also be treated from the plant.

The following activities would have applied should the thresholds have been exceeded, or activities not have been excluded:

GN R.921 of Government Gazette No. 37083, 29 November 2013, Category “A” which may be applicable to the proposed projects:

3	The recycling of general waste at a facility that has an operational area in excess of 500 m ² , excluding recycling that takes place as an integral part of an internal manufacturing process within the same processes.
6	The treatment of hazardous waste using any form of treatment at a facility that has the capacity to process in excess of 500 kg but less than 1 ton per day, excluding the treatment of effluent, waste water or sewage.

The proposed project does not trigger the need for a Waste Management License (WML) due to the following reasons:

- During construction, workers will not be housed/ based on site and will be transported to and from the site every day – thus only chemical toilets will be provided during the construction phase, thus the sewage generated on site is all disposed of off-site at a designated treatment facility. The

- frequency of servicing will depend on the size of the temporary tank provided by the rental company.
- During the operational phase – ablution facilities (flush toilets) would have been provided for.
- The above listed activities do not apply as the proposed project activities have been excluded.

A-2.5 National Heritage Resources Act, 1999 (Act No. 25 of 1999)

This Act legislates the necessity for Cultural and Heritage Impact Assessment (HIA) in areas earmarked for development, which exceed 0.5 ha and where linear developments (including roads) exceed 300 metres in length. A Phase 1 Heritage Impact Assessment (HIA) will be undertaken.

A-2.6 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)

In terms of GN 248 of 31 March 2010 (GN 248), the list of activities resulting in atmospheric emissions which have or may have a significant detrimental effect on, *inter alia*, the environment and the minimum emission standards for these activities as contemplated in section 21 of the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA) also commenced with effect from 1 April 2010.

The effect of the commencement of the remaining provisions of the NEM: AQA and the publication of the listed activities in GN 248 is that now, *inter alia*, in terms of section 22 of the NEM: AQA, a provisional atmospheric emission licence or an atmospheric emission licence is required for the conducting of these listed activities. The Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965) and more specifically, the scheduled processes identified in the Second Schedule to the APPA are accordingly repealed.

Section 37 of the Act states that an application form for an atmospheric emissions licence is to be submitted to the licencing authority. In terms of section 36 (1) (and subject to sections 36 (2) - (4)), the licencing authority is no longer the national sphere but is now the local sphere metropolitan and district municipality. The EMM will therefore be the EMM.

The activities to be undertaken for the proposed project do not trigger the NEM: AQA. Should subsequent to the Impact Assessment, activities are found to be applicable, an application will be lodged with the EMM.

A-2.7 Other Legal Requirements

A-2.7.1 Constitution of the Republic of South Africa Act, 1996 (Act No. 108 of 1996)

The Constitution of the Republic of South Africa Act, 1996 (Act No. 108 of 1996) (here in after referred to as the Constitution) has major implications for environmental management. The main effects are the protection of environmental and property rights, the change brought about by the sections dealing with administrative law, such as access to information, just administrative action and broadening of the *locus standi* of litigants. These aspects provide general and overarching support and are of major assistance in the effective implementation of the environmental management principles and structures of the NEMA. Section 24 in the Bill of Rights of the Constitution specifically states that:

Everyone has the right –

- To an environment that is not harmful to their health or well-being; and
- To have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -
 - Prevent pollution and ecological degradation;
 - Promote conservation; and
 - Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

A-2.7.2 National Road Traffic Act, 1996 (Act No. 93 of 1996)

To provide for road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith. The Act specifically deals with matters related to improving Road Safety in the Republic of South Africa. The Act furthermore provides a statutory framework for issues relating to the transportation of dangerous goods, operator fitness, fitness of vehicles, fitness of drivers, registration and licensing of motor vehicles, manufacturers, builders and importers, Road traffic signs and general speed limit, accidents and accident reports, reckless or negligent driving, inconsiderate driving, driving while under the influence of intoxicating liquor or a drug having a narcotic effect, and miscellaneous offences and resumptions and legal procedures.

A-2.7.3 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)

The purpose of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM: BA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

This Act is applicable to this application for environmental authorisation, in the sense that it requires the project applicant to consider the protection and management of local biodiversity.

A-2.7.4 Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)

The object of the Act is to provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work; to establish an advisory council for occupational health and safety; and to provide for matters connected therewith.

A-2.7.5 Civil Aviation Act, 2009 (Act No. 13 of 2009)

This Act's objects are to repeal, consolidate and amend the aviation laws giving effect to certain International Aviation Conventions; to provide for the control and regulation of aviation within the Republic; to provide for the establishment of a South African Civil Aviation Authority (SACAA) with safety and security oversight functions, to provide for the establishment of an independent Aviation Safety Investigation Board in compliance with Annexure 13 of Chicago Convention, to give effect to certain provisions of the Convention on Offences and Certain other Acts Committed on Board Aircraft; to give effect to the Convention for the Suppression of Unlawful Acts against the Safety of Civil Aviation; to provide for the National Aviation Security Program; to provide for additional measures directed at more effective control of the safety and security of aircraft, airports and the like; and to provide for matters connected thereto.

As per the Spatial Development Framework (SDF), Smaller Airfields exist with the EMM.

Consultation with the CAA and the study of the OR Tambo International Airport (ORTIA) Terminal Management Area (TMA) map published by Jeppesen Sanderson Inc identified all airfields in the EMM area. These are, in approximate degrees of importance:

- Petit Airfield at Putfontein just north of Benoni and Daveyton
- Bapsfontein Airfield (two fields – one normal and a separate one for microlights)
- Fly Inn Airpark near Bapsfontein
- Fincham Airfield at Nigel
- Daveyton Airfield (now closed)
- **Dunnottar Airfield (no longer in use)**
- Microland Flight Park near Bapsfontein

During the site visit, the site seemed to still being in use as an airfield which has three landing strips north to south of the proposed site, and one landing strip east to west. The airfield is used for paragliding (www.flytribe.co.za), micro-lights, touch-and-go training from small aircrafts. This will be investigated further during the Impact Assessment Phase.

A-2.7.6 Promotion of Access to Information Act, 2000 (Act No. 2 of 2000)

The Act recognises that everyone has a constitutional right of access to any information held by the state and by another person when that information is required to exercise or protect any rights. The purpose of the Act is to foster a culture of transparency and accountability in public and private bodies and to promote a society in which people have access to information that enables them to exercise and protect their rights.

A-2.7.7 The National Building Regulations and Building Standards Act, 1997 (Act No. 103 of 1997)

The object of the Act is to promote the promotion of uniformity in the law relating to the erection of buildings in the areas of jurisdiction of local authorities for the prescribing of building standards and for matters connected therewith.

A-2.8 Provincial Policies and/or Guidelines

A-2.8.1 Integrated Environmental Management (IEM)

IEM is a philosophy for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development [Department of Environmental Affairs and Tourism (DEAT, 1992)]. The IEM guidelines intend encouraging a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels.

The DEA IEM Information Series guidelines are also considered during this S&EIR application process.

A-2.8.2 National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

A-2.8.3 Protected species – Provincial Ordinances

Provincial ordinances were developed to protect particular plant species within specific provinces. The protection of these species is enforced through permitting requirements associated with provincial lists of protected species. Permits are administered by the Provincial Departments of Environmental Affairs.

The Environmental Screening Report has identified the potential for the presence of endangered species such as the Giant Bullfrog and Grass Owl; and *Boophane disticha* (Poison Bulb).

An Ecological & Wetland Assessment will be undertaken to determine the status quo with regards to the protected species.

A-2.8.4 Accelerated Shared Growth Initiative for South Africa (ASGISA)

Accelerated Shared Growth Initiative for South Africa (ASGISA) resulted from Government's commitment to halve unemployment and poverty by 2014 and was launched in February 2006. ASGISA is not a government

programme but a national initiative supported by key groups in the economy viz, Business, Labour, State-owned enterprises, Government economic agencies, Entrepreneurs and all spheres of government.

In regard to improving national energy efficiency, the National Electricity Response Team, convened by government in February 2008, has giving consideration to amending housing regulations and specifications to make solar-heating systems and energy efficiency mandatory.

The proposed project is considering the Leadership in Energy and Environmental Design (LEED) platinum certification which will also consider the following:

- collection, use and reuse of all rainwater;
- water metering for hot water applications to prevent water losses;
- use of photovoltaic panels as shading for the parking area;
- on-site recycling or collection of all waste; and
- use of daylight saving technologies.

A-2.8.5 New Growth Path (NGP)

In 2010, President Jacob Zuma, endorsed by the Cabinet, proposed a New Growth Path (NGP) for the South African economy. Later in the same year, Minister Ebrahim Patel, released the Framework of the New Economic Growth Path, which includes many elements of the ASGISA framework and outlines the Government's revised approach to economic policy.

The NGP is an integrated macroeconomic path, designed to deal with some of the major structural fault lines of the South African economy, namely, unemployment, poverty, and low growth rates. The NGP places critical responsibilities on the State towards job creation. As such, the private sector should also play a vital role in helping achieve the Government's objectives. The creation of five million jobs over the next decade is the central political economy goal of the NGP. Furthermore, the NGP places emphasis on the means of achieving global competitiveness via a series of integrated socioeconomic interventions that improve the country's vital infrastructure, its human resources, and its global strategic alliances.

The NGP focuses on the following:

- Increasing employment intensity of the economy;
- Reducing the cost to improve infrastructure and address competitiveness;
- Balancing spatial development of rural areas and poorer provinces;
- Reducing the carbon intensity of the economy; and
- Creating opportunities in changing regional and global environments.

The NGP identifies five other priority areas as part of the programme to create jobs, through a series of partnerships between the State and the private sector.

- Green economy: expansions in construction and the production of technologies for solar, wind and biofuels is supported by the draft Energy on Integrated Resource Plan (IRP). Clean manufacturing and environmental services are projected to create 300 000 jobs over the next decade.
- Agriculture: jobs will be created by addressing the high input costs and upscaling processing and export marketing. Support for small holders will include access to key inputs. Government will explore ways to improve working and living conditions for the country's 660 000 farm workers. The growth path also commits the Government to unblocking stalled land transfers, which constrain new investment.
- Mining: calls for increased mineral extraction and improving infrastructure and skills development. It focuses support for beneficiation on the final manufacture of consumer and capital goods, which can

create large-scale employment. It foresees the establishment of a state mining company concentrating on beneficiation and enhanced resource exploitation in competition with a strong private mining sector.

- **Manufacturing: calls for re-industrialisation in the South African economy based on improving performance through innovation, skills development and reduced input costs in the economy. The document targets a doubling of South Africa’s research and development investment to 2% of gross domestic product by 2018.**
- Tourism and other high-level services: hold employment potential and the framework calls for South Africa to position itself as the higher education hub of the African continent.

A-2.8.6 Provincial and Municipal By-laws

The EMM have developed local bylaws and various policies relating to various environmental aspects. PRASA will ensure that such policies and bylaws, as far as possible, will be adhered to.

Development Strategies

According to the Municipal Systems Act, 2000 (Act No. 32 of 2000) (MSA), all municipalities have to undertake an Integrated Development Plan (IDP) process to produce IDPs. An IDP is a legislative requirement, and has a legal status and supersedes all other plans that guide development at local government level. In terms of Section 26 (e) of the MSA, every municipality is also required to formulate a Spatial Development Framework (SDF) as a part of its IDP.

As per Chapter 9 of the SDF, the Ekurhuleni Urban Edge (2009) is being amended in order to move the Ekurhuleni Urban Edge inwards (westwards) to exclude undevelopable land south east of Dunnottar and to exclude undevelopable land north east of Prosperita (2009 Urban Edge Map 11). The properties now to be excluded from the Ekurhuleni Urban Edge include Portions 30, Remainder of Portion 43, Remainder of Portion 44 (partly), 76 (partly) **and the Remainder (partly) of the Farm Grootfontein 165-IR**. The currently reviewed SDF for Region E already proposes the inclusion of the site in the urban boundary. Such matter has been discussed with the EMM.

Town Planning and Townships Ordinance, 1986 (15 of 1986).

A Township Application is being lodged in terms of Section 96 (1) of the Town Planning and Townships Ordinance, 1986 (Ordinance 15 of 1986) for the establishment of a township on the proposed site, to be known as Dunnottar Extension 7.

The town planning and environmental studies are being undertaken concurrently. The Town Planning Application is being undertaken for purposes of subdividing a Portion of land approximately 104.197 hectares from Portion 23 of the farm Grootfontein 165. The purpose of the application is also to obtain the approval from the EMM, for the establishment of a new township zoned primarily for industrial uses.

Thereafter the remainder will be appropriately subdivided and rezoned in terms of Section 56 of the Town Planning and Townships Ordinance No. 15 of 1986 to allow for an industrial type of development.

The following Development Strategies are applicable to the proposed project:

Government Sphere	Applicable Development Strategy
Metropolitan	IDP (2013/14-2015/16)
	SDF (2010/11)
	State of Environmental Report (SoER) 2004
	Growth & Development Strategy (GDS) 2055

A-3 DETAILS OF THE APPLICANT

The details of the project applicant are:

Name of Applicant	Postal Address	Relevant Numbers
PRASA Goodman Matampi	Private Bag X101 Braamfontein 2017	Tel: 011 773 1713 Fax: 086 273 8119

PRASA is a South African state owned enterprise responsible for most passenger rail services in the country. It consists of six branches: Metrorail, which operates commuter rail services in urban areas; Shosholoza Meyl, which operates regional and inter-city rail services; Autopax, which operates regional and inter-city coach services; Intersite, which manages the property owned by PRASA, PRASA Corporate Real Estate Solutions (CRES) tasked with managing PRASA's property portfolio and PRASA Tech which focuses specifically on research, forecasting, planning and execution of modernisation of infrastructure as well as purchase of new rolling stock..

A-4 NEED AND DESIRABILITY OF THE PROJECT

PRASA have finalised a R51 billion contract with the Gibela empowerment consortium (GIBELA), of which Alstom Southern African Holdings is the largest shareholder, to deliver 600 Alstom trains consisting of six wagons each. The first 20 trains are being manufactured at Alstom's Lapa plant in Brazil.

The proposed plant would be designed to house an engineering centre and a training facility. Project goals included that a portion of the budget be spent on subcontracting to black-empowered entities, subcontracting to qualifying small enterprises, and subcontracting to entities owned by black women, training artisans and technicians, drivers during the life of the project, skills development initiatives.

A high demand for industrial and employment provision exists in this area, especially with respect to the proposed development characteristics. Should the site not be developed, a very viable opportunity to exploit the industrial market in the immediate area will be negated. Illegal squatters or vagrants may potentially settle on the site, as severe pressure for housing in the lower income brackets also exist. Due to the presence of extensive development throughout the greater area it is possible that undeveloped, un-managed land may be illegally settled.

SECTION B: THE RECEIVING ENVIRONMENT

In order to, with any level of confidence, assess the potential impacts of the proposed industrial 1/ mixed use development on the receiving environment, one needs to first assess the baseline conditions found over the site. Using this *Status Quo*, one can then, broadly speaking, determine the likely impacts that will emanate from a specific development typology on a well-defined receiving environment.

B-1 BIOPHYSICAL ENVIRONMENT

B-1.1 Location and Accessibility

The proposed site is located on Portion 23 of the Farm Grootfontein 165 IR, EMM, Gauteng Province.

There will be two access points to the proposed development i.e. main access and the emergency access. All trips will be assigned to the main access. Access to the main road access will be via the M45 intersection along R51. The study area is located just east of the R51, south of N17 and north of R42.

The closest major commercial airport to proposed site is the ORTIA to the east of Johannesburg, approximately 55 km from the town of Nigel. The smaller Rand Airport in Germiston is a similar distance from Nigel.

B-1.2 Regional Climate

EMM falls in the summer rainfall region of South Africa and experiences hot wet summers and cool dry winters. Rainfall is often characterised by intense thunderstorms that fall mainly in the late afternoon. Frost is common in winter.

B-1.3 Topography

The EMM area covers the convergence of the Limpopo and Vaal river catchments, and has a flat terrain with elevations ranging from 1460 to 1760 metres.

B-1.4 Geology

The Witwatersrand Basin occupies a central portion of the Archaean Kaapvaal Craton in South Africa. The Witwatersrand Supergroup is subdivided into two stratigraphic units, the West and Central Rand Groups. The West Rand Group consists mainly of shale and quartzite and is a generally finer-grained unit than the Central Rand Group, which is composed mostly of quartzite, conglomerate and minor amounts of shale (Catuneanu, 2001).

The surface geology between Heidelberg and Nigel is dominated by a cover of Karoo sandstone, conglomerate and shale, with minor coal seams (Rogers, 1922). Rocks of the Witwatersrand Supergroup outcrop over almost the entire Wit Nigel area. The Jeppetown Subgroup, the footwall to the Nigel Reef, is argillaceous, with minor intrusions of quartz-dolerite and norite (Rogers, 1922). The outcrop of the Nigel Reef is traceable along the eastern boundary of Wit Nigel, whereas the Kimberley Reefs outcrops strike north east to south west between Jameson Park and Heidelberg.

B-1.5 Agricultural Potential

Approximately 13 % of the EMM is regarded as high potential land suitable for agricultural production, while 12 % is regarded as moderate to high. Furthermore, the Gauteng Agricultural Potential Atlas (GAPA) identified and mapped 41 % of the EMM as being of importance for protection for agriculture. 22 % of this is of high importance,

while 19 % is of moderate to high importance. These areas need to be reserved and protected from development.

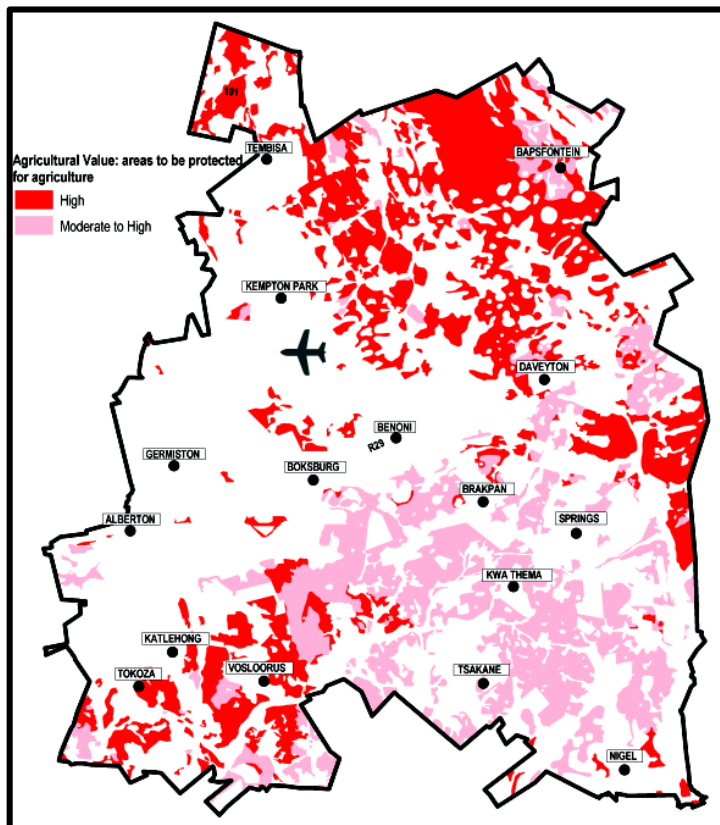


Figure 10: Agricultural potential Source: Gauteng Agricultural Potential Atlas (GDARD¹)

¹ Gauteng Department of Agriculture and Rural Development (GDARD) was previously known as the Gauteng Department of Agriculture, Conservation and Environment (GDACE).

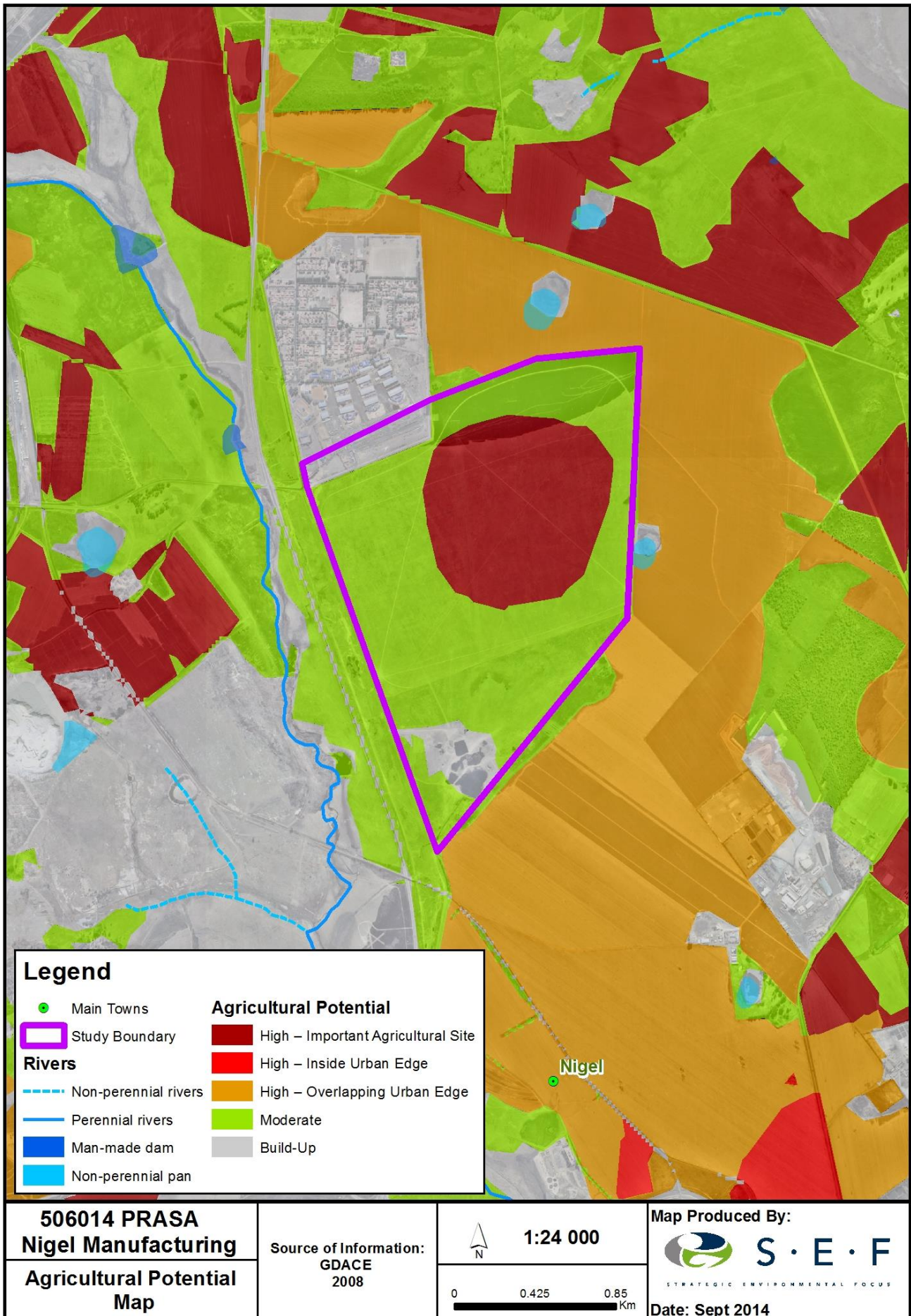


Figure 11: Agricultural Potential Map

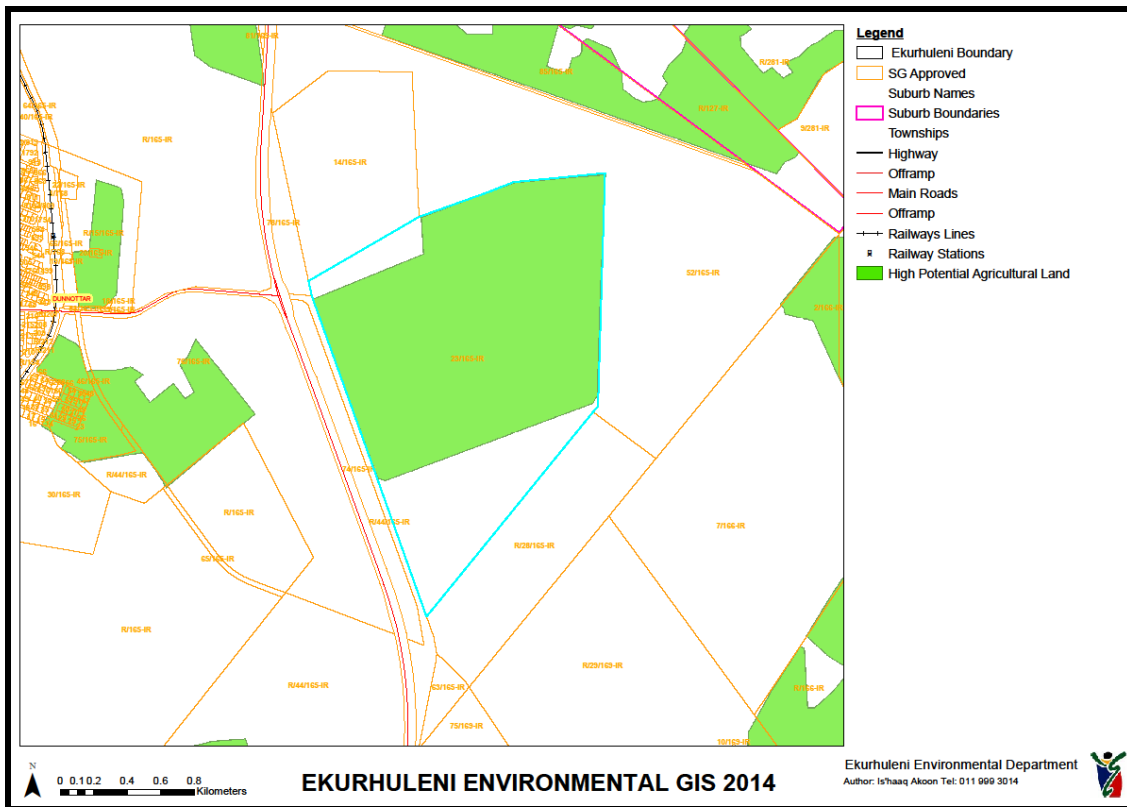


Figure 12: Agricultural Potential Map

B-1.6 Land Use

As shown in Figure 13 below, the land use around the proposed site includes agricultural, services, mining, residential areas. The site is referred to as open space. Natural open space means open areas that still have a natural vegetation cover where there is little human intervention and which is not currently utilised intensively by humans.

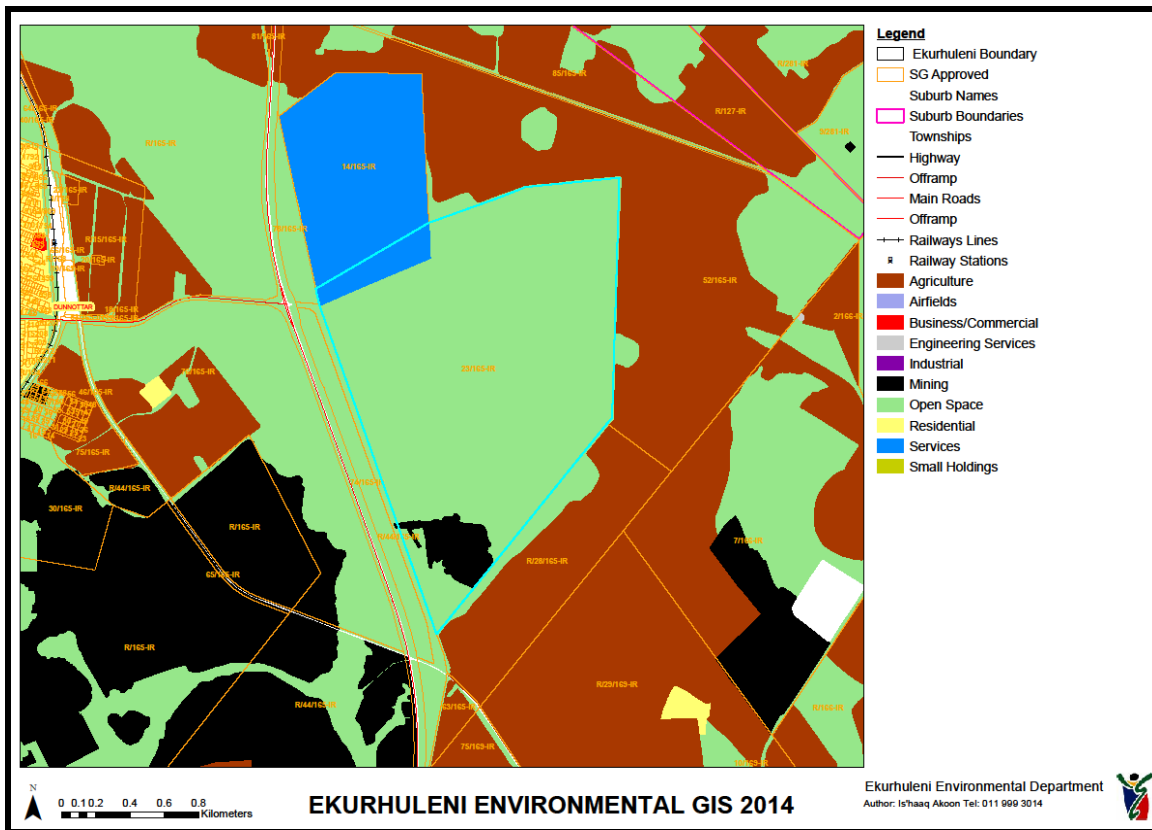


Figure 13: Land Use Map

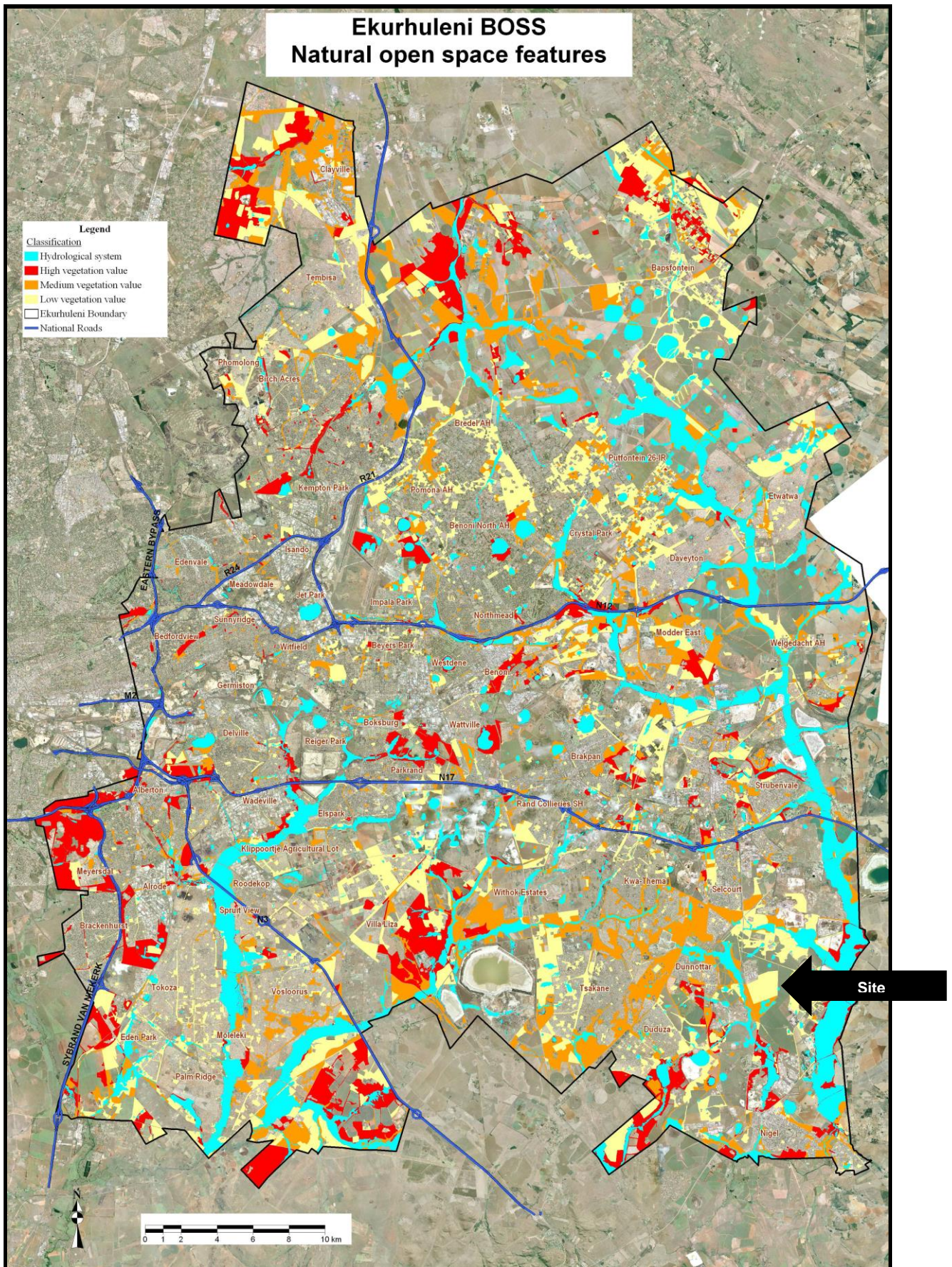


Figure 14: Natural Open Space Features

As per Figure 14 above, the proposed site has low vegetation value as compared to the other areas within the EMM.

B-1.7 Surface Water

The study area falls within the Quaternary Catchment **C21E**. Blesbokspruit is located 2.8 km from the proposed site. The Blesbokspruit originates to the north of Benoni and Daveyton and flows southwards through Springs and Nigel towards the Vaal River. A section of this spruit has been accepted as a wetland under the Ramsar Convention. The catchment also includes the Marievale Nature Reserve. The eastern part of the catchment contains extensive natural wetlands, while the western part is highly modified by agriculture and human settlement. Industries, mines (mostly mine dumps and slimes dams), waste disposal sites, intensive agriculture and sewage works impact negatively on water quality in this system.

The prevalence of a large number of pans in the EMM is one of the outstanding characteristics of the area and is directly linked to the flat topography. More than 190 pans cover a total area of 3 559 ha and are mostly seasonal. Most of the pans are surrounded by urban areas or agriculture. The southern and the eastern parts of the farm is characterised by a pan.

B-1.8 Groundwater

The EMM is dominated by dolomite of the Chuniespoort Group (part of the Transvaal System) and tillites of the Dwyka Group (part of the Karoo System), both of which carry water. The presence of various geological structures, such as faults, fissures, and fracture zones, as well as contact zones of intrusions such as dykes and sills, dictate the occurrence of groundwater. Karst and Intergranular and Fractured Aquifers are the two dominant aquifer types in the EMM.

The Karst Aquifers occur in the dolomites of the Chuniespoort Group. This is the most important aquifer type in South Africa. Infiltrating rainwater containing weak carbonic acid dissolves dolomites resulting in caves and cavities that may facilitate the formation of sinkholes, especially if the water from these cavities is extracted through boreholes. Boreholes with the highest yield are found in the dolomites that occur from Wadeville to just south of Vosloorus.

Yields of more than 10 litres per second are common. High recharge of underground water and significant underground flow result in low density surface drainage in dolomitic areas. This underground flow often supports high yielding springs at an impermeable boundary, such as a dyke or lithological contact point. Ground water quality in the study area is generally acceptable for any use. In some areas contamination with chlorides, sulphates and nitrates has been recorded and care should be taken with groundwater used for human consumption. Groundwater from the Dwyka Group is generally suitable for any use.

B-1.9 Air Quality

Unrehabilitated mine tailings impoundments contribute significantly (~ 9%) to airborne concentrations of particulates and have been identified as a priority sources in Ekurhuleni. From visual observations during the windy months of the year it is apparent that wind-blown dust from the historic and current exposed surfaces as a result of mining is a major nuisance for the town of Nigel.

B-1.10 Fauna and Flora

The extent of the RAMSAR site is indicated in the context of its catchment (only the EMM portion) in Figure 15 below). It is evident that the catchment is significantly affected by development and stands to be affected even more in the longer term. The GDARD have undertaken several investigations into the management and protection of the area. It is however not recommended that the boundaries of the site be extended at this stage

as the management implications are by no means clear. The Marievale Bird Sanctuary, which is a provincial nature reserve and a RAMSAR-protected site, is located approximately 2km east of the site.

The site falls within the Grassland Biome with a Tsakane Clay Grassland vegetation (Figure 16) and significant areas of the Blesbokspruit Highveld Grassland Threatened Ecosystem. It is within an important area as shown Figure 18 below. There is a potential for the presence of endangered species such as the Giant Bullfrog and Grass Owl; and *Boophane disticha*.

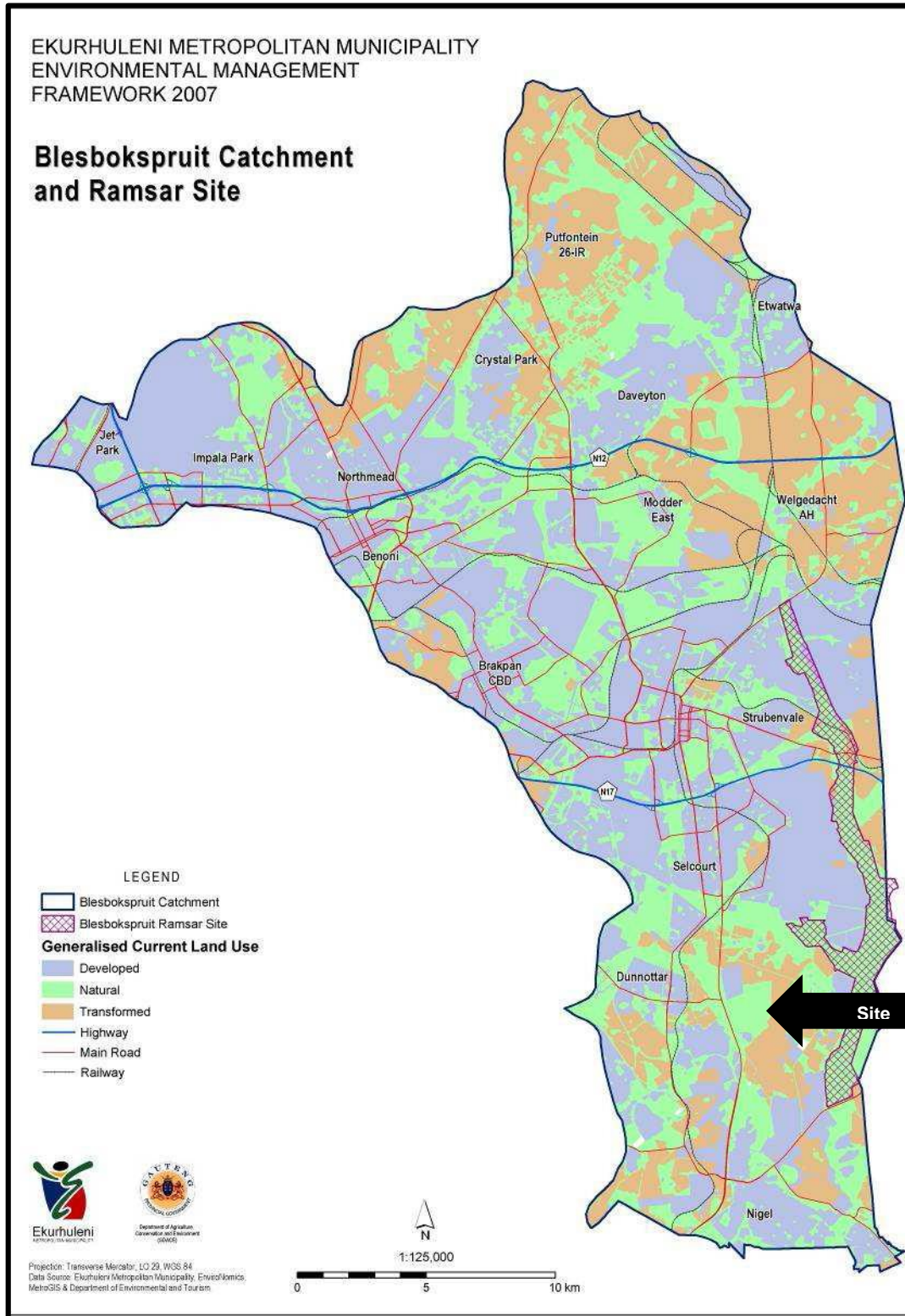


Figure 15: Blesbokspruit catchment and RAMSAR site

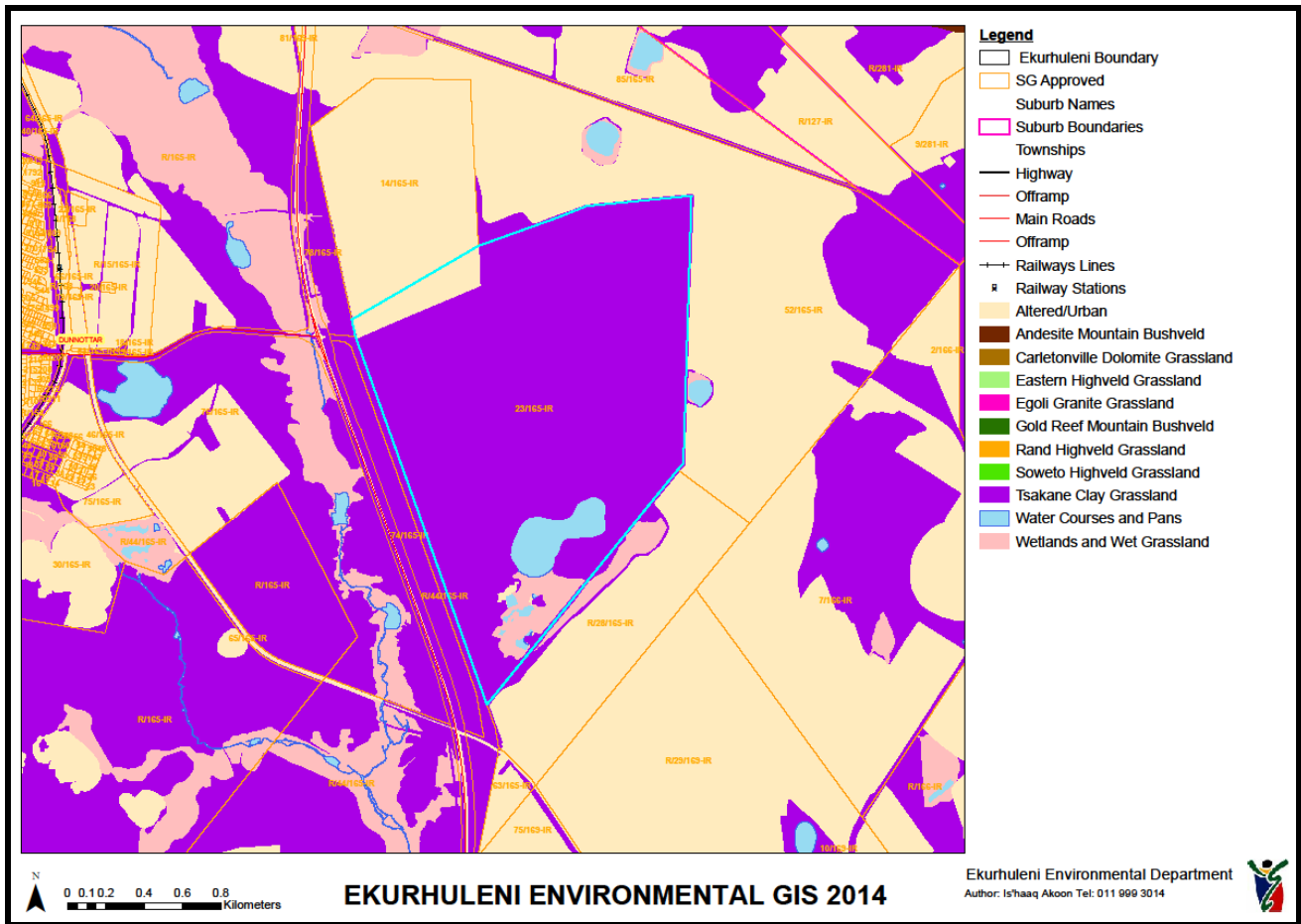


Figure 16: Vegetation Type

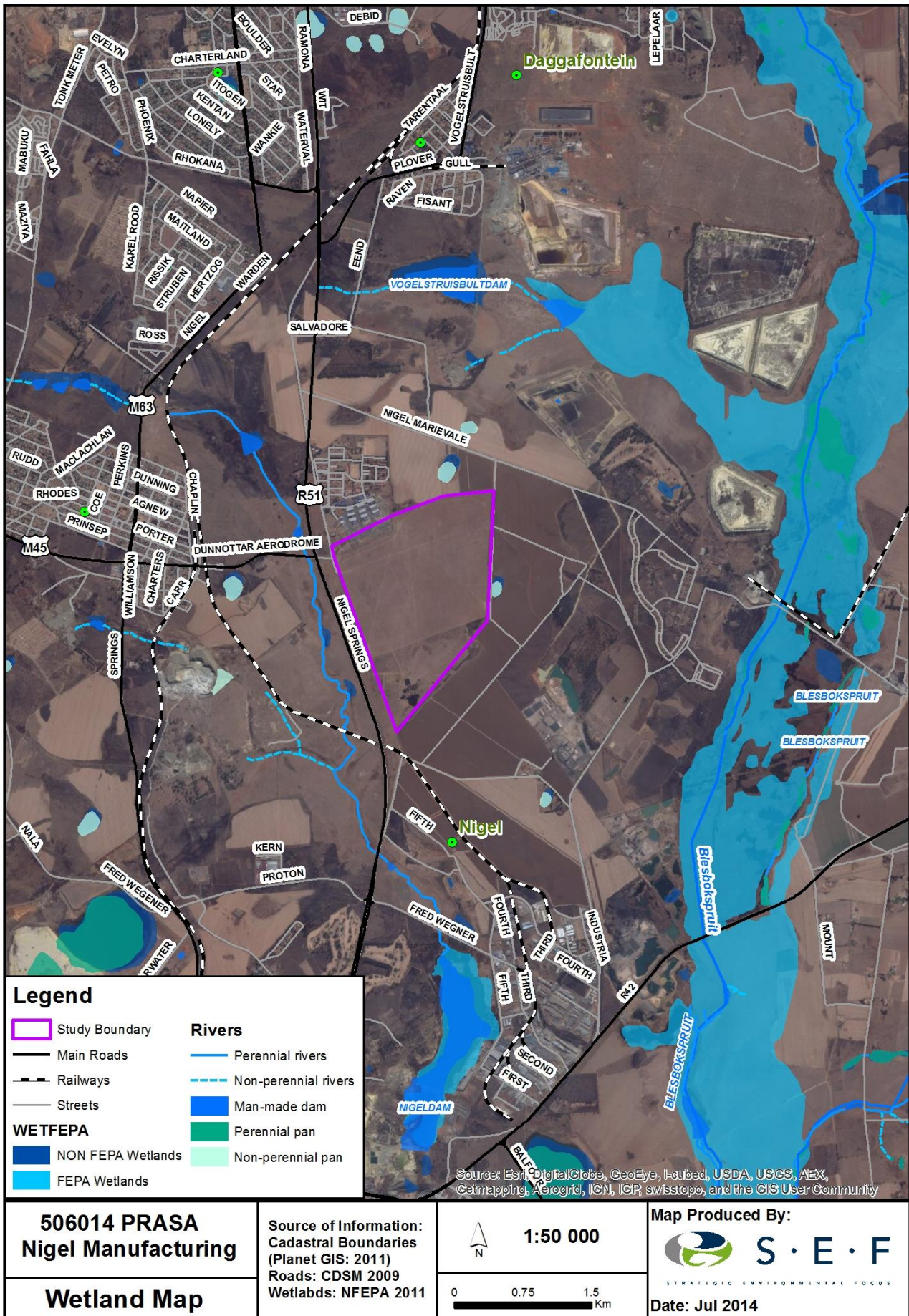


Figure 17: Wetland map

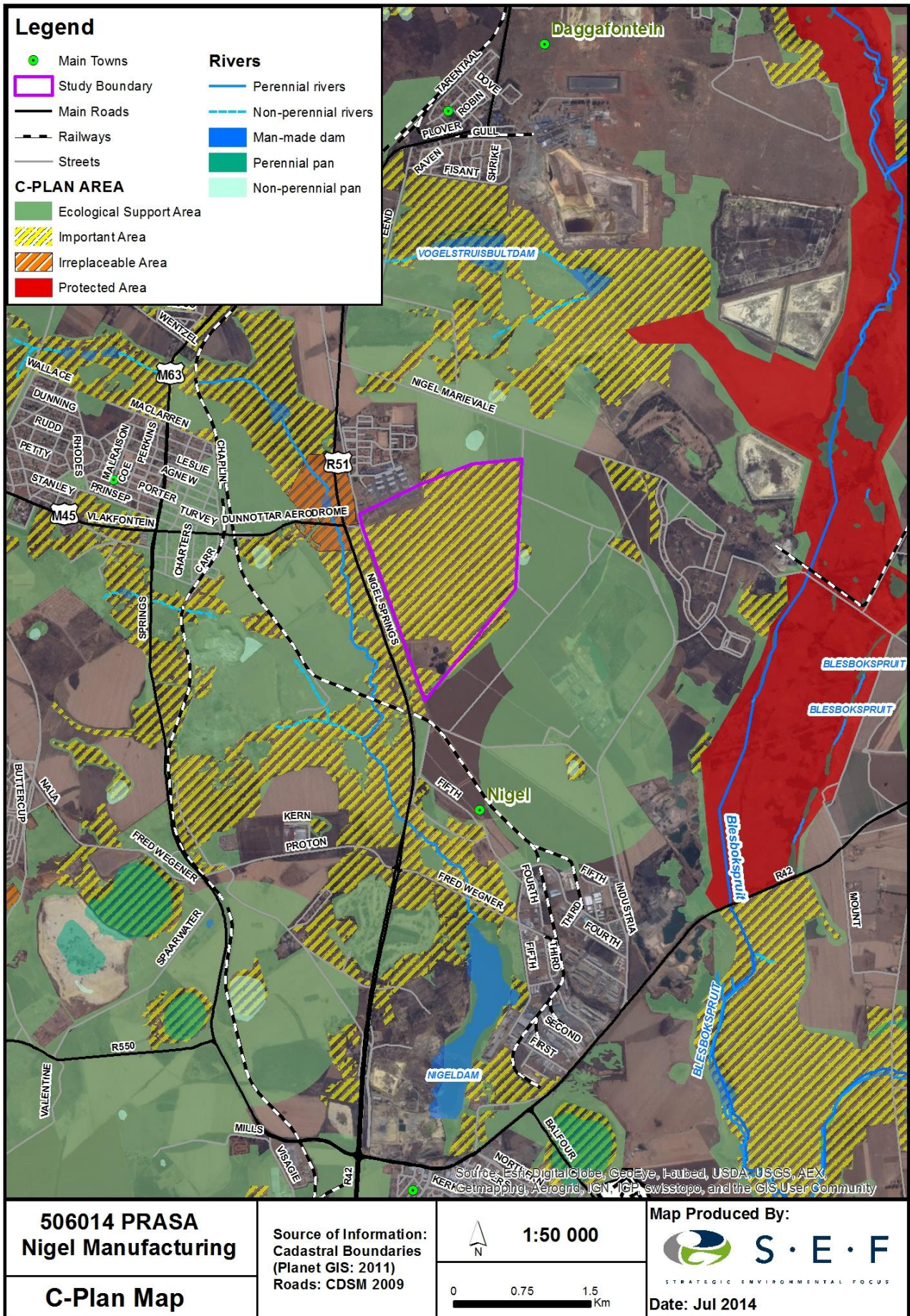


Figure 18: Conservation Map

B-1.11 Archaeological and Cultural resources

The National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) legislates the necessity for HIA in areas earmarked for development, which exceed 0.5 ha and where linear developments (including roads) exceed 300 metres in length.

There is no potential for any heritage resources on the property. Currently there is no building or structure on the property. The site is currently being used as an airfield used for paragliding, micro-lights, touch-and-go training from small aircraft, and possible emergency landing zone for small aircraft to the OR Tambo International Airport (ORTIA). Old infrastructure (lights, markings) associated with a grassland airfield are present on the site;

B-1.12 Visual Aspects

The site is visible to passing traffic on the R51 highway.

B-2 SOCIAL ENVIRONMENT

The proposed site is situated in Nigel, within the EMM. The municipality was established in 2000, and covers an extensive geographical area from Germiston in the west to Springs and Nigel in the east.

Former local administrations of the nine towns in the East Rand – Alberton, Benoni, Boksburg, Brakpan, Edenvale/Lethabong, Germiston, Kempton Park/Tembisa, Nigel and Springs – were amalgamated into the new metropolitan municipality, along with two other councils – the Khayalami Metropolitan Council and the Eastern Gauteng Services Council. EMM has come a long way in consolidating its systems and processes for the sustained delivery of services in the city.

According to the latest population census (Statistics South Africa, 2011), the total population for the ward is 31 455.

Table 4: Population and Household totals

	Ward 88	Gauteng	South Africa
Total Population	31 455	12 272 263	51 770 561
Total Households	9 432	3 909 020	14 450 132

Source: Statistics South Africa, 2011

As can be seen from Table 5, the majority of the Ward 88 population is aged between 18 and 64 (63.5%), with an average percentage (29.7%) being under 18 years of age. The over 65 population is relatively large (6.8%) as compared to Gauteng (4.3%) and South Africa as a whole (5.3%). The majority (18.6 %) of the Ward 88 population are under the age of 30, which indicates that there is a large number of children and youth within the ward (Table 6).

Table 5: Population by age category

	Ward 88	Gauteng	South Africa
Under 18	29.7%	27.9%	34.9%
18 to 64	63.5%	67.8%	59.8%
65 and over	6.8%	4.3%	5.3%

Source: Statistics South Africa, 2011

Table 6: Population by age range

	Ward 88		Gauteng		South Africa	
0-9	17.2%	5,409	17.1%	2,096,919	20.3%	10,505,203
10-19	15.9%	4,989	14.2%	1,736,600	18.5%	9,598,363
20-29	18.6%	5,838	23.3%	2,855,470	20.2%	10,433,859
30-39	15.3%	4,816	18.2%	2,236,793	14.5%	7,496,777
40-49	12.9%	4,050	12.3%	1,502,946	10.8%	5,568,901
50-59	9.7%	3,044	8.2%	1,001,253	7.8%	4,015,697
60-69	6.4%	2,020	4.2%	511,302	4.5%	2,343,573
70-79	3.1%	960	1.9%	232,264	2.4%	1,229,598
80+	1.1%	332	0.8%	98,715	1.1%	578,589

Source: Statistics South Africa, 2011

Table 7 indicates that the majority (41.9%) of the Ward 88 population is Black African, which is lower than the average in Gauteng (77.4%) and South Africa (79.2%). Table 8 shows that the majority of persons within this ward speaks Afrikaans (45.3%) as their home language, which is nearly four times the figure for Gauteng (12.3%).

Table 7: Population group

	Ward 88		Gauteng		South Africa	
Black African	41.9%	13,169	77.4%	9,493,684	79.2%	41,000,938
Coloured	19.7%	6,191	3.5%	423,594	8.9%	4,615,401
Indian or Asian	4.6%	1,452	2.9%	356,574	2.5%	1,286,930
Other	1.2%	366	0.7%	84,527	0.5%	280,454
White	32.7%	10,277	15.6%	1,913,884	8.9%	4,586,838

Source: Statistics South Africa, 2011

Table 8: Population by language most spoken at home

	Ward 88		Gauteng		South Africa	
Afrikaans	45.3%	14,244	12.3%	1,502,940	13.2%	6,855,081
IsiZulu	22.4%	7,047	19.5%	2,390,037	22.4%	11,587,374
English	15.8%	4,962	13.1%	1,603,464	9.5%	4,892,622
Sesotho	4.7%	1,467	11.4%	1,395,090	7.4%	3,849,561
IsiXhosa	2.4%	762	6.5%	796,842	15.8%	8,154,258
Other	1.9%	588	3%	371,574	1.6%	828,258

Source: Statistics South Africa, 2011

The majority of Ward 88 households do not have an income.

Table 9: Households by annual income

	Ward 88		Gauteng		South Africa	
R0	21.4%	3,166	16.5%	646,455	15.1%	2,177,533
Under R4800	7.9%	1,172	3.4%	132,035	4.5%	648,752
R5k - R10k	11.1%	1,647	4.8%	188,877	7.4%	1,066,352
R10k - R20k	18.9%	2,809	11.4%	446,403	17.1%	2,475,232
R20k - R40k	20.9%	3,105	16.6%	648,223	19%	2,740,595

R40k - R75k	13%	1,927	14.4%	563,521	13%	1,879,235
R75k - R150k	4.6%	678	10.9%	425,552	9.2%	1,335,657
R150k - R300k	1.5%	227	9.4%	366,096	7.2%	1,045,292
R300k - R600k	0.6%	82	7.3%	284,968	4.7%	685,363
R600k - R1.2M	0%	4	3.6%	141,553	1.9%	268,934
R1.2M - R2.5M	0.1%	12	1.1%	43,192	0.6%	79,896
Over R2.5M	0%	2	0.6%	21,780	0.3%	46,592

Source: Statistics South Africa, 2011

B-2.1 District and Local Municipalities

In December 2000, nine disestablished local authorities were consolidated into the EMM. These were Alberton, Benoni, Boksburg, Kempton Park, Tembisa, Germiston, Springs, Nigel, Brakpan, Lethabong, Khayalami and the Eastern Gauteng Services Municipality (EMM 2003). The EMM is one of three metropolitan municipalities in the Gauteng Province and one of five in South Africa.

This large area is divided, for administrative efficacy, into the Northern, Southern and Eastern Service Delivery Regions (SDRs) comprising the following areas:

- **Southern SDR:** Germiston (as regional centre), Alberton, areas of Boksburg and sections of Freeway Park, amongst others.
- **Eastern SDR:** Springs (as regional centre) Nigel, Kwa-Thema, Tsakane, Duduza, part of Benoni, Brakpan and Boksburg, and the Etwatwa-Daveyton area.
- **Northern SDR:** Kempton Park (as regional centre), Tembisa, part of Benoni, Edenvale and part of Germiston, including Bedfordview and Primrose.

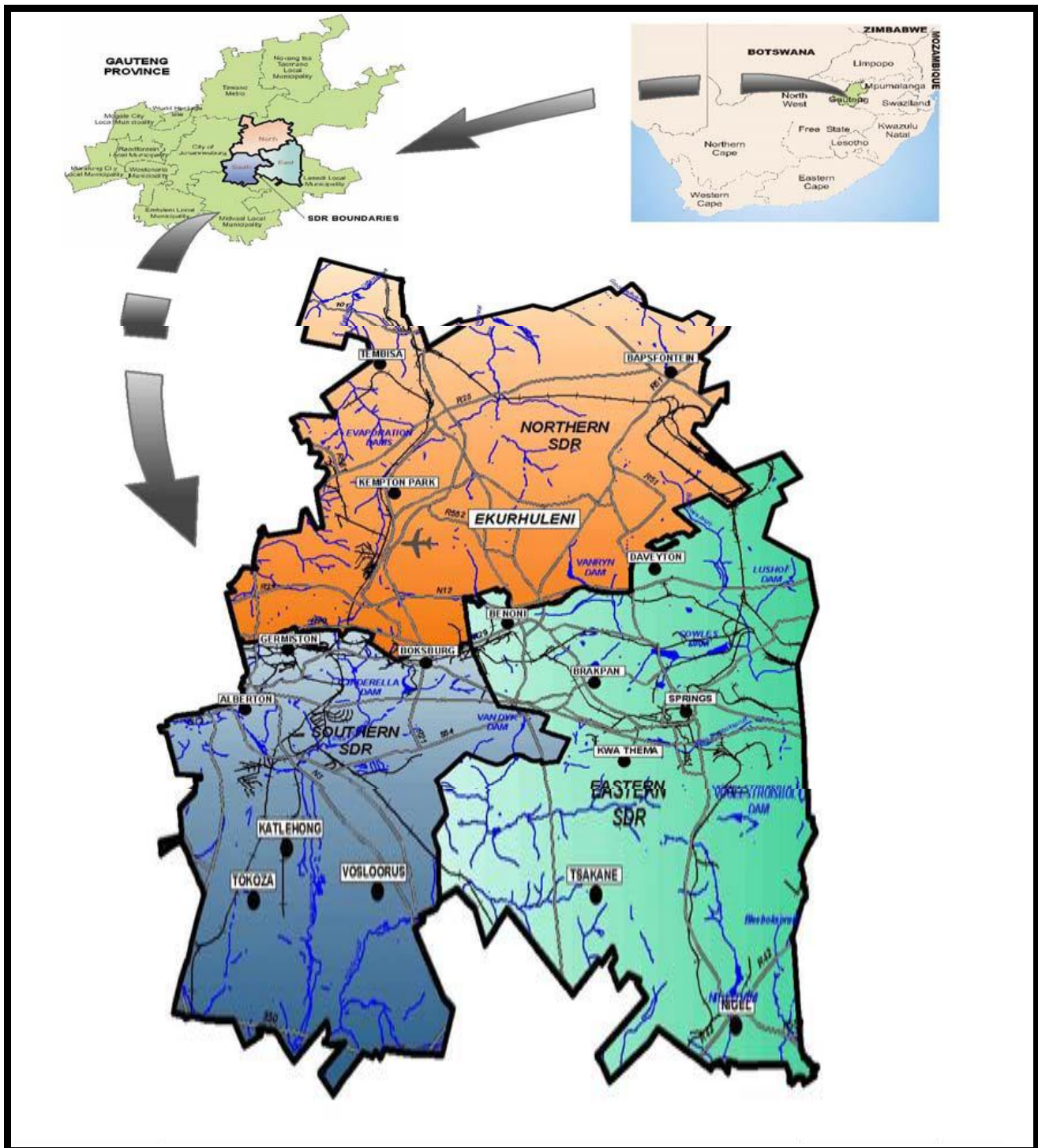


Figure 19: Map of Ekurhuleni Metropolitan Municipality showing all the SDRs (Naledzi Environmental Consultants, 2007)

The proposed site falls within the Eastern SDR.

B-2.2 Transport

The metropolitan is well served with an excellent road and rail network linked to both national and provincial networks. Approximately 360 km of freeway are located within the municipality, while the provincial road network amounts to around 1 300 km. Approximately 22% of roads in EMM are gravel and represents the bulk of backlogs with regard to tertiary roads. The EMM area is well served with a rail linkage to Johannesburg, Tshwane and the rest of Gauteng and Johannesburg. Overall, there is a shift from passenger’s use of train services to the use of buses and mini-bus taxis, with car usage increasing annually. The Rapid Minibuses are

the most popular mode of public transport with over 11 000 taxis operating in the municipal area. Except in isolated cases, the supply of these taxis generally exceeds the demand. The OR Tambo Airport is the air transport hub of Southern Africa. One of the biggest challenges in terms of transport is the creation of appropriate and applicable linkages between the various nodes within EMM (ERPMSLP, 2009).

B-2.3 Manufacturing and Industry

Following the decline in the gold mining industry the growth of a substantial manufacturing and industrial support base has resulted in the EMM contributing some 23 % to the Gross Geographic Product (GGP) of the Gauteng Province. Approximately 40 % of all industrial activity in Gauteng derives from the EMM area, which is the largest industrial area in South Africa. Manufacturing, together with wholesale and retail trade, collectively contributed approximately half of the GGP for the EMM in 2001. The services and finance sectors also make significant contributions to the local economy, with finance showing the strongest growth of all sectors in recent years. In terms of employment opportunities, manufacturing and mining are the largest and smallest contributors respectively. The informal sector in EMM is thriving with the majority of informal trade occurring in the townships.

B-2.4 Health care

Health care services are provided by the numerous hospitals and clinics distributed throughout the EMM. However, not all facilities provide a full range of services and some facilities in densely populated areas experience severe capacity problems. Other community services and facilities, including public safety and security, sports, recreation as well as arts and culture are generally concentrated in and around the Central Business District (CBD) of the EMM (SRK, 2003).

B-2.5 Solid waste disposal

The EMM has six regional waste disposal facilities, which are considered to be among the best facilities in South Africa. An estimated 1 200 000 tons of solid waste is disposed of at the following landfill sites:

- S&J Land Holdings in Germiston;
- Rooikraal in Germiston;
- Platkop near Heidelberg;
- Weltevreden in Brakpan;
- Rietfontein in Springs; and
- Zesfontein in Benoni (proposed development).

B-2.6 Cemeteries

Most of the active cemeteries are located in the vicinity of the lower income areas. The EMM has 63 cemeteries of which 29 are currently active. Collectively, the active cemeteries total some 669.3 hectares of land, while the vacant burial space covers some 443.7 hectares (SRK, 2003).

B-2.7 State of the Human Environment

While increased urbanisation generally improves the quality of life for many people, the urban environment can simultaneously become a centre for poverty. The growth of cities worldwide has been accompanied by disproportionate growth in urban poverty. Effective management of urban development in favour of the poor, who often establish illegal settlements on the urban periphery, is an immense challenge for national, provincial and local government. Without secure tenure, formal employment and access to basic infrastructure and social services, the inhabitants of informal settlements have little hope of improving their living conditions and quality of life. Moreover, the urban poor are disproportionately threatened by the environmental hazards and health risks posed by living in ecologically vulnerable areas or in densely packed inadequate housing with poor

sanitation and polluted water, air and soil resources (UNCHS Habitat, 2001).

The environmental problems within urban areas or cities, which generally have a direct impact on the human environment, largely stem from the nature of urban growth and development. The bulk of the impacts are borne by the poor population. This can be attributed to a number of factors (Goldblatt, 2002):

- Vulnerability: Poor people are more vulnerable to pollution impacts due to lowered health status from other factors such as inadequate nutrition;
- Location: Poor households are often located on the least desirable, cheapest land, which is often prone to environmental hazards;
- Inadequate access to services: Low income households typically pay a large proportion of their income for basic services and infrastructure or to gain access to such services; and
- Inability to respond: The ability of poor households to respond to environmental degradation is extremely limited.

They cannot relocate freely, they have limited power to affect change, either politically or via the legal system, and they have limited resources.

The pressure that people feel as a result of environmental conditions expresses itself in the social dimensions of human well-being. For example, continuing exposure to unhealthy living conditions and a degraded environment breeds discontent, resistance and even overt conflict - fuelled by perceptions of injustice and discrimination. This has been evident in the continued labour unrest in South Africa especially in the mining and industrial sector.

B-2.8 Safety and security

Public safety services within the EMM include emergency response services, fire brigade, traffic control and the metropolitan police force. There are approximately 33 police stations distributed throughout the EMM. The safety risk from flooding along the natural watercourses and where informal (and sometimes even formal) settlements are situated within the 1: 50 or the 1: 100 year flood line in the EMM, is high (SRK, 2003). The decay of many of the older industrial areas within the EMM is a cause of concern for public safety. Squatters often inhabit the abandoned buildings and warehouses, which can be structurally unsound and unsafe (per communication, E Olivier: EMM).

B-2.9 Housing and settlement

The housing backlogs together with a shortage of land have negative impacts for both the people in need of land, as well as for landowners. These include the landless often having to reside in unhealthy and unsafe environments and/or on land illegally occupied, while landowners incur financial losses through, *inter alia*, legal costs for eviction rulings, lost opportunity costs where development cannot proceed, or lost agricultural production on arable land (Policy: Development of Integrated Sustainable Human settlements in Ekurhuleni, 2004).

An amount of R191, 982,000.00 has been gazetted for the 2013/14 financial year for the housing and or /construction of Reconstruction and Development Programme (RDP) houses and was provided for on the Operating Budget (IDP, 2013/ 2014).

SECTION C: ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

C-1 APPROACH TO THE EIA

An EIA is an effective environmental planning tool. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The EIA for this project complies with the requirements of the NEMA EIA Regulations, 2010 of the DEA. The guiding principles of an EIA are listed below.

Definition of the term “environment”

The term “environment” is used in the broadest sense in an environmental impact assessment. It covers the physical, biological, social, economic, cultural, historical, institutional and political environments.

C-2 GUIDING PRINCIPLES FOR AN EIA

The EIA must take an open participatory approach throughout. This means that there should be no hidden agendas, no restrictions on the information collected during the process and an open-door policy by the proponent. Technical information must be communicated to stakeholders in a way that is understood by them and that enables them to meaningfully comment on the project.

There should be on-going consultation with I&APs representing all walks of life. Sufficient time for comment must be allowed. The opportunity for comment should be announced on an on-going basis. There should finally be opportunities for input by specialists and members of the public. Their contributions and issues should be considered when technical specialist studies are conducted and when decisions are made.

The eight guiding principles that govern the entire process of EIA are as follows (see Figure 20 below):

- **Participation:** An appropriate and timely access to the process for all I&APs.
- **Transparency:** All assessment decisions and their basis should be open and accessible.
- **Certainty:** The process and timing of the assessment should be agreed in advanced and followed by all participants.
- **Accountability:** The decision-makers are responsible to all parties for their action and decisions under the assessment process.
- **Credibility:** Assessment is undertaken with professionalism and objectivity.
- **Cost-effectiveness:** The assessment process and its outcomes will ensure environmental protection at the least cost to the society.
- **Flexibility:** The assessment process should be able to adapt to deal efficiently with any proposal and decision making situation.
- **Practicality:** The information and outputs provided by the assessment process are readily usable in decision making and planning.

A S&EIR process is considered as a project management tool for collecting and analysing information on the environmental effects of a project. As such, it is used to:

- Identify potential environmental impacts;
- Examine the significance of environmental implications;
- Assess whether impacts can be mitigated;
- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and

- Advise whether proposed project should go ahead.

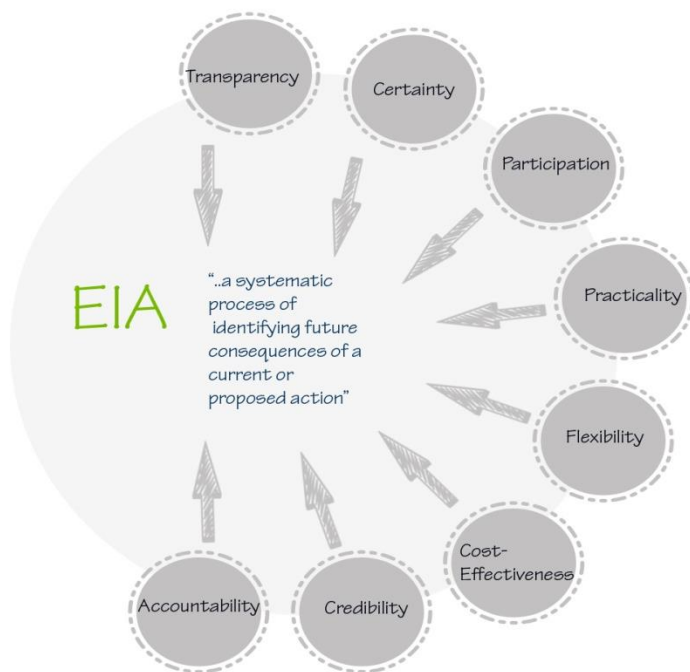


Figure 20: The eight guiding principles for the EIA process

A S&EIR process typically has four phases, as illustrated in the Figure 21 below. The Public Participation process forms an integral part of all four phases and is discussed in greater detail in Section C – 4 of this draft Scoping Report.

C-3 S&EIR TECHNICAL PROCESS

This section provides a summary of the technical process to be followed for this S&EIR process.

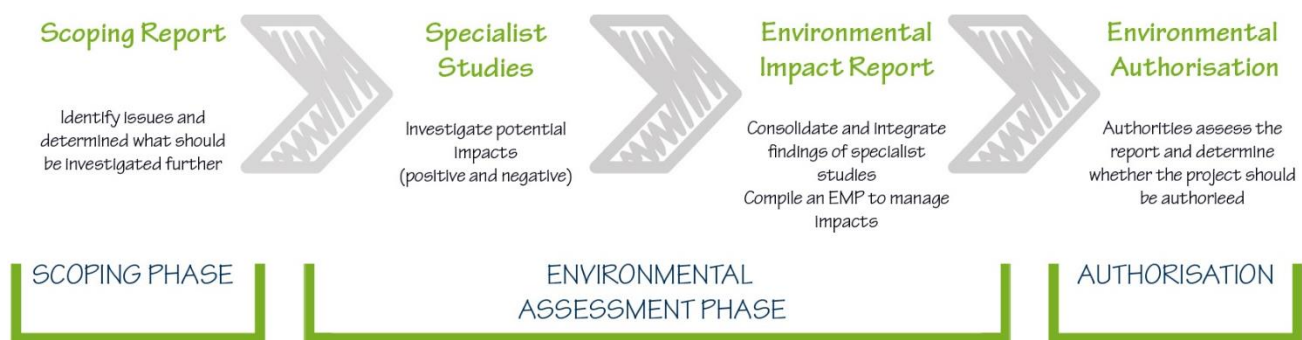


Figure 21: Flow diagram of the Scoping and EIR process

C-3.1 Pre-application Consultation with the DEA

No pre-consultation meeting was held between SEF and DEA. SEF are conducting the S&EIR process for the applicant, in support of their application for an Environmental Authorisation and WUL, and have a good understanding of the information requirements of the DEA for the proposed project, such that the DEA’s specific information requirements are deemed to have been met for the Scoping phase of this project.

C-3.2 Application for Authorisation

The application form informing the DEA of intent to obtain an Environmental Authorisation was submitted on 07 August 2014. The DEA issued the application with the following reference number: DEA Ref No: **14/12/16/3/3/2/735**. The letter acknowledging receipt of the application form is included in Appendix 3.

C-3.3 Information Gathering

Early in the EIA process, the technical team will identify the information that would be required for the impact assessment and the relevant data will subsequently be obtained. In addition, the technical team will source available information about the receiving environment from reliable sources, I&APs, previous documented studies in the area and previous EIA Reports.

C-3.4 Specialist Studies

For the proposed development, the following specialist studies have been undertaken and will be integrated into the EIR:

- Ecological & Wetland Assessment;
- Soils & Agricultural Potential Assessment; and
- Heritage Impact Assessment (Phase 1).

More specialists' studies may be imperative and this will be dependent on the requirements stipulated by the DEA.

C-4 PUBLIC PARTICIPATION PROCESS

The principles of NEMA govern many aspects of the S&EIR process, including consultation with I&APs. These principles include the provision of sufficient and transparent information to I&APs on an on-going basis, to allow them to comment; and ensuring the participation of Historically Disadvantaged Individuals (HDIs), including women, the disabled and the youth.

The principal objective of public participation is thus to inform and enrich decision-making. This is also the key role in the scoping phase of the process.

C-4.1 Identification of Interested and Affected Parties

I&APs representing the following sectors of society have been identified in terms of Regulation 55 of the EIA Regulations R543 of 2010 (see Appendix 4 for a complete preliminary I&AP distribution list):

- National Authorities;
- Provincial Authorities;
- Local Authorities;
- Ward Councillors;
- Parastatal/ Service Providers;
- Non-governmental Organisations;
- Local forums/ unions; and
- Adjacent Landowners.

C-4.2 Public Announcement of the Project

The project was announced in the following manner (see Appendix 4 for public announcement documentation):

- Publication of media advertisement in the local newspaper, Heidelberg Nigel Heraut, on 08 October 2014;
- On-site notices (4) advertising the S&EIR process were placed on and around the site and other strategic locations within the area on 08 October 2014; and
- Distribution of letters by fax/ by hand/ post/ email to I&APs including Registration and Comment Sheets.

C-4.3 Draft Scoping Report

A period of **40 calendar days (Wednesday, 08 October 2014 to Monday, 17 November 2014)** has been provided to the **State Departments** and the **general public** for the review and commenting phase of the Draft Scoping Report. All I&APs as well as State Departments have been notified of this review period. I&APs and relevant State Departments have the opportunity to submit comments either in writing, by telephone or email on this Draft Scoping Report.

The availability of the Draft Scoping Report has been announced by means of personal letters to all stakeholders on the distribution list, and by advert placed in the abovementioned newspaper.

In addition, the Draft Scoping Report was distributed for comment as follows:

- Left in a public venue (Dunnottar Public Library);
- Hand-delivered/ couriered to the relevant authorities; and
- Posted on SEF's website at <http://www.sefsa.co.za>.

All the comments and concerns raised by I&APs during the S&EIR process will be captured in a Comment and Response Report (CRR). I&APs will receive letters acknowledging their contributions.

C-4.4 Final Scoping Report

The Final Scoping Report will be updated with comments and/or concerns raised by I&APs during public review of the Draft Scoping Report. The CRR will be attached to the Final Scoping Report. The Final Scoping Report will be submitted to the DEA and registered I&APs simultaneously for review and comment.

The dates for public review of the Final Scoping Report will be communicated to registered I&APs in due course. Registered I&APs will be advised to submit any additional comments on the forthcoming Final Scoping Report directly to the DEA prior to the lapsing of the review period.

C-4.5 Public participation during the Impact Assessment Phase

Public participation during the Impact Assessment Phase of the S&EIR process will revolve around a review of the findings of the EIR and inputs into the Environmental Management Programme (EMPr). The findings will be presented in a Draft EIR and EMPr (including the specialist studies conducted), which will be available for public review and comment.

SECTION D: IDENTIFICATION OF IMPACTS

The key environmental impacts listed in the following section have been determined through:

- Legislation; and
- Experience of the EAP.

The following issues were identified and will be carried forward into the EIR phase for further investigation and assessment:

Biophysical Impacts:

- Potential impacts on surface water resources that occur in close proximity and on site (the existing wetland; pan, dam and river (Blesbokspruit 2.8 km south east of the proposed site);
- Potential impacts of increased surface water run-off (viz. increased soil erosion) associated with the establishment of hard surfaces and vegetation clearing (mainly during the construction phase);
- Potential impacts on ground and surface water quality due to hydrocarbon spillages from vehicles during the construction phase of the development;
- Potential impacts on soils due to hydrocarbon spillages from vehicles during the construction and operational phase of the development;
- Destruction of flora and fauna within the proposed area as the area falls within a Threatened Ecosystem, Critical Biodiversity Area, and Ecological Support Area. There is a potential for the presence of Giant Bullfrog, Grass Owl; and *Boophane disticha* (Poison Bulb), stemming from construction activities such as vegetation clearing and topsoil stripping within the site;
- Faunal displacement mainly during the construction phase of the project;
- Adverse impacts on avifauna with the presence of Marievale Bird Sanctuary, which is a provincial nature reserve and a RAMSAR-protected site, located approximately 2km east of the site. Birds within the Marievale Bird Sanctuary are not bound by the sanctuary only and could use the watercourses (including pans) on or in the vicinity of the site;
- Potential loss of agricultural land;
- Potential presence of dolomite; and
- Soil compaction due to the movement of vehicles on site.

Socio-Economic Impacts:

- The closure of the site from being used as an airfield used for paragliding (www.flytribe.co.za), micro-lights, touch-and-go training from small aircraft, and possible emergency landing zone for small aircraft to the OR Tambo International Airport (ORTIA). Old infrastructure (lights, markings) associated with a grassland airfield are present on the site;
- Illegal removal of copper cables from the site property;
- Potential traffic impacts associated with the road being used by the Military base as the main access road off the R51 provincial road. Potential sharing of the access road could lead to traffic impacts;
- Decreased dust generation during the operational phase;
- Increased visual impacts associated with additional industrial development activities. Potential visual impact as the new manufacturing facility will be constructed on a 2m high platform and will be up to 25m high;
- Increase in local employment and subsequently, number of job seekers, during construction and operational phases;
- Noise will be generated during track testing and track braking activities;
- The bus service proposed to be implemented for the project will have a potential impact on the existing taxi industry;
- LEED v4 platinum green building certification is being applied for, which will result in a potential impact on the natural and social environments which may also attract international funding or

- investment; and
- Air pollution from dust from nearby mines, discard dumps and storage facilities in the vicinity of the site.

D-1 IDENTIFICATION OF CUMULATIVE IMPACTS

Cumulative impacts, as illustrated below, occur as a result from the combined effect of incremental changes caused by other activities together with the particular project. In other words, several developments with insignificant impacts individually may, when viewed together, have a significant cumulative adverse impact on the environment (see Figure 22 below).

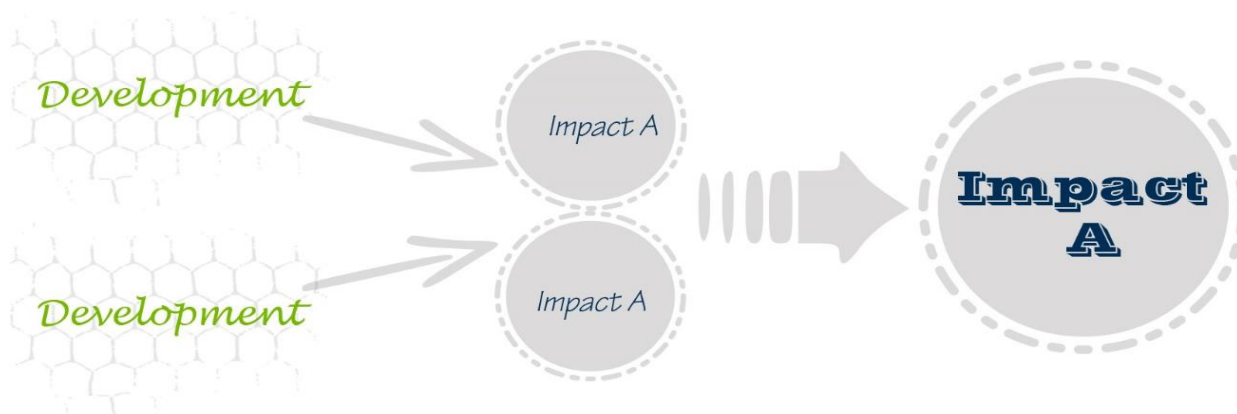


Figure 22: The identification of Cumulative Impacts

The following cumulative impacts have been identified in terms of the proposed project and warrant further investigation during the assessment phase:

Cumulative Impacts:

- Increased visual impacts associated with additional industrial development activities;
- Increase in local employment and subsequently, number of job seekers, during construction and operational phases; and
- Influx of people (looking for jobs) into the area.

SECTION E: ALTERNATIVES

E-1 IDENTIFICATION OF ALTERNATIVES

To give effect to the principles of the NEMA and Integrated Environmental Management (IEM), an EIA should assess a number of reasonable and feasible alternatives that may achieve the same end result as that of the preferred project alternative. The following alternatives have been identified as part of this Scoping exercise:

A. Design Alternatives

Alternative 1: Leadership in Energy and Environmental Design (LEED) (preferred alternative)

LEED is a set of rating systems for the design, construction, operation, and maintenance of green buildings, homes and neighbourhoods. Developed by the U.S. Green Building Council (USGBC), LEED is intended to help building owners and operators be environmentally responsible and use resources efficiently. LEED is transforming the way we think about how buildings and communities are designed, constructed, maintained and operated across the globe.

LEED certified buildings save money and resources and have a positive impact on the health of occupants, while promoting renewable, clean energy.

LEED is a green building certification program that recognises best-in-class building strategies and practices. To receive LEED certification, building projects satisfy prerequisites and earn points to achieve different levels of certification. Prerequisites and credits differ for each rating system, and teams choose the best fit for their project.

Each rating system groups requirements that address the unique needs of building and project types on their path towards LEED certification. Once a project team chooses a rating system, they'll use the appropriate credits to guide design and operational decisions.

There are five rating systems that address multiple project types:

- Building Design; and Construction;
- Interior Design and Construction;
- Building Operations and Maintenance;
- Neighbourhood Development; and
- Homes.

LEED has evolved since 1998 to more accurately represent and incorporate emerging green building technologies. The pilot version, LEED New Construction (NC) v1.0, led to LEED NCv2.0, LEED NCv2.2 in 2005, and LEED 2009 (previously named LEEDv3) in 2009. LEEDv4 was introduced in November, 2013. Until June 1, 2015, new projects may choose between LEED 2009 and LEEDv4.

New projects registering after June 1, 2015 must use LEEDv4.

Buildings can qualify for four levels of certification:

- Certified: 40–49 points
- Silver: 50–59 points
- Gold: 60–79 points
- Platinum: 80 points and above

LEED certified buildings are intended to use resources more efficiently when compared to conventional buildings simply built to code. However, analysis of energy and water use data from New York City shows that LEED certification does not necessarily make a building more energy or water efficient.

Often, when a LEED rating is pursued, the cost of initial design and construction rises. There may be a lack of abundant availability of manufactured building components that meet LEED specifications. Pursuing LEED certification for a project is an added cost in itself as well.

However, these higher initial costs can be effectively mitigated by the savings incurred over time due to the lower-than-industry-standard operational costs typical of a LEED certified building. This Life cycle costing is a method for assessing the total cost of ownership, taking into account all costs of acquiring, owning and operating, and the eventual disposal of a building. Additional economic payback may come in the form of employee productivity gains incurred as a result of working in a healthier environment. Studies have suggested that an initial up-front investment of 2% extra will yield over ten times the initial investment over the life cycle of the building.

The positive impacts that the LEED platinum certification may be able to achieve are as follows:

- 100% collection, use and reuse of all rainwater;
- 80% water metering for hot water applications to prevent water losses;
- The use of photovoltaic panels as shading for the parking area;
- On-site recycling or collection of all waste; and
- Use of daylight saving technologies.

This is the preferred alternative by PRASA.

Alternative 2: Green Star SA - Office V1/ Green Building

Green building (also known as green construction or sustainable building) refers to a structure and using process that is environmentally responsible and resource-efficient throughout a building's life-cycle: from siting to design, construction, operation, maintenance, renovation, and demolition. This requires close cooperation of the design team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort.

Although new technologies are constantly being developed to complement current practices in creating greener structures, the common objective is that green buildings are designed to reduce the overall impact of the built environment on human health and the natural environment by:

- Efficiently using energy, water, and other resources;
- Protecting occupant health and improving employee productivity; and
- Reducing waste, pollution and environmental degradation.

Sustainably designed buildings cost less to operate and have excellent energy performance.

The environment is required to be sustainable and the facility should aim for a minimum of a **4-star Green Star Certified Rating** as regulated and awarded by Green Building Council of South Africa (GBCSA).

Green concepts with regard to the facility will meet appropriate grade requirements and the life-cycle costs and principles established will reflect a sustainable environmentally efficient facility. When looking at the facility from a sustainable viewpoint there are two important factors:

- The potential effect of the facility on the environment; and

- The effect of the environment on the facility.

The following concepts/requirements will be included in the Output Specification write up:

- The building will be specified as a 4-star Green Star facility and needs to be designed and constructed accordingly.
- The design will be required to optimise natural ventilation, windows will be openable, and the design should ensure that there is a through draft, while ensuring that heated or cooled air does not escape unnecessarily.
- The building will have the following:
 - Dedicated parking spaces for car-pool vehicles;
 - Parking spaces for scooters/motorbikes;
 - Major public entrances;
 - Adequate road crossings for pedestrians will be provided (within 50m of the site);
 - Any taxi stops included will be designed with a vehicle stopping area that allows for safe and convenient passenger waiting and boarding (Drop off facilities); and
 - The design will demonstrate the safe, well-lit, dedicated pedestrian facilities are provided between the development and the adjacent street network.
- Timber to be used should be re-used, recycled or be a Forest Stewardship Council (FSC) certified timber;
- The design should look at the reduction of unplasticised polyvinyl chloride (uPVC) by replacing it with other materials.
- No incandescent lights will be used, only compact fluorescent or in special areas, 12V low voltage lamps with individual transformers limited to 30 Watts.
- Lighting to cellular offices, meeting rooms, stores etc. to be provided with light switches. An intelligent lighting control and optimal switching of unpopulated areas.

The following principles should be considered within the design:

- Naturally ventilated areas should demonstrate that 95% of the use-able area (UA) is naturally ventilated in accordance with SANS 10400-0.
- Mechanically ventilated spaces should demonstrate that 95% of the UA has outside air provided at rates greater than SANS 10400-0 (5 litres/second/person for offices).
- Naturally ventilated spaces should provide a distribution and laminar air flow pattern for at least 90% of each space in the direction of air flow for not less than 5% of standard hours of occupancy.
- Mechanically ventilated spaces should achieve an Air Change Effectiveness (ACE) of > 0.95 for at least 95% of the UA when measured in accordance with ASHRAE 129-1997: Measuring Air Change Effectiveness.
- Carbon dioxide monitoring and control to be provided.

Compared with the other buildings, the Green building will consume about 30% less electricity because of interventions including efficient lighting, solar water heating, and most importantly, the use of the chilled beam air conditioning systems. The building has water savings of about 79% when compared with the other buildings.

Alternative 3: Conventional Building

This will involve the construction of a conventional building, and will thus not entail the implementation of Greenstar principles.

The following philosophies will thus not be achieved by this alternative namely:

- Optimal energy efficiency;
- Greenhouse gas emission abatement;
- Water conservation;

- Waste avoidance, reuse and recycling;
- Pollution prevention - noise, water, air, soil and light;
- Enhanced biodiversity;
- Reduced natural resource consumption;
- Productive and healthier environments; and
- Flexible and adaptable spaces.

Although energy efficient measure will still be considered as part of the proposal, it will not achieve the level of energy efficiency as with the LEED design.

B. Site/ Location Alternatives

Portion of land to be developed is approximately 104.197 hectares from Portion 23 of the Farm Grootfontein 165 IR. Four site alternatives are being investigated.

Alternative 1: The proposed plant being situated west of the site.

Alternative 2: Plant and residential development on the entire Portion 23.

Alternative 3: Plant and other Industrial 1 development on the entire Portion 23.

C. No Development Alternative

PRASA have finalised a R51 billion contract with the Gibela empowerment consortium (GIBELA), of which Alstom Southern African Holdings is the largest shareholder, to deliver 600 Alstom trains consisting of six wagons each. The first 20 trains are being manufactured at Alstom's Lapa plant in Brazil, with delivery the proposed plant.

The proposed plant would be designed to house an engineering centre and a training facility. Project goals included that a portion of the budget be spent on subcontracting to black-empowered entities, subcontracting to qualifying small enterprises, and subcontracting to entities owned by black women, training artisans and technicians, drivers during the life of the project, skills development initiatives.

As explained above, this option has the following disadvantages:

- A high demand for industrial and employment provision exists in this area, especially with respect to the proposed development characteristics. Should the site not be developed, a very viable opportunity to exploit the industrial market in the immediate area will be negated
- Illegal squatters or vagrants may potentially settle on the site, as severe pressure for housing in the lower income brackets also exist. Due to the presence of extensive development throughout the greater area it is possible that undeveloped, un-managed land may be illegally settled.

Should the site be left as is and that no development or alteration be done, the site's status quo will be retained.

SECTION F: PLAN OF STUDY FOR ENVIRONMENTAL IMPACT REPORTING PHASE

F-1 SCOPE AND PURPOSE OF THE ENVIRONMENTAL IMPACT REPORTING PHASE

The EIR phase will focus on the proposed project and the associated impacts thereof. The next step of the S&EIR process is the development of guidelines for the execution of the impact assessment and the compilation of an EIR, as well as an EMP. The compilation of these documents will take into account all comments and concerns raised by I&APs which are captured within the CRR as well as the findings of various specialist studies.

The Final EIR and EMP will be submitted to the DEA for consideration towards Environmental Authorisation.

F-2 METHODOLOGY OF THE ENVIRONMENTAL IMPACT ASSESSMENT REPORTING PHASE

F-2.1 Specialist Investigations and Terms of Reference

As mentioned above, the following specialist studies were undertaken to provide technical and scientific input in assessing the impacts of the proposed project. The following specialist studies will be incorporated into the Draft EIR:

- Ecological & Wetland Assessment;
- Soils & Agricultural Potential Assessment; and
- Heritage Impact Assessment (Phase 1).

As per the Environmental Management Guidelines, specialists' Terms of Reference (ToR) must be clearly defined and clarified. This is to ensure that the specialists have covered all the issues and topics in an appropriate manner and at an appropriate level of detail. The studies which have been undertaken took into consideration the present state of the receiving environment and provided an assessment of the impacts likely to be associated with the proposed project, as well as mitigation measures to be used to minimise possible impacts. The ToR for each specialist study is explained in greater detail below.

F-2.1.1 Ecological Opinion and Wetland Assessment

According to the Ekurhuleni Bioregional Plan as well as the current Gauteng Biodiversity Conservation Plan (C-Plan version 3.3), the study area is considered to be a Critical Biodiversity Area due to the presence of Red-listed bird habitat as well as the presence of primary vegetation. In addition, aerial imagery suggests the presence of wetland habitat in the areas adjacent to the proposed site. As such, the envisaged scope of work for the assessment of relevant biodiversity attributes associated with the study area includes:

- An ecological opinion for the purposes of confirming/refuting the Critical Biodiversity Area status associated with the study area; and
- An assessment of wetland areas adjacent to and within the study area.

The best practice dictates that this study should be undertaken during the summer season, beginning of November to end April.

F-2.1.2 Soils & Agricultural Potential Assessment

The study will address the following aspects:

- The agricultural potential of the proposed site;
- Impact of the proposed project on agricultural within the immediate surrounding area; and
- Recommend measures to mitigate any potential negative impacts of the proposed plant.

F-2.1.3 Phase 1: Heritage Impact Assessment

A Phase 1 HIA will be undertaken in order to assess the impacts and significance in terms of culture and heritage on the site and propose mitigation measures. The ToR includes *inter alia*:

- A desk-top investigation of the area;
- A site visit to the proposed development site;
- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction and operation of the proposed development on archaeological, cultural and historical resources; and
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

F-2.2 Approach to Assessment of Impacts

The EAP in association with the relevant specialists will provide an outline of the approach used in the study. Assumptions and sources of information will also be clearly identified.

F-2.2.1 Impact Identification and Assessment

The EAP must make a clear statement, identifying the environmental impacts of the establishment, operation and management of the proposed development. As far as possible, the EAPs must quantify the suite of potential environmental impacts identified in the study and assess the significance of the impacts according to the criteria set out below. Each impact will be assessed and rated. The assessment of the data must, where possible, be based on accepted scientific techniques, failing which the specialist is to make judgements based on his/ her professional expertise and experience.

F-2.2.2 Assessment Procedure: Proposed Impact Assessment Methodology

For the purpose of assessing impacts during the EIR phase of the project to follow, the project will be divided into two phases from which impacting activities can be identified, namely:

Establishment Phase: All the establishment related activities on site

Operational Phase: All activities, including the operation and maintenance of the proposed development.

The activities arising from each of these phases will be included in the impact assessment tables. This is to identify activities that require certain environmental management actions to mitigate the impacts arising from them. The assessment of the impacts will be conducted according to a synthesis of criteria required by the integrated environmental management procedure.

Extent The physical and spatial scale of the impact.	Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.
	Site	The impact could affect the whole, or a significant portion of the site.
	Regional	The impact could affect the area including the neighbouring farms, the transport routes and the adjoining towns.
	National	The impact could have an effect that expands throughout the country (South Africa).

	International	Where the impact has international ramifications that extend beyond the boundaries of South Africa.
Duration The lifetime of the impact, that is measured in relation to the lifetime of the proposed development.	Short Term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than that of the establishment phase.
	Short-Medium Term	The impact will be relevant through to the end of the establishment phase.
	Medium Term	The impact will last up to the end of the establishment phases, where after it will be entirely negated.
	Long Term	The impact will continue or last for the entire operational lifetime of the proposed development, but will be mitigated by direct human action or by natural processes thereafter.
	Permanent	This is the only class of impact, which will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient.
Intensity Is the impact destructive or benign, does it destroy the impacted environment, alters its functioning, or slightly alter the environment itself?	Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.
	Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.
	High	Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.
Probability The likelihood of the impacts actually occurring. The impact may occur for any length of time during the life cycle of the activity, and not at any given time.	Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience. The chance of this impact occurring is zero (0%).
	Possible	The possibility of the impact occurring is very low, due either to the circumstances, design or experience. The chances of this impact occurring is defined as 25%.
	Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made. The chances of this impact occurring is defined as 50%.
	Highly Likely	It is most likely that the impacts will occur at some stage of the proposed development. Plans must be drawn up before carrying out the activity. The chances of this impact occurring is defined as 75%.
	Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied on. The chance of this impact occurring is defined as 100%.

Mitigation – The impacts that are generated by the proposed development can be minimised if measures are implemented in order to reduce the impacts. The mitigation measures ensure that the proposed development considers the environment and the predicted impacts in order to minimise impacts and achieve sustainable development.

Determination of Significance – Without Mitigation – Significance is determined through a synthesis of impact characteristics as described in the above paragraphs. It provides an indication of the importance of the impact in terms of both tangible and intangible characteristics. The significance of the impact “without mitigation” is the prime determinant of the nature and degree of mitigation required. Where the impact is positive, significance is noted as “positive”. Significance will be rated on the following scale:

No significance: The impact is not substantial and does not require any mitigation action;

Low: The impact is of little importance, but may require limited mitigation;

Medium: The impact is of importance and is therefore considered to have a negative impact. Mitigation is required to reduce the negative impacts to acceptable levels; and

High: The impact is of major importance. Failure to mitigate, with the objective of reducing the impact to acceptable levels, could render the entire project proposal unacceptable. Mitigation is therefore essential.

Determination of Significance – With Mitigation – Determination of significance refers to the foreseeable significance of the impact after the successful implementation of the necessary mitigation measures.

Significance with mitigation will be rated on the following scale:

No significance: The impact will be mitigated to the point where it is regarded as insubstantial;

Low: The impact will be mitigated to the point where it is of limited importance;

Low to medium: The impact is of importance, however, through the implementation of the correct mitigation measures such potential impacts can be reduced to acceptable levels;

Medium: Notwithstanding the successful implementation of the mitigation measures, to reduce the negative impacts to acceptable levels, the negative impact will remain of significance. However, taken within the overall context of the project, the persistent impact does not constitute a fatal flaw;

Medium to high: The impact is of major importance but through the implementation of the correct mitigation measures, the negative impacts will be reduced to acceptable levels; and

High: The impact is of major importance. Mitigation of the impact is not possible on a cost-effective basis. The impact is regarded as high importance and taken within the overall context of the project, is regarded as a fatal flaw. An impact regarded as high significance, after mitigation could render the entire project proposal unacceptable.

Assessment Weighting – Each aspect within an impact description was assigned a series of quantitative criteria. Such criteria are likely to differ during the different stages of the project's life cycle. In order to establish a defined base upon which it becomes feasible to make an informed decision, it will be necessary to weigh and rank all the identified criteria.

Ranking, Weighting and Scaling – For each impact under scrutiny, a scaled weighting factor will be attached to each respective impact. The purpose of assigning such weightings serve to highlight those aspects considered the most critical to the various stakeholders and ensure that each specialist's element of bias is taken into account. The weighting factor also provides a means whereby the impact assessor can successfully deal with the complexities that exist between the different impacts and associated aspect criteria.

Simply, such a weighting factor is indicative of the importance of the impact in terms of the potential effect that it could have on the surrounding environment. Therefore, the aspects considered to have a relatively high value will score a relatively higher weighting than that which is of lower importance (See Figure 23 below: Weighting description).

Extent	Duration	Intensity	Probability	Weighting Factor (WF)	Significance Rating (SR)	Mitigation Efficiency (ME)	Significance Following Mitigation (SFM)
Footprint 1	Short term 1	Low 1	Probable 1	Low 1	Low 0-19	High 0,2	Low 0-19
Site 2	Short to medium 2		Possible 2	Low to medium 2	Low to medium 20-39	Medium to high 0,4	Low to medium 20-39
Regional 3	Medium term 3	Medium 3	Likely 3	Medium 3	Medium 40-59	Medium 0,6	Medium 40-59
National 4	Long term 4		Highly Likely 4	Medium to high 4	Medium to high 60-79	Low to medium 0,8	Medium to high 60-79
International 5	Permanent 5	High 5	Definite 5	High 5	High 80-100	Low 1,0	High 80-100

Figure 23: Description of bio-physical assessment parameters with its respective weighting

Identifying the Potential Impacts Without Mitigation Measures (WOM) – Following the assignment of the necessary weights to the respective aspects, criteria are summed and multiplied by their assigned weightings, resulting in a value for each impact (prior to the implementation of mitigation measures).

$$\text{Equation 1: Significance Rating (WOM)} = (\text{Extent} + \text{Intensity} + \text{Duration} + \text{Probability}) \times \text{Weighting Factor}$$

Identifying the Potential Impacts With Mitigation Measures (WM) – In order to gain a comprehensive understanding of the overall significance of the impact, after implementation of the mitigation measures, it will be necessary to re-evaluate the impact.

Mitigation Efficiency (ME) – The most effective means of deriving a quantitative value of mitigated impacts is to assign each significance rating value (WOM) a mitigation effectiveness (ME) rating. The allocation of such a rating is a measure of the efficiency and effectiveness, as identified through professional experience and empirical evidence of how effectively the proposed mitigation measures will manage the impact.

Thus, the lower the assigned value, the greater the effectiveness of the proposed mitigation measures and subsequently, the lower the impacts with mitigation.

$$\text{Equation 2: Significance Rating (WM)} = \text{Significance Rating (WOM)} \times \text{Mitigation Efficiency}$$

Or

$$\text{WM} = \text{WOM} \times \text{ME}$$

Significance Following Mitigation (SFM) – The significance of the impact after the mitigation measures are taken into consideration. The efficiency of the mitigation measure determines the significance of the impact. The level of impact will, therefore, be seen in its entirety with all considerations taken into account.

F-2.2.3 Integration of Specialist's Input

In order to maintain consistency in the impact assessment, it is suggested that all potential impacts to the environment (or component of the environment under review) should be listed in a table similar to the example shown below (more than one table will be required if impacts require assessment at more than one scale). The assessment parameters used in the table should be applied to all of the impacts and a brief descriptive review of the impacts and their significance will then be provided in the text of the specialist reports and consequently in the EIR. The implications of applying mitigation are reviewed in Section F-2.2.4 below.

Table 10: Example of an Impact Table

Impact source(s)		Status	
Nature of impact			
Reversibility of impact			
Degree of irreplaceable loss of resource			
Affected stakeholders			
Magnitude	Extent		
	Intensity		
	Duration		
	Probability		
Significance	Without mitigation		
	With mitigation		

F-2.2.4 Mitigation Measures

Mitigation measures will be recommended in order to enhance benefits and minimise negative impacts and they will address the following:

- Mitigation objectives: what level of mitigation must be aimed at: For each identified impact, the specialist must provide mitigation objectives (tolerance limits) which would result in a measurable reduction in impact. Where limited knowledge or expertise exists on such tolerance limits, the specialist must make an “educated guess” based on his/ her professional experience;
- Recommended mitigation measures: For each impact the specialist must recommend practicable mitigation actions that can measurably affect the significance rating. The specialist must also identify management actions, which could enhance the condition of the environment. Where no mitigation is considered feasible, this must be stated and reasons provided;
- Effectiveness of mitigation measures: The specialist must provide quantifiable standards (performance criteria) for reviewing or tracking the effectiveness of the proposed mitigation actions, where possible; and
- Recommended monitoring and evaluation programme: The specialist is required to recommend an appropriate monitoring and review programme, which can track the efficacy of the mitigation objectives. Each environmental impact is to be assessed before and after mitigation measures have been implemented. The management objectives, design standards, etc., which, if achieved, can eliminate, minimise or enhance potential impacts or benefits. National standards or criteria are examples, which can be stated as mitigation objectives.

Once the above objectives have been stated, feasible management actions, which can be applied as mitigation, must be provided. A duplicate column on the impact assessment tables described above will indicate how the application of the proposed mitigation or management actions has reduced the impact. If the proposed mitigation is to be of any consequence, it should result in a measurable reduction in impacts (or, where relevant, a measurable benefit).

F-2.3 Approach to the Assessment of Cumulative Impacts

Cumulative impacts can arise from one or more activities. A cumulative impact may result in an additive impact i.e. where it adds to the impact which is caused by other similar impacts or an interactive impact i.e. where a cumulative impact is caused by different impacts that combine to form a new kind of impact. Interactive impacts may be either countervailing (the net adverse cumulative impact is less than the sum of the individual impacts) or synergistic (the net adverse cumulative impact is greater than the sum of the individual impacts).

Possible cumulative impacts of the project will be evaluated in the EIR. In addition, various other cumulative impacts e.g. other external impacts that could arise from the project will be further investigated in the EIR phase of the project.

The assessment of cumulative impacts on a study area is complex; especially if many of the impacts occur on a much wider scale than the site being assessed and evaluated. It is often difficult to determine at which point the accumulation of many small impacts reaches the point of an undesired or unintended cumulative impact that should be avoided or mitigated. There are often factors which are uncertain when potential cumulative impacts are identified.

F-2.3.1 Steps in Assessing Cumulative Impacts

The assessment of cumulative impacts will not be done separately from the assessment of other impacts. Cumulative impacts however, tend to have different time and space dimensions and therefore require specific steps. This may even mean that some of the actions in the assessment process, that preceded general impact

identification, may have to be revisited after potential cumulative impacts have been identified. This will ensure that the scope of the EIR process is adequate to deal with the identified cumulative impacts.

Three (3) general steps, which are discussed below, will be recommended to ensure the proper assessment of cumulative impacts.

F-2.3.2 Determining the Extent of Cumulative Impacts

To initiate the process of assessing cumulative impacts, it is necessary to determine what the extent of potential cumulative impacts will be. This will be done by adopting the following approach:

- Identify potentially significant cumulative impacts associated with the proposed activity;
- Establish the geographic scope of the assessment;
- Identify other activities affecting the environmental resources of the area; and
- Define the goals of the assessment.

F-2.3.3 Describing the Affected Environment

The following approach is suggested for the compilation of a description of the environment:

- Characterise the identified external environmental resources in terms of their response to change and capacity to withstand stress;
- Characterise the stresses affecting these environmental resources and their relation to regulatory thresholds; and
- Define a baseline condition that provides a measuring point for the environmental resources that will be impacted on.

F-2.3.4 Assessment of Cumulative Impacts

The general methodology which is used for the assessment of cumulative impacts should be coherent and should comprise of the following:

- An identification of the important cause-and-impact relationships between proposed activity and the environmental resources;
- A determination of the magnitude and significance of cumulative impacts; and
- The modification, or addition, of alternatives to avoid, minimise or mitigate significant cumulative impacts.

F-3 PUBLIC PARTICIPATION PROCESS DURING THE ENVIRONMENTAL IMPACT REPORTING PHASE

F-3.1 Stakeholder Engagement

All I&APs registered on the project's database will be kept informed of the EIA process. Notification letters will be submitted informing all registered I&APs of the availability of draft and final EIR and EMPs for review and comment.

All comments and/or concerns received via telephone, fax, email or post will be incorporated into a CRR and included within the Final EIR. All correspondence received will be acknowledged.

F-3.2 Public Review of the Draft Environmental Impact Report

It is proposed that the Draft EIR will be available for comment from around November 2014. The report will also be available on SEF's website (www.sefsa.co.za).

F-3.3 Public Review of the Final Environmental Impact Report

It is proposed that the Final EIR will be available for comment at the public venue from around January 2015. The report will also be available on SEF's website (www.sefsa.co.za). The public review period of the final report will run concurrently with the submission of the final report to the DEA for consideration towards environmental authorisation.

SECTION G: CONCLUSION AND RECOMMENDATIONS

In accordance with GN No. R 543, the Draft Scoping Report for the proposed development is aimed at describing the proposed activity and those reasonable alternatives that have been identified, as well as the receiving environment that may be affected by the proposed project. In accordance with the EIA Regulations, an identification of relevant legislation and guidelines was also given, as well as a description of the public participation process that was and will be followed.

In conclusion, the Draft Scoping Report established the scope of the proposed project throughout its phases, as well as its key impacts on the receiving and surrounding environments. The project motivation has also been described. The Draft Scoping Report also sets out the proposed scope of the EIR phase that will be undertaken for the proposed project (Section F).

Comments and/or concerns identified by I&APs during the review period of the Draft Scoping Report will be incorporated into the Final Scoping Report for further investigation during the EIR phase to follow. The Final Scoping Report and PoS for the EIR phase will be submitted to the DEA for consideration. All comments received on the Final Scoping Report will also be forwarded to the DEA for consideration.

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SECTION I: APPENDICES

Appendix 1: Locality Map

Appendix 2: Photograph plate

Appendix 3: Authority Correspondence

Appendix 4: Public Participation

Appendix 5: EAP Details

Appendix 6: Background Information/Specialist Studies