

Air Products South Africa (Pty) Ltd (Air Products) proposes to construct and operate an acetylene gas production facility at a site located in Daleside, south of Johannesburg in Gauteng (hereafter referred to as the 'Project').

Environmental Resources Management Southern Africa (Pty) Ltd (ERM) has been appointed by Air Products as the independent environmental assessment practitioner (EAP) to undertake the Environmental Impact Assessment (EIA) process for the Project. The purpose of this EIA process is to identify and assess potential environmental and social impacts associated with construction, operation, and decommissioning of the Project so that they can be appropriately managed.

This Draft Environmental Impact Report (EIR) has been compiled as part of the EIA process in accordance with regulatory requirements stipulated in the EIA Regulations promulgated in terms of Section 24(5) of the National Environmental Management Act (NEMA) (Act No. 107 of 1998), as amended.

## **1.1**

### **PROJECT OVERVIEW**

Acetylene gas ( $C_2H_2$ ) is a chemical compound, which has no odour or colour in its purest form. It is used amongst various industrial sectors as a fuel or chemical building block. The key markets for acetylene gas includes the automotive, petrochemical, paper, steel and food and beverage industries.

The Project will produce acetylene gas from mixing calcium carbide ( $CaC_2$ ) with water. This mixture results in an exothermic reaction, where acetylene gas is released. The Project will be developed in a phased approach, with two defined phases:

- Phase 1: one generator vessel, six compressors and two filling halls with a total production capacity of 7 200 m<sup>3</sup>/day;
- Phase 2: one additional generator vessel with an additional two filling halls and six compressors with a production capacity of 7 200 m<sup>3</sup>/day.

The Project will therefore produce a maximum of 14 400m<sup>3</sup> of acetylene gas per day and will comprise the following components:

- turn bins, used to store and feed the calcium carbide into the system;
- generator vessel, where the reaction takes place to produce the acetylene gas;

- heat exchanger to cool down the acetylene gas. Chilled water is used as the cooling medium;
- ammonia scrubber, to remove impurities from the acetylene gas;
- low pressure dryer to remove moisture from the acetylene gas;
- compressors are used to compress the gas to approximately 2400kPa;
- pressure swing adsorption system to remove excess moisture in the gas before it is filled into cylinders; and
- storage vessels for the nitrogen and acetone.

Associated infrastructure required as part of the Project include an administration office, a workshop, a one-way ring road and sludge tanks and pits for the calcium hydroxide (Ca(OH)<sub>2</sub>) slurry, which is a by-product of the gas production process.

## 1.2

### *PROJECT LOCATION*

The proposed acetylene gas production facility is planned to be situated in the Midvaal Local Municipality, which falls within the jurisdiction of the Sedibeng District Municipality in Gauteng. The proposed location is approximately 7km north of Meyerton and situated between the M61 (Springbok Road) and the R59 highway. Refer to *Figure 1.1* for the regional Project location and *Figure 1.2* for the site location.

The proposed site will be a consolidated property including Stands 88 and 89 of Valley Settlements Agricultural Holdings in Daleside (the site) and is approximately 4ha in area. The coordinates for the proposed site is 26° 30' 23.97''S and 28 °03' 10.44''E.

Figure 1.1 Regional Locality Map

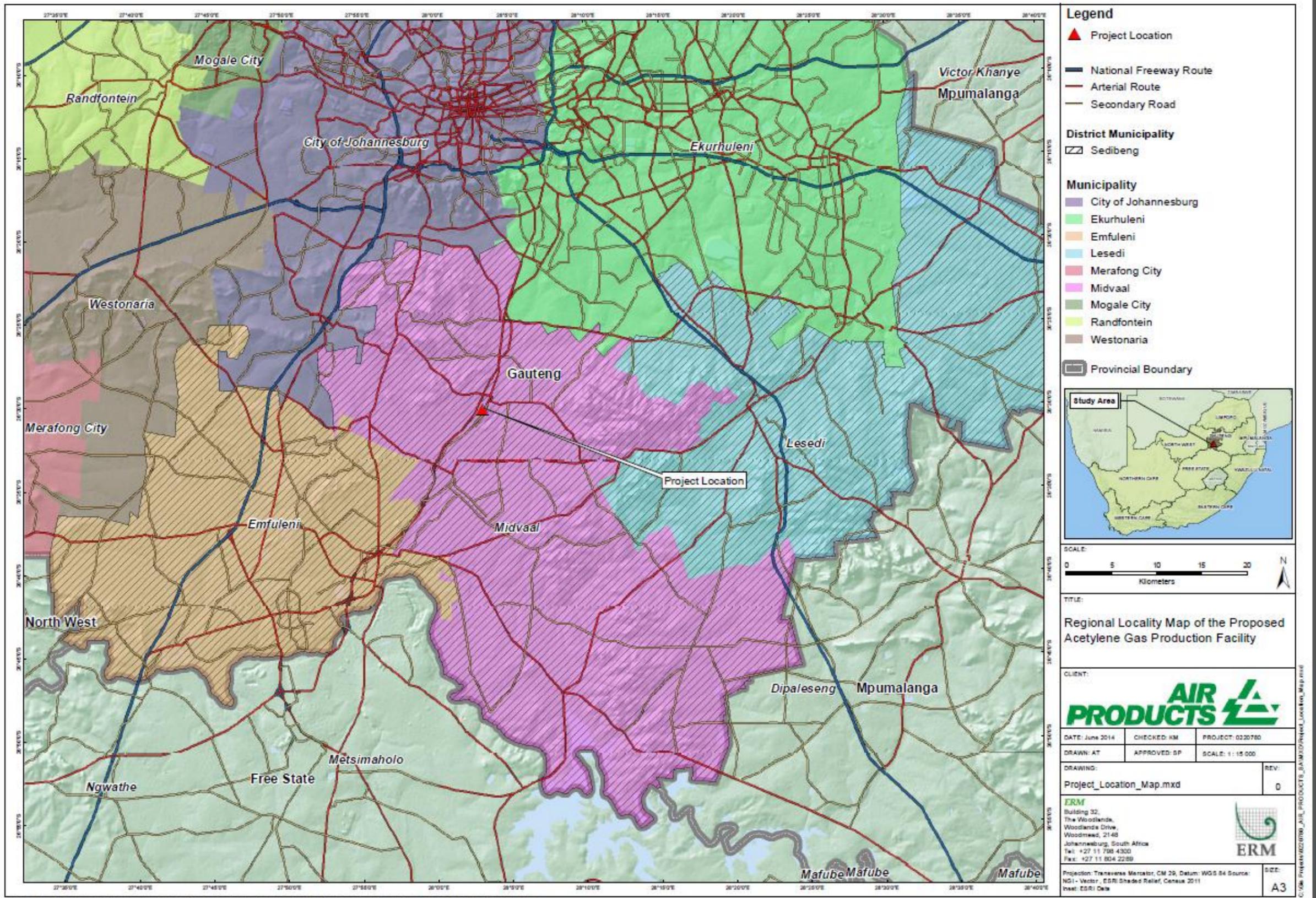
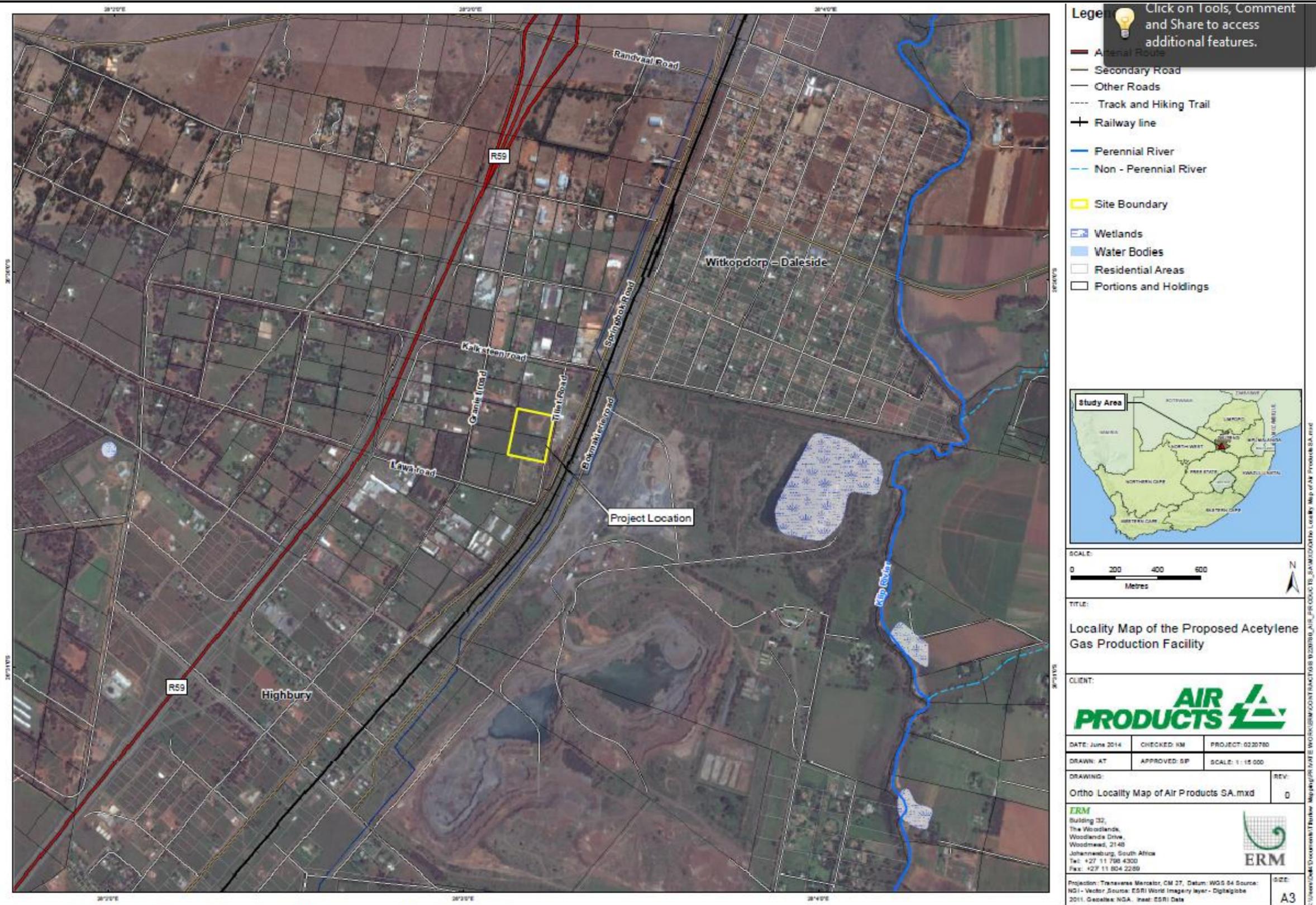


Figure 1.2 Site Project Location



### 1.3

#### *PURPOSE OF THIS REPORT*

An EIA is a planning and management tool used to predict and evaluate potential negative and positive impacts of a proposed activity/development. The function of the EIR, is to help the competent authority in making informed decisions, the public in understanding the likely impacts of the project and the proponent in managing these impacts (UNEP, 2002). An EIA study entails an assessment of these potential project impacts on the biophysical and social environments (including communities and workers). This information is used to develop management measures to avoid, reduce or enhance potential project impacts and to develop an environmental management structure. This DEIR report provides the findings of this assessment.

The information contained in this DEIR along with comments and inputs received from all project stakeholders including commenting authorities will assist the competent authority, the Gauteng Department of Agriculture and Rural Development (GDARD) in deciding whether or not to grant an Environmental Authorisation (EA).

The objectives of this report are therefore to:

- communicate the findings of the EIA for this Project;
- provide a record of comments and responses received from Interested and Affected Parties (I&APs) during the EIA process; and
- facilitate an informed, transparent and accountable decision-making process by the relevant authorities.

### 1.4

#### *THE PROJECT APPLICANT*

The project proponent is Air Products, a registered private company on the basis of a 50/50 joint venture between Air Products, Chemicals INC and Metkor Group Holdings, a quoted company on the Johannesburg Stock Exchange (JSE).

The company manufactures, supplies and distributes a wide variety of industrial and specialty gas products and chemicals to the Southern African region. Products include hydrogen, chlorine, ammonia and methane. Air Products currently operates a total of nine facilities across South Africa with headquarters in Kempton Park. The company is certified for quality, environmental and health and safety management systems (ie ISO 9000, ISO 14001 and ISO 18001) and is also rated 5 Star by the National Occupational Safety Association (NOSA).

## 1.5 *DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER*

### 1.5.1 *ERM Southern Africa*

ERM is a global environmental consulting organisation employing over 5,000 people with 150 offices in 40 countries worldwide. Founded in 1971, ERM has built an organisation based on the supply of a full range of environmental and social policy, scientific, technical, and regulatory expertise. ERM's primary focus is to provide quality work and service to our clients in these areas.

From a regional perspective, ERM has been involved in numerous projects in Africa over the past 30 years and in 2003 established a permanent presence in Southern Africa to meet the growing needs of our clients. The Southern African ERM offices are based in Cape Town, Johannesburg and Durban. ERM Southern Africa has a staff complement of 160 comprising dedicated environmental professionals offering expert skills in EIA, EMP, EMS, risk assessment, EHS management and auditing, corporate social responsibility and socio-economic impact assessment, climate change services, specialist groundwater services as well as contaminated site management.

### 1.5.2 *EIA Project Team*

The project team includes ERM consultants, support staff and external specialists. A list of the key EIA project team is provided in *Table 1.1* below, together with the associated qualifications and experience. Details of the external specialists that form part of the team are provided in *Section 3*. Details of ERM's core project team are provided below.

ERM and appointed specialists have no financial ties to, nor are they a subsidiary, legally or financially, of Air Products. Remuneration for the services by the applicant (Air Products) in relation to this EIA is not linked to an approval by the decision-making authority. Furthermore, ERM has no secondary or downstream interest in the development.

*Table 1.1 ERM Core Project Team*

Name	Sue Posnik
Role	Partner in Charge
Qualifications	BA Hons (Geography)
Years of Experience	25 years
Summary	Sue Posnik, a Partner of ERM Southern Africa, has worked in the environmental field for over 25 years, consulting extensively to a variety of industry in South Africa and globally. She has been involved in a number of projects in the power and manufacturing sectors. Sue's experience spans many disciplines and she has been recognised in the fields of sustainable development, air quality, waste management, environmental and social impact assessment, stakeholder engagement, environmental management systems and environmental auditing. Sue was part of the core team that developed the South African National Environmental Policy and she has advised large companies at corporate level on sustainability and environmental management.

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Name	Melissa Naidoo
Role	Project Manager
Qualifications	BSc (Earth Science) BSc Hons (Environmental Management)
Years of Experience	8 years
Summary	Melissa's key experience lies in environmental management with a focus on environmental planning, environmental authorisation processes, including public participation and environmental compliance monitoring. In particular, Melissa has worked extensively on attaining Environmental Authorisation's at a local and regional level. Furthermore, Melissa has previously supported provincial governments with the review and approval of environmental licencing applications.

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Name	Lisa Otten
Role	Project Consultant
Qualifications	BSc (Environmental Science and Ecology) BSc (Hons) Environmental
Years of Experience	2 years
Summary	Lisa Otten is an Environmental Consultant at ERM Southern Africa. Lisa has gained significant experience in undertaking environmental regulatory processes for various clients within the Gauteng region. Lisa has worked primarily within the oil and gas and manufacturing sectors.

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## 1.6

### *REPORT STRUCTURE*

The EIA report is presented in ten chapters as follows:

- **Chapter One:** Introduction containing a description of the project, project location, the project applicant and outlines the purpose of the DEIR;
- **Chapter Two:** Administrative framework containing a description of the relevant South African legislation and policies;
- **Chapter Three:** Description of the EIA process and approach;
- **Chapter Four:** Description of proposed project activities containing the technical elements of the proposed acetylene gas facility from design through construction and operation;
- **Chapter Five:** Project justification, consideration of alternatives and description of envisaged sustainability aspects;
- **Chapter Six:** Description of existing biophysical conditions within the Project-affected area;
- **Chapter Seven:** Description of existing socio-economic conditions within the Project-affected area;

- **Chapter Eight:** Potential environmental and socio-economic impacts containing a discussion on the impact assessment approach and the associated and potential cumulative impacts;
- **Chapter Nine:** Impact summary and EAP recommendations; and
- **Chapter Ten:** References

**1.7 OPPORTUNITY TO COMMENT ON THIS DRAFT EIA REPORT**

All registered Interested and Affected Parties (I&APs) and relevant authorities have been informed of the release of this Draft Environmental Impact Assessment Report (DEIR) via a notification letter.

This DEIR has been made available at the following locations for review:

**Table 1.2 Location of the DEIR**

Location	Contact
Henley on Klip Public Library Cnr of Regatta Road and Nuneham Henley on Klip	Mary Walker (016 366 0112)
Randvaal Public Library Houtkapper Road Randvaal	Moira Frost (016) 365 5093
Project Website: <a href="http://www.erm.com/AirproductsEIA">http://www.erm.com/AirproductsEIA</a>	Lisa Otten (011) 798 4300

The public review and commenting period for this DEIR commences on **01 July 2014** and concludes on **01 August 2014**. I&APs are requested to forward any comments, concerns and/or queries to Environmental Resources Management Southern Africa (Pty) Ltd at the contact details provided below.

**ENVIRONMENTAL RESOURCES MANAGEMENT  
SOUTHERN AFRICA (ERM)**

**ATTENTION: LISA OTTEN**

**GDARD REFERENCE: 002/13-14/E0239**  
**SEDIBENG DM: AEL 0002/2014**

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**PROJECT WEBSITE: <http://www.erm.com/AirproductsEIA>**