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ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT

**Prima Industrial Holdings:
Environmental Authorisation and
Atmospheric Emission Licence
Applications in Ekurhuleni,
Benoni South, Gauteng Province**

GDARD Reference No: to be obtained

**Report No: 16111-46-Rep-001-Prima EMPr-
Rev0**

Submitted to:

Gauteng Department of Agriculture and Rural
Development
P.O. Box 8769
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ACTION	DESIGNATION	NAME	DATE	SIGNATURE
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LIST OF ACRONYMS

Acronym	Description
BA	Basic Assessment
BAR	Basic Assessment Report
CA	Competent Authority
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
EO	Environmental Officer
GDARD	Gauteng Department of Agriculture and Rural Development
GISSA	Geo-Information Society of South Africa
IAIA	International Association for Impact Assessment
MS	Method Statement
NACA	National Association for Clean Air
NEMA	National Environmental Management Act 107 of 1998 (as amended)
NEMWA	National Environmental Management Waste Management Act 59 of 2008
NWA	National Water Act 36 of 1998
OHS	Occupational Health and Safety Act 85 of 1993
PAIA	Promotion of Access to Information Act 2 of 2000
PLATO	South African Council for Professional and Technical Surveyors
PM	Project Manager
PPE	Personal Protection Equipment
PPP	Public Participation Process
SACNASP	Natural Scientist with the South African Council for Natural Scientific Professions

GLOSSARY OF TERMS

Term	Description
Environment	Environment means 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 well-being.
Environmental Aspect	Element of an organization's activities or products or services that can interact with the environment.
Environmental Assessment Practitioner	Individual responsible for the planning, management, coordination or review of Environmental Impact Assessments, Strategic Environmental Assessments, Environmental Management Programmes or any other appropriate environmental instruments introduced through regulations.
Environmental Impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's environmental aspects.
Interested and Affected Party	Interested and Affected Party for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, means an interested and affected party contemplated in Section 24(4)(a)(v) of the NEMA and which includes - a) Any person, group of persons or organisation interested in or affected by such operation or activity; and b) Any organ of state that may have jurisdiction over any aspect of the operation or activity.
Pollution	Pollution means any change in the environment caused by - (i) substances; (ii) radioactive or other waves; or (iii) noise, odours, dust or heat, emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, 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 will have such an effect in the future.

1 INTRODUCTION AND BACKGROUND

Prima Industrial Holdings (Pty) Ltd, hereinafter known as Prima, is a foundry which has offered more than 60 years of service to the local and international mining, crushing, and extraction industries. They specialize in designing and manufacturing of manganese steel castings for a range of industries.

Prima produces ferrous castings by pouring molten metal into moulds, with cores to create hollow internal sections. After the metal has cooled, the casting is separated from the mould and undergoes cleaning and finishing.

Scrap steel along with ferro-alloys (FeMn, FeCr, FeSi) are loaded into electric arc furnaces and smelted. The molten metal is then tapped into a ladle which is used to pour into chrome sand moulds. The moulds are made up of chrome sand mixed with either Phenolic Resin or bentonite. Once the molten metal has set, the casting is removed from the moulds at the shakeout station. Following shakeout, the castings are sent for heat treatment and finishing. Waste generated from the process include broken and/or damaged mounds and cores, spent foundry sand, slag from the melting process, used electrodes, waste quenching water and scale. Air emissions from the process include fumes from the smelting and pouring processes, fugitive dust emissions from the metals storage scrapyard, unpaved roads in the plant, sand reclamation yard and materials handling activities on site.

Prima intends to refurbish an old sand reclaiming plant for the installation and operation of the new Silica Sand Plant and new Silica Shot Blast Unit, including new stacks within Prima property. The Basic Assessment (BA) process is being undertaken for only the proposed upgrade, i.e. installation and operation of a new Silica Sand Plant and new Silica Shot Blast Unit. Two (2) additional stacks will be installed within the boundary of the existing operational area.

The purpose of this Basic Assessment (BA) application is to obtain an Environmental Authorisation (EA) for the proposed upgrade and an Atmospheric Emission Licence (AEL) for both existing operations (Prima's operational activities since 1937) and the proposed upgrade at Prima.

2 GENERAL OBJECTIVES AND PURPOSE OF EMPr

Prima will be required to:

- Manage and operate their activities with due care and diligence;
- Avoid and/or limit any adverse impacts they may have on the environment by the proper design and construction of the proposed development;
- Control predicted impacts that may occur so as to meet acceptable standards, both as a legal and a moral responsibility to the environment within which they operate; and

- Ensure transparency in their operation and environmental management of the site.

This Environmental Management Programme (EMPr) serves as a stand-alone document to be issued to and used by Prima (applicant), the contractor/s, sub-consultants and project managers (PMs) /supervisors during the construction and operational phases of the project. By its very nature, the EMPr is a dynamic document and updating may be required over the life of the development.

3 DOCUMENT ROADMAP

The EMPr document has been structured and collated to conform to Section 19(4) read with Appendix 4 of the National Environmental Management Act 107 of 1998 (NEMA) (as amended) Environmental Impact Assessment (EIA) Regulation 2014. The relevant document parts which addresses each of the aspects provided in Appendix 4 of the NEMA EIA Regulation 2014 is provided in **Table 3-1**. This has been done to ensure that the Competent Authority (CA), i.e. Gauteng Department of Agriculture and Rural Development (GDARD) is provided with a comprehensive document that can be translated into a working / dynamic document during the Construction and Operational Phases of the proposed project.

Table 3-1: Document Roadmap

Relevant regulation, stipulation or condition		Relevant Document Part
Appendix 4		
1. An EMPr must comply with section 24N of the Act and include-		
(a)	details of -	
	(i) the EAP who prepared the EMPr; and	Section 5
	(ii) the expertise of that EAP to prepare an EMPr, including curriculum vitae;	Section 5
(b)	a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 4
(c)	prepared map at an appropriate scale which superimpose the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Section 4
(d)	assessment description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	
	(i) Planning and design;	Section 10
	(ii) Pre-construction activities;	Section 10
	(iii) Construction activities	Section 10
	(iv) Rehabilitation of the environment after construction and where applicable post closure; and	Section 17
	(v) Where relevant, operational activities	Section 10
(e)	a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 10

Relevant regulation, stipulation or condition		Relevant Document Part
(f)	a description of the proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to-	
(i)	Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	Section 10 & 15
(ii)	Comply with any prescribed environmental management standards or practices;	Section 7
(iii)	Comply with any applicable provisions of the Act regarding closure, where applicable; and	Not applicable
(iv)	Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Not applicable
(g)	the method of monitoring the implantation of the impact management actions contemplated in paragraph (f);	Section 10, 14, 15 & 16
(h)	the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 15
(i)	an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 9 & 15
(j)	the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 15
(k)	the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 11 & 15 & 16
(l)	a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 16
(m)	an environmental awareness plan prescribing the manner in which-	
(i)	The applicant intends to inform his or her employees of any environmental risk which may result from their work; and	Section 13
(ii)	Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 15
(n)	any specific information that may be required by the competent authority	Not Applicable

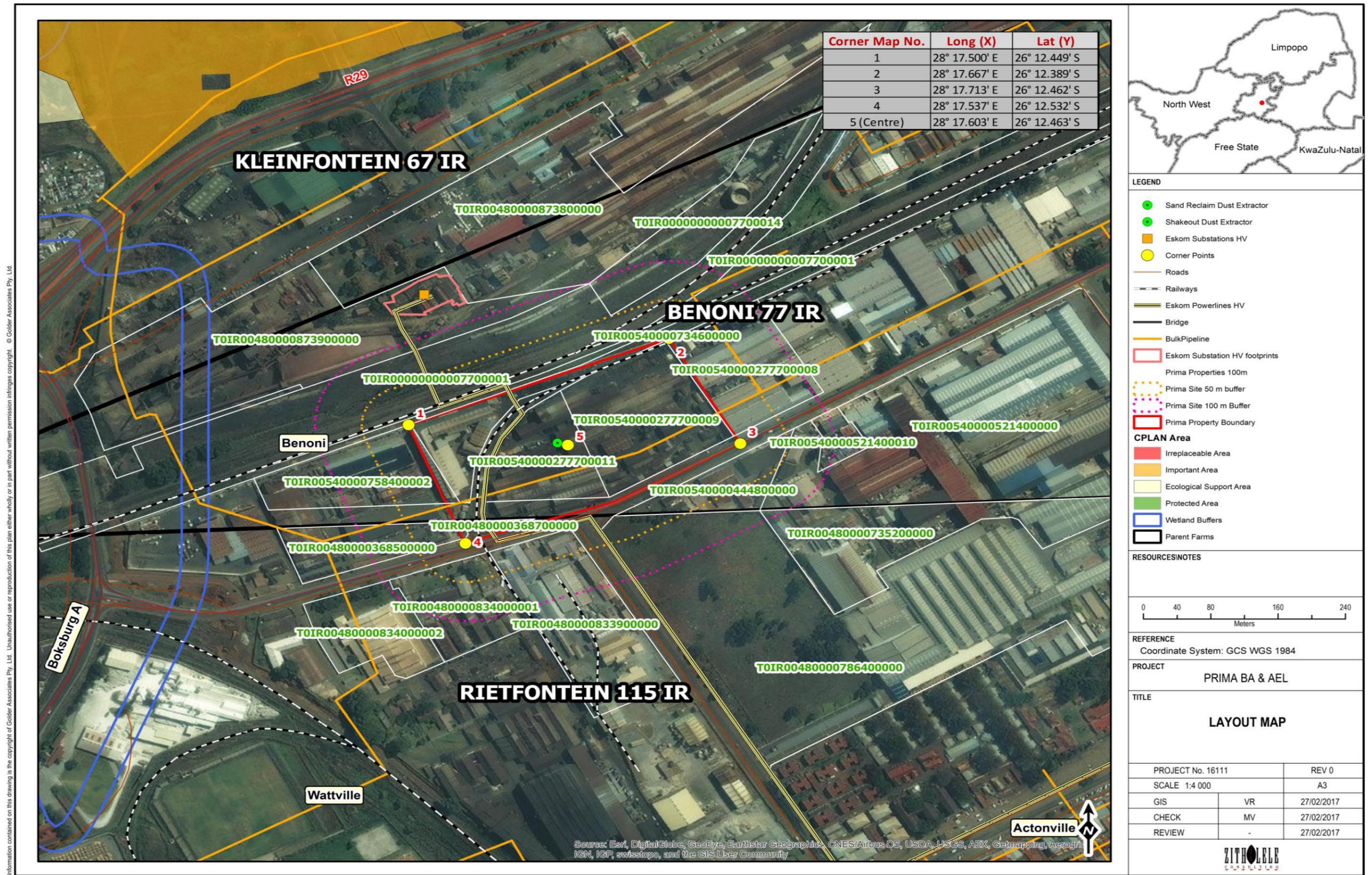
4 PROJECT DESCRIPTION

4.1 Study Area

The proposed project is located on Stands 9/2777, 11/2777, 3929 and 8403 (Centre Coordinates: -26.207723°S, 28.293378°E) of the Nestadt Industrial Sites in Benoni South, Gauteng Province (refer to **Figure 4-1** and **Figure 4-2** for the Locality and Layout maps). The properties are located along the Lincoln Road to the east of Atlas and Van Dyk Road(s) in Benoni (Physical address of the plant: 28 Lincoln Rd, Benoni, 1501) within the Ekurhuleni Metropolitan Municipality (EMM), refer to **Figure 4-3**. The properties fall within an urban area and are approximately 45 ha in extent. The current land use zoning is industrial. The project site is an existing “brownfields site”.

Surrounding land uses include related commercial / industrial undertakings (e.g. factories producing industrial products). The project site is accessible from the east via an entrance on Lincoln Road. Foundry operations have been taking place on the property since 1937 and the

biophysical environment has been significantly impacted on by historic and current anthropogenic impacts (industrial establishments, residential establishments, etc.).



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Z:\Projects\16111- Prima BA & AEL\7 Drawings\77 Environmental\02 MXD\Exemption Application\16111-77-Map-002-Prima Layout Map A3-Rev0.mxd

Figure 4-2: Layout Map
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4.2 Project Activities

Prima intends to refurbish an old sand reclaiming plant for the installation and operation of the new Silica Sand Plant and new Silica Shot Blast Unit, including new stacks within Prima property. The Basic Assessment (BA) process is being undertaken for only the proposed upgrade, i.e. installation and operation of a new Silica Sand Plant and new Silica Shot Blast Unit. Two (2) additional stacks will be installed within the boundary of the existing operational area. Replacing the existing sand reclaiming plant with the installation and operation of the new Silica Sand Plant as well as installation and operation of a new Silica Shot Blast Unit within Prima property will comprise of the following:

- Replacements of an existing Green Sand reclaim Plant;
- Installation of a new Silica Sand Plant ~ 1 850 m² footprint;
- Installation of a new Silica Shot Blast Unit within 1- 2 years ~ 69.3 m² footprint;
- Installation of two dust extraction units (for existing Shakeout Station and Sand Reclamation plant) comprising of an additional emission stack, and refurbishment and relocation of an existing emission stack;
- Installation of a new filter cartridges on the Shakeout station for the proposed Silica Sand Plant;
- Mixing of sand (comprising of reclaimed silica sand, phenolic resin and acid catalyst); and
- Operations of the new Silica Sand Plant and Silica Shot Blast Unit.

The existing infrastructure and/or processes on site have been in place since 1937, prior to the promulgation of the South African environmental legislation. Therefore, these activities predate the requirement for authorisation and are not covered in this BA process.

Refer to **Figure 4-4** and **Figure 4-5** for process flow diagram for the operation of new silica sand and new silica shot blast unit process flow diagrams respectively.

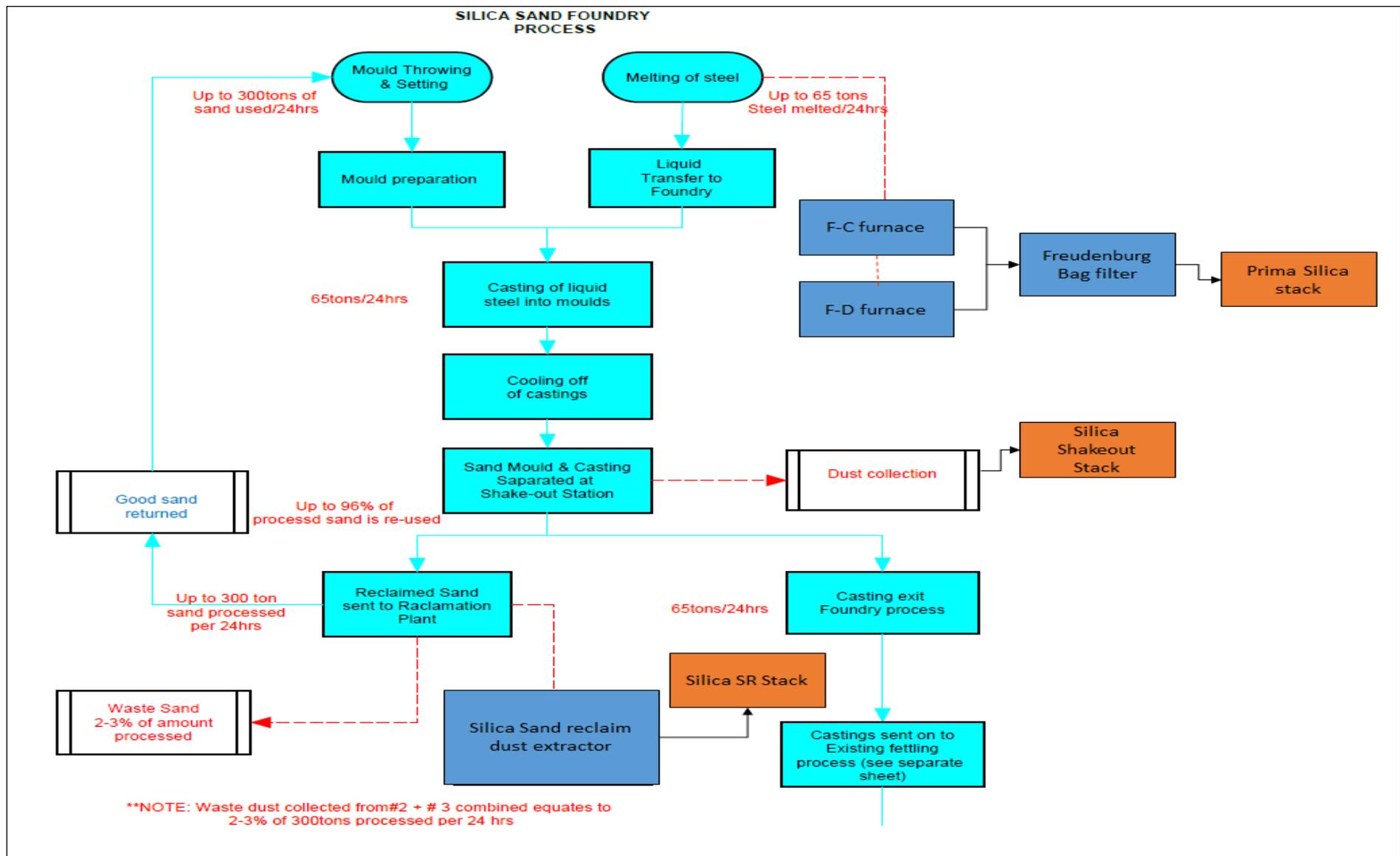


Figure 4-4: Process flow for the proposed New Silica Sand Plant.

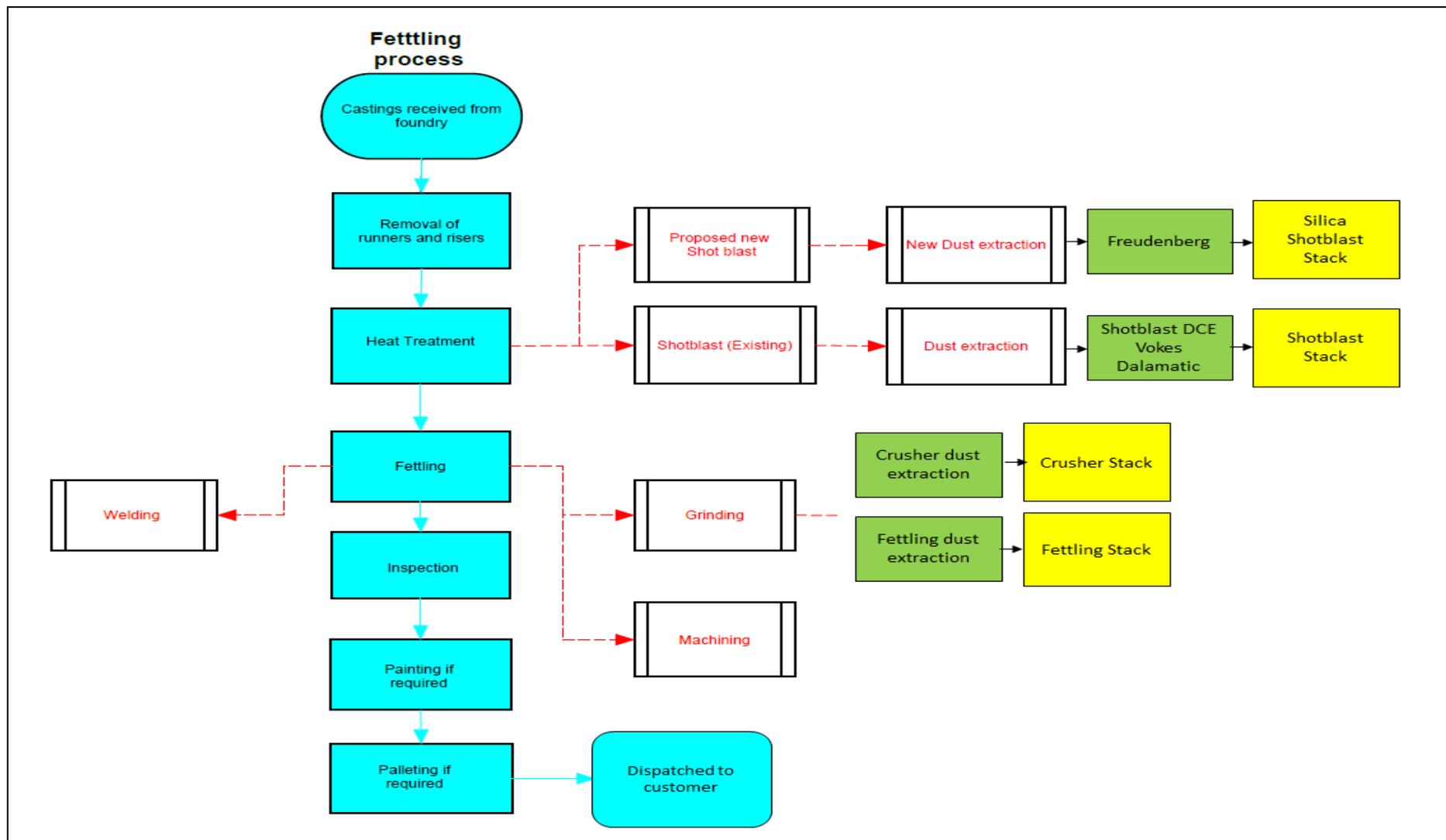


Figure 4-5: Process flow for the proposed New Silica Sand Plant.

4.3 Existing activities

The foundry operation consists of these six (6) principle steps

- **Obtaining the casting geometry** - The casting geometry is obtained by sending blueprint drawings to the foundry, or computer aided designs are utilized.
- **Pattern making** - The pattern is a physical model of the casting that will be used to make the mold. The mold is made by packing sand material around the pattern. When the pattern is withdrawn, the imprint provides the mold cavity, which is filled with metal to become the casting. If the casting needs to be hollow, then cores are patterned and used to form these hollow cavities.
- **Core-making** - Cores are forms, usually made of sand, which are placed into a mold cavity to form the interior surfaces of castings. The void space between the core and mold-cavity surface is what eventually becomes the casting.
- **Molding** - The molding consists of all the operations necessary to prepare a mold for receiving the molten metal. Molding involved placing a molding aggregate (compacted sand) around a pattern held with a support frame. The pattern is then removed to leave the mold cavity, setting the cores in the mold cavity and finishing and closing the mold.
- **Melting and Pouring** - The preparation of molten metal for casting is referred to as melting. Melting is done in several specifically designated areas of the foundry, where the furnaces are located. Prima foundry melts scrap metal and ferrous alloys. The molten metal is transferred to the pouring area where the molds are filled.
- **Shake-out / Cleaning** - Cleaning refer to all activities that remove the sand, scale and excess metal from a casting. The casting is separated from the mold and transported to the cleaning department. Burned-on sand and scale are removed to improve the surface appearance of the casting. Excess metal is also removed by blasting or grinding.

4.4 Description of Project Component

4.4.1 Pre-Construction and Construction process for the proposed development

A description of the activities which forms part of replace an old sand reclaiming plant with the installation and operation of the new Silica Sand Plant is provided below.

- **Pit for sand processing and pumping:** This pit shall be excavated (~219 m³) by manual and mechanical means where possible. During this process, any ground water shall be pumped into the municipal sewer unless it can be used as part of our production process i.e. water quenching of our castings.
- Sand removed from the pit shall be used as filling material in other parts of the premises or properly disposed of if there is no use for it. A waterproof plastic membrane shall be installed by Gundle Plastics followed by reinforced steel as per the design of the

structural engineer. The concrete floor- and side wall shall then be cast where after the surrounding concrete floor shall be cast.

- **Concrete support plinths:** The excavation for these plinths shall be by manual means and the same procedure as in “1” shall apply. There would however not be any membrane installed.
- **Holding silo’s and related steelwork:** All these would be fabricated off-site at the premises of the various contractors and thereafter be transported to our site where after it would be assembled and erected by sub-contractors by means of a mobile crane.
- An existing storage silo shall be modified for use in the new process. This silo shall not be moved in any way as it is one that was in use for our previous reclaim plant. The modification is limited to installation of separation plates on the inside of the silo as well as the modifications to the sand in- and outlets. Further modifications will be a new coat of paint.
- **Dust extraction units:** Existing unit destined for the shake-out station shall be dismantled, serviced and re-erected by our own personnel with the help of a mobile crane. Once erected, this unit shall be inspected for compliance by Freudenberg, the original manufacturer and commissioned and performance tested once we have received permission from the authorities to start the plant. The new unit for the reclaim part of the plant shall be erected by our own personnel under supervision from Freudenberg. Thereafter the same will apply as in the case of the shake-out dust extractor
- **Other equipment:** All other equipment will be installed and assembled by sub-contractors or by our own personnel where possible. Where necessary, either a mobile crane or one of our existing overhead cranes shall be used for installation and assembly.
- **Electrical equipment:** Electrical control gear and power- and control cables shall be installed by our own personnel where after the system will be calibrated, tested and commissioned by the engineers of the equipment supplier.

The construction phase for the proposed project will take approximately two (2) months.

4.4.2 Operational activities

During the operational and maintenance phase of the project, the applicant will ensure that operation and maintenance activities are carried out by suitable qualified individual as the activities are specialised.

4.4.3 Decommissioning activities

Prima will remain operational for the unforeseeable future. However, decommissioning of the proposed activities will include reversal of the construction activities. Necessary authorisations for the decommissioning phase will be acquired nearing the time and prior to commencement with decommissioning activities.

5 DETAILS AND EXPERTISE OF ENVIRONMENTAL ASSESSMENT PRACTITIONER

In terms of the National Environmental Management Act, (Act 107 of 1998) as amended (NEMA) and EIA Regulations (2014), the Proponent/Applicant must appoint an Environmental Assessment Practitioner (EAP) to undertake a BA and/or Public Participation Process (PPP) for listed activities regulated in terms of the aforementioned act. In this regard, Prima has appointed Zitholele Consulting (Pty) Ltd (Zitholele) as the EAP on this project to undertake the BA process for the proposed project, in accordance with the aforementioned regulations.

Zitholele is an empowerment company formed to provide specialist consulting services primarily to the public sector in the fields of Water Engineering, Integrated Water Resource Management, Environmental and Waste Services, Communication (public participation and awareness creation) and Livelihoods and Economic Development.

Zitholele Consulting has no vested interest in the proposed project and hereby declares its independence as required by the EIA Regulations (2014).

This EMPr report has been compiled by the following persons who have the relevant expertise and experience in environmental management (see attached CV in **Appendix A**):

Table 5-1: Details of EAP on this project

Project Manager and EAP:	Virginia Ramakuwela
Company Represented:	Zitholele Consulting (Pty) Ltd
Professional affiliation/registration:	SACNASP Registered – Registration number: 100150/14 PLATO Registered – Registration number: GT1494
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Virginia Ramakuwela is the designated PM on behalf of Zitholele. Virginia will ensure regulatory compliance, quality assurance and overseeing the Technical Environmental Team. Virginia holds a BSc. (Hons) degree in Environmental Analysis & Management from the University of Pretoria (2010). She is registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP), (Cand. Sci. Nat. 100150/14) as well as the South African Council for Professional and Technical Surveyors (PLATO) as a GISc Technician (GT1494). Virginia is also a member of the International Association for Impact Assessments (IAIA), National Association for Clean Air (NACA) and Geo-Information Society of South Africa (GISSA).

Virginia has 5 years of experience in environmental consulting, Environmental Management and Environmental Impacts Assessment processes in South Africa. Her experience spans

both the public and private sector. She is ideally skilled and experienced to manage this project to its conclusion.

Virginia is working under the supervision of an experienced Senior EAP, Mrs Sharon Meyer. Sharon has 17 years of experience in environmental consultant and is registered as a Professional Natural Scientist (*Pr. Sci. Nat.*) with SACNASP.

6 DETAILS OF PROJECT PROPONENT

The details of the project proponent are provided in **Table 6-1** below.

Table 6-1: Proponent's details

Applicant name:	Prima Industrial Holdings (Pty) Ltd
Company Registration number:	1953/000402/07
Contact person:	Mr Kobus Jacobs
Responsible position:	Engineer
Physical address:	28 Lincoln Road, Benoni.
Postal address:	P.O.Box 282, Benoni, 1500
Telephone:	011 421 6911
Cell:	083 237 7609
Fax:	011 845-3809
E-mail:	k.jacobs@primaindustrial.co.za

7 LEGISLATIVE FRAMEWORK

7.1 Legislative Requirements for the EMPr

In terms of Section 19(4) read with Appendix 4 of the Environmental Impact Assessment Regulations, 2014 (EIA Regulations); the EMPr must comply with Section 24N of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) as amended and include.

The implementation of the EMPr for the proposed activity is a requirement by the NEMA EIA Regulations (2014) and is likely to similarly be a condition in the Environmental Authorisation (assuming such), issued by the GDARD. As such, failure to comply with this EMPr will constitute an offence and the client and their Contractor may be liable to penalties and/or legal action. Therefore, it is important for all the responsible parties to understand their duties and undertake them with duty and care.

7.2 Other Applicable Legislation

The applicant is responsible for compliance with the provisions for duty of care and remediation of damage in accordance with Section 28 of NEMA and its obligations regarding

the control of emergency incidents in terms of Section 30 of NEMA. Accordingly, the GDARD must immediately be notified of an incident as defined in subsection 30(1) (a) of NEMA.

Various environmental legislation and policies relate to the proposed activities, including the following listed in **Table 7-1**.

Table 7-1: List of Applicable Legislation

Title of legislation, policy or guideline:	Applicability to the Project	Administering authority:	Promulgation Date:
The Constitution of the Republic of South Africa (Act 106 of 1998)	Section 24 of the Constitution of the Republic of South Africa provides for a comprehensive environmental right. Therefore, stakeholders and Interested and Affected Parties may exercise their right through providing comment during the PP process and raising issues of concern that are likely to infringe upon their environmental right. The Basic Assessment process recognises this right and the EAP has recorded, considered and responded to any and all issues of concern raised by the I&APs.	The Judiciary	18 December 1996
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended) (NEMA).	The NEMA (as amended) is regarded as South Africa's environmental framework legislation which provides for environmental management and gives effect to section 24 of the Constitution. The Basic Assessment and Public Participation processes were undertaken in strict compliance with the NEMA, as amended.	National & Provincial	27 November 1998
NEMA Environmental Impact Assessment (EIA) Regulations 2014 (published in Government Notice No. R.982)	The Basic Assessment Process for the proposed project is being carried out in accordance with the Regulations 19 and 20 of the NEMA EIA Regulations, 2014.	GDARD	4 December 2014
NEMA Listing Notice 1: List of activities and Competent Authorities identified in terms of Sections 24(2) and 24D (published in Government Notice No. R.983)	The proposed project activities trigger activities which are listed in Listing Notice 1. EA is therefore required before these activities may be implemented.	GDARD	4 December 2014
National Environmental Management: Air Quality Act (Act 39 of 2004)	The air quality act provides for the protection of the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for the specific air quality measures; and for the matters incidental thereto.	National and Provincial Department of Environmental Affairs or District or Metropolitan Municipality.	24 February 2005
National Water Act 36 of 1998 (NWA)	The proposed project has considered the following: Section 19: prevention and remedying the effects of pollution; Section 20: control of emergency incidence; and Chapter 4: use of water and licensing.	Department of Water and Sanitation (DWS)	20 August 1998

Title of legislation, policy or guideline:	Applicability to the Project	Administering authority:	Promulgation Date:
	This Basic Assessment Process has considered such potential impacts and/or incidences.		
National Environmental Management Waste Act 59 of 2008 (as amended) (NEMWA), National Norms and standards for the Storage of Waste (GNR.926 of 29 November 2013)	All requirements / provision concerning waste producing activities and the handling of waste, as provided in the NEMWA and the regulations thereunder must be conformed to. The quantity of general waste that will be temporarily be stored at the construction site is anticipated to be less than 100 m ³ . In the event that more than 100 m ³ of waste is stored at any one time, the Applicant must comply with the National Norms and standards for the Storage of Waste.	GDARD	10 March 2009 29 November 2013
Promotion of Access to Information Act 2 of 2000 (PAIA)	Any information that is required for the completion of this basic assessment, and is not available in the public domain can be requested through this act. As per the NEMA EIA Regulations, 2014, as well as the principles/objectives of the PAIA, the Basic Assessment Report as well as all supporting documentation (e.g. specialist studies) will be made available to the public.	GDARD	9 March 2001
Occupational Health and Safety Act 85 of 1993	This is primarily intended to provide for the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work. All work that is carried out for the implementation of the project activities as well as during each phase of the project lifecycle should be carried out in accordance with the provisions of the OHS Act.	Provincial Department of Labour.	23 June 1993
Integrated Environmental Management Guideline Series (Guideline 5) Companion to the EIA Regulations 2010 published in Government Notice 805	The aim of the guideline is to provide a detailed consideration of the practical implementation of the NEMA EIA Regulations. The guideline also provides guidance and clarity on the EA Process to be followed and interpretation of the listed activities. The guideline was used as a reference document to the applicability of the NEMA EIA Regulations, 2014 on the proposed project.	National and Provincial	10 October 2012
Integrated Environmental Management Guideline Series (Guideline 7) Public Participation in the EIA Process published in Government Notice 805	The guideline is intended to provide information on the benefits of public participation, the minimum legal requirements for the Public Participation Process (PPP), the steps of the PPP, guidelines for planning a PPP and a description of the roles and responsibilities of the various role-players. The guideline was referred to, to facilitate an adequate understanding of the execution of the PPP.	National and Provincial	10 October 2012
Environmental Management Plans, Integrated Environmental Management, Information Series 12, Department of Environmental Affairs and Tourism	The guideline aims to provide a generic introductory information source on the purpose, objectives and content of Environmental Management Plans.	National and Provincial	2004
Gauteng Provincial Environmental	The objective of the GPEMF is to guide sustainable land use management within the	GDARD	2014

Title of legislation, policy or guideline:	Applicability to the Project	Administering authority:	Promulgation Date:
Management Framework	Gauteng Province.		
Applicable by-laws of the Ekurhuleni Metropolitan Municipality.	A by-law is considered as piece of legislation that is specific to the municipal area of jurisdiction. By-laws are intended to regulate the affairs and the services it provides within the municipal boundaries. A by-law is passed by the Council of a municipality.	EMM	-

7.3 List of activities associated with the project

The activities that are associated with the proposed project trigger activities listed in Government Notice No. R.983 (2014). As set out in Regulations 19 of the National Environmental Management Act (NEMA) EIA Regulations, 2014, the proposed project is subjected to a BA Process (Government Notice No. R.982). Prima has therefore appointed Zitholele as the independent EAP to undertake the BA Process for the proposed project.

The Basic Assessment Report (BAR) will be submitted to the GDARD for licensing of the listed activity triggered as indicated in **Table 7-2** below:

Table 7-2: Detailed description of the listed activity associated with the project

Indicate the number of the relevant Government Notice:	Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3	Describe each listed activity as per the wording in the listing notices:
GN 983, 08 Dec 2014	Activity 34 (Listing Notice 1)	The expansion or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions or pollution.

8 ORGANISATION STRUCTURE

The organisational structure identifies and defines the responsibilities and authority of the various role-players (individuals and organisations) involved in the project. All instructions and official communications regarding environmental matters shall follow the organisational structure shown in **Figure 8-1** below.

The organisational structure reflected in **Figure 8-1** has been developed to ensure that:

- There are clear channels of communication;
- There is an explicit organisational hierarchy for the integration project; and
- Potential conflicting or contradictory instructions are avoided.

In terms of the defined organisational structure reflected in **Figure 8-1** below, all instructions that relate to environmental matters will be communicated to the Contractor via the

Environmental Officer (EO). The only exception to this rule would be in an emergency situation. An emergency is defined as a situation requiring immediate action and where failure to intervene timeously would, in the reasonable opinion of the Environmental Control Officer (ECO), result in unacceptable environmental degradation. In emergency situations, instructions may be given directly to the Contractor. The detailed roles and responsibilities of the various role-players identified in the organisational structure are outlined in **Section 9**.

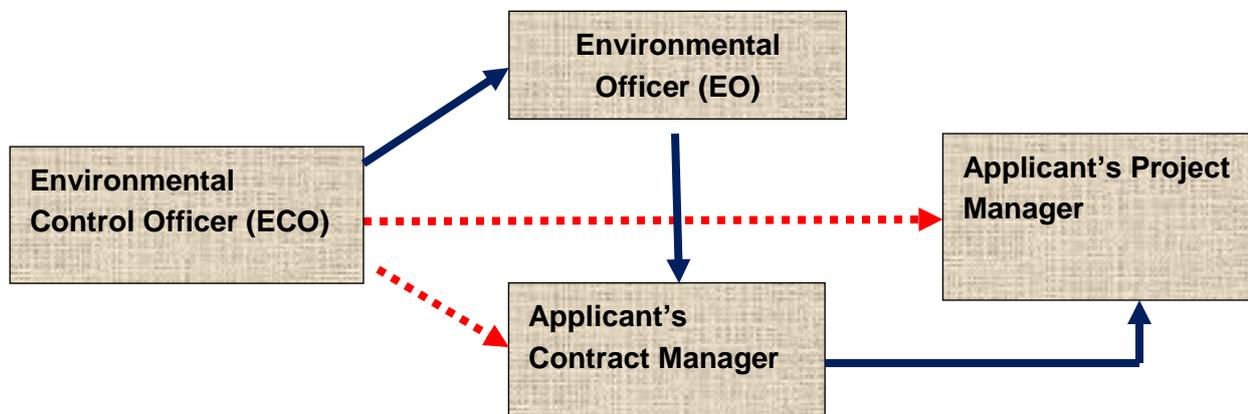


Figure 8-1: Organisation Structure for Environmental Reporting

9 ENVIRONMENTAL ROLES AND RESPONSIBILITIES

The key-role-players for the integration project are the GDARD, the applicant (Prima), the ECO and the Contractor. The detailed roles and responsibilities of each of these organisations are outlined below.

9.1 Gauteng Department of Agriculture and Rural Development

As the CA, the GDARD has the responsibility to ensure that the applicant complies with the conditions of the EA for this proposed project (once received) as well as the requirements of the broader environmental legislation, specifically the NEMA. Compliance would be confirmed via the following mechanisms:

- Receipt and review of the environmental reporting required in terms of the EA; and
- *Ad hoc* and planned site inspection by the GDARD Compliance and Enforcement.

The successful implementation of this EMP requires cooperation between the applicant, the appointed project management consultant, the appointed contractors and the appointed ECO.

9.2 General roles and responsibilities

General roles and responsibilities have been outlined below (**Table 9-1**) and the project team are required to comply with the conditions defined herein.

Table 9-1: Roles and Responsibilities

Responsible Agent	Role/Responsibility
Applicant	<p>Prima as an applicant has overall responsibility for ensuring that its operations are undertaken in an environmentally sound and responsible manner, and, in particular, reflects the requirements and specifications of the EMPr and recommendations from the relevant authorities.</p> <p>The responsibilities of the applicant will be to:</p> <ul style="list-style-type: none"> • appoint or designate a suitably qualified PM to manage the implementation of the proposed development; • Establish and maintain regular and proactive communications with the designated/ appointed PM, Contractor(s) and ECO; and • Ensure that the EMPr is reviewed and updated as necessary. <p><u>Reporting Structure:</u></p> <p>The Applicant will liaise with and/or take instruction from the following:</p> <ul style="list-style-type: none"> • Authorities; • ECO; and • General Public.
ECO	<p>ECO should be a suitably qualified person and should:</p> <ul style="list-style-type: none"> • Ensure that contractors receive copies of the EMPr, EA and all agreed Method Statements; • Provide on-site guidance, surveillance and reporting commensurate with the project phase/progress; • Undertake frequent site visits and record key findings. This includes photographic monitoring of the construction site and an evaluation of the implementation, effectiveness and level of compliance of on-site construction activities with the EMPr and associated plans and procedures; • Attend monthly project meetings; • Instruct EO or Contract Manager or Applicant's appointed PM on actions or issues impacting on the environment and provide appropriate site instructions to address and rectify these matters; • Record and provide written documentation of non-conformances with the EMPr and require Applicant to undertake mitigation measures to avoid or minimise any adverse impacts on the environment or report required changes to the EMPr; • Review corrective and preventative actions to ensure implementation of recommendations made from audits and site inspections; • Order the Contractor to suspend part or all of the works if the Contractor and/or any sub-contractors, suppliers, etc. fail to comply with any aspect of either the EMPr or EA; • Identify possible areas of improvement; • Ongoing assessment of the suitability or effectiveness of the EMPr and make concomitant recommendations; • Submit monthly environmental audit reports to GDARD (or as per

Responsible Agent	Role/Responsibility
	<p>conditions of EA) during the construction phase;</p> <ul style="list-style-type: none"> • Monitor and record the processing of public complaints and their resolution relating to the construction activities; and • Ensure that updates to the EMPr (as necessary) are implemented.
Construction Contractor (CC) / Appointed EO	<p>The Construction Contractor must:</p> <ul style="list-style-type: none"> • Appoint an EO to interpret the EA and EMPr on behalf of the Construction Contractor <i>inter alia</i> to ensure appropriate environmental awareness and training to achieve conditions of the EA and EMPr; • Ensure that all construction staff, sub-contractors, suppliers, etc. are familiar with, understand and adhere to the EMPr, EA and all agreed Method Statements (Environmental Awareness Plan) per their job function; • Ensure that all facets of the work undertaken are properly and competently directed, guided and executed during construction according to the EMPr; • Ensure construction of the facility to contractual environmental specifications; and • Adherence to laws and standards relevant to the construction of the facility.
PM	<p>The primary role of the PM will to ensure that the Contractor and Applicant comply with the environmental specifications in the EMPr. The PM shall further:</p> <ul style="list-style-type: none"> • Oversee the general compliance of the Contractor with the EMPr and other pertinent site specifications; and • Liaise between and with the Contractor (including EO) and ECO on environmental matters, as well as any pertinent engineering matters where these may have environmental consequences. <p>In addition, the PM may:</p> <ul style="list-style-type: none"> • Designate or appoint a suitably qualified Environmental Manager (EM) that will manage all environmental aspects on behalf of the PM and the Applicant; • Assume overall responsibility for the effective implementation and administration of the EMPr; • Be familiar with the contents of the EMPr, and his role and responsibilities as defined herein; • Ensure that the EMPr is included in the Contractor's contract; • Communicate to the Contractor, verbally and in writing, the advice of the ECO and the contents of the ECO reports; • In conjunction with the EO; undertake regular inspections of the Contractor's site as well as the installation works in order to check for compliance with the EMPr in terms of the specifications outlined therein. Inspections shall take place at least once a week during construction and copies of the weekly monitoring checklist will be contained in the file; • Issue site instructions giving effect to the ECO requirements where necessary; • Keep a register of all complaints and incidents (spills, injuries, complaints, legal transgressions, etc.) and other documentation related to the EMPr; • Report to the ECO any problems (or complaints) which cannot first

Responsible Agent	Role/Responsibility
	<p>be resolved in co-operation with the Contractor(s);</p> <ul style="list-style-type: none"> • Implement recommendations of possible audits; • Implement Temporary Work Stoppages as advised by the ECO, where serious environmental infringements and non-compliances have occurred; • Facilitate proactive communication between all role-players in the interests of effective environmental management; and • Ensure that construction staff is trained in accordance with requirements of the EMPr. <p><u>Reporting Structure:</u> The PM will report to the Applicant, as and when required.</p>

10 ENVIRONMENTAL ISSUES IDENTIFIED

The proposed site of the project has been heavily impacted and transformed due to industrial activities on site and the surrounding. No natural environment exists on site where the proposed upgrade activities are proposed to take place, i.e. within existing Prima operations boundary/footprint. The elements of the environment most affected will be the soils particularly during maintenance of the proposed upgrade, the social and receiving environment (traffic, health risk due to air emissions/particulate emissions from Prima's activities or change in air quality) and potentially surface and groundwater (spillage during equipment maintenance). Emission to the atmosphere is not anticipated to make a vast difference to the current emissions as a result of the current operations on site.

A summary of the anticipated environmental impacts associated with each of the project lifecycle phases of the proposed project that were identified during the BA Process is presented in **Table 10-1**, **Table 10-2** and **Table 10-3**.

Table 10-1: Summary of Pre-Construction and Construction Phase Impacts

Id.	Impact	Description	Nature of Impact (Negative / Positive)	Management Objective / Principle	Level of Mitigation
Pre-Construction and Construction Phase					
1.	Economic benefit to local economy	Appointment of construction contractor	Positive	Ensure that the local communities benefit from employment opportunities that are generated during the proposed upgrade activities.	Enhance the local economy.
2.	Additional vehicle traffic	Slow moving construction vehicles and vehicles delivering the construction materials to Prima may cause an addition traffic congestion in the area.	Negative	Ensure the implementation of all reasonable management measures to reduce the significance of the impact on the traffic congestion in the area. In addition, to ensure that no complaints raised by Interested and Affected Parties (I&APs) relating specifically to the impacts of traffic congestion associated with the proposed project.	Minimise the extent of the impact.
3.	Land/soil pollution from Pollution from chemical / hydrocarbon spills	Construction activities on site may result in pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals. Furthermore, the inappropriate storage and disposal of solid waste will result in environmental pollution.	Negative	Ensure that all reasonable measures are taken to prevent any impacts on the bare soil and/or environment. In addition, The adoption of the waste management hierarchy will result in continual reduced volumes of waste being generated and disposed of at an appropriate, registered landfill site.	Prevent the impact from transpiring.
4.	Pollution may enter ground / surface water	The nature of the activities to be carried out during construction of the proposed development may affect the water resources.	Negative	Ensure that all reasonable measures are taken to prevent any impacts on the characteristics of the watercourses associated with the development area.	Prevent the impact from transpiring.
5.	Erosion and loss of soil resources	All bare and exposed areas will be vulnerable to erosion.	Negative	Ensure that all reasonable measures are taken to prevent any impacts on the soil and environment.	Prevent the impact from transpiring.
6.	Increased noise	The movement of construction activities, construction vehicles and heavy machinery as well as construction personnel will alter the ambient noise levels in the area.	Negative	It must be ensured that the noise levels generated by the site preparations and associated construction activities should be maintained and be in accordance with the municipal bylaws. Increased noise levels must be maintained below levels which will be audible by the surrounding receptors. In addition, no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable noise levels associated with the proposed project.	Minimise extent of impact.
7.	Sedimentation,	The nature of the activities to be	Negative	Ensure that all reasonable measures are taken to	Minimise extent of

Id.	Impact	Description	Nature of Impact (Negative / Positive)	Management Objective / Principle	Level of Mitigation
Pre-Construction and Construction Phase					
	siltation, and increased turbidity in surface water	carried out during construction of the proposed development may affect the water resources.		prevent any impacts on the characteristics of the watercourses associated with the development area.	impact.
8.	Pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals	Construction activities on site may result in pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals. Furthermore, the inappropriate storage and disposal of solid waste will result in environmental pollution.	Negative	Ensure that all reasonable measures are taken to prevent any impacts on the soil, characteristics of the watercourses and the environment. In addition, The adoption of the waste management hierarchy will result in continual reduced volumes of waste being generated and disposed of at an appropriate, registered landfill site.	Prevent the impact from transpiring.
9.	Uncontrolled activities may lead to fires	Ignition of buildings due to the use of certain equipment.	Negative	Regular inspections and maintenance to ensure that no fires transpire on site.	Reduce the extent of the impact.
10.	Fugitive dust concentrations resulting in the degradation of the ambient air quality and creating a nuisance.	Construction activities associated with the site preparation and movement of the construction vehicle over the bare soil/unpaved roads for the proposed upgrade at Prima.	Negative	It must be ensured that the volumes of dust generated by the site preparations and associated construction activities do not exceed the National Dust Control Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. Dust suppression during movement of vehicles must be undertaken when necessary. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable dust levels associated with the proposed project.	Prevent the impact from transpiring.

Table 10-2: Summary of Operational Phase Impacts

Id.	Impact	Description	Nature of Impact (Negative / Positive)	Management Objective / Principle	Level of Mitigation
Operational Phase					
1.	Particulate matter emissions concentrations resulting in the degradation of the ambient air quality.	Operational activities on site will result in emissions to the atmosphere/environment.	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.
2.	Ambient PM concentrations resulting from Prima's emissions with the potential to affect human health at an identified receptor location.	Operational activities on site will result in emissions to the atmosphere/environment.	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.
3.	SO ₂ emissions concentrations resulting in the degradation of the ambient air quality.	Operational activities on site will result in emissions to the atmosphere/environment.	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.
4.	Ambient SO ₂ concentrations resulting from Prima's emissions with the potential to affect human health at an identified receptor location.	Operational activities on site will result in emissions to the atmosphere/environment..	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.
5.	NO ₂ emissions concentrations	Operational activities on site will result in emissions to the	Positive	It must be ensured that the concentrations of air emissions generated as a result of operational activities	Prevent the impact from transpiring.

Id.	Impact	Description	Nature of Impact (Negative / Positive)	Management Objective / Principle	Level of Mitigation
Operational Phase					
	resulting in the degradation of the ambient air quality.	atmosphere/environment.		do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	
6.	Ambient NO ₂ concentrations resulting from Prima's emissions with the potential to affect human health at an identified receptor location.	Operational activities on site will result in emissions to the atmosphere/environment.	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.
7.	Pollution from litter, waste metals, vehicle spills / hydrocarbon spills during maintenance activities.	Operational activities on site may result in pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals. Furthermore, the inappropriate storage and disposal of solid waste will result in environmental pollution	Negative	It must be ensured that the concentrations of air emissions generated as a result of operational activities do not exceed the National Air Quality Standards and Minimum Emissions Standards and may not result in any adverse impacts on human health. In addition, to ensure that no complaints raised by I&APs relating specifically to the impacts of increased or unacceptable air quality impacts / nuisance associated with the proposed upgrade.	Prevent the impact from transpiring.

NB: The impacts below have been determined for the decommissioning of the proposed construction site. All activities relating to the future decommissioning of the proposed upgrade and the associated infrastructure does not form part of this application and as such would be subject to a separate EA Process.

Table 10-3: Summary of Decommissioning Phase Impacts

Id.	Impact	Description	Nature of Impact (Negative / Positive)	Management Objective / Principle	Level of Mitigation
Decommissioning Phase					
Impacts associated with the decommissioning phase will be identified and assessed nearing the closure of Prima operations.					

11 APPROACH TO CORRECTIVE ACTION

11.1 Implementation of Corrective Action

Checking and corrective action forms part of the environmental management function and is aimed at ensuring that the necessary environmental management activities are being implemented and that the desired outcomes are achieved. When non-conformities do occur that have a negative impact on the environment, these should be rectified by the implementation of corrective actions issued by the ECO and PM within a reasonable or agreed period of time. All corrective actions need to be documented and the outcome photographed and included in the next report. Broadly, the mechanisms for addressing non-compliance that are provided for in the environmental specifications and associated contract documentation can be divided into the following categories:

- Controlling performance via the authorisation of payments;
- Requiring the Contractor to “make good”, at their own cost for any unjustifiable environmental degradation;
- Implementing a system of penalties to discourage environmentally risky behaviours;
- Removing environmentally non-compliant staff/ plant from site, or suspending part or all of the activities on site;
- To confirm, upon receipt of the tender, that the Contractor has made sufficient allowance in his tender price for meeting the various environmental requirements; and
- During the tender adjudication process for each contract, each Contractor should be scored in terms of the aforementioned considerations and allocated an environmental competency score. This score should form a key consideration in the final decision-making regarding the award of the various contracts.

12 METHOD STATEMENTS

A Method Statement (MS) must be compiled for every activity undertaken by the Contractor which poses a risk to the environment (natural, biophysical and social), and includes the following:

- The MS should be submitted at least 7 working days prior to the commencement of work to the ECO;
- A MS describes the scope of the intended work in a step by step description to ensure that the ECO / EO understand the Contractors intentions. This will enable them to assist in devising any mitigation measures which would minimise environmental impact during these tasks;

-
- The ECO may require changes to a MS if it does not comply with the specification or if, in the reasonable opinion of the ECO, the proposal may result in, or carries a greater than reasonable risk of damage to the environment in excess of that permitted by the EMPr or any legislation;
 - The Contractor shall carry out the activities in accordance with the approved MS;
 - Approved MS shall be readily available on the site and shall be communicated to all relevant personnel;
 - Approval of the MS shall not absolve the Contractor from any of his obligations or responsibilities in terms of the contract;
 - No claim for delay or additional cost incurred by the Contractor shall be entertained due to inadequacy of a MS;
 - For each instance where it is requested that the Contractor submit a MS to the satisfaction of the ECO, the format should clearly indicate as a minimum the following:
 - Responsible person (Name and Identity Number) and an alternative (Name and Identity Number);
 - The applicable requirements provided in all legislation and policies which have a bearing on the proposed activities (refer to **Table 7-1**);
 - Training Requirements;
 - Timing of activities as per the Project / Construction Schedule;
 - Materials, plant and equipment to be used;
 - Proposed construction procedure, including the order in which the activities making up the procedure will be carried out, designed to implement the relevant environmental specifications;
 - The system to be implemented to ensure compliance with the above;
 - Person Protection Equipment (PPE) required;
 - A detailed description of the process of work, methods and materials;
 - Emergency Procedures;
 - Response in the case of a non-compliance; and
 - Other information deemed necessary by the ECO.
 - All MS must be signed by the Engineer; and
 - Work may not commence until the MS has been approved by the ECO. All MS will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr main document.

13 ENVIRONMENTAL AWARENESS PLAN

Environmental awareness training is required for all personnel involved in the proposed project. This includes all employees working on the site including temporary labourers, contractors and subcontractors. The Environmental Awareness Plan is intended to describe the method that will be adopted by the applicant to inform any person acting on their behalf, including an agent, sub-contractor, employee or any person rendering a service, of any environmental risk which may result from the implementation of the project activities and the manner in which risks must be managed in order to avoid adverse environmental consequences.

Environmental awareness training should cover:

- The importance of the EMPr;
- Specific details of the EMPr;
- Employees role in compliance with the EMPr;
- Environmental effects associated with the activities;
- Training targeted at specific personnel, e.g. example operators of heavy machinery;
- The environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the environmental policy and procedures;
- Emergency preparedness and response requirements;
- The potential consequences of departure from specified operating procedures;
- The mitigation measures required to be implemented when carrying out their work activities;
- Environmental legal requirements and obligations;
- The importance of not littering;
- The importance of using supplied toilet facilities;
- The need to use water and electricity sparingly; and
- Details of and encouragement to minimise the production of waste and re-use, recover and recycle waste where possible.

Training should be conducted by a suitably qualified person and if necessary in more than one language to ensure it is understood by all workers. Copies of the environmental training must be available on site in languages appropriate to the work force. Records of the training sessions including attendance registers, nature of training and date of training should be kept to ensure all parties have received the necessary training and for auditing purposes.

In addition to training, general environmental awareness must be fostered among the project's workforce to encourage the implementation of environmentally sound practices throughout its duration. Environmental awareness and training is an important aspect of the implementation of the EMPr. Once the awareness plan and training material are available, the entire workforce and project management team should undergo an environmental awareness training course. Environmental awareness training is critical for the workforce to understand how they can play a role in achieving the objectives specified in the EMPr. All visitors to the site (including project team members which are not based onsite), must undergo Environmental Induction before being permitted to the construction and associated area. The Environmental Induction should be structured so as to provide a condensed version of the comprehensive Environmental Awareness Training that will be provided to the workforce / onsite staff.

Environmental awareness could be fostered in the following manner:

- Induction for all workers on site, before commencing work;
- Refresher courses as and when required;
- Daily toolbox talks at the start of each day with all workers coming on site, where workers might be alerted to particular environmental concerns associated with their tasks for that day or the area/habitat in which they are working; and
- Courses must be given by suitably qualified personnel and in a language and medium understood by workers/employees.

The Environmental Awareness Plan should be drawn up by the PM, in consultation with the ECO and EO and should be kept for implementation and audit purposes. The Environmental Awareness Plan should be a dynamic document (or set of documents) which should be updated as changes to the project, environment, staff and *etc.* occur.

14 TRAINING

The applicable training will be as follows:

- The EO shall be appropriately trained in environmental management and shall possess the skills necessary to impart environmental management skills to all personnel involved in the construction of the proposed upgrade at Prima;
- The PM and EO shall ensure, on behalf of the applicant, that the employees (including construction workers, engineers, and long-term employees) are adequately trained and understand the management measures provided in the EMPr; and
- All employees shall have an induction presentation on environmental awareness. The cost, venue and logistics shall be for Prima's account.

Where possible, training must be conducted in the predominant mother language spoken by the employees. The induction and training shall, as a minimum, include the following:

- The importance of conformance with all the specifications of the EMPr and other environmental policies and procedures;
- The significant environmental impacts, actual or potential, of their work activities;
- The environmental benefits of improved personal performance;
- Their roles and responsibilities in achieving conformance with the EMPr and other environmental policies and procedures;
- The potential consequences of departure from specified operating procedures; and
- The mitigation measures required to be implemented when carrying out their work activities.

14.1 Environmental Authorisation

The ECO shall convey the contents of this EMPr and the conditions of the EA and discuss the contents in detail with the applicant's PM and Contractors. This formal induction training shall be done with all main and/or sub-contractors. Record of the training dates, people who attended and discussion points shall be kept by the ECO.

15 ENVIRONMENTAL MANAGEMENT MEASURES

The management measures documented in each of the sub-sections below have been compiled using the following information:

- Impact Assessment and mitigation measures documented in the BAR for the proposed upgrade at Prima and its operations; and
- Mitigation and management recommendations provided by the specialist studies and EAP.

The mitigation and management measures relating to each anticipated impact are described in **Table 15-1** and **Table 15-2**.

In addition to the above-mentioned information sources, the EMPr should be updated to include the conditions documented in the EA to be received upon approval of the BAR. The Applicant should appoint an EAP to amend the EMPr should amendments be required by GDARD.

15.1.1 Planning Phase

To mitigate the negative environmental impacts, a number of measures will have to be addressed in the design of the project's layout during the planning phase. An inspection

must be carried out on the design layout before commencement of the proposed upgrade at Prima in order to ensure that the mitigation measures have been incorporated in the design.

15.1.2 Construction Phase

Table 15-1: Impacts, Management/ Mitigation Measures during Pre-Construction and Construction Phase

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Pre-Construction and Construction Phase					
1.	Economic benefit to local economy	Ensure that the construction contractor utilised for the installation of equipment are predominately South Africans.	Applicant / Contractor	Not Applicable	Not Applicable.
2.	Additional vehicle traffic	Ensure that proper road signage is used. Limit access to the construction site to construction vehicles only.	Contractor / EO / Applicant	Duration of Construction Phase.	Complaints register must be kept at the construction site.
3.	Land/soil pollution from chemical / hydrocarbon spills	Establish a chemical storage area that is suitably designed to contain all spills. Ensure that hydrocarbons are stored in a bunded area with a capacity of 110% of storage volume. Ensure that the bunded area is suitably designed to allow for cleaning and prevent spillage to the environment. Ensure that all vehicles, storage, and usage areas have suitable spill kits. Develop a chemical and hydrocarbon spill procedure. Ensure that chemical and hydrocarbon usage is controlled.	Contractor / EO / ECO	Monthly monitoring within the duration of Construction Phase.	Monthly ECO Audits.
4.	Pollution may enter ground / surface water	Establish a chemical storage area that is suitably designed to contain all spills. Ensure that hydrocarbons are stored in a bunded area with a capacity of 110% of storage volume. Ensure that the bunded area is suitably designed to allow for cleaning and prevent spillage to the	Not Applicable.	Not Applicable.	Not Applicable.

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Pre-Construction and Construction Phase					
		environment. Ensure that all vehicles, storage, and usage areas have suitable spill kits. Develop a chemical and hydrocarbon spill procedure. Ensure that chemical and hydrocarbon usage is controlled.			
5.	Erosion and loss of soil resources	Soil stock piling to be done at the designated area.	Contractor / EO / ECO	Monthly monitoring within the duration of Construction Phase.	Monthly ECO Audits.
6.	Increased noise	Limit construction activities to daylight working hours.	Contractor / EO / ECO	Duration of Construction Phase.	Complaints register must be kept at the construction site. No. of noise complaints received will be used to measure the effectiveness of the noise impact mitigation.
7.	Sedimentation, siltation, and increased turbidity in surface water in surface water	Soil stock piling to be done at the designated area.	Contractor / EO / ECO	Monthly monitoring within the duration of Construction Phase.	Monthly ECO Audits.
8.	Pollution of soils by cement spills, litter, waste metals, hydrocarbons and chemicals	No servicing of vehicles onsite. Regular inspection and servicing of vehicles. Develop a spill management procedure for vehicles that may leak accidentally. Have a waste management plan. Ensure that concrete spills are cleaned up. Ensure litter is cleared regularly to designated waste areas.	Contractor / EO / ECO	Monthly monitoring within the duration of Construction Phase.	Monthly ECO Audits.
9.	Uncontrolled activities may	Undertake monitoring to determine if fires have any impact on the	Contractor / EO / ECO / Applicant	Monthly monitoring within the duration of Construction Phase.	Monthly ECO Audits.

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Pre-Construction and Construction Phase					
	lead to fires	surrounding environment, suitable rehabilitation is to be undertaken where necessary. A fire management plan to be established prior to construction commencing. Any materials that are likely to catch fire must be removed in areas where welding is undertaken to prevent fires from occurring. Fire breaks along the servitude are to be established. Suitable firefighting.			
10.	Fugitive dust concentrations resulting in the degradation of the ambient air quality and creating a nuisance.	Minimising dust emissions with the use of water sprays or a dust binder (when necessary). Avoid the use of unpaved roads where possible.	EO / Applicant	Duration of Construction Phase.	Complaints register must be kept at the construction site. No. of dust complaints received will be used to measure the effectiveness of the dust impact mitigation.

15.1.3 Operational Phase

Table 15-2: Impacts, Management/ Mitigation Measures during Operational Phase

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Operational Phase					
1.	Particulate matter emissions concentrations resulting in the degradation of the ambient air quality.	Ensuring all equipment is well maintained and in good working order; ensuring equipment and vehicles are switched off when not in use; and avoiding the use of unpaved roads (where possible).	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.
2.	Ambient PM	Ensuring all equipment is well	Applicant / Contractor /	Duration of Operational Phase.	Compliance

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Operational Phase					
	concentrations resulting from Prima's emissions with the potential to affect human health at an identified receptor location.	maintained and in good working order; ensuring equipment and vehicles are switched off when not in use; and avoiding the use of unpaved roads (where possible).	EO		inspection by the authority and/or monitoring as per the AEL yet to be issued.
3.	SO ₂ emissions concentrations resulting in the degradation of the ambient air quality.	Ensuring all equipment is well maintained and in good working order and ensuring equipment and vehicles are switched off when not in use.	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.
4.	Ambient SO ₂ concentrations resulting from Prima's emissions with the potential to affect human health at an identified receptor location.	Ensuring all equipment is well maintained and in good working order and ensuring equipment and vehicles are switched off when not in use.	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.
5.	NO ₂ emissions concentrations resulting in the degradation of the ambient air quality.	Ensuring all equipment is well maintained and in good working order and ensuring equipment and vehicles are switched off when not in use.	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.
6.	Ambient NO ₂ concentrations resulting from Prima's emissions with the potential to affect human health at an identified	Ensuring all equipment is well maintained and in good working order and ensuring equipment and vehicles are switched off when not in use.	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Operational Phase					
7.	receptor location. Pollution from litter, waste metals, vehicle spills / hydrocarbon spills during maintenance activities.	Ensure that a site clean-up is undertaken at the end of every maintenance cycle to ensure that no pollution has occurred. Where this has happened appropriate remedial action is to be taken.	Applicant / Contractor / EO	Duration of Operational Phase.	Compliance inspection by the authority and/or monitoring as per the AEL yet to be issued.

15.1.4 Decommissioning Phase

Table 15-3: Impacts, Management/ Mitigation Measures during Decommissioning Phase

Id.	Impact	Mitigation / Management Measures	Responsible Person	Frequency and/or Time Period	Method of Monitoring
Decommissioning Phase					
Impacts and mitigation measures associated with the decommissioning phase will be identified and assessed nearing the closure of Prima operations.					

16 MONITORING

This chapter deals with Compliance Monitoring as well as specific monitoring requirements, as per the Specialist recommendations, where necessary, during construction and operational phases. The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. An audit of the environmental monitoring and management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards.

Regular monitoring of all the environmental management measures and components shall be carried out by the applicant's PM and independent ECO to ensure that the provisions of this plan are adhered to. Ongoing and regular reporting of the progress of implementation of this Programme should be done. Various points of compliance will be identified with regard to the various impacts that the construction will have on the environment.

Prior to the start of construction activities, an audit schedule should be drawn up, on basis of the EA requirements and with input from ECO. The audit schedule should include target dates for implementation of recommendations and timeframes for submission to the applicant's PM and GDARD. The audits should be timed to coincide with scheduled project meetings, where possible.

16.1 Auditing

The key to a successful EMPr is appropriate monitoring and review to ensure effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. An audit of the environmental monitoring and management actions undertaken is essential to ensure that it is effective in operation, is meeting specified goals, and performs in accordance with relevant regulations and standards.

Regular monitoring of all the environmental management measures and components shall be carried out by the Applicant (Prima) and the ECO to ensure that the provisions of this plan are adhered to. Ongoing and regular reporting of the progress of implementation of this Programme should be done. Various points of compliance will be identified with regard to the various impacts that the construction will have on the environment.

Inspections and monitoring shall be carried out to assess the implementation of the EMPr. Visual inspections on all environmental aspects shall be carried out on a regular basis.

Prior to the start of construction activities, an audit schedule should be drawn up, on the basis of the EA requirements and with input from ECO. The audit schedule should include target dates for implementation of recommendations and timeframes for submission to the applicant's appointed PM and the GDARD. The audits should be timed to coincide with scheduled project meetings, where possible.

16.2 Site Documentation or Reporting

Site documentation standard shall be used to keep records on site. In addition, all non-compliances to the EA will be reported to the assigned PM within 24 hours. All documents as listed below shall be kept on site and be available for monitoring and auditing purposes. Site inspections by an Environmental Audit team may require access to this documentation for auditing purposes. The documentation shall be signed by all parties to ensure that such documents are legitimate. Regular monitoring of the proposed site works by the ECO is imperative to ensure that all problems encountered are solved punctually and amicably. When the ECO is not available, the PM shall keep abreast of all works to ensure no problems arise.

The following documents must be kept on site:

- Site instructions;
- Pre-construction audit report undertaken by ECO;
- Complaints register;
- Records of all remediation / rehabilitation activities;
- Copy of this EMPr;
- Copy of the EA;
- Environmental Awareness Plan;
- Monthly compliance report;
- Environmental training records; and
- Emergency response procedures.

The monthly compliance report should include:

- Complaints received from I&APs and details of the actions taken;
- Environmental incidents, spills of hazardous substances, etc; and
- Environmental damage which requires rehabilitation.

16.3 Monitoring

16.3.1 Recommendations from the Air Quality Specialist

- Stack emissions sampling should be undertaken annually to monitor compliance in terms of the NEM: AQA Subcategory 4.10;

-
- A once-off particulate matter monitoring campaign should be undertaken at a nearby sensitive receptor such as Ephes Mamkeli Secondary to validate the predicted plumes; and
 - Should stack emissions sampling reveal increases in SO₂ and NO₂ emissions at the facility, a once-off SO₂ and NO₂ monitoring campaign should be undertaken at a nearby sensitive receptor such as Ephes Mamkeli Secondary to validate the predicted plumes.

16.3.2 Undertaking audits

The applicant or PM shall appoint a qualified and experienced ECO to ensure implementation of and adherence to the EMPr.

The ECO shall conduct audits to ensure that the system for implementation of the EMPr is operating effectively. The audit shall check that a procedure is in place to ensure that:

- The EMPr and the MS being used are the up to date versions;
- Variations to the EMPr, Method Statements and non-compliances and corrective actions are documented; and
- Emergency procedures are in place and effectively communicated to personnel.

The audit programme shall consist of the following at a minimum:

- First audit no later than one (1) month after EA is obtained; and
- Thereafter audits at monthly intervals, at a minimum or as per EA requirement.

16.3.3 Compliance with the EMPr

The applicant (Prima) and/or its agents are deemed not to have complied with the EMPr and remedial action if:

- There is evidence of contravention of the EMPr clauses within the boundaries of the site or extensions;
- Environmental damage ensues due to negligence; and
- The applicant (Prima) fails to comply with corrective or other instructions issued by the PM, within a time period specified by the PM.

16.4 Environmental Contact Person

To be confirmed prior commencement of the proposed development should GDARD grant an EA to proceed with the proposed upgrade work.

16.5 Emergency Numbers

- Police: 10111
- Ambulance 10177
- Netcare 911 082 911

17 SITE REHABILITATION

17.1 Removal of structures and infrastructure

During and following the completion of the construction activities, the area must be rehabilitated by appropriate levelling and topsoil dressing (if necessary). All construction plant, equipment, storage containers and temporary activities must be removed from site.

17.2 Waste and pollution control

- Waste minimisation, the re-use, recycling and recovery of waste must be promoted;
- Rubble must be removed from the construction site and firstly recycled and re-used, where possible, before disposed of at a registered landfill site;
- All waste storage containers should be removed from site on a regular basis;
- All hazardous waste which is temporary stored on site, including the storage containers must be removed from site and disposed of at a registered hazardous landfill site and according the Prima's existing WML; and
- Areas may not be ripped / scarified under wet conditions, as the soil will not break up.

17.3 Storm water management

- A stormwater management plan should be developed for the site and implemented;
- Care must be taken to ensure that stormwater does not pass over the expanded section and become polluted; and
- No polluted stormwater from the site may be discharged to the environment unless it is within the DWS discharge limits.

17.4 Dust management

- Prima to ensure that newly constructed areas does not generate dust due to exposed areas which can be rehabilitated.

18 FINANCIAL PROVISIONING

Section 30 of Chapter five of NEMA proposes penalties for non-compliance with the provisions of Chapter five. Any person who contravenes the regulations set out here or commits an offence as described in this section is liable for a fine or jail term. The responsible person, who is undertaking an activity, that contravenes these regulations, will be liable for these penalties. Fines and penalties shall be managed in accordance with the Public Management Finance Act.

A penalties and fines system shall be developed for this project and shall take the following in consideration:

- Penalties will be issued for the transgressions and non-compliances where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental specifications. The Contractor shall be liable to pay a penalty over and above any other contractual consequence;
- Penalties may be issued per incident at the discretion of the PM and ECO. The exact value of the penalty imposed shall be at the discretion of the PM and ECO. The Contractor will also be responsible for remediation costs;
- Such fines will be issued in addition to any remedial costs incurred as a result of non-compliance with the EMPr. The PM will inform the Contractor of the contravention and the amount of the penalty, and will deduct the amount from monies due under the Contract;
- The PM and ECO shall be the judge as to what constitutes a transgression in terms of this clause subject to the provisions of the General Conditions of Contract;
- For each subsequent similar offence, the penalty may, at the discretion of the PM and ECO be doubled in value to a maximum value to be determined; and
- Payment of any penalty in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

A guideline of minimum fine values is provided for minor, moderate and serious offences in **Table 18-1** below.

Table 18-1: Guideline to fines for minor, moderate and serious offences

	Offences	Fine
Minor offences	<ul style="list-style-type: none"> • Littering • Possession of intoxication substances on site. • Failure to use ablutions. • Moving on areas recently landscaped. • Disturbing grassed areas. • Not parking in demarcated areas. • Not using safety equipment • Wasting of water and electricity. • Not removing domestic waste off site. • Not stockpiling topsoil adequately. 	R 1500 - 00

Offences		Fine
Moderate offences	<ul style="list-style-type: none"> • Oil spills • Persistent oil leaks on vehicles. • Generation of excessive dust and noise. • Transgression of the speed limit. • Illegal fires. • Burying of waste. • Use of intoxicate substances on site. • Lack of erosion control. • Entering non-demarcated areas. • Hunting and snaring. • Damaging of pre- identified trees. 	R 5000-00
Serious offences	<ul style="list-style-type: none"> • Large oil/ hazardous waste spill. • Removal of pre-identified trees. • Damage of pre- identified heritage sites or objects. • Continually exceed noise limits. • Transgression of legal requirements. • Sanitation facilities not adequate. • Pollution of groundwater. • Removal of any protected plant or other species. • Damage or pollution of wetlands. 	R15 000.00

19 CONCLUSION

It is the opinion of the EAP that the implementation of the management and mitigation measures provided in the EMPr is sufficient to manage the environmental impacts associated with the proposed project. This EMPr will furthermore contribute to realising the following over-arching objectives set out to be reached by the use of the document as an environmental management tool:

- Ensure that sufficient monetary provision, aligned with the significance of the environmental impact and scale of the project, is made to remediate and rehabilitate the environment impacted on by the Prima's proposed activities;
- Verify environmental performance through information on impacts as they occur;
- Respond to unforeseen events and environmental incidents; and
- Provide feedback to drive continual improvement in environmental performance.

The effectiveness of this EMPr will to a large degree rest on adherence to and fulfilling the roles and responsibilities of each role player and stakeholder. The roles and responsibilities for management actions contained in the EMPr (refer to Section 9 of this document) and arrangements for coordination among the role players are clearly defined in this document.

ZITHOLELE CONSULTING (PTY) LTD



Virginia Ramakuwela
Project Manager



Sharon Meyer
Project Associate

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APPENDIX A: EAP's CV



Virginia Ramakuwela

Professional Registrations:

- The South African Council for Natural Scientific Professions (100150/14)
- GISc Technician (GT1494) South African Council for Professional and Technical Surveyors (PLATO)
- International Association of Impact Assessments (3644)
- National Association of Clean Air (Member)

Occupation:

- Environmental Practitioner

Specialisation:

- Environmental Management
- Public Participation Process
- Water Use Licence
- AEL Application
- GIS Mapping and Analysis
- Project Management

Education:

- MSc Air Quality Management, University of Pretoria (Current)
- BSc (Hons): Environmental Analysis and Management, 2010, University of Pretoria
- BSc. Environmental Sciences, 2008, University of Pretoria

KEY EXPERIENCE

Knowledge of EIA processes as well as the associated legislative requirements, Air Quality Baseline Assessment, Atmospheric Emission Licence (AEL) application, Visual Impact Assessments as part of the EIA process, Water Use Licence Application (WULA), Public Participation Process, Map reading, Analysis, Quality Assurance of GIS datasets, Image interpretation, classification and data extraction, 3D terrain/environmental modelling and analysis, Good knowledge and experience of map projections & Datum transformations, Research work experience, Report writing and organizational Skills.

PROJECT EXPERIENCE

2016 - 2018 MPS Dust Monitoring R 389 515
Environmental Consultant – Project co-ordination, reporting and GIS mapping.

2016 - 2017 Prima BA & AEL R 253 263
Environmental Consultant – Project co-ordination, Basic Impact Assessment. Air Quality Baseline Assessment and GIS mapping.

2016 Tshepisong BAR R 174 000
Environmental Consultant – Project co-ordination, Basic Impact Assessment, WULA and GIS mapping.

2015 - 2017 Duvha IWULA Amendment R 566 509
Environmental Consultant – Project co-ordination, IWULA amendment and GIS mapping.

2015 - 2016 BA and WUL Klipspruit Valley Road R 250 000
Environmental Consultant - Project co-ordination and GIS mapping and analysis for the Rehabilitation and Remedial Works for the Bus Rapid Transit (BRT) lanes of Section 1B Section 1B of the Klipspruit Valley Road in Soweto, Johannesburg.

2015 - 2016 BA Clanwilliam R 409 000
Environmental Consultant - GIS mapping and analysis for the proposed Realignment of the Bulshoek Dam and Doring River Weirs Project, Western Cape.

PROJECT EXPERIENCE (continued)

2015 - 2016 BA & AEL KEW Foundries	±R 228 000
Environmental Consultant - Project co-ordination, Air Quality Baseline Assessment and GIS mapping and analysis. Atmospheric Emission Licence for the KEW Foundries, Kimberly.	
2015 - 2016 Kusile 60 Year Ash Disposal Facility	R 11 million
Project management assistance and GIS mapping and analysis - Application and Wetland Offset Plan for the proposed 60 Year Ash Disposal Facility at Kusile Power Station, Mpumalanga Province.	
2015 - 2017 BA & AEL Fenner	R 170 000
Environmental Consultant – Air Quality Baseline Assessment and AEL application for Fenner Conveyor belting in Isando, Ekurhuleni Metropolitan Municipality.	
2015 - 2016 Solar Park WULA	R 800 910
Environmental Consultant - WULA and EA amendment for Solar Park Nieuwehoop 400 kV powerline near Upington, Northern cape.	
2014 - 2016 BA & WML Steloy	R 90 000
Environmental Consultant - GIS mapping and analysis for Steloy Casting (Pty) Ltd's Waste Management Licence Application.	
2014 - 2016 BA Kuruman Upgrade	R1.3 million
Environmental Consultant - GIS mapping and analysis for the 66kV network upgrade to a 132kV network in the Kuruman area.	
2014 - 2016 EIA Koffiefontein Slimes Dam	R1 million
Environmental Consultant - GIS mapping and analysis Authorisation Process for the Medupi Power Station Flue Gas Desulphurisation (FGD) Retrofit Project, Limpopo Province.	
2014 - 2016 EIA Medupi Flue Gas Desulphurisation Project	R5 million
Environmental Consultant - Air Quality Baseline Assessment and GIS mapping and analysis Application for the proposed New Koffiefontein Slime Dam Development.	
2014 - 2015 Grootvlei Power Station	R 200 000
Environmental Consultant – Project Co-ordination, GIS Mapping and analysis.	
2013 - 2015 EIA and WMLA Kusile Power Station	R4 million
Environmental Consultant - GIS mapping and analysis for the proposed 60 year ash disposal facility at Kusile Power Station near Witbank in Mpumalanga.	
2013 - 2014 BA and EIA Devon Landfill Site	R1 million
Environmental Consultant - Project co-ordination and GIS mapping and analysis for the proposed closure of Devon General Waste Disposal Site and Environmental Impact Assessment for the proposed new landfill site for the Lesedi Local Municipality.	
2013 - 2015 WULA Wilge Pipeline	R 900 000
Environmental Consultant - Project co-ordination and GIS mapping and analysis for the Sewage Pipeline from Wilge Township to Phola Sewage Treatment Plant, and Water Pipeline to Phola Township.	

PROJECT EXPERIENCE (continued)

- 2013 - 2014 EIA and WML - Prima Industrial Holdings Industrial Sites R 150 000**
Environmental Consultant - GIS mapping and analysis for Prima Industrial Holdings (Pty) Ltd, Nestdadt Industrial Sites, Benoni South, Gauteng Province.
- 2013 - 2014 EIA and WML Zimalco Foundry R 130 000**
Environmental Consultant - GIS mapping and analysis EIA and WMLAn for the Zimco Aluminium Company (Zimalco), A Division of the Zimco Group (Pty) Ltd, Benoni, Gauteng Province.
- 2013 - 2016 EIA Kendal Continuous Ash Disposal Facility R4.8 million**
Environmental Consultant - Project Management assistance and GIS mapping and analysis Environmental Impact Assessment and Waste Management License Application for the proposed Kendal Power station Continuous Ash Disposal Facility.
- 2013 - 2015 Kendal 30 year Ash Disposal Facility R6 million**
Environmental Consultant -Project Management assistance and GIS mapping and analysis Environmental Impact Assessment, Waste Management License and Water Use License Application for the 30 year Ash Disposal Facilities at Kendal Power Station.
- 2013 - 2013 EIA Guideline for the National Renewable Energy Projects R 480 000**
Environmental Consultant - Project Management assistance Development of the Environmental Impact Assessment Guideline for the National Renewable Energy Projects.
- 2013 - 2014 Design of 3 Canals R 700 000**
Environmental Consultant - Project co-ordination and GIS mapping and analysis Application for Environmental Authorisation (Basic Assessment Process) for the proposed prevention of water ingress into previously mined out areas (three canals) in the Witwatersrand Mining Basin - Durban Roodepoort Deep, New Canada and Elsburgspruit Streams, Gauteng Province.
- 2013 - 2015 BA for Vaalbank R 380 000**
Environmental Consultant - Project co-ordination and GIS mapping and analysis. Basic Assessment for Vaalbank Switching Station and 2 x 88 kV Powerlines, Free State.

EMPLOYMENT RECORD

2013 - Present	Zitholele Consulting	Environmental Consultant
2011 - 2013	Statistics South Africa	GIS Intern/GIS Officer
2010 - 2010	Green Vision Consulting	Junior Environmental Consultant
2010	Tourism World Academy	Green Volunteer
2010	University of Pretoria	Student Admin and Registration
2007	University of Pretoria	Assets Controller



Sharon Lee Meyer-Douglas

Professional Registrations:

- International Association of Impact Assessments
- The South African Council for Natural Scientific Professions (400293/05) Pr. Sci Nat

Occupation:

- Divisional Lead Environmental Management
- Senior Enviro Consultant

Specialization:

- Water and Waste Management Solutions.
- Integrated Environmental Applications.
- Project management of multi-disciplinary teams.

Education:

- MSc. Biological Control/ Env Education, Zoology, 2007 University of the Witwatersrand
- BSc. (Hons) Geography /Env Studies, 2000 University of the Witwatersrand
- BSc Geography/Archaeology, 1999 University of the Witwatersrand

KEY EXPERIENCE

"The environment is everything that isn't me" - Albert Einstein

I have been working as an environmental consultant since 2001. Science and engineering provide the tools for responsible development to address social, economic and environmental priorities. I see myself as a problem solver. I assess and consolidate input from authorities, specialists, stakeholders and clients to identify workable solutions to environmental challenges.

I manage multi-disciplinary teams to provide comprehensive action plans to achieve project objectives. I am detail orientated and risk-averse, driving a complete and proactive project management strategy.

PROJECT EXPERIENCE

2014 - 2016	BA WML Steloy	R 90 000
Steloy 24G application for disposal of solid waste to land.		
2014 - 2016	EIA Koffiefontein Slimes Dam	R1 million
EIA for slimes dam development for Koffiefontein Diamond Mine, Free State.		
2013 - 2016	EIA & BA Camden Power Station	R1 million
Expansion Project Integrated EIA, Waste Management License and Water Use License Application for Camden Power Station Ash Disposal Facilities.		
2013 - 2018	EIA Medupi Flue Gas Desulphurisation Project	R5 million
EIA, Waste Management License and Water Use License Application of the Medupi Power Station.		
2013 – 2016	EIA Kendal Continuous Ash Disposal Facility	R4.8 million
License Application and EIA.		
2013 – 2015	BA Pongola Candover Golela	R1 million
Basic Assessment for Pongola 132kV.		
2013 – 2015	BA Ndumo Gezisa	R1 million
Basic Assessment for Ndumo Gezisa 132kV.		

PROJECT EXPERIENCE (continued)

2013 - 2014	EIA Klippan Mine	R 56 000
EIA Application for relocation of local communities.		
2013 - 2014	EIA & WML Zimalco Foundry	R 130 000
EIA for Waste Management Licence.		
2013 - 2014	EIA Prima Foundry	R 150 000
EIA for Waste Management Licence.		
2013 - 2014	EIA Steloy	R 90 000
EIA for Waste Management Licence for Steloy.		
2012	WML Kimberley Engineering Works	R 260 000
Waste Management Licence for Kimberley Engineering Works Foundries.		
2012	WML National Foundry Technology Network	R 230 000
Compiled the guideline document for the National Foundry Technology Network		
2011 - 2012	IWMP Emfuleni Local Municipality	R 200 000
IWMP for Emfuleni Local Municipality.		
2011 - 2012	WML Monterey Sands	R 230 000
Waste Management Licence for Monterey.		
2011 - 2012	WML Olifantsfontein Landfill Site	R 280 000
Waste Management Licence for Olifantsfontein Landfill Site.		
2011	EIA, BA and WML Cullinan Diamond Mine	R 350 000
Cullinan Diamond Mine EIA, WML and BA.		
2010 - 2012	WLA Rapid Factory Renovators	R 220 000
Rapid Factory Renovators Waste Management Facilities.		
2010 - 2011	WULA Teak Place	R 130 000
Teak Place Water Use Licence finalisation.		
2010 - 2011	WMLA Teak Place	R 180 000
Teak Place Waste Management Licence finalisation.		
2010	EIA and BA for Housing Development	R 150 000
Erand 172/173 Basic Assessment for Housing Development.		
2009 - 2011	WUL Rhenosterspruit	R 130 000
Water Use Licence Rhenosterspruit development.		
2009 - 2011	EIA and BA Sasol Mafutha Scoping	R 350 000
Sasol Mafutha Scoping for township establishment in Lephalale.		
2009 - 2011	ECP Rhenosterspruit	R 80 000
Rhenosterspruit Environmental Conservation Plan.		
2009	EIA and BA Rhenosterspruit	R 350 000
Rhenosterspruit Eco-Development.		

PROJECT EXPERIENCE (continued)

2009	EIA and BA Ranjespark	R 180 000
	BA Ranjespark development.	
2009	EIA and BA Geduld Scoping Phase	R 120 000
	Geduld Scoping Phase for township establishment.	
2009	BA Blue Hills Holdings	R 50 000
	BA Stakeholder Engagement Blue Hills Holdings 1 & 2.	
2009	BA Withok Holding	R 80 000
	BA Stakeholder Engagement Withok Holding 149	
2009	Janho Quarry	R 80 000
	Stakeholder Engagement Janho Quarry.	
2008 - 2009	EIA Geduld	R 50 000
	Geduld EIA for township development.	
2008	Stakeholder Engagement Linbro Park South	R 80 000
	Linbro Park South Business Estate.IA	
2008	Tourism Planning Sani Pass	R 180 000
	Sani Pass Border Region Tourism Plan.	
2008	Specialist Assessment Farm Chemcity	R 25 000
	Specialist Vegetation Study for Sasolburg Ext 62 Farm Chemcity 458.	
2008	Specialist Assessment Farm Klipfontein	R 30 000
	Specialist Vegetation Study for Portion 53 of the Farm Klipfontein 12 IR, Chlookop Ext 58.	
2008	Specialist Assessment Farm Rietfontein	R 30 000
	Specialist Vegetation Study for Portion 353 of the Farm Rietfontein 189 IQ.	
2008	Specialist Assessment Farm Elandsfontein	R 25 000
	Specialist Vegetation Study for Portion 25 of the Farm Elandsfontein 107 IR.	
2007 - 2009	WUL North Riding Bridge	R 80 000
	North Riding Bridge Water Use Licence.	
2007 - 2008	WUL Mostyn Park	R 170 000
	Mostyn Park sewage pipe Water Use License.	
2007 - 2008	EMP Venetia Mine Venus	R 180 000
	Scoping Report and EMPR amendment for Venetia Mine Venus Project.	
2007 - 2008	Environmental Risk Assessment Mponeng Mine	
	Environmental Risk Assessment for Mponeng Mine Refrigeration Expansion for the VCR Below 120 Level Project.	
2007 - 2008	Site Selection and Pre-Feasibility Harmony Gold Mines	R 50 000
	Harmony Gold Mines, Evander Mega Tailings Facility Site Selection and Pre-Feasibility.	
2007 - 2008	Scoping Phase Report Harmony Gold Mines	R 55 000
	Harmony Gold Mines, Evander Mega Tailings Facility Scoping Phase Report.	

PROJECT EXPERIENCE (continued)

2007	EIA & BA Palm Ridge	R 120 000
	Palm Ridge 88kV and Sub-station Basic Assessment.	
2007	Tourism Planning Kruger National Park	R 160 000
	Kruger National Park Tourism Plan for security office.	
2007	ECP Pala Meetse	R 80 000
	Pala Meetse Environmental Conservation Plan.	
2007	ECP Cradle Development	R 80 000
	Cradle Development Implementation and Conservation Plan.	
2007	EIA & BA Princesses AH Residential Development	R 120 000
	Princesses AH Residential Development, Affordable Housing.	
2007	WUL EIA & BA Palm Ridge	R 120 000
	Palm Ridge 88kV and Sub-station Basic Assessment.	
2007	Stakeholder Engagement Linbro Park South	R 80 000
	Cullinan Diamond Mine WUL Stakeholder Engagement.	
2007	Specialist Assessment Farm Elandsfontein	R 20 000
	Specialist Vegetation Study for Randfontein Golf Course Estate.	
2007	Specialist Assessment N17 Borrow Pit 12	R 25 000
	Ecological Assessment of N17 Borrow Pit 12.	
2007	Specialist Assessment Wilgeheuwel Ext 4 and 49	R 25 000
	Specialist Vegetation Study for Wilgeheuwel ext 4 and 49.	
2007	Specialist Assessment Farm North Riding	R 20 000
	Specialist Vegetation Study for Portion 392 of the Farm North Riding.	
2007	Specialist Assessment Farm Rietfontein	R 25 000
	Specialist Vegetation Study for Portion 185 of the Farm Rietfontein 128.	
2007	Specialist Assessment Orange Farm	R 25 000
	Specialist Vegetation Study for Portion 47 of the Farm Orange Farm 371 IQ.	
2007	Specialist Assessment Farm Roodekrans	R 25 000
	Specialist Vegetation Study for Portion 1 of Portion 102 of the Farm Roodekrans 183 IQ.	
2006 - 2007	EIA and BA Victoria Ext 3	R 80 000
	Victoria Ext 3 Basic Assessment Stakeholder Engagement.	
2006 - 2007	WUL Pala Meetse	R 230 000
	Pala Meetse Water Use License.	
2006 - 2007	Stakeholder Engagement Linbro Park South	R 80 000
	McHardyspruit Diversion Basic Assessment Stakeholder Engagement.	

PROJECT EXPERIENCE (continued)

2006 - 2007	Scoping Report Impala Platinum Mine	R 58 000
Plan of Study for Scoping, and Scoping Report for the No. 17 Shaft Development at Impala Platinum in Rustenburg (for Golder Associates).		
2006	EMPR Kleinkopje Colliery	R 60 000
EMPR amendment for Kleinkopje Colliery to include the Emalahleni Water Reclamation Project.		
2006	EMPR Landau Colliery	R 60 000
EMPR amendment for Landau Colliery to include the Emalahleni Water Reclamation Project, 2006 (for Golder and Associates).		
2006	Land Use Rezoning Petervale	R 35 000
Supervision of the Petervale rezoning project.		
2006	Kriel Dragline Walkway Audit	R 275 000
Assisted in the audit of the Kriel Dragline Walkway from Syferfontein Colliery to Kriel Colliery in the Witbank area.		
2005 - 2006	Cullinan Diamond Mine Biomonitoring	R 50 000
Project Management of Cullinan Diamond Mine Biomonitoring Project.		
2005 - 2006	EMPR Cullinan Diamond Mine	R 75 000
EMPR update for Cullinan Diamond Mine to include future mining operations.		
2005 - 2006	EMPR amendment Kleinkopje Colliery	R 55 000
EMPR amendment for Kleinkopje Colliery to include the change in Anglo Coal mining operations relating to the No 4 coal seam. (for Golder and Associates)		
2005 - 2006	Land Use Rezoning Noordheuwel Ext 17 & 19	R 30 000
Project managed the Noordheuwel ext 17 & 19 rezoning for residential 3.		
2005 - 2006	Land Use Rezoning Mostyn Park Ext 3 & 4	R 35 000
Supervision of the Mostyn Park Ext 3 & 4 rezoning project.		
2005 - 2006	Land Use Rezoning Mostyn Park Ext 17 & 18	R 35 000
Supervision of the Mostyn Park Ext 17 & 18 rezoning project.		
2005 - 2006	EIA Pala Meetse	R 750 000
EIA Pala Meetse Eco-Reserve.		
2005	EMPR amendment Landau	R 60 000
EMPR amendment for Landau Colliery to include change in Anglo Coal mining operations relating to the No 4 coal seam.(for Golder and Associates)		
2005	Cullinan Diamond Mine Biomonitoring	R 60 000
Project Management of Cullinan Diamond Mine Biomonitoring Project.		
2005	EIA and EMPR for Elders	R 85 000
EIA and EMPR for Elders Mini Pit opencast mine.		

PROJECT EXPERIENCE (continued)

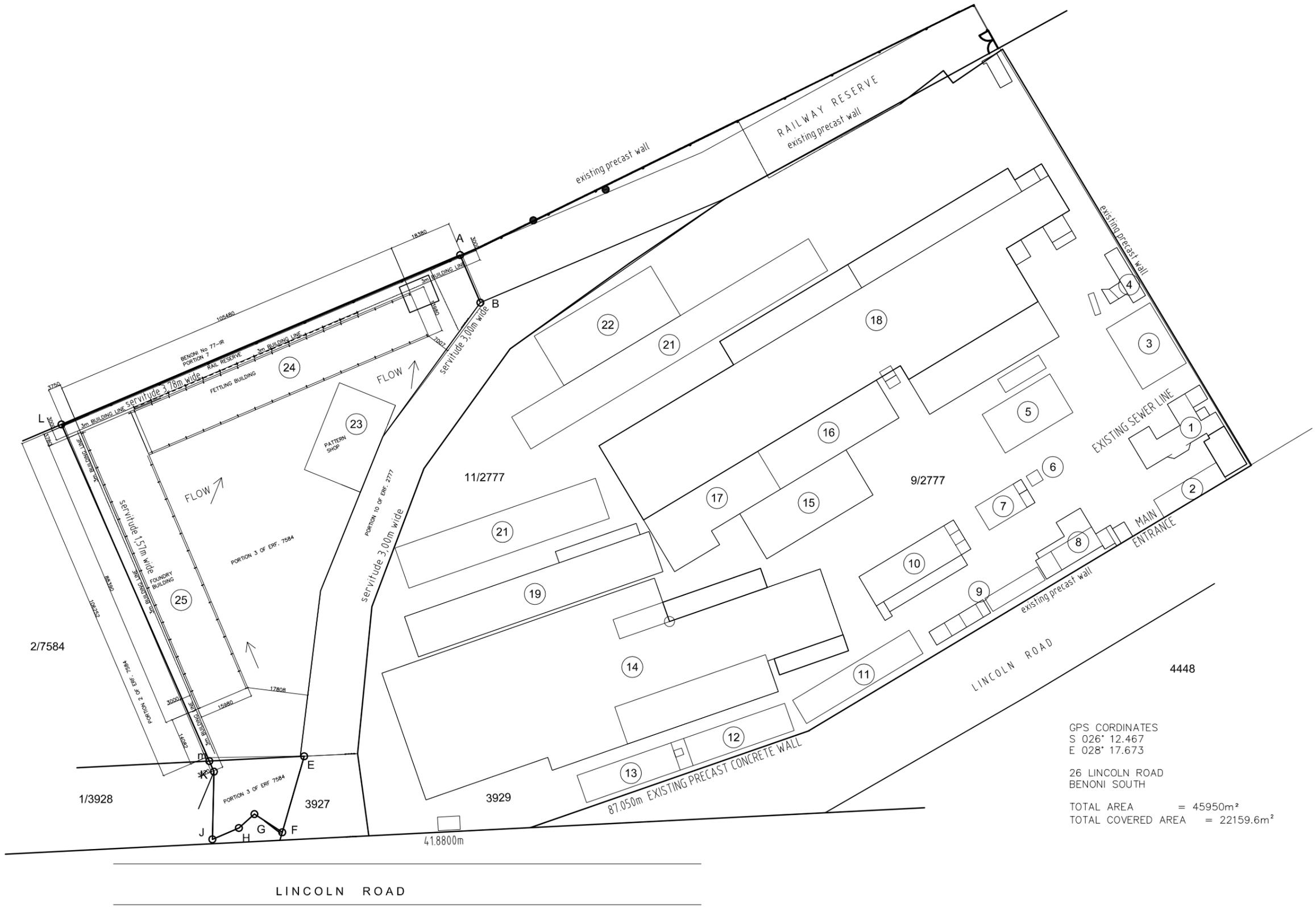
2005	EMPR Vatemco	R 60 000
Amendment to Vametco EMPR.		
2005	EMP Anglo Coal	R 60 000
EMP amendment for Anglo Coal Prospecting in Elders Wetland.		
2005 - 2005	EMP Greenside Colliery	R 80 000
EMPR Uupdate for Greenside Colliery to include changes in Anglo Coal mining operations realting to the No.4 coal seam. (for Golder Associates)		
2004	EMPR Grootvlei Gold Mine	R 45 000
Addendum to current EMPR for Grootvlei Gold Mine West Pit Operation.		
2004	EMP Anglo Prospecting Sites	R 35 000
EMP for Anglo Prospecting Sites.		
2004	SEMPR Anglo Coal	R 40 000
SEMPR for borrow pits for Anglo Coal road diversion at Kriel South Coal Mine.		
2003	Biodiversity Action Plan for Anglo Coal	R 80 000
Biodiversity Action Plan for Anglo Coal eight operation collieries.		
2002 - 2003	Environmental Research Eskom	R 250 000
Animal behaviour research into the interaction of woodpecker species with Eskom wooden poles in hotspots such as Escourt, Pongola, Kirkwood and Marble Hall.		
2002 - 2003	Environmental Research Eskom Towers	R 500 000
Animal behaviour research to investigate mitigation options for combating crow nesting interference on large Eskom towers in the Natal Midlands.		
2001 - 2003	Biological Contro Research	R 280 000
Biological control research studying the success of Lanner Falcons released in urban areas to manage feral pigeon populations.		
2001 - 2002	Eskom Distribution lines	R 250 000
Sustainable development and animal behaviour research into the interaction of Sociable Weavers with Eskom Distribution lines in the Northern Cape.		
2001	Environmental Research skom Business Units	R 200 000
Investigating waste management software for the purpose of waste reporting throughout Eskom business units.		

EMPLOYMENT RECORD

2013 - Present	Zitholele Consulting	Senior Environmental Consultant & EMS Divisional Leader
2009 - 2013	Envirokey Management Services cc	Senior Environmental Consultant & Director
2007 - 2009	Holgate, Meyer and Associates Environmental Management Services	Senior Environmental Consultant & Partner
2005 - 2007	Cymbian Consulting Services (Pty) Ltd	Senior Environmental Consultant
2003 - 2005	Oryx Environmental cc	Environmental Scientist
2001 - 2003	Environmental impacts group Technology Services International Division Eskom Enterprises	Environmental Officer

APPENDIX B: ENGINEERING DRAWING

Building No.	Building Name
1	Main Office Bolck
2	Parking Area
3	Store 1
4	Offices
5	Sand Hopper
6	First Aid Room
7	Power / Sub-Station
8	Abblution Block
9	Parking Area
10	Maintenance
11	Store 2
12	Store 3
13	Store 4
14	AD Foundry
15	Pattern Store 1
16	Pattern Store 2
17	Fabrication Shop
18	Prima Foundry
19	Machine Shop
20	Export Fettling
21	Fettling
22	Fettling
23	Pattern Shop
24	Fettling & Heat Treatment
25	Resin Foundry



GPS CORDINATES
 S 026° 12.467
 E 028° 17.673

26 LINCOLN ROAD
 BENONI SOUTH

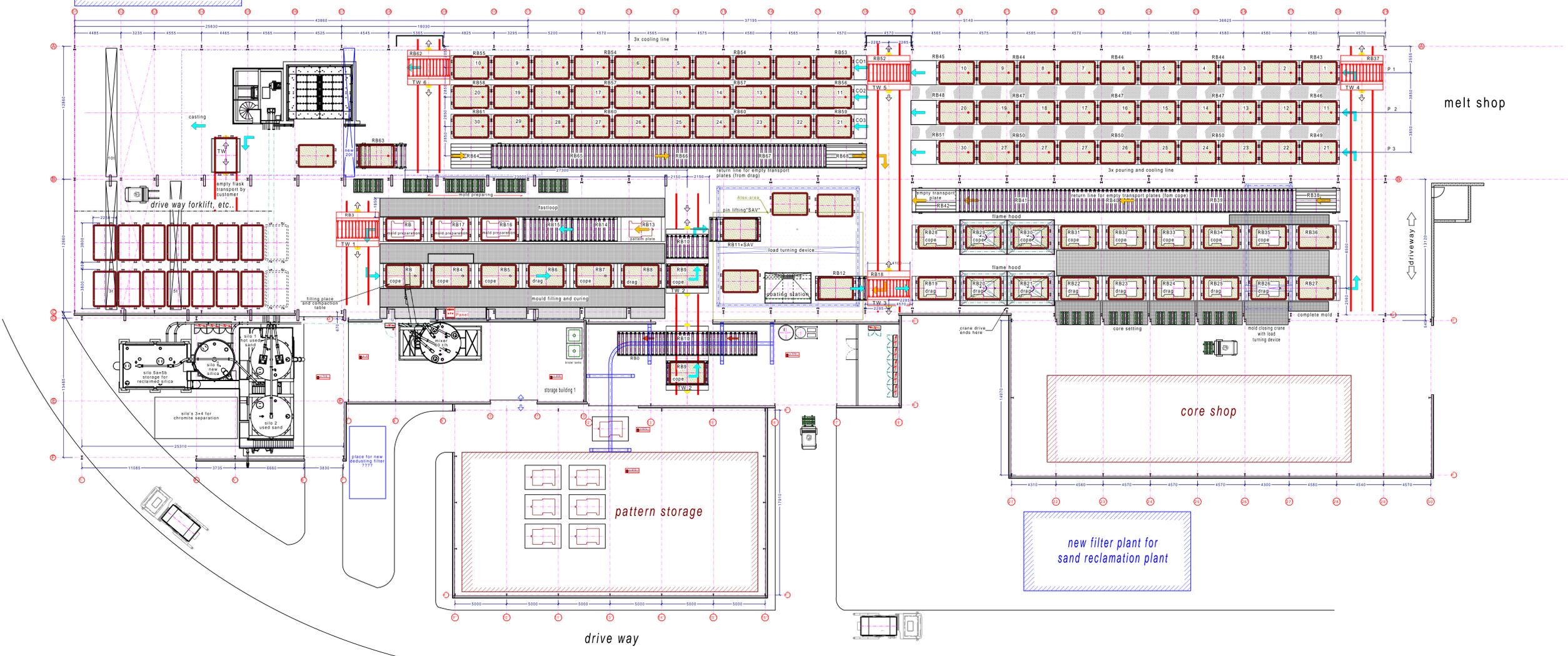
TOTAL AREA = 45950m²
 TOTAL COVERED AREA = 22159.6m²

LINCOLN ROAD

NOTES: 1)		REVISION		DATE		DRAWN		DESCRIPTION	
<p>PRIMA INDUSTRIAL HOLDINGS (Pty) Ltd</p> <p>PRIMA INDUSTRIAL HOLDINGS PTY LTD ENVIROMENTAL SITE PLAN 26 LINCOLN ROAD BENONI SOUTH</p>									
DRAWN	NS	16-01-2015	FILE NAME: 2\1\EXP\LOC\PRM\NSC\PRM\PRM PLANT DRAWINGS\PRM-ENVIRO-008	REV.					
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APPROVED			SCALE	SIZE	AD	SHEET 1 OF 1			

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existing filter plant
for shakeout station
position??



- P = pouring
- CO = cooling
- SAV = pin lifting device
- TW = transfer car
- VT = compaction table
- = transport direction of pattern, mold halves and complete molds
- = transport direction of pattern for checking out and empty transport plates (return line)

Rev.	Aenderung / Amendment	Datum / Date	Name																																
D	new shakeout and sand recl. added	05.02.16	Schmidt																																
C	pattern preparing modified	16.12.2015	Schmidt																																
B	revised after discussion with Will Price	27.11.2015	Schmidt																																
A																																			
<table border="1"> <tr> <td>CAD</td> <td>Datum / Date</td> <td>Name</td> <td>Abgezeichnet / Drawn</td> </tr> <tr> <td>09.11.2015</td> <td>Schmidt</td> <td></td> <td></td> </tr> <tr> <td>Gezeichnet / Drawn</td> <td></td> <td></td> <td></td> </tr> <tr> <td>09.11.2015</td> <td>Schmidt</td> <td></td> <td></td> </tr> <tr> <td>Prüfer / Checked</td> <td></td> <td></td> <td></td> </tr> <tr> <td>09.11.2015</td> <td>Schmidt</td> <td></td> <td></td> </tr> <tr> <td>Geprüft / Checked</td> <td></td> <td></td> <td></td> </tr> <tr> <td>09.11.2015</td> <td>Schmidt</td> <td></td> <td></td> </tr> </table>				CAD	Datum / Date	Name	Abgezeichnet / Drawn	09.11.2015	Schmidt			Gezeichnet / Drawn				09.11.2015	Schmidt			Prüfer / Checked				09.11.2015	Schmidt			Geprüft / Checked				09.11.2015	Schmidt		
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