ENVIROPRO

IN ASSOCIATION WITH INKANYEZI YETHU

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ENVIRONMENTAL MANAGEMENT PROGRAMME
NORTH PARK SEWER RETICULATION – PHASE 2
ETHEKWINI WATER & SANITATION
EIA REF: DM/0027/2018

EVP556

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bvi ENGINEERING PROCUREMENT MANAGEMENT

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SECTION 1 INTRODUCTION, PROJECT AND SITE DESCRIPTION

1.1. Background

eThekwini Water and Sanitation (EWS) propose to construct the North Park Area Sewer Reticulation – Phase 2 project within Ward 63 of the eThekwini Municipality (Figure 1). The new house connections and reticulation pipelines will connect to the proposed new outfall / bulk pipeline, which ties into the existing municipal bulk pipeline in the North Park Nature Reserve. Concrete stepping stones / blocks will be constructed on an existing weir across the Mhlatuzana River for ease of crossing during high flow periods.

Approximately 819m of pipeline falls within the boundary of the North Park Nature Reserve, which was proclaimed a protected area in 1968 under the National Environmental Management: Protected Areas Act, 2003. During construction, vegetation within this protected area will be cleared for the laying of the pipe. The entire study area, excluding the North Park Nature Reserve, falls within Critical Biodiversity Area 1 (CBA) according to the KZN Wildlife Conservation Plan (C-Plan). Cumulatively, more than 300m^2 of vegetation will be cleared from within this CBA and therefore Environmental Authorization (EA) was required.

A site-specific Environmental Management Program (EMPr) is required as a condition of the EA and is to be adhered to by Contractors on site. The EMPr focuses on the clearance of vegetation and the construction within and across the watercourses.

1.2. Scope of Work

Prepare a site specific EMPr for the North Park Sewer Reticulation Scheme – Phase 2 in order to manage and mitigate potential environmental impacts identified in the Basic Assessment process during construction. The provisions of this EMPr are binding on the contractor throughout the life of the contract.

1.3. General Principles and Purpose of the EMPr

The purpose of this EMPr is to provide guidance to all contractors and site workers on how to operate in a responsible manner so as to achieve these goals and ensure that the requirements of the legislation are met. This EMPr is a working document to be used during construction and has been generated to ensure:

- The protection of the environment during the construction period.
- All emissions to air, water and soil are controlled and managed so as to mitigate their impacts on the environment and surrounding communities.
- Nuisance factors associated with construction are controlled as far as is reasonably possible.
- The correct principles are followed from the very beginning during site set up thereby reducing frustrations on the part of the contractor when asked to comply with the strictures of the EMPr and relevant environmental legislation.
- The post construction clean-up is carried out correctly so as to avoid any long-term environmental impacts and meet the legislated requirements.

This EMPr is subject to change as brought about by variations in the project specification and any changes must be approved by the relevant authorities.

1.4. Responsibilities

The Project Applicant (eThekwini Water & Sanitation) is responsible for:

- Ensuring that the engineer and contractors comply with the approved EMPr.
- Ensuring compliance with the provisions for duty of care and remediation of damage in accordance with section 28 of the National Environmental Management Act (NEMA), (No. 107 of 1998) and its obligations regarding the control of emergency incidents in terms of Section 30 of NEMA.
- Notifying the relevant authorities (EDTEA) of any incident as defined in subsection 30(1)(a) of NEMA.

The Project Manager or Engineer (BVI) is responsible for:

- Appointing the appropriately qualified contractor and ensuring that they have read and understood the EMPr.
- Ensuring all work undertaken is in accordance with the EMPr.
- Ensuring adherence to safety, health and environment (SHE) standards and ensuring the construction activities comply with the EMPr.
- Arranging for the site to be monitored on a daily basis to ensure compliance with the EMPr.
- Overall responsibility and accountability for the site during the construction phase.
- Mitigating impact on the environment through responsible operation and adherence to the EMPr.
- Ensuring transparency in their operation and environmental management of the site.
- Managing the contractor to ensure that they adhere to the EMPr and ensuring that all necessary documentation is maintained on site.
- Ensuring that the contractor has a copy of the EMPr and Method Statements.

The Site Contractor(s) is/are responsible for:

- Providing a suitable person to operate as Environmental Officer (EO) to undertake the monitoring of the day to day requirements of the EMPr.
- Operating in accordance with the EMPr and carrying out construction activities with due care and diligence.
- Ensuring that any communications from stakeholders are reported to the Environmental Control Officer (ECO).
- Maintaining relevant documentation for review by the ECO.

The Environmental Officer (EO) or designated Safety Health Environment (SHE) officer is responsible for:

- Daily compliance monitoring of construction against the requirements set out in this EMPr and the environmental authorization.
- Ensuring that all site staff are adequately trained in environmental matters.
- Liaising with site staff and I&APs through the Community Liaison Officer (CLO), if required.
- Must be conversant with the applicable legislation pertaining to the environment.
- Liaise directly with the ECO on the monthly audit findings.
- Identification of possible areas of improvement during construction.
- Monitoring the construction site on a regular basis and recording key findings.
- Advising the Project Manager and the contractors on environmental matters.
- Provide appropriate recommendations to address and rectify these matters.
- Monitoring implementation of the EMPr by the contractor.
- Work hand in hand with the health and safety officer.
- Maintain records pertinent to the requirements of the EMPr.

The Environmental Control Officer (ECO or Independent environment practitioner) is responsible for:

- Conducting regular auditing against the requirements of the EMPr and Environmental Authorisation.
- Liaising directly with the EDTEA and supplying them with copies of the audit reports.
- Liaising directly with the contractor and EO and supplying them with a copy of the audit reports.

1.5. Monitoring

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. The EO should be responsible for day to day monitoring and reporting while the independent ECO should undertake to monitor the site on a bi-monthly basis (i.e. twice a month). The day to day monitoring should be conducted by the EO in conjunction with the contractor and the engineer.

The bi-monthly audit report by the ECO can then be used to provide external monitoring and reporting to EDTEA Compliance and Enforcement. Paramount to the reporting of non-conformances or incidents is that appropriate corrective and preventive action plans are developed and adhered to. Photographic records of all incidents and/ or non-conformances should be retained.

When work commences in the North Park Nature Reserve, a qualified ecologist is to monitor construction activities on a daily basis to monitor vegetation clearing and the presence of the Spotted Ground Thrush and Dwarf Chameleons. The full time ECO will also be responsible for engaging with I & APs during this phase of the construction. A summary of the work done is to be prepared daily, which is to be reviewed by the ECO during the bi-monthly audits.

1.6. Applicable Legislation

The site engineer should be aware of any compliance issues raised by the EO and ECO and should ensure that the necessary corrective measures are implemented. As per the National Environmental Management Act No 107 of 1998 (Section 28), offending parties may be held financially accountable for any pollution or environmental damage.

The following environmental legislation should be adhered to:

- Constitution of South Africa (Act No. 108 of 1996)
- National Environmental Management Act (Act No 107 of 1998) – NEMA
- Environment Conservation Act (Act No 73 of 1989)
- National Heritage Resources Act (Act No 25 of 1999)
- National Water Act (Act No 36 of 1998)
- Hazardous Substances Act (Act No. 15 of 1973)
- National Environmental Management: Biodiversity Act (Act No. 10 of 2004)
- Occupational Health and Safety Act (Act No 85 of 1993)
- National Environmental Management: Waste Management Act (Act No. 59 of 2008)
- National Building Regulations and Building Standards Act 103 of 1977
- Relevant local bylaws

1.7. Layout of the EMPr

The EMPr is divided into five sections dealing with an introduction and description of the proposed activity and the site, construction activities and post-construction activities. Section 5 provide definitions and records that can be used to record training, incidents and complaints. Under the construction section, each section deals with a specific aspect of the development i.e. administration and records. Within these sections the specific activity is described and the mitigation action required is provided. The tables have been set up to enable ease of auditing with a section for the EO/SHE officer or ECO to state whether or not mitigation measures have been put in place and to make comment about any problems noted.

1.8. Project Details

eThekwini Water and Sanitation (EWS) propose to construct the North Park Area Sewer Reticulation – Phase 2 project within Ward 63 of the eThekwini Municipality. Northdene residents within the study area are currently using septic tanks and soak-aways to treat and dispose of domestic sewage on site. This project will provide a water-borne sewage connection for all the Northdene residents. The new house connections and reticulation pipelines will connect to the proposed new outfall / bulk pipeline, which ties into the existing municipal bulk pipeline in the North Park Nature Reserve at 29°52'24.24"S; 30°52'54.75"E. The sewage will be transported to and treated at the Mhlatuzana Waste Water Treatment Works (WWTWs), south of the study site.

The following pipe diameters are planned:

- House Connections: 110mm dia. uPVC
- Reticulation: 160mm dia. uPVC
- Outfall/Exposed Pipelines: 200mm dia. Ductile Iron

The house connections and reticulation pipes will be placed underground with the majority falling within municipal road reserves and transformed garden vegetation. The bulk outfall pipeline will be laid above-ground in the North Park Nature Reserve to ensure easy leak detection, repair and management. The wetland specialist has delineated a channeled valley-bottom wetland associated with the Mhlatuzana River. Concrete stepping stones / blocks will be placed on the existing weir across the Mhlathuzana River. It is anticipated that each block will be approximately 800mm wide, 300mm long and 300mm high and be placed 0.5m apart.

Approximately 819m of pipeline falls within the boundary of the North Park Nature Reserve. The majority of the pipeline runs along the fence-line of the Reserve with approximately 121m of pipeline traversing through the protected area to tie into existing bulk lines. During construction, vegetation within this protected area will be cleared for the laying of the pipe. Cumulatively, more than 300m^2 of vegetation will be cleared from within a Critical Biodiversity Area.

Figure 1: Aerial photograph showing an overview of the proposed North Park Sewer – Phase 2.

1.9. Table of Responsibilities

This is to state that the undersigned have received a copy of the EMPr developed for this site by *EnviroPro* dated October 2018. Any contravention of the EMPr will be recorded and corrective action will be carried out. Any changes to the EMPr must be approved by the *Environmental Control Officer (ECO)*, the consultant *EnviroPro* and the relevant authority. Such changes are to be made in writing and a record must be maintained.

The undersigned do hereby agree to abide by the structures of the EMPr and accept responsibility for ensuring adherence to the Construction EMPr as it relates to the following areas:

Table of Responsibilities				
Job description / title	**Scope of work or area of responsibility i.e. camp drainage, construction camp, housekeeping etc.**	**Responsible person (Name)**	**Signature**	**Date**

1.10. Names and Telephone Numbers of Contact Persons

The following list of contacts must be printed and made clearly visible on the site. Additional emergency contacts should be added as required.

Contact List			
Designation	**Organisation**	**Name**	**Contact number**
Applicant	eThekwini Water & Sanitation	Ednick Msweli	031 311 8600
Consulting Engineer	BVI	Deon Govender	031 266 8382
Independent Environmental Practitioner and ECO	EnviroPro	Josette Oberholzer Iain Jourdan	082 568 3687 082 887 4362 031 765 2942
Environmental Authority (Enforcement & Compliance)	EDTEA		
Contractor			
Heritage Resources	AMAFA	Bernadette Pawandiwa	033 394 6543
	Fire Department		10111
	Police		10111
	Ward Councillor	Chris van de Berg	082 372 2403

SECTION 2 CONSTRUCTION

2.1 Administration & Records

Activity / Document	Required Action	In place (Yes / No)	Person	Comments
EMPr	• Keep a hard copy of the EMPr at the site camp at all times and ensure that it has been signed by the Contractor.		CON	
	• All contractors, engineers and anyone associated with the construction must be provided with a copy of the EMPr prior to coming on to site.		CON	
	• An initial site meeting must be held with all responsible parties to discuss the EMPr and ensure that all elements are understood.		ECO	
Environmental Authorisation	• A copy of the Environmental Authorisation (EA) must be kept at the site camp at all times.		CON	
Appointment of ECO / EO & Audits	• Appoint an ECO (Environmental Control Officer) prior to commencement of construction to monitor the entire construction phase. • Keep proof of appointment and contact details as well as dates of audits. • A record of audits conducted on the site as well as findings must be kept on site. • Environmental monitoring to take place bi-monthly with audit reports to be submitted to EDTEA. • When work commences in the North Park Nature Reserve, a qualified ecologist is to monitor construction activities on a daily basis. • A summary of the work done is to be prepared daily, which is to be reviewed by the ECO during the bi-monthly audits. • The final alignment through the North Park Nature Reserve must be surveyed by the ECO, Engineers, the client (EWS), and the Reserve Management to ensure that the identified rare, red listed and protected species are marked and physically observed by all who will be involved in the process.		APP	
Incident records & Photographs	• Keep records of incidents and non-conformances that have occurred and how they were remediated. o Photographs must be taken when incidents or non-conformances occur with follow up pictures to demonstrate remediation. These must be kept on record. o Please see the definition of an incident and non-conformance as defined below.		CON	

Permits & Approvals	• Keep all necessary permits and approvals on file i.e. construction licences, water use authorisation, relocation permit from KZNW etc.		CON	
MSDSs	• Material Safety data Sheets (MSDSs) are to be kept on site for all hazardous materials.		CON	
Records	• An environmental site file must be kept for storage of environmental documentation i.e. training records, hazardous substances inventory, EMPr, EA etc. in order to prove compliance with this EMPr.		CON	
Proof of Environmental training	• Keep training attendance registers on file as proof that environmental training including training on protection of sensitive areas has taken place.		CON	
Identification of services	• All existing services must be identified prior to construction as standard practice. • Any damage to the North Park Nature Reserve fence line, is to be repaired prior to the contractor vacating the site.		APP	
Proof of raw material sourcing and resource use	• Proof of sustainable sourcing of all materials used must be obtained and documented especially for raw material i.e. topsoil, sands, natural gravels, crushed stone, clay liners, timber etc. ○ E.g. sand may only be obtained from an approved sand winning operation which is licensed by the Department of Mineral Resources (DMR) and has an approved EMPr for operation. ○ Where materials are borrowed (mined), proof must be provided of authorization to utilise these materials from the landowner / mineral rights owner and DMR.		CON	

2.2 Site Camp, Storage & Handling of Hazardous and Non Hazardous Materials & Stockpiling				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Location & Establishment of construction camp	• The construction camp must be marked out with the approval of the ECO. • The construction camp must be located outside of the North Park Nature Reserve.		CON	
	• The site camp must be located on a flat portion of land which can be rehabilitated once construction in complete. • Do not set up the construction camp within 23m of any watercourse or delineated wetlands as shown in Figure 1 above. • The site camp must be clearly demarcated and fenced off to prevent illegal entry.		CON	

	• The following areas must be demarcated and clearly marked within the construction camps:
	  ○ **A waste storage area**
	  ○ **A materials storage area**
	  ○ **Areas for fuel and hazardous chemical / flammable goods (if required)**
	  ○ **Vehicle servicing and wash bay areas (if required)**
	  ○ **Stockpile areas**
	  ○ **Parking area**
			CON	

Establishing storage areas & Stockpiles	• **A Primary waste storage area** must be demarcated in the site camp. • Sufficient waste bins / skips suitable for collection and storage of all waste being generated on site must be placed in the designated waste area in the site camp. • Liquid waste must be stored on a hard surfaced bunded area and must be under cover or in a waste container that is closed and can be sealed shut. • Waste must be removed from site on a regular basis by a reputable, registered Waste Contractor.		CON	
	• **A materials storage area** must be identified and designated within the Site Camp. • **Liquid materials and** potentially environmentally hazardous materials must be stored within a hard surfaced bunded area (110% capacity of largest container). • The liquids storage area must either be under cover or liquids must be stored in closed containers that can be sealed to prevent ingress of water.		CON	
	• **Areas for fuel and hazardous chemical / flammable goods** must be identified and clearly signposted. • These areas must be hard surfaced and bunded and under cover or stored in closed containers that can be sealed to prevent ingress of water.		CON	
	• **Bulk fuel storage:** No bulk fuel storage to occur on site.		CON	
	• **Designated areas for stockpiling of raw materials** must be demarcated. • Stockpiles may not exceed 2m in height. • No stockpiles to occur on or near slopes where they could be washed into the surrounding properties or into any watercourse. • All stockpiling areas must be approved by ECO and must be located more than 23m from the edge of any watercourse. • Special precaution is to be taken when stockpiling material near a watercourse crossing to ensure no material is washed into the watercourse when it rains.		CON	

	• **Parking:** parking areas must be demarcated and marked as such. • Vehicles must park only in designated parking areas overnight. • Where possible, vehicles must not work within the watercourse. Excavation is to be carried out by hand for the watercourse crossings.		CON	
	• **Vehicle servicing and washing:** only emergency and minor services may be carried out on site. i.e. those necessary to get the vehicle moving so that it can be taken to a repair facility or small repairs such as stopping of oil leaks, lubricating of hydraulics, changing of buckets / breakers on Excavators and TLBs or changing of tyres. • This must be carried out in a designated work shop area. o The designated work area must not be located in the North Park Nature Reserve. o The designated area must be hard surfaced and bunded. o All vehicles and equipment that have the potential to leak fuel or oil must be equipped with a drip tray. o Equipment must always be stored standing on the drip tray and the drip tray must be used when conducting minor repairs on vehicles or when the vehicles are seen to be leaking. o Any other planned or required maintenance must be done off site at a suitable garage. o Vehicle washing may not occur on site. Vehicles must be washed off site at a suitable vehicle wash bay. o Cement vehicles may not be flushed out or washed on site.		CON	
Handling of liquids on site	• Decanting of any liquids / chemicals paints etc. must be done on a hard surfaced area and within the confines of a drip tray, which is of sufficient size for the job being undertaken. • No decanting of liquids to take place adjacent to any watercourses (particularly when construction of the stepping stones across the weir takes place).		CON	
	• Decanting from large containers (e.g. 210L drums) must be done using a hand pump.		CON	
	• All handling of hazardous materials including cement must take place on a demarcated hardened surface or within a drip tray or cement-mixing tray.		CON	
	• No liquids or cement to be spilled in the watercourses or wet areas • No liquids or cement to be spilled anywhere that the spill may enter the natural stormwater drainage system.		CON	

	• Washing of excess concrete is not to take place on site unless the concrete can be used as backfill (to be advised by the engineer).		CON	
Inventory and record of substances stored on site	• A full inventory of hazardous substances and Material Safety Data Sheet (MSDS) for each substance stored on site must be maintained and each substance must be stored and managed in accordance with the MSDS.		CON	
Storage of hazardous materials	• Hazardous materials and liquids to be stored in the assigned storage area as described above.		CON	

2.3 Training & Awareness				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Who should be trained & Frequency of training	• All construction staff will have basic environmental awareness training, which can be conducted at the same time as the required health & safety training.		CON	
	• All construction staff are to be aware of the location of the watercourses and associated wetlands. • Staff are to be made aware of the restrictions associated with these sensitive areas (see section 2.4 below).		ECO	
	• Staff must be trained on their environmental responsibilities before commencing work and refresher sessions can be conducted during toolbox talks on specific areas causing problems.		ECO	
	• Staff must sign the training register and records of training should be kept for review by EDTEA if requested.		CON	
Training Content and staff conduct	• Training should include 1. The definition of environment (people + air + soil + water + business); 2. Reasons for conserving and protecting the environment; 3. How the following activities can impact the environment: - Not using assigned ablutions, hazardous materials, uncleaned spills, mixing of cement on soil or grass surfaces, waste management i.e. use of waste receptacles and waste separation for recycling, vehicle washing polluting soil & ground water; litter; 4. What to do to prevent the above impacting the environment i.e. assign impermeable mixing areas, no vehicle washing on site, use of waste receptacles		ECO	

	and separation of waste to allow for recycling, how to respond in an emergency and deal with a spill; 5. Consideration of neighbours. 6. Use only the chemical toilets provided. 7. No dumping to occur. 8. Impact of erosion in and around pipe watercourse crossings. 9. Use waste bins provided. 10. Use drip trays provided. 11. Do not build fires for any purpose on the site. 12. Behave in socially acceptable manner and do not use drugs or alcohol on site. 13. The potential to find a fossil during excavation and the process to follow should a fossil be encountered (i.e. all work in the immediate area is to cease and AMAFA is to be contacted). 14. Working restrictions associated with the watercourses and wetland areas particularly along the western boundary of the site. 15. Identification of sensitive flora and fauna species (refer to images in section 2.4 below).			
Neighbours & Working hours	• Limit hours of operation to weekdays 7-5pm and Saturday mornings (8-1pm).		CON	
	• Residents adjacent to the pipeline route to be advised prior to periods where work will be done outside normal working hours.		CON	

2.4 Sensitive Social & Environmental Areas				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Community	• The contractor must exercise the necessary sensitivity with respect to the ensuring that there is a contact number that they can call if they have complaints • A complaints register is to be retained in the environmental file on site and complaints closed out timeously.		CON	
	• Construction vehicles to operate with care on all roads where the pedestrian risk is high. • Speeding will not be tolerated.		CON	
Watercourses (Aquatic & Wetland Specialists Recommendations)	• All watercourses must be treated as sensitive environmental areas (streams and wetlands).		CON	

	• No tracked vehicles (i.e. excavators) to be permitted within 23m of the watercourses unless they are using existing roads. • A 23m buffer must then be imposed on all watercourses with no vehicles or storage permitted within this buffer zone. • Stockpiling should take place outside of the riparian and instream areas. • No storage of materials within 23m of any watercourses. • It must be ensured that all excess fill material is removed and not left on the banks of the river channel or near the banks where it may be washed into the river in a high flood event. The excess fill material must be stored in the approved spoil site or within the designated stockpile area within the site camp. • No cement mixing may occur within 23m of any watercourse. • Trenches must be dug on-line (where applicable) creating narrower trenches. • Where trench breakers are required, these must be imported appropriately and installed by the backfill crew, ahead of backfilling. • Ensure careful separation of soil types/ strata as identified for the removal of soil. The soils must be removed in such a way that they can be easily reinstated in the reverse order for backfilling. • To ensure correct backfilling, the soil that is removed from the trench at its deepest point must be laid closest to the trench. The first layer of topsoil must be laid furthest away from the trench. • It may be necessary to import small amounts of padding material upon which the pipe safely rests in the trench prior to backfilling. This material must be stored outside the wetland areas until it is required to be placed within the trench, and bunded with sandbags. • Any large boulders encountered during trenching operations must not be returned to the trench, but removed off site. • If any spoil is generated this can be transported to another location and re-used if it is required, removed correctly to a licensed facility, or offered to the landowner. • No excavation will take place in the Mhlathuzana River during the construction of the concrete stepping stones on the weir. • The contractor is to ensure that this work is carried out during the low flow season during construction of the steeping stones on the weir (i.e. June – August). • Any epoxy and/or cement mixing is to be carried out away from the edge of the watercourse, associated wetland area and riparian area.			
Water abstraction	• No water may be abstracted from any of the watercourses on site unless the necessary Water Use Authorisation has been obtained from DWS.		CON	

	• Only the authorised volume is to be abstracted with records of the amount of water abstracted to be retained by the truck driver in the site environmental file. • Only one abstraction point is permitted. • Vehicles pumping water out the watercourse are not permitted in the channel and must not impact the riparian vegetation associated with the banks of the watercourse. • No water is to be abstracted for the washing of equipment and vehicles on site.			
Indigenous Vegetation	• Only vegetation within the construction footprint must be cleared and the clearance width must not be larger than that required for the pipeline trench. • There is to be no stockpiling of material adjacent to the trenches, which will increase the disturbance footprint. • No clearing of riparian vegetation is permitted for the construction of the stepping stones / blocks across the weir. • Top soil removed during the excavations must be kept to one side (stored more than 15m from watercourse). • This must then be re-used for rehabilitation purposes. Soil must be replaced in the same area that it was excavated from. Much of this topsoil, especially the top 30cm will retain grass and vegetation seeds. • No unnecessary clearance of vegetation, vines and large tree species is to take place. • The bulk pipeline running through the Nature Reserve is to be constructed above-ground with minimal clearing of forest undergrowth taking place. • The bulk pipeline is to accommodate larger tree species by making minor alignments during construction. • A trained ecologist is to be present full-time during construction activities in the North Park Nature Reserve to monitor the clearance of vegetation.		CON	
Rare, Red Listed & Protected species (Vegetation Specialist Recommendations)	• All rare, red listed and protected species are to be clearly marked with red & white tape prior to construction in the North Park Nature Reserve takes place. • The rare, red listed and protected species should be avoided. If it is not possible to avoid disturbing the species, the ECO is to be informed and a permit from DAFF or KZN Wildlife obtained for their relocation. • Figure 2 shows the location of the species within the North Park Nature Reserve with Figure 3 providing photographs of the rare, red listed and protected species, identified by the vegetation specialist and to be avoided during construction within the North Park Nature Reserve.		ECO	

Figure 2: Fieldwork-based vegetation mapping showing the position of rare, red listed and protected plant species (source: David Styles, 2017).

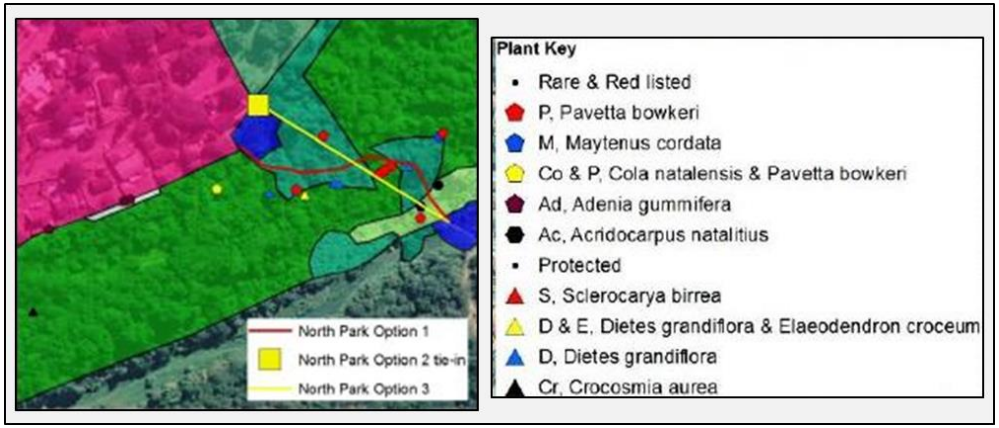
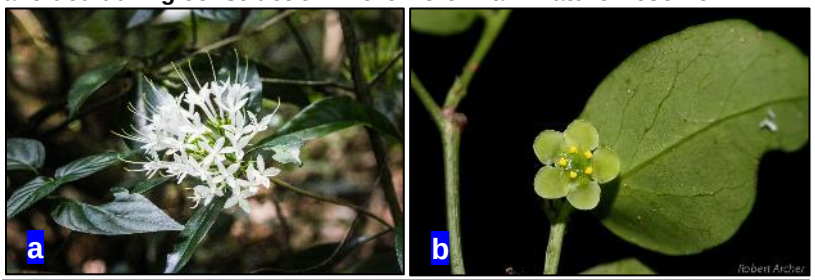


Figure 3: Photographs showing the rare, red listed and protected plant species to be avoided during construction in the North Park Nature Reserve.



(a) *Pavetta bowkeri*; (b) *Mayetenus cordata*;

Figure 3 cont.: Photographs showing the rare, red listed and protected plant species to be avoided during construction in the North Park Nature Reserve.

(c) *Cola natalensis*; and (d) *Adenia gummifera*

(e) *Acridocarpus natalitius*; (f) *Sclerocarya birrea* – permit required for removal;

(g) *Dietes grandiflora* – permit required for removal; (h) *Elaeodendron croceum* – permit required for removal;

	Figure 3 cont.: Photographs showing the rare, red listed and protected plant species to be avoided during construction in the North Park Nature Reserve.  **(i) *Crocosmia aurea* – permit required for removal.**			

Alien Vegetation	• On-going control of alien vegetation within the construction footprint to be maintained. • Common alien vegetation noted on site, which is to be removed from the study area during construction is *Litsea sebifera* (Figure 4a), *Cardiospermum grandifolium* (Figure 4b) and *Melia azedarach* (Figure 4c). **Figure 4: Common alien invasive vegetation identified in the North Park Nature Reserve (a) *Litsea sebifera;* (b) *Cardiospermum grandifolium*; and (c) *Melia azedarach.***    			
Fauna (Faunal Specialist Recommendations)	• Individual pythons are discovered on site during construction, an expert herpetologist should be commissioned to remove the animal safely for the purposes of safe relocation • Construction within the North Park Nature Reserve is to take place outside of the Spotted Ground Thrush breeding season (May – August). • If spotted ground thrushes (Figure 6a) are sited within the study area during construction, all activities should cease immediately to avoid displacement and possible flight into urban areas causing death through collision with cars.			

	• The full time ECO perform a herpetofauna search along the pipeline route within the North Park Nature Reserve for red listed / rare species indicated in Figure 6 below. • The ECO is to walk the length of the pipeline at the beginning of each day to ensure no species are disturbed by construction activities. • 1m on either side of the demarcated pipeline route is to be cautiously searched for the presence of these species. • Large branches potentially containing chameleons / frogs are to be cut and placed out of the disturbed area. • Should a chameleon / frog be found, it is to be carefully relocated to another section of the park in a similar habitat (>200m away from the construction activities). **Figure 5: (a) *Zoothera guttata* (Spotted Ground Thrush) is an endangered species found within the North Park Nature Reserve, (b) The endemic *Bradypodion melanocephalum* (Dwarf Chameleon), (c) Pickersgill Reed Frog (*Hyperolius pickersgilli*) and (d) Kloof Frog (*Natalobatrachus bonebergi*).** 			

	Figure 5 cont.: (a) *Zoothera guttata* (Spotted Ground Thrush) is an endangered species found within the North Park Nature Reserve, (b) The endemic *Bradypodion melanocephalum* (Dwarf Chameleon), (c) Pickersgill Reed Frog (*Hyperolius pickersgilli*) and (d) Kloof Frog (*Natalobatrachus bonebergi*).  			
Cultural and Heritage items	• Should any other items with historical or archaeological value be found during construction, these must be reported to AMAFA and work in the affected area should be stopped immediately.		CON	

2.5 Soil, Stormwater Runoff & Erosion				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Stormwater system	• Temporary stormwater protection measures must be established before construction activities commence. • Stormwater must not be allowed to flow into surrounding properties and must enter existing stormwater channels. • Temporary storm water channels and preferential flow paths should be filled with aggregate and logs (branches included) to dissipate and slow flows limiting erosion.		CON	
	• No contaminated runoff or grey water must be discharged from the site camp into the surrounding environment.		CON	
Stormwater quality	• Washing of any vessels or any containers on site must not enter any of the watercourses or stormwater. These washings are to be contained and removed as waste.		CON	
Incidents	• Any entry of any liquid substance onto the watercourses is to be considered an incident and must be reported to the ECO for the purposes of maintaining the site's incident records.		CON	
Stormwater flow	• Any drainage system installed on the site must be regularly checked to ensure an unobstructed water flow. • Channelled flow must not be permitted to enter any of the watercourses where it may erode the banks.		CON	
Erosion Control	• Install appropriate erosion barriers (berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric) before clearing in order to prevent substances from entering exposed drains or channels. • Identify any steeper areas (river banks- rocky slopes adjacent to the site) where erosion is more likely to occur and ensure adequate protection of these slopes. This can be achieved through planting of vegetation, placement of berms or use of hessian material. • Regularly check and clean material from behind erosion barriers. • Should an area showing signs of erosion due to construction related activities be identified on the site, this is to be attended to by the Contractor to prevent further erosion from occurring. • Sediment / soil must not be permitted to enter any of the watercourses		CON	

Trenching	• Trenches may not be left open indefinitely. Only small sections may be left open for testing of the pipeline and these must be demarcated with barrier tape. • Once a section has been completed, the trench must be closed and vegetation replanted. Open trenches can become a hazard especially after heavy rainfall where they fill up with water, creating a drowning hazard for children and animals. • When closing trenches, soil must be compacted sufficiently to the same level as the surrounding land to reduce long term erosion. • If settling is noted, additional soil must be added and compacted to ensure that the area is levelled. • Rehabilitation through replanting of naturally occurring species as soon after closure as possible will aid in stabilising soil and preventing erosion. • Trenches must not remain open during building shut down periods i.e. over Christmas and Easter. • Trench work must be planned so that trenches are closed before these shut down periods as there is a risk that the trenches will either collapse or fill with water if left unattended and this can create a hazard for children and animals. • Sections of trench near homes and pedestrian walking areas must be suitably demarcated.		CON	

2.6 Housekeeping, Waste Storage Handling and Disposal

Activity	Required Action / remediation to control environmental impact	In place (Yes / No)	Person	Comments
General Waste Storage	• The waste area to be designated and demarcated within the site camp.		CON	
	• Solid waste must be stored in covered, tip proof metal drums to be collected and disposed of by a certified waste contractor.		CON	
Record keeping	• A record of the volume of waste type and volume disposed of must be retained on site. • Proof of appropriate disposal i.e. Safe disposal certificates for this waste must be obtained and kept on site.		CON	
Hazardous waste	• Hazardous materials that require disposal (cement, paints, solvents, old fuel / oil etc.) must be disposed of at a registered hazardous landfill site.		CON	

	• These materials must be removed by an appropriate hazardous waste contractor.		CON	
	• Hazardous materials are not to be stored directly adjacent to any watercourses.		CON	
Waste from chemical toilets	• Install chemical toilets and ensure appropriate disposal of waste by a registered contractor.		CON	
	• Waste from the toilets must be regularly collected by a registered and reputable company.		CON	
	• Safe disposal certificates for toilet waste must be obtained and kept on site as assurance that the waste was properly disposed of.		CON	
	• Toilets must not be situated on slopes or within 32m of any of the watercourses and must be secured to prevent them tipping over.		CON	
	• Staff must use facilities provided and are not permitted to use any other areas along the pipeline route as toilet facilities.		CON	
	• Chemical toilets must be checked daily and cleaned.		CON	
Waste storage and handling	• No waste may be buried or burned on site or dumped on surrounding properties.		CON	
	• All litter and other materials, which have been dumped on the site, are to be disposed of at a registered landfill prior to construction commencing.		CON	
	• All skips/ waste receptacles must be covered to contain odours and prevent waste from blowing around the site and into the forest.		CON	
	• A register of all waste generated and disposed of must be maintained.		CON	
	• Ensure the correct waste containers are used by all site personnel.		CON	
	• Waste must not be allowed to build up on site and must be removed on a regular basis when the skip is full.		CON	
	• Provide litter bins and ensure all litter is immediately cleared.		CON	

Waste separation	• **Hazardous:** Hazardous waste must be stored separately from general waste.
	  ○ Hazardous waste must be disposed of at a permitted hazardous waste landfill and safe disposal certificates must be obtained.
	  ○ Hazardous waste includes used oils, lubricants, solvents, solvent based paints, cement.
			CON	

	• **Solvents and solvent based paints** must be disposed of by a licensed contractor as hazardous waste at a permitted landfill.		CON	

	• **Oils** must be stored within a bunded storage area and treated as flammable waste.
	  ○ Where possible used oils must be recycled.
	  ○ Safe disposal certificates must be kept on site demonstrating appropriate disposal or recycling of the used oils.
	  ○ Solid paint waste may be disposed of as general waste.
			CON	

	• **Concrete waste:**
	  ○ Return excess concrete with delivery truck to supplier for recycling or proper disposal.
	  ○ Any other excess concrete can be stored in a lined bin for eventual recycling or disposal.
			CON	

2.7 Resource Use and Conservation (Electricity, Water)				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Water use	• Minimise and monitor water use on site.		CON	
	• Should water be abstracted from a river on site, the relevant DWS authorisation is to be obtained and retained on site in the environmental site file. • Any conditions in place for the abstraction are to be adhered to. • A record of the volume of water abstraction is to be retained on site for auditing purposes.		CON	
Electricity use	• If an electrical connection is obtained, measures to conserve electricity use should be implemented i.e. switch off appliances at the plug point when not in use; switch off lights and computers when not in use.		CON	

2.8 Noise				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Noise Generation and suppression	• Use noise suppressors on machinery.		CON	
	• All construction vehicles must be fitted with standard silencers and be well maintained.		CON	
	• Workers must be trained regarding noise on site and construction hours should be kept to working hours (07h00 to 17h00 weekdays and 08h00 to 13h00 on Saturdays). • Work may not take place on Sundays or public holidays.			

2.9 Dust & Emissions				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Dust from stockpiles	• Cover any stockpiled fine material that may release dust with plastic.		CON	
Dust from surfaces	• Damp down surfaces and stockpiles as required to reduce windblown dust.		CON	
	• A water cart must be used which should remain on designated road ways.		CON	
	• If dust from the site is likely to create problems for nearby residents, these areas must be shielded with shade cloth.		CON	
Vehicles	• All construction vehicles must be fitted with the appropriate silencers and exhausts to prevent excessive emissions.		CON	

2.10 Vehicle Maintenance, Operation, Driving on Site and Vehicle Washing				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Roads and access	• Existing roads must be used. • Haulage to be created only if strictly necessary. • These roads must be demarcated at site set up. No haulage roads may be placed within 23m of any watercourse, as this may require environmental authorisation. • All vehicles to remain in the parking area designated within the construction site.		CON	
Vehicle servicing and repairs	• All vehicles to be equipped with drip trays for overnight storage at the site camp.		CON	
	• No major equipment or vehicle servicing to occur on site i.e. major disassembly and repair work, clutch replacements and oil or lubricant changes must be carried out at a suitably equipped workshop area.		CON	
	• Only minor emergency repairs, i.e. those necessary to get the vehicle moving so that it can be taken to a repair facility to be carried out i.e. stopping of oil leaks, lubricating of hydraulics, changing of buckets / breakers on Excavators and TLBs or changing of tyres. This must be carried out in designated work shop areas within the allowed construction camps. These areas to be hard surfaced and bunded.		CON	
	• All small machinery used on site must be situated on a drip tray (i.e. pumps, generators, compressors etc.).		CON	
	• No leaking vehicles to be allowed on site.		CON	

2.11 Incidents, Spills and Emergency Response				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Spill kits	• Adequate spill kits and containers for spilled and contaminated material to be on standby on site.		CON	
	• Keep clearly marked booms and/or absorbent material on site to contain spills if they occur. • A spill kit can consist of a drum that is in good condition and which holds sand for absorbing spilled material and that is stored together with a spade.		CON	

	• Another drum must be kept ready to receive contaminated soil for disposal as hazardous waste. This drum must be stored under cover on a hard surfaced area.			
	• All staff must be trained on how to react in the case of an emergency.		CON	
	• If a spill occurs, stop the source, contain it, clean up in accordance with MSDSs and notify relevant authorities.		CON	
	• Make staff aware of emergency phone numbers to use in the case of a large spill.		CON	
Definition of incidents	• All incidents are to be recorded.		CON	
	• **Minor incidents**: small spills less than 5 l that do not enter stormwater or nearby water courses, minor non-compliance with EMPr that does not cause major environmental impact i.e. housekeeping issues etc. ○ **Action:** Supervisor and staff on site to record and address and notify ECO. Take photos of spill. Prevent spill from spreading and contain it. Collect spilled material and contaminated soil and place in sealed container for disposal. ECO to advise on remediation measures and to follow up on actions taken to address incident. ○ **Records:** On site incident register.		CON	
	• **Major incidents:** Large spills or any spills that enter stormwater or nearby water courses, fires, explosions; anything that results in the death or injury to a protected species. Please see definition of a reportable incident provided below. ○ **Action:** Report immediately to ECO, action to be taken to prevent further damage and incident to be reported to authorities. ECO to advise on remediation measures and to follow up on actions taken to address incident. ○ **Records:** On site incident register and report to authorities.		CON	

2.12 Sewage and Grey Water Management				
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Person**	**Comments**
Sewage	• Adequate toilet facilities (i.e. chemical toilets) sufficient in number to cater for the number of staff on site must be provided.		CON	
	• Waste must be removed by a licensed contractor and safe disposal certificates retained to prove proper disposal.		CON	
Grey water / wash water	• Grey water should not be permitted to enter the watercourses or stormwater system directly.		CON	

	• Vehicles, especially cement trucks, must not be washed on site these should be washed at a wash bay facility off site.		CON	
	• Grey water (i.e. soapy wash water) may be disposed of at the site camp after the settable solids have been removed (i.e. soakpits). • Hazardous wastes i.e. where water has been used to wash cement mixing equipment must be disposed of as hazardous waste. • Alternately the wash water can be collected and returned with the suppliers truck for disposal by the supplier.		CON	

SECTION 3 POST CONSTRUCTION

3.0 Post Construction Activities			
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Comments**
Post Construction Audit	• Clearance from the ECO must be obtained to ensure the all of the requirements of the EMPr have been complied with.		
Stormwater	• The Contractor is to check that the stormwater channels are free from building rubble, spoil materials and waste materials.		
	• Ensure that in the long term stormwater is protected from ingress by potential pollutants.		
Waste & Spills	• All spillages cleaned up and contaminated soil removed and disposed of appropriately.		
	• All remaining waste bins and / or skips must be removed and disposed of.		
	• All excess concrete must be removed from site on completion of works and disposed of. Washing of the excess into the ground is not allowed.		
	• All excess aggregate must also be removed.		
	• Used oil must have been collected by a registered used oil contractor and documentation to this effect provided.		
	• Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the ECO.		
	• No litter must be left on site.		
Structures, materials and stockpiles	• Any fences, barriers or demarcations utilized for the construction phase must be removed and disposed of.		
	• All structures and imported materials within the construction camp must be removed.		
	• The remaining building materials must be removed from the site.		

Erosion	• Any eroded soil on paths / roadways / other areas must be collected and replaced in the area from which it was eroded. These high-risk erosion areas must be protected from further soil erosion. • Particular caution must be taken around the watercourse crossings where the entry and exit points tend to be quite steep.		
Damage	• Any damage incurred on the neighbouring properties must be repaired.		
	• Any damage to existing infrastructure (i.e. water pipelines, electricity lines and residential property) must be repaired or replaced once construction is complete.		
Vegetation	• All vegetation planting must be completed and any areas that have been disturbed or cleared must have been rehabilitated and re vegetated.		
	• Re-vegetation of cleared land must utilize only 100% locally indigenous plant material to ensure no erosion occurs once the site is vacated.		
	• Ensure that no sensitive habitats have been damaged during the construction phase.		
	• Where habitats or riparian zone have been damaged these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken.		
Close Out	• A meeting must be held between Engineer, the ECO and the contractor to approve all remediation activities and ensure that the site has been restored to a condition, which has been approved by the Engineer. • As per the EPCPD requirements, a close out report is to be submitted to the applicant on “lessons learnt” during the implementation of the project to inform future decisions and recommendations on proposal within Natural Reserves within the Municipal area.		

3.1 Rehabilitation			
Activity	**Required Action / remediation to control environmental impact**	**In place (Yes / No)**	**Comments**
Rehabilitation of areas	• Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil. • Where possible, vegetation that was removed during clearing must be kept aside and re-used. This can be kept on site in nursery areas or if the replanting occurs within a few days of clearing, can be kept to one side and immediately re-planted.		

	• Grass can be reintroduced by hydro-seeding or planting of grass plugs. • Re-vegetation must not only take place at the end of construction but must occur on an on-going process behind the working front. • Cleared areas may not be left exposed for long periods and must be re- vegetated in stages as each section is completed. • Where habitats have been damaged, these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken.		
Top Soil	• Top soil removed during the excavations must be kept to one side (stored more than 32m from watercourse) and re-used in the same area that it was excavated from. • This top soil to be used when re-vegetating and rehabilitating areas cleared for trenches.		
Rehabilitation of eroded areas	• Any erosion damage caused during construction must be repaired. The affected area must be reshaped and soil replaced. • The eroded area must be re-vegetated or measures put in place to control further erosion.		
Removal of alien invasive species	• There must be no alien invasive species along the disturbed footprint. • Standard procedure for removal of alien plant species is mechanical removal by hand whereby alien plant species are cut down or physically pulled out at the roots. • Use of chemical pesticides to kill alien plant species is the secondary option to achieve the same outcome as the methodology mentioned above. Should the infestation be of sufficient size this option must only be used after mechanical removal has been attempted. • As per the vegetation specialist recommendation, managing the long term impact will require commitment to alien plant control work along the parts of the route that flank or pass through the reserve. Alien plant control work must therefore focus on the bulk pipeline in the Nature Reserve and on the north-western edge of the reserve, where its joins the residential area. Alien plant control is to occur on a biannual basis for three years after the completion of construction. • The alien plant control work is to be undertaken only by a contractor who is known to and acceptable to both Ezemvelo KZN Wildlife and the eThekwini Municipality's Environmental Planning and Climate Protection Department.		
Damage to watercourses	• Where a watercourse or riparian zone has been damaged the following measures are to be taken to ensure appropriate restoration of the habitat: o ECO must assess the damaged area o Any construction debris or contaminants within the watercourse must be removed		

	○ Original soil structure must be restored ○ Any impedance or diversion to water flow must be removed ○ Area must be vegetated with suitable riparian or wetland species • No loose soil or damaged banks can be left behind after construction.		

SECTION 4 DEFINITIONS

Stormwater
Clean rainwater which should be allowed to enter the stormwater system or natural water bodies without causing erosion. Stormwater should not be contaminated with any other substance including soaps, washings, hazardous materials, soil etc

Grey water
This is wash water that may contain non-hazardous soaps i.e. bath water, vehicle wash water etc. This should not be permitted to enter the stormwater system but can be disposed of in the sewage system or as effluent. If no sewage system is available on site the grey water must be collected and disposed of.

Sewage
Human excrement from chemical toilets.

Raw materials for which source statement must be obtained
Topsoil, sands, natural gravels, crushed stone, asphalt, clay liners, timber etc. E.G.: sand may only be obtained from an approved sand winning operation which is licensed and has an approved EMPr for operation.

Incidents
All incidents should be recorded. Minor incidents could include small spills of less than 5l that do not enter a water body or any stormwater drains, as well as housekeeping issues and general small non-compliances with the requirements of the EMPr. Major incidents are those that must be reported to the authorities and include all incidents involving contamination of a water body or stormwater or other reportable incidents as defined below.

Reportable incident is defined as 'an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed' NEMA Section 30, 'includes any incident or accident in which a substance (a) pollutes or has the potential to pollute a water resource; or (b) has, or is likely to have, a detrimental effect on a water resource.' NWA Section 20.

SECTION 5 RECORDS

Training Register – Record any environmental training that has taken place.		
Training Conducted:		
Training provided by:		
Date of Training	**Name**	**Signature**

Incident Record – Record any incidents i.e. non-compliance with the EMPr				
Date of incident	**Details of incident**	**Mitigation required**	**Corrective action taken**	**Date action completed**

Complaints register – Record any complaints received from neighbours or the public regarding dust or pollutions, noise or nuisance.					
Date of complaint	**Complainant's Name**	**Complainants Contact Number**	**Details of complaint**	**Corrective action taken**	**Date action completed**

NEMA Section 30 Incident Report Form

Department: Environmental Affairs and Tourism 	**Document Type:**	Emergency Incident Report	
	Title:		
	Document Status:	Pilot reporting format	
Reference:	[A reference that may be used in future correspondence]	**Initial Submission Date:**	[Date of initial submission of the report to the Department: Environmental Affairs and Tourism]
Revision No.:		**Compiled by:**	[Full name and contact details of the person submitting the report]

This form provides a template for the emergency incident report required in terms of section 30(5) of the National Environmental Management Act (Act No. 107 of 1998) (hereinafter "NEMA") in which the responsible person or, where the incident occurred in the course of that person´s employment, his or her employer, must, within 14 days of the incident, report to the Director General, provincial head of department and municipality such information as is available to enable an initial evaluation of the incident, including: (a) the nature of the incident; (b) the substances involved and an estimation of the quantity released and their possible acute effect on persons and the environment and data needed to assess these effects; (c) initial measures taken to minimise impacts; (d) causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure; and (e) measures taken and to be taken to avoid a recurrence of such incident.

In terms of section 30(1)(a) of NEMA, an "incident" means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed.

In line with section 24 of the Constitution of the Republic of South Africa (Act No. 108 of 1996), "serious" is taken to be a measure of the impact of an incident where such an incident has had, could have had, is having, or will have a negative impact on human health or well-being.

RESPONSIBLE PERSON

In terms of section 30(1)(b) of NEMA, the "responsible person" includes any person who: (i) is responsible for the incident; (ii) owns any hazardous substance involved in the incident; or (iii) was in control of any hazardous substance involved in the incident at the time of the incident

Name:	[Full name of person, company, etc.]	**Designation:**	[designation of responsible person (n/a for companies, etc.)]
Postal Address:	[Full postal address including postal code]	**Physical Address:**	[Full physical address]
Telephone (B/H)	[Business hours contact telephone number and area code]	**Telephone (A/H)**	[After hours contact telephone number and area code]
Nature of Business:	[Brief summary of the nature of the business]		

EMERGENCY INCIDENT SUMMARY INFORMATION

Mark the appropriate boxes

Fire:		**Spill:**		**Explosion:**		**Gaseous Emission:**	
Injuries		**Reportable injuries:**		**Hospitalisation:**		**Fatalities:**	
Open water impacts:		**Ground water impacts:**		**Atmospheric impacts:**		**Soil impacts:**	
Own emergency response involved		**Fire prevention services involved**		**Government hazardous materials emergency response involved**		**More than 1 governmental emergency response service involved**	
Emission of non-toxic substances at low concentrations		**Emission of non-toxic substances at high concentrations**		**Emission of toxic substances at low concentrations**		**Emission of toxic substances at high concentrations**	
No evacuation required		**Immediate area evacuated**		**Immediate surrounds evacuated**		**Evacuation of the general public**	

INITIAL EMERGENCY INCIDENT REPORT

In terms of section 30(3) of NEMA, the responsible person or, where the incident occurred in the course of that person´s employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available: (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or byproducts released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to: (i) the Director General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.

Description	Date:	Time:	Medium:	Contact Details:
Director General:	[submission date]	[submission time]	[Fax, phone, SMS, letter, etc.)	[who was the report made to?]
SAPS:				
Relevant fire prevention service:				
Relevant province or municipality				
Affected persons:			Provide details of who was contacted and how they were contacted as Annexure A to this report	

INCIDENT DETAILS

In terms of NEMA section 30(5)(a) and (d), the responsible person must report on the nature of the incident as well as the causes of the incident, whether direct or indirect, including equipment, technology, system, or management failure

Incident start time:	[The exact time that the unexpected event started]	**Incident duration:**	[the duration of the unexpected event]
Duration of danger:	[The time taken from the start of the event to the time when the impacts of the event no longer posed a threat to anyone's health or well-being]	**Duration of exposure:**	[The duration of conditions that had a direct impact anyone's health or well-being]
Incident description	[Brief description of the incident detailing, but not limited to, a description of: (i) what happened; (ii) how it happened; (iii) where it happened; (iv) the timing and sequence of events; and (v) why it happened. A detailed discussion may be included as an annex.]		
	Plans, diagrams, maps or any other graphical material relating to the incident description must be attached as annexures B1, B2, etc.		
Wind speed and direction	[The wind speed and direction at the point of the incident at the time of the incident]	**Ambient air temperature**	[ambient air temperature at the time of the incident]
Weather conditions	[Sunny, light rain, mist, heavy rain, etc.]	**Other relevant meteorological conditions**	[Temperature inversion, floods, etc]

POLLUTANTS RELEASED DURING INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity.

List all the pollutants directly released during the incident (i.e. exclude those pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.)

Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

SECONDARY POLLUTANTS RESULTING FROM INCIDENT

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants that resulted from mitigation measures, e.g. flaring, treatment, dilution etc.

Substance or mixture of substances	Reference Number	Phase	Total Quantity emitted	Unit	Nature of emission
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[solid, semi-solid, liquid or gas]	[the total measured or estimated quantity released into the environment]	[the unit of measure in respect to the quantity]	[emitted from truck, underground pipe, stack, etc.]

POLLUTANT CONCENTRATIONS

In terms of NEMA section 30(5)(b), the responsible person must report on the substances involved and an estimation of the quantity released.

List all the pollutants detailed in sections.

Substance or mixture of substances	Reference Number	Estimated pollutant concentration			
		10m	100m	500m	Concentration unit (e.g. ppm)
[The name recognised by any national or internationally recognised chemical referencing system]	[Reference to any national or internationally recognised chemical referencing system]	[estimate the concentration of the pollutant in water, soil and/or air within a 10m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 100m radius of the epicentre of the incident]	[estimate the concentration of the pollutant in water, soil and/or air within a 500m radius of the epicentre of the incident]	[[Provide the unit of concentration used in columns 0, 0 and 0.]

INCIDENT IMPACT

In terms of NEMA section 30(5)(b), the responsible person must report on possible acute effect on persons and the environment and data needed to assess these effects;

Minor injuries	[Describe the number and types of any minor injuries that resulted from the incident or efforts to manage the incident or the impacts thereof]
Reportable injuries	[Describe the number and types of any injuries requiring statutory reporting that resulted from the incident or efforts to manage the incident or the impacts thereof]
Hospitalisation	[Describe the number and types of any injuries that required professional medical care that resulted from the incident or efforts to manage the incident or the impacts thereof]
Fatalities	[Describe the number and cause of any fatalities that resulted from the incident or efforts to manage the incident or the impacts thereof]
Biological impacts	[Describe any impacts on biological life, other than human life, e.g. fish kills, plant mortality, etc.]
Impact area	[Describe the area possibly affected by the incident or the impacts thereof including: (i) size of the area; (ii) socio-economic context; (iii) population density; (iv) sensitive environments (if any), etc.]

EXISTING PREVENTION PROCEDURES AND/OR SYSTEMS	
Foresight	[Briefly describe whether the incident could have, or had, been foreseen, e.g. was it included in any environmental impact assessment, risk assessment, health and safety plan, etc.]
Procedures and/or systems	Attach any relevant safety, health and environmental plans (including any statutory planning requirements) that detail what actions should be taken in the event of the incident that is the subject of this report
Procedure and/or systems failures	[Describe any failures or shortfalls in procedures and/or systems that may have contributed to the incident]
Technical measures	[Describe any technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurance of the incident]
Technical failure	[Describe any failures of technical measures, equipment, 'fail-safe' devices, etc. that are in place to prevent the occurance of the incident]
Data	Attach relevant impact reports, medical reports, death certificates, post mortem reports, environmental monitoring data, etc. as Annexes C1, C2,… to this report

INITIAL INCIDENT MANAGEMENT	
In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.	
Evacuation	[Describe any evacuation activities including information on the number of people evacuated and whether these people were staff or otherwise]
Technical measures	[Describe all technical measures taken to address the incident]
Mitigation measures	[Describe all measures taken to minimise the impact]
Emergency Services	[Describe any governmental emergency services involvement]

CLEANUP AND/OR DECONTAMINATION

In terms of NEMA section 30(5)(c), the responsible person must report on initial measures taken to minimise impacts.

Cleanup and/or decontamination	[Provide a detailed description of all cleanup and/or decontamination activities and the environmental quality and impacts resulting from these activities as well as contact details for any contracted service providers in an annex.]

Permissions and Instructions

Provide details of any permissions and/or instructions received from any organ of state during initial incident management, cleanup and/or decontamination

Type	Statuate	Issued By	Details
[Describe the nature or type of permission or instruction]	[Provide a reference to the legal mandate for the permission or instruction]	[Provide contact details for the permitting or instructing authority]	[provide a summary of the activities carried out in terms of the permission or instruction]

MITIGATION MEASURES

In terms of NEMA section 30(5)(e), the responsible person must report on measures taken and to be taken to avoid a recurrence of such incident.

Measure	Objective	Cost	Timing
[Briefly describe each of the measures taken, and to be taken, to avoid a recurrence of such incident]	[Briefly describe the objective of the measure, i.e. the desired outcome of the measure]	[Estimate the cost of the measure in terms of capital costs and/or recurrent costs]	[Provide information on the timing for the full implementation of the measure]

AUTHORISATIONS

Provide detail on all authorisations (including permits, licenses, certificates, etc.) in respect of the activity to which the incident relates.

Type	Statuate	Issued By	Issue & Expiry Date
[Describe the nature or type of authorisation, e.g. Registration Certificate]	[Provide the reference for the authorisation, e.g. section X of the National Environmental Management Act (Act No. 107 of 1989)]	[Provide contact details for the issuing authority]	[provide the date of issue and expiry]

HISTORY

Provide details on any and every similar incident involving the responsible person in the last 24 months. Similar incidents include those that: (i) involved similar circumstances; (ii) involved similar emissions; (iii) involved similar personal; and/or (iv) involved similar impacts.

Incident title	Report reference	Date of incident	Summary of event
[Provide the title used in the relevant emergency incident report]	[Provide the reference in respect of the relevant emergency incident report]	[Date of incident]	[Provide a summary of the event]

Signed by, or as a mandated signatory for, the responsible person:		Date:	