JANUARY 2023

NEMA S30A(1) and S30A(3)

EMERGENCY AUTHORIZATION FOR ACTIVITIES REQUIRED FOR THE RESPONSE TO PROVINCIAL DISASTER – GN R2013 OF 13 APRIL 2023 ENVIRONMENTAL MANAGEMENT PROGRAMME

REPLACEMENT OF DAMAGED SECTIONS OF BRIDGE AND EMBANKMENT PROTECTION IN QUEENSBURGH, BLUNDELL – RP 096

ETHEKWINI MUNICIPALITY
ENGINEERING UNIT
ROADS PROVISION DEPARTMENT

Peter G Fenton
eThekwini Municipality
Engineering Unit
Roads Provision Department
Structures Branch
Senior Manager

Roxanne E Mudali
eThekwini Municipality
Engineering Unit
Roads Provision Department
Structures Branch
Civil Engineering Technologist

Russell Stow
eThekwini Municipality
Development Planning, Environment and Management Unit
Environmental Planning & Climate Protection Department
Senior Environmentalist: Biodiversity Impact Assessment
Pr. Sci. Nat (Reg No 400089/07)

Table of Contents

SECTION 1 INTRODUCTION, PROJECT AND SITE DESCRIPTION

1.1. Background

eThekwini Municipality experienced severe weather events and associated flooding during April 2022. This event caused flooding and damage to infrastructure and services impacting the well-being of many communities in KwaZulu-Natal.

Human Settlements, Engineering Unit, Roads Provision Department proposes to provide formal roads and vehicle crossing connecting various areas and communities of eThekwini Municipality to services and facilities. This is a well-used route, Blundell Road which connects Malvern and Pinetown,in this area and the existing roads and pedestrian crossings were damaged during heavy rains, as such there is no accessible formal crossing structure or road in place. Temporary emergency measures were undertaken immediately after the floods to make safe the area. The temporary structure required for crossing the river during construction will maintain the existing temporary measure that was constructed after the floods. The construction works will be carried out in phases. Construction camps etc will remain on the one side of the river during construction to minimize impact. The temporary crossing will be removed as soon as construction on the western bank is completed.

The works will be located as depicted in Annexure 1 – GPS Co-ordinates: 29°52'47.17"S 30°53'2.42"E

The proposed formalisation of the crossing is considered to be an essential service provision project and thought to be critical for the safety of the lives of those utilising the infrastructure services. This report provides an overview of the current situation at the proposed site and the proposed interventions to mitigate against the potential risk to those using the roadways without formal infrastructure. The report identifies critical environmental characteristics associated with the area and highlights the implications for the project.

1.2. Scope of Work

This site specific EMPr was prepared for the construction of the infrastructure in order to manage and mitigate potential environmental impacts during construction, as a duty of care requirement, in line with the National Environmental Management Act, 1998 (Act 107 of 1998). The provisions of this EMPr are binding on the contractor throughout the life of the contract. The duty of care principle, as per the responsibilities of the landowners, should be applied to promote environmentally sustainable development.

1.3. General Principles and Purpose of This EMPr

The purpose of this EMPr is to provide guidance to all contractors and site workers on how to operate in a responsible manner 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 that:

- There is protection of the environment during the construction period.
- All emissions to air, water and soil are controlled and managed 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 environmental impacts and meet the legislated requirements.
- Educate employees and contractors about the environmental risks of their work and the manner in which their activities must be carried out, so that significant pollution of the environment many be avoided, including halting or modifying activities or processes. This may be particularly applicable to contain or prevent pollutants or degrading of the environment.

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. The effectiveness of this EMPr is subject to the adherence of the conditions set about in this document.

1.4. Responsibilities

The Project Applicant (eThekwini Municipality) 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.
- Ensuring that the mitigation measures to address environmental impacts identified are carried out by the contractor.

The Project Manager or Engineer is responsible for:

- Appointing a qualified contractor and ensuring that they have read and understood the EMPr.
- 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.
- 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.
- Maintaining a register of complaints and queries.
- Ensuring and enforcing the findings of the ECO through assessing the contractor’s performance.
- Mitigating impacts on the environment through responsible operation and adherence to the EMPr.
- Ensuring transparency in the operation and environmental management of the site.

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 and complying in accordance with the EMPr and carrying out construction activities with due care and diligence ensuring that the activities are conducted to ensure that minimal adverse impact on the environment
- Ensuring that any communications from stakeholders are reported to the Environmental Control Officer (ECO).
- Ensuring that the staff and subcontractors are aware of the conditions of the EMPr
- Supplying method statements for activities as requested.
- Maintaining relevant documentation for review by the ECO.
- Undertaking the mitigation measures to address environmental impacts identified.

The Environmental Officer (EO) or designated Safety Health Environment (SHE) officer must be conversant with the applicable legislation pertaining to the environment and is responsible for:

- Daily compliance monitoring of construction against the requirements set out in this EMPr, and the environmental authorization.
- Undertaking the mitigation measures to address environmental impacts identified.
- 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.
- Liaising directly with the ECO on the monthly audit findings.
- Identifiying 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.
- Providing recommendations to address and rectify these matters.
- Monitoring implementation of the EMPr by the contractor.
- Working hand in hand with the SHE officer.
- Maintaining 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 Authorization.
- Discussing the requirements and specifications of the EMPr with the Engineer and Contractor.
- Monitoring and reporting on the performance of the contractor, also providing technical advice regarding the environmental issues.
- 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 effective monitoring and review to ensure effective application or implementation of the EMPr and to identify and implement corrective measures in a timely manner. The EO must be responsible for day-to-day monitoring and reporting while the ECO must undertake to monitor the site on a monthly basis. The day-to-day monitoring must be conducted by the EO in conjunction with the contractor and the engineer. The monthly audit report by the ECO can then be used to provide external monitoring and reporting to EDTEA Compliance and relevant Enforcement. Paramount to the reporting of non-conformances or incidents is that corrective and preventive action plans are developed and adhered to. Photographic records of all incidents and/ or non-conformances must be retained. Non-compliances identified by the ECO must be resolved within fourteen days of being noted, incidents that are deemed by the ECO to have a large environmental impact must be resolved immediately.

1.6. Applicable Legislation

The site engineer must be aware of any compliance issues raised by the EO and ECO and must 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 must 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
- Water Services Act (Act No 108 of 1997)
- Soil Conservation Act, (Act No 76 of 1969)
- Minerals Act (Act No 50 of 1991)
- Relevant local bylaws

This EMPr meets the requirements of the stipulations provided in terms of the Section 30A Directive issued in response to the Provincial Disaster declared under GN R2013 of 13 April 2022: Severe Weather Events in Kwa-Zulu Natal in terms of NEMA, 1998 (Act No. 107 of 1998) Environmental Impact Assessment Regulations, 2014 with regards to the content of EMPr. This EMPr has been developed to specifically address the impacts related to this project in each phase of development.

1.7. Layout of the EMPr

The EMPr is divided into five sections dealing with an Introduction and description of the proposal and the site, Pre Construction and Site Set Up, Construction Activities and Post Construction, Rehabilitation and Operation Activities. Sections 4 and 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 mitigation measures have been put in place and to make comment about any problems noted.

1.8. Project Details

eThekwini Municipality's Transport Authority propose to construct a new portion of road and replace damaged sections of embankment along D403 in Inanda, eThekwini Municipality at the following co-ordinates: Latitude: 29º 51' 24.366" S, Longitude: 30º 56' 56.643"E.

The new road will connect two areas that require safe pedestrian and vehicle access along the Ohlanga River. This is a well-used route in this area. The existing road network infrastructure was damaged and needs replacement.

The proposed works will entail the following measures to ensure safe passageway for vehicles and pedestrians alike:

- Replacement of embankment protection works
- Road layerworks and asphalt
- Erosion prevention measures
- Excavation and infilling

Any temporary works, should it be deemed fit by the Engineer, will be made in consultation with the relevant ECO, and will be removed upon completion of the project.

The total construction corridor (construction footprint) for the road infrastructure will be carried out as per the attached and will have a positive impact on local access and the community living in this area.

Figure 1: Construction footprint area associated with the road infrastructure construction.

1.9. Construction Methodology

Need to include construction camp location and setup and operation somewhere in here.

Please note construction of the road infrastructure will commence in the dry season to ensure there is less water within the watercourses, as far as possible. If required for construction purposes the water within the watercourses will be redirected around the active work zone, however the flow of the watercourse will still remain in the river channel. Sandbags acting as impeding structures will be manually placed within the watercourses to redirect the flow around the instream construction area. Once work has been completed or there is no longer the need to redirect the flow the sandbags will be removed allowing the water to flow on it most desired course.

The site construction corridor (the area within which all construction work will be limited) will be demarcated prior to clearing. Clearing and grubbing of the site for access and construction of the works will then be undertaken. This will include the clearing and cleaning of vegetation within the construction footprint of the site. There is very limited vegetation within the watercourse that would need to be cleared. Clearing and grubbing of the site will be undertaken by heavy machinery i.e. a TLB. Bulk earthwork will take place once the site has been prepared. Heavy machinery i.e. a TLB will be used to excavate necessary quantities for layerworks and road construction.

Finally rehabilitation / re-vegetation of all areas affected by the construction activities using intensive grass sod planting or hydro seeding with a suitable indigenous grass seed mix will be undertaken. The indigenous grass seed mix will be chosen in conjunction with the contractor chosen to undertake the rehabilitation. Once the works has been completed the existing detour created by the community will be completely rehabilitated back to its original state.

The duty of care and remediation of damage in accordance with Section 28 of NEMA shall be carried out by the applicant. This generally involves that all damaged areas must be rehabilitated as soon as possible, and where possible disturbed areas are to re-vegetated with indigenous vegetation, such that future run-off will not cause erosion. The site area must be checked for damaged and rills or gullys in-filled as soon as possible with appropriate measures.

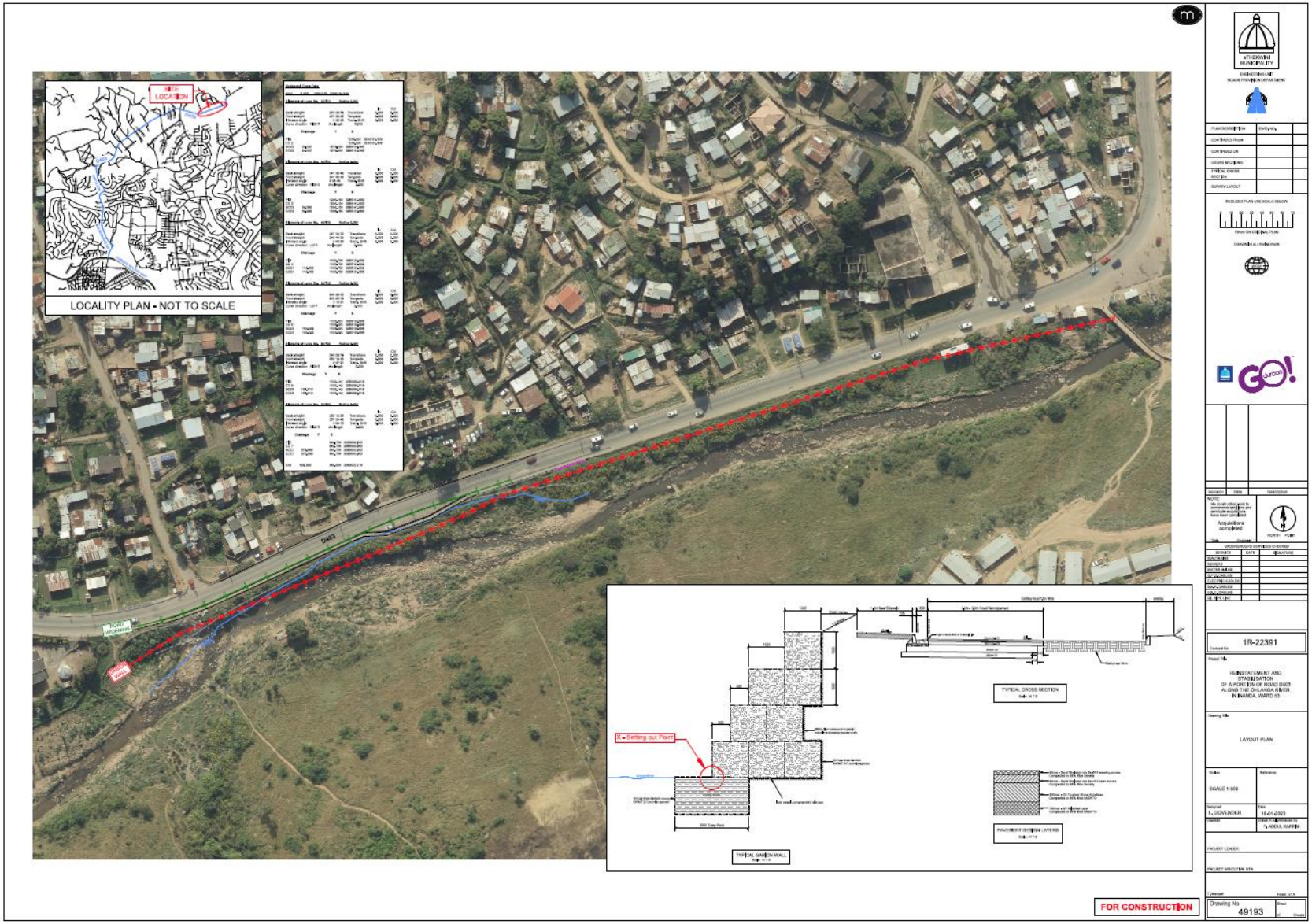

Figure 2: The General Arrangement for the Road Infrastructure.

1.10. Table of Responsibilities

This is to state that the undersigned have received a copy of the Environmental Management Programme (EMPr) developed for this site. Any contravention of the EMPr must be recorded and corrective action must be carried out. Any changes to the EMPr must be approved by the *Environmental Control Officer (ECO)*, 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 Environmental Management Programme (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**

1.11. Names and Telephone Numbers of Contact Persons

The following list of contacts must be printed and made clearly visible on the site.

Contact List			
Designation	**Organisation**	**Name**	**Contact number**
Applicant	EThekwini Municipality	Roxanne Mudali	031 311 7606
Consulting Engineer (if applicable)			
Independent Environmental Practitioner and ECO			
Environmental Authority (Enforcement & Compliance)	EDTEA	Compliance Officer	
Reporting for Incidents involving Watercourses	DWS	Compliance Officer	
Wildlife Related Incident	Ezemvelo KZN Wildlife	Dominic Wieners	033 845 1455
Heritage Resources	AMAFA	Weziwe Tchabalala	033 394 6543
Fire Emergency	Fire Department	-	10111
Crime Emergency	Police	-	10111

New section – Construction Phase Impact Mitigation

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
Construction Camp	????			
There is potential for erosion to take place within the Ohlanga River resulting in downstream sedimentation from clearing and the operation of the construction site near the Ohlanga River.	The following measures must be carried out to mitigate against erosion on the construction site: • The areas of the Ohlanga River that are not within the direct project footprint must be demarcated as 'no-go' areas. • All construction activities occurring within the River must be done so with extreme care to avoid any erosion taking place in the watercourse. • All areas upstream and downstream of construction footprint must be demarcated as a 'no-go' zone for the duration of the construction process. No site staff are permitted to enter these areas. • Areas exposed to erosion must be protected through the use of sandbags, berms and efficient construction processes i.e.: limiting the extent (footprint) and duration period that areas are exposed. • The contractor must limit in-stream work to minimize streambank and bed disturbance. • No excavated material or fill material may be stored within the River or within 32m of the River. • Bedding material that will be used must not be stored within 32m of the Ohlanga River before it is used. What about access?	CON/EO		
There is the potential for sedimentation to take place within the River from the temporary crossing. The sedimentation may be minor to continual usage of the crossing or major due to a	The following measures must be carried out to mitigate against sedimentation from the temporary crossing: • The entire temporary crossing must be lined with sandbags to avoid sediment water interfaces. • Any damage to the temporary crossing must be immediately repaired by the contractor. • Any blockages of the concrete pipes must be removed as soon as possible.			

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
complete failure of crossing	The temporary crossing must be designed as to allow for the flow in the river to be maintained. i.e. the structure must not cause a damming effect within the river.			
The habitat for riverine fauna and flora living within the construction footprint will be modified due to the excavation and construction activities taking place within the Ohlanga River.	The following measures must be carried out to mitigate against excessive habitat destruction on the construction site: • Erosion prevention and sediment control measures must be implemented. Temporary and permanent erosion control methods may include silt fences, interceptor ditches, seeding and sodding, riprap of exposed embankments, and mulching; • The project footprint must be kept as small as possible; • Direct impacts to Ohlanga River substrate/habitat outside the construction footprint must be avoided by ensuring the Ohlanga River outside the construction footprint is demarcated as a 'no go' zone during construction. • Heavy machinery must not be permitted to move beyond the demarcated footprint; • Sand and aggregate for concrete must not be obtained from within the riverbed or riparian zone but must be sourced from a permitted source; • A spill containment plan is required to be in place prior to construction to minimize the potential impacts of spills or leaks of hazardous substances; • Contamination of the river system with unset cement or Ohlanga River must be prevented as it is detrimental to aquatic biota.	CON/EO		
Clearing of the indigenous vegetation within the endangered KZN Coastal Belt vegetation type for the. There will be clearing of of vegetation for the construction	Indigenous vegetation outside the development footprint must be demarcated and protected. The following measures must be carried out to mitigate against excessive vegetation clearing on the site: • This impact cannot be fully mitigated as it will result in the loss of up to 1000m^2 of indigenous vegetation found within KZN Coastal Belt vegetation type. • A permit must be obtained from KZN Ezemvelo Wildlife should provincially protected species be required to be relocated or removed. • Vegetation removal must be kept to a minimum.	CON/EO		

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
	• Invasive alien vegetation must be removed from site. The General Invasive Alien Plant Control Guideline document available from EPCPD of the eThekwini municipality must be consulted in this regard. Areas where the alien vegetation has been removed must be suitably rehabilitated. • On completion of the construction on site, the disturbed areas must be rehabilitated using indigenous vegetation. • The construction corridor must be clearly demarcated pre-construction and all construction activity and clearing must take place within the authorised construction area. • The vegetation that will be cleared must be restricted to the construction footprint, the footpaths and temporary crossing only. No vegetation may be cleared within the Ohlanga River other than that required for access to the site or for the construction activities associated with the construction. • Contractors must avoid damaging any vegetation that is not within the construction footprint; The ECO must be consulted should a tree or any vegetation require clearing outside of the designated construction footprint area.			
Removal of alien invasive vegetation found within the construction area.	This is a positive impact. Alien vegetation clearing must be encouraged at all times.	N/A		
Careless operation by the contractor within the River resulting in damage to the River i.e. the riverbed, banks and riparian zones within the construction footprint and adjacent areas	The following measures must be carried out to mitigate against potential damage to the Ohlanga River during construction: • Areas of the River not within the construction footprint must be demarcated as no-go areas; • Heavy vehicles must avoid working near the River as far as possible; • A 32m buffer must be imposed on the rest of the Ohlanga River with no traffic, vehicles or storage permitted within this buffer zone; • Vehicles may not cross the Ohlanga River at any other point than the construction footprint;	CON/EO		

Nature and Consequences of impact	Proposed mitigation and Extent to which impact can be reversed / avoided, managed or mitigated:	Person	In place (Yes / No)	Comments
	• Non-essential equipment and vehicles are to remain at least 32m from the Ohlanga River at all times.			
The construction activities resulting in the encroachment of alien vegetation into disturbed areas.	There is currently alien vegetation located within the surrounding area. • Alien vegetation must not be allowed to encroach onto the site and must be continually removed during construction. • Construction must not promote further alien plant disturbances in the surrounding area	CON/EO		
Improved safety for all community members trying to cross the River.	This is a positive impact.	N/A		
Flood events overtopping and damaging the structure integrity of the road, and making the way impassable for vehicles and pedestrians.	The deck of the structure has been designed to accommodate elevated water flow and therefore the potential of the structure being overtopped is highly unlikely. The following measures must be carried out to mitigate against damage to the structure: • The contractor must build the road as per the approved design, as it has been designed to allow for flows associated with elevated waterflow any overtopping of the infrastructure may cause minor damage. • Conduct regular inspections and maintenance must be conducted on the road infrastructure when required.	APP		

S30A DIRECTIVE : DM / S30A / 0003 / 2022 – PAGES 14 – 15 & 21 - 23	
PRE-CONSTRUCTION	
	• Prior to actions commencing, the activity work areas, including site camp, access roads, stockpile areas, excavation areas, storage facilities and parking areas, must be clearly demarcated for the duration of the activity period. All activities / work must be limited to the activity footprint. • Storage areas must be located more than 50m from the watercourse. • The width of the defined working area within a watercourse and within 32 meters on either side of the watercourse must not exceed 20 meters wide. • The ECO must ensure that buffer zones, of undisturbed vegetation of an appropriate width, must be maintained between construction areas and bodies of water, watercourses and wetlands. • Environmentally sensitive areas must be clearly demarcated for the duration of the construction period. • Sensitive plant species that must be protected within the working area footprint must be clearly demarcated during construction period. • Where necessary and required, the construction site must be screened from surrounding sensitive social facilities (such as schools and clinics) and residences with fencing and shade cloth. • The removal, cutting, pruning or relocation of protected indigenous species or vegetation must be approved by the relevant competent authority if required, or by the ECO if no permit is required. • All contractors, construction staff or sub-contractors must receive environmental awareness training prior to commencing any work on the site.
CONSTRUCTION PHASE	
Timing of Construction	• Construction in the watercourse channel and riparian areas must be undertaken as quickly as possible to limit environmental impact • Construction work within the watercourse channel and riparian areas should be undertaken outside of the peak rainfall period of the year. • Activities must be undertaken as soon as possible to limit environmental impact, and the timeframes within which these activities must commence and be completed must be specified.
Soils and erosion control	• Storm water drainage must not damage surrounding properties or infrastructure. • Appropriate and adequate erosion protection measures must be implemented throughout the construction phase • Silt laden water must be diverted into sediment ponds and sediments allowed to settle before water is discharged into any watercourse • Silt fences or other silt and sediment trapping devices must be installed around all areas used for the storage of excavated and fill materials. • If necessary, soil should be carefully removed and stored for subsequent reinstatement. Excavated soils must be replaced in same sequences as they were removed and must be compacted to an equivalent compaction as the surrounding soil profile. • Water from flumes, diversions or other methods used to maintain downstream flow must not cause erosion or introduce sediment into the channel. • Compaction of soils must be minimised using appropriate techniques and methodology, such as restricting access during wet conditions, and using protective boarding and low ground pressure machinery.
Spills and pollution control	• Chemicals, dangerous goods and fuels must be stored in a suitably bunded area, with an impervious surface and a bund capacity of at least with 110% of the material storage capacity. • A spill contingency plan must be developed and any chemicals, dangerous good or fuels spills must be attended to immediately. • Contaminated soils resulting from spills must be removed and disposed of within the hazardous wate stream at an appropriately licenced landfill site. • Significant spills must be immediately reported to the competent authorities • Oil interceptors and drip trays must be used in vehicle parking areas and during re-fuelling; and must be inspected and cleaned regularly. • No vehicles may be washed within a watercourse or in a manner that may result in contamination of a watercourse or water resource.

	• Any concrete or cement mixing required during the construction phase must be undertaken on an impervious surface, and tools, equipment or other items contaminated with cement residue may not be cleaned a water resource or in a manner that may result in contamination of a water resource.
Water and construction materials	• Water use during construction phase may only be extracted or used from a water source approved by the relevant authority. • All stone, sand and other building materials must be sourced from sites that have a lawful environmental authorisation and/or mining licence as the need may be. Copy of proof of source of materials must be kept and made available on request.
Waste and sewerage management	• Waste management measures must be established to separate, collect, store, and dispose of general and hazardous waste streams. • General waste must be suitably stored and disposed of at an appropriate and lawful general waste disposal facility. • Hazardous waste streams must be established separate from general waste streams, and hazardous waste must be disposed of at an appropriate and lawful hazardous waste disposal facility. • No waste may be burnt on site • Recycling, reuse, and waste reduction strategies must be implemented. • Waste removal and safe disposal certificates must be maintained and made available on request • Temporary chemical or other appropriate toilets facilities must be provided; and where necessary chemical toilets must be serviced by registered service provider on at least a weekly basis. • Temporary ablutions and toilets must be established at least 50 meters away from watercourse or water source.
Vehicle access and traffic	• Construction vehicles must make use of existing access routes. If none exist, the access route to the construction site must be agreed to by the ECO. The access route must be created through the most degraded area avoiding sensitive / indigenous vegetation areas. • Wherever possible, heavy vehicles must not be allowed within 32m of the watercourse, where this is not possible, measures must be put in place to limit soil compaction and the extent of the working areas. • Traffic control measures; restricted and defined access to the site; defined speed limits; appropriate signage; and, the establishment of alternative routes, as may be needed, must be established.
Nuisance management	• Prior notice must be given to residents, sensitive social receptors, such as schools or clinic, and businesses adjacent to work areas of any noisy or dusty activities that may be undertaken. • Construction work and site activity may only be undertaken between 7am and 5pm on weekdays, and 7am and 3pm on Saturdays (unless otherwise agreed in writing by the Department) • Where appropriate and necessary, dust suppression measures need to be applied to limit dust impacts on adjoining land uses.
Cultural heritage	• The competent authority for cultural heritage must be contacted if any heritage objects or graces are identified during excavation activities and all construction work must ceases until authorisation to proceed is issued by the competent authority for cultural heritage.
POST - CONSTRUCTION PHASE	
Post-construction and rehabilitation / monitoring	• All disturbed areas associated with the construction activities must be reshaped, rehabilitated and re-vegetated immediately following the construction phase. • All temporary dams, berms and other material used to divert the stream flow must be completely removed from the channel and the streambed and bank profiles must be returned to preconstruction conditions following construction. • Rehabilitation of disturbed areas must occur at eh earliest time prescribed by the ECO • Rehabilitation and re-vegetation of disturbed areas must make use of locally indigenous species. • All construction debris and waste materials must be removed and disposed of at an appropriate and lawful general waste disposal facility. • The control of alien plant infestation within the development footprint must be undertaken and alien plant control must continue post-construction until the site has been suitable rehabilitated and re-vegetated with locally indigenous species.

SECTION 3 CONSTRUCTION MITIGATION MEASURES

3.0 Site Camp, Storage & Handling of Hazardous and Non Hazardous Materials & Stockpiling

Activity	Required Action / remediation to control environmental impact	Person	In place (Yes / No)	Comments
Location & Establishment of the construction camp	• The construction camps must be marked out with the approval of the ECO / E.	CON		
	• The site camps must be located on a flat portion of land, avoiding cut and fill wherever possible, and footprint adjacent to watercourse must be fenced off with shade cloth and wooden poles. Parking allowance for site staff and visitors must be accommodated. • Do not set up the construction camps within 32m of the River or within an area that will be flooded should water levels rise. • Do not set up construction camps within 32m of any other watercourse.	CON		
	• The site camps must be clearly demarcated (with appropriate signage) and fenced off to prevent illegal entry or injury to public and all construction work must be kept within the designated area	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** ○ **Stockpile areas** ○ **Vehicle servicing and wash bay areas (if required)** ○ **Parking area**	CON		
Establishing storage areas & Stockpiles	• Suitable areas should be chosen for stockpile, i.e. distance to adjacent watercourse, wetland, demarcated areas etc. • An impervious surface should be constructed to allow for hazardous substances to be handled and utilized, with a suitable grade allowing for suitable and satisfactory disposal of spilled substances. The	CON		

	impervious surface will disallow the ingress of storm water and any accidental spillage will not pollute the local soil or water resource. • Material Safety Data Sheets must be available on site for all chemicals or hazardous substances used on site, and to preferably include mitigation measures or ecological impacts. Staff dealing with such must be aware of the potential safety concerns and measures required including protective equipment and clothing along with appropriate training. • Storage areas must be safe and secure to minimize injury or crime. • Fire prevention facilities must be present at all storage facilities • Hazardous storage and refuelling areas must be bunded prior to their use. The bund wall must be high enough to contain 150% of the stored volume. • Drip trays to be used at dispensing areas and handling areas should be adjacent to the bund. • An adequate no of 44 gallon drums must be available on site to remove and collect contaminated soil.			
	• **A waste storage area** must be demarcated, and suitable and sufficient waste bins must be provided within the camps. Storage of waste must be on a hard surface, and under cover.			
	• **A materials storage area** must be identified and designated within the construction camps which must be located more than 32m from any watercourse. Materials, specifically liquid and potentially environmentally hazardous materials must be stored within a bunded area (110% capacity of largest container) and on a hard surface. The storage area must be under cover.	CON		
	• **Areas for fuel and hazardous chemical / flammable goods** must be identified and clearly signposted within the construction camps. An inventory of the materials and volumes stored must be maintained and updated once a week. These areas must be located within a bunded, hard surfaced impermeable area.	CON		
	• **Bulk fuel storage:** No bulk fuel storage to occur on any of the sites.	CON		

	• **Designated areas for stockpiling of raw materials** must be demarcated within the construction camps. No stockpiling is to occur on or near slopes where they could be washed into the surrounding properties or into the rivers. All stockpiling areas must be approved by ECO and must be located more than 32m from the edge of any watercourse.	CON		
	• **Parking:** The contractor must designate parking areas on the sites and ensure that only these parking areas are used. • Vehicles must not park within 32m of any watercourse.	CON		
	• **Vehicle servicing and washing:** only emergency (breakdown where equipment is no longer mobile) and minor maintenance (e.g. greasing) may be done on the sites. o A designated area must be set aside for this, which must be hard surfaced and bunded. o If emergency repairs are required, this must not be conducted within 32m of any watercourse, riparian zone or wet area. o Drip trays must be used. o Any other planned or required maintenance must be done off site at a suitable location. o Vehicle washing must also be conducted off site at a designated vehicle wash bay, the wash bay must be lined with impermeable material and must drain to a sump to ensure hydrocarbons, and other contaminants are separated out of the effluent prior to remaining runoff being discharged into municipal sewer. o No cement vehicles may be washed on site.	CON		
Handling of liquids on site	• Decanting of any liquids / chemicals paints etc. must be done within the confines of a drip tray or on a hardened surface within a bunded area. • This must not be carried out within 32m of any watercourse.	CON		
	• Decanting from large containers (e.g., 210L drums) must be done using a hand pump, where possible. If no hand pump is available, liquids must be decanted on a drip tray using a funnel. • This must not be carried out within 32m of any watercourse.	CON		

	• All handling of hazardous materials including cement must take place on a hardened surface or within a drip tray or cement mixing tray. • This must not be carried out within 32m of any watercourse.	CON		
	• Decanting of hazardous materials must take place within the site camp above drip trays or containers to prevent the potential spillage into these areas.	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 per Section 3.0 of this EMPr.	CON		

3.1 Administration & Records				
Activity / Document	**Required Action**	**Person**	**In place (Yes / No)**	**Comments**
Site Specific EMPr	• Keep a hard copy of the Site Specific EMPr on site including approved layout and ensure that it has been signed and received by the contractor and engineer.	CON		
	• All contractors, the engineers and the ECO must have a copy of the EMPr before coming on to site.	ECO/ ENG		
Records	• Keep records and proofs of all agreements, meetings etc. to demonstrate compliance with this EMPr including monthly audits	CON		
Proof of raw material sourcing and resource use	• Proof of sustainable source 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. In other words, documented proof that materials have been sustainably sourced must be maintained on site for review by EDTEA. ○ 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.	CON/ EO		

	○ Where materials are borrowed (mined), proof must be provided of authorization to utilise these materials from the landowner / mineral rights owner and the Department of Minerals and Energy.			
Water abstraction for dust suppression	• Water used on site must be obtained from a municipal source. If this is not available and water needs to be obtained from a nearby water resource, then the following will apply: ○ If water is to be extracted, it must be from an approved source and permission from the landowner must be obtained. ○ If water is extracted no more than 50 000l per day may be extracted. All water use must be registered with DWS. ○ If water is extracted, a daily record of the volume of water extracted must be retained and: ▪ The driver must record each truck load that is removed, and this will be used to determine the volume of water extracted. ▪ These records must be provided to the ECO for record and review. ▪ The ECO must monitor volumes to ensure that usage remains below 50 cubic metres per property per day or that abstracted amounts remain within those allowed by the permit that must then need to be applied for. ○ Water use must be controlled and reduced wherever possible.	CON/ EO		
Maintenance of the extraction point	• One point of entry must be established and approved by the ECO. Multiple entry points and pathways must not be permitted. • Multiple abstraction points are not permitted. • The abstraction point must not be established within wetland areas or in areas thickly vegetated by riparian vegetation. • The abstraction point must be easily accessible and where possible, located in close proximity to an established road to avoid creation of additional tracks. • The abstraction area must not be located on steep slopes where the point may be come eroded. • Vehicles approaching the extraction point must remain 32m away from the edge of the water resource except where required to pump directly from the stream/river.	CON/ EO		

	• No vehicle repairs or maintenance or refuelling may be conducted at the abstraction point. • Damage to the banks of any water resource must not take place. • Should the area become damaged or eroded, erosion protection measures such as sandbags or hessian sheeting must be put in place to allow the re-establishment of vegetation and stabilisation of the area. • Once an abstraction point is no longer being used, the area must be rehabilitated to its former state.			
Proof of training	• Keep training attendance registers on file at all times.	EO		
Incident records & Photographs	• Keep records of incidents that have occurred and how they were remediated. It is a good idea to take photographs when incidents occur and then to take follow up pictures to demonstrate remediation and keep these on record. • These records must be kept on site for review by EDTEA.	EO		
Appointment of ECO / EO	• Appoint an ECO (Environmental Control Officer) prior to commencement of construction to monitor the entire construction phase.	ENG		
	• Keep proof of appointment and contact details as well as dates of audits.	APP		
Emergency response plan	• An emergency response plan must remain on site as must a copy of the EMPr and the Environmental Authorization.	ECO		
Audits & Registers	• A record of audits conducted on the site as well as findings must be kept on site. • The following registers to be kept on site, personnel register, complaints register, I & Aps, proof of waste disposal, proof of chemical toilet cleaning, proof of environmental cleaning.	CON/ EO		
Permits & Approvals	• Keep all necessary permits and approvals on file i.e., construction licences etc. • These must be kept on site for review by EDTEA.	CON		
MSDSs	• Material Safety data Sheets (MSDSs) are to be kept on site for all hazardous materials.	CON		

3.2 Training & Awareness				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Who should be trained & Frequency of training	• All construction staff must have basic environmental awareness training, which can be conducted at the same time as the required health & safety training. Training must take into account language and literacy requirements to maximise effectiveness. Proof of such must be kept in the environmental files. A formal environmental induction must be conducted through a presentation. A 'clean site' policy must be adopted and maintained.	EO		
	• 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 on a minimum of a weekly basis.	EO		
	• Staff must sign training register and Records of training must be kept. • These records must be maintained on site for review by EDTEA.	EO		
Training Content and staff conduct	• Training must 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 or paint 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 and separation of waste to allow for recycling, how to respond in an emergency and deal with a spill. 5. Consideration of neighbours. 6. No trespassing on private / commercial properties adjoining the site is forbidden	EO		

	7. Do not play music or create any other disturbance to neighbours. 8. Use only the chemical toilets provided. 9. No dumping to occur in sensitive areas on site. 10. Use waste bins provided. 11. Use drip trays provided. 12. Do not build fires for any purpose on the site. 13. Behave in socially acceptable manner and do not use drugs or alcohol on site. 14. No workers must be permitted to live on site except pre-approved security. 15. Operators of equipment must be adequately trained, and ony with certification of competency by the contractor and / or Project management. 16. There is to be no hunting of wildlife on the site and no setting of snares or traps. No animals are to be harmed or harassed.			
Neighbours & Working hours	• Local community members must be notified of the project through community leaders and must be notified of the existence of any hazardous storage areas as well as the type of chemicals being used on site. • This can be achieved through placement of signboards. On-going communication is advised. Any queries raised must be documented and tabled at the monthly meeting. Appropriate action taken and feedback relayed. There are a number of areas that need to be monitored in this respect: • The disruption and safety of access for the local residents must be minimized at all costs and have the Project Engineer's permission. • The Contractor is to inform the neighbours in writing of disruptive activities at least 24 hours beforehand. • It is important that the Contractor's activities and movement of staff are restricted to the designated construction areas. • Notice of particularly noisy activities such as jackhammers, blasting, drilling must be given to residents adjacent to the construction site at least 24 hours prior to the activity taking place.	CON		

	• Noisy activities (i.e., blasting, drilling) must be restricted to the times given in the project specification or General Conditions of Contract.			
	• Limit hours of operation to weekdays 7-5pm and Saturday mornings 7- 12pm. Neighbours to be notified before construction on weekends takes place.	CON		
	• Advise the adjoining neighbours of the work and hours of work at least one week prior to commencement. This can also be indicated on the signboards.	CON		
	• Neighbours to be advised prior to periods where work will be done outside normal working hours. •	CON		

3.3 Sensitive Social Areas, Environmental Areas, Vegetation and Vegetation Clearing and Wildlife				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
General	• Any sensitive areas adjacent to the road including close proximity to watercourses / D'Moss must be fenced off or demarcated as a 'no-go' zone (ensuring no development therein) • A sediment trap may be installed at the end of the construction footprint, as per the instruction of E / ECO, and must be suitably maintained.			
Community	• The surrounding stakeholders must be made aware of the commencement of construction 30 days prior to construction. Alternate temporary access routes must be determined prior to the commencement of the construction.	CON		
Water Resources Specialist Mitigation Measures	• A 15 m buffer zone from the delineated wetland area (channelled valley bottom) must be strictly adhered to.	CON/ EO		

	• All ancillary construction activities must take place at least 15 m (channelled valley bottom) from the established wetland area, this includes the storage of fuels, dumping of waste material. • Roads to be kept free from deposits to prevent soil/silt from entering watercourses • The footprint area of the construction should be kept a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas. • An effective diversion should be constructed that convey an appropriate / sufficient volume of water to avoid the formation of an impoundment above the support structures during operation and construction; • All construction activities and access must make use of the existing access routes and / or already disturbed / cleared areas. • Temporary storm water channels should be filled with aggregate and/or logs (branches included) to dissipate flows; • A suitable storm water management plan must be compiled for the construction phase of the two crossings. Storm water measures must be incorporated into the design of the crossings; • It is critical to spread flows across the system (within the existing river channel), avoiding incisions in the landscape caused by concentrated flows; • The scouring of substrates should be avoided through the implementation of appropriately placed gabions or Reno Mattresses which would typically be provided in the design and should suffice to reduce erosion; • The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly; • Prevent uncontrolled access of vehicles through the water resources system that can cause a significant adverse impact on the hydrology and alluvial soil structure of these areas;			

	• All chemicals and toxicants to be used for the construction must be stored outside the riparian buffer area and in a bunded area; • All machinery and equipment should be inspected regularly for faults and possible leaks, these should be serviced off-site; • All contractors and employees should undergo induction which is to include a component of environmental awareness. The induction is to include aspects such as the need to avoid littering, the reporting and cleaning of spills and leaks and general good “housekeeping”; • Adequate sanitary facilities and ablutions on the servitude must be provided for all personnel throughout the project area. Use of these facilities must be enforced and comply with local regulation and authorities. No pit latrines, septic tanks or similar will be allowed on site. The location of such must be appropriate ensuring that it poses no health hazzard or risk of contamination and allow one toilet for every 15 workers. The facilities must be maintained and cleaned regularly. The temporary toilet facilities must be removed from site on completion f the project. • Have action plans on site, and training for contactors and employees in the event of spills, leaks and other impacts to the aquatic systems; • All removed soil and material must not be stockpiled within the system. Stockpiling should take place outside of the watercourse. All stockpiles must be protected from erosion, stored on flat areas where run-off will be minimised, and be surrounded by bunds; • Erosion and sedimentation into the channel must be minimised through the effective stabilisation (gabions and Reno mattresses) and the re-vegetation of any disturbed banks; • Any exposed earth should be rehabilitated promptly by planting suitable vegetation (vigorous indigenous grasses) to protect the exposed soil; • Embankments should be stabilised and revegetated with native vegetation. Thereafter, alien vegetation and erosion monitoring should continue for at least 6 months following the completion of the			

	revegetation or a period which would allow for the establishment of native vegetation communities; and • All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported.			
Top soil	• Top soil removed during the excavations must be kept to one side (stored more than 32m from River). • 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. • Soil stockpiles must not exceed 2m in height, must be covered, or grassed to prevent erosion caused by exposure to heavy wind or rain.	CON/ EO		
Vegetation clearing and planting	• Only vegetation within the development footprint may be cleared. Any vegetation clearing must be done under the supervision of the ECO and Engineer. • No non-indigenous garden variety plants must be used during rehabiliation.	CON/ EO		
Alien vegetation control	• On-going control of alien vegetation within the construction area must be maintained.	CON/ EO		
	• An alien eradication program must be in place to control the spread of alien invasive species on site.	CON/ EO		
Cultural and Heritage items	• Should any items with historical or archaeological value be found during construction, these must be reported to AMAFA and work in the affected area must be stopped immediately.	CON		

3.4 Soil, Stormwater Runoff; Erosion				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Stormwater system	• Temporary stormwater protection measures must be established before construction activities commence.	CON		

	• No contaminated runoff or grey water is allowed to be discharged from the Site Camps into the River or surrounding environment.	CON		
	• Storm water must not be allowed to flow into surrounding properties and must enter existing stormwater channels.	CON		
Storm water Quality	• Only clean stormwater may be diverted to the River and then precautions must be in place to prevent erosion of the riverbanks. These precautions can include gabion baskets, berms or diversion ditches, sandbags	CON		
	• Washings from any vessels or any containers must not enter the River or storm water. These washings are to be contained and removed as waste.	CON		
Incidents	• Entry of any substance (i.e. any material or substance that is not clean stormwater) into the storm water or a water body is considered an incident and must be reported to the ECO **immediately** for the purposes of maintaining the site's incident records.	CON/ EO		
Storm water flow	• The drainage system must be regularly checked to ensure an unobstructed water flow to avoid ponding or rill erosion • Channelled flow must not be permitted to enter the River where it erodes the banks and damage the streams.	CON		
Erosion Control	• Install erosion barriers (gabion baskets, 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.	CON		
	• Identify any steeper areas where erosion is more likely to occur. These areas must be protected from erosion. This can be achieved through planting of vegetation, placement of berms or use of hessian material. • Clearing activities must only be conducted during designated working hours and not during heavy rains or foreseeable inclement weather conditions. • Cleared or exposed areas must have minimal lead times ensuring least possible exposure • Following the clearing of the area, all surfaces to be roughened to retain water and increase filtration	CON/ EO		

	• All roads / paths / stormwater infrastructure to be protected from sedimentation from adjacent exposed surfaces.			
	• Regularly check and clean material from behind erosion barriers.	CON/ EO		
	• Sediment / soil must not be permitted to enter the River. The contractor must install erosion barriers (gabion baskets, berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric). • Top soil must be stockpiled where possible, and re-used during the post-construction phase. No top soil stockpile may exceed 2m in height, and use of tarpaulins may be used to ensure protection from rain and wind. All stock piles must be stored away from drainage lines, buffer zones and watercourse.	CON/ EO		

3.5 Housekeeping, Waste Storage Handling and Disposal				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
General Waste Storage	• The waste area to be designated and demarcated within the construction camp (as per section 3).	CON		
	• Solid waste must be stored in covered, tip proof metal drums to be collected and disposed of by a certified waste contractor. • Proof of safe disposal of solid waste must documented and these records must be maintained on site for review by EDTEA.	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 a hazardous waste contractor. Proof of disposal must be available to the ECO for scrutiny and kept on record. • Proof of safe disposal of solid waste must documented and these records must be maintained on site for review by EDTEA.	CON		
Waste from Chemical toilets	• Install chemical toilets and insure disposal of waste at a licenced disposal facility. Proof of disposal must be kept on site at all times.	CON		

	• Waste from the toilets must be collected on a weekly basis 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 40m of any watercourse and must be secured to prevent them tipping over.	CON		
	• Staff must use facilities provided and are not permitted to use any other areas on site 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 and farmland. All waste must be disposed of at a licences waste disposal facility. Proof of disposal must be kept on site at all times.	CON		
	• All skips must be covered to contain odours and prevent waste from blowing around the site.	CON		
	• A register of all waste generated and disposed of must be maintained.	CON/EO		
	• No dumping is permitted. There must be no dumping on site under any circumstances. The contractor is liable to a fine should there be any evidence of illegal dumping. • The ECO to review damage and advise on rehabilitation measures if required.	CON		
	• Do not place waste containers, skip bins or building materials on steep slopes or within 32m of the stream.	CON/EO		
	• Waste accumulated on site must be removed on a weekly basis. The waste must be moved to a licenced waste disposal facility.	CON		
	• Provide litterbins throughout the site for use by all staff on site.	CON		

Waste separation	• **Hazardous:** Hazardous waste must be stored separately from general waste. o Hazardous waste must be disposed of at an approved hazardous waste landfill and safe disposal certificates must be obtained as soon as possible o Contaminated water storage facilities must not be allowed to overflow with appropriate protection. o Hazardous waste includes used oils, lubricants, solvents, solvent based paints, concrete waste, and cement. o Hazardous substances to be stored under lock and key and usage of such is controlled. Adequate spillage measures must be taken o Any petrochemical spill must be stored in skips and taken to a hazardous landfill site. Safe disposal certificates must be submitted to the Assistant Manager fo the Compliance Monitoring Division of EDTEA. o In the event of a spillage/incident that cannot be contained and which poses a potential threat to the local environment, the following Departments must be informed of the incident within 48 hours and in accordance with Section 30 of the National Environmental Management Act, Act 107 of 1998: □ The Local Authority, eThekwini Municipality - (031 311 7875); o □ Department of Water and Sanitation (DWS) - (031 366 2700); o □ Department of Economic Development, Tourism and Environmental Affairs (Pollution and Waste Component, eThekwini District, Private Bag X54321, Durban, 4000) – (031 366 7347/7323); o □ The local Fire Department – (031 464 8404); and o □ Any other mandated authority. o □ Should there be any soil and groundwater contamination, the Control Environmental Officer: Pollution and Waste Component as per contact details specified above must be informed within five (05) working days.	CON/EO		

	○ In the event of this occurring, the necessary clean up measures must be undertaken immediately.			
	• **Oils** must be 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 disposal or recycling of the used oils. ○ Solid paint waste may be disposed of as general waste.	CON/EO		
	• **Concrete waste:** ○ Return excess concrete with the delivery truck to supplier for recycling or proper disposal. ○ Any other excess concrete i.e. on-site mixed concrete can be stored in a lined bin for eventual recycling or disposal.	CON/EO		

3.6 Noise				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Noise Generation and suppression	• All construction vehicles must be fitted with standard silencers and be well maintained. • Noisy activities must be kept to a minimum • A complaints register is to be kept • Blast events to be controlled by relevant legislation and undertaken by a professional team	CON		
	• Workers must be trained regarding noise on site and construction hours must be kept to working hours (07h00 to 17h00).	CON		

3.7 Dust & Emissions & Air Pollution				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Air Pollution	• Ensure compliance with the National Environmental Management Air Quality Act (No 39 of 2004) • Servicing of vehicles must occur off site to limit gaseous emissions • Speed limits must be implemented in all areas of site • Burning of waste is forbidden • Soil loads in trucks to be covered or suppressed as well as stockpiles.			
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 may be used which must remain on designated roadways if required, or dust suppression measures	CON		
	• If dust from the site is likely to create problems for nearby residents, these areas must be shielded with shade cloth.	CON		

3.8 Vehicle Maintenance, Operation, Driving On Site and Vehicle Washing				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Access points	• Haulage roads must be demarcated at site set up.	CON		
	• Turning areas must be located within the construction footprint and must be clearly designated.	CON/ EO		
	• Temporary access roads must not be located within adjoining properties.	CON/ EO		

	• No ad hoc haulage roads or turning areas may be created.	CON/ EO		
	• Limit vehicle entry point to the designated access point and ensure no other point of entry is used, ensuring that access roads are in good condition. • Unnecessary compaction by heavy vehicles must be avoided, by restricting access via demarcated routes and turning areas	CON/ EO		
	• All vehicles to remain in the parking area designated within the construction site.	CON/ EO		
Vehicle servicing and repairs	• 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.	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		
	• Drip trays are to be used by all leaking vehicles and equipment.	CON/ EO		
	• All vehicles to be equipped with drip trays.	CON/ EO		
	• All small machinery used on site must be situated on a drip tray (i.e. pumps, generators, compressors etc.).	CON/ EO		
	• All vehicles to be regularly maintained and maintenance records must be made available on request.	CON/ EO		
	• No leaking vehicles to be allowed on site.	CON/ EO		
	• Any vehicles that are leaking must not be allowed entry to site.	CON/ EO		

	• No vehicles to be washed on site - cement trucks are not permitted to wash out cement mixers on site.	CON/ EO		
	• Only emergency (breakdown where equipment is no longer mobile) and minor maintenance (e.g. greasing) may be done on site. Any other planned or required maintenance must be done offsite at a suitable location.	CON		

3.9 Incidents, Spills and Emergency Response				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Spill kits	• Adequate spill kits and containers for spilled and contaminated material to be on standby on site.	CON/EO		
	• Keep clearly marked booms and/or absorbent material on site to contain spills if they occur.	CON/ EO		
	• All staff must be trained on how to react in the case of an emergency.	CON-SHE		
	• If a spill occurs, stop the source, contain it, clean up in accordance with MSDSs and notify relevant authorities.	CON/ EO		
	• Make staff aware of emergency phone numbers to use in the case of a large spill.	CON/ EO		
Definition of incidents	• All incidents are to be recorded.	CON/ EO		
	• **Minor incidents**: small spills less than 5 l that do not enter stormwater or the stream/river, 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. Collect spilled material and contaminated soil and	CON/ EO		

	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.			
	• **Major incidents:** Large spills or any spills that enter stormwater or the stream/river, fires, explosions. 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/ EO		

3.10 Sewage and Grey Water Management				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Sewage	• Adequate toilet facilities (such as chemical toilets) sufficient in number to cater for the number of staff on site must be provided. One toilet per 15 staff must be provided.	CON		
	• Waste must be managed as per section 3.5 namely removed by licensed contractor and safe disposal certificates retained to prove proper disposal. • Safe disposal certificates must be kept on site for review by the EDTEA.	CON/ EO		
Grey water / wash water	• Grey water must not be permitted to enter the surrounding properties or stormwater.	CON/ EO		
	• Vehicles, especially cement trucks, must not be washed on site these must be washed at a wash bay facility off site.	CON/ EO		
	• Alternately the wash water can be collected and returned with the supplier's truck for disposal by the supplier.	CON/ EO		

SECTION 4 POST CONSTRUCTION, REHABILITATION AND OPERATION

4.0 Post Construction Activities

Activity	Required Action / remediation to control environmental impact	Person	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.	ECO		
Stormwater	• The Contractor must check that the stormwater channels are free from building rubble, spoil materials, and waste materials or erosion or failure	CON		
	• Ensure that in the long term; stormwater is protected from ingress by potential pollutants.	CON		
Waste & Spills	• All spillages must be cleaned and contaminated soil must be removed and disposed.	CON/ EO		
	• All remaining waste bins and / or skips must be removed and disposed of. Records of disposal must be retained.	CON/ EO		
	• All excess concrete including all construction rubble must be removed from site on completion of works and disposed of. Washing of the excess into the ground is not allowed.	CON/ EO		
	• All excess aggregate must also be removed.	CON		
	• Used oil must have been collected by a registered used oil contractor and documentation to this effect provided.	CON		
	• Surfaces are to be checked for waste products from activities such as concreting are cleared in a manner approved by the ECO.	CON		
	• No litter must be left on site. Rubbish pits and burning of waste is forbidden.	CON/EO		

Structures, materials and stockpiles	• Any fences, barriers, or demarcations utilized for the construction phase must be removed and disposed of.	CON		
	• All structures and imported materials within the construction camp must be removed and the area checked for spill of substances e.g. paint, oil etc must be cleaned up and any temporary services to be cancelled.	CON		
	• The remaining building materials must be removed from the site. Burying of unwanted materials is forbidden	CON		
Damage	• Any damage incurred on the neighbouring homesteads by the contractor must be repaired by the contractor.	CON		
	• Any damage to existing infrastructure must be repaired or replaced on completion of the upgrade.	CON		
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.	ENG		
Vegetation	• All vegetation planting must be completed and any areas that have been disturbed or cleared must have been rehabilitated and re vegetated.	ECO		
	• Re-vegetation of cleared land must utilize only 100% locally indigenous plant material to ensure no erosion occurs once the site is vacated.	CON/EO		
	• Ensure that no sensitive habitats have been damaged during the construction phase.	ECO		
	• Where habitats have been damaged these must be reported to the ECO and procedures for rehabilitation of these habitats must be undertaken. • Any alien vegetation that has grown on the embankments within the site must be removed and the area must be rehabilitated.	CON/EO		
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.	CON/EO		

4.1 Rehabilitation				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Rehabilitation of surrounding areas	• Cleared areas to be re-grassed on completion. Indigenous grasses to be used and the use of vetiver or kikuyu grass is not supported. Rather an indigenous grass seed mix must be used to rehabilitate the site. Species within this mix should include *Urochloa panicoides* (Garden Signal Grass), *Pogonarthria squarrosa* (Herringbone grass), *Eragrotis curvula* (Weeping Love Grass) and *Chloris gayana* (Rhodes Grass). • 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 Hydroseeding or planting of grass plugs. • Cleared areas must not be left exposed for periods longer than two weeks and must be re- vegetated in stages as each section is completed. • Where serious habitat damage has taken the damaged must be reported to the ECO. Consultation between the ECO, contractor, and engineer must take place. Whereby the contractor must develop and suitable method statement which must focus on the rehabilitation of the damaged area. This method statement must be approved by both the ECO and engineer. The contractor must then implement this method statement under the supervision of the ECO.	CON/ EO		
Top Soil	• Top soil removed during the excavations must be kept to one side (stored more than 32m from River) and re-used in the same area that it was excavated from. Much of this topsoil, especially the top 30cm will retain grass and vegetation seeds. • This top soil to be used when re-vegetating and rehabilitating areas cleared for construction/ excavation.	CON/ EO		

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. The contractor must install erosion barriers (gabion baskets, berms or diversion ditches, sandbags) and other sediment control structures (grates or grids, geofabric).	CON/ EO		
Removal of alien invasive plants	• Alien invasive species must be removed on an on-going basis. • Use of chemical pesticides must be avoided and mechanical removal by hand is preferred.	CON/ EO		

Damage to the River	• Where the River has been damaged the following measures are to be taken to ensure restoration of the habitat:
	  ○ ECO must assess the damaged area
	  ○ Any construction debris or contaminants within the River must be removed
	  ○ Original soil structure must be restored
	  ○ Any impedance or diversion to waterflow 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.
		CON/ EO		

4.2 Operation				
Activity	**Required Action / remediation to control environmental impact**	**Person**	**In place (Yes / No)**	**Comments**
Maintenance of the Road	• The road infrastructure will require maintenance to ensure that any potential blockages i.e. vegetation and debris are removed ensuring that water flows through unobstructed. This work will be undertaken manually (no machinery) by eThekwini Municipality appointed staff. • Any maintenance on the structure that triggers a Listing Notice as per the EIA Regulation, 2014 must only take place once an environmental authorisation has been received from EDTEA.	APP		
Soil Erosion	• The erosion protection features installed on the site must be checked to ensure, they continue to perform their function during the operational phase of the project.	APP		

Vegetation	• Alien vegetation must be monitored and removed on an on-going basis. • Indigenous vegetation planting must continue on an on-going basis if it is required.	APP		

SECTION 5 DEFINITIONS

Stormwater
Clean rainwater, must be allowed to enter the stormwater system or natural water bodies without causing erosion. Stormwater must 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 must 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 must 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 6 RECORDS

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

Non-conformance Record – Record any non-conformances i.e. small spills, overflowing waste bins etc.				
Date of Non conformance	**Details of non-conformance**	**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**

Environmental Emergency Response and Definition of an Incident

Aim of this document	• To effectively manage response to emergency incidents and control these incidents should they occur. • To ensure that such incidents are recorded and, where possible, all measures are taken to prevent them from re-occurring. • To provide a definition for what would be considered a reportable incident in terms of the environmental legislation. Activities covered in this procedure include: • Identification and definition of an incident and whether or not it needs to be reported to the authorities. • Reporting to the relevant authorities in the event that a reportable incident occurs • Procedure to follow in the event of a spill or fire.
Personnel Duties and Responsibilities	The contractor is responsible for: • Ensuring all activities are carried out as per this procedure and that the company complies with relevant legislation. • Maintaining a register of all incidents as well as ensuring that an incident report is generated for each incident, including details of the incident and how it was closed out. • Ensuring that safe disposal certificates are obtained for any waste materials generated as a result of an incident and that this waste is recorded. • Providing the necessary spill kit equipment and drums for storage of contaminated soil etc.
Training Requirements	• All personnel and manpower to undergo a site safety and environmental induction prior to starting work on site. All employees to be trained on how to respond to an environmental incident and who to contact in order to ensure that the incident is addressed and recorded and if necessary reported.
Definition of a "reportable incident"	• In terms of the National Environmental Management Act, major incidents must be reported to the authorities. In terms of the National Water Act, any incident involving a substance which has the potential to pollute a water resource must be reported i.e. any spill of into a watercourse or into the stormwater system must be reported. The relevant sections from the legislation are provided below:
National Environmental Management Act	*As defined by NEMA, section 30 "Control of emergency incidents".* *(1) In this section—* *(a) "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;* *(b) "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;* *(c) "relevant authority" means—*

	(i) a municipality with jurisdiction over the area in which an incident occurs; *(ii) a provincial head of department or any other provincial official designated for that purpose by the MEC in a province in which an incident occurs;* *(iii) the Director General;* *(iv) any other Director General of a national department.*
National Water Act	*As defined by the National Water Act section 20 "Control of emergency incidents"* *(1) In this section ``incident'' 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.*
Reporting to the authorities	In the event that a reportable incident occurs, the Site Agent / Project Manager and Environmental Control Officer must be notified immediately. No site staff may communicate directly with the authorities. The relevant sections from the legislation are included below: As taken from NEMA, section 30: Control of Emergency Incidents: *(3) 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.* *(4) The responsible person or, where the incident occurred in the course of that person´s employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident—* *(a) take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons;* *(b) undertake cleanup procedures;* *(c) remedy the effects of the incident;* *(d) assess the immediate and long term effects of the incident on the environment and public health.* *(5) 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.* *(6) A relevant authority may direct the responsible person to undertake specific measures within a specific time to fulfil his or her obligations under subsections (4) and (5): Provided that the relevant authority must, when considering any such measure or time period, have regard to the following:* *(a) the principles set out in section 2;* *(b) the severity of any impact on the environment as a result of the incident and the costs of the measures being considered;* *(c) any measures already taken or proposed by the person on whom measures are to be imposed, if applicable;* *(d) the desirability of the State fulfilling its role as custodian holding the environment in public trust for the people;* *(e) any other relevant factors.* *(7) A verbal directive must be confirmed in writing at the earliest opportunity, which must be within seven days.* *(8) Should—* *(a) the responsible person fail to comply, or inadequately comply with a directive under subsection (6);* *(b) there be uncertainty as to who the responsible person is; or* *(c) there be an immediate risk of serious danger to the public or potentially serious detriment to the environment, a relevant authority may take the measures it considers necessary to—* *(i) contain and minimise the effects of the incident;* *(ii) undertake cleanup procedures; and* *(iii) remedy the effects of the incident.*
National Water Act section 20: Control of emergency incidents	*(2) In this section, ``responsible person'' includes any person who -* *(a) is responsible for the incident;* *(b) owns the substance involved in the incident; or* *(c) was in control of the substance involved in the incident at the time of the incident.* *(3) The responsible person, any other person involved in the incident or any other person with knowledge of the incident must, as soon as reasonably practicable after obtaining knowledge of the incident, report to -* *(a) the Department;* *(b) the South African Police Service or the relevant fire department; or* *(c) the relevant catchment management agency.* *(4) A responsible person must -* *(a) take all reasonable measures to contain and minimise the effects of the incident;* *(b) undertake clean-up procedures;* *(c) remedy the effects of the incident; and* *(d) take such measures as the catchment management agency may either verbally or in writing direct within the time specified by such institution.*

Spill response	
Responsible Person/s	The spill is reported to the site foreman who must notify his superior. All employees must be made aware of the procedure in case of a spill.
Procedure	1. Identify nature of spill e.g. paint, oil or lubricants 2. Locate spill kit 3. Contain spill according to the training provided 4. Where necessary, contact external spill control contractors 5. Ensure spill does not cause any external contamination (such as storm/ground water or soil) 6. Ensure that cleanup measures are taken if any contamination has occurred 7. Record in emergency response record the: • Nature of incident • Cause of incident • Clean up measures • Mitigation measures taken 8. Record in non-conformance register 9. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report the incident to the necessary authorities i.e. EDTEA and DWA. 10. The ECO shall review all spill reports
Fire	
Responsible Person/s	The fire is reported to the site foreman All employees must be made aware of the procedure in case of fire.
Procedure	1. Identify source and nature of fire. 2. In case of small fire extinguish with material appropriate to the nature of the fire 3. In case of a large fire contact Fire Department 4. In the site camp, seal off exposed stormwater drains to ensure firewater does not cause any external contamination. If on site, take measures to prevent firewater entering any water body. 5. Ensure that clean-up measures are taken if any contamination has occurred 6. Record in emergency response record the: • Nature of incident • Cause of incident • Clean up measures • Mitigation measures taken 7. Record in non-compliance register 8. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report to the authorities. 9. The EO shall review incident / nonconformance reports 10. Adjustments will be made, if necessary, to the operational and emergency procedures and the Environmental Management System to prevent future occurrences

Explosion	
Responsible Person/S	The explosion is reported to the site foreman who must notify his superior. All employees must be made aware of the procedure in case of explosion.
Procedure	1. Identify source and nature of explosion. 2. In case of small fire as a result of the explosion, extinguish with material appropriate to the nature of the fire 3. In case of a large fire as a result of the explosion contact Fire Department 4. In the site camp, seal off exposed stormwater drains to ensure firewater does not cause any external contamination. If on site, take measures to prevent firewater entering any water body. 5. Ensure that clean-up measures are taken if any contamination has occurred 6. Record in emergency response record the: • Nature of incident • Cause of incident • Clean up measures • Mitigation measures taken 7. Record in non-compliance register 8. The ECO and Project Manager will determine if the event qualifies as an incident and take steps to report the incident to the necessary authorities i.e. EDTEA and DWS. 9. The ECO shall review spill reports
Resource Requirements	
Materials	• Separate drums for contaminated soil. • Spade and clean soil • Fire equipment

Invasive Alien Plant Control Plan

Invasive Alien Plant Control Plan	
Activity	**Site Mitigation Measures to control alien plants**
Training and expertise of personnel involved in Alien plant management on site	• It is rare that either a contractor has employees or members respectively with good knowledge of alien plants and their eradication, who can then eradicate these plants effectively and on a near-complete basis. Partial knowledge means that some alien species are missed or ignored, or indigenous plants harmed. Partial work, or work that is not sustained is also ineffective in the long run as any residual presence can regenerate and expand quickly, particularly if live material or many seeds still in the ground. • As a result, the contractor must continually train their works as to the importance of alien plant control and at the same time providing them with the correct knowledge as to which plant must be removed and what method must take place.
Alien Invasive Plant Management in construction area	• The construction area must be kept free of alien invasive plants. Regular inspections of the site must take place. The following methods of alien plant control can be adapted: o Mechanical Control ▪ Hand pulling ▪ Manual removal using hand tools ▪ Manual removal using mechanised tools o Chemical Control ▪ Foliar spraying ▪ Handheld spraying ▪ High pressure spraying • The construction area must be rehabilitated immediately following the completion of construction to ensure that alien invasive plants do not become established. • The construction area must be regularly inspected following rehabilitation and alien invasive plants removed if they have become established.
Responsible Use of herbicides	• Problem plants in construction areas usually short-lived weeds for which mechanical methods alone are not successful some use of herbicides may be unavoidable. The following must be followed with the use of herbicides: o Do not spray herbicides in windy conditions o Preferably spray in dry conditions and not prior to any predicted heavy rainfall as most pesticide movement either to the surface or to the groundwater will occur in the first major storm event after application. Heavy losses are reported when application occurs immediately before a major storm. o A buffer zone which must remain untreated must be retained around River. A minimum buffer of 10m must be retained. This area will have to be managed by mechanical means. o Empty containers or unused herbicides must be disposed of correctly and may not be dumped on site.