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1. INTRODUCTION

This Draft Environmental Management Programme (EMPr) is prepared as part of the requirements of the Environmental Impact Assessment (EIA) Regulations (18 June 2010, as amended) promulgated under the National Environmental Management Act (NEMA) (Act 107 of 1998, as amended). The Draft EMPr is to be submitted to the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs (KZN DEDTEA) as part of the Application for Environmental Authorisation for the proposed Decommissioning and Upgrade of a Bulk Liquid Storage and Handling Facility at Maydon Wharf within the Port of Durban (KZN DEDTEA EIA Reference Number: DM/0071/2014 and NEAS Reference Number: KZN/EIA/0001665/2014). The Project Applicant is Oiltanking Grindrod Calulo Terminals (PTY) Ltd (OTGC).

This Draft EMPr is being made available for a 40-day review period, as part of the Draft Basic Assessment (BA) Report. Comments received from stakeholders during the aforementioned review period will be incorporated into the Draft EMPr, where applicable. Following the incorporation of comments from stakeholders, this Draft EMPr is intended as a "living" document and should continue to be updated regularly, as needed.

1.1 Project Description

OTGC currently owns a Bulk Liquid Storage and Handling Facility (also referred to as a Tank Farm or Storage Terminal), located at 55 Johnstone Road in Maydon Wharf. Currently, the terminal operations include the storage, handling and distribution of Molasses. It is understood that the initial lease was signed in 1960 under the name of "Pure Cane Molasses". In 2003, the name of the Terminal Operator changed to "Tate and Lyle" and in 2006, Grindrod Tank Terminals took over the terminal. On 19 July 2012, Transnet National Ports Authority (TNPA) issued Grindrod Tank Terminals with a Liquid Bulk Terminal Operator Licence, in terms of Section 57 (1) and Section 65 of the National Ports Act (Act 12 of 2005). This licence was then transferred to OTGC on 18 July 2013 and is valid until May 2035. The licence permits the storage of Liquid Bulk products at the Storage Terminal, that are non-flammable or that have a flash point of 60.5°C or above, including Caustic Soda; Molasses; Fish, Vegetable and Edible Oils; Animal Fats; Glycerine; and Palm Oils and its fractions.

In line with the above Liquid Bulk Terminal Operator Licence, OTGC is proposing to upgrade their existing Storage Terminal to allow for the storage, handling and distribution of Molasses, as well as Caustic Soda (Sodium Hydroxide), Ethylene Glycol (MEG) and Vegetable Oils. The upgrading process will also include the demolition of certain infrastructure at the existing Storage Terminal. To this end, two existing aboveground storage tanks and two pipelines extending between the existing Storage Terminal and the berths will not be demolished, as these will be retained as part of the proposed project for the continued storage, handling and distribution of Molasses. As part of the Liquid Bulk Terminal Operator Licence, OTGC also leases the area adjacent to the existing terminal site, which is currently occupied by a Maritime Training School. The Maritime Training School and all associated infrastructure are planned to be demolished to allow for the upgrade and expansion of the proposed Storage Terminal. It is understood that the tenants of the Training School property are scheduled to relocate to an alternate location.

Overall, the proposed upgraded Storage Terminal will have a total combined storage capacity of approximately 85 600 m^3. However, the proposed tank capacity is based on the requirements of potential customers of the upgraded Storage Terminal. The actual capacity may vary approximately ± 5 % after construction.

The proposed upgraded Storage Terminal will be developed in line with relevant international and national standards and legislation, and it will mainly include the construction of the following:

- Approximately 16 new aboveground storage tanks for the storage of Caustic Soda, MEG and Vegetable Oils;
- Bunding;
- Site office;
- Parking area;
- Workshop;
- Fencing and entrance gate;
- Road tanker loading gantry;
- Security kiosk;
- Oil/Water separator;
- Pump bays;
- Drainage channels;
- Boiler room;
- Approximately six pipelines between the berths (i.e. Jetty 8 and 9 at Maydon Wharf) and the upgraded terminal; and
- Associated service infrastructure.

The proposed project will include the following main activities:

- Decommissioning and demolition of ancillary infrastructure at the existing terminal site.
- Operation of two remaining tanks and existing pipelines for the respective storage and transfer of Molasses at the existing terminal site. The two existing pipelines will first need to be inspected and tested before being used or upgraded.
- Decommissioning all existing structures and infrastructure at the Maritime Training School site.
- Site clearing and levelling.
- Construction of new tanks for the storage of Caustic Soda, Vegetable Oils and MEG, as well as ancillary infrastructure.
- Installation of approximately six pipelines between the upgraded terminal and the existing Berths 8 and 9.
- Installation of the road tanker loading gantry.
- Establishment of a future marine vessel loading pump area if the customer(s) require reloading of a vessel.

A detailed description of the proposed project is included in Section B of the Draft BA Report. A description of the affected environment is provided in Section C of the Draft BA Report, as well as the relevant specialist studies in Appendix D of the Draft BA Report. Refer to Appendix A of this Draft EMPr for the proposed layout of the project.

1.2 Authors of the Draft EMPr

This Draft EMPr has been compiled by the Environmental Assessment Practitioners and the various specialists on the team (as indicated in Table 1). The details and expertise of the Environmental Assessment Practitioner and the specialists are provided in Appendices G.6 and G.7 of the Draft BA Report, respectively.

Table 1: EIA Team

Environmental Assessment Practitioner			
Name	**Organisation**	**Role**	**Qualification/Expertise**
Paul Lochner	CSIR	Project Leader	BSc Civil Engineering MPhil Environmental Science
Rohaida Abed	CSIR	Project Manager	MSc Environmental Science
Specialist Team			
Name	**Organisation**	**Role/Specialist Study**	**Qualification/Expertise**
Jacobus de Kock	ILISO Consulting	Traffic Impact Assessment	B Eng (Civil) MSc Eng
Däniel Rademeyer	ISHECON cc	Risk Assessment	BSc (Chemical Engineering)
Dr. Brett Williams	Safetech cc	Noise Impact Assessment	PhD
Henry Holland	Private	Visual Impact Assessment	MSc Geology/GIS

2. APPROACH TO PREPARING THE EMPR

2.1 Compliance with Relevant Legislation

In terms of legal requirements, a crucial objective of the EMPr is to satisfy the requirements of Regulation 33 of the NEMA EIA Regulations of 18 June 2010 which came into effect on 2 August 2010. These regulations regulate and prescribe the content of the EMPr and specify the type of supporting information that must accompany the submission of the report to the authorities. An overview of where the requirements are addressed in this Draft EMPr is presented in Table 2.

Table 2: Compliance with Section 33 of the EIA Regulations (Government Gazette 18 June 2010, as amended) and Section 24N of the National Environmental Management Act (Act No. 107 of 1998)

Requirements of Section 33 of the EIA Regulations (Government Gazette 18 June 2010, as amended) and section 24N of the National Environmental Management Act (Act 107 of 1998)	**Where it is included in this Draft EMPr?**
a) Details of - (i) the person who prepared the environmental management programme; and (ii) the expertise of that person to prepare an environmental management programme;	Section 1
b) information on any proposed management or mitigation measures that will be taken to address the environmental impacts that have been identified in a report contemplated by these Regulations, including environmental impacts or objectives in respect of - (i) planning and design; (ii) pre-construction and construction activities; (iii) operation or undertaking of the activity; (iv) rehabilitation of the environment; and (v) closure, where relevant.	Management objectives and management actions columns in Sections 4, 5, 6 and 7
c) a detailed description of the aspects of the activity that are covered by the draft environmental management programme;	Section 1
d) an identification of the persons who will be responsible for the implementation of the measures contemplated in paragraph (b);	Section 3 of the Draft EMPr and Monitoring - Responsibility column of Sections 4, 5, 6 and 7
e) proposed mechanisms for monitoring compliance with and performance assessment against the environmental management programme and reporting thereon;	Monitoring - Methodology column of Sections 4, 5, 6 and 7

Requirements of Section 33 of the EIA Regulations (Government Gazette 18 June 2010, as amended) and section 24N of the National Environmental Management Act (Act 107 of 1998)	Where it is included in this Draft EMPr?
f) as far as is reasonably practicable, measures to rehabilitate the environment affected by the undertaking of any listed activity or specified activity to its natural or predetermined state or to a land use which conforms to the generally accepted principle of sustainable development, including, where appropriate, concurrent or progressive rehabilitation measures;	Sections 4, 5, 6 and 7 *Note that the proposed project is located within an operational port.*
g) a description of the manner in which it intends to - (i) modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) remedy the cause of pollution or degradation and migration of pollutants; (iii) comply with any prescribed environmental management standards or practices; (iv) comply with any applicable provisions of the Act regarding closure, where applicable; (v) comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	Sections 4, 5, 6 and 7
h) time periods within which the measures contemplated in the environmental management programme must be implemented;	Monitoring - Frequency column of Sections 4, 5, 6 and 7
i) the process for managing any environmental damage, pollution, pumping and treatment of extraneous water or ecological degradation as a result of undertaking a listed activity;	Management actions column of Sections 4, 5, 6 and 7
j) an environmental awareness plan describing the manner in which the applicant intends to inform his or her employees of any environmental risk which may result from their work; and risks must be dealt with in order to avoid pollution or the degradation of the environment;	Sections 4, 5, 6 and 7
k) where appropriate, closure plans, including closure objectives.	Not applicable (a closure plan will need to be prepared if and when the facility is decommissioned, in accordance with best practice and legislative requirements applicable at the time).

2.2 Content of the Draft EMPr

The Draft EMPr includes the findings and recommendations of the BA Process and specialist studies. However, the Draft EMPr is considered a "live" document and must be updated with additional information or actions during the design, construction, operational and decommissioning phases if applicable.

The Draft EMPr follows an approach of identifying over-arching objectives, accompanied by management actions that are aimed at achieving these objectives. The management actions are presented in a table format in order to show the links between associated objectives, actions, responsibilities and monitoring requirements.

The management plans for the design, construction, operation and decommissioning phases consist of the following components:

- **Impact**: The potential positive or negative impact of the development that needs to be enhanced, mitigated or eliminated.

- **Objectives**: The objectives necessary in order to meet the goal; these take into account the findings of the specialist studies.
- **Mitigation/Management Actions**: The actions needed to achieve the objectives, taking into consideration factors such as responsibility, methods, frequency, resources required and prioritisation.
- **Monitoring**: The key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting.

2.3 Goal of Environmental Management

The overall goal for environmental management for the proposed OTGC Storage Terminal project is to construct and operate the project in a manner that:

- Minimises the ecological footprint of the project on the local environment;
- Facilitates harmonious co-existence between the project and other land uses in the area; and
- Contributes to the environmental baseline and understanding of environmental impacts of Bulk Liquid Storage and Handling Facilities in a South African context.

3. ROLES AND RESPONSIBILITIES

For the purposes of the Draft EMPr, the generic roles that need to be defined are those of the:

- Project Developer;
- Environmental Control Officer;
- Environmental Health and Safety (EHS) Manager;
- Construction Manager (Lead Contractor or Engineering Consultant); and
- Terminal Manager.

It is acknowledged that the specific titles for these functions will vary from project to project. The intent of this section is to give a generic outline of what these roles typically require. It is expected that this will be appropriately defined at a later stage.

It is also recommended that OTGC takes into consideration TNPA's existing arrangements and organizational structure within the Port of Durban in terms of construction projects and environmental management.

3.1 Project Developer

The Project Developer (i.e. OTGC) is the 'owner' of the project and as such is responsible for ensuring that the conditions of the Environmental Authorisation issued in terms of NEMA (should the project receive such authorisation) are fully satisfied, as well as ensuring that any other necessary permits or licenses are obtained and complied with. It is expected that the Project Developer will appoint the Environmental Control Officer, EHS Manager; Construction Manager and the Terminal Manager.

3.2 Environmental Control Officer

An independent Environmental Control Officer (ECO) must be appointed to monitor the compliance of the proposed project with the conditions of Environmental Authorisation (should such authorisation be

granted by the KZN DEDTEA) during the construction phase (and possibly the operational phase, depending on the requirements of the KZN DEDTEA). The ECO must also monitor compliance of the proposed project with environmental legislation and recommendations of the EMPr.

The ECO will be responsible for preparing the Final EMPr based on this Draft EMPr, as well as updating the EMPr as and when necessary, and compiling a monitoring checklist based on the EMPr. The roles and responsibilities of the ECO should include the following:

- The ECO must undertake periodic environmental audits during the relevant phases of the proposed project in order to monitor and record environmental impacts and non-conformances. It is recommended that weekly or bi-weekly environmental audits be undertaken by the ECO during the construction phase.
- Environmental compliance reports must be submitted by the ECO to the Competent Authority (i.e. KZN DEDTEA) on a regular basis (i.e. monthly during the construction phase or as stipulated by the KZN DEDTEA).
- The ECO must maintain a diary of site visits and audits, a copy of the Environmental Authorisation (should such authorisation be granted by the KZN DEDTEA) and relevant permits for reference purposes, a non-conformance register, a public complaint register, and a copy of previous environmental audits undertaken.
- Prior to the commencement of construction, the ECO must meet on site with the Construction Manager to confirm the construction procedure and designated construction areas.

The ECO is also expected to report to the Port of Durban Environmental Manager.

3.3 EHS Manager

It is important to note that the EHS Manager will be appointed to fulfill the roles of the Environmental Officer during the construction phase and the Environmental Manager during the operational phase. A generic term has therefore been assigned to this sector of roles and responsibilities. The responsibility of the EHS Manager include overseeing the implementation of the EMPr during the construction and operational phases, monitoring environmental impacts, record-keeping and updating of the EMPr as and when necessary. The EHS Manager is also responsible for monitoring compliance with the conditions of the Environmental Authorisation that may be issued to OTGC.

The lead contractor and sub-contractors may have their own Environmental Officers, or designate Environmental Officer functions to certain personnel.

During construction, the EHS Manager will be responsible for the following:

- Meeting on site with the Construction Manager prior to the commencement of construction activities to confirm the construction procedure and designated activity zones.
- Daily or weekly monitoring of site activities during construction to ensure adherence to the specifications contained in the EMPr and Environmental Authorisation (should such authorisation be granted by the KZN DEDTEA), using a monitoring checklist that is to be prepared at the start of the construction phase.
- Preparation of the monitoring report based on the daily or weekly site visit.
- Reporting of any non-conformances within 48 hours of identification of such non-conformance to the relevant agents.

- Conducting an environmental inspection on completion of the construction period and 'signing off' the construction process with the Construction Manager.

During operation, the EHS Manager will be responsible for:

- Overseeing the implementation of the EMPr and monitoring programmes for the operation phase.
- Reviewing the findings of the monitoring and highlight concerns to management and TNPA where necessary.
- Ensuring compliance with the Environmental Authorisation conditions.
- Ensuring that the necessary environmental monitoring takes place as specified in the EMPr.
- Updating the EMPr and ensuring that records are kept of all monitoring activities and results.

During decommissioning, the EHS Manager will be responsible for:

- Overseeing the implementation of the EMPr for the decommissioning phase; and
- Conducting an environmental inspection on completion of decommissioning and 'signing off' the site rehabilitation process.

At the time of preparing this EMPr, the EHS Manager appointment is still to be made by the proponent. The appointment is dependent upon the project proceeding to the construction phase.

3.4 Construction Manager (Lead Contractor or Engineering Consultant)

The lead contractor will be responsible for the following:

- Overall construction programme, project delivery and quality control for the construction of the upgraded Storage Terminal.
- Overseeing compliance with the Health, Safety and Environmental Responsibilities specific to the project construction.
- Promoting total job safety and environmental awareness by employees, contractors and sub-contractors and stress to all employees and contractors and sub-contractors the importance that the project proponent attaches to safety and the environment.
- Ensuring that each subcontractor employ an Environmental Officer (or have a designated Environmental Officer function) to monitor and report on the daily activities on-site during the construction period.
- Ensuring that safe, environmentally acceptable working methods and practices are implemented and that sufficient plant and equipment is made available, is properly operated and maintained in order to facilitate proper access and enable any operation to be carried out safely.
- Meeting on site with the EHS Manager prior to the commencement of construction activities to confirm the construction procedure and designated activity zones.
- Ensuring that all appointed contractors and sub-contractors are aware of this EMPr and their responsibilities in relation to the programme.
- Ensuring that all appointed contractors and sub-contractors repair, at their own cost, any environmental damage as a result of a contravention of the specifications contained in the EMPr, to the satisfaction of the EHS Manager.

At the time of preparing this EMPr, the appointment of a lead contractor has not been made and will depend on the project proceeding to the construction phase.

3.5 Terminal Manager

The Terminal Manager will be responsible for the following:

- Operation of the Storage Terminal.
- Required maintenance of the facility.
- Overall compliance with the EMPr and Environmental Authorisation.

4. MANAGEMENT PLAN FOR DESIGN PHASE

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
A. Alien Vegetation Management					
4.1. Removal of alien invasive vegetation from the proposed project area.	Ensure the correct removal of alien invasive vegetation from the proposed project area and prevent the establishment and spread of alien invasive plants due to the project activities.	4.1.1. Ensure compliance with relevant Environmental Specifications for the control and removal of alien invasive plant species. 4.1.2. Appoint a specialist or contact relevant authorities to seek guidance on the removal of the alien vegetation on site.	Appoint a suitable specialist/ Contractor or contact the relevant authorities to seek guidance on the removal of the planted alien invasive species.	Once-off during the design phase.	Project Developer (OTGC)
B. Indigenous Vegetation Management					
4.2. Loss of Planted Indigenous Species	Ensure that the planted indigenous species (i.e. Red Aloe (*Aloe ferox*)) are safely removed and relocated.	4.2.1. Obtain the relevant pre-requisite permits from the relevant Authorities prior to the removal of the indigenous species. Once these permits are obtained, search and rescue must be undertaken.	Appoint a suitable Search and Rescue Specialist/ Contractor to undertake translocation.	Once-off prior to construction.	Contractor or Specialist
C. Design of the Upgraded Storage Terminal					
4.3. Traffic impacts and increased vehicle emissions due to the design of the Road Tanker Loading Gantry.	Reduce traffic delays and increased vehicle emissions due to the delays.	4.3.1. Ensure that the Road Tanker Loading Gantry is designed in a manner in which tanker delays and associated vehicle emissions are reduced (i.e. provide a three lane gantry). 4.3.2. Suitable staging lanes should be incorporated into the design of the road tanker loading gantry. These lanes should be designated for road tankers in waiting (i.e. two trucks per lane).	Ensure that this is taken into consideration during the design phase.	Once-off during the design phase.	Project Developer (OTGC)

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
4.4. Pollution caused by potential spillages at the Road Tanker Loading Gantry due to overfilling.	Reduce overfilling and concomitant spillages.	4.4.1. Ensure that the Road Tanker Loading Gantry is designed to include appropriate equipment (such as batch meters, weigh bridges, or similar) to ensure early detection of overfilling and spillages.	Ensure that this is taken into consideration during the design phase.	Once-off during the design phase.	Project Developer (OTGC)
4.5. Impact on and disturbance to existing infrastructure (roads, stormwater pipelines, railway sidings, and electricity cables) during construction.	Reduce unnecessary impacts on existing service infrastructure surrounding the proposed terminal site and avoid potential planning impacts within the Port of Durban and eThekwini Municipality.	4.5.1. Consult with the relevant municipal departments during the detailed engineering phase to discuss the impact of the proposed project on existing service infrastructure.	Ensure that this is taken into consideration during the design phase.	Once-off during the design phase.	Project Developer (OTGC)
		4.5.2. Ensure that all Building Plans and associated documents have been approved by the eThekwini Municipality prior to construction.			
		4.5.3. Ensure that the eThekwini Municipality: Electricity Department is contacted prior to the initiation of the construction phase in order to plan and discuss the relocation of the municipal substation.			
		4.5.4. Ensure that the necessary approvals for the relocation of the municipal substation are timeously obtained from the eThekwini Municipality: Electricity Department prior to construction.			
		4.5.5. Assess the risks of excavation work by reviewing cable and pipe routings.			
4.6. Risks of accidents and hazards during the construction and operational phases.	Reduce potential accidents and hazards during the construction and operational phases.	4.6.1. Conduct a preliminary Hazard and Operability (HAZOP) Study, before commencing with the design, and a	Ensure that the recommendations from the HAZOP studies are	Once-off during the design phase.	Project Developer (OTGC)

Impact	Management Objectives	Management Actions		Monitoring		
				Methodology	Frequency	Responsibility
	The design must comply with all applicable legislative requirements, specifically as prescribed in the Occupational Health and Safety Act (Act 85 of 1993) under the Construction Regulations, as well as with the OTGC Health, Security, Safety and Environment (HSSE) Policies and the American Petroleum Institute (API) 650.		final HAZOP Study on completion of the design prior to the commencement of construction.	taken into consideration during the design phase.		
		4.6.2.	Compile an Emergency Response Action Plan (ERAP) prior to the commissioning of the proposed project. The ERAP should tie into the Response Plan of the Port of Durban and include input from the TNPA. The Emergency Plan must deal with potential spillages and fires, in line with OTGC HSSE policies. Records of practices should be kept on site during construction, operations and decommissioning.	Discuss the ERAP with TNPA (if required) to confirm that it aligns with the Port ERAP and obtain their approval.	Once-off during the design phase (and thereafter updated as required during the construction and operational phases).	Project Developer (OTGC)
		4.6.3.	Approve the final design of the storage installation.	Carry out a review of the design and safety, health and environment audits during the construction and operational phases.	• Once-off during design phase. • On an on-going basis during the construction and operational phases.	• Project Developer (OTGC)
		4.6.4.	Draw up a method statement, including standard procedures, for decommissioning of existing storage tanks.	Approve the Method Statement prior to construction.	Once-off during the design phase.	Project Developer (OTGC)
		4.6.5.	Draw up a traffic plan to co-ordinate construction traffic.	Carry out audits/ monitoring to ensure that the plan is compiled prior to construction.	Once-off during the design phase (i.e. before construction).	Project Developer (OTGC)
		4.6.6.	The following should be incorporated into the design:	Approve the final design (before construction) to	Once-off during the design phase.	Project Developer

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		• high integrity ship offload hoses, berth pipes and storage tanks; • storage tank level indication and high level alarms; • adequate bunding, sumps and recovery systems; • corrosion protection on the berth pipes; • minimal flanges and joints on the Caustic Soda pipelines (optional for other pipelines carrying products that are not toxic and corrosive); • flange guard installation on the Caustic Soda pipelines (optional for other pipelines carrying products that are not toxic and corrosive); • fencing around the entire Storage Terminal site (i.e. British Standard 1722) with a security gate (in order to prevent unauthorised access); and • curbed catchment areas in the road tanker loading gantry, including sumps and recovery system.	ensure that this is taken into consideration during the design phase.		(OTGC)

5. MANAGEMENT PLAN FOR CONSTRUCTION PHASE

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
A. Alien Vegetation Management					
5.1. Removal of alien invasive vegetation from the proposed project area.	Ensure the correct removal of alien invasive vegetation from the proposed project area and prevent the establishment and spread of alien invasive plants due to the project activities.	5.1.1. The planted alien invasive vegetation should be removed immediately (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a licenced waste disposal facility.	Monitor the removal of the alien invasive vegetation.	During the removal process	ECO
5.2. Increased Risk of Alien Plant Invasion	Reduce the establishment and spread of alien invasive plants due to the project activities.	5.2.1. Ensure compliance with relevant Environmental Specifications for the control and removal of these species.	Monitor the presence of alien invasive plants during the construction phase.	Weekly	ECO
		5.2.2. All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods.			
B. Indigenous Vegetation Management					
5.3. Loss of Planted Indigenous Species	Ensure that the planted indigenous species are safely removed and relocated.	5.3.1. Search and rescue must be undertaken and, where possible, these species must be relocated to a suitable nursery or relocated to an alternate location within the site.	Appoint a suitable Search and Rescue Specialist/ Contractor to undertake translocation.	Once-off prior to construction.	Contractor or Specialist
C. Noise Impacts					
5.4. Potential noise impact from piling operations during the	Prevent unnecessary impacts on the surrounding environment by	5.4.1. All piling operations should be conducted during daytime only	Piling operation times to be monitored and managed (as	Daily	Contractor and EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
construction phase.	ensuring that the piling noise is mitigated.	(i.e. 06:00 – 22:00, as defined in South African National Standards (SANS) 10103).	well as included in the tender contract).		
D. Visual Impacts					
5.5. Potential visual intrusion of construction/demolition activities on the views of sensitive visual receptors.	Prevent unnecessary visual clutter from focusing attention of surrounding visual receptors on the proposed development.	5.5.1. The Contractor should maintain good housekeeping on site to avoid litter and minimise waste. Ensure that rubble and litter are appropriately stored and regularly removed from site to a licenced waste disposal facility. 5.5.2. Dust generation must be kept at a minimum. 5.5.3. Night lighting of construction sites must be minimised within requirements of safety and efficiency.	Rubble/litter/waste removal and disposal to be monitored throughout construction. Complaints about night lights should be investigated and documented in a register.	Weekly or bi-weekly	Contractor and ECO
E. Traffic Impacts					
5.6. Impact of construction vehicles on the Maydon Wharf road network and parking of construction vehicles on public roads when not in use.	Prevent unnecessary impacts on the surrounding road network by supplying parking for construction vehicles on site.	5.6.1. Accommodate all construction vehicles on site during the construction phase. Construction vehicles should not be parked on Johnstone Road or Fletcher Road.	Monitor that no construction vehicles park on the Maydon Wharf roads (i.e. Johnstone and Fletcher Roads). Record and report non-compliance.	Daily during construction.	Contractor and EHS Manager
F. Safety, Health and Environment					
5.7. Molasses washing (during pigging of pipelines) and ingress of potential spillages into stormwater drains and	Prevent unnecessary impacts on the surrounding environment by ensuring that Contractors are aware of the requirements in	5.7.1. The spilled, undiluted Molasses should be recycled by returning it to the storage tanks during the initial demolition process.	Monitor the removal and disposal of wash water and confirm that none of the material is disposed into the	As required during construction and until the material resulting from the washing process is correctly	Project Developer (OTGC) and ECO

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
the harbour, resulting in pollution of sea water.	terms of the handling of stored products and materials resulting from the tank washing process.	5.7.2. The material resulting from the washing of the storage tanks should be pumped into tankers and correctly disposed by an approved waste disposal Contractor, as per the OTGC decommissioning procedures. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal.	stormwater system. Monitor activities and record and report non-compliance.	disposed.	
5.8. Noise generation from demolition and construction work (e.g. grinding and use of angle grinders), as well as from the removal of waste material (e.g. crane and truck engines).	Reduce the potential noise impacts on the construction workers.	5.8.1. Construction personnel must wear proper hearing protection, which should be specified as part of the Construction Phase Risk Assessment carried out by the Contractor. 5.8.2. The Contractor must ensure that all construction personnel are provided with adequate Personal Protective Equipment (PPE) for use where appropriate. 5.8.3. The Contractor must prescribe, to construction personnel, what is required by the OTGC permit to work system.	Inspections to be carried out during the construction phase to enforce the use of hearing protection by construction personnel. This must also be written into the safety requirements of the Contract.	Throughout the construction phase (i.e. weekly).	ECO and Contractor
5.9. Potential health injuries to construction personnel as a result of construction work (i.e. welding fumes, dust and smoke etc.).	Prevent respiratory illnesses caused to the construction personnel.	5.9.1. The Contractor must ensure that all construction personnel are provided with adequate PPE (such as dust masks) for use where appropriate. 5.9.2. The Contractor must prescribe, to construction personnel, what	Inspections to be carried out during the construction phase to enforce the use of respiratory protection by construction personnel. This must also be written into the safety requirements of the	Throughout the construction phase (i.e. weekly).	ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		is required by the OTGC permit to work system.	Contract.		
5.10. Heavy traffic, congestion and potential for collisions during the construction phase.	Prevention of injuries, fatalities, and damage to equipment and vehicles during the construction phase. To avoid blocking other traffic to the berths within the Port of Durban.	5.10.1. During the construction phase, suitable parking areas should be created and designated for construction trucks and vehicles.	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the construction phase.	Project Developer (OTGC), ECO and Contractor
		5.10.2. A construction supervisor should be appointed to co-ordinate construction traffic during the construction phase.			
		5.10.3. Road barricading should be undertaken where required and road safety signs should be adequately installed at strategic points within the construction site.			
		5.10.4. Road worthy vehicles (i.e. stop and indicator lights) and only licenced vehicle drivers should be used. Vehicle maintenance and driver competency should be monitored. The Contractors must ensure that construction vehicles are roadworthy, properly serviced and maintained.	Perform random checks of driver licenses and conduct random visual inspections of construction vehicles for roadworthiness.	Random visual inspection of vehicles weekly by the Contractor and OTGC.	Project Developer (OTGC) and Contractor
5.11. Potential impact on the safety of construction workers due to construction activities (such as welding, cutting, use of hot metals, working at heights, lifting of heavy items etc.).	Prevention of injuries to and fatalities of construction personnel during the construction phase.	5.11.1. Ensure that skilled, licenced and competent Contractors, riggers and crane operators are appointed during the construction phase, along with the use of certified equipment and scaffolding.	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the construction phase (i.e. weekly).	Project Developer (OTGC), ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		5.11.2. The Contractor must ensure that all construction personnel are provided with adequate PPE for use where appropriate. 5.11.3. The Contractor must prescribe, to construction personnel, what is required by the OTGC permit to work system. 5.11.4. A Construction Site Manager or Safety Supervisor should be appointed, in conjunction with the engineering project manager, to monitor all safety aspects during the construction phase. 5.11.5. Ensure that roads are not closed during construction, which may restrict access for emergency services.			
5.12. Pollution of water and ground as a result of spillages, generation of building rubble and waste scrap material.	Prevent unnecessary pollution impacts on the surrounding environment.	5.12.1. The construction site should be cleaned regularly and all construction waste (i.e. concrete, steel, rubble, packaging material etc.) must be removed from site and disposed at a licenced waste disposal facility by an approved waste Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal. 5.12.2. All liquid wastes (i.e. used oil, paints, lubricating compounds and grease etc.) must be removed from site and disposed	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the construction phase.	Project Developer (OTGC), ECO and Contractor

Impact	Management Objectives	Management Actions		Monitoring		
				Methodology	Frequency	Responsibility
			at a licenced hazardous waste disposal facility by an approved waste Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal.			
G. Heritage Resources (Archaeology and Palaeontology)						
5.13. Impact on Archaeology and Palaeontology	Prevent damage and destruction to fossils, artefacts and materials of heritage significance.	5.13.1.	Carry out general monitoring of excavations for potential fossil heritage, artefacts and material of heritage importance.	Monitor excavations and construction activities for archaeological and palaeontological materials.	Daily during excavation work.	Contractor and ECO
		5.13.2.	All work must cease immediately, if any human remains and/or other archaeological, palaeontological and historical material are uncovered. Such material, if exposed, must be reported to the nearest museum, archaeologist/ palaeontologist and to the Amafa/Heritage KwaZulu-Natali (or the South African Police Services), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to remove/collect such material before construction re-commences.	Monitor excavations and construction activities for archaeological and palaeontological materials and report the finds accordingly. Contact Amafa/Heritage KwaZulu-Natali and the identified palaeontologist/ archaeologist if any heritage features are uncovered.	As required/necessary during construction.	Contractor and ECO
H. Water Conservation						
5.14. Impact on the regional water balance as a result of increased water usage.	Reduce water usage during construction.	5.14.1.	Water conservation to be practiced in line with Energy Saving Policies as follows:	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		• Cleaning methods utilised for cleaning vehicles, floors, etc. should aim to minimise water use (e.g. sweep before wash-down). • Ensure that regular audits of water systems are conducted to identify possible water leakages.			
		5.14.2. Carry out environmental awareness training with a discussion on water usage and conservation.	Conduct training for all construction personnel.	• Once-off during construction and ensure that all new staff are inducted. • Discuss weekly during HSSE meetings.	EHS Manager, ECO and Contractor
I. Spill Contingency, Management and Handling of Chemicals/Dangerous Goods					
5.15. Potential spillage of effluent (from portable sanitation facilities for construction personnel).	Reduce the spillage of domestic effluent and the impact thereof on the environment.	5.15.1. Ensure that normal sewage management practices are implemented during construction such as regularly emptying toilets and ensuring safe transport and disposal of sewage.	Monitor via site audits and record non-compliance and incidents (including incidents that nearly occur).	Monthly	EHS Manager and ECO
		5.15.2. Ensure that all domestic effluent/waste water is disposed safely at an appropriate, licenced facility by an appointed (suitable) service provider. Ensure that no discharge of waste water to the land surface is permitted. Proof of disposal (i.e. waybills) must be kept on file.	Monitor via site audits and record non-compliance and incidents. EHS Manager to audit disposal slips.	Monthly	EHS Manager and ECO

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		5.15.3. Carry out environmental awareness training to ensure that all personnel on-site are aware of environmental requirements and only make use of the provided facilities for sanitation purposes.	Conduct training for all construction personnel.	• Once-off during construction and ensure that all new staff are inducted. • Discuss weekly during HSSE meetings.	EHS Manager, ECO and Contractor
		5.15.4. Ensure that sufficient toilet facilities are provided on site (one facility for every 10 persons working on the site). If possible, the ablution facilities at the existing Storage Terminal should be retained for as long as possible, with demolition thereof taking place as late as possible. This will reduce the costs associated with obtaining portable facilities that need to be provided.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
		5.15.5. Ensure that the toilet/sanitation facilities are maintained in a clean, orderly and sanitary condition.	Monitor via site audits and record non-compliance and incidents.	Daily	EHS Manager and Contractor
		5.15.6. Ensure that the toilet/sanitation facilities are regularly serviced and emptied.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
		5.15.7. Ensure that the site camp and toilet/sanitation facilities are placed outside areas susceptible to flooding and beyond 32 m of the estuary.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
5.16. Impact on the Durban Bay Estuary and surrounding environment as a result of potential spillage of hazardous materials and waste (chemicals, oil, fuel, hydraulic fluids etc.) during construction.	Reduce the spillage of hazardous materials and waste.	5.16.1. Segregation of hazardous waste from general waste to be in place. Hazardous waste must be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate.	On-site inspection of waste segregation and storage.	Weekly	EHS Manager
		5.16.2. Frequent collection and disposal of hazardous waste to a licenced hazardous waste disposal facility must be in place. An approved Contractor must be appointed to collect and dispose the hazardous waste.	Auditing of construction site to ensure compliance to legislation and conformance to own procedures.	Monthly	EHS Manager
		5.16.3. Record of collection and disposal to be kept.			
		5.16.4. Ensure that adequate containment structures are provided for the storage of dangerous goods and hazardous materials on site. Appropriate bund areas must be provided for the storage of these materials. Bund areas should contain an impervious surface in order to prevent spillages from entering the ground and stormwater system.	Monitor the bunding and containment structures.	Weekly	EHS Manager
		5.16.5. As far as possible and in line with current procedures at the	Monitor the refuelling/ servicing process and record	During emergency refuelling	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		existing Storage Terminal, servicing and refuelling of construction equipment must be undertaken off site. If on-site servicing and refuelling is required in emergency situations, a designated area must be created at the construction site camp for this purpose. Drip trays or similar impervious materials must be used during these procedures.	the occurrence of any spillages.	and servicing activities.	
		5.16.6. A Spill Response Plan must be compiled for the construction phase in order to manage potential spill events. The Port of Durban Oil Spill Contingency Plan must be considered during the compilation of the Spill Response Plan. The Contractor should also compile an ERAP for the construction phase, which must be approved by OTGC.	• Compile a Spill Response Plan and take into account the existing Port of Durban Oil Spill Contingency Plan and lessons learnt from the existing Storage Terminal. • Contractor to prepare an ERAP for the construction phase and OTGC to approve accordingly.	• Once off (and thereafter updated as required during the construction phase). • Once off (and thereafter updated as required during the construction phase).	• Project Developer (OTGC) • Contractor
		5.16.7. If any spilled hazardous material reaches the Durban Bay Estuary, the TNPA must be informed immediately and the Port of Durban Oil Spill Contingency Plan must be followed. The following procedures should be followed: • Take immediate action to	Monitor the handling and storage of dangerous goods and monitor the occurrence of spills and the management process.	During spill events.	EHS Manager and ECO

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		stop or reduce the spill and contain it. • Implement actions necessary to prevent the spread of the contamination. • Recover the spilled product. • Ensure proper disposal of spilled material.			
5.17. Contamination of soil, the marine environment and groundwater through spillage of concrete and cement.	To control concrete and cement batching activities in order to prevent spillages and concomitant contamination of soil, groundwater and the marine environment.	5.17.1. If any concrete mixing takes placed on site, this must be carried out on an impermeable surface (such as on boards or plastic sheeting and/or within a bunded area with an impermeable surface).	Monitor the handling and storage of sand, stone and cement as instructed.	Daily	Project Developer (OTGC), Contractor and EHS Manager
		5.17.2. Concrete mixing areas must be fitted with a containment facility for the collection of cement-laden water. This facility must be impervious to prevent soil and groundwater contamination.			
		5.17.3. Bagged cement must be stored in an appropriate facility and at least 10 m away from any water courses, gullies and drains.			
		5.17.4. A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted.			
		5.17.5. Hardened concrete from the washout facility or concrete			

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		mixer can either be reused or disposed of at an appropriate licenced disposal facility.			
		5.17.6. Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site. Sand and aggregates containing cement must be kept damp to prevent the generation of dust.			
		5.17.7. Any excess sand, stone and cement must be removed from site at the completion of the construction period and disposed at a registered disposal facility.			
J. Waste Water Management					
5.18. Pollution caused by spillage or discharge of construction waste water into the surrounding environment.	Reduce construction waste water discharge into the environment and the resulting impact.	5.18.1. Implement proper construction site management actions such as the installation of containment structures, good on-site housekeeping (regular sweeping of roadways and work areas, reporting systems and environmental awareness training), and spillage management.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager
		5.18.2. Ensure that adequate containment structures are provided for the storage of dangerous goods and hazardous materials on site. Appropriate bund areas must be provided for	Monitor the bunding and containment structures.	Weekly	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		the storage of these materials. Bund areas should contain an impervious surface in order to prevent spillages from entering the ground and stormwater system.			
		5.18.3. As far as possible and in line with current procedures at the existing Storage Terminal, servicing and refuelling of construction equipment must be undertaken off site. If on-site servicing and refuelling is required in emergency situations, a designated area must be created at the construction site camp for this purpose. Drip trays or similar impervious materials must be used during these procedures.	Monitor the refuelling/ servicing process and record the occurrence of any spillages.	During emergency refuelling and servicing activities.	EHS Manager
		5.18.4. A Spill Response Plan must be compiled for the construction phase in order to manage potential spill events. The Port of Durban Oil Spill Contingency Plan must be considered during the compilation of the Spill Response Plan. The Contractor should also compile an ERAP for the construction phase, which must be approved by OTGC.	• Compile a Spill Response Plan and take into account the existing Port of Durban Oil Spill Contingency Plan and lessons learnt from the existing Storage Terminal. • Contractor to prepare an ERAP for the construction phase and OTGC to approve accordingly.	• Once off (and thereafter updated as required during the construction phase). • Once off (and thereafter updated as required during the construction phase).	• Project Developer (OTGC) • Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
K. Stormwater Management					
5.19. Pollution of the surrounding environment as a result of contamination of stormwater. Contamination could result from chemicals, oils, fuels, sewage, solid waste, litter etc.	Reduce the contamination of stormwater.	5.19.1. The appointed Contractor should compile a Method Statement for Stormwater Management during the construction phase.	Compile Method Statement and take into account the Stormwater Management measures at the existing terminal.	Once off (and thereafter updated as required).	Contractor
		5.19.2. Provide secure storage for oil, chemicals and other waste materials in order to prevent contamination of stormwater runoff.	Monitor the bunding and containment structures.	Weekly	EHS Manager
		5.19.3. Regular inspections of stormwater infrastructure should be undertaken to ensure that it is kept clear of all debris and weeds.	Monitor via site audits and record non-compliance and incidents (i.e. by implementing walk through inspections).	Weekly	Contractor, EHS Manager and ECO
L. Waste Management					
5.20. Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of solid waste (general and hazardous).	Reduce soil and groundwater contamination as a result of incorrect storage, handling and disposal of general and hazardous waste.	5.20.1. General waste and hazardous waste should be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate.	Inspection of the temporary waste storage area.	Daily	EHS Manager
		5.20.2. Should the on-site storage of general waste and hazardous waste exceed 100 m^3 and 80 m^3 respectively, then the National Norms and Standards for the Storage of Waste (published on			

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		29 November 2013 under Government Notice 926) must be adhered to.			
		5.20.3. Ensure that general waste and hazardous waste are removed from the site on a regular basis and disposed of at an appropriate, licenced waste disposal facility by an approved waste management Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal.	Monitor via site audits and record non-compliance and incidents. EHS Manager to monitor and audit disposal slips.	Monthly	EHS Manager
		5.20.4. Ensure that the construction site is kept clean at all times and that construction personnel are made aware of correct waste disposal methods.	Conduct training for all construction personnel.	• Once-off during construction and ensure that all new staff are inducted. • Discuss weekly during HSSE meetings.	EHS Manager, ECO and Contractor
		5.20.5. Ensure that sufficient general waste disposal bins are provided for all construction personnel throughout the site. These bins must be emptied on a regular basis.	Monitor waste generation and collection throughout the construction phase.	Daily	EHS Manager and Contractor
		5.20.6. No solid waste may be burned or buried on site.	Monitor via site audits and record non-compliance and incidents.	Daily	EHS Manager
		5.20.7. Segregation of hazardous waste from general waste to be in place.	On-site inspection of waste segregation.	Weekly	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
M. Stockpiling Management					
5.21. Sedimentation and impact on the water quality of the Durban Bay Estuary as a result of stockpiling of excavated material during the construction phase.	To reduce potential erosion and sedimentation.	5.21.1. All material that is excavated during the construction phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts on the estuary.	Monitor the excavations and stockpiling process throughout the construction phase via site inspections. Record non-compliance and incidents.	Daily	EHS Manager and Contractor
		5.21.2. Stockpiles must be located at least 10 m away from stormwater channels and drains, and at least 32 m away from the estuary, on flat areas where run-off will be minimised.			
		5.21.3. Stockpiles should not exceed 2 m in height.			
		5.21.4. During periods of strong winds and heavy rain, the stockpiles should be covered with appropriate material (e.g. cloth, tarpaulin etc.).	Monitor the condition of the soil stockpiles throughout the construction phase via site inspections. Record non-compliance and incidents.	During periods of strong winds and heavy rains (i.e. planned according to rainfall patterns within Durban).	EHS Manager, ECO and Contractor
		5.21.5. Where possible, sandbags (or similar) should be placed at the bases of the stockpiled material in order to prevent erosion of the material.	Monitor the condition of the soil stockpiles throughout the construction phase via site inspections. Record non-compliance and incidents.	Weekly	EHS Manager, ECO and Contractor
N. Air Quality Management					
5.22. Air Quality Impact: Emissions from construction vehicles and generation of dust as a result of earthworks, demolition, as	Reduce dust emissions during construction activities.	5.22.1. Ensure that cleared (excavated) areas and unpaved surfaces are sprayed with water (obtained from an approved source) to minimise dust generation.	• Monitor dust suppression mechanisms and record non-compliances. • Maintain an incidents/	• Weekly • During complaints/incidents	EHS Manager, ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
well as the delivery and mixing of construction materials.		Approved soil stabilisers may be utilised to limit dust generation.	complaints register, in which any complaints from the public must be logged. The date, time, nature of complaint, name of complainant and corrective actions must be logged for all complaints. Complaints must be investigated and, if appropriate, acted upon.		
		5.22.2. Implement traffic control measures on the construction site to limit vehicle-entrained dust from unpaved roads. Ensure that construction vehicles travelling on unpaved roads do not exceed a speed limit of 40 km/hour.	Monitor traffic control measures and report non-compliances.	Weekly	EHS Manager and Contractor
O. Socio-Economic Management					
5.23. Employment creation and skills development opportunities during the construction phase.	Maximise local employment and local business opportunities to promote and improve the local economy.	5.23.1. Liaise with TNPA to maximise job creation opportunities during the construction phase.	Maximise local employment for unskilled labour and provincial/ national skilled labour. OTGC are required to meet Level 4 Broad-Based Black Economic Empowerment (BBBEE) levels when making appointments during the construction phase.	During the construction phase.	Contractor and ECO
		5.23.2. Enhance the use of local labour and local skills as far as reasonably possible.			
		5.23.3. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.			

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		5.23.4. Ensure that an equitable percentage allocation is provided for local labour employment as well as specify the use of small-to-medium enterprises and training specifications in the Contractors contract.			
		5.23.5. Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.			
P. Environmental Awareness and Site Camp Establishment					
5.24. Increased energy consumption during the construction phase.	Reduce energy consumption where possible.	5.24.1. Encourage the use of energy saving equipment at the construction camp site (such as low voltage lights and low pressure taps) and promote recycling. Construction personnel must be made aware of energy conservation practices as part of the environmental awareness training programme.	• Contractor to monitor energy usage via site investigations. • Conduct training for all construction personnel.	• Monthly • Once off training and ensure that all new staff are inducted. • Discuss weekly during HSSE meetings.	• Contractor • EHS Manager, ECO and Contractor
5.25. Inappropriate behaviour of civil contractors and sub-contractors during the construction phase.	Prevent unnecessary impacts on the surrounding environment by ensuring that contractors are aware of the requirements of the EMPr.	5.25.1. Designate smoking areas where the fire hazard could be regarded as insignificant.	Adhoc checks to ensure workers are smoking only in designated areas.	Daily	Contractor and EHS Manager
		5.25.2. Educate workers on the dangers of open and/or unattended fires.	Ensure fire safety requirements are well understood and respected by workers (by providing basic fire safety training).	On-going	Contractor and EHS Manager
		5.25.3. Open fires must be prohibited. Appropriate fire safety training should also be provided to staff that are to be on site for the duration of the construction			

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		phase.			
		5.25.4. Fire-fighting equipment must be made available at various appropriate locations on the construction site.			
5.26. Inappropriate planning of site camp establishment.	Ensure that environmental issues are taken into consideration in the planning for site establishment.	5.26.1. Ensure that the site establishment is designed and carried out in line with the requirements of relevant specifications and the landowner (TNPA).	Monitor compliance and record non-compliance and incidents.	Before construction	EHS Manager

6. MANAGEMENT PLAN FOR OPERATIONAL PHASE

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
A. Alien Vegetation Management					
6.1. Potential re-establishment of alien plants on site.	Ensure the correct removal of alien invasive vegetation from the proposed project area and prevent the establishment and spread of alien invasive plants.	6.1.1. Alien invasive vegetation should be removed immediately (in line with relevant municipal and provincial procedures, guidelines and recommendations) and disposed of at a licenced waste disposal facility.	Monitor the removal of the alien invasive vegetation.	During the removal process.	EHS Manager
B. Noise Impacts					
6.2. Potential noise impact from road tanker filling during the operational phase.	Prevent unnecessary impacts on the surrounding environment by ensuring that the pump noise is mitigated.	6.2.1. All pumps to be housed within dedicated (enclosed) pump houses or within the bunded areas.	Design of pump locations prior to construction and operation.	During final design phase (once-off prior to construction and operation).	Terminal Manager
6.3. Potential noise impact from road transport of products during the operational phase (i.e. increased road traffic).	Prevent unnecessary impacts on the surrounding environment by ensuring that the drivers of road tankers minimise the use of air brakes.	6.3.1. All drivers of the road tankers (contracted to OTGC) should receive training regarding the use of air brakes.	Training of drivers that are contracted to OTGC.	During induction of drivers to site rules.	Terminal Manager
C. Visual Impacts					
6.4. Potential impact of night lighting of the development on the nightscape of the surrounding landscape.	Prevent night lights from impacting on surrounding visual receptors by minimizing glare and light spill.	6.4.1. Outside and security lights must use light fixtures that shield the light and focus illumination onto specific areas as required. 6.4.2. Elevated lights should be avoided, or carefully shielded to minimise glare. 6.4.3. Timer switches or motion detectors should be used, where possible (and if in line with minimum	Complaints referring to lighting at night should be documented, investigated and resolved.	When complaints are received.	Project Developer (OTGC)

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		security requirements), to control lighting in areas that do not require continuous illumination.			
D. Traffic Impacts					
6.5. Impact of extra parked vehicles waiting to be serviced on Johnstone Road (e.g. blocking access to the road) during the operational phase.	Prevent unnecessary or excessive heavy vehicles parked on Johnstone Road.	6.5.1. Implement good logistics planning during the operational phase in order to prevent waiting road tankers.	Compile a scheduled loading time programme to minimise potential delay in loading. Liaise with the customers of the Storage Terminal accordingly.	Permanent over the lifespan of terminal.	Terminal Manager
		6.5.2. Conduct stringent scheduling of the road tanker arrival, loading and departure process in order to reduce parking impacts.			
		6.5.3. Ensure that the design allows for the provision of a three lane gantry upon completion of the construction phases.	Ensure that this is taken into consideration during the design phase.	Once-off prior to operations.	Project Developer (OTGC)
E. Safety, Health and Environment					
6.6. Pollution of water and the ground as a result of potential spills of the stored product.	Prevent unnecessary pollution impacts on the surrounding environment.	6.6.1. Scheduled inspections should be implemented in order to assure and verify the integrity of hoses, piping and storage tanks, in line with API 650 and OTGC standards (based on best practice and international standards).	Carry out thorough inspections of piping, loading hoses, and bunding for leaks, using a checklist, to be drawn up by OTGC Management.	Daily	Project Developer (OTGC) and Terminal Manager
		6.6.2. The operating personnel should undergo proper training to prevent overfilling incidents.	Proof of attendance to training sessions to be kept on file at the terminal.	Once off (and thereafter as required for new operating personnel).	Project Developer (OTGC)
		6.6.3. An Emergency Plan should be compiled by OTGC (in line with their HSSE policies) in order to deal with potential spillages of the	• Compile Emergency Plan and take into account the existing Port of Durban Oil Spill Contingency Plan and lessons	• Once off (and thereafter updated as required during the operational phase).	Project Developer (OTGC)

Impact	Management Objectives	Management Actions		Monitoring		
				Methodology	Frequency	Responsibility
			stored product at the berths and on site. Records of practices (ERAP and record of emergency drills) should be kept on site.	learnt from the existing Storage Terminal. • Keep a record of spillages throughout operations.	• After all spill or emergency plan exercise events.	
6.7. Atmospheric pollution due to fumes, smoke from fires (involving plant and vegetable oils or MEG).	Prevent unnecessary air pollution impacts as a result of the operational procedures.	6.7.1.	Portable fire extinguishers and fire water hydrants (i.e. appropriate fire-fighting equipment) should be provided at the terminal as required. Mobile fire-fighting equipment should be provided at the berths as a safety precaution during the vessel offloading process.	• Carry out site inspections to ensure that the equipment used for "hot work" procedures are maintained. • Assurance of functionality of fire extinguishers via inspections and certification by an accredited fire service company. • Comply with the permit to work system.	• Daily when "hot work" is required. • Annually	Project Developer (OTGC) and Terminal Manager
6.8. Potential impact on the health of operating personnel resulting in potential health injuries.	To ensure that there are no adverse effects on the health of operating personnel.	6.8.1.	Operational personnel must wear basic PPE (e.g. gloves, goggles etc.) as necessary during the operational phase.	• Medical investigations or surveillance to be undertaken for the operating personnel. • Keep a register of the medical records for the operating personnel.	• Once-off for every operating person. • Once every five years for the life of the installation.	Project Developer (OTGC)
6.9. Potential impact on the safety of operating personnel due to splashing of corrosive Caustic Soda Solution during filling operations or maintenance.	To ensure that there are no adverse effects on the safety of operating personnel and the public outside the terminal.	6.9.1.	Operational personnel must wear basic PPE (e.g. gloves, goggles etc.) as necessary during the operational phase.	Monitor activities and record and report non-compliance by undertaking site audits and drawing up a checklist for operational procedures.	Monthly	Terminal Manager
		6.9.2.	Adequate emergency showers and eye wash fountains should be provided at strategic locations at the terminal.	Monitor activities and record and report non-compliance by undertaking site audits.	Monthly	Terminal Manager
		6.9.3.	A safety system should be implemented during the	Investigation of all safety incidents and keeping records of	As and when incidents	Terminal Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		operational phase. This system should include, for example, permits to work, modifications, training schedules, records and inspections.	all accidents and of incidents that nearly occur.	occur.	
6.10. Heavy traffic, congestion and potential for collisions during the operational phase.	Prevention of injuries, fatalities and vehicle damage during the operational phase. To avoid blocking other traffic to the berths within the Port of Durban.	6.10.1. Undertake scheduled planning and stock control during the operational phase. The dispatch of products at the road tanker loading gantry should be planned and scheduled in order to minimise congestion. 6.10.2. The road tanker loading process should be undertaken rapidly in order to prevent delays. 6.10.3. The routes taken by road tankers in the gantry should be streamlined.	• Institute planning sessions for scheduling dispatch of products. • Security to be informed.	Daily	Project Developer (OTGC) and Terminal Manager
6.11. Minor accidents to the public and moderate accidents to operational staff (e.g. fires).	Ensure operating personnel or the public are not affected or injured by heat from possible fires.	6.11.1. Scheduled inspections should be implemented in order to assure and verify the integrity of hoses, piping and storage tanks, in line with API 650 and OTGC standards (based on best practice and international standards). 6.11.2. Portable fire extinguishers and fire water hydrants (i.e. appropriate fire-fighting equipment) should be provided at the terminal as required. Mobile fire-fighting equipment should be provided at the berths as a safety precaution during the vessel offloading	• Draw up a schedule for inspections and maintenance. • Assurance of functionality of fire extinguishers via inspections and certification by an accredited fire service company. • Draw up a schedule of safety audits. • Comply with the permit to work system.	• Once initially and revise as reliability of equipment is assessed. • Annually • Annually • Annually	Project Developer (OTGC) and Terminal Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		process. 6.11.3. Adhere to OTGC safety audit and inspection standards.			
6.12. Minor accidents to the public and moderate accidents to operational staff (e.g. corrosive spillages).	Ensure operating personnel or the public are not affected or injured by possible corrosive spillages of Caustic Soda solution.	6.12.1. Suitable safety warning signs should be fixed at potential leak locations at the terminal prior to commissioning the storage and handling of Caustic Soda.	Investigation of all safety incidents and keeping records of all accidents and incidents that nearly occur.	As and when incidents occur.	Terminal Manager
		6.12.2. Minimise flanges and joints, and provide flange guards, on the Caustic Soda pipelines (this is optional for other pipelines carrying products that are not toxic and corrosive).	Monitor activities and record and report non-compliance by undertaking site audits.	Monthly	Terminal Manager
		6.12.3. Scheduled inspections should be implemented in order to assure and verify the integrity of hoses, piping and storage tanks, in line with API 650 and OTGC standards (based on best practice and international standards).	Carry out site inspections to ensure that the equipment used for "hot work" procedures are maintained, using a checklist, to be drawn up by OTGC Management.	Daily when "hot work" is required.	Project Developer (OTGC) and Terminal Manager
		6.12.4. Operational personnel must wear basic PPE (e.g. gloves, goggles etc.) as necessary during the operational phase.	Monitor activities and record and report non-compliance by undertaking site audits.	Monthly	Terminal Manager
		6.12.5. Adequate emergency showers and eye wash fountains should be provided at strategic locations at the terminal.	Monitor activities and record and report non-compliance by undertaking site audits.	Monthly	Terminal Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		6.12.6. Portable fire extinguishers and fire water hydrants (i.e. appropriate fire-fighting equipment) should be provided at the terminal as required. Mobile fire-fighting equipment should be provided at the berths as a safety precaution during the vessel offloading process.	Assurance of functionality of fire extinguishers via inspections and certification by an accredited fire service company. Comply with the permit to work system.	Annually	Project Developer (OTGC) and Terminal Manager
F. Water Conservation					
6.13. Impact on the regional water balance as a result of increased water usage.	Reduce water usage during operations.	6.13.1. Water conservation to be practiced in line with Energy Saving Policies as follows: • Cleaning methods utilised for cleaning vehicles, floors, the terminal etc. should aim to minimise water use (e.g. sweep before wash-down). • Ensure that regular audits of water systems are conducted to identify possible water leakages. • Consider installing water saving devices (e.g. dual flush toilets, automatic shut-off taps, etc.).	Record water usage, conduct audits and record non-compliance and incidents.	Monthly	Terminal Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		6.13.2. Carry out environmental awareness training with a discussion on water usage and conservation, and make operational personnel aware of the importance of limiting water wastage.	Conduct training for all operational personnel.	• As and when required during operations and ensure that all new staff are inducted.	EHS Manager and Terminal Manager
G. Spill Contingency, Management and Handling of Chemicals/Dangerous Goods					
6.14. Fuel/product spills as a result of potential collisions between vessels or a collision between a vessel and the berth, or fire and explosion during the arrival, berthing or departure of a vessel in the Port.	Prevent spillages resulting from the collision of a tanker and the berth or another vessel, or fire or explosion during arrival and berthing or departure of a tanker in the Port of Durban.	6.14.1. Ensure that the protocols put forward by TNPA for the Port of Durban pertaining to expected vessels entering and exiting the harbour are followed. Ensure that the TNPA is kept well informed during the vessel discharge process.	OTGC to ensure that TNPA protocols are followed during the vessel arrival and departure phases.	When vessels (carrying OTGC products) enter and exit the Port of Durban, for use of the Storage Terminal.	Project Developer (OTGC) and Terminal Manager
		6.14.2. The Port Authorities must implement their Vessel Traffic System (and experienced pilotage) rigorously to limit ecological risks from operational accidents.	OTGC to ensure that TNPA protocols are followed during the vessel arrival and departure phases.	When vessels (carrying OTGC products) enter and exit the Port of Durban, for use of the Storage Terminal.	Project Developer (OTGC) and Terminal Manager
		6.14.3. OTGC should ensure that the Operations Manager (or personnel of similar designation) is present during all berthing and vessel discharge processes. The OTGC staff must be in attendance for the entire duration of offloading so that any leaks can be detected speedily.	Monitor offloading operations to detect and monitor spills at the berth.	Entire duration of all offloading operations.	Terminal Manager
		6.14.4. Ensure that the Port of Durban Oil Spill Contingency Plan is	EHS Manager to report to the Port Environmental Manager	After all spill events and spill events that nearly	EHS Manager

Impact	Management Objectives	Management Actions		Monitoring		
				Methodology	Frequency	Responsibility
			implemented in the event of potential spillages.	after all spill events. Reports must be compiled after spill events detailing the incident.	occur.	
		6.14.5.	Containment, recovery and clean-up operations must occur in the event of spillages.	Ensure that spilled fuel, oil or grease etc. is retrieved where possible, and contaminated soil is removed, cleaned and replaced. Contaminated soil to be collected by a Contractor and disposed of at a registered waste disposal site designated for this purpose.	In the event of spillages.	EHS Manager
6.15. Potential pipeline leak and poor housekeeping on the vessel deck and the berths during the discharging process.	Minimise spills during discharging of vessels (pipeline leak) and poor housekeeping on the deck and jetty.	6.15.1.	Ensure that there is adherence to strict operational procedures during the discharging process.	OTGC to ensure that TNPA protocols are followed during the vessel arrival and departure phases.	During vessel offloading process.	Project Developer (OTGC) and Terminal Manager
		6.15.2.	OTGC should ensure that the Operations Manager (or personnel of similar designation) is present during all berthing and vessel discharge processes. The OTGC staff must be in attendance for the entire duration of offloading so that any leaks can be detected speedily.	Monitor offloading operations to detect and monitor spills at the berth.	Entire duration of all offloading operations.	Terminal Manager
6.16. Potential spills of fuel/products as a result of vessel collisions in the adjacent area outside the Port of Durban.	Prevent spillages resulting from the collision of vessels outside the Port of Durban.	6.16.1.	Implement an environmental management and control plan to limit ecological risks from operational accidents (linked to the OTGC Terminal).	OTGC to compile a plan to limit the impacts resulting from operational accidents linked to the Storage Terminal only. The plan should include feedback from the TNPA in terms of efficient operation of shipping in the approaches to the port.	Once-off prior to operations.	Project Developer (OTGC) and Terminal Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
6.17. Impact on the Durban Bay Estuary and surrounding environment as a result of potential spillage of hazardous materials and waste (chemicals, oil, fuel, hydraulic fluids etc.) during the operational procedures (such as storage of product at the terminal and distribution of product via road tankers).	Reduce the spillage of hazardous materials and waste.	6.17.1. Segregation of hazardous waste from general waste to be in place. Hazardous waste must be stored temporarily on site in suitable (and correctly labelled) waste collection bins and skips (or similar). Waste collection bins and skips should be covered with suitable material, where appropriate.	On-site inspection of waste segregation and storage.	Weekly	EHS Manager
		6.17.2. Frequent collection and disposal of hazardous waste to a licenced hazardous waste disposal facility must be in place. An approved Contractor must be appointed to collect and dispose the hazardous waste. Record of collection and disposal to be kept on file.	Auditing of the terminal to ensure compliance to legislation and conformance to own procedures.	Monthly	EHS Manager
		6.17.3. Ensure that adequate containment structures are provided for the storage of dangerous goods and hazardous materials on site. Appropriate bund areas must be provided for the storage of these materials. Bund areas should contain an impervious surface in order to prevent spillages from entering the ground and stormwater system.	Monitor the bunding and containment structures (in line with Oiltanking and/or API standards and specifications).	Weekly	EHS Manager
		6.17.4. As far as possible and in line with current procedures at the existing Storage Terminal, servicing and refuelling of road tankers must be undertaken off site. If on-site	Monitor the refuelling/servicing process and record the occurrence of any spillages.	During emergency refuelling and servicing activities.	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		servicing and refuelling is required in emergency situations, a designated area must be established at the terminal for this purpose. Drip trays or similar impervious materials must be used during these procedures.			
		6.17.5. Ensure that the road tanker loading process is monitored by OTGC staff so that overfilling and spillage is prevented.	Monitor loading operations to detect and monitor spills.	Entire duration of all loading operations.	Terminal Manager
		6.17.6. Ensure that all infrastructure at the Storage Terminal (such as tank valves, couplings, loading hoses etc.) are checked and maintained on a regular basis in order to avoid product leakages. Maintenance must be undertaken in a demarcated, impervious area.	Audit maintenance log sheets and records, and report non-compliance. Generate an inspection checklist to carry out the audits.	Monthly	Terminal Manager
		6.17.7. If the pollution containment system at the road tanker loading gantry becomes blocked or if leaks arise, suitable precautionary measures must be implemented (such as the use of a drip tray or similar) beneath the road tanker loading valve in order to contain the spillages.	Monitor loading operations to detect and monitor spills. Monitor the use of spill protection measures in the case of emergency or leaks.	Entire duration of all loading operations.	Terminal Manager
		6.17.8. A Spill Response Plan must be compiled for the operational phase in order to manage potential spill events. The Spill Response Plan for the existing Storage Terminal, as	Compile a Spill Response Plan and take into account the existing Port of Durban Oil Spill Contingency Plan and lessons learnt from the existing Storage	Once off (and thereafter updated as required during the operational phase, during the review of the	Project Developer (OTGC)

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		well as lessons learnt from previous spillages at the terminal, must be considered when compiling the operational phase Spill Response Plan (which will form an integral part of the ERAP).	Terminal.	procedures).	
		6.17.9. If any spilled hazardous material reaches the Durban Bay Estuary, the TNPA must be informed immediately and the Port of Durban Oil Spill Contingency Plan must be followed. The following procedures should be followed: • Take immediate action to stop or reduce the spill and contain it. • Implement actions necessary to prevent the spread of the contamination. • Recover the spilled product. • Ensure proper disposal of spilled material.	Monitor the handling and storage of dangerous goods and monitor the occurrence of spills and the management process.	During spill events.	EHS Manager
6.18. Potential spillage of domestic effluent from the sewer as a result of the operation of the upgraded Storage Terminal.	Reduce the spillage of domestic effluent and the impact thereof on the environment.	6.18.1. A maintenance plan for the management of the sewer pipes in cases of emergency should be developed.	Compile sewer maintenance plan.	Once off (and thereafter updated as required during the operational phase).	Project Developer (OTGC)
H. Stormwater Management					
6.19. Increased stormwater discharge into the	Reduce the impact of increased stormwater	6.19.1. A suitable stormwater/ surface water quality monitoring programme should be established	Implement surface water quality monitoring programme, based on consultation with the landowner	As agreed during the operational phase.	Project Developer (OTGC)

Impact	Management Objectives	Management Actions		Monitoring		
				Methodology	Frequency	Responsibility
surrounding environment.	discharge to the environment.		and implemented. The programme should include inputs and feedback from the TNPA.	(i.e. TNPA).		
		6.19.2.	Regular inspections of stormwater infrastructure should be undertaken to ensure that it is kept clear of all debris and weeds.	Undertake regular inspections of the stormwater infrastructure (i.e. by implementing walk through inspections).	Weekly/Monthly	Terminal Manager and EHS Manager
I. Waste Management						
6.20. Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of solid waste (general and hazardous).	Reduce soil and groundwater contamination as a result of incorrect storage, handling and disposal of general and hazardous waste.	6.20.1.	Sufficient waste collection bins and skips (or similar) should be provided at the terminal. Waste collection bins and skips should be covered with suitable material and correctly labelled.	Monitor waste generation and collection throughout the operational phase.	Weekly	EHS Manager
		6.20.2.	Segregation of hazardous waste from general waste to be in place.	On-site inspection of waste segregation.	Weekly	EHS Manager
		6.20.3.	General waste and hazardous waste should be removed from the site on a regular basis and disposed of at an appropriate, licenced waste disposal facility. Hazardous waste should be removed by an approved waste management Contractor. General solid waste could be removed from the site by municipal services (in line with current procedures at the existing terminal). Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal, as applicable.	• Inspection of the waste storage area. • Monitor via site audits and record non-compliance and incidents. EHS Manager to monitor and audit disposal slips.	• Daily • Monthly	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		6.20.4. Ensure that the terminal is kept clean at all times and that operational personnel are made aware of correct waste disposal methods.	• Conduct training for all operational personnel. • Monitor the state of terminal via site audits and record non-compliance and incidents.	• Once-off during operations and ensure that all new staff are inducted. Carry out discussions during HSSE meetings as well. • Daily	EHS Manager
		6.20.5. No solid waste may be burned or buried on site.	Monitor via site audits and record non-compliance and incidents.	Daily	EHS Manager
		6.20.6. Waste amounts shall be recorded on a monthly basis.	Waste amounts to be documented.	Monthly	EHS Manager/ Terminal Manager
J. Air Quality Management					
6.21. Emissions from staff vehicles and road tankers that make use of the upgraded Storage Terminal.	Reduce odours during the operational phase.	6.21.1. Ensure that the proposed Storage Terminal is operated in such a manner whereby potential odours are minimised.	• Monitor via site audits and record non-compliance and incidents. • Complaints about odours should be investigated and documented in a register.	• Daily • When complaints are made.	EHS Manager
K. Socio-Economic Management					
6.22. Employment creation and skills development opportunities during the operational phase.	Maximise local employment and local business opportunities to promote and improve the local economy.	6.22.1. Enhance the use of local labour and local skills as far as reasonably possible.	Maximise local employment for unskilled labour and provincial/ national skilled labour. OTGC are required to meet Level 4 BBBEE levels when making appointments during the operational phase.	During the operational phase.	Project Developer (OTGC)
		6.22.2. Where the required skills do not occur locally, and where appropriate and applicable, ensure that relevant local individuals are trained.			
		6.22.3. Ensure that goods and services are sourced from the local and regional economy as far as reasonably possible.			

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
6.23. Improved service delivery and operational capacity of the Storage Terminal during the operational phase, as well as increased economic investment in the Port of Durban.	Maximise positive impacts through improving the operational capacity of the terminal.	6.23.1. Ensure that the proposed infrastructure is maintained appropriately to ensure that the Storage Terminal operates within its design capacity to deliver as the market requires.	Audit maintenance log sheets and records, and report non-compliance. Generate an inspection checklist to carry out the audits (in line with Oiltanking Standards).	Monthly	Terminal Manager
L. Environmental Awareness and Terminal Management					
6.24. Increased energy consumption during the operational phase.	Reduce energy consumption where possible.	6.24.1. Encourage the use of energy saving equipment at the terminal (such as low voltage lights and low pressure taps) and promote recycling, in line with the Oiltanking Energy Saving Specifications. Operational personnel must be made aware of energy conservation practices as part of the environmental awareness training programme.	• Monitor energy usage via site investigations. • Conduct training for all operational personnel.	• Monthly • As and when required and ensure that all new staff are inducted. Carry out discussions during HSSE meetings as well.	• Terminal Manager • EHS Manager
6.25. Inappropriate behaviour of terminal staff during the operational phase.	Prevent unnecessary impacts on the surrounding environment by ensuring that staff are aware of the requirements of the EMPr.	6.25.1. Designate smoking areas where the fire hazard could be regarded as insignificant.	Adhoc checks to ensure workers are smoking only in designated areas.	Daily	EHS Manager
		6.25.2. Educate workers on the dangers of open and/or unattended fires.	Ensure fire safety requirements are well understood and respected by workers (by providing basic fire safety training).	On-going	EHS Manager
		6.25.3. Open fires must be prohibited. Appropriate fire safety training should also be provided to staff that are to be on site for the duration of the operational phase.			
		6.25.4. Fire-fighting equipment must be made available at various appropriate locations.			

7. MANAGEMENT PLAN FOR DECOMMISSIONING PHASE

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
A. Visual Impacts					
7.1. Potential visual intrusion of decommissioning activities on the existing views of sensitive visual receptors.	Prevent unnecessary visual clutter from focusing attention of surrounding visual receptors on the proposed development.	7.1.1. Ensure that rubble and litter are appropriately stored and regularly removed from site to a licenced waste disposal facility. 7.1.2. Dust generation must be kept at a minimum. 7.1.3. Night lighting of work (decommissioning) sites must be minimized within requirements of safety and efficiency.	Rubble/litter/waste removal and disposal to be monitored throughout decommissioning. Complaints about night lights should be investigated and documented in a register.	Weekly or bi-weekly	Contractor and ECO
B. Safety, Health and Environment					
7.2. Pollution of sea water as a result of ingress of spillages and materials resulting from the washing of tanks (Molasses, Caustic Soda and MEG) into storm water drains and the harbour.	Prevent unnecessary impacts on the surrounding environment by ensuring that Contractors are aware of the requirements in terms of the handling of stored products and materials resulting from the tank washing process.	7.2.1. Empty all storage tanks and pipelines by sale and dispatch to customers of the Storage Terminal. 7.2.2. The material resulting from the washing of the storage tanks (with water) should be pumped into tankers and correctly disposed by an approved waste disposal Contractor, in line with OTGC decommissioning procedures.	Monitor the removal and disposal of wash water and confirm that none of the material is disposed into the stormwater system. Monitor activities and record and report non-compliance.	As required during decommissioning and until the material resulting from the washing process is correctly disposed.	Project Developer (OTGC) and ECO
7.3. Noise generation from demolition activities (e.g. grinding, steel falling, use of angle grinders) during the decommissioning phase.	Reduce the potential noise impacts on the decommissioning personnel.	7.3.1. Decommissioning personnel must wear proper hearing protection, which should be specified as part of the Decommissioning Phase Risk Assessment carried out by the Contractor.	Inspections to be carried out during the decommissioning phase to enforce the use of hearing protection by decommissioning personnel. A checklist should be generated in this regard to ensure	Throughout the decommissioning phase.	ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		7.3.2. The Contractor must ensure that all decommissioning personnel are provided with adequate PPE for use where appropriate. 7.3.3. The Contractor must prescribe, to decommissioning personnel, what is required by the OTGC permit to work system.	adherence to the safety requirements. This must also be written into the safety requirements of the Contract.		
7.4. Potential health injuries to demolition staff during the decommissioning phase.	Prevent respiratory illnesses caused to the decommissioning personnel.	7.4.1. The Contractor must ensure that all decommissioning personnel are provided with adequate PPE (such as dust masks) for use where appropriate. 7.4.2. The Contractor must prescribe, to decommissioning personnel, what is required by the OTGC permit to work system.	Inspections to be carried out during the decommissioning phase to enforce the use of respiratory protection by decommissioning personnel. This must also be written into the safety requirements of the Contract.	Throughout the decommissioning phase.	ECO and Contractor
7.5. Heavy traffic, congestion and potential for collisions.	Prevention of injuries, fatalities, and damage to equipment and vehicles during the decommissioning phase. To avoid blocking other traffic to the berths within the Port of Durban.	7.5.1. Suitable parking areas should be created and designated for trucks and vehicles. 7.5.2. A supervisor should be appointed to co-ordinate the traffic during the decommissioning phase. 7.5.3. Road barricading should be undertaken where required and road safety signs should be adequately installed at strategic points within the site.	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the decommissioning phase.	Project Developer (OTGC), ECO and Contractor
		7.5.4. Road worthy vehicles (i.e. stop and indicator lights) and only licenced vehicle drivers should be used. Vehicle maintenance and driver	Perform random checks of driver licenses and conduct random visual inspections of decommissioning vehicles for	Random visual inspection of vehicles weekly by the Contractor and OTGC.	Project Developer (OTGC) and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		competency should be monitored. The Contractors must ensure that vehicles are roadworthy, properly serviced and maintained.	roadworthiness.		
7.6. Demolition safety injuries.	Prevention of injuries to and fatalities of decommissioning personnel during the decommissioning phase.	7.6.1. Ensure that skilled, licenced and competent Contractors, riggers and crane operators are appointed during the decommissioning phase, along with the use of certified equipment and scaffolding. 7.6.2. The Contractor must ensure that all decommissioning personnel are provided with adequate PPE for use where appropriate. 7.6.3. The Contractor must prescribe, to decommissioning personnel, what is required by the OTGC permit to work system. 7.6.4. The Contractor must undertake a Decommissioning Phase Risk Assessment. 7.6.5. A Site Manager or Safety Supervisor should be appointed, in conjunction with the engineering project manager, to monitor all safety aspects during the decommissioning phase. This could be the same person that is assigned to co-ordinate the decommissioning phase traffic.	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the decommissioning phase.	Project Developer (OTGC), ECO and Contractor
7.7. Pollution of the surrounding water and ground as a result of spillages, generation of	Prevent unnecessary pollution impacts on the surrounding environment.	7.7.1. The site should be cleaned regularly and all demolition waste (i.e. concrete, steel, rubble, packaging	Monitor activities and record and report non-compliance by undertaking inspections.	Throughout the decommissioning phase.	Project Developer (OTGC), ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
building rubble and waste scrap material.		material etc.) must be removed from site and disposed at a licenced waste disposal facility by an approved Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal. 7.7.2. All liquid wastes (i.e. used oil, paints, lubricating compounds and grease etc.) must be removed from site and disposed at a licenced hazardous waste disposal facility by an approved waste Contractor. Waste disposal slips or waybills should be kept on file for auditing purposes as proof of disposal.			
C. Water Conservation					
7.8. Increased water usage during the decommissioning phase.	Reduce water usage during decommissioning processes.	7.8.1. Water conservation to be practiced in line with Energy Saving Policies as follows: • Cleaning methods utilised for cleaning vehicles, floors, etc. should aim to minimise water use (e.g. sweep before wash-down). • Ensure that regular audits of water systems are conducted to identify possible water leakages.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
		7.8.2. Carry out environmental awareness training with a discussion on water usage and conservation.	Conduct training for all decommissioning personnel.	• As and when necessary during decommissioning and ensure that all	EHS Manager, ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
				new staff are inducted. • Carry out discussions during HSSE meetings as well.	
D. Spill Contingency, Management and Handling of Chemicals/Dangerous Goods					
7.9. Potential spillage of effluent to the surrounding environment (from portable sanitation facilities for decommissioning personnel).	Reduce the spillage of domestic effluent and the impact thereof on the environment.	7.9.1. Ensure that normal sewage management practices are implemented during decommissioning such as regularly emptying toilets and ensuring safe transport and disposal of sewage.	EHS Manager to monitor via site audits and record non-compliance and incidents (including incidents that nearly occur).	Monthly	EHS Manager and ECO
		7.9.2. Ensure that all domestic effluent/waste water is disposed safely at an appropriate, licenced facility by an appointed (suitable) service provider. Ensure that no discharge of waste water to the land surface is permitted. Proof of disposal (i.e. waybills) must be kept on file.	EHS Manager to monitor via site audits and record non-compliance and incidents. EHS Manager to audit disposal slips.	Monthly	EHS Manager and ECO
		7.9.3. Carry out environmental awareness training to ensure that all personnel on-site are aware of environmental requirements and only make use of the provided facilities for sanitation purposes.	Conduct training for all decommissioning personnel.	• As and when necessary during decommissioning and ensure that all new staff are inducted. • Carry out discussions during HSSE meetings as well.	EHS Manager, ECO and Contractor

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		7.9.4. Ensure that sufficient toilet facilities are provided on site (one facility for every 10 persons working on the site).	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
		7.9.5. Ensure that the toilet/sanitation facilities are maintained in a clean, orderly and sanitary condition.	Monitor via site audits and record non-compliance and incidents.	Daily	EHS Manager and Contractor
		7.9.6. Ensure that the toilet/sanitation facilities are regularly serviced and emptied.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
		7.9.7. Ensure that the decommissioning site camp and toilet/sanitation facilities are placed outside areas susceptible to flooding and beyond 32 m of the estuary.	Monitor via site audits and record non-compliance and incidents.	Monthly	EHS Manager and ECO
7.10. Impact on the Durban Bay Estuary and surrounding environment as a result of potential spillage of hazardous materials and waste (chemicals, oil, fuel, hydraulic fluids etc.) during decommissioning.	Reduce the spillage of hazardous materials and waste.	7.10.1. Carry out management actions for the decommissioning phase, as mentioned in section 5.I: 5.16 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.I: 5.16 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.I: 5.16 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.I: 5.16 above.
E. Stormwater Management					
7.11. Discharge of contaminated stormwater into the surrounding environment. Contamination could result from chemicals, oils, fuels, sewage, solid waste, litter etc.	Reduce the contamination of stormwater.	7.11.1. The appointed Contractor should compile a Method Statement for Stormwater Management during the decommissioning phase.	Compile Method Statement and take into account the Stormwater Management measures at the existing terminal.	Once off (and thereafter updated as required).	Contractor
		7.11.2. Provide secure storage for oil, chemicals and other waste materials in order to prevent contamination of	Monitor the bunding and containment structures.	Weekly	EHS Manager

Impact	Management Objectives	Management Actions	Monitoring		
			Methodology	Frequency	Responsibility
		stormwater runoff (as mentioned in Section 5.K above).			
F. Waste Management					
7.12. Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of solid waste.	Reduce soil and groundwater contamination as a result of incorrect storage, handling and disposal of general and hazardous waste.	7.12.1. Carry out management actions for the decommissioning phase, as mentioned in section 5.L: 5.20 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.L: 5.20 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.L: 5.20 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.L: 5.20 above.
G. Air Quality Management					
7.13. Air Quality Impact: Emissions from decommissioning vehicles and generation of dust as a result of earthworks and demolition	Reduce dust emissions during decommissioning activities.	7.13.1. Carry out management actions for the decommissioning phase, as mentioned in section 5.N: 5.22 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.N: 5.22 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.N: 5.22 above.	Carry out monitoring for the decommissioning phase, as mentioned in section 5.N: 5.22 above.

8. APPENDIX A – PROPOSED LAYOUT OF PROPOSED PROJECT