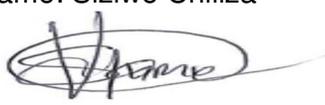
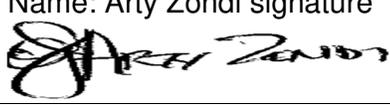




Site Specific Health and Safety Specification in terms of 2014  
Construction Regulations 5.1(b)

Document Title	HSS 55.10.21 Site Specific Health and Safety Specification
Client	eThekwini Municipality Road Provision
Project Name	Chester Cele Crescent Road widening in uMlazi G of Ward 79
Contract Number	1R-47183
Revision	n/a
Date	13/10/2021
Compiled by:	Name: Siziwe Chiliza  signature
Approved BY:	Name: Arty Zondi signature 

## Table of contents

1. Project Description and site access
2. Limitation of liability
3. Purpose of the Construction Health and Safety Specification
4. Project Health and Safety Cost
5. Scope of Work
6. Compensation for Occupational Injuries and Diseases Act, 130 of 1993
7. Notification of Construction Work
8. Management and Supervision of Construction
  - 8.1 Construction Manager
  - 8.2 Construction health and safety officer
  - 8.3 Construction Supervisor
9. Principal Contractor's Health and Safety Plan
10. Hazard Identification and Risk Assessment
  - 1 1. Health and Safety File
12. Close—out and Consolidated Health and Safety File
13. Health and Safety Training
14. Incidents Management & First Aid
  - 1 5. Health & Safety Audits
  - 1 6. Fire Precautions on Construction Site
  - 1 7. Electrical Installations on Construction Sites
18. Personal Protective Equipment (PPE) and Clothing
19. Occupational Health and Safety Signage
20. Duties of Principal Contractors and Contractors
- 21 . Public Health and Safety
22. Construction Employees Facilities
23. Housekeeping and General Safeguarding on Construction Site
24. Construction Medicals
25. Health and Safety Representative and SHE Committee
26. Stacking and Storage on Construction Site
27. Emergency Procedures
28. Induction and Toolbox Talk Program me
29. Construction vehicle and mobile plant
30. Organogram
- 31 . Carrying out construction work in a residential place

## 1. PROJECT DESCRIPTION AND SITE ACCES

This Contract entails the widening of approximately 120m of Chester Cele Road from an existing  $\pm 2,5$ m width to a specified designed widened width of 4,5m on the right and left edges of the road as per the design plans with layer works and as per the pavement design. Also included is the construction of minor bulk earthworks, Fig.6 mountable kerbing with concrete fillet, construction of terrace block retaining walls as well as other related ancillary works which forms part of the Scope of Works.

## 2. LIMITATIONS OF LIABILITY

The Principal Contractor shall enter into a Mandatory Agreement with the Client, as defined in Section 37(2) of the Occupational Health and Safety ACT. The Principal Contractor shall ensure that each contractor appointed by the principal Contractor and each sub-contractor appointed by a contractor also into a Mandatory Agreement with the Principal Contractor, as defined in Section 37(2) of the Occupational Health and Safety ACT. These agreements shall be included in the Principal Contractor's H&S File on site and be valid for the duration of the contractors' work on the construction site.

## 3. PURPOSE OF THE CONSTRUCTION SPECIFICATION

This document defines the minimum management requirement that is to be implemented by the Principal Contractor/ Contractor for the management of Health and Safety on any eThekweni Municipality project.

The aim of this document is to present the health and safety aspects that need to be controlled and managed on the project.

This Health and Safety specification identifies and encompasses the working behaviors and safe work practices that are expected of all employees, Vendors and Contractors, Sub-Contractors and Visitors, engaged on construction site.

Providing a guideline to comply with best Health & Safety practices and the Occupational Health and Safety Act 85/1993 as amended, including reference to applicable legislative requirement.

#### 4. PROJECT HEALTH AND SAFETY COST

The Client must ensure that potential Principal Contractor submitting tenders have made adequate provision for the cost of health and safety measures.

The Principal Contractor shall allow in their cost provision for complying with the requirements of this Construction Health and Safety Specification; resources for the following Health and Safety controls shall be in place.

NO.	H&S cost item	Description
1.	Construction Health and Safety Officer	A part-time Construction health and safety officer is required to ensure that the health and safety plan is implemented on site.
2	Medical certificate of fitness	Medical examination of all employees and certification of fitness by an Occupational Medicine Practitioner
3	Personal Protective Equipment	Personal Protective Equipment to be provided as per risk exposure, including but not limited to hands protection, and face protection
4	Public protection	To reduce risk exposure to the employees and members of the public
5	Employee facilities	Drinking water, ablution toilet etc..
6	Trainings and competency	Electrician, Risk assessor, Incident Investigator and Firefighter, first aider, Fall protection
7	Safety file	Full completed with all documents
8	Health and safety signage	All signatures must be displayed

## 5. SCOPE OF WORK

The scope of works for this project entails the following:

### (a) Earthworks:

- \_ Excavation for the layer works required for the proposed road upgrade.
- \_ Undercutting the formation for subgrade improvement layers, if required.

### (b) Roadworks:

- \_ Import, process and compact a 150mm thick G7 subgrade improvement layer (where instructed by the Employer's Agent).
- \_ Import, process and compact of a 150 mm thick G7 layer to 95% Mod. A.A.S.H.T.O.
- \_ Import, process and compact of a 150 mm thick G5 layer to 95% Mod. A.A.S.H.T.O.
- \_ Import, process and compact of a 150 mm thick G2 layer to 98% Mod. A.A.S.H.T.O.
- \_ Supply and lay 40mm compacted thickness Sa-S14, asphalt wearing course compacted to 93% RICE density.
- \_ Excavate for kerb and channel / fillet in existing asphalt layers (where instructed by the Employer's Agent).
- \_ Supply and lay Fig.6/Fig 12 kerbing and concrete channel / fillet (where instructed by the Employer's Agent).
- \_ Import, process and compact dump rock material.
- \_ Installation of road traffic signs painting of road markings.

### (c) Structures:

- \_ Excavation for earth retaining systems.
- \_ Construction of Terrace Block type or approved similar for retaining structures.

### (d) Protection Works:

- \_ Importing, process and compaction of approved topsoil.
- \_ Supply and laying of approved grassing

## 6. COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT

The Principal Contractor, each contractor and each sub-contractor shall submit proof of Good Standing with CODA Commissioner or a Mutual Association licensed in terms of Section 30 of COIDA, prior to starting any work on site. A copy of the Letter of Good Standing with COIDA Commissioner must be included in the H&S Plan of each contractor working on the site and must remain updated for the duration of the construction work.

## 7. NOTIFICATION OF CONSTRUCTION WORK

The Principal Contractor must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure 2 if the intended construction work will—

Include excavation work.

Include working at a height where there is risk of falling.

Include the demolition of a structure; or

Include the use of explosives to perform construction work.

A contractor who intends to carry out construction work that involves construction of a single-story dwelling for a client who is going to reside in such dwelling upon completion, must at least 7 days before that work is to be carried out notify the provincial director in writing in a form similar to Annexure

## 8. MANAGEMENT AND SUPERVISION OF CONSTRUCTION WORK

During the submission of your health and safety file for approval, please ensure that at least the following appointments are submitted with the file:

- Construction manager CR8(1)
- Construction work supervisor CR8(7)
- Construction health and safety officer CR8(5) — part-time
- Risk assessor CR9(1)
- Incident investigator GAR9(2)
- Electrical installation controller EIR5(4) and proof of registration with DOL as an electrical installer or contractor ● Fall protection planner

### 8.1 Construction Manager

The Principal Contractor shall appoint in writing a full-time competent person as the construction manager with the duty of managing all construction on the site including the duty of ensuring occupational health and safety compliance. The Construction Manager must demonstrate competency in relation to work being performed and the ability to manage construction work which may include making all statutory appointments in terms of health and safety.

### 8.2 Construction health and safety officer

The Principal Contractor shall appoint a part-time competent Construction Health and Safety Officer for the construction work, with at least 1 years in the construction industry as a construction health and safety officer.

### 8.3 Construction supervisor

A Construction Manager must in writing appoint construction supervisors responsible for construction activities and ensuring occupational health and safety compliance on the construction site. A contractor must, upon having considered the size of the project, in writing appoint one or more competent employees for different sections thereof to assist the construction supervisor contemplated in sub regulation (7), and every such employee has, to the extent clearly defined by the contractor in the letter of appointment, the same duties as the construction supervisor: Provided that the designation of any such employee does not relieve the construction supervisor of any personal accountability for failing in his or her supervisory duties in terms of this Regulation.

## 9. PRINCIPAL CONTRACTOR'S HEALTH AND SAFETY PLAN

The Principal Contractor shall submit a suitable, sufficiently documented and coherent specific health and safety plan based on the Client documented Health and Safety Specification. The health and safety plan shall include but not limited to the following:

- Objectives
- Scope of work
- Management of construction and supervision
- Monitoring and review plan
- Sub-contractor management
- CODA
  - Risk Assessment & Safe Working Procedures
  - Incident Management
  - First Aid
  - Emergency procedures
  - Fire Prevention & Protection
  - Public Health and Safety
  - PPE provision
  - Health & Safety Signage
  - Construction Vehicles and Mobile Plants
  - Hand tools management
  - Electrical Tool Management
  - Electrical installation on construction site
  - Construction Employees Facilities
  - Health & Safety Policies
  - Health and Safety Training & Competencies
  - Housekeeping
  - Inductions
  - Medicals
  - Stacking and Storage

- Internal and external Audit
- Inspection Registers
- Toolbox Talks
- Carrying out construction work in a residential place
- Hot works
- Fall protection

#### 10. HAZARD IDENTIFICATION AND RISK ASSESSMENT

The Principal Contractor shall before commencement of any construction and during such construction works have risk assessments performed by appointed competent person in writing which forms part of the health and safety plan to be applied.

The provisions of Regulation 9 of the Construction Regulations shall be followed in every detail.

#### 11. HEALTH AND SAFETY FILE

The Client must discuss and negotiate with a Principal Contractor the content of the Health and Safety Plan and thereafter finally approve the Health and Safety plan for implementation. The recommended Health and Safety file shall include the following:

- SHE Policy
- PPE Policy
- Notification of Construction work
- Client Health & Safety Specification and Baseline
- Principal Contractor Health & Safety Plan
- Letter of good standing
- Section 37.2 Mandatory Agreement
- Contractor appointment letter in terms of CR 5.1 (k)
- Legal appointments and competencies
- Risk Assessments as per scope of work
- Safe Working Procedures for each task
- Incident/Accident Management Procedures
- LOA from SCM
- Organogram as per appointments
- Copy of OHS Act and Construction Regulations 2014
- Health and Safety Induction program me
- Emergency Procedures
- Medical Certificate of fitness
- Toolbox Talks Program me/ Plan ● Fall protection plan

## 12. CLOSE- OUT CONSOLIDATED HEALTH AND SAFETY FILE

The Principal Contractor shall compile a consolidated H&S file and hand over to eThekweni municipality, Human settlements Unit (project manager responsible for the project). OHS Unit will conduct a project close out using the appropriate checklist before the completion of the project. The closeout file forms part of the project completion requirements for the retention payment.

## 13. HEALTH AND SAFETY TRAINING

The Principal Contractor shall ensure that employees are trained on health and safety measures this shall include but not limited to:

- Written Safe Working Procedures
- Risk Assessments
- Health and Safety Plan and other policies
- Fall protection plan
- Emergency Procedures/ Plan
- Incident management procedures
- Induction
- Toolbox Talks

## 14. INCIDENTS MANAGEMENT & FIRST AID

All incidents and accidents as per Section of the Act must be reported, recorded and investigated as per General Administration Regulation 8 & 9. Where a fatality or permanent disabling injury or incident occurs on the Construction site, the Client must ensure that the Principal Contractor provides the Provincial Director with a report contemplated in Section 24 of the Act and the report includes the measures that the Principal Contractor intends to implement to ensure a safe construction site.

## 15. HEALTH AND SAFETY AUDITS

The Client must ensure that periodic health and safety audits are conducted at intervals mutually agreed upon between the Principal Contractor and the Client at least every 30 days, the copy of the health and safety audit report must be provided to the Principal Contractor within seven days after the audit.

## 16. FIRE PRECAUTIONS ON CONSTRUCTION SITE

The Principal Contractor shall provide suitable fire extinguishers which shall be serviced regularly in accordance with the manufacture's recommendations. Safety signage shall be prominently displayed in all areas where fire extinguishers are located. The Principal Contractor shall arrange for training of the relevant personnel, in the use of fire extinguishers.

The provisions of Regulation 29 of the Construction Regulations as well as Regulation 9 of Environmental Regulation for Workplaces shall be followed in every detail.

## 17. ELECTRICAL INSTALLATIONS AND MACHINERY ON CONSTRUCTION SITE.

The Principal Contractor shall designate a competent electrician in writing who shall control all electrical installations. All temporary electrical installations used by the contractor are inspected at least once a week by a competent person and the inspection findings are recorded in a register kept on the construction site. All Electrical machinery is inspected by the authorized operator or user on daily basis using a relevant checklist prior to use and the inspection findings are recorded in a register kept on the construction site.

The provisions of Regulation 5, 6 & 9 of the Electrical Installation Regulations shall be followed in every detail.

## 18. PERSONAL PROTECTIVE EQUIPMENT AND CLOTHING.

The Principal Contractor shall ensure that every employee is issued with, and wears SANS-approved P.P.E. as per the conducted risk assessment. Failure to use protective equipment as per the risk assessment shall require disciplinary intervention and this process shall be documented in the induction. No employer shall in respect of anything which he is in terms of this Act required to provide or to do in the interest of health or safety of an employee make any deductions from any employee's remuneration or require or permit any employee to make any payment to him or to any other person.

The provisions of Regulation 2 of the General Safety Regulations shall be followed in every detail.

## 19. OCCUPATIONAL HEALTH AND SAFETY SIGNAGE

The Principal Contractor shall erect and maintain quality safety signage. The signage shall include but is not limited to:

- The construction work permit number displayed at the entrance (if applicable)
  - Access restrictions
- A sign indicating that all visitors must report to the site office and must be accompanied by the Principal Contractor when accessing the site
- The name and telephone number of the responsible person(s)
- Emergency telephone number(s)
- PPE to be worn at the site
- When falling objects may occur, relevant barricading and warning signs must be erected
- Excavations, heights structures, temporary structures and all risk areas must be indicated as per the specific methods defined in the H&S Plan.

## 20. DUTIES OF PRINCIPAL CONTRACTORS AND CONTRACTORS

Contractors and sub-contractors must be given a copy of the H&S specification and any additional specification issued by the Client and shall comply with these specifications integrally. All employers working on the site shall conform to the

standard in the CHSS. All the duties of the Principal Contractor in this CHSS equally apply, in full, to contractors of such Principal Contractor and to sub-contractors of such contractors. The Principal Contractor shall ensure that the comprehensive and updated list of all the contractors and sub-contractors on site includes:

- A reference to the agreements between the parties, including all contractors Section 37(2) agreements with the Principal Contractor
- The type of work being done
- The date of the approval of the H&S Plan
- The date of expiry of the COIDA certificate of good standing ● The date of the last monthly audit

The provisions of Regulation 7 of the Construction Regulations shall be followed in every detail.

## 21. PUBLIC HEALTH AND SAFETY

The site shall always be secured to prevent the unauthorized access of persons to construction risk areas. Appropriate health and safety signage shall be posted and access control to site must be exercised via a single access point. All members entering the site must indicate in what capacity they are visiting the site. The access point must be designed and constructed to allow for temporary parking, entry of construction vehicles, entry of personnel transport vehicles and entry of individual workers and other persons. The principal Contractor shall ensure that each person visiting the site shall be inducted to the site and such abridged induction shall outline the hazards from on-site activities and the precautions to be observed to avoid or minimize those risks. Visitors must only enter when accompanied by a responsible person designated by the Principal Contractor.

## 22. CONSTRUCTION EMPLOYEES FACILITIES

The Principal Contractor shall provide at or within reasonable access of every construction site, the following clean, hygienic and maintained facilities: (a) Shower facilities after consultation with the employees or employees representatives, or at least one shower facility for every 15 persons; (b) at least one sanitary facility for each sex and for every 30 workers; (c) changing facilities for each sex; and (d) sheltered eating areas.

The provisions of Regulation 2, 3, 4, 6, 7, 9 of the Facilities Regulations shall be followed in every detail.

## 23. HOUSEKEEPING AND GENERAL SAFEGUARDING ON CONSTRUCTION SITE

The Principal Contractor shall appoint a person responsible for general housekeeping and stacking and storage of materials and equipment on the entire site.

The provisions of Regulation 27 of the Construction Regulations shall be followed in every detail.

#### 24. CONSTRUCTION MEDICALS

A Principal Contractor must ensure that all his or her employees have a valid medical certificate of fitness specific to the construction work to be performed and issued by an Occupational Health Practitioner in the form of Annexure 3.

#### 25. HEALTH AND SAFETY REPRESENTATIVE AND SHE COMMITTEE

##### Health and Safety Representatives

- The Principal Contractor shall ensure that Health and Safety Representatives are appointed in writing and exercise their functions as defined in OHSA.
- The Principal Contractor shall elect and appoint a health and safety representative regardless of the number of employees on the site.
- The H&S representative shall always be on site and report to the Health and Safety Officer and Construction Manager.

##### Health and Safety Committee

- The Principal Contractor shall ensure that the H&S committee meets monthly
- The Principal Contractor's management and each contractor shall be represented at the H&S committee meeting; contractors with more than 20 employees shall have an H&S representative at each committee meeting and each contractor shall have a management member attending each H&S committee meeting.

#### 26. STACKING AND STORAGE ON CONSTRUCTION SITE

A Principal Contractor must, in addition to compliance with the provisions for the stacking of articles in the General Safety Regulations, 2003, ensure that—

A competent person is appointed in writing with the duty of supervising all stacking and storage on a construction site; Adequate storage areas are provided; are demarcated storage areas; and storage areas are kept neat and under control.

#### 27. EMERGENCY PROCEDURES/ PLAN

Principal contractor shall submit a detailed Emergency Procedures/ Plan for approval by the client prior to commencement of work on site. The procedures shall detail the response plan including the following:

List of key competent personnel  
Details of emergency services

Action or steps to be taken in the event of emergencies

Information on hazardous material

Emergency events relevant to the project

## 28. INDUCTION AND TOOLBOX PROGRAMME

No contractor may allow or permit any employee or person to enter any site unless that employee or person has undergone health and safety induction training pertaining to the hazards prevalent on the site at the time of entry.

A contractor must ensure that all visitors to a construction site undergo health and safety induction pertaining to the hazards prevalent on the site and must ensure that such visitors have the necessary personal protective equipment.

A contractor must at all times keep on his or her construction site records of the health and safety induction training contemplated in sub-regulation (6) and such records must be made available on request to an inspector, the client, the client's agent or the principal contractor; The Principal Contractor must ensure that the toolbox talks are conducted on weekly basis and the training records kept on the safety file.

## 29. CONSTRUCTION VEHICLES AND MOBILE PLANTS

For any use of construction vehicle and mobile plant in the construction site, contractor must comply with all the provisions of Construction Regulation 23.

## 30. ORGANOGRAM

Contractor shall submit an organogram outlining the site safety, health and environmental management structure as per appointment. The organogram must reflect the project and the company name and must have legal references.

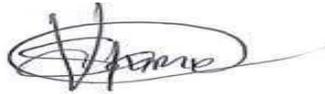
## 31. CARRYING OUT CONSTRUCTION WORK IN A RESIDENTIAL PLACE

The contractor must highlight the approach on how he/ she will ensure cooperation with other affected parties in the area e.g., Residents, Local businesses ect.

**ETHEKWINI MUNICIPALITY**  
**Occupational Health & Safety Unit**



**COVID 19 Health and Safety Specification**

Document Title	COVID 19 Health & Safety Specification
Client	eThekweni Municipality
Project Name	Chester Cele Crescent road widening in uMlazi G of Ward 79
Contract Number	1R- 47183
Revision	01
Date	13/10/2021
Internal Reference no.	COVID 58/09/2021
Compiled by (Safety officer)	Name and surname: Siziwe Chiliza  Signature: 
Reviewed by (Manager: Safety& Risk)	Name and surname: Arty Zondi  Signature: 



# **ETHEKWINI MUNICIPALITY**

## **OCCUPATIONAL HEALTH AND SAFETY UNIT**

### **COVID 19 HEALTH AND SAFETY SPECIFICATION**

#### **Background:**

Corona viruses are a large family of viruses that are found both in humans and animals. Some of these viruses are known to cause illnesses ranging from common cold to severe respiratory diseases. Corona virus (COVID-19) was identified in December 2019 in China. COVID-19 infections have spread to other countries in the world. Exposure to Covid-19 may cause flue like symptoms such as coughing, sneezing, headaches, fever, sore throat and at times affect the lungs and airways of employees. Symptoms can be mild, moderate, severe or fatal.

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan now for COVID-19. For employers who have already planned for influenza outbreaks involving many staff members, planning for COVID-19 may involve updating plans to address the specific sources of exposure, routes of transmission, and other unique characteristics of SARS-CoV-2 (i.e. compared to influenza virus outbreaks).

#### **Introduction**

The legislation governing workplaces in relation to COVID-19 is the Occupational Health and Safety Act, Act 85 of 1993, as amended, read with the Hazardous Biological Agents Regulations. Section 8 (1) of the Occupational Health and Safety (OHS) Act, Act 85 of 1993, as amended, requires the employer to provide and maintain as far as is reasonably practicable a working environment that is safe and without risks to the health of employees. Specifically,

section 8(2)(b) requires steps such as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard before resorting to Personal Protective Equipment (PPE). However, in the case of COVID-19, a combination of controls is required, although the main principle is to follow the hierarchy of controls.

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-cov-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies

This is a risk assessment for dealing with the current COVID-19 situation in the construction site. It may not be likely to cover all scenarios therefore Construction Management should develop Standard Operating Procedures as there may be unique circumstances and make a necessary call in the interest of the health and safety of employees

This is a risk assessment for dealing with the current COVID-19 situation in the construction site. It may not be likely to cover all scenarios therefore management should develop SOP's as there may be unique circumstances and make a necessary call in the interest of the health and safety of Contractor employees

## **Definitions**

“**BCEA**” means the Basic Conditions of Employment Act, 1997 (Act No.75 of 1997)

“**COVID-19**” means Coronavirus Disease 2019

“**Disaster Management Act**” means the Disaster Management Act, 2002 (Act No.57 of 2002)

“**OHSA**” means the Occupational Health and Safety Act, 1993 (Act No.85 of 1993)

“**PPE**” means personal protective equipment

“**virus**” means SARS-Cov-2 virus

“**Worker**” means any person who works in an employer's workplace including an employee of the employer or contractor, a self-employed person or volunteer

“**workplace**” means any premises or place where a person performs work

“**NICD**” means National Institute for Communicable Diseases

**“OMP”** means Occupational Medical Practitioner

**COVID 19 Risk Assessment:**

- The Contractor must ensure that COVID 19 Risk Assessment (COVID 19 Health and Safety Plan) is conducted and submitted to the Client prior to the commencement of the construction work, it must be in line with the Client COVID 19 Health and Safety Specification.
- The Contractor must appoint COVID 19 Compliance Manager to ensure that all necessary COVID 19 safety precautions are implemented to prevent the spread.

**Training and awareness:**

- The Contractor must ensure that all employees are inducted on COVID19 contractor risk assessment to prevent the spread.
- The Contractor must ensure that the employees are trained on COVID 19 to prevent the spread of the virus, training records must be kept in the Safety File.
- COVID-19 Direction on Health and Safety in the Workplace Government Gazette dated 29 April 2020, must be used as guideline and be customized to specific construction site.
- The Contractor must provide workers with information that raises awareness in any form or manner, including where reasonably practicable leaflets and notices placed in conspicuous places in the workplace informing workers of the dangers of the virus, the manner of its transmission, the measures to prevent transmission such as personal hygiene, social distancing, use of cloth masks, cough etiquette and where to go for screening or testing if presenting with symptoms.

**Hand Hygiene:**

- The Contractor must provide adequate facilities for the washing of hands with soap and clean water on each construction site.
- The Contractor must provide 70% alcohol-based hand sanitizers at strategic points of the construction site.
- The Contractor must paper towels to dry hands after hand washing.

**Cleaning and Disinfecting surfaces:**

- The Contractor must take measures to ensure that all work surfaces and equipment are disinfected before work begins, regular during the working period and upon completion the work.
- The Contractor must ensure frequently cleaning and disinfecting objects and surfaces that are touched regularly particularly in areas of high use such as shared tools, taps, ablution facilities, handrails light switches, eating and changeroom areas, shared construction vehicles, etc. using appropriate disinfecting solutions such clean water, soap and bleach

### **Social Distancing:**

- The Contractor must arrange the construction site to ensure minimal contact between workers and as far as practicable that there is a minimum of 1,5meter distance between workers while they are working. employees are aware to maintain social distance when working.
- The Contractor must ensure that social distancing measures are implemented through supervision of both the construction site and in the common areas outside the workplace, through queue control or within the workplace, these measures may include dividing the workers into groups or staggering break times to avoid the concentration of workers in common areas.
- The Contractor must ensure that where the minimum distance is impossible employees must always be instructed to wear cloth mask/FFP1/2 mask or reducing the number of workers present in the construction site at any time to achieve the required social distancing.
- The Contractor must ensure that employees working in offices are provided with physical barriers placed between work their workstations

### **Personal Protective Equipment (PPE)**

- The Contractor must ensure that every worker is provided with two cloth masks to be worn when in workplace or public which comply with the requirement set out in the guideline issued by Department of Trade, Industry and Competition.
- The main benefit of everyone wearing a cloth mask is to reduce the amount of virus droplets being coughed up by those with infection and transmitted to others and to surface that others may touch.
- Every Contractor must ensure that workers are informed, instructed, trained and informed as to the correct use of cloth mask.
- The Contractor must ensure to issue face shield/visors where applicable as double protection

### **Point of entry screening**

- The Contractor must identify the screening area for each construction site.
- The Contractor must ensure that the daily point of entry screening is conducted when entering construction site by a person nominated by the Contractor.
- The Contractor must ensure that all employees and visitors are screened and only those with all clear will be given clearance to carry on with construction work.
- The Contractor must ensure that during the screening a 1.5 m distance is maintained and FFP1/2 mask to be worn by a nominated person.
- The Contractor must ensure that the screening person is trained.
- The Contractor must ensure that a bottle of sanitiser is available at the screening area.
- The Contractor must ensure that the thermal device are provided during the screening process.
- The Contractor must ensure that all employees complete a COVID 19 Questionnaire which will be used to screen potential risk personnel entering the construction site.

## **Symptomatic employees**

- The Contractor must ensure that any person who ticks YES to one or more symptoms will be sent home and be advised to seek testing by a healthcare provider.
- The Contractor must ensure that employees who are sick with continuous cough, sore throat, difficulty breathing, or a high temperature in the workplace will be encouraged to stay home.
- The Contractor must ensure that the positive tested COVID 19 case, the employee is on paid sick leave in terms of section 22 of BCEA or if the employee's sick leave is exhausted, the Contractor shall apply for an illness benefit.
- The Contractor must ensure that employees confirmed to have COVID 19 will be managed in line with National Department of Health COVID 19 guidelines.
- The Contractor must isolate the worker with confirmed COVID case and issued him/her with FFP2 or surgical mask, arrange for the worker to be transported for further medical examination or testing, in a manner that does not place other workers or members of the public at risk
- The Contractor must ensure that the driver who is transporting the Person Under Investigation is provided with surgical mask or FFP2 mask.
- The Contractor must assess the risk of transmission, disinfect the work area and refer those workers who may be at risk for screening to prevent possible transmission.
- The Contractor must advise the Communicable Disease Centre (CDC) so that other contacts be identified and be investigated
- The Contractor must ensure that tested positive for COVID 19 is not discriminated in terms of Employment Equity Act no. 55 of 1998.
- The Contractor must ensure that if there is evidence that the worker contracted COVID 19 as a result of occupational exposure, lodge a claim for compensation in terms of the Compensation for Occupational Injuries and Diseases Act no. 130 of 1993.
- The Contractor must ensure that if a worker has been diagnosed with COVID 19 and isolated in accordance with the National Department of Health Guidelines, a Contractor may only allow a worker to return to work on the following conditions, the worker has undergone a medical evaluation confirming that the worker has been tested negative for COVID 19.

## **Emergency Numbers**

- Corona virus (COVID-19) 24-Hour Hotline number:0800 029 999
- Corona virus (COVID-19) WhatsApp Number: 0600 12 3456
- COVID-19 National Crisis Helpline - 0861 322 322
- NICD (National Institute of Communicable Diseases) 24-Hour toll-free hotline number:  
0800 029 999 or 0800 111 132
- SAPS gender-based violence service complaints (SAPS) - 0800 333 177
- GBV (Gender Based Violence) Command Centre -0800 428 428/ \*120\*7867# (free from any cell phone)/ SMS Line: 32312
- Women Abuse Helpline - 0800 150 150

- People Opposing Women Abuse (POWA) - Tel: 011 642 4345/ Afterhours cellphone: 0837651235
- Child Line - 0800 055 555
- Lifeline South Africa - 0800 012 322 (free on mobile networks including landlines)
- FAMSA - Advice on family relationships - 011 975 7107
- Human trafficking - Report cases of human trafficking - hotline operated by the Salvation Army and Be Heard - 08007 37283 (0 8000-rescue)
- National Human Trafficking Helpline - 0800 222 777
- Persons with Disabilities - SMS 'help' to 31531
- National AIDS Helpline - 0800 012 322
- Suicide Helpline - 0800 567 567
- Stop Gender Violence - Anonymous, confidential, and accessible telephonic information, counselling and referrals, in all 11 official languages - 0800 150 15
- Substance Abuse Helpline - 0800 12 13 14

### **Recommended Best Practice**

- The Contractor must ensure that vulnerable and 60 years old workers are identified and received a special measure for their protection.
- The Contractor must ensure that for communication strategy Microsoft Team, ZOOM or Skype or cell phones are used to prevent the spread of COVID 19 virus.
- The Contractor must ensure to keep the workplace well ventilated by natural or mechanical means to reduce the SARS – CoV – 2 viral loads.

### **References**

- COVID-19 Disaster Management Act
- Occupational Health & Safety Act 85 of 1993
- The Department of Employment and Labour: Workplace Preparedness: COVID-19 (SARS-CoV-19 virus)
- COVID-19 Occupational Health and Safety Measures in Workplaces COVID-19 (C19 OHS), 2020
- Hazardous Biological Agents Regulations
- National Institute for Occupational Health (NIOH)

**N.B. Please be aware that we are waiting for COVID 19 Construction Health and Safety Guideline issued by Department of Labour, which that they might be changes on this SPECIFICATION.**

# COMPANY LOGO

## Covid-19 access into construction site, point of entry screening questionnaire

Company / Construction Site: \_\_\_\_\_

Name and Surname: \_\_\_\_\_ Co No: \_\_\_\_\_

Line Manager Name: \_\_\_\_\_

Question:	Yes	No
1. Have you had flu or symptoms of flu in the last few weeks?		
2. Do you have a persistent cough that has started in the last few days?		
3. Do you have symptoms of fever? (red, tearing or burning eyes, sweats, clammy hands)?		
4. Do you have any signs of a respiratory infection, shortness of breath, difficulty breathing? ( <i>Self-test: Hold in your breath for 10 seconds</i> )		
5. In the last 14 to 21 days, have you travelled outside the borders of South Africa?		
6. In the last 14 to 21 days, have had contact with anybody that has travelled outside the Provincial or South African borders?		
7. Have you been near or in contact with anyone who has symptoms or tested positive for COVID-19?		
If you have answered yes to any of the above questions, please inform your supervisor immediately. Brief description of events (When, where and who else were you with: _____ _____ _____		
<b>Personal Commitment</b>		
✓ I further undertake to immediately report any change in my medical condition to my supervisor/manager!		
✓ I will always maintain excellent personal and company hygiene standards!		
✓ I will maintain and keep the minimum social distance of 1m between myself and other employees!		
✓ I will utilize PPE and sanitizers provided to me to prevent the spread of the virus!		
✓ I will ensure all equipment / materials handed over to another person has been cleaned and sanitized!		
✓ I will not abuse, misuse, share or lose the PPE and related materials / equipment issued to me!		
Employee Signature		
Date		

Temperature: \_\_\_\_\_ °C. (if temperature is at 38°C or higher refer to Process Flow Annexure 1 document then deny entry, isolate and start reporting process)

Entry Cleared Yes  No

Construction Manager/Supervisor: \_\_\_\_\_ Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**ETHEKWINI MUNICIPALITY**  
**Occupational Health & Safety Unit**



**Baseline Risk Assessment in terms of Construction Regulation 5.1(a)**

Document Title	Baseline Risk Assessment in terms of Construction Regulation 5.1(a)
Client	eThekwini Municipality – road provision
Project Name	Chester Cele Crescent Road widening in uMlazi of Ward 79
Contract Number	1R-47183
Revision	01
Date	13/10/2021
Internal Reference no.	BRA 55/10/2021
Compiled by (Safety officer)	Siziwe Chiliza  Signature:
Reviewed by (Manager: Safety & Risk)	Arty Zondi  Signature:

MAIN ACTIVITY	Site Establishment					
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.1	Travel to site	<ul style="list-style-type: none"> <li>• Potholes</li> <li>• Undulating roads</li> <li>• Poor visibility</li> </ul>	<ul style="list-style-type: none"> <li>• Fatigue</li> </ul>	<ul style="list-style-type: none"> <li>• Oil/diesel spillages</li> </ul>	<ul style="list-style-type: none"> <li>• Community livestock</li> <li>• Other vehicles driving recklessly</li> <li>• Pedestrians</li> <li>• Construction works on public road</li> </ul>	<ul style="list-style-type: none"> <li>• All drivers to be deemed competent</li> <li>• No staff to travel in rear of vehicles with equipment</li> <li>• All equipment to be secured during transport</li> <li>• All vehicles to be road worthy</li> <li>• No drivers/Operators to be under the influence of alcohol or drugs of any kind.</li> <li>• Inspection Records must be kept for all vehicles and plant.</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.2	Site clearance and de-vegetation	<ul style="list-style-type: none"> <li>• Poor traffic control</li> <li>• Incompetent drivers</li> <li>• inadequate signage's</li> <li>• Moving of construction vehicles and vehicle colliding</li> <li>• Snakes insect bites &amp; stings</li> </ul>	<ul style="list-style-type: none"> <li>• Back strain</li> <li>• cuts,</li> <li>• Abrasion</li> <li>• heat exhaustion</li> <li>• noise exposure</li> <li>• dust inhalation</li> </ul>	<ul style="list-style-type: none"> <li>• Spilling of oil diesel, petrol</li> <li>• Contamination of ground</li> </ul>	<ul style="list-style-type: none"> <li>• Tripping hazard</li> <li>• dust inhalation</li> <li>• intermittent noise level</li> </ul>	<ul style="list-style-type: none"> <li>• All staff to have medicals done by an occupational medical practitioner prior to commencement of work. All workers to have valid medicals with annexure 3 documents signed and stamped by Occupational Medical Practitioner with records in file.</li> <li>• All staff to work under supervision</li> <li>• Dust suppression is to be maintained</li> <li>• Responsible 8.1 to ensure Instructions are given on Manual handling using Safe Work Procedure (SWP) for Manual Handling.</li> <li>• Only Licensed and Appointed Mechanical Aids Operators (i.e. Crane Operators, TLB operators, Bobcat Operators, etc.) to operate plant on site.</li> <li>• Inspection &amp; Maintenance records must be maintained for all mechanical aids on site.</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.3	Site fencing	<ul style="list-style-type: none"> <li>• Pinch points from manual handling</li> <li>• Trip hazards</li> <li>• Underground services</li> </ul>	<ul style="list-style-type: none"> <li>• Heat exposure</li> <li>• Dust</li> <li>• Noise</li> <li>• Chemical burns/contact dermatitis from cement and eye injuries from cement splashes</li> </ul>	Hydrocarbon spills	<ul style="list-style-type: none"> <li>• Unauthorised persons entering site</li> <li>• School learners entering site</li> <li>• Damage to underground services</li> </ul>	<ul style="list-style-type: none"> <li>• All contractor staff and local labour to be inducted of all “no go” areas</li> <li>• All staff have company logo PPE with name tags</li> <li>• Contractor staff to work within designated areas only</li> <li>• Contractor to conduct DSTI’s (Daily Safety Task Instruction) and communicated at the beginning of the shift daily. DSTI close out to be conducted and attendance registered signed by all staff.</li> <li>• Flagman to be provided to ensure vehicles are guided onto site.</li> <li>• Wear hand protection (PVC Gloves), safety glasses and face shield always by the operator of the concrete chute.</li> <li>• Concrete spillages to be cleaned up and concrete truck chute to be cleaned in concrete wash area.</li> <li>• Stacking &amp; Storage Supervisor to be appointed to control lay down areas.</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.4	Placing of mobile offices	<ul style="list-style-type: none"> <li>• Use of mechanical aids for offloading</li> <li>• Failure of lifting equipment</li> <li>• Fall from heights</li> <li>• Manual handling</li> <li>• Mechanical aids overturning</li> <li>• Overhead power lines</li> </ul>	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Hand and body injuries</li> <li>• Heat exposure</li> <li>• Dust exposure</li> </ul>	Hydrocarbon spills	<ul style="list-style-type: none"> <li>• Exposure to dust</li> <li>• Interaction of machinery and learners</li> </ul>	<ul style="list-style-type: none"> <li>• All operators to be deemed competent</li> <li>• All riggers to be deemed competent</li> <li>• All lifting equipment to be. load tested</li> <li>• Flagman/banksman to be present on-site during movement of plant</li> <li>• Access control to be managed on site</li> <li>• All staff to have the required PPE</li> <li>• Staff working at heights to be trained for heights safety</li> <li>• Contractor to conduct DSTI's (Daily Safety Task Instruction) and communicated at the beginning of the shift on a daily basis. DSTI close out to be conducted and attendance registered signed by all staff.</li> <li>• Ensure Offloading area is clear, level, secure and free from slip trip and falling hazards.</li> <li>• Mechanical Aids must be operated in accordance with the operators training and manufacturers guidelines</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
1.5	Connection of power supply	Electrocution Hand injuries	Heat exhaustion	None	Interruption of power supply	<ul style="list-style-type: none"> <li>• Only authorised person to do electrical connection</li> <li>• A COC is to be provided for all electrical works done</li> <li>• Monthly inspections to be done for all temporary electrical connections</li> <li>• Contractor is to be responsible for power consumption</li> <li>• Required agreements to be in file for electrical usage</li> </ul>
1.6	Water supply	Injuries during the laying of water pipes	Drinking water which is not safe for human consumption	None	Theft of water by residents	<ul style="list-style-type: none"> <li>• All drinking water is to be labelled/sign posted</li> <li>• Water use is to be managed on site</li> <li>• The location of standpipes to be correctly positioned to mitigate theft of water from site</li> </ul>

1.8	Construction of staff facilities: eat area/toilets/change area	<ul style="list-style-type: none"> <li>• Manual handling</li> <li>• Fall from heights</li> <li>• Hand injuries</li> <li>• Use of portable electrical power tools</li> </ul>	<ul style="list-style-type: none"> <li>• Electrocutation</li> <li>• Dust exposure</li> <li>• Heat exposure</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• Separate facilities for both male and female</li> <li>• Drinking water to be provided for staff on site</li> <li>• If portable toilets are to be used required service slips are to be maintained on site</li> <li>• Staff facilities area to be suitable for staff use</li> </ul>
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MAIN ACTIVITY	Construction Works					
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.1	Site survey	<ul style="list-style-type: none"> <li>• Trips and falls</li> <li>• Injuries from use of hand tools</li> </ul>	<ul style="list-style-type: none"> <li>• Heat exhaustion</li> <li>• Dust exposure</li> </ul>	Use of cement for markings contamination	<ul style="list-style-type: none"> <li>• Trips and falls</li> <li>• Unauthorised entrance</li> </ul>	<ul style="list-style-type: none"> <li>• Works to be supervised</li> <li>• DSTI to be done</li> <li>• Lime to be used for ground markings</li> <li>• Required PPE to be used</li> <li>• All survey pegs to be made visible</li> <li>• If steel is to be used rebar caps are to be fitted onto them</li> </ul>
2.2	Mechanical excavations	<ul style="list-style-type: none"> <li>• Machinery collides with people</li> <li>• Collision with machinery</li> <li>• Fall into open excavation</li> <li>• Collapse of side walls</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Back injuries</li> <li>• Noise exposure</li> </ul>	Hydrocarbon spills	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Collision with machinery</li> </ul>	<ul style="list-style-type: none"> <li>• DSTI to be done</li> <li>• All staff to have the required PPE</li> <li>• All plant to be inspected before use</li> <li>• All open excavations to be netted off and sign posted</li> <li>• Excavated spoil to be 500mm away from edge of excavation</li> <li>• Nil staff to be in any excavation when machinery in use</li> </ul>
2.3	Manual excavations	<ul style="list-style-type: none"> <li>• Slips and falls</li> <li>• Fall into open excavations</li> <li>• Collapse of side walls</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Back injuries</li> <li>• Heat exhaustion</li> </ul>	None	Fall into open excavations	<ul style="list-style-type: none"> <li>• All staff to be trained in safe works procedure</li> <li>• All spoil to be away from edge of excavation</li> <li>• Ladders to be provided for access and egress from excavations</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.4	Unsafe stacking and storage practices	<ul style="list-style-type: none"> <li>• Manual handling injuries</li> <li>• Pinch points</li> <li>• Slips and trips</li> </ul>	Back injuries	None	None	<ul style="list-style-type: none"> <li>• Required PPE to be used</li> <li>• DSTI to be done</li> <li>• All works to be supervised</li> <li>• All steel to be stacked within a designated area</li> </ul>
2.5	Installation of Temporary Electrical Installations	<ul style="list-style-type: none"> <li>• Use of hand tools injuries</li> <li>• Trips and falls</li> <li>• Collapse of excavation side walls</li> <li>• Contact with machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical burns from concrete</li> <li>• Heat exhaustion</li> <li>• Dust exposure</li> </ul>	Ground contamination	Collision with pedestrians	<ul style="list-style-type: none"> <li>• DSTI to be done</li> <li>• Flagman to direct all trucks to site</li> <li>• All staff to have the required PPE when handling concrete</li> <li>• Nil staff to be in foundation during discharge of concrete into excavation</li> <li>• Delivery trucks to use designated access</li> <li>• Washing of truck chutes to be done within a concrete wash area</li> </ul>
2.6	Housekeeping	<ul style="list-style-type: none"> <li>• Manual handling injuries</li> <li>• Trips and falls</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Back strains</li> <li>• Ergonomically injuries</li> </ul>	Ground contamination due to mixing of mortar on natural ground	Unauthorised access to site	<ul style="list-style-type: none"> <li>• Proper stacking of bricks to be done</li> <li>• Movement of bricks to be done with proper wheelbarrows</li> <li>• All staff to have required PPE</li> <li>• A platform to be created for mixing of mortar</li> <li>• Housekeeping to be maintained on site</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.7	Site Induction	<ul style="list-style-type: none"> <li>• Struck by machinery</li> <li>• Manual handling injuries</li> <li>• Fires</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Heat exhaustion</li> <li>• HAVS</li> <li>• Noise</li> </ul>	Hydrocarbon spills	Unauthorised access	<ul style="list-style-type: none"> <li>• All staff to have required PPE</li> <li>• DSTI to be done</li> <li>• All works to be supervised</li> <li>• Safe works procedure to be done and communicated to staff</li> <li>• Risk assessments to be communicated by means of training</li> </ul>
2.8	Setting up of temporary road works signage	<ul style="list-style-type: none"> <li>• Struck by machinery</li> <li>• Placing of incorrect signage at locations</li> </ul>	incident Damage to property	Environmental degradation	None	<p>The Contract</p> <ul style="list-style-type: none"> <li>• Manager must ensure that a suitable site-specific Traffic Management Plan is developed and implemented and a competent Traffic Safety Officer</li> </ul>
2.9	Public vehicular and pedestrian traffic travelling on the public road during construction work	<ul style="list-style-type: none"> <li>• injuries</li> <li>• car collision</li> </ul>	☒ incident Damage to property	None	None	<ul style="list-style-type: none"> <li>• All works to be supervised</li> </ul> <p>All All temporary road traffic signage must comply with the</p> <ul style="list-style-type: none"> <li>• SARTSM</li> <li>• Flagman to direct all vehicles to site</li> </ul>

2.10	Layer works (asphalt layer)	<ul style="list-style-type: none"> <li>• Use of hand tools injuries</li> <li>• Trips and falls</li> <li>• Contact with machinery</li> <li>Respiratory failure</li> <li>• Burns</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical burns from asphalt</li> <li>• Heat exhaustion</li> <li>• High temperature of product</li> </ul>	Ground contamination	none	<ul style="list-style-type: none"> <li>• Flagman to direct all vehicles</li> <li>• All staff to have the required PPE when handling asphalt</li> <li>• Delivery trucks to use designated access</li> <li>• All spills to be cleaned and disposed</li> <li>• Enforced reverse alarms to be fitted Application of dust masks</li> </ul>
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REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.11	Backfilling	<ul style="list-style-type: none"> <li>• Manual handling injuries</li> <li>• Trips and falls</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Back strains</li> <li>• Ergonomically injuries</li> <li>• Heat exhaustion</li> </ul>	Ground contamination due to mixing of mortar on natural ground	Unauthorised access to site	<ul style="list-style-type: none"> <li>• All staff to have required PPE</li> <li>• A platform to be created for mixing of mortar</li> <li>• Waste skips to be provided on site</li> <li>• All asphalt waste to be properly disposed on site</li> <li>• Housekeeping to be maintained on site</li> </ul>

2.12	Refuelling plant and equipment	Extremely flammable, high hazard. The liquid can release vapours at temperature below ambient which forms flammable mixtures	Heat exhaustion	Ground contamination due to mixing of mortar on natural ground	Unauthorised access to site	<ul style="list-style-type: none"> <li>• Required appointments to be in file</li> <li>• All works to be supervised</li> </ul> <p>Remove all sources of ignition. Contain and</p> <ul style="list-style-type: none"> <li>• collect spillage with non-combustible absorbent materials. Place in a suitable container for disposal in accordance with waste regulations</li> </ul>
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REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.13	Excavator Plate compactor, Bomag roller, Front end loader, Mobile crane  TLB, milling machine, paver, excavator, skid steer(bobcat), rollers (steel drum/ rubber tyre) grader, insist recycler,	<ul style="list-style-type: none"> <li>• Collapse of scaffolding</li> <li>• Slips and falls</li> <li>• Fall from heights/ elevated positions</li> </ul>	Heat exhaustion	None	Unauthorised access to site	<ul style="list-style-type: none"> <li>• All staff will be deemed fit for work with medicals records in file</li> <li>• Required PPE will be provided for staff</li> <li>• All works to be supervised</li> <li>•</li> </ul>

	chip spreader, bitumen distributor(tan ker)					
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REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.15	Employees working in close proximity to moving machinery Exposure to noise	noise	noise	none	No unauthorised access	<ul style="list-style-type: none"> <li>• All power tools to be inspected before use. Records to be in file</li> <li>• Housekeeping to be maintained on site</li> <li>• Employee to make use of SABS approved hearing protection, supervisor to ensure that the correct P.P.E is used. Task to be supervised by a competent supervisor</li> </ul>
2.16	<ul style="list-style-type: none"> <li>• Hazardous chemical substances</li> </ul>	injuries Contact with skin/eyes  Inhalation or indigestion	Skin irritation, burns or infections Could cause loss in eyesight			<ul style="list-style-type: none"> <li>• Required PPE to be used</li> <li>• DSTI to be done</li> <li>• All works to be supervised</li> <li>• All steel to be stacked within a designated area</li> <li>• Exposed rebar to be fitted with rebar caps</li> <li>• All power tools to be inspected before use.</li> </ul>

2.17	Neighbouring business and public exposed to the nature of the construction activities	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Heat exhaustion</li> </ul>	Dust pollution	Unauthorised access to site	<p>Communication with neighbouring business is critical. Health risk must be communicated to all</p> <ul style="list-style-type: none"> <li>• employees' dust, noise generated out of the construction work must be managed</li> <li>• Fence constructed to approved standard</li> </ul>
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REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.18	Emergency Preparedness, Emergency Drill & Evacuation	No training No implementation Planning done Failure to have a basic site-specific Emergency Management Plan	Person/s unprepared to respond to the emergency at hand	none	none	The Construction Manager must ensure that a site specific Emergency Management Plan is developed for implementation. Adequate number of employees trained in the use of fire equipment

2.17	Utilizing incompetent Sub-Contractors	<ul style="list-style-type: none"> <li>• Use of hand tools injuries</li> <li>• Trips and falls</li> <li>• Contact with machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical burns from concrete</li> <li>• Heat exhaustion</li> <li>• Dust exposure</li> </ul>	Ground contamination	Collision with pedestrians	The Construction Manager must be reasonably satisfied that the Sub Contractors intended to be appointed have the necessary competencies and resources to carry out the work safely
2.18	Brickwork at manholes	<ul style="list-style-type: none"> <li>• Manual handling injuries</li> <li>• Use hand tools injuries</li> </ul>	<ul style="list-style-type: none"> <li>• Ergonomical injuries</li> <li>• Heat exhaustion</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• DSTI to be done</li> <li>• Risk assessment and SWP to be communicated to all staff</li> <li>• All power tools to be inspected before use</li> <li>• Fall arrest equipment to be used at all heights</li> </ul>

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.19	Mixing mortar	<ul style="list-style-type: none"> <li>• Unsafe</li> <li>• electrocution</li> <li>• loading strain</li> </ul>	Loading / unloading material	none	none	<p>The Construction Manager must ensure that a SWP is developed implemented about safe lifting and loading procedures</p> <p>All work needs to be supervised</p>

REF NO	SUB ACTIVITY	SAFETYRISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
2.20	Install Geosynthetic layer	Poor Ergonomics may result in muscular skeletal injuries	<ul style="list-style-type: none"> <li>• Ergonomical injuries</li> <li>• Heat exhaustion</li> </ul>	None	None	The Construction Manager must ensure that workers are trained in the risk of ergonomically injuries and methods to mitigate the risks

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.3	Construction of drains	<ul style="list-style-type: none"> <li>• Trips and falls</li> <li>• Manual handling injuries</li> <li>• Underground services</li> <li>• Open excavations</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Heat exposure</li> <li>• Ergonomical injuries</li> <li>• Noise exposure</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• All works to be supervised</li> <li>• DSTI to be done</li> <li>• Risk assessments &amp; SWP to be done</li> <li>• All open excavations to be netted off</li> <li>• Access and egress to be provided for all open excavations</li> <li>• All spoil to be away from excavation side wall</li> </ul>

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.4	Pouring Ready Mix concrete	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Dust</li> <li>• Bumping against,</li> </ul>	<ul style="list-style-type: none"> <li>• noise induced hearing loss</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• flag person required and Visual check required</li> <li>• Wearing required PPE</li> </ul>

		<ul style="list-style-type: none"> <li>• Concrete truck tipping over</li> <li>•</li> </ul>				
3.5	Waste removal	<ul style="list-style-type: none"> <li>• Noise</li> <li>• Dust</li> <li>• Bumping against,</li> <li>• Struck by flying items</li> </ul>	<ul style="list-style-type: none"> <li>• cuts and abrasions</li> <li>• dust inhalation</li> <li>• noise induced hearing loss</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• Safe &amp; proper use of hand tools</li> <li>• Wearing required PPE</li> <li>• practise of proper manual lifting of material</li> </ul>

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
3.9	Inlet and outlet structures	<ul style="list-style-type: none"> <li>• Use of hand tools injuries</li> <li>• Trips and falls</li> <li>• Contact with machinery</li> <li>• Working in a restricted area</li> <li>• Manual handling</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Ergonomical injuries</li> <li>• Chemical burns</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• Safe &amp; proper use of hand tools</li> <li>• Wearing required PPE</li> <li>• practise of proper manual lifting of material</li> <li>• Supervise the works by a competent supervisor</li> </ul>
3.10	Working with hot asphalt	<ul style="list-style-type: none"> <li>• lack of proper access / working platform</li> </ul>	☒ Heat exhaustion	None	None	<ul style="list-style-type: none"> <li>• DSTI to be done</li> <li>• Risk assessment and SWP to be communicated to all staff</li> <li>• Scaffold to be erected by competent person</li> <li>• Scaffold to be erected as per SANS 10085</li> <li>• Supervise the works by a competent supervisor</li> <li>• Staff to be trained for work at heights</li> <li>• Fall arrest equipment to be used at all heights</li> <li>• Adequate lighting to be provided</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
6.3	Cleaning tools with solvent	<ul style="list-style-type: none"> <li>• Use of power tool – electrocution</li> <li>• Manual handling</li> <li>• Work in restricted area</li> </ul>	<ul style="list-style-type: none"> <li>☒ Dust exposure</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• All power tools to be inspected before use</li> <li>• DSTI to be done</li> <li>• Risk assessment/SWP to be done and in file</li> <li>• All staff to have required PPE</li> </ul>
6.5	Manual lifting of tool	<ul style="list-style-type: none"> <li>• Fall from heights</li> <li>• Fall of equipment from heights</li> </ul>	<ul style="list-style-type: none"> <li>• Dust exposure</li> <li>• Heat exhaustion</li> <li>• Manual exertion</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• Work platform to be inspected</li> <li>• Full supervision at all times</li> <li>• Staff to have fall arrest equipment in use</li> <li>• Manual lifting techniques to be practiced at all times</li> </ul>
	Welding, flame cutting, soldering and similar operations	<ul style="list-style-type: none"> <li>• Fumes inhalation</li> <li>• Eye injury</li> </ul>	<ul style="list-style-type: none"> <li>• Chest pain</li> <li>• heat</li> </ul>	none	none	<ul style="list-style-type: none"> <li>• Proper PPE required</li> <li>• Close supervision</li> </ul>

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
7.1	Inlet and outlet structures	Struck by vehicle	heat	none	none	Traffic management plan required
7.2	Applying tack	Eye injury	contamination	none	none	Close supervision all the time

MAIN ACTIVITY						
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
8.1	Site levelling using excavator/ bob cat	<ul style="list-style-type: none"> <li>• Trips and falls</li> <li>• Exposed survey pegs</li> <li>• Use of hand tools</li> </ul>	<ul style="list-style-type: none"> <li>• Heat exposure</li> <li>• Noise exposure</li> </ul>	Hydrocarbon spills	<ul style="list-style-type: none"> <li>• Pedestrians exposed to machinery</li> <li>• Accidents</li> </ul>	<ul style="list-style-type: none"> <li>• Works to be supervised</li> <li>• Staff to use required PPE</li> <li>• Dust suppression to be maintained</li> <li>• Refuelling to be done in designated areas</li> <li>• Rebar caps to be fitted on exposed pegs</li> <li>• Risk assessments and SWP to be done for staff</li> <li>• All plant operators to be deemed competent</li> <li>• Flagman to be present on site</li> </ul>
8.2	Backfill and compaction of other layers	<ul style="list-style-type: none"> <li>• Manual handling</li> <li>• Trips and falls</li> <li>• Use of mobile plant accidents</li> </ul>	<ul style="list-style-type: none"> <li>• Heat exhaustion</li> <li>• Dust exposure</li> <li>• Noise exposure</li> </ul>	Hydrocarbon spills	<ul style="list-style-type: none"> <li>• Pedestrians exposed to machinery</li> <li>• Accidents</li> </ul>	<ul style="list-style-type: none"> <li>• Works to be supervised</li> <li>• Staff to use required PPE</li> <li>• Dust suppression to be maintained</li> <li>• Refuelling to be done in designated areas</li> <li>• Rebar caps to be fitted on exposed pegs</li> <li>• Risk assessments and SWP to be done for staff</li> <li>• All plant operators to be deemed competent</li> <li>• Flagman to be present on site</li> </ul>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
8.4	Concreting of walkways/ driveway	<ul style="list-style-type: none"> <li>• Use of hand tools injuries</li> <li>• Trips and falls</li> <li>• Collapse of excavation side walls</li> <li>• Contact with machinery</li> </ul>	<ul style="list-style-type: none"> <li>• Chemical burns from concrete</li> <li>• Heat exhaustion</li> <li>• Dust exposure</li> </ul>	Ground contamination	Collision with pedestrians	<ul style="list-style-type: none"> <li>• DSTI to be done</li> <li>• Flagman to direct all trucks to site</li> <li>• All staff to have the required PPE when handling concrete</li> <li>• Nil staff to be in foundation during discharge of concrete into excavation</li> <li>• Delivery trucks to use designated access</li> <li>• All spills to be cleaned and disposed</li> </ul>

MAIN ACTIVITY	COVID 19					
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
9.1	Travel to site Deliveries -use of public transport	<ul style="list-style-type: none"> <li>• Nil decontamination of public transport</li> <li>• Passengers in public transport not using face masks</li> <li>• Nil social distancing in public transport</li> <li>• Nil decontamination of supplies and deliveries</li> </ul>	<ul style="list-style-type: none"> <li>• Staff contracting the virus during use of public transport</li> <li>• Staff contracting virus during handling of contaminated supplies</li> </ul>	None	None	<ul style="list-style-type: none"> <li>• All staff to ensure that they use a face mask and sanitise when using the public transport</li> <li>• Contractor could arrange for a dedicated transport for all staff to and from work.</li> <li>• Staff are not to use their work PPE when travelling on public transport.</li> <li>• All staff to follow decontamination procedures when entering work site</li> </ul>
9.2	Management to prepare site before construction works commence	<ul style="list-style-type: none"> <li>• Nil decontamination of offices and facilities</li> <li>• Failure to align policies and procedures to COVID 19 virus</li> </ul>	<ul style="list-style-type: none"> <li>• Returning staff not provided with COVID related PPE and disinfectants</li> <li>• Possible contamination to staff</li> </ul>	none	Unauthorised persons entering site	<ul style="list-style-type: none"> <li>• Management to ensure all offices, facilities are disinfected with proper disinfectants</li> <li>• Overgrown vegetation to be cut before any staff can return to site</li> <li>• Required COVID 19 PPE is to be purchased and made available for staff when project commences</li> </ul>

	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
	Site preparation	<ul style="list-style-type: none"> <li>• Failure to display related signage's for site access due to COVID virus.</li> <li>• Nil PPE and sanitisers (COVID related) for staff to return to work</li> <li>• Management not inducted/educated on COVID 19</li> </ul>	Staff returning to work are not educated on policy changes Management unable to provide correct information to staff on COVID 19 issues	none	none	<ul style="list-style-type: none"> <li>• Required access control signage's (COVID related) to be displayed at main entrance</li> <li>• Management to rearrange facilities area to ensure social distancing</li> <li>• Policies and procedures (COVID related) to be amended and approved before site can reopen. This is to be communicated to all staff</li> <li>• An induction program (COVID 19) is to be prepared which is to be communicated to all staff when project commences</li> <li>• Required sanitisers and disinfectants to be purchased and made available before project commences</li> <li>• Contractor to ensure required staff information form pertaining to COVID 19 is available which is to be filled out by each staff</li> <li>• Adequate hazardous waste bins to be made available on site</li> </ul>
9.3	Entering of construction work site	Staff fail to use required PPE	Staff may be infected with the virus	none		<p>☒ All staff to follow the required social distancing when at main entrance</p>

REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
	Entering construction work	<ul style="list-style-type: none"> <li>• Congestion of staff at main entrance to site</li> <li>• Failure of contractor to screen staff entering site</li> <li>• Staff not maintaining social distancing</li> </ul>	<ul style="list-style-type: none"> <li>☒ Staff spreading of the virus to other staff</li> </ul>	none	none	<ul style="list-style-type: none"> <li>• Due to lockdown, staff are to declare their movement, medical history during lockdown. These records are to be kept on site for record/tracing purposes</li> <li>• All staff are to be tested as per contractor's protocol to enter the site. Taking of staff temperature and desensitising of entire staff. An infrared thermometer is to be used.</li> <li>• Contractor to ensure all staff conducting the required testing is provided with the required PPE and is supervised by management.</li> <li>• Staff are not permitted to enter the site with their work PPE. Work PPE is to be left on site when leaving site to prevent possible contamination of work PPE</li> <li>• Any staff tested with a high temperature or signs of COVID is to follow the quarantine procedure until staff can be tested by the DOH for possible COVID 19 infection.</li> </ul>

9.4	Work tasks	<ul style="list-style-type: none"> <li>• Nil social distancing on site</li> <li>• Staff socialising on site</li> <li>• Staff not using their required PPE to prevent COVID infections</li> </ul>	<ul style="list-style-type: none"> <li>• Spreading of the virus to other staff</li> <li>• Possible infections</li> </ul>	none	Possible closure of site due to infection	<ul style="list-style-type: none"> <li>• Identified tasks are to be evaluated to encourage social distancing</li> <li>• All staff to have the required PPE when on site</li> <li>• Staff to decontaminate all tools and workspace prior to any activity</li> <li>• Monitoring to be done by management</li> <li>• Inductions to be done for all staff on social distancing whilst at work.</li> <li>• Failure of staff to comply with COVID control measures are to be removed off site.</li> </ul>
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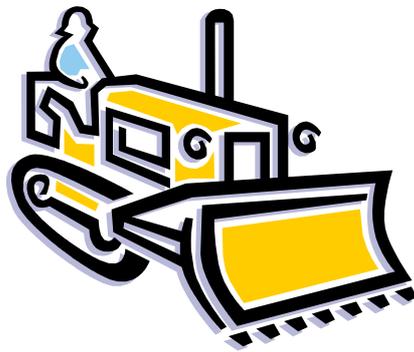
REF NO	SUB ACTIVITY	SAFETY RISKS	HEALTH RISK	ENVIROMENTAL RISK	PUBLIC RISK	RECOMMENDED RISK CONTROL MEASURE
9.5	Use of facilities during break intervals	<ul style="list-style-type: none"> <li>• Nil social distancing</li> <li>• Nil hygiene been maintained at break intervals</li> <li>• Nil paper towel provided for staff at wash facilities</li> <li>• Lack of chairs for staff at facilities area</li> </ul>	<ul style="list-style-type: none"> <li>• Possible contamination of staff</li> <li>• Staff not practising adequate hygiene control measures</li> <li>• Possible spread of virus</li> <li>• Inadequate provision of hand wash /sanitisers for staff</li> </ul>	none	none	<ul style="list-style-type: none"> <li>• Breaks are to be staggered to allow social distancing of staff</li> <li>• All staff are to take their breaks at the identified facilities area</li> <li>• Layout of facilities area to be planned to encourage social distancing</li> <li>• Table and chairs to be disinfected before and after all break intervals</li> <li>• Toilets to be disinfected at frequent interval.</li> <li>• Adequate hand wash and sanitisers are to be provided for staff to frequently wash their hands</li> <li>• Paper towels to be provided for staff use</li> <li>• Labelled bins to be provided for all hazardous waste</li> <li>• Staff are not to share any meals or utensils</li> <li>• Staff are not to leave the site to purchase any meals</li> </ul>

9.6	Use of jackhammer	<ul style="list-style-type: none"> <li>• Injuries</li> <li>• Noise</li> <li>• Loss limb</li> </ul>	<ul style="list-style-type: none"> <li>• vibration</li> </ul>	none	none	<ul style="list-style-type: none"> <li>• Tools need to be inspected</li> <li>• Safety team supervisor</li> </ul>
9.10	Ground water	<ul style="list-style-type: none"> <li>• Injuries</li> <li>• Wet soil</li> <li>• Soil erosion</li> </ul>	<ul style="list-style-type: none"> <li>• Ground seepage</li> </ul>	Rock formations Water Wet soil	none	<ul style="list-style-type: none"> <li>• Proper PPE required</li> <li>• Close supervision</li> </ul>
9.11	Slope stability	<ul style="list-style-type: none"> <li>• Multiple injuries</li> <li>• Cracks caused by compacting</li> <li>• fatality</li> </ul>	<ul style="list-style-type: none"> <li>• Excavation collapsed</li> </ul>	Rock formation		<ul style="list-style-type: none"> <li>• Racking back required</li> <li>• Close supervision</li> <li>• PPE required</li> </ul>
9.12	excavation	<ul style="list-style-type: none"> <li>• Collapsed and cause multiple injury</li> <li>• fatality</li> </ul>	<ul style="list-style-type: none"> <li>• vibration</li> </ul>			<ul style="list-style-type: none"> <li>• Competent person to check on excavation</li> <li>• Close supervision on blasting</li> <li>• Notification for blasting</li> </ul>





**ETHEKWINI MUNICIPALITY  
ENVIRONMENTAL BRANCH**



**STANDARD ENVIRONMENTAL  
MANAGEMENT PLAN  
FOR CIVIL ENGINEERING  
CONSTRUCTION PROJECTS**



**OCTOBER 2002**

# Environmental Management Policy

## Vision

In developing an environmental vision, the starting point is the broader Metro Vision, developed as part of the Integrated Development Framework (1997) for the DMA:

*By the year 2015, metropolitan Durban will be a thriving world-class industrial and commercial center, an attractive tourist destination and the gateway to KwaZulu-Natal and southern Africa.*

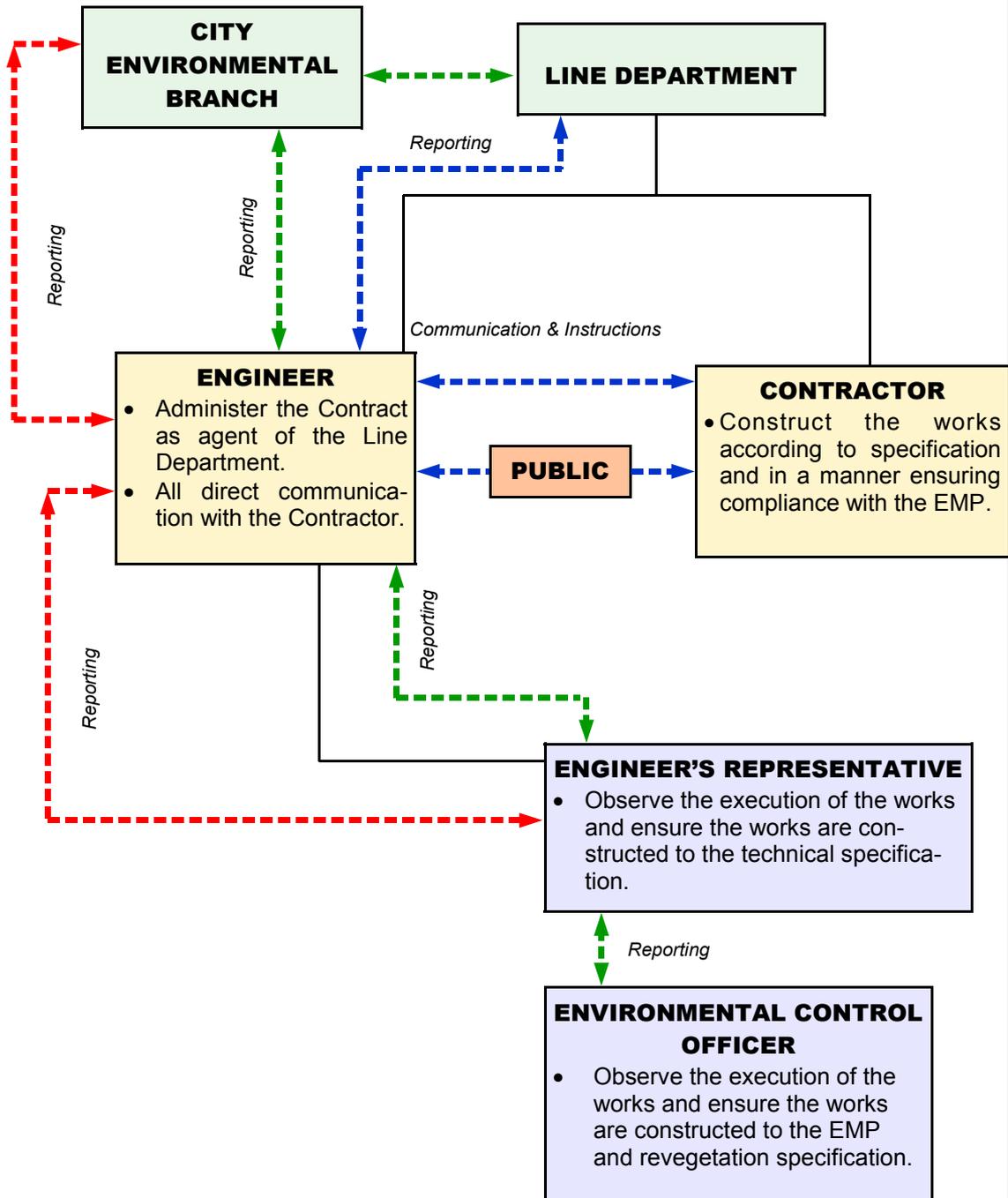
*It will be a clean and safe environment with full, effective employment, with its residents living in acceptably serviced housing, and with a generally high quality of life that can be sustained.*

*Democracy and tolerance will be an established way of life in a united metropolitan area, with a high level of service and development orientation with civic pride.*

**In support of the metro vision, a shared vision for Durban is that it is seen:**

- *As a metropolitan area that strives for sustainable development – optimising the developmental benefits gained from the environment through managing and protecting it effectively.*
- *As a centre with a thriving, vibrant economy with full employment that reflects a balance between social justice and well-being, economic efficiency and ecological sustainability.*
- *Where all citizens enjoy a well-structured, efficient and user-friendly city which values its unique character and natural beauty.*
- *As a home to people who enjoy a good quality of life, including adequate nourishment, housing and education, and who enjoy safe, clean and healthy places to work and play.*
- *As a place with a rich ecological biodiversity, where unique natural resources and features are protected and access by all is promoted.*
- *In which all people recognize their role in managing the integrated built and natural environment as an essential part of their lives, and as their contribution to the lives of generations to come.*
- *Acting proudly as a world leader in metropolitan environmental management.*

# PARTIES TO THE CONSTRUCTION CONTRACT AND THEIR INTERACTION



## SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES

<b>A.1 Access to Site</b>		<b>Monitor</b>	<b>Frequency</b>										
<i>Sound environmental principles must be followed whilst establishing access to the site.</i>	<p>A.1.1 <u>Routing</u></p> <p>a) The Contractor must take into account any limitations identified and recommendations made during the environmental studies when deciding on an access route to the construction site.</p> <p>b) The location of all underground services and servitudes must be identified and confirmed.</p> <p>c) Choice of access routes should take into account minimum disturbance to residents and businesses neighbouring the site.</p> <p>A.1.2 <u>Haulage Roads</u></p> <p>a) All roads for construction access must be planned and approved by the Engineer and ECO ahead of construction activities. They should not be created on an ad-hoc basis.</p> <p>b) Roads must follow natural contours to reduce stormwater erosion.</p> <p>c) Roads must have as little cut and fill as possible.</p> <p>d) Road widths and the radii of curves are to be reduced to the minimum required.</p> <p>e) No trees / shrubs / groundcover may be removed or vegetation stripped without the prior permission of the Engineer/ECO.</p> <p>f) Agreed turning areas for haulage vehicles are to be formalised and used by the Contractor. No turning manoeuvres other than at the designated places shall be permitted.</p> <p>g) Contractors shall construct formal drainage on all temporary haulage roads in the form of side drains and mitre drains to prevent erosion and point source discharge of run-off.</p> <p>h) Scour check walls must be constructed in the side drains as follows:</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="padding: 5px;">Gradient of Road</th> <th style="padding: 5px;">Scour Check Spacing</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">&lt;4%</td> <td style="padding: 5px;">Not required</td> </tr> <tr> <td style="padding: 5px;">5%</td> <td style="padding: 5px;">20m</td> </tr> <tr> <td style="padding: 5px;">8%</td> <td style="padding: 5px;">10m</td> </tr> <tr> <td style="padding: 5px;">10%</td> <td style="padding: 5px;">5m</td> </tr> </tbody> </table> <p>i) Scour checks can be constructed from rocks available on site or using driven wooden pegs. Smaller rocks must be placed on the invert of side drain upstream and downstream of the scour checks.</p> <p>j) Haulage roads must allow for the natural flow of water where required.</p> <p>k) All stream/ river crossings and temporary bridges shall be built to the Engineer's approval.</p>	Gradient of Road	Scour Check Spacing	<4%	Not required	5%	20m	8%	10m	10%	5m	<p>Engineer(E)/ Environmental Control Officer (ECO)</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E/ECO</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p> <p>E</p>	<p>Prior to moving onto site.</p> <p>Prior to moving onto site.</p> <p>Prior to moving onto site and during construction.</p> <p>Prior to moving onto site.</p> <p>Prior to moving onto site.</p> <p>Prior to moving onto site.</p> <p>Before and during construction.</p> <p>Prior to moving onto site.</p> <p>Prior to moving onto site.</p> <p>On construction of temporary roads.</p> <p>On construction of haulage roads.</p> <p>On construction of haulage roads.</p>
Gradient of Road	Scour Check Spacing												
<4%	Not required												
5%	20m												
8%	10m												
10%	5m												



## SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES

		<b>Monitor</b>	<b>Frequency</b>
	<p>the camp site, and on site as agreed by the Engineer. Toilets should be no closer than 50m from any natural water bodies.</p> <p>b) The construction of "long drop" toilets is forbidden.</p> <p>c) Under no circumstances may open areas or the surrounding bush be used as a toilet facility.</p> <p><b>A.2.3 <u>Provision for Camp Waste Disposal</u></b></p> <p>a) Bins and / or skips shall be provided at convenient intervals for disposal of waste within the construction camp.</p> <p>b) Bins should have liner bags for efficient control and safe disposal of waste</p> <p>c) Recycling and the provision of separate waste receptacles for different types of waste should be encouraged.</p>	<p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p>	<p>Ongoing.</p> <p>Ongoing.</p> <p>During site set-up and ongoing.</p> <p>Ongoing.</p> <p>During site set-up and ongoing.</p>
<p><b>A.3. Establishing Storage Areas</b></p> <p><i>Storage areas can be hazardous, unsightly and can cause environmental pollution if not designed and managed carefully.</i></p>	<p><b>A.3.1 <u>General Substances and Materials</u></b></p> <p>a) Choice of location for storage areas must take into account prevailing winds, distance to water bodies and general on-site topography.</p> <p>b) Storage areas must be designated, demarcated and fenced if necessary.</p> <p>c) Storage areas should be secure so as to minimize the risk of crime. They should also be safe from access by children / animals etc.</p> <p>d) Fire prevention facilities must be present at all storage facilities.</p> <p>e) If electrical equipment for substations is stored on site a fire break will be required around the storage area.</p> <p>f) Burning of fire breaks is to be carefully planned and managed with the assistance of the eThekweni Fire Department.</p> <p><b>A.3.2 <u>Hazardous Substances and Materials</u></b></p> <p>a) Definition of hazardous substances / materials are those that are potentially: poisonous, flammable, carcinogenic or toxic.</p> <p>b) Some examples of hazardous substances / materials:</p> <ul style="list-style-type: none"> <li>- diesel, petroleum, oil, bituminous products</li> <li>- cement</li> <li>- solvent based paints</li> <li>- lubricants</li> <li>- explosives</li> <li>- drilling fluids</li> <li>- pesticides, herbicides</li> <li>- LPG</li> </ul>	<p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p> <p>E/ECO</p> <p>E/ECO</p>	<p>During site set-up.</p> <p>During site set-up.</p> <p>During site set-up.</p> <p>During site set-up.</p> <p>During site set-up and ongoing maintenance of fire break.</p> <p>During burning of fire break</p>

**SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES**

		<b>Monitor</b>	<b>Frequency</b>
	<p>c) Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes.</p> <p>d) Hazardous storage and refuelling areas must be bunded with an impermeable liner to protect groundwater quality. The Contractor shall submit a method statement to the Engineer for approval.</p> <p>e) Fuel tanks must meet relevant specifications and be elevated so that leaks may be easily detected.</p> <p>e) Storage areas containing hazardous substances / materials must be clearly signed.</p> <p>f) It is very important that the proximity of houses, schools etc is taken into account when deciding on storage areas for hazardous substances.</p> <p>g) Residents living adjacent to the construction site must be notified of the existence of the hazardous storage area.</p> <p>h) Staff dealing with these materials / substances must be aware of their potential impacts and follow the appropriate safety measures.</p> <p>i) Contractors shall submit a method statement and plans for the storage of hazardous materials and emergency procedures.</p>	<p>E/ECO</p> <p>E</p> <p>ECO</p> <p>E</p> <p>ECO</p> <p>ECO</p> <p>ECO</p>	<p>During site set-up.</p> <p>During site set-up.</p> <p>During site set-up.</p> <p>During surveys and preliminary investigations.</p> <p>When moving onto site or as the relevant materials arrive on site.</p> <p>During staff induction and ongoing as necessary.</p> <p>Prior to establishment of storage area.</p>
<p><b>A.4. Materials Management – Sourcing</b></p> <p><i>Materials must be sourced in a legal and sustainable way to prevent off-site environmental degradation.</i></p>	<p>A.4.1 <u>Source of Materials</u></p> <p>a) Contractors shall prepare a source statement indicating the sources of all materials (including topsoil, sands, natural gravels, crushed stone, asphalt, clay liners etc), and submit these to the Engineer for approval prior to commencement of any work.</p> <p>b) Where possible, a signed document from the supplier of natural materials should be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation.</p> <p>c) Where materials are borrowed (mined), proof must be provided of authorisation to utilise these materials from the landowner / mineral rights owner and the Department of Minerals and Energy.</p>	<p>E/ECO</p> <p>ECO</p> <p>ECO</p>	<p>On award of contract.</p> <p>On receipt of natural materials.</p> <p>On receipt of borrowed materials.</p>

**SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES**

		<b>Monitor</b>	<b>Frequency</b>
<p><b>A.5. Education of Site Staff on General and Environmental Conduct</b></p> <p><i>These points need to be made clear to all staff on site before the project begins.</i></p>	<p>A.5.1 <u>Environmental Education and Awareness</u></p> <p>Ensure that all site personnel have a basic level of environmental awareness training. The Contractor must submit a proposal for this training to the ECO for approval. Topics covered should include:</p> <ul style="list-style-type: none"> <li>- What is meant by “environment”.</li> <li>- Why the environment needs to be protected and conserved.</li> <li>- How construction activities can impact on the environment.</li> <li>- What can be done to mitigate against such impacts.</li> <li>- Awareness of emergency and spills response provisions.</li> <li>- Social responsibility during construction. e.g. being considerate to local residents.</li> </ul>	ECO	During staff induction and ongoing.
	<p>It is the Contractor’s responsibility to provide the site foreman with no less than 1 hour’s environmental training and to ensure that the foreman has sufficient understanding to pass this information onto the construction staff.</p>	ECO	Prior to moving onto site.
	<p>a) Translators are to be used where necessary.</p>	ECO	Ongoing.
	<p>b) The Engineer / environmental control officer should be on hand to explain more difficult / technical issues and to answer questions.</p>	ECO	Ongoing.
	<p>c) The use of pictures and real-life examples is encouraged as these tend to be more easily remembered.</p>	ECO	Ongoing.
	<p>d) Use should be made of environmental awareness posters on site.</p>	ECO	Ongoing
	<p>e) Construction workers should be made aware that they are not to make excessive noise (e.g. Shouting / hooting) when the site is near to commercial / residential areas.</p>	ECO	During staff induction, followed by ongoing monitoring.
	<p>f) The need for a “clean site” policy also needs to be explained to the construction workers.</p>	ECO	Induction, ongoing monitoring.
	<p>A.5.2 <u>Worker Conduct on Site</u></p>		
	<p>A general regard for the social and ecological well-being of the site and adjacent areas is expected of the site staff. Workers need to be made aware of the following general rules:</p>	ECO	During staff induction, followed by ongoing monitoring.
<p>a) No alcohol / drugs to be present on site.</p>			
<p>b) No firearms allowed on site or in vehicles transporting staff to / from site, (unless used by</p>			

## SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES

		<b>Monitor</b>	<b>Frequency</b>
	security personnel). c) Prevent excessive noise. d) Prevent unsocial behaviour. e) Bringing pets onto the site is forbidden. f) No harvesting of firewood from the site or from the areas adjacent to it. g) Construction staff are to make use of the facilities provided for them, as opposed to ad-hoc alternatives. (e.g.: fires for cooking; the use of surrounding bush as a toilet facility are forbidden). h) Trespassing on private / commercial properties adjoining the site is forbidden. i) Driving under the influence of alcohol is prohibited. j) Other than pre-approved security staff, no workers shall be permitted to live on site.		
<b>A.6. Dust / Air Pollution</b>  <i>Establishment of the camp site, and related temporary works can reduce air quality.</i>	a) Vehicles travelling along the access roads must adhere to speed limits to avoid creating excessive dust. b) Camp construction / haulage road construction – areas that have been stripped of vegetation must be dampened periodically to avoid excessive dust. c) The Contractor must make alternative arrangements (other than fires) for cooking and / or heating requirements. LPG gas cookers may be used provided that all safety regulations are followed.	ECO  ECO  E	Ongoing.  Ongoing – more frequently during dry and windy conditions.  Ongoing.
<b>A.7. Soil Erosion</b>  <i>The stripping of vegetation during preliminary activities on site greatly increases the risk of erosion.</i>	a) The time that stripped areas are left open to exposure should be minimised wherever possible. Care should be taken to ensure that lead times are not excessive. b) Wind screening and stormwater control should be undertaken to prevent soil loss from the site. c) Procedures that are in place to conserve topsoil during the construction phase of the project are to be applied to the set up phase. i.e. topsoil is to be conserved while providing access to the site and setting up the camp.	E/ECO  E/ECO  E/ECO	Throughout the duration of the project.  During site set-up. Daily monitoring during site set-up.
<b>A.8. Stormwater</b>  <i>Serious financial and environmental impacts can be caused by unmanaged stormwater.</i>	a) To prevent stormwater damage, the increase in storm water run-off resulting from construction activities must be estimated and the drainage system assessed accordingly. A drainage plan must be submitted to the Engineer for approval and must include the location and design criteria of any temporary stream crossings (siting and return period etc). b) During site establishment, stormwater culverts and drains are to be located and covered with metal grids to prevent blockages if deemed necessary by the Engineer. (e.g. due to demolition work). c) Temporary cut off drains and berms may be required to capture stormwater and promote infiltration.	E  E  ECO	During surveys and preliminary investigations.  During site set-up.  During site set-up.

**SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES**

		<b>Monitor</b>	<b>Frequency</b>
<p><b>A.9 Water Quality</b></p> <p><i>Incorrect disposal of substances and materials and polluted run-off can have serious negative effects on groundwater quality.</i></p>	<p>a) Storage areas that contain hazardous substances must be bunded with an approved impermeable liner.</p> <p>b) Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimise pollution risk and reduced bunding capacity.</p> <p>c) A designated, bunded area is to be set aside for vehicle washing and maintenance. Materials caught in this bunded area must be disposed of to a suitable waste site or as directed by the Engineer.</p> <p>d) Provision should be made during set up for all polluted run off to be treated to the Engineer's approval before being discharged into the stormwater system. (This will be required for the duration of the project.)</p>	<p>E</p> <p>E/ECO</p> <p>E/ECO</p> <p>E/ECO</p>	<p>During site set-up.</p> <p>During site set-up</p> <p>During site set-up.</p> <p>During set up, to be monitored weekly.</p>
<p><b>A.10. Conservation of the Natural Environment</b></p> <p><i>Alien plant encroachment is particularly damaging to natural habitats and is often associated with disturbance to the soil during construction activities. Care must be taken to conserve existing plant and animal life on and surrounding the site.</i></p>	<p>A.10.1 <u>Fauna and Flora</u></p> <p>a) No vegetation may be cleared without prior permission from the Engineer.</p> <p>b) Trees that are not to be cleared should be marked beforehand with danger tape. The ECO must be given a chance to mark vegetation that is to be conserved before the Contractor begins clearing the site.</p> <p>c) Care must be taken to avoid the introduction of alien plant species to the site and surrounding areas. (Particular attention must be paid to imported material).</p> <p>d) Disturbance to birds, animals and reptiles and their habitats should be minimised wherever possible.</p> <p>A.10.2 <u>Sensitive Habitats</u></p> <p>Areas which are identified by the Engineer or the environmental control officer as being ecologically sensitive and which are adjacent to any construction work are to be suitably demarcated to prevent damage by plant and labour. Temporary bonnox type fencing should be used and should be moved in phases as the construction progresses from one area to the next.</p>	<p>E/ECO</p> <p>E/ECO</p> <p>ECO</p> <p>E/ECO</p> <p>E/ECO</p>	<p>During site set-up and ongoing.</p> <p>During site set-up.</p> <p>Ongoing in camp site, haulage areas.</p> <p>During surveys and preliminary investigations and ongoing.</p> <p>During surveys and preliminary investigations and ongoing.</p>
<p><b>A.11. Set up of Waste Management Procedures</b></p>	<p>a) The excavation and use of rubbish pits on site is forbidden.</p> <p>b) Burning of waste is forbidden.</p> <p>c) A fenced area must be allocated for waste sorting and disposal.</p> <p>d) Individual skips for different types of waste (e.g. "household" type refuse, building rubble, etc) should be provided. See section D for waste disposal resources within the eThekweni area.</p>	<p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p>	<p>Ongoing</p> <p>Ongoing.</p> <p>During site set-up.</p> <p>During site set-up.</p>

## SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES

		<b>Monitor</b>	<b>Frequency</b>
<p><b>A.12. Social Impacts – Visual &amp; Noise</b></p> <p><i>It is important take notice of the needs and wishes of those living or working adjacent to the site. Failure to do so can cause disruption to work and increase costs in the form of delays.</i></p>	<p>A.12.1 <u>Public Participation</u></p> <p>a) During the set up phase of the project, the Contractor needs to make contact with those people that are Interested or Affected by the development (I&amp;AP's)</p> <p>b) These people will usually have been identified by the environmental consultant that was assigned to the project. If this wasn't the case, the I&amp;AP's can be identified as those who either:</p> <ul style="list-style-type: none"> <li>- Live close by to the site</li> <li>- Work close by to the site</li> <li>- Will have their services / infrastructure affected by the project</li> <li>- Have a general interest in the project</li> <li>- The Councillor for the ward in which the construction is taking place.</li> </ul>	E	Prior to moving onto site.
	<p>A.12.2 <u>Noise Impacts</u></p> <p>a) Construction vehicles are to be fitted with standard silencers prior to the beginning of construction.</p> <p>b) Equipment that is fitted with noise reduction facilities (eg Side flaps, silencers etc) will be used as per operating instructions and maintained properly during site operations.</p>	ECO	Prior to moving onto site.
	<p>A.12.3 <u>Visual Impacts</u></p> <p>a) Storage facilities, elevated tanks and other temporary structures on site should be located such that they have as little visual impact on local residents as possible.</p> <p>b) In areas where the visual environment is particularly important (e.g. along commercial/ tourism routes), the site may require screening in the form of shade cloth or other suitable materials prior to the beginning of construction.</p> <p>c) Special attention should be given to the screening of highly reflective materials on site.</p>	E/ECO	During surveys and preliminary investigations and site set-up.
<b>A.13. Cultural Environment</b>	Prior to the commencement of construction, all staff need to know what possible archaeological or historical objects of value may look like, and to notify the Engineer / Contractor should such an item be uncovered.	ECO	During site set-up and ongoing.
<b>A.14. Security and Safety</b>	A.14.1 <u>Fencing</u>	E	During site set-up.
	a) Secure the site in order to reduce the opportunity for criminal activity in the locality of the construction site.	E	During site set-up.
	b) Confined sites within residential / commercial areas should be fenced and manned to control the access of persons to the site. Note: This is not always feasible on linear projects such as roads or pipelines.	ECO	During site set-up.

**SECTION A: SITE ESTABLISHMENT AND PRELIMINARY ACTIVITIES**

	<b>Monitor</b>	<b>Frequency</b>
<p>A.14.2 <u>Lighting</u></p> <p>Lighting on site is to be set out to provide maximum security and to enable easier policing of the site, without creating a visual nuisance to local residents or businesses.</p>	E	During site set-up.
<p>A.14.3 <u>Risks Associated with Materials on Site</u></p>		
<p>a) Material stockpiles or stacks, such as, pipes must be stable and well secured to avoid collapse and possible injury to site workers / local residents.</p>	ECO	Ongoing.
<p>b) Flammable materials should be stored as far as possible from adjacent residents / businesses.</p>	ECO	Ongoing.
<p>c) Fire fighting equipment should be present on site at all times as per OHSA.</p>	ECO	Ongoing.
<p>d) Obstruction to drivers' line of site due to stockpiles and stacked materials must be avoided, especially at intersections and sharp corners.</p>	ECO	Ongoing.
<p>e) No materials are to be stored in unstable or high-risk areas such as in floodplains or on steep slopes.</p>	ECO	Ongoing.
<p>f) All IAP's should be notified in advance of any known potential risks associated with the construction site and the activities on it.</p>	ECO	24hrs prior to the activity in question.
<p>Examples of these are:</p> <ul style="list-style-type: none"> <li>- stringing of power lines</li> <li>- blasting</li> <li>- earthworks / earthmoving machinery on steep slopes above houses / infrastructure</li> <li>- risk to residences along haulage roads / access routes</li> </ul>		

## SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE

<b>B.1. Access to Site</b>	<b>B.1.1 <u>Haulage Roads</u></b>	<b>Monitor</b>	<b>Frequency</b>
	a) Contractors shall ensure that all side and mitre drains and scour check walls on access and haul roads are functioning properly and are well maintained.	E	Weekly and after heavy rains.
	<b>B.1.2 <u>Maintenance of Access</u></b>		
	a) Contractors should ensure that access roads are maintained in good condition by attending to potholes, corrugations and stormwater damage as soon as these develop.	E	Weekly inspection.
	b) If necessary, staff must be employed to clean surfaced roads adjacent to construction sites where materials have been spilt.	ECO	When necessary.
	c) Unnecessary compaction of soils by heavy vehicles must be avoided; construction vehicles must be restricted to demarcated access, haulage routes and turning areas.	ECO	Ongoing.
	d) Cognisance of vehicle weight / dimensions must be taken when using access constructed out of certain materials. e.g. paved surfaces / cobbled entranceways.	E	Ongoing.
<b>B.2. Maintenance of Construction Camp</b>	<b>B.2.1 <u>Surfaces</u></b>		
	a) The Contractor must monitor and manage drainage of the camp site to avoid standing water and soil erosion.	E	Ongoing.
	b) Run-off from the camp site must not discharge into neighbours' properties.	E	Ongoing.
	<b>B.2.2 <u>Ablutions</u></b>		
	a) Chemical toilets are to be maintained in a clean state and should be moved to ensure that they adequately service the work areas	ECO	Weekly inspection.
	b) The Contractor is to ensure that open areas or the surrounding bush are not being used as a toilet facility.	ECO	Weekly inspection.
	<b>B.2.3 <u>Camp Waste Disposal</u></b>		
	a) The Contractor shall ensure that all litter is collected from the work and camp areas daily.	ECO	Ongoing.
	b) Bins and/or skips should be emptied regularly and waste should be disposed of at a registered landfill site. Waybills for all such disposals are to be kept by the Contractor for review by the Engineer / ECO.	ECO	Weekly.
	c) A registered chemical waste company is to be used to remove waste from chemical toilets on site.	ECO	Ongoing
	<b>B.2.4 <u>Eating Areas</u></b>		
	a) Eating areas should be regularly serviced and cleaned to ensure the highest possible standards of hygiene and cleanliness.	ECO	Daily.
	b) All litter throughout the site should be picked up and placed in the bins provided.	ECO	Daily.

## SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE

		<b>Monitor</b>	<b>Frequency</b>
	<p>B.2.5 <u>Housekeeping</u></p> <p>a) The Contractor shall ensure that his camp and working areas are kept clean and tidy at all times.</p>	E/ECO	Weekly monitoring.
<b>B.3. Staff Conduct</b>	<p>B.3.1 <u>Environmental Education and Awareness</u></p> <p>a) The Contractor must monitor the performance of construction workers to ensure that the points relayed during their induction have been properly understood and are being followed. If necessary, the ECO and / or a translator should be called to the site to further explain aspects of environmental or social behaviour that are unclear.</p>	E/ECO	Ongoing monitoring.
	<p>B.3.2 <u>Worker Conduct on Site</u></p> <p>a) The rules that are explained in the worker conduct section (see section A.5.2 of this EMP), must be followed at all times.</p>	ECO	Ongoing.
<b>B.4. Dust / Air Pollution</b>	<p><i>Main causes of air pollution are dust from vehicle movements and stockpiles, vehicle emissions and fires.</i></p> <p>a) Vehicles travelling to and from the construction site must adhere to speed limits so as to avoid producing excessive dust.</p> <p>b) A speed limit of 30km/hr must be adhered to on all dirt roads.</p> <p>c) Access and other cleared surfaces must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust.</p> <p>d) Where dust is unavoidable in residential or commercial areas, screening will be required utilising wooden supports and shade cloth.</p> <p>e) Vehicles and machinery are to be kept in good working order and to meet manufacturers specifications for safety, fuel consumption etc.</p> <p>f) Should excessive emissions be observed, the Contractor is to have the equipment seen to as soon as possible.</p> <p>g) No fires are allowed on site except for the burning of firebreaks.</p> <p>h) Stockpiles may cause dust and so must be managed in accordance with the guidelines in Materials Management in section B.9.1.</p>	E	Ongoing.
		E	Ongoing.
		E	Ongoing.
		E	As directed by Engineer.
		ECO	Ongoing.
		E	As directed by Engineer.
		E	Ongoing.
		E	Ongoing.
<b>B.5. Soil Erosion</b>	<p>B.5.1 <u>Topsoil Stripping and Stockpiling</u></p> <p>Once an area has been cleared of vegetation, the top layer (nominally 150mm) of soil should be removed and stockpiled in a designated area.</p>	ECO	Ongoing.
	<p>B.5.2 <u>Exposed Surfaces</u></p> <p>The full length of the works shall not be stripped of vegetation prior to commencing other activities. The time that stripped areas are exposed shall be minimised wherever possible.</p>	E/ECO	Ongoing

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

- a) Topsoiling and revegetation shall commence immediately after the completion of an activity and at an agreed distance behind any particular work front.
- b) Stormwater control (See B.6) and wind screening should be undertaken to prevent soil loss from the site.
- c) Side tipping of spoil and excavated materials shall not be permitted – all spoil material shall be disposed of as directed by the Engineer.

**Monitor**

**Frequency**

ECO

As each activity is completed.

E

Ongoing

E

Ongoing

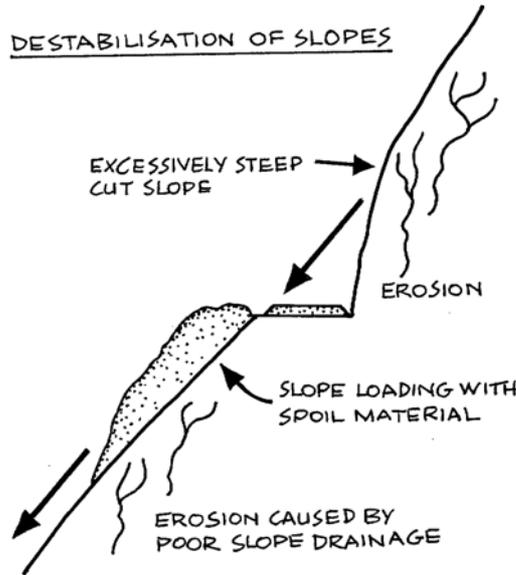


Figure 1: Problems caused by side tipping

- d) Battering of all banks shall be such that cut and fill embankments are no steeper than previous natural slopes unless otherwise permitted by the Engineer. Cut and fill embankments steeper than previous ground levels shall be revegetated immediately on completion of trimming or shall be protected against erosion using bioengineered stabilisation measures as shown in figures 2 & 3. Deep-rooted vegetation such as Vetiver grass is effective to stabilise steeper embankments.

E/ECO

As the cut and fill activity is completed.

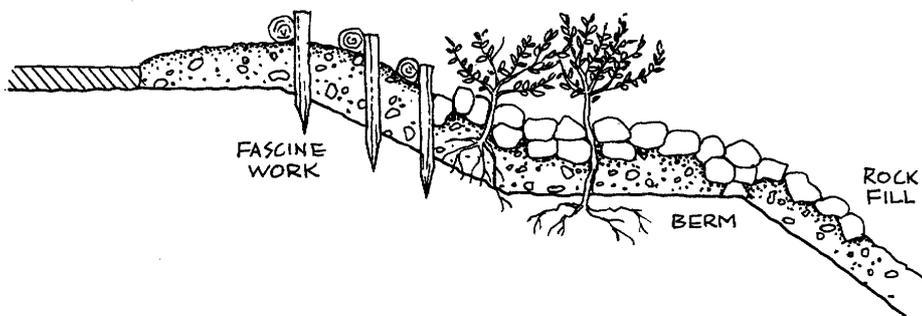
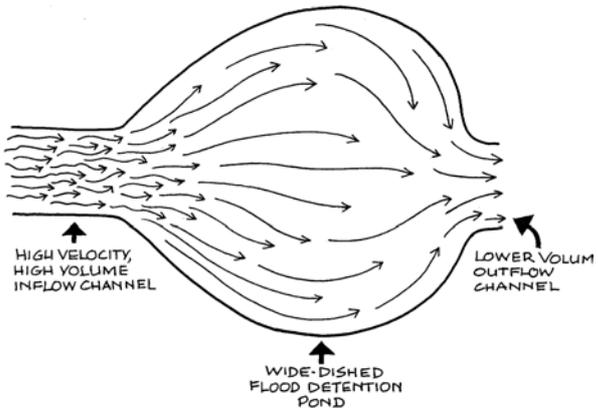


Figure 2: Bio-engineered solution to slope stabilisation.



**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

		<b>Monitor</b>	<b>Frequency</b>
	<p>c) There should be a periodic checking of the site's drainage system to ensure that the water flow is unobstructed.</p> <p>d) The use of high velocity stormwater pipelines should be avoided in favour of open, high friction, semi-permeable channels wherever feasible. (see figure 6)</p> <p>e) A number of smaller stormwater outfall points should be constructed rather than a few large outfall points.</p> <p>f) Stormwater outfalls should be designed to reduce flow velocity and avoid streambank and soil erosion. (see figures 7&amp;8)</p>	<p>E/ECO</p> <p>E/ECO</p> <p>E/ECO</p> <p>E</p>	<p>Monthly checking.</p> <p>As directed by the Engineer.</p> <p>As directed by the Engineer.</p>
	<p><b>B.6.2 Stormwater Detention Ponds</b></p> <p>a) Detention ponds should be vegetated either with wetland vegetation or grass from the Revegetation Specification. The detention ponds must not block the water flow, but should encourage spreading of the flow over a wider area to reduce velocity and encourage infiltration.</p> <p>b) Peak stormwater discharge from the site/area should not be increased with development of the site/area. Stormwater should be detained on site through the use of stormwater detention ponds wherever possible. A series of detention ponds may be required where flow volumes are high.</p>	<p>ECO</p> <p>E/ECO</p>	<p>On completion of detention pond construction</p> <p>As directed by the Engineer and ongoing monitoring.</p>
	 <p style="text-align: center;"><b>EXAMPLE OF STORMWATER DETENTION POND</b></p>		
	<p style="text-align: center;"><u>Figure 5: Reduced flow velocity due to dispersal by detention pond.</u></p>		
	<p><b>B.6.4 Unchanneled Flow</b></p> <p>a) During construction unchanneled flow must be controlled to avoid soil erosion. Where large areas of soil are left exposed, rows of straw / hay or bundles of cut vegetation should be dug into the soil in contours to slow surface wash and capture eroded soil. The spacing between rows will be dependant on slope.</p>	<p>E/ECO</p>	<p>As surfaces become exposed.</p>

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

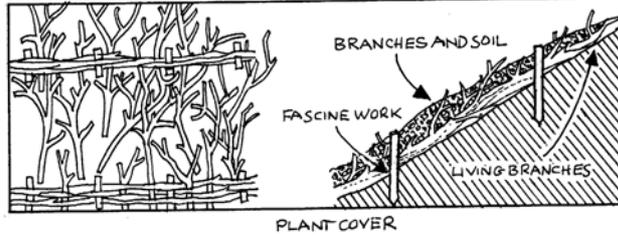


Figure 9: Brush packing of plant material to guard against loss of topsoil during heavy rains.

- b) Where surface run-off is concentrated (e.g. along exposed roadways/tracks), flow should be slowed by contouring with hay bales or bundled vegetation generated during site clearance operation. If the area must be used for construction vehicles, berms may be used instead. The berms must be at least 30cm high and well compacted. The berms should channel concentrated flow into detention ponds or areas protected with hay bales for flow reduction and sediment capture.

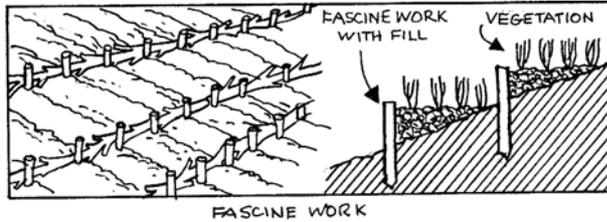


Figure 10: Fascine work to guard against erosion and washaways.

Monitor

Frequency

E/ECO

Ongoing.

**B.7. Water Quality**

*Water quality is affected by the incorrect handling of substances and materials. Soil erosion and sediment is also detrimental to water quality. Mismanagement of polluted run-off from vehicle and plant washing and wind dispersal of dry materials into rivers and watercourses are detrimental to water quality.*

- a) Mixing / decanting of all chemicals and hazardous substances must take place either on a tray or on an impermeable surface. Waste from these should then be disposed of to a suitable waste site.
- b) Every effort should be made to ensure that any chemicals or hazardous substances do not contaminate the soil or ground water on site.
- c) Care must be taken to ensure that run-off from vehicle or plant washing does not enter the ground water. Wash water must be passed through a three-chamber SOG trap prior to being discharged as effluent to a regular municipal sewer.
- d) Site staff shall not be permitted to use any stream, river, other open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing or for any construction or related activities. Municipal water (or another source approved by the Engineer) should instead be used for all activities such as washing of equipment or disposal of any type of waste, dust suppression, concrete mixing, compacting etc.
- e) Emergency contact numbers in Section D should be referred to in order to deal with spillages and contamination of aquatic environments.

ECO

Regular monitoring.

ECO

Regular monitoring.

ECO

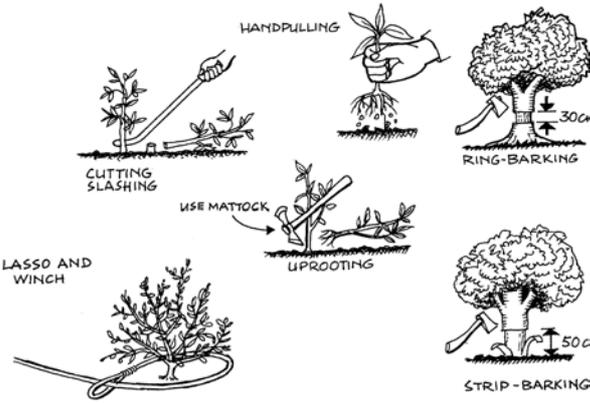
Regular monitoring.

ECO

Regular monitoring.

E/ECO

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

		<b>Monitor</b>	<b>Frequency</b>
<p><b>B.8. Conservation of Natural Environment</b></p>	<p>B.8.1 <u>Fauna and Flora</u> As the work front progresses the Contractor is to check that vegetation clearing has the prior permission of the Engineer.</p>	E	Ongoing.
	a) Only trees that have NOT been marked beforehand are to be removed.	ECO	Ongoing.
	b) Gathering of firewood, fruit, muthi plants, crops or any other natural material on site or in areas adjacent to the site is prohibited.	ECO	Ongoing.
	c) The hunting of birds and animals on site and in surrounding areas is forbidden.	ECO	Ongoing monitoring.
	d) Snares and traps on site and in surrounding areas are forbidden.	ECO	Ongoing monitoring.
	e) Immediate revegetation of stripped areas and removal of aliens by weeding must take place. This significantly reduces the amount of time and money that must be spent on alien plant management during rehabilitation.	ECO	Ongoing.
	f) Alien vegetation encroachment onto the site as a result of construction activities must be controlled during construction.	ECO	Twice-monthly monitoring.
	 <p>Figure 11: Methods of alien vegetation clearing</p>		
g) Where possible, cleared indigenous vegetation should be kept in a nursery for use at a later stage in the site rehabilitation process.	ECO	As the work front progresses.	
<p><b>B.9. Materials Management</b></p>	<p>B.9.1 <u>Stockpile Management</u></p>		
a) Stockpiles should not be situated such that they obstruct natural water pathways.	E/ECO	Location as directed by the Engineer.	
b) Stockpiles should not exceed 2m in height unless otherwise permitted by the Engineer.	E		
c) If stockpiles are exposed to windy conditions or heavy rain, they should be covered either by vegetation or cloth, depending on the duration of the project. Stockpiles may further be protected by the construction of berms or low brick walls around their bases.	ECO	As this becomes necessary.	

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

		<b>Monitor</b>	<b>Frequency</b>
	<p>d) Stockpiles should be kept clear of weeds and alien vegetation growth by regular weeding.</p> <p>9.2 <u>Handling of Hazardous Materials</u></p> <p>a) All concrete mixing must take place on a designated, impermeable surface.</p> <p>b) No vehicles transporting concrete to the site may be washed on site.</p> <p>c) No vehicles transporting, placing or compacting asphalt or any other bituminous product may be washed on site.</p> <p>d) Lime and other powders must not be mixed during excessively windy conditions.</p> <p>e) All substances required for vehicle maintenance and repair must be stored in sealed containers until they can be disposed of / removed from the site.</p> <p>f) Hazardous substances / materials are to be transported in sealed containers or bags.</p> <p>g) Spraying of herbicides / pesticides should not take place under windy conditions and must comply with OHSWA specs and other chemical handling laws.</p> <p>h) The emergency numbers in Section D should be consulted should any accidents / spillages of hazardous substances and / or materials take place. The Contractor is to outline a method statement for the dealing of accidents / spillages of hazardous materials. This statement must be handed to the Engineer as well as to DWAF should the incident occur near to a body of water.</p>	<p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p> <p>E/ECO</p> <p>ECO</p>	<p>Monthly monitoring.</p> <p>Ongoing monitoring.</p> <p>Ongoing monitoring.</p> <p>Monthly.</p> <p>Ongoing monitoring.</p> <p>Ongoing monitoring.</p>
<p><b>B. 10. Waste Management</b></p> <p><i>Definition: "Refuse" refers to all construction waste (such as rubble, asphalt millings, cement bags, waste cement, timber, cans, other containers, wire and nails), household and office waste.</i></p>	<p>B.10.1 <u>On-Site Waste Management</u></p> <p>a) Refuse must be placed in the designated skips / bins which must be regularly emptied. These should remain within demarcated areas and should be designed to prevent refuse from being blown out by wind.</p> <p>b) In addition to the waste facilities within the construction camp, provision must be made for waste receptacles to be placed at intervals along the work front.</p> <p>c) Littering on site is forbidden and the site shall be cleared of litter at the end of each working day.</p> <p>d) Recycling is to be encouraged by providing separate receptacles for different types of waste and making sure that staff are aware of their uses.</p> <p>10.2 <u>Waste disposal</u></p> <p><b>Non-hazardous Waste</b></p> <p>All waste must be removed from the site and transported to a landfill site as listed in Section D.</p> <p>a) Waybills proving disposal at each site shall be provided for the Engineer's inspection.</p>	<p>ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p> <p>E/ECO</p>	<p>Ongoing monitoring.</p> <p>Ongoing monitoring.</p> <p>Ongoing monitoring.</p> <p>Ongoing monitoring.</p> <p>Checked at each site meeting.</p>

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

		<b>Monitor</b>	<b>Frequency</b>
	<p>b) Construction rubble shall be disposed of in pre-agreed, demarcated spoil dumps that have been approved by the Engineer, or at disposal sites as listed in Section D.</p> <p>c) Waste from chemical toilets should be disposed of regularly and in a responsible manner by a registered waste contractor. Care must be taken to avoid contamination of soils and water, pollution and nuisance to adjoining areas.</p> <p><b>Hazardous Waste</b></p> <p>a) Hazardous waste disposal must be carried out by an approved waste Contractor as listed in Section D. Waybills for this should be provided.</p> <p>b) A sump (earth or other) must be created for concrete waste. This is to be de-sludged regularly and the cement waste is to be removed to a tip site as approved by Durban Solid Waste or listed in Section D.</p>	<p>E/ECO</p> <p>ECO</p> <p>ECO</p> <p>E/ECO</p>	<p>Ongoing monitoring.</p> <p>Monitored weekly and at the start of builders' holidays.</p> <p>Ongoing.</p>
<p><b>B.11. Social Impacts</b></p> <p><i>Regular communication between the Contractor and Interested and Affected Parties (I&amp;AP's) is important for the duration of the contract.</i></p>	<p><u>B.11.1 Disruption of Infrastructure and Services</u></p> <p>a) Contractor's activities and movement of staff to be restricted to designated construction areas.</p> <p>b) Should the construction staff be approached by members of the public or other stakeholders, they should assist them in locating the Engineer or Contractor, or provide a number on which they may contact the Engineer or Contractor.</p> <p>c) The conduct of the construction staff when dealing with the public or other stakeholders shall be in a manner that is polite and courteous at all times. Failure to adhere to this requirement may result in the removal of staff from the site by the Engineer.</p> <p>d) Disruption of access for local residents must be minimised and must have the Engineer's permission</p> <p>e) The Contractor is to inform neighbours in writing of disruptive activities at least 24 hours beforehand. This can take place by way of leaflets placed in the postboxes giving the Engineer's and Contractor's details or other method approved by the Engineer.</p> <p><u>B.11.2 Visual Impacts</u></p> <p>a) Lighting on the construction site should be pointed downwards and away from oncoming traffic and nearby houses.</p> <p>b) The site must be kept clean to minimise the visual impact of the site.</p> <p>c) If screening is being used, this must be moved and re-erected as the work front progresses.</p>	<p>E</p> <p>E/ECO</p> <p>E</p> <p>E</p> <p>E/ECO</p> <p>ECO</p> <p>ECO</p> <p>ECO</p>	<p>Ongoing.</p> <p>Ongoing.</p> <p>Ongoing</p> <p>Ongoing.</p> <p>At least 24 hrs prior to the activity taking place.</p> <p>Ongoing.</p> <p>Ongoing – weekly monitoring.</p> <p>Ongoing</p>

**SECTION B: MANAGEMENT OF CONSTRUCTION ACTIVITIES AND WORKFORCE**

		<b>Monitor</b>	<b>Frequency</b>
	<p>B.11.3 <u>Noise</u></p> <p>a) Machinery and vehicles are to be kept in good working order for the duration of the project to minimize noise nuisance to neighbours.</p> <p>b) Notice of particularly noisy activities must be given to residents / businesses adjacent to the construction site.</p> <p>Examples of these include:</p> <ul style="list-style-type: none"> <li>- noise generated by jackhammers</li> <li>- blasting</li> <li>- drilling</li> <li>- dewatering pumps</li> </ul> <p>c) Noisy activities must be restricted to the times given in the Project Specification or General Conditions of Contract.</p> <p>B.11.4 <u>Communication with Interested and Affected Parties (I&amp;AP's)</u></p> <p>a) The Engineer and Contractor are responsible for on-going communication with those people that are interested in / affected by the project.</p> <p>b) A complaints register should be housed at the site office. This should be in carbon copy format, with numbered pages. Any missing pages must be accounted for by the Contractor. This register is to be tabled during monthly site meetings.</p> <p>c) I&amp;AP's need to be made aware of the existence of the complaints book and the methods of communication available to them.</p> <p>d) Queries and complaints are to be handled by:</p> <ul style="list-style-type: none"> <li>- documenting details of such communications</li> <li>- submitting these for inclusion in complaints register</li> <li>- bringing issues to Engineer's attention immediately</li> <li>- taking remedial action as per Engineer's instruction</li> </ul> <p>e) Selected staff are to be made available for formal consultation with I&amp;AP's in order to:</p> <ul style="list-style-type: none"> <li>- explain construction process</li> <li>- answer questions</li> </ul>	<p>ECO</p> <p>E/ECO</p> <p>E</p> <p>E/ECO</p> <p>ECO</p> <p>E/ECO</p> <p>ECO</p> <p>ECO</p>	<p>Ongoing.</p> <p>At least 24 hrs prior to the activity taking place.</p> <p>Ongoing</p> <p>Monthly</p> <p>Ongoing</p> <p>Ongoing</p> <p>Ongoing</p>
<b>12. Cultural Environment</b>	<p>a) Possible items of historical or archaeological value include old stone foundations, tools, clayware, jewellery, remains, fossils etc.</p> <p>b) Should something of this nature be uncovered, the Research and Professional Services Division of AMAFA should be contacted and work should be stopped immediately. AMAFA's head office is in Ulundi and their PMB office will deal with any queries within the eThekwini Municipality.</p> <p>The facilitator that should be contacted is Miss Annie van der Venter, telephone no 033-3946543, fax 033-3426097.</p>	<p>E</p>	<p>As required.</p>

## SECTION C: POST CONSTRUCTION ACTIVITIES

		<b>Monitor</b>	<b>Frequency</b>
<b>C.1 Construction Camp</b>	a) All structures comprising the construction camp are to be removed from site.	E	Project completion
	b) The area that previously housed the construction camp is to be checked for spills of substances such as oil, paint etc. and these should be cleaned up.	E	Project completion
	c) All hardened surfaces within the construction camp area should be ripped, all imported materials removed, and the area shall be topsoiled and re-grassed using the guidelines set out in the revegetation specification that forms part of this document.	E	Project completion
	d) The Contractor must arrange the cancellation of all temporary services.	E	Project completion
<b>C.2 Vegetation</b>	a) All areas that have been disturbed by construction activities (including the construction camp area) must be cleared of alien vegetation.	E	Project completion
	b) Open areas are to be re-planted as per the revegetation specification.	E	Project completion
	c) All vegetation that has been cleared during construction is to be removed from site or used as mulch as per the revegetation specification, (except for seeding alien vegetation).	E	Project completion
	d) The Contractor is to water and maintain all planted vegetation until the end of the defects liability period and is to submit a method statement regarding this to the Engineer.	E	As per the instructions of the Engineer.
<b>C.3 Land Rehabilitation</b>	a) All surfaces hardened due to construction activities are to be ripped and imported materials thereon removed.	ECO	Project completion
	b) All rubble is to be removed from the site to an approved disposal site as listed in Section D or approved by the Engineer. Burying of rubble on site is prohibited.	ECO	Project completion
	c) The site is to be cleared of all litter.	ECO	Project completion.
	d) Surfaces are to be checked for waste products from activities such as concreting or asphaltting and cleared in a manner approved by the Engineer.	ECO	Project completion.
	e) All embankments are to be trimmed, shaped and re-planted to the satisfaction of the Engineer.	E/ECO	Project completion
	f) Borrow pits are to be closed and rehabilitated in accordance with the DME-approved management plan for each borrow pit. The Contractor shall liaise with the Engineer regarding these requirements.	E	Project completion
	g) The Contractor is to check that all watercourses are free from building rubble, spoil materials and waste materials.	ECO	Project completion

## SECTION C: POST CONSTRUCTION ACTIVITIES

		<b>Monitor</b>	<b>Frequency</b>
<b>C.4 Materials and Infrastructure</b>	a) Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the Engineer.	E	Project completion
	b) All residual stockpiles must be removed to spoil or spread on site as directed by the Engineer.	E	Project completion
	c) All leftover building materials must be returned to the depot or removed from the site.	ECO	Project completion
	d) The Contractor must repair any damage that the construction works has caused to neighbouring properties.	E	As per the Engineer's instructions
<b>C.5 General</b>	a) A meeting is to be held on site between the Engineer, ECO and the Contractor to approve all remediation activities and to ensure that the site has been restored to a condition approved by the Engineer.	ECO/E	On completion of the construction & maintenance phases
	b) Temporary roads must be closed and access across these blocked.	ECO/E	On completion of construction
	c) Access or haulage roads that were built across watercourses must be rehabilitated by removing temporary bridges and any other materials placed in / or near to watercourses. Revegetation of banks or streambeds must be as necessary to stabilise these and must be approved by the Engineer.	ECO/E	On completion of construction
	d) All areas where temporary services were installed are to be rehabilitated to the satisfaction of the Engineer.	ECO/E	On completion of construction

## SECTION D: CONTACT NUMBERS AS AT OCTOBER 2002

<b>D.1 General Numbers</b>	
eThekwini Police	<b>Emergencies:</b> Tel: 031-361 00 00 <b>General Enquiries:</b> Tel: 031-300 33 99
eThekwini Fire Department	<b>Emergencies:</b> Tel: 031-361 00 00
eThekwini Electricity	Help line: Tel: 0801 313111
eThekwini Water	Help line: Tel: 0800 323235
eThekwini Waste Water (Emergencies and General Enquiries)	Help line: Tel: 0800 323235
eThekwini Environmental Management Branch	Tel: 031-300 2517
Department of Water Affairs and Forestry (DWAF) (To report accidental spillages / incidents of pollution of water bodies.)	Mr Linn Gravelet-Blondin 24 hour pager no: Tel 031-368 3636 (will ask for code: 4674); Cell: 082 808 9916. or DWAF Water Quality Division: Tel: 031-336 2761 (office hours).
Abzorbit (24 Hour response for oil and chemical spills on land or water, bioremediation, distributors of PEAT SORB)	<b>24 hr Emergency Response Toll Free:</b> 0800 303 303 Doug: 083 269 8790 Gerald: 083 2536618
PRUNIT (This is a plant resources project run by DSW and can be contacted for clearing of indigenous plants that will not be required on site. Alien clearing is not offered by PRUNIT.)	Lindsay Strachan Tel: 031-263 1372 Richard Wynn Tel: 082 415 8093
FFS Refiners (for the free collection of used lubricating oil)	Tel: 031-465 1466
ROSE Foundation (for the free collection of used lubricating oil)	Tel: 0800 107 107

<b>D.2 Waste Management Contact Details</b>	
Durban Soil Waste (DSW) Disposal Branch - Help Line (Contact for locations and facilities offered at refuse sites within the eThekwini Municipality)	Tel : 031 - 2631371 Fax: 031 - 2631310
DSW Business Branch (Contact for arranging refuse collection from the construction site)	Tel: 031 - 3024825 Fax: 031 - 2631122

<b>D.3 Permitted Hazardous Waste Sites &amp; Hazardous Waste Contractors</b>	
Bulbul Drive, Chatsworth (Waste Services) This site handles general and low hazardous waste.	Waste Services: Tel: 031-460 4600
Shongweni (Enviroserv Waste Management) This site handles general and low hazardous waste.	Site (Kevin Nadasen): Tel: 031-769 1134 Enviroserv: Tel: 031-902 1526

<b>D.4 DSW Permitted General Waste Sites (for All Non-Hazardous Waste)</b>	
Bisasar Road - Springfield	Tel: 031 - 263 1371
La Mercy	Tel: 083 469 8034
Mariannahill	Tel: 031 - 7008929
Kwamgenwa (South Coast)	Morgan Nadasen: Tel: 031 - 4625320

<b>D.5 DSW Non-Managed Disposal Sites (for Building Rubble, Spoil Material, Garden Refuse)</b>	
Shallcross (near Chatsworth)	Tel: 031 - 7007829
Wyebank (Kloof)	Tel: 031 - 7007829

<b>D.6 Garden Refuse Sites</b>	
Bellair Road (This is a full recycling facility and accepts materials such as glass, plastic, used appliances, steel, & copper.)	
Canehaven Drive (Phoenix)	

## SECTION D: CONTACT NUMBERS AS AT OCTOBER 2002

Chatsworth (Aggitarius Street)
Glanville Road (Woodlands)
Malacca Road (Durban North / Effingham)
Merebank (Travencore Road)
Riverside Road
Tara Road (Bluff)