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## WBHO ENVIRONMENTAL MINIMUM REQUIREMENTS

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## 1. REFERENCES

- WBHO Environmental Management System

## 2. INTRODUCTION


Due to the naturally destructive nature of construction activities it is of utmost importance that all necessary steps are taken to ensure that the effect of these activities are mitigated to such an extent that they do not have lasting impacts on the environment, apart from the actual construction.

Some of our clients do not issue us with an Environmental Management Plan or Environmental specifications to assist us as a company to mitigate the impact of our activities. To control our impact on the environment, the following minimum standards have to be followed to ensure best practice and legal compliance.

The photos included in this document are to be used as examples only.

## 3. ADMINISTRATION

- Inform all staff about the environmental provisions contained herein as well as the specific provisions in the Environmental specifications as / if provided by the client. Where there is specific method statements required, these method statements shall be employed.
- Ensure that all sub-contractor/suppliers who are utilised within the context of the contract comply with these environmental provisions.
- Ensure that all environmental matters are dealt with timeously and that all events are properly recorded.
- A Designated Environmental Officer (DEO) must be appointed on site by the site agent who will be responsible to co-ordinate all environmental matters between the contractor and the local environmental authorities.
- (Notwithstanding these environmental provisions), at all times comply fully with all legislated environmental requirements of central, provincial and local government.
- Address environmental aspects with full compliance with relevant legislation and the company's Environmental Policy. The policy must be prominently displayed.
- Manage the EMP according to the company's Environmental Management System.
- Obtain the commitment of all the contract employees to comply with the environmental provisions through induction and education – Toolbox talks available in the EMS file.
- Include reporting on the environment as an agenda item on all site meetings.
- Develop the emergency response plan in order to manage all potential environmental incidents.

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- Develop a corrective action and preventative system to ensure that all-environmental incidents and/or failures are recorded, corrective actions taken and preventative measures are incorporated.
- EMP to be kept in site file
- Environmental Induction to be signed by all individuals and visitors on site
- Startup and Monthly checklist to be completed and signed off by the project manager on a monthly basis.
- Daily facilities checklist to be completed and signed off weekly by the project manager.
- Documents as per ENV 4.1.4 to be on file (Waste Management).
- Documents as per ENV 4.1.5 to be on file (Borrow pit and Spoil).
- Spill procedure to be discussed with workers and displayed.
- List of Noise generating equipment must be compiled and must be on display.
- Monthly report to be submitted to the Environmental Director with Complaints, NCR and Incident registers attached if applicable.

#### 4. SITES AND STORAGE AREAS

- All lay-down and storage areas will be located at the designated areas indicated on site drawings. The boundaries of such areas will be marked out and demarcated by means of a fence line as discussed and agreed by both the Client and Contractor.
- All Storage areas will be demarcated and identified on a site drawing.
- All areas demarcated as storage / stockpile areas must be cleared of all vegetation and maintained as regularly as possible in order to discourage the use of the area as shelter for dangerous animals such as snakes.
- Site areas will be clearly signed in order for all visitors to know what is required of them and where they are meant to report. No-Go / Sensitive areas must also be clearly marked in order to prevent possible damage to these areas as a result of the construction activities.
- No contractors will be allowed to erect accommodation units on site.

#### 5. SITE ACCESS

- All contractors shall make use of existing roads or tracks and under no circumstances may drive or permit any employee to drive in the veld.
- No new roads or tracks may be made without the written permission of the site manager and the Client. Pedestrian movement is to be restricted to clearly defined routes only.
- No excessive vegetation clearing, for survey points, vehicle or pedestrian movement, etc. will be allowed. Only a minimum practical surface area will be cleared. All areas to be cleared of vegetation will be agreed upon with the site manager.

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- Speed must be restricted to 30 km/h (unless otherwise instructed by the client) on all roads and tracks in order to avoid accidents and the creation of excess noise and dust, etc.
- Care must be taken to avoid importation of exotic plant seeds, such as that of the invasive species being brought into the area by vehicles transporting equipment, materials, samples and firewood. Wherever germination of alien species is noticed, the occurrence will be reported to the site manager.
- The main access points to the contract area will be controlled with security checking points.
- All access points will be clearly identified with proper signage and signs prohibiting unauthorised entry.

## 6. PROTECTION OF HERITAGE RESOURCES


- Any items of archaeological interest that are found must be reported to the Ministry of Education and Culture within 24 hours.
- The Engineer shall be informed and work in the immediate vicinity shall be stopped immediately.
- Reasonable precautions shall be taken to prevent any person from removing or damage any such article.
- Work may only presume once clearance is given in writing by an approved archaeologist.
- If any graves or middens found on site, the Engineer is to be informed and work in the immediate vicinity shall be stopped immediately.
- Arrangements must be made for an undertaker to carry out exhumation and reburial
- The undertaker and relevant authority shall be responsible for contacting the family of the deceased, and establishing a site for reburial.

## 7. DUST CONTROL


- Dust arising during windy conditions will be controlled by means of watering haul roads, the use of wet drilling and sprays on aggregate stockpiles.
- The amount of vehicles authorized on the contract will be limited to construction vehicles only while other vehicles will be required to park in designated areas.
- Speed restrictions of 30km/h to limit dust generation

## 8. PLANT & MACHINERY

- Plant & machinery movement must follow the shortest designated routes. No vehicle movement will be permitted through any vegetation.

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- Vehicles and plant must be serviced in a dedicated, concreted area with a fall to a central gully where spillage of oil and fuel will be managed properly. Drip trays can also be used to contain spillages.
- Routine maintenance must be conducted as per the plant maintenance schedules. Where possible the maintenance must take place in designated workshop areas. In the event of a breakdown immediate steps must be taken to prevent any spillage of fuel or oil.
- All water contaminated with hydrocarbons must be passed through an oil separation system. Oil collected must be retained in a safe holding tank, stored within a concrete bund and removed from site and disposed of in an acceptable manner (registered oil recycling company).
- Oil spills on the ground surface must be spaded-off immediately to the depth of oil penetration, contained and then removed from site and disposed of in an acceptable manner (registered disposal site).
- All used parts from vehicles and other materials (which may include but not limited to oil filters, pipes, rags, cans etc.) must be collected and removed from site and disposed of in an acceptable manner (registered disposal site).
- Refuelling of vehicles must take place at a dedicated refuelling facility. Other machinery requiring refuelling, such as compressors and cranes, must be refuelled from a bowser in which case a drip tray should be used to contain any spillage that may occur.
- All vehicle and equipment washing must take place at dedicated facilities and on a concrete pad so that wash-water containing detergents and oils can be properly collected. This water must also be passed through an oil separation system. The oil collected in the system must be skimmed off at regular intervals, to be determined by the frequency of use, and stored with other used oil.
- All vehicles, plant and machinery identified as posing an environmental threat must be stopped and removed from site or repaired immediately.
- All vehicles will be maintained so that no excessive emissions are generated. Whenever plant is identified as emitting excessive smoke it will be recorded as an incident and reported to the onsite workshop.
- Emergency Maintenance Procedure:
- All drivers and operators will be inducted to prevent and manage spills. In the event of mechanical failure the following steps must be followed:
  - i. Workshop mechanic to be consulted,
  - ii. If the area is not barricaded do so immediately.
  - iii. Remove the plant to the lay down area if possible.
  - iv. Make use of a drip tray to prevent spills
  - v. Major mechanical failure-Remove plant from site.
  - vi. Used oil - remove to waste collecting company.
  - vii. Severe spills must be reported to the supplier immediately.

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**Figure 1 Example of a workshop suitable for onsite servicing and repairs**

## **9. GROUND AND SURFACE WATER CONTROL**

### **9.1. Storm Water:**

- Due to the removal of vegetation from the cleared areas flowing water will follow the path of least resistance causing scouring. Water in these scoured channels has increased velocity thus resulting in increased erosion and loss of soil.
- To manage this effectively contour berms must be graded across the RoW in order to divert the volume of water flowing down the RoW.
- V-drains must be constructed during the clearing process to effectively manage the flow of water.
- Mitre drains cut at regular intervals along the RoW will discharge flowing water into surrounding vegetated areas.
- Silt curtains are to be installed in these mitre drains in order to contain any silt collected by the flowing water. This will ensure that no excessive silt is discharged into a vegetated area.
- In built up areas with municipal systems in place, cover storm water drains with geotextile fabric (biddim), and secure with rocks/bricks.
- These are to be maintained and silt removed regularly.



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**Figure 2 Example of a stormwater inlet protected with biddim/geotextile**




**Figure 3 Example of a mitre drain silt fence**

## 9.2. Streams and Rivers:

- The construction activities expected to take place in these areas will result in major soil disturbance increasing the turbidity levels of the water.
- This will in turn affect the aquatic life of the water course and lead to downstream siltation.
- To mitigate this ensure that no plant is allowed to move through the water course.



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- Construction of river crossings that do not obstruct the flow of water or aquatic life is essential to prevent this.
- Method statements will be drafted for specific river crossings as they are required.
- Ensure that protective measures such as drip trays are effectively used in these areas to prevent contamination of the water course with hydrocarbons.
- Ensure that no hydrocarbons stored within 100m of such a river or stream even if they do not have flowing water at the time. Items of plant may also not be parked within 100m of the river or stream bank.

### 9.3. Wetlands:

- Ensure that running tracks are installed across wetland area to prevent soil disturbance from plant moving over these sensitive areas.
- Running tracks will also ensure that there is a barrier between a possible contaminant and the water. This will make provision for reaction time to clear the spill therefore maintaining the water quality.
- Ensure that no form of contaminant is stored within 100m of any such area. This applies to the parking of plant as well.
- Ensure that should water pumps be required to extract water from trenches in these areas they must be placed on a drip tray able to contain the full volume of fuel and lubricants contained by the machine. Such plant should always be placed on a level surface.
- Never place any form of ablution within 100m of such an area.
- Never clear and grub wetlands areas

### 9.4. Ground Water:


- Always make use of ground protection measures under small plant (generators) and parked plant.
- Ensure that all hydrocarbons are stored within a bunded facility either constructed with concrete or plastic lining and sand bags.



Figure 4 Example of a drip tray for small plant



Figure 5 Example of a hydrocarbon storage area


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## 10. BUSH AND TREE CLEARING

- Where both temporary and permanent structures are to be erected, the clearing of bush and trees will be undertaken in such a way so as to afford maximum protection to vegetation (including trees, bush and other natural features).
- All contractors will, in collaboration with the Client, inspect all areas prior to bush and tree clearing, mark those specimens, which are to be transplanted, or which must remain intact.
- All vegetation derived from bush or tree clearing will be stockpiled for appropriate disposal.
- Contractors will not be permitted to utilise cleared vegetation or trees.
- Contractors will not harvest, collect or burn any wood without the written permission of the site Engineer.
- Ensure that the area surrounding any vegetation stockpiles are cleared in order to minimize the risk of fire as a result of accumulation of fuel.
- Refer to Environmental Method Statement submitted for approval for additional procedures to be followed with regards to clearing and grubbing.
- Top soil removed must be managed according to Environmental Method Statement with regards to Top Soil Management.

## 11. BULK FUEL, OIL, FLAMMABLE SUBSTANCE AND GAS STORAGE

- Bulk Fuel will be stored in a secure steel tank supplied and maintained by the fuel suppliers or in a WBHO trans-tank.
- An adequate bund area with 110% of the storage capacity with a concrete floor will be provided; this will ensure that all spills are contained.
- Adequate fire prevention measures will be arranged which will include suitable fire extinguishers, no smoking and no naked flame signs.
- The necessary fuel storage permits will also be attained prior to large temporary quantities is stored.
- All fuel storage and usage will be controlled by a designated person, this person will be responsible to ensure that leaks are prevented and that housekeeping is maintained around the storage areas at all times.
- Oil will be stored in drums under a secure area on a concrete floor.
- Only the minimum amount of oil will be retained on site (10 000 litres).
- Used oil will be collected and stored in a holding tank until removed from site.
- Ensure that all gasses are stored in well ventilated, signed and secured structures.
- Refer to Environmental Method Statements submitted for approval for additional procedures to be followed for the storage of hydrocarbons and other hazardous materials.
- Ensure that all the relevant Material Safety Data Sheets (MSDS) are available at the point of storage.
- All gas bottles must be stored inside a lockable cage

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- The bottles must be secured upright inside the cage
- Empty and full bottles of the same type (eg: LP gas) must be stored on opposite ends of the cage and clear signage must be erected to indicate what gas it is and if it is empty or full
- Different types of gas bottles must be stored in different cages and the rule above must always apply (separate oxygen and acetylene)
- A fire extinguisher must be available at the store.
- The cage must be at least 6 metres from a building and hazardous storage areas
- No smoking, no open flames, fire control area signage to be on display at store.
- Gas bottles may not be stored inside hazardous substance stores
- Flammable substances must be stored in an imperviously bunded, well ventilated, lockable cage which must have a roof and must be able to contain 110% of the total store volume
- Display relevant signage (no smoking, fire control area).
- Fire extinguisher must be available, correctly signed and mounted on a pole close to the cage (no further than 3 m), not on the cage door.
- Inventory and bund capacity to be on display
- High flash point and low flash point substances must be stored separately eg: do not store petrol in the same cage as shutter oil.



**Figure 6 Example of a bunded diesel storage area**




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Figure 7 Example of a gas bottle storage cage



Figure 8 Example of a flammable substance storage cage

## 12. WASTE MANAGEMENT

- All waste generated on site during construction will be disposed of suitably and safely to a site designated by the site manager.
- A refuse control system will be established. This applies / refers to all construction debris (which may include but not limited to, cement bags, old cement wrapping

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material, cans, wire nails, etc.) and surplus food, food packaging and organic waste in order to control the spread of refuse on the construction site.

- Refuse will be removed from the working area and will be stored in appropriate enclosures and or bins and will be trucked off site when necessary.
- No burning or burying of refuse will be allowed on site. Contractors will ensure that all refuse (as defined above) is deposited by their employees into refuse bins for removal by the Contractor on an every other day basis. These refuse bins will be placed at agreed areas and will be easily identifiable
- Waste where possible will be separated, and as a guidance into the following categories:
  - Building rubble
  - Pallets and wooden crates broken down to their component parts
  - Hazardous waste such as batteries, paint and tar
  - Oil, spilt oil and fuel
  - Domestic waste
  - Scrap metal that should in turn be separated into ferrous and nonferrous
  - Designated dining areas must be provided for the employees at designed places.
  - Adequate refuse bins must be closely monitored and removed/cleaned every other day.
  - Mercury tubes must be crushed using a mercury tube crusher and removed to a registered landfill site
- For further information regarding waste management refer to the Environmental Method Statement submitted for approval as well as method statement submitted for clearing and grubbing.



**Figure 6 Example of a waste separation area**




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**Figure 7 Example of a hazardous waste skip**

### **13. BATCH PLANT & CONCRETE MIXING AREAS**

- The batch plant must be established on an impermeable surface and ensure that measures are in place to manage any water run-off. All required add mixtures for the concrete must be stored within a constructed bund area.
- An effective truck washing system / area that will allow for sedimentation of the solids contained within the wash water will be established. Run-off from the batching area can also be linked to this system.
- Concrete silo's should be fitted with effective filters or dust socks in order to prevent excessive emissions.
- Concrete from the batch plant will be fed directly into concrete dumpers/ trucks for transportation.
- Minor spillage will be collected and stockpiled for later disposal at an approved area.
- Cement will be stored in sealed silos and the sand stockpile will be watered regularly to control dust. The silos will be outside the airport's restricted zones and permission will be sought from the airport manager for approval.
- Concrete will be disposed into final position either directly from a dumper/truck or by means of lifting cranes. Any spillage will be stockpiled for later disposal at a designated area.
- All small concrete mixing will take place on shutter board or mortar tray and should be done in designated areas only in order to mitigate any possible impact on the environment.
- Ensure that none of the concrete water flows onto the ground or into storm water drains – this is considered to be contaminated

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- Waste water from batching should be channelled to a settlement pond/sump and allowed to settle.
- Once settled, dispose of water into sewer system and allow sediment to dry – the dried concrete can be placed in the building rubble skip
- Consult the WBHO Environmental office for details and designs that would suit your requirement



**Figure 8 Example of a concrete settlement system for large civil project**



**Figure 9 Example of a settlement system suitable for a building site where Readymix is used and space is restricted**

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**Figure 10 Example of a cement mixing area which must be contained with ground protection in place**

## 14. ASPHALT PLANTS


- Bunded areas will be constructed for the storage of all burner oils.
- All emulsions must be stored in bunded areas as agreed upon with the RE according to the environmental method statement for the storage of hydrocarbons and hazardous materials.
- In the event that pre-coating of aggregate is required ensure that this is restricted to as small an area as possible in order to mitigate the impact on the environment.

## 15. NOISE

- Where possible operations which result in undue noise will be kept to a minimum by ensuring that these activities only take place during normal working hours.
- Sound measuring equipment will be provided and maintained if the site manager deems it necessary.
- All engineering controls will be set in place to reduce any high noise machinery or activities.
- All areas with 85db and higher will be designated with signage as noise zones. Employees working in these areas will be required to wear suitable hearing protection.

## 16. CONTRACTING EMPLOYEES

- Employees will be instructed to keep within the boundaries of their designated work area; this will be achieved by conducting a standard Environmental induction with all employees.

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- Firewood collection and the burning thereof will be prohibited.
- No domestic pets will be kept on the contract premises.
- Possession of firearms will be strictly prohibited.
- No flora, fauna and/or geological or archaeological artefacts of any nature whatsoever from the site or the surrounding area shall be disturbed, hunted, killed, injured, damaged or removed by any contractor or its employees.
- Immediately upon the discovery of any item listed in clause (e) above, the Contractor shall notify the site manager of the discovery and point the item out to and/or hand the item over to the site manager
- Fishing will not be permitted in dams and waterways.


## 17. LOCAL COMMUNITIES

- Any environmental impacts, with regard to the local community or any complaints that may be received from the local community, will be reported to and handled directly by the site manager.
- Any queries or developments in regard to the site which is considered by any person to be of potential importance to environmental matters will be referred to the site manager.
- Should any construction activity affect the local community such as blasting, drilling, road closures, etc, then suitable communication systems will be put into place in order to inform and educate the community.
- Where required suitable signage will be placed in appropriate areas informing persons of hazards. Further to this adequate barricading will be erected in any potential drop off area which may affect the local community.

## 18. EDUCATION AND TRAINING

- All employees of the company and its subcontractors will be encouraged to understand and accept the importance of achieving the environmental objectives and targets for which they are responsible and/or accountable for.
- Motivation through education and training will be done to continually improve the objectives and targets and to encourage all employees to make suggestions that can lead to improve environmental performance such as:
  - Management is committed and plays a key role.
  - Employees understand, accept and share values
  - Employees motivate their actions
  - Management recognise environmental achievements
- All employees will have a lecture (Toolbox Talk / Induction) on environmental awareness as part of the induction process.



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## 19. ABLUTIONS & TOILET FACILITIES


- Ablutions will be made available to all personnel on site with clearly distinguished facilities for male and female.
- When making use of portable chemical toilets ensure that they are secured to the ground in order to prevent them from being blown over by the wind or thrown over by animals.
- Ensure that the toilets are inspected daily to ensure that they remain in a clean and well maintained condition.
- Toilets must be supplied to site at no less than a 1:30 ration. (1 toilet per 30 workers)
- Toilets on site to be orientated in such a manner that they afford maximum privacy for users.
- When making use of a septic tank system ensures that the location of the sub-surface tank is clearly demarcated in order to prevent damage by plant moving over it.
- Septic tanks, as well as the portable chemical toilets must be serviced at least once a week by an approved / accredited service provider.
- Ensure that all proof of safe disposal of waste generated from the ablutions area kept on file for audit purposes.



Figure 11 Example of chemical toilets which are secured to prevent them from toppling over

## 20. EATING FACILITIES AND SMOKING AREAS

- A roofed eating area must be erected on the project and should be equipped with the following: tables, bench seating and a waste bin.
- The waste bin must be emptied after lunch each day and the eating area cleaned.
- Drinking water must be provided.

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- All WBHO employees will be briefed on the rules & regulations regarding toilet & eating facilities in the yard area.
- Establish a smoking area with signs and bin for cigarette butts
- Smoking bins must be inspected daily to ensure that there is no paper in the bin. This is a fire hazard.



**Figure 12 Example of an eating facility**


## **21. WATER CONSUMPTION**

- WBHO will supply adequate drinking water to all employees and every attempt will be made to conserve water.

## **22. SPILL PROCEDURES**

- All spills will be managed and reported according to the Environmental Method Statement submitted for approval along with the Environmental Management System (EMS).
- The incident procedure within the EMS will also be used as a reference for effective spill management.
- Spill kit to be available on site. This must be a wheelie bin type spill kit capable of absorbing 200 litres.
- In case of large spills, refer to Emergency Spill Procedure
- TBT 29 (Using a spill kit) must be presented to labour on site
- Drip trays to be used under stationary plant
- Contaminated absorbents and soil must be disposed at a registered hazardous material landfill site



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- Proof of safe disposal must be kept on file (see checklist ENV 4.1.4)



**Figure 13 Example of a wheelie bin spill kit capable of absorbing 200 litres**


## 23. DANGEROUS ANIMALS

- All dangerous animals must be identified during the initial start-up phases of the project.
- Once these animals have been identified toolbox talks must be presented to all the workers on site as well as any sub-contractors that may be on site.
- When working in densely vegetated areas ensure that game rangers from the local nature conservation offices escort all workers in order to provide guidance and assistance in the event of dangerous encounters with animals.

## 24. AIDS / HIV AND MALARIA AWARENESS

WBHO will promote AIDS / HIV awareness and Malaria awareness by the following:

- Information on these issues will form part of the safety induction.
- Information on Aids / HIV & Malaria will be freely distributed on all Projects.
- Information posters will be displayed in all prominent areas.
- Toolbox talks on these topics will be conducted at regular intervals.
- Condoms will be freely distributed on all projects.

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## 25. THEFT

- The management of WBHO will enforce a “ZERO” Tolerance policy with persons caught stealing.
- People caught stealing will be handed over to Security along with a theft report.
- The issue of theft will form part of the Safety Induction and discussed regularly in Toolbox talks.

## 26. PROSTITUTION

- It is an offence under law to offer sex for monetary gain. Anyone caught offering or receiving monies for sex acts, are liable for prosecution.
- Anyone caught having sex with a minor or enticing a minor for sexual purposes will be severely dealt with by the Police authorities.

## 27. IMPLEMENTATION

- The Designated Environmental Officer (DEO) appointed by WBHO will be the responsible person for the effective application day-to-day management and the implementation of the Environmental Management System.
- The DEO will also be responsible for the liaison and record keeping of any meetings and communication with external environmental authorities.


## 28. CHECKING AND CORRECTIVE ACTION

- The DEO will execute daily inspections according to the checklist which forms part of the EMS.
- A Start up facilities checklist will be completed for the start of construction and will be revisited on a monthly basis until the project is completed.
- All incidents will be recorded on the incident register as well as any Non-Conformances and any complaints on the applicable registers that are also available in the EMS.

## 29. MANAGEMENT REVIEW

Management shall:

- Implement the Environmental Management System (EMS) based on the environmental impact assessments and in compliance with the relevant environmental legislation, regulations and standards.

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- Enforce line management responsibility within the project to ensure compliance with the EMS.
- Monitor and report fully upon the effectiveness of the projects EMS.

### **30. NON COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS**

- Should the site manager become aware that any contractor has not complied with these environment provisions, the site manager will provide the contractor with written notification of the contravention, without prejudicing any other rights which the site manager may have in terms of the contract, and afford the contractor 2 (two) days within which to remedy the contravention to the satisfaction of the site manager.
- Should the Contractor fail to comply with the notice within 7 (seven) days from the date of receipt of the notice, the site manager will be entitled to invoke the remedies available to him in terms of the contract.
- The contractor shall furthermore be required to cover the costs of any required rehabilitation of the environment or to remedy any damage caused or loss suffered by the company or a third party.
- In the event that the aggrieved party wishes to review the finding by the site manager, such party may refer such decision for determination in terms of the dispute resolution provisions of the conditions of contract.