

ENVIRONMENTAL MANAGEMENT PLAN AND MITIGATION MEASURES

Proposed Land Development Area on:

**PORTION 56 OF THE FARM BESTWOOD NR 459,
DIVISION KURUMAN – WHICH WILL BE KNOWN AS:**

BESTWOOD EXTENSIONS 1 - 7



Compiled by: **Developlan Environmental Consultants Inc.**



P.O. Box 1516
GROENKLOOF
0027

Tel: 012 346 0283

Fax: 012 346 3822

E-mail: degraaff@absamail.co.za



ENVIRONMENTAL MANAGEMENT PLAN AND MITIGATION MEASURES FOR THE PROPOSED LAND DEVELOPMENT AREA ON PORTION 56 OF THE FARM BESTWOOD NO 459 DIVISION KURUMAN

BESTWOOD EXTENSIONS 1 TO 7

ENVIRONMENTAL IMPACT MANAGEMENT AND MITIGATION

1. INTRODUCTION

This section of the report serves to prescribe measures to reduce, limit, eliminate or compensate for impacts, to acceptable/insignificant levels. The term 'mitigate' means to 'allay, moderate, palliate, temper, intensify'. In environmental terminology this term is used as follows:

- mitigation of a negative impact;
- to reduce the significance of an impact;
- mitigation/optimization of a positive impact;
- to increase the significance of the impact.

Recommendations are arranged in order of sequence i.e. Planning, Construction and Operational Phases.

Mitigation should permeate through all stages of the development process. It is also essential that the mitigation plan be monitored during construction and operation, to ensure compliance (with strict penalties for non-compliance).

Negative impacts normally mainly occur during the construction period (as well as during upgrading/maintenance activities), but are relatively well known and easy to predict. Also, the mitigation actions to prevent or reduce impacts are well known. Most of the mitigation actions are likely to be applied during the construction period - site supervision and monitoring are key criteria to ensure the successful implementation of mitigation measures.

The stipulations of this report should be conveyed to contractors prior to the commencement of construction/upgrading/maintenance. This must include the contractors involved in the provision of the civil services as well as the contractors building on the site. This mitigation section should be issued as a stand-alone document to all parties involved in the planning, implementation and operation of this new development.

2. PLANNING PHASE MITIGATION GUIDELINES

2.1 Implementation recommendations

During the project planning and design stages, the developer(s) as well as all consultants must take into account the recommendations of this EMP, so that it is positively utilized on a pro-active basis to aid in the mitigation of impacts.

It is also deemed essential that contract documents be audited to ensure compliance with conditions and that this is monitored and reviewed on a continual basis.

2.2 Road and Engineering Design Standards

The engineer should set out routing of roads for construction access on site. Certain road improvements may be necessary and these should comply with the Provincial Roads Department's standards.

2.3 Incorporate recommendations into construction contracts

Construction phase mitigation guidelines and clauses should be written into the construction contract documents as specifications, in addition to the minimum requirements as set out in the SABS Standardized Specification for Civil Engineering Construction.

Additional clauses should be added in response to specific impacts that may be identified during the detailed design stage. All contractors should adhere to these conditions and their compliance must be monitored on a continual basis.

If the project cycle has already progressed too far for the abovementioned to be done, then contractors should be provided with a written synopsis of the contents of this report.

2.4 Civil services

All civil services, (water provision, sewer, roads and stormwater) must be designed by a professional civil engineer to the satisfaction of the local authority.

2.5 Site visits during the planning phase

When visiting the site during the planning phase, use should be made of existing tracks/access roads where available.

3. CONSTRUCTION PHASE MITIGATION GUIDELINES

3.1 Impacts on the physical environment

3.1.1 Earthworks

All excavation activities for any purpose whatsoever should be preceded by selective stripping and stockpiling of vegetative (humus) and soil materials in the order of their horizons as found on site, for the purpose of replacement in the appropriate horizon order, after the completion of construction. These activities should include;

- trenching for the installation of services (e.g. electricity and water),
- foundations,
- road construction,
- site clearance,
- borrow pits,
- yards or lay-down areas or any other areas affecting the natural environment.

Replacement and rehabilitation should be progressive with the construction and not left until the end. Temporary topsoil stockpiles should be seeded, or protected in a manner acceptable to the environmental planner, so as to avoid erosion by rain or wind.

Stockpiled topsoil and sub-soils should be protected from contamination e.g. by fuel spillages etc.

3.1.2 Vehicular access and movement of construction vehicles

Damping down of un-surfaced roads should take place to limit dust.

The access of all construction and delivery vehicles should be strictly controlled, especially during wet weather, to avoid erosion and/or the compaction and damage to the topsoil structure.

No maintenance or repair of construction vehicles is allowed on the site.

3.1.3 **Contractors' yards**

A material delivery and storage area should be demarcated in co-ordination with the contractor. Material should not be brought onto the site prematurely, which could result in additional areas being cleared or affected.

Materials storage and contractors yards should not be sited in areas of sensitive soils, wherever practically possible, i.e. alluvial soils, drainage lines or vleis, steep slopes, rocky outcrops and those susceptible to erosion. Site activities should be properly managed.

3.1.4 **Rehabilitate compacted soils**

Soils compacted by construction activity must be deep ripped to loosen compacted layers and graded evenly. Topsoil must be re-spread upon completion of construction activities.

3.1.5 **Toilet facilities**

The use of portable chemical toilets for use by the labour force is essential to avoid pollution and attraction of vermin and flies (which could become a nuisance or a health hazard).

3.1.6 **Waste handling**

Contractors should remove all waste generated by themselves during construction and it should be disposed of at a suitable solid waste disposal venue – “dumping in the bush” should not take place. No materials or pollutants, etc. shall be dumped on site, adjacent thereto, or in any other place. Waste material must be kept in designated areas.

3.1.7 **Mixing cement**

Where cement and concrete, etc. is mixed on site, this must be done in specified areas on concrete aprons or on protected plastic linings and provision must be made to contain spillage or overflows onto soils.

3.1.8 **Mixing of chemicals**

The mixing of any solvents, asphalt, sealants, adhesives, paints, chemicals or other noxious materials shall only be undertaken in designated areas on concrete aprons that have spillage control channels and separate storage areas. The mixing of materials will not be permitted in the general areas of the site. All surplus or waste materials are to be removed from the site. All these operations shall only be allowed on site under strict observations of the manufacturers' instructions.

3.1.9 **Stormwater control and erosion**

A moderate potential for erosion to occur at the proposed site, after construction, exists. The disturbed areas should be stabilized with grass after construction activities have been completed to prevent soil erosion.

3.1.10 **Storage of fuel**

If fuel is to be stored during construction, it must be allocated to specific areas and safeguards must be implemented to control and contain spillages for the complete extent of the time that the fuel is stored. The necessary firefighting equipment will also be maintained on site to deal with any fire incidents.

All residues from spillages onto soil should be removed from site by the contractors.

3.1.11 **Silencing of plant**

All plant and vehicles on the site must be equipped with noise suppressing measures and kept in proper working order. When working at the site, noise levels must be within ambient noise levels.

Excessive noise from the labor force should be avoided.

Contractor to control site activities - working hours to be controlled by site engineer. Keep residents of adjacent properties informed if any unusually noisy activities are planned.

3.1.12 **Maintain vehicles**

Vehicles and equipment must be maintained in proper working order, in order to limit gaseous emissions, pollution and should be free from oil and hydraulic fluid leaks, etc.

No maintenance or repair of construction vehicles is allowed on the site.

3.1.13 **Fires**

No fires will be permitted on site without the authority of the resident engineer or project manager.

3.1.14 **Cleanliness**

The site is to be maintained in a sanitary condition and all toilet facilities shall be maintained in good order. Food cooking will only be permitted in designated areas.

4. IMPACTS ON THE BIOLOGICAL ENVIRONMENT

4.1 Flora

-In the case of this site no plant rescue-missions are deemed necessary. Unnecessary removing of vegetation from areas, which will not be utilized by the contractors, during construction, upgrading and/or maintenance, should be avoided.

-Contractors should implement rehabilitation works after completion of construction. Compacted soils should be deep-ripped after the construction process in order to facilitate the re-establishment of vegetation. Soil on inclines need to be seeded to stabilize such inclines.

-Colonising of disturbed soil by weeds needs to be controlled.

-Indigenous plant species should be planted on the site.

-Legislation has been promulgated for problem plants and these listed species should be controlled by mechanical and/or chemical means. Mechanical means include ringbarking, uprooting, chopping, slashing and felling. Stumps or ringbarked stems should be treated immediately with a chemical weedkiller.

-Care should be taken that exotic water plants, for example the water hyacinth, water fern and parrot's feather are not accidentally or intentionally introduced to a water system.

4.2 Wildlife

-In order to contribute to a more diverse wildlife, indigenous plants should be established in the gardens and other open areas.

-No free ranging exotic birds should be allowed.

5. MITIGATION OF SOCIAL AND SOCIO-ECONOMIC IMPACTS

5.1 Safety on site

Implementation of an Occupational Health and Safety management system to be required of contractors. Safety measures and work procedures/instructions to be communicated to construction workers. First aid facilities to be on hand at all times.

The contractor must implement adequate and mandatory safety precautions relating to all aspects of the operation. Warning and advisory signage should also be implemented (also with regards to vehicular movement).

5.2 Clean construction camp

Construction camp(s) should be kept in a neat and tidy condition. All litter from the construction camp must be collected and removed on a continuous basis to avoid a build up.

5.3 Cultural and/or archaeological sites

Any historical or archaeological relics unearthed on a site during the course of construction/upgrading/maintenance activities, must be reported to the nearest Monument Office (to comply with the National Monuments Act, 28 of 1969 amended in 1986), so that an assessment of the development site can be conducted and mitigation action taken. Graves should be left alone - if graves have to be moved, and then the prescribed legal procedures, for doing so, should be followed.

5.4 Optimisation of the local economy

Where appropriate, use should be made of labour intensive construction methods - local contractors should be used.

Employ local people and perform "on the job" training. The construction force should as far as possible be recruited from the local communities and the contractor should provide facilities for, and supervision of, "on the job" training of locally recruited labor. This should include the recording of such training.

6 OPERATIONAL PHASE MITIGATION GUIDELINES

The following section will address a range of mitigation actions that might manage the predicted impacts associated with the operation of the different components of the development.

6.1 Maintenance of civil services

All civil services must be inspected regularly and maintained in a good working order. Any problems or leakages must be repaired as soon as possible.

6.2 Control over the planting of weeds and invaders

No declared weeds or invaders should be allowed in the gardens.

No exotic water plants such as the water hyacinth and parrots feather should be allowed in water features and fish ponds in gardens. These plants can easily be spread by birds to streams and dams with serious consequences to the water quality and wildlife.

7. CONCLUSION

In conclusion it can be said that the construction and maintenance of this proposed development should;

- meet landscape management guidelines,
- mitigate negative effects, and
- work with economic, biophysical, ecological and social values while achieving certain environmental objectives.