

Appendix T: EMPr

ENVIRONMENTAL MANAGEMENT PROGRAM

**FOR THE PROPOSED DEVELOPMENT ON
PORTION 22 OF FARM KRAAIBOSCH NO.
195 AND ERF 23333, GEORGE
AND
MANAGEMENT OF THE COMPLETED
DEVELOPMENT**

**DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND
DEVELOPMENT PLANNING REFERENCE:
EG12/2/3/2/D2/11-1192/08**

MAY 2012

ENVIRONMENTAL MANAGEMENT PROGRAM

DEVELOPMENT ON PORTION 22 OF FARM KRAAIBOSCH NO. 195 AND ERF 23333, GEORGE

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I, (full names) hereby confirm that the EMP submitted herewith was considered and approved by the Board of Directors of Laritza Investments ((Pty) Ltd. It will be implemented as proposed herein and Laritza Investments will ensure compliance herewith by all purchasers of land in the development.

I am duly authorised to give this undertaking.

Chairman's signature: _____

Date: _____ **Place:** _____

GLOSSARY, DEFINITIONS AND TERMS

Affected environment - Those parts of the socio-economic and biophysical environment affected by the development impacts.

Alien vegetation - All undesirable vegetation, defined as, but not limited to, all plants declared Category 1 and 2 invaders in terms of the Conservation of Agricultural Resources Act, Act 43 of 1983 (CARA).

Applicant – The holder of the environmental authorisation issued for the development and the activities and responsible for implementation of the conditions of authorisation. The term includes reference to the client and the developer.

Authorities - The national, provincial or local authorities that have a decision-making role or interest in the construction or activity.

Audit - Regular inspection and verification of construction activities for implementation of the EMP.

Batch plant - A concrete or plaster mixing facility and associated equipment and materials.

Building – As defined in the George Municipality and Section 8 Zoning Scheme Regulations (any structure or erection whatsoever irrespective of its nature or size).

Bund – Impermeable enclosure under / around a storage facility for hazardous substance or potential pollutant or any place where these substances are used on site, to contain any spillage.

Contractor - The principal person / company undertaking the construction activity.

Construction site – The specific erf or precinct where construction activity occurs, including all access roads and tracks. It does not refer to the entire development site (portion of Portion 22, Farm Kraaibosch No. 195 and Erf 23333, George).

Construction activity - Any action taken by the contractor, his subcontractors, suppliers or personnel on the construction site, whether directly or indirectly related to the construction work.

Contaminated water – All water contaminated by the contractor's activities, e.g. concrete water and runoff from plant / personnel wash areas.

CEMP - Construction Phase Environmental Management Program. A plan for managing the potential impacts of the construction process.

CN – Cape Nature administration of the Western Cape Nature Conservation Board (044 802 5300).

DAFF – Department of Agriculture, Forestry and Fisheries (044 302 6902).

DEA&DP - Department of Environmental Affairs and Development Planning (George Office, 044 805 8600).

DWA – Department of Water Affairs (021 950 7100).

Development area – The entire development site, consisting of a portion of Portion 22, of Farm Kraaibosch No. 195 and Erf 23333, George, for which development authorisation was granted.

Environmental Control Officer (ECO) - Designation reserved for suitably qualified person acting as the development environmental manager or officer. It is the person responsible to the client / applicant / phase developer, tasked with implementing and controlling the environmental requirements and EMP for the project.

Environmental Site Manager (ESM) - Designation reserved for suitably qualified person acting as the site environmental manager for a contractor. It is the person responsible to the contractor, tasked with implementing and controlling the environmental requirements and EMP for a specific construction site during the construction period. The ESM must report to the ECO in keeping with the requirements of the EMP.

Environmental Liaison Committee (ELC) – A committee consisting of a formal group of representatives of the developers, the authorities and the development team, with the responsibility of overseeing implementation of the EMP.

Environmental Authorisation - Authorisation issued to and in the name of the applicant by the competent authority in compliance with Regulation 38 of the Regulations in terms of Chapter 5 of the National Environmental Management Act, 1998, Act 107 of 1998.

Environmental Awareness Training - An environmental education process for the contractor's management staff and labour force, which informs them of the requirements of the EMP.

Engineer - A suitably qualified person who represents the client and is responsible for the design of construction activities and the technical and contractual implementation of the construction activity. An engineer will be responsible for each of the construction activities.

Environment - The biosphere in which people and other organisms live. It consists of :

- Renewable and non-renewable natural resources;
- Physical, infrastructural, social, economic, cultural, historical and political components of the area and the wider surroundings;
- Natural ecosystems and habitats; and
- Biological and natural surroundings whether or not modified by people.

Environmental impact - Any change to the environment, whether desirable or undesirable that would result directly or indirectly from any construction related activity.

Environmental incident - Any occurrence on or at a specific site and related to the activities on the site that could potentially have a negative effect on the environment, whether natural or man-made.

Erection – As defined in the applicable Zoning Scheme Regulations (includes - the alteration, subdivision or conversion of, or addition to a building; and the re-erection or repair of a building which has been completely or partially destroyed or demolished).

Height of building – As defined in the applicable Zoning Scheme Regulations.

HWC – Heritage Western Cape is the provincial heritage resources authority for the province, in the Department of Cultural Affairs and Sport (021 483 9695).

Impact - The positive or negative effects on human well-being and/or on the environment.

Mitigate - The implementation of practical measures to reduce adverse impacts.

Municipality - The George Municipality, situate in George (General contact, 044 801 9111).

"No-Go" Areas - Areas identified as being environmentally sensitive in some manner and delineated on plan and / or on the site with pegs or fencing and which are out of bounds to unauthorised persons. Authorisation must be obtained prior to entry of a "no go" area.

OEMP - Operational Phase Environmental Management Program. A plan for managing the potential impacts of the use of the development and/or the completed development.

Property Owners' Association (POA) – A legal entity established by the applicant or a phase developer with the responsibility of the management and maintenance of all common property and structures, such as open space and to ensure compliance with the OEMP.

Potentially hazardous substance - A substance that, in the reasonable opinion of the ECO and / or Engineer, could have a harmful effect on the environment.

Public authority - means a state department, a municipality or a department of the Provincial Government.

Reasonable - Unless the context indicates otherwise, the term reasonable refers to the opinion of the Engineer after consultation with the ECO and a person, not an employee of the client, suitably experienced in "environmental implementation plans" and "environmental management plans" (as defined in the National Environmental Management Act, 1998, Act 107 of 1998).

ROD - Record of Decision by DEA&DP or any other authority when authorising the development and includes an **Environmental Authorisation**.

SAHRA - South African Heritage Resources Agency.

Solid waste - All solid waste, including metal sections, construction debris, chemical waste, excess cement / concrete, wrapping materials, timber, tins, cans, drums, wire, nails, food and domestic waste, e.g. plastic packets and wrappers.

Significant/significance - Significance can be differentiated into impact magnitude and impact significance. Impact magnitude is the measurable change (i.e. intensity, duration and likelihood). Impact significance is the value placed on the change by different affected parties (i.e. level of significance and acceptability). It is a concept that makes use of value judgements and science-based criteria (i.e. biophysical, social and economic). Value judgement reflects the social perception of impact assessment.

Vegetation rehabilitation - The re-establishment of endemic and/or indigenous vegetation with a similar species composition to that which naturally occurred on the site or in the area.

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1. BACKGROUND

1.1 Introduction

Dupré Lombaard was commissioned by the project proponent, Laritza Investments (Pty) Ltd to prepare an environmental management program (EMP). This EMP serves to implement the conditions of authorisation of the activities and the development of the property as per the environmental authorisation (EA) ref: EG12/2/3/2/D2/11-1192/08, dated 22 August 2011 (See Annexure A).

Authorisation was granted in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) by the Department of Environmental Affairs and Development Planning (DEA&DP) of the Provincial Government of the Western Cape (PG:WC) as the delegated / competent authority in the Western Cape. The DEA&DP contact details are: George Office (Eden and Central Karoo districts), Directorate: Integrated Environmental Management (Region A1), Private Bag X 6509, George, 6530, located on the 4th Floor, York Park Building, 93 York Street, George, telephone: 044 805 8600 and facsimile: 044 874 2423.

1.2 Purpose of the environmental management program

An Environmental Management Program (EMP) is recognised as a tool that can provide assurance that the applicant / project proponent has made suitable provision for mitigation of any identified negative environmental impacts. The EMP provides a description of the methods and procedures for mitigating and monitoring impacts. It also contains environmental objectives and targets which the applicant / project proponent or developer needs to achieve in order to reduce or eliminate negative impacts. The EMP must be used throughout the project life cycle or at least for the period for which it is intended, e.g. construction phase or construction and operations or in the very long term, decommissioning. The applicant and his agents should continuously update the EMP to remain aligned with specific activities and the project as it progresses.

There is no universally accepted standard format for EMP's. The format needs to fit the circumstances for which the EMP is being developed and the requirements of the Provincial Government of the Western Cape as set out in the relevant guideline document (Lochner, P. 2005. Guideline for Environmental Management Plans. CSIR Report No ENV-S-C 2005-053 H. Republic of South Africa, Provincial Government of the Western Cape, Department of Environmental Affairs & Development Planning, Cape Town).

EMPs should contain the following components:

- A summary of the predicted impacts for which mitigation is required.
- A description of mitigation measures to reduce the negative environmental impacts to acceptable and legal levels. Mitigation measures should be

described in as much detail as possible and be accompanied by plans, designs, equipment descriptions and operating procedures.

- A description of the monitoring programme and where possible the linkages between impacts, indicators to be measured, measurement methods and definition of thresholds that will lead to corrective actions.
- Institutional arrangements, e.g. responsibilities for mitigation and monitoring actions, should be clearly defined.
- A framework for legal enforceability, e.g. an undertaking by the contractor to abide by the EMP or incorporation of the EMP into tender documents.
- An implementation schedule for the entire development or construction project.
- Where possible or applicable, cost estimates for implementing the mitigation measures must be included into the EMP, so that the responsibility for the expenditure can be determined.

The EA made the following components conditional for inclusion in the EMP. It must:

- *be approved by the DEA&DP before the commencement of any construction activities;*
- *be submitted to the DEA&DP for consideration at least three weeks prior to the commencement of construction activities;*
- *meet the requirements outlined in Section 24N (2) & (3) of the National Environmental Management Act, 1998 (Act no 107 of 1998, as amended) ("NEMA") and regulation 34 of the Environmental Impact Assessment Regulations 2006;*
- *incorporate the conditions of authorisation given in this Environmental Authorisation;*
- *set out an environmental policy, objectives and targets;*
- *set out how the applicant and management body of the proposed development will adopt and implement the approved Environmental Management Programme;*
- *identify and allocate environmental management roles, responsibilities and accountability within the organisation, as well as funding requirements, measurable targets and timeframes for the implementation of the EMP;*
- *include environmental procedures which cover the construction activities for every phase of the development (Construction Environmental Management Programme ("CEMP")) pertaining to major services (e.g. roads, water, sewage and electricity);*
- *describe the method and program, including clear targets and remedies for invasive alien vegetation clearance within five years of commencement of construction activities;*
- *make provision for the compilation of method statements to the satisfaction of the appointed Environmental Control Officer ("ECO");*
- *include and describe storm water management measures, such as swales, artificial wetlands, retention dams, etc. These management measures must be to the satisfaction of George Municipality, prior to submission thereof to this Department for consideration;*

- *provide for the utilisation of local labour as far as possible. This must include, but need not be restricted to the establishment of a local labour registration office, record keeping and reporting procedures for monitoring purposes;*
- *make provision for preferential employment and environmental training of staff, including contractors/service providers both for the construction phase and in relation to on-going operations;*
- *include architectural guidelines for the construction of all buildings;*
- *detail visual resource management guidelines and mitigation measures. These must incorporate, but need not be restricted to, those mitigation measures as detailed in the Visual Impact Assessment, 27 April 2010, as compiled by New World Associates.*
- *include procedures for the search and rescue of conservation worthy vegetation. These procedures must detail the compilation of an inventory of plants, especially bulbous species, by a qualified botanist to inform the search and rescue program;*
- *include operating activities (Operational Environmental Management Programme) which includes, but is not limited to:*
 - o *management of the built environment;*
 - o *• utilisation of resource conservation measures, including rainwater harvesting from hardened surfaces and solar heating devices;*
 - o *• an integrated waste management approach which is based on waste minimisation and incorporates reduction, recycling, re-use and disposal where appropriate;*
 - o *• waste management and pollution control measures, including disposal of any solid waste which must be disposed of at a landfill licensed in terms of section 20 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) or the National Environmental Management: Waste Act (Act No. 59 of 2008);*
 - o *• management of storm water;*
 - o *• management of the open space;*
 - o *• management of landscaped areas; and*
- *include procedures for communication and reporting on environmental performance;*
- *include corrective action procedures;*
- *be included in all contract documentation for the construction phase of the development;*
- *describe the level and type of competency required of the Environmental Control Officer, ("ECO");*
- *define and allocate the roles and responsibilities of the ECO referred to above, and the Environmental Site Agent where applicable;*
- *determine the frequency of site visits; and*
- *include detail on Preferential Employment and Skills Training.*

Where possible or applicable, cost estimates for implementing the mitigation measures must be included into the EMP, so that the responsibility for the expenditure can be determined.

1.3 Environmental management policy

Laritza Investments commits to the following:

- Recognition of the environment as being of primary importance to the health and well-being of human beings.
- Compliance with the relevant statutory requirements applicable to the environment in which the construction will occur and in the operation and management of the occupied development.
- Ensuring the transfer of responsibility for implementation of the EMP to all successors-in-title for any portion of the land.
- Striving to maintain the highest standards with respect to environmental management, by:
 - o implementing and maintaining a structured Environmental Management System (EMS) as contained in the OEMP;
 - o the provision of financial and other resources to maintain the EMS;
 - o the assessment and management of environmental risks associated with the development;
 - o periodically adapting environmental objectives to ensure that measurement, monitoring and reporting (auditing) occurs in the light of improved technology;
 - o involving owners, tenants, employees, local communities, government bodies and other interested and affected parties in the development of procedures to ensure a practical, feasible and effective EMS;
 - o providing relevant training to employees to ensure their effective participation in and successful implementation of the EMS;
 - o determining aesthetic and architectural norms and standards for the development of the site;
 - o considering all building and development plans prior to the approval thereof by the George Municipality;
 - o waste management, amongst others through reduction of waste volumes, promoting re-use and recycling on site and setting up of a waste recycling system on site;
 - o reducing the use / consumption of potable water; and
 - o the efficient use of energy and employment of on-site electricity generation technology and energy saving devices.

1.4 Objectives of the Environmental Management Program

The objectives of the EMP are to:

- Ensure compliance with the conditions of authorisation of the activity and related guidelines of any public authority.
- Ensure that there is sufficient allocation of resources on the project budget so that the scale of EMP-related activities is consistent with the significance of project impacts.
- Verify environmental performance through information on impacts as they occur.

- Respond to changes in project implementation not considered in the EIA.
- Respond to unforeseen events.
- Provide feedback for continual improvement in environmental performance.

1.5 Description of the approved activity and authorisation conditions

Environmental authorisation was granted for the activities as described in the EA (Annexure A). The broad development consists of a mixed use development with the following components:

- Portion 1 - Business Zone III (including offices, townhouses, flats, residential buildings, places of assembly, entertainment and supermarkets);
- Portion 2 - Public Open Space;
- Portion 3 - Authority Zone;
- Portion 4 - Residential Zone III (reserved for N2 interchange);
- Portions 5, 6 and 9 - Business Zone I (including business premises, by consent townhouses, flats, residential buildings, place of assembly, place of entertainment, institution, bottle store, offices, supermarket and service trades);
- Portion 7 - Transport Zone III;
- Portion 8 - Business Zone I (including business premises, by consent townhouses, flats, residential buildings, place of assembly, place of entertainment, institution, bottle store, offices, supermarket and service trades, with building height limited to two storeys);
- Portion 10 - Business Zone I (including business premises, by consent townhouses, flats, residential buildings, place of assembly, place of entertainment, institution, bottle store, offices, supermarket and service trades, with building height is limited to three storeys);
- Portion 11 – Business Zone II (including shops, townhouses by consent, flats, residential buildings, places of assembly, offices, supermarkets and restaurants)
- The total floor area of buildings is approximately 240 000m².
- Implementation of the TIA with:
 - o extension of Park Drive by adding dual lanes per direction to the second roundabout of the Garden Route Mall;
 - o provision of turning lanes on all approaches to the intersection of the Knysna and Saasveld Roads; and
 - o installation of a traffic signal and minor widening of the Knysna Road/N2 on-ramp intersection.
- The construction of a new interchange with the N2 and a connector road from the extension of Park Drive.
- The upgrading of the Knysna Road/N2 on-ramp intersection to two through lanes per direction.
- The upgrading of the Meul and the Schaapkop pump stations to respectively 340 and 458 l/s and increasing the capacity of a section of the gravity sewer line between them at the Schaapkop pump station to 415 l/s.

- Construction of a pedestrian walkway along the southern boundary of the site (along the N2 from the Meul River) and a transport interchange in Park Drive.

The following is a summary of the conditions of authorisation that are pre-conditions to facilitate consideration of the subdivision / layout plan.

- Condition 1. The activities may not commence until the closure of the appeal period and conclusion of an appeal process.
- Condition 2. The applicant must confirm acceptance of the conditions of authorisation within 20 days of issuing the authorisation (before 12 September 2011).
- Condition 4. A buffer of 40 m either side of the natural drainage lines must be demarcated on site prior to commencement of construction activities.
- Condition 6. A final layout plan must be presented to the DEA&DP, indicating land use and phasing in keeping with the TIA, prior to commencement.
- Condition 12. The EMP must be completed and submitted for approval to the DEA&DP prior to commencement.
- Condition 13. A suitably experienced ECO must be appointed prior to commencement of construction activities.
- Condition 16. The applicant must advise all registered I&AP's of the outcome of the application and their right of appeal.

The following summary is of conditions that apply to the development.

- Condition 3. Notice must be given to the DEA&DP one week prior to commencement, with suitable proof of compliance with the conditions highlighted in paragraph 3 above.
- Condition 5. No development is permitted on slopes of 1:4 or steeper.
- Condition 7. The final layout plan must make provision for flats / high density residential development to the satisfaction of the George Town Planning Branch.
- Condition 8. Large scale commercial activities that cannot locate in the CBD or in the industrial area should be given precedence.
- Condition 9. Local labour should as far as possible be used and a labour registration office / training and other methods should be used to promote this.
- Condition 10. The TIA must be implemented, with specific reference to non-motorised transport / pedestrian activities.
- Condition 11. Architectural guidelines must be developed, with specific reference to the height restrictions of buildings.
- Condition 14. HWC must be advised of any heritage finds during construction.
- Condition 15. An environmental audit program must be followed and the reports submitted to the DEA&DP.
- Condition 17. The applicant is responsible for compliance with the authorisation.
- Condition 18. No deviation from the authorised activities is permitted unless a written application is submitted to the DEA&DP and approved by it.

- Condition 19. The applicant must notify the DEA&DP within 24 hours of any non-compliance issue.
- Condition 20. A copy of the authorisation must always be available on site.
- Condition 21. The DEA&DP must be notified if the applicant's contact details change.
- Condition 22. The authorisation may be withdrawn if there is any non-compliance.
- Condition 23. The DEA&DP must be notified of a change of applicant (holder of the authorisation).
- Condition 24. The DEA&DP officials must have unhindered access to the site.
- Condition 25. The authorised activities apply only to the site mentioned in the authorisation.
- Condition 26. All other statutory requirements must still be adhered to.
- Condition 27. The authorisation is valid for five years.

1.6 Predicted Impacts

Dust and windblown sand are likely results of construction activity, especially after earthworks, the digging of the foundation trenches and while construction of the upper levels of buildings are in progress.

Normal construction activity has the risk of leading to noise disturbance, especially in a phased development. Construction causes large volumes of construction material waste, which could cause a nuisance and pollution.

The slopes along the streams and rivers could be destabilised as a result of clearing and activities and could become eroded. Run-off from a developing site could release sediment laden water (run-off) into the local streams and rivers with negative consequences. Run-off from a developing site could carry sediments, which could block newly constructed storm water drainage systems, and contaminants into the surface drainage system, causing pollution.

Large numbers of job seekers will daily congregate on and around the construction sites.

The contractor and ECO shall identify likely impacts before commencing with any construction activity. Thereafter the contractor shall programme the work in such a manner that the effects of the construction avoid any impact occurrence. If avoidance or prevention is not practicable, the contractor shall provide method statements and mitigation measures for the ECO's approval, to limit and contain the magnitude, duration and intensity of the impact. In such situations the contractor shall demonstrate that he is capable of carrying out any repair and reinstatement of the damaged environment.

The assessment of the proposed development indicated that the following broad impacts are related to the authorised development:

- Visual – significant change to the character of the area.
- Traffic – congestion and lowering of service levels.
- Economic – benefit to communities through increased job creation, infrastructure spending and retail opportunities.
- Social – influx of job seekers and opportunities for skills development.
- Botanical – need to do search and rescue of conservation worthy vegetation.

1.7 Institutional framework

This EMP informs the applicant (and any successor-in-title) and the contractor of their duties in the fulfilment of the project and EMP objectives, with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with the project. The obligations imposed by the EMP are legally binding in keeping with the environmental legislation and the conditions imposed in the authorisation of the activity. In the event that any conditions and obligations contained in this document contradict those specified in the standard or project specifications then the latter shall prevail.

The project falls under the jurisdiction of the George Municipality, represented by the planning department that considers and implements the land use applications and approvals related to the authorised development. The EMP must be submitted to the DEA&DP at least three weeks prior to commencement of activities and must be submitted to the George Municipality as a record of the management actions applied on site. Prior to submission to the DEA&DP, the Municipality must approve of the layout plan and the storm water management plan.

An ELC must be established prior to commencement of activities and must comply with the terms of reference in Annexure H. The ELC is the oversight body that coordinates activities by different phase or precinct developers and monitors the implementation of the EMP. It must also ensure continued compliance with the EMP over time. It is an important body, in view of the envisaged long duration of the construction activities and management of common property and structures. The ELC:

- Has an advisory role to the authorities in reviewing detailed development proposals and to ensure compliance with the conditions of authorisation.
- Plays an advisory role in environmental management of the area during all the construction and operational phases of the development.
- Must review and approve proposed changes to the EMP prior to such changes being presented to the competent authority.
- Will review penalties for transgressions of the EMP and advise on the use of the paid penalties.

The municipality, the contractors, the phase or precinct developers and the applicant must participate in the ELC, to ensure coordinated action in the implementation of the EMP. The ELC must be established with a constitution, at the cost of the applicant. The ELC must set up a financial management system for implementation

of the EMP, inclusive of a bank account into which fines and other contributions can be paid.

The contractor(s) will undertake the construction work required for the activity and will appoint an ESM / phase or parcel ESM's and bear all costs relating to the implementation of this EMP and construction management on the construction site. The contractor must be conversant with all legislation pertaining to the health and safety and the environment, including provincial acts and ordinances and local government by-laws and regulations, which may be applicable to the contract. The responsibilities of the contractor include, but are not limited to, the following:

- Inform the client, as well as the ECO, should environmental damage or deviations from the EMP occur.
- Adhere to the conditions of the EMP and the environmental authorisation.
- Assist in finding solutions to environmental problems that may arise during construction.
- Carry out instructions issued in the site instruction book / monitoring records by the ECO and /or ESM.
- Oversee the implementation of mitigating / rehabilitation measures.
- Environmentally educate and raise the awareness of the labourers and staff as to the sensitivity of the environment and to instil the correct attitude in them.

The contractor must be briefed by the ECO on his obligations towards environmental controls and methodologies in terms of the EMP prior to work commencing.

The ECO shall report to the applicant and ELC and shall be responsible for ensuring compliance with the conditions contained in the EMP. Responsibilities of the ECO include the following:

- Attend contractor site meetings, to be able to report on and respond to any environmental issues and be issued copies of minutes of such meetings.
- Obtain, examine and approve method statements where necessary.
- Advise the contractor on environmental issues within the defined work areas.
- Review the site diaries with regard to records of site activities that may pertain to the environment and reconcile the entries with observations made during site inspections.
- Recommend corrective action to the contractor and the client where construction activities are not in compliance with the EMP.
- Take action where "no go" areas are violated, or in danger of being violated, and to inform the client of the occurrence and action taken.
- Take action when prescriptive conditions are violated, or in danger of being violated, and inform the contractor and client of the occurrence immediately and take action, e.g. issuing of penalties.
- Maintain the EMP documentation and ensure compliance with the prescriptive conditions.
- Submit audit reports as required in the environmental authorisation.

The ESM be on site weekly and shall report to the contractor and the ECO and shall be responsible for ensuring compliance with the implementation of the conditions of

authorisation and the EMP on a specific construction site. Responsibilities of the ESM include the following:

- Environmental awareness training for contractor staff and labourers.
- Attend contractor site meetings.
- Regular reports on environmental issues to the ECO.
- React and respond to environmental issues.
- Prepare method statements in consultation with the contractor where necessary.
- Advise the contractor on environmental issues on the site through entries in the site diary.
- Recommend corrective action to the contractor where construction activities are not in compliance with the EMP.
- Take immediate action on site where clearly defined and agreed “no go” areas are violated, or in danger of being violated, and to inform the ECO of the occurrence and action taken.
- Take immediate action on site when prescriptive conditions are violated, or in danger of being violated, and advise the contractor to take corrective action.
- To be contactable by the public regarding matters of environmental concern as they relate to the development (register of complaints and actions to be kept and included in monthly reports).
- Ensure compliance by the contractor with the EMP.
- Submit monthly reports to the ECO.

The above role-players commit themselves to a process of protecting and rehabilitating the environment, which will include leaving the development area, access roads, adjacent water bodies, rivers and streams and the construction site in a good condition at the end of the construction phase. In doing so, the role-players commit themselves to the following:

- The environment being as defined above;
- Adhering to all legislation that is relevant to the environment;
- Adhering to the environmental specifications as set out in the EMP ;
- Protection of the environment, amongst others by limiting the extent of all activities related to the development and construction to the areas demarcated for development at the handover of the site to the contractor ;
- Rehabilitation of the environment and specifically all surface water areas disturbed as a result of construction activities ;
- Employing local labourers and skills development; and
- Environmentally sensitive construction techniques.

A conservation management system must be implemented by the ELC for the development in consultation with the developer(s) and the ECO. It must determine the guidelines and rules for the management of all open space in the development as a conservation area. In order to achieve this, the following are required:

- Delineation and mapping of the open space and setback lines.
- The creation of a fire management plan.

- The inclusion of all natural slopes of 1:4 or steeper as part of the open space network, amongst others to mitigate the visual impact as recommended in the VIA.
- Cause the protection of the natural vegetation and the river corridors, steep slopes and storm water infrastructure through management actions.
- Cause the complete removal of all alien invasive plants and promote fire prevention and control.

Together with the transfer of any portion of a phase of the development (undeveloped land), a serviced erf where building construction must occur or a developed erf, responsibility for implementation of the CEMP and / or OEMP passes to the successor-in-title of the applicant (Laritza Investments) and the successor-in-title must confirm same in writing to the DEA&DP and the George Municipality.

1.8 Financial responsibilities

Financing of environmental management requirements as outlined in this document, including environmental audits and reviews, is the joint responsibility of the applicant and the phase or parcel developers (successors-in-title). The applicant and / or the developers in consultation with the ELC must prepare an annual budget. An EMP Fund must be established to fund the cost of implementation of the EMP. The applicant must pay immediate funds for implementation of the EMP. The long term management funds are to be raised by the imposition of a levy paid by all property owners. A dedicated bank account must be opened for this purpose and all penalties and annual funds must be deposited into this account. The ELC will manage the account.

1.9 Details of the environmental assessment practitioner

Dupré Lombaard obtained his qualifications at the Universities of Stellenbosch (BMil, 1980), South Africa (BA Honns (Geography), 1982), Orange Free State (MA (Geography), 1989) and the Western Cape, where he completed his MSc (Earth Sciences) with distinction in 2002. His studies included Catchment Processes, Hydrogeology, Quaternary Science, Environmental Management, GIS and Environmental Law and he did research on soil erosion in a post fire situation in the Cape Peninsula for Ukuvuka (2000), to determine where most soil erosion could be expected in order to focus management actions following wildfires in the area. The research report was prepared under the supervision of Dr Jan Boelhouwers and submitted to the National Parks Board / Ukuvuka management. A mini-thesis on EIA's / Scoping Reports was done (2001) under the supervision of Dr Stephen Holness to determine whether or not the social and socio-economic aspects of the environment were being sufficiently considered in relation to the bio-physical issues. Dupré worked as a town planner at local authorities from 1986 – 1993 and in private practice from 1993 - 1999, which also gives him an excellent understanding of urban related development assessments and the potential impacts of development. Dupré

has worked on numerous related projects as environmental consultant since 2000. The preparation of environmental management plans for and management of the construction activities of the Khayelitsha Railway Line Extension, Sea View Village development in Big Bay, Mfuleni housing developments and upgrading of the Astral Foods abattoir at Joostenbergvlakte, are some of those that provide experience in this line of environmental practice.

2. ENVIRONMENTAL MANAGEMENT

2.1 Introduction

Appointed contractors, under the supervision of the client or project managers and the ECO, will undertake the construction project. A copy of the letter of authorisation from the DEA&DP and this EMP must be included in the contract documents during the tender process for the project and thereafter on the site. The provisions of this EMP are binding on the developer and the contractor for the duration of the construction period. The undertaking in Annexure B hereto must be signed by the applicant, each successor-in-title and contractor prior to handover of the site for construction and it shall be binding on both parties (applicant / phase owner / developer and contractor).

2.2 Environmental engineering design requirements

The works, during and after construction, must make special provision for erosion prevention. The engineer must prescribe methods and designs for water run-off systems that feed into the requisite water tanks and the storm water management infrastructure on the site. No surface drainage of run-off from any hardened surface shall be allowed as surface flow into the natural drainage system, due the risk of erosion and effect on the river systems. No surface drainage of water from any construction activity shall be allowed to run off the construction site. All water used on a construction site must be contained on the site and be allowed to filter into the soil in a position where no erosion risk occurs or it must be polished by the removal of all contaminants, e.g. litter, cement, silt, acid, fuel, oil and other substances that could cause harm to the aquatic environment.

2.3 Pre-operations environmental management planning

Prior to commencement of construction, the contractor must have temporary construction signs made in compliance with the South African Road Traffic Sign Manual, 2000, issued by the Department of Transport. These signs must be erected on and around all construction sites.

All slopes must be surveyed and slopes steeper than 1:4 must be demarcated by suitable signage on site. No development may occur on these slopes and they must

be designated as no development areas, either by zoning them as private or public open space, or by the imposition of building lines and other suitable statutory measures to the satisfaction of the George Municipality, to ensure compliance monitoring by the Municipality when considering building plan applications in terms of the National Building Regulations and Building Standards Act, Act 103 of 1977.

The applicant must establish a local labour registration office. This office must make provision for preferential employment and environmental training of staff, including contractors/service providers for the construction and operational phases of the development.

2.4 Approvals, permits and licensing requirements for operations

All engineering designs and plans must be submitted to the Municipality for approval prior to commencement of any construction activities. All building plans must be submitted to the Municipality for approval prior to commencement of any building construction. Construction activities must comply with the authorisation and the EMP.

2.5 Method statements

Method statements from all contractors will be required for specific sensitive actions on request of the authorities and/or the ECO. A method statement forms the base line information on which sensitive area work takes place and is a “live document” in that modifications are negotiated between the contractor and ECO, as circumstances unfold. All method statements will form part of the EMP documentation and are subject to all terms and conditions contained in the original EMP document. Contractors must submit the method statements to the ECO, who must ensure that they are workable and approved before particular construction activities commence. Work may not commence until the method statements have been approved by the ECO, or if it requires a departure from the authorisation / EMP, then also the authorities.

A method statement describes the scope of the intended work in a step-by-step manner for the ECO to understand the contractor’s intentions. This will enable interaction in devising mitigation measures, which would minimise environmental impact during these actions. For each instance where the contractor must submit a method statement, it should clearly indicate the following:

- What: a brief description of the work to be undertaken;
- How: a detailed description of the process of work, methods and materials;
- Where: a description / sketch of the locality / outcome of work (if applicable);
- When: the sequencing of actions with due commencement dates and completion date estimates; and
- What thereafter: how the work area will be rehabilitated and returned to its original state prior to the activity or the agreed state.

All work in “no-go” areas, e.g. laying of pipelines and the construction of the pedestrian walkway (which has to cross through designated open space and on 1:4 slopes) shall be subject to the prior submission and approval of method statements, as will all work outside of the site boundaries, e.g. at the sewerage pump stations and in the surrounding roads.

2.6 Site clearing and landscaping

No site clearing shall be undertaken on slopes steeper than 1:4. All construction activity, with the exclusion of the installation of services and the construction of road infrastructure related to the upgrading of external roads, shall occur only on the demarcated development area.

Only indigenous (Southern Cape plant species) vegetation may be used for rehabilitation / landscaping of the property and in residential gardens (see allowed plant list in Annexure J).

A horticultural team will conduct a search and rescue program of conservation worthy vegetation, supported by a qualified botanist. The vegetation on site has been severely disturbed and few conservation worthy species are prevalent. The main purpose of the search and rescue is to establish a suitable reserve of local material for replanting after construction activities.

2.7 Alien clearing

Clearing of alien vegetation shall be undertaken on a regular basis, to prevent the growth and spread of woody alien vegetation. All Category 1 and 2 alien vegetation species must be removed and controlled in an annual cycle, i.e. the undeveloped land must be cleared once a year by the owner of the land.

2.8 Storm water management

Site clearing shall incorporate erosion control measures to prevent sheet and surface flow from scouring topsoil and vegetation remains from the cleared surface. Retention of storm water on site must aim to remove pollutants from the water, amongst others by retaining run-off in ponds for at least 72 hours and preferably seven days.

The location and design of the storm water outlets and retention structures is planned by suitably experienced civil engineers, in consultation with the ECO, to ensure that there is no erosion or destruction of the natural remnants / conservation worthy vegetation.

A storm water management plan was prepared by the engineers after completion of the final layout plans for the development and submitted to the ECO. The ELC or ECO will comment on the plan and submit it to CN and the municipality for comment and then to the DEA&DP for approval as part of the EMP, prior to commencement of any activities.

The storm water management plan refers specifically to the reduction in the run-off and the maintenance in the run-off quality, including amongst others filter systems and rainwater harvesting techniques and measures.

2.9 Site management

Contractor's yard

A suitable contractor's yard must be identified by the contractor and its location must be approved by the ELC prior to its establishment. Contractors' yards may be established for each phase / erf development, i.e. it is not necessary to establish a single yard for the entire development.

The contractor's yard is intended for storage, administration and the location of facilities for the labourers and staff. Only security personnel may be accommodated in the contractor's yard, with a maximum occupation of two people.

Demarcation of sensitive slope and out of bounds / no-go areas

The no-go areas must be clearly and effectively demarcated (or fenced) prior to the commencement of any construction activities. Danger tape attached to a wire fence may be used for this purpose. All demarcation material, items and tape must be maintained for the duration of the construction phase. Signage must be placed on the no-go boundary demarcation, to clearly indicate that there shall be no access to the area.

The construction site must also be demarcated as such, to advise the general public not to enter it and of all construction activities that could cause harm.

Hygiene

All staff and labourers must be advised of the unacceptability of defecating and urinating in public and anywhere else than in a toilet or ablution facility. The staff and labourers must be made aware of the importance of waste management, with specific reference to placing of empty food containers and wrappers into refuse bins at clearly defined eating areas.

Toilets, at a ratio of one toilet per 12 people employed on the site (labourers and staff) must be erected for the full duration of construction activities. All employees must be advised to only use the site ablutions for "relief", to specifically prevent the

use of the surrounding bush as an informal toilet area. Sanitation provision and servicing of the ablutions must be to the satisfaction of the municipality. The contractor must ensure that toilets are emptied and cleaned weekly and before any builders' holiday and that the service provider uses approved sewerage disposal points for dumping of the waste. Temporary toilets shall be of a neat construction and shall be provided with doors and locks and shall be secured to prevent them blowing over.

Site instruction book and diary

The contractor must keep these records in the site office. The responsible parties will use the site instruction book entries for the recording of general site instructions. The site instruction book will also be used for the issuing of stop work orders for the purposes of immediately halting any particular activities of the contractor in view of the environmental risk that they may pose. The records must be available to the authorities for inspection or on request to a member of the public. Contractor's meeting minutes must reflect environmental queries, agreed actions and dates of eventual compliance. These minutes form part of the official environmental record and must be recorded in the site diary.

Fires and cooking facilities

The contractor must provide adequate facilities for all staff and labourers so that they need not supplement their comforts on site by accessing what can be taken from the natural surroundings. Fires are not permitted on site, unless in a specially constructed barbeque / braai and limited to a single fire place. Activities that may pose a fire risk must be identified and suitable preventative measures must be put in place to prevent any possible damage by fire. Contractors must inform the staff of the risk of fire and fire prevention and emergency procedures in the event of a fire. Fire fighting equipment shall be supplied by the contractor at suitable locations.

The contractor shall ensure that energy sources are available at all times for construction and supervision personnel for heating and cooking purposes.

2.10 Water use management

Water is supplied to the site as potable water by the Municipality. Water is a scarce resource and is supplied at high cost, therefore it must be used sparingly. All water use must be metered and no connections to a public supply, e.g. fire hydrants and other un-metered lines are permitted. All connections must be fitted with easily accessible stop-cocks.

The water use restrictions imposed by the Municipality, e.g. restriction on the washing of vehicles, must be strictly adhered to.

2.11 Materials handling and storage

Hazardous Material Storage

Petrochemicals, oils and identified hazardous substances shall only be permitted on site if stored under controlled conditions. All hazardous materials shall be stored in a secured, appointed area that is fully enclosed and has restricted entry. Storage of these products shall only take place using suitable containers to the approval of the ECO.

Hazard signs indicating the nature of the stored materials shall be displayed on the storage facilities. Before use of the storage facilities, the contractor shall furnish the ECO with details of the preventative measures proposed to mitigate against pollution of the surrounding environment from leaks or spillages. The proposals shall also indicate the emergency procedures in the event of misuse or spillage that could negatively affect an individual or the environment.

Hazardous and Pollutant Waste

Hazardous waste such as cement, fuel, oils, paint, turpentine, etc. shall be temporarily disposed of on site in leak free waste bins or skips from where it may only be disposed of in an approved and legally permitted landfill site. Special care must be taken to avoid spillage of the waste products from contaminating the soil or water.

Under no circumstances shall the spoiling of hazardous waste on the site, by burying or dilution and washing into the soil or sewerage / storm water system, be allowed. Accidental spillage of hazardous waste on site must be reported to the ECO and the George Emergency Services immediately and the situation remedied to the satisfaction of the ECO and the Municipality. In the event of spillage, the contractor shall be liable for professional service providers to clear the affected area.

No batch plant or cement and concrete mixing shall be permitted on the soil. All mixing shall occur on mixing boards on high density plastic sheeting or in mixing troughs, in order to prevent the infiltration of contaminated water into the soil and a build-up of concrete in the soil.

Safety

All the essential handling and safety equipment required for the safe use of hazardous materials, such as fibrous materials, petrochemicals and oils shall be provided by the contractor to, and used or worn by, the staff who use or remove the materials.

2.12 Fire control and emergency procedures

No open fires and burning of any waste or any other material on site or in the vicinity of the site will be permitted. The municipal emergency services must be notified of any fire that could threaten any adjacent sites or buildings. The contractor must have an emergency response plan available on site and all staff and labourers should be aware of the emergency reaction required for each event.

2.13 Solid waste management

Solid Waste

Waste should be categorised by the contractor and disposed of in a suitable manner into different waste streams (including general and hazardous waste). Wherever possible, recycling should be carried out at sources, i.e. plastic wrapping of brick pallets should be separated from pallets and respectively disposed of to a recycling agency and the supplier for re-use. No dumping (illegal disposal) is permitted and all waste (unusable material that cannot be recycled or re-used) must be disposed of with proof of disposal.

Solid waste (including building rubble) shall be temporarily stored in an appointed area in tip proof skips or bins for weekly collection / removal and disposal.

Disposal of solid waste shall be at a licensed landfill site or at a site approved by the DWA in the event that a licensed operating landfill site is not within reasonable distance from the site. No waste shall be disposed of in any other manner. Only recycled material (glass, metal and plastic) may be removed from site to another place other than a landfill.

Litter

No littering by construction workers shall be allowed. During the construction period, the site and the surrounding area shall be maintained in a neat and tidy condition and it shall be kept free of litter. Measures shall be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all waste and household refuse. The contractor shall provide and ensure the correct use of litter bins, containers and refuse collection facilities for disposal through the George Municipal system.

2.14 Dust management

Dust control and the control of windblown sand, whether caused by construction or the general degradation of the environment due to increased traffic and activity in the area must be dealt with as similar.

Appropriate measures must be taken to minimise the generation of dust as a result of construction work. Immediate coverage with shade cloth or straw stabilisation of

sections of the site where windblown sand and dust originate must occur. Vertical shade cloth perimeter screens must be erected around every part of the construction site where there is activity, in order to prevent the distribution of windblown dust to neighbouring properties.

Paved roads must be cleaned at least once a week to remove clay and soil deposited thereon from vehicles moving off site, to prevent sediment run-off and dust.

2.15 Wastewater and storm water management

Waste Water

The contractor shall ensure that wastewater generated during construction activities feeds to a suitably lined containment area that does not allow soil contamination, prior to disposal thereof. This area should be allowed to dry out regularly for solid material removal. The latter shall be disposed of in the manner set out above.

No wastewater from construction activities shall be allowed to enter the storm or wastewater system.

Storm water

The flow direction of surface water runoff must be established prior to commencement of construction activities (as set out in Annexure K). It must be incorporated into the planning of the construction activities to minimise erosion and natural water source pollution through the washing of contaminants off site. The rivers and the slopes above them must be protected from erosion, direct or indirect pollution by silt, refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and any other potentially hazardous substances.

Any spillage or contamination of the rivers must also be reported to the DWA within the shortest possible time, in order to speed up any remediation actions.

2.16 Noise management

As construction activity causes noise that is difficult to curb, there should be activity only during regular working hours and not on any religious holidays or during religious events.

2.17 Environmental awareness training for employees and contract workers

Awareness training should address, but not be limited to, the demarcation of the site, the erection of the camp site for construction teams, establishment of working and

storage areas, training of staff and labourers in emergency responses, protection of flora, fauna, natural features and any archaeological material of significance that may be discovered, cultural issues (e.g. religious activities), landscaping and re-vegetation of indigenous plants and trees, refuse and waste management, dust and noise control, effluent and storm water management, hazardous material use and handling, fire prevention measures, hygiene, pollution control measures, monitoring and reporting, penalties and the system of claims and damages.

The awareness program must include hygiene, maintenance of the integrity of the environment, waste management and water saving. It should specifically address the demarcation of no-go areas and the protection of natural vegetation, the routing of construction vehicles and the handling and removal of all waste.

The contractor and the ESM will be responsible for ensuring that the environmental training or education course and the requirements in the EMP are presented to the staff and labourers. The contractor will be responsible for training of sub-contractors and their staff and labourers, either by arranging with the ESM to undertake such training whenever new sub-contractors come on site or by presenting the course and confirming such actions with the ECO. During construction, if new labourers arrive on the site, the contractor shall be responsible for ensuring that they are aware of the environmental specifications.

2.18 Use of local labour

Preferential employment and labour management requirements are addressed in Annexure L. The main contractor must comply with and report on the following:

- Disclosure of the local employment opportunities that will be created by the main contractor.
- Management opportunities for local employment within the main contractor's framework.
- Training – Disclosure of the training program where non-artisans can have the benefit.
- Job creation opportunities in the selection of the selected sub-contractors.
- Possible association / partnership by local contractors with main contractor and sub-contractors.
- The establishment of a local labour registration office, the monitoring and possible employment of labourers from this office.
- Disclosure on the percentage of local labourers employed and the goal that the Main contractor wants to reach, concerning the percentage of local labourers to be employed. This must be monitored on a monthly basis.

All local sub-contractors must be registered as part of the main contractor's local labour registration office. The main contractor must advertise this condition, so that a list with all local sub-contractors can then be drawn up as a data base. As a part of the tender documentation, all sub-contractors will be required to provide the following:

- Disclosure of the local employment opportunities that will be created by the sub-contractor.
- Management opportunities for local employment within the sub- contractor's framework.
- Training – Disclosure of the training program where non-artisans can have the benefit.
- Possible association / partnership by local contractors with sub- contractors.
- Disclosure on the percentage of local labourers employed and the goal that the Sub-contractor want to reach, concerning the percentage of local labourers to be employed. This must be monitored on a monthly basis in conjunction with the Main contractor.

2.19 Temporary site closure

If a construction site is closed for a period exceeding one week, a checklist procedure shall be carried out by the contractor in consultation with the ESM. The contractor's safety officer (appointed in terms of the Occupational Health and Safety Act, 1993, Act 85 of 1993), must also check the site and report jointly with the ESM to the ECO on the following:

- Fuels / flammables / hazardous materials stores.
- Ensure fuel stores as low in volume as possible.
- Leaks and spills.
- Outlets secure / locked.
- Bunds empty.
- Fire extinguishers serviced and accessible.
- Secure storage areas from accidental damage e.g. vehicle collision.
- Emergency and contact numbers displayed visibly.
- Adequate ventilation to all storage areas.
- Safety officer check prior to closure of site.
- All trenches and manholes secured.
- Fencing and barriers in place.
- Notice boards and signs visible and secured.
- Emergency and management procedures displayed visibly.
- Security officers briefed.
- Fire hazards identified – Emergency Services and security officers notified of any potential threats, e.g. large brush stockpiles and fuel storage.
- Pipe stockpiles wedged and secured.
- Scaffolds secure.
- Inspection schedule and log available to security or contracts staff.
- Cranes and construction equipment secure.

The ESM must check and report to the ECO on the following:

- Wind and dust mitigation in place, e.g. straw, brush packs, dust netting.
- Slopes and stockpiles at stable angle.
- Re-vegetated areas watered, watering schedules and supply secured.
- Detention ponds or channels in place and maintained.

- Water contamination and pollution prevention measures in place and operational.
- Fuels and hazardous stores secured.
- Cement and materials stores secured.
- Toilets empty and secured.
- Refuse bins empty and secured (lids).
- Bunds emptied, clean and treated.
- Drip trays empty and secure.
- Structures vulnerable to high winds secure.

The Contractor is to ensure that all temporary closure requirements are met before closing the site.

2.20 Project specific measures

Roads

A full survey of existing infrastructure shall be undertaken to record the condition thereof prior to commencement of construction. Road construction, other than in the larger development area, shall occur only with the prior approval of the George Municipality and/or the roads authority, and subject to conditions imposed when granting such approval.

Sewage

Provision must be made for alternative waste water conveyance when construction occurs for upgrading of the sewage pump stations. Suitable bunding must be established around the pump station construction sites to prevent accidental spillage from occurring if sewage flows exceed the provided temporary capacity.

3. OPERATIONAL ACTIVITIES

3.1 Open space management

The open space network forms an integral part of the larger open space system of the municipality and links the river corridors with internal open spaces. The purpose of the open space is twofold, namely to reduce the visual impact of the development and to prevent degradation of the natural remnants and river corridors.

Only low impact recreational uses, such as hiking and bird watching, will be allowed in the river corridors. The corridors must be maintained as natural systems, including planned burns in consultation with CN and the ELC.

Construction buffers / setbacks of at least 40m must be maintained along natural open space / corridors, to provide protection from fires and reduce the impact of development on the open space.

3.2 Visual impact management

The applicant commissioned an Architectural and Landscape Guidelines for the entire development (Annexure L). The ELC will also be in a position to monitor building construction activities after completion of initial construction activities. As part of the EMP, it is enforceable and applicable to all development activities.

Amongst others, the guidelines make recommendations on the use of lighting and the setting of buildings on the various sites.

Landscaping must be done with drought resistant indigenous vegetation and with the specific intent of maintaining the vegetation character of the area.

3.3 Transport interchange

The applicant must provide a transport interchange in Park Drive, in proximity of the high traffic generators. Such interchange causes conflicting traffic and pedestrian movements, generally leads to the establishment of hawker and informal business sites and consequential negative environmental effects.

Suitable pedestrian walkways, waiting areas and cover for wet weather must be provided and maintained by the applicant. Suitable signage must be erected to promote safe pedestrian movement and indicate permitted uses and activities around the interchange.

Street furniture around the interchange must incorporate large volume waste disposal bins and containers. The applicant must employ a maintenance team to clean the interchange area daily, to avoid litter and unhygienic conditions.

3.4 Storm water management

The quality of the storm water runoff must be monitored. Grids over in and outlets and retention structures must be regularly maintained, to remove litter, plant material and refuse. Blockages and overflows must be avoided. Pollution of the surface water resources will be reduced by the regular maintenance of the storm water facilities.

4. MONITORING

4.1 Monitoring programme

The monitoring is essential and should comprise three main aspects:

4.1.1 **Baseline measuring:**

Prior to the start of the project / activity, the site situation and status of the environmental parameters (prior to any impacts associated with the project or activity) must be recorded by the ECO. Recording should include a full photographic record that complies with the following:

- o Be fully referenced, e.g. date, time and place of each photo;
- o Include all access roads to the site for pavement damage record;
- o Include all adjoining buildings for dust and damage record;
- o Include record of slope situation;
- o Be completed before site handover to the contractor;
- o Signed by the contractor as reference record prior to commencement of construction; and
- o Should be secured in print and digitally.

4.1.2 **Impact (or performance) monitoring:**

This monitoring should occur periodically and at regular intervals during the construction phase and must be implemented to ensure that environmental impacts are within the predicted levels and that specified environmental performance targets are being achieved. Monitoring should include a written record that complies with the following:

- o Be available to all role-players upon request;
- o Be in written and digital format;
- o Be fully referenced with places, dates and names; and
- o Include a photographic record of events.

4.1.3 **Compliance monitoring:**

This monitoring must ensure that the prescribed mitigation measures are having the predicted and desired effect. The compliance monitoring must be conducted regularly and in keeping with a predetermined checklist that lists all the impacts and mitigation measures contained in this EMP. A copy of each checklist must be filed on site with the contractor. Where any departure from the EMP, the environmental authorisation or any statutory obligation occurs or where any damage occurs, a written instruction on remedial action must be issued to the contractor and it must be filed with the client as well.

4.2 **Penalty system**

Any failure to comply with the EMP will lead to fines being imposed on the responsible party.

The ECO will recommend for the imposition of fines and penalties for non-compliance with the EMP and the applicant will have the right to deduct fines from any amounts due to contractor or other responsible party on a regular basis, for failure to comply with the terms and conditions of the EMP. The applicant, on being notified of the

imposition of the fine or penalty, shall take into account inter alia, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance / non-compliance, the extent of the contractor's overall compliance with environmental protection requirements and, in particular, the extent to which it is considered necessary to impose a sanction in order to eliminate / reduce future occurrences. All deducted fines shall be used solely for rehabilitation of the environment on completion of the construction activity and the use of the funds shall be open to audit and public scrutiny. The detail of the fines and specific infringements are set out in the Annexure hereto.

All fines are to be paid into the bank account established for this purpose by the POA, under the auspices of the ELC. Fines and monies generated by investment of the fines shall be used solely for the implementation of the EMP.

4.3 Cost estimates

Cost estimates will only be available on conclusion of tenders for the development of the individual phases / precincts.

ANNEXURE A: ENVIRONMENTAL AUTHORISATION

ANNEXURE B: PRO FORMA CONTRACTOR AGREEMENT

Client / Applicant:

Contract No: Contract Title:

AGREEMENT RELATING TO THE PROTECTION OF THE ENVIRONMENT AND COMPLIANCE WITH THE CONSTRUCTION PHASE ENVIRONMENTAL MANAGEMENT PLAN

The Contractor will not be given right of access to the Site until this form has been signed

I / we, {Contractor} record as follows:

1. I / we, the undersigned, do hereby declare that I / we am / are aware of the increasing requirement by society that construction activities shall be carried out with due regard to its impact on the environment.
2. In view of this requirement of society and a corresponding requirement by the Employer (client / applicant) with regard to this Contract, I / we will, in addition to complying with the letter of the terms of the Contract dealing with protection of the environment, also take into consideration the spirit of such requirements and will, in selecting appropriate employees, plant, materials and methods of construction, in-so-far as I / we have the choice, include in the analysis not only the technical and economic (both financial and with regard to time) aspects but also the impact on the environment of the options. In this regard, I / we recognise and accept the need to abide by the "precautionary principle" which aims to ensure the protection of the environment by the adoption of the most environmentally sensitive construction approach in the face of uncertainty with regard to the environmental implications of construction.
3. I / we have signed the Declaration of Understanding with respect to the Construction Phase Environmental Management Plan.
4. I / we acknowledge and accept the right of the Employer to deduct, should he so wish, from any amounts due to me / us, such amounts (hereinafter referred to as fines) as the ECO shall certify as being warranted in view of my / our failure to comply with the terms of the Contract dealing with protection of the environment, subject to the following:
5. The ECO and / or Employer, in determining the amount of such fine, shall take into account inter alia, the nature of the offence, the seriousness of its impact on the environment, the degree of prior compliance / non-compliance, the extent of the Contractor's overall compliance with environmental protection requirements and, in particular, the extent to which he considers it necessary to impose a sanction in order to eliminate / reduce future occurrences.
6. The ECO shall, with respect to any fine imposed, provide me / us with a written statement giving details of the offence, the facts on which the ECO has based his assessment and the terms of the Contract (by reference to the specific clause) which has been contravened.

Signed Date

ANNEXURE C: DECLARATION OF UNDERSTANDING

I, representing

....., hereby
declare that I have read and understood the contents of the Construction Phase
Environmental Management Plan (read together with the Project Specifications) for the

Contract relating to
the construction activities set out herein above. I also declare that I understand my
responsibilities in terms of enforcing and implementing the environmental specifications
for the aforementioned Contract.

Signed:

Place:

Date:

ANNEXURE D: MAXIMUM FINES AND PENALTIES FOR INFRINGEMENTS

The minimum fine for any infringement is R1 500,00. The maximum fine shall be imposed for any re-occurrence of an infringement. Fines may also be imposed for aspects contained in the EMP but not listed here at the general rate of R1 500,00 for the first occurrence and up to three times the amount (R4 500,00) for repeat infringements.

Construction camp/materials storage area Camp and storage location area not approved by ECO. Non-security personnel housed on site. No water and washing facilities provided for staff. Untidiness and litter at camp and storage area.	R2 500,00
Toilet facilities Chemicals and / or waste spilled on ground. Spills not cleared up immediately. Use of other areas for toilet purposes and / or disposal of chemicals / waste. Too few toilets. Toilets dirty and unhygienic.	R1 500,00
Materials use, handling, storage and transport Fuel storage: Unclean and filled fuel tanks and containers stored within undesignated storage area. No bunds and containment liners in bund - in conflict with EMP (on soil, no containment, no MSDS). Hazardous materials: No emergency procedure to deal with accidents and incidents in place and incidents not reported. No register of spills or incidents of hazardous materials. Use of cement / concrete: Concrete mixed directly on ground and not on mortar boards and outside of contractor's yard. Concrete remains not removed immediately and disposed of as waste.	R3 500,00
Demarcation of the site Access routes not demarcated and construction signage not erected. No demarcation of sensitive 'no-go' areas. Clearing activities or construction work prior to demarcation of 'no-go' areas. Areas outside demarcated working areas cleared, damaged or levelled.	R1 500,00
Method statements Late or non-submission of method statement.	R1 500,00
Earthworks Removal and stockpiling of soil in an unspecified manner. Stockpiles not located and aligned so as to minimise impacts or soil removed from site. Any other materials spoiled or stockpiled without the written permission of the ECO. Slopes disturbed during construction phase and not stabilised.	R5 000,00
Protection of environment Unapproved vegetation removal, damage or tampering. Animals or birds caught or killed. Natural features defaced or damaged.	R2 500,00
Refuse and waste management	R5 500,00

No on-site implementation of waste management system.
 Waste not collected and contained immediately.
 Burning, burying or disposing of waste other than as prescribed.
 Waste not disposed of at an approved landfill / lack of disposal records and proof.

Water consumption **R1 500,00**

Water drawn from unauthorised source.
 Water wastage.
 No metering.

Dust and noise control **R1 500,00**

Non-compliance with EMP or National Building Regulations regarding noise.
 No dust control netting / cloth or fences.

Effluent and storm water management **R2 500,00**

Effluent and storm water deposited into veld or river.
 No precautions to prevent pollution of ground and water resources.
 Mechanical equipment dirty and leaking.
 Servicing and refuelling of vehicles and equipment not in contractor's yard or over drip trays on site.
 No drip trays or drip trays not regularly emptied.
 Oil, petrol and diesel soaked sand not immediately disposed of as hazardous waste to a registered hazardous waste disposal site.
 Contaminated water not collected in a conservancy tank or removed from site in appropriate manner.
 Washing of trucks delivering concrete / concrete chutes on-site or elsewhere along routes.

Emergency Procedures **R2 000,00**

General: No emergency procedures set up prior to commencing work.
 ECO not advised of any emergencies on site and no record of action taken.
 Fire: Open fires permitted on site and necessary precautions not taken to ensure that fires are not started as a result of site activities.
 Inadequate fire-fighting equipment on site.
 Safety: Un-roadworthy construction vehicles used on public roads.
 Construction vehicles not adhering to speed limits.
 Construction vehicles' loads not secured and national regulations not adhered to.
 Uncovered material in vehicles during transportation.
 Security: Security personnel not supplied with protective clothing, office / guard house, ablution, water and refuse collection.
 No facilities for cooking and heating supplied for security personnel.

Rehabilitation of the site and contractor's camp **R15 000,00**

Construction equipment and excess aggregate left on site after work completed.
 Roads and tracks damaged and not rehabilitated.

Signage **R1 500,00**

No suitable signage erected for staff.
 No public information boards erected.

Environmental awareness training **R1 500,00**

No initial environmental awareness training session held for new personnel.

ANNEXURE E: PROJECT START-UP CHECKLIST

ENVIRONMENTAL ASPECT	YES/NO (✓ or X)	COMMENTS AND RECOMMENDATIONS
▪ Environmental method statements submitted and approved.		
▪ Copy of the EMP is on site and declarations signed.		
▪ Environmental awareness training has been given to everyone and the attendance register complete.		
▪ Telephone numbers of emergency services / emergency plan available.		
▪ List of hazardous materials on site, with storage, handling and disposal procedures and relevant MSDS sheets.		
▪ Location and type of fencing erected for no-go area.		
▪ Solid waste management system has been established.		
▪ Wastewater management system has been established.		
▪ Location of construction camp and working area infrastructure complies with specifications.		
▪ Fire-fighting equipment is on site and in good working order.		
▪ Baseline monitoring completed.		
▪ Site administration system set up (diaries).		
▪ Signage in place on and off site.		
▪ Legally correct water and services connections established.		
▪ Authorities approved all construction activities.		

Completed by: Sign: Date:

ANNEXURE F: WEEKLY CHECKLIST

ENVIRONMENTAL ASPECT	YES/NO (✓ or X)	COMMENTS AND RECOMMENDATIONS
Contractor's camp neat and tidy, labourers' facilities acceptable.		
Waste control and removal system is being maintained.		
Fire-fighting equipment maintained.		
Wastewater control system is being maintained.		
Boundary and other fences are being maintained.		
Water use management.		
All equipment in good working order and no leakages are visible.		
Site instruction book and diary.		
No-go areas and natural features undisturbed.		
Dust control measures in place and effective.		
Noise control measures are working effectively.		
Erosion control measures in place and are effective.		
Site clearing and landscaping as per plan.		
Hygiene of facilities and toilets.		
Fires and cooking facilities adhere to EMP.		
Hazardous material storage compliant and no contamination.		
Signage maintained.		
Instructions, transgression and penalties recorded in site diary.		

Completed by: Sign: Date:

ANNEXURE G: PRO FORMA METHOD STATEMENT FOR USE BY CONTRACTORS

CONTRACT:..... DATE:.....

PROPOSED ACTIVITY (give title of method statement and reference number from the EMP):

--

WHAT WORK IS TO BE UNDERTAKEN (give a brief description of the works):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

--

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:

End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

--

Note: please attach extra pages if more space is required

Responsible person:

ANNEXURE H: ELC TERMS OF REFERENCE AND CONSTITUTION

Preamble

The Environmental Liaison Committee has been established as a condition of the environmental authorisation development on Portion 22 of Farm Kraaibosch No. 195, and Erf 23333, George, by the Department of Environmental Affairs and Development Planning (Ref. EG12/2/3/2/D2/11-1192/08).

Name

The name of the organisation is the Garden Route East Environmental Liaison Committee.

Role of the ELC

The primary functions of the ELC are:

- o To play an advisory role in environmental management of the area during the entire construction and operational phases.
- o To oversee the implementation of the EMP.
- o To review and approve proposed changes to the EMP prior to such changes being presented to the authorities.
- o To review and recommend penalties for transgressions of the EMP and recommend on the allocation and use of the funds.
- o To ensure that the all parties comply with the conditions of authorisation and the EMP.

The ELC may at any time request an ESM to attend meetings to give feedback and be advised on ELC actions.

The ELC may order any contractor or person involved with the project to temporarily cease any activity by which the environment is or may be seriously damaged, endangered or detrimentally affected, and ensure that the necessary action is taken within a specified period, to eliminate, reduce or prevent the damage or detrimental effect.

Structure and Operation

Representatives from the following organisation may or shall serve on the ELC, together with any other key role-players or affected parties, as they may be identified by the ELC or any member:

- o Representatives of authorities (voluntary);
- o Applicant (essential);
- o POA (optional);
- o Project Manager (essential);
- o Engineers (essential);
- o ECO (essential); and
- o Specialist consultants who participated in the EIA process (essential upon appointment).

The ELC shall elect a chairperson at the first meeting and as often as the office of chairperson becomes vacant. If the chairperson of the ELC is not present at a meeting, the members of the ELC shall elect a member to act as chairperson for that meeting.

The ECO shall act as the secretary of the ELC. If the ECO is not present at any meeting, the members of the ELC shall elect a member to act as secretary for that meeting. The secretary shall keep the minutes of every meeting. Minutes are to be circulated to all members of the ELC within five days of a meeting. Minutes from the previous meeting are to be confirmed as correct at the start of each meeting.

The ELC shall hold such meetings as it is necessary and postponed a meeting from time to time, provided that it shall meet at least once every three months. The ELC shall decide the date, place and hour of the next meeting of the ELC at each meeting, failing which the chairman shall so decide. The secretary shall notify all members of the place, date and time of meetings, at least 10 days before a meeting and with a full agenda.

A quorum shall consist of any two members of the ELC together with the ECO. If a quorum is not present and there are specific recommendations to be made to the authorities, then the meeting shall proceed and minutes will be distributed to members who will have an opportunity of two weeks to comment on the recommendations prior to them being submitted to and considered by the authorities.

All decisions shall be taken by consensus.

Termination of the ELC

Any member of the ELC who desires to resign from the ELC shall lodge their resignation in writing to the ECO. Simultaneously, the resigning member must indicate who else will represent the constituent organisation in the ELC.

The powers and functions of the ELC will be taken over by the POA upon termination of the ELC as a body, i.e. after completion of all building construction activities or when the ELC so decides. The POA is a legal entity responsible for the management and maintenance of common property such as buildings, services and amenities arising from the development as well as to ensure compliance with the OEMP, Architectural and/or Landscaping Guidelines.

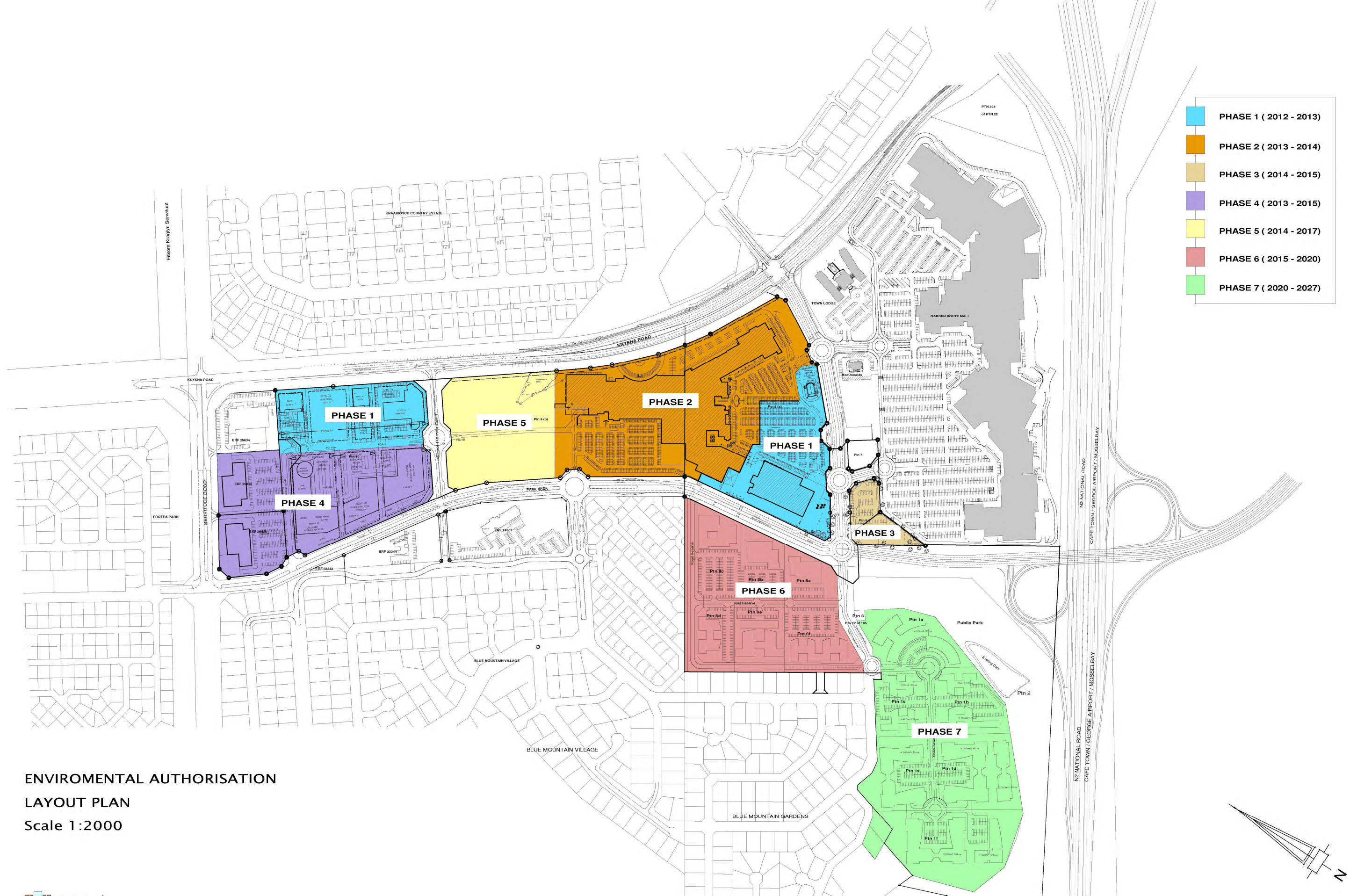
The POA shall monitor and enforce compliance with the EMP and the authorisation by the individual owners instead of the ELC when it is terminated.

Amendments to Constitution

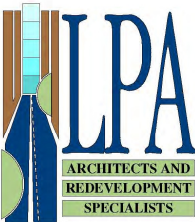
All members of the ELC are to be notified of any proposed changes to the constitution. An amendment to the constitution must be supported by a two-thirds majority of those present at the ELC meeting following notification of the proposal.

The authorities are to be specifically notified of any changes proposed to the constitution.

ANNEXURE I: FINAL LAYOUT PLAN

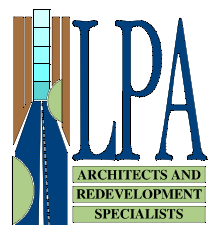
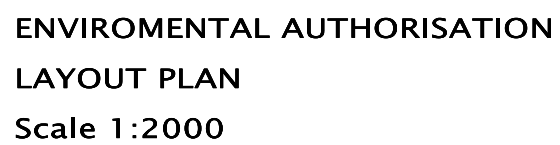


ENVIROMENTAL AUTHORISATION
 LAYOUT PLAN
 Scale 1:2000



Eden Meander

LIFESTYLE CENTRE



Eden Meander

LIFESTYLE CENTRE