- Production of an Area Restriction Method Statement which includes the access road

Targets

- Approved Area Restriction Method Statement.

- Controlled access to the site for the contractors, work crews, sub-contractors

- Prohibited access to the public, with adequate sign posting (for safety reasons)

2.1.1.3 Biodiversity and Ecological Processes

Objective

To minimise damage to the surrounding environment.

Aspects

Areas to be excavated, construction vehicles, management of runoff and/or spills, rehabilitation.

Procedure

- If any protected or threatened floral species are to be removed for construction, the necessary permits must first be obtained

- All disturbed areas should be rehabilitated to control erosion and minimise dust.

- Where necessary, suitable erosion control measures must be used until rehabilitation is successful.

- Special care must be taken to avoid contaminated runoff dispersing into the surrounding environment.

Targets

- Approved vehicles operation and access statement.
- Approved rehabilitation plan
- Approved runoff management plan

2.1.1.4 Cultural Historic, and Archaeological

Objective

To limit damage to possible cultural historic and archaeological artefacts and sites, features and objects.

Aspects

Clearing of sites, excavation, rehabilitation and related activities.

Procedure

- The Resident Engineer or his representative must ensure that all staff is trained to recognise potential cultural historic, and archaeological artefacts and sites. The Resident Engineer or his representative must also ensure that a system is in place to halt the specific activity if such a site is identified. The Resident Engineer or his representative may consider offering a reward to personnel who identify such sites.
- If any such sites are identified construction activities in the vicinity must be halted and the find brought to the immediate attention of the Resident Engineer or his representative who will report it to the National Heritage Council.

- The Resident Engineer or his representative must then arrange for the appointment of a qualified historian or archaeologist to examine the site and recommend further action.

- Following consultation with the historian or archaeologist, the Resident Engineer or his representative will be responsible for approving the resumption of normal activities.

- A Cultural Historic and Archaeological Method Statement incorporating the above procedures and the site clearance plan, including timing, physical boundaries, the maximum depth of excavations and programming of these excavations, must be submitted by the appropriate contractor(s) to the Resident Engineer or his representative for approval.

Targets

- Approved Archaeological and Historical Method Statement.

- No cultural historic, or archaeological artefacts or sites may be purposefully damaged or destroyed (it is illegal to disturb fossils or other historic and or cultural sites and objects without the prior consent of the National Heritage Council.)

2.1.1.5 Air Quality

Objective

To minimise nuisance and potential health problems associated with dust and emissions from construction vehicles and equipment.

Aspects

Vehicle movement, operations of equipment, stockpiling of materials, and site clearing.

Procedure

- Staff should be trained to report dust-generating activities as soon as they detect them.

- Dust can be suppressed by a combination of:

    - Regularly - at least daily during the dry and windy conditions - spraying exposed areas with water, at a frequency to be determined by the Resident Engineer or his representative.
    - Compacting exposed areas
    - Using environmentally acceptable chemical and other suppression methods where appropriate
    - Covering long-term stockpiles or temporarily re-vegetating them
    - Halting dust generating activities when wind speed exceeds 35 km/h
    - Imposing a 15 - 20 km/h speed limit on access roads
    - Re-vegetating exposed areas during the operating and decommissioning phases.

- Any complaints about dust recorded in the complaints register must be immediately investigated by the Resident Engineer or his representative and addressed.

- The Resident Engineer or his representative (advised by the Site Environmental Control Officer) must implement a more rigorous dust-monitoring programme if there are persistent complaints about dust in the area.

- No waste, vegetation or any other material shall be burnt in compliance with smoke control regulations issued in accordance with the Atmospheric Pollution Prevention Act (Act 45 of 1965) and the Air Quality Act (Act 39 of 2004).

- Construction equipment must be continuously monitored/maintained to prevent emissions.

Targets

- Approved Air Quality Method Statements.

- Dust visibly generated by construction activities may not exceed a deposition level of 0.5 g/m^2/day. (Department of Health denotes this level as heavy fallout of nuisance dust).

- Excessive dust generation as determined visually by the Resident Engineer or his representative is not permitted.

- Comply with conditions and standards set in relevant legislation (Air Quality Act No 39 of 2004) and the Municipal By-Laws

2.1.1.6 Noise and Vibration

Objective

To avoid disturbing residents, employees, and fauna, with particular reference to construction and decommissioning activities on the site.

Aspects

Operation of construction equipment, assorted maintenance and vehicles.

Procedure

- Where possible the contractors must use equipment which limits noise generation.

- Any complaints pertaining to noise and vibrations as recorded in the complaint register must be immediately investigated by the Resident Engineer or his representative and addressed. SABS 0103 - 1983 Code of Practice indicates that an increase of ambient noise levels by 5 dB (A) will induce "sporadic complaint" from the community.

- The Resident Engineer or his representative may decide to restrict noisy activities to normal working hours i.e. Monday - Friday 7am -5pm; Saturday 7am -1pm. It is preferable that no construction takes place on weekends, public holidays or peak holiday periods (e.g. Easter and Christmas)

- Noisy vehicles, especially those travelling near residential areas, must be fitted with appropriate silencers and the drivers must be trained to drive in a manner that limits noise disturbance.

- Attempts must be made to schedule noisy activities so that they occur simultaneously and over as short a period as possible.

- Vibration inducing activities must also be simultaneously scheduled wherever possible.

- A formal noise monitoring programme must be implemented by the Resident Engineer or his representative if there are persistent complaints.

- A Noise and Vibration Method Statement must be submitted by the appropriate contractors (s) to the Resident Engineer or his representative for approval.

Targets

- Approved Noise and Vibration Method Statement.

- In terms of Section 25 of the Environment Conservation Act 73 of 1989, ambient noise levels in surrounding residential and commercial areas may not increase by more than 7 dB (A).

- The Occupational Health and Safety Act 85 of 1993 stipulates that noise levels in excess of 85 dB (A) at 1 metre from equipment are not permitted.

- Excessive noise as determined subjectively by the Resident Engineer or his representative.

2.1.1.7 Water Consumption

Objective

To minimise the consumption of water

Aspects

Equipment servicing areas, domestic water use, water required for construction and related activities.

Procedure

- Opportunities to reduce consumption of or re-use water must be adopted wherever possible.

- Methods must be employed to ensure that water is not wasted. Environmental awareness training must ensure that staff is aware of the need to conserve water and to minimise the pollution of water.

- A Water Consumption Method Statement must be submitted by the appropriate contractor(s) to the Resident Engineer or his representative for approval.

Targets

- Approved Water Consumption Method Statement

- The Resident Engineer or his representative to set a realistic water consumption quota.

2.1.1.8 Water Quality

Objective:

To minimise the potential contamination of ground and surface water

Aspects

Poorly maintained equipment and vehicles, material loading zones, vehicle parking areas, and contaminated run-off during construction.

Procedure

- The Resident Engineer or his representative shall ensure that all precautions are taken to ensure that no surface or ground water becomes polluted. Any deliberate or unplanned pollution of water is an offence in terms of the National Water Act (Act 36 of 1998)

- Generators and fuel supply needed for equipment during the construction phase must be placed on trays, which rest on clean river sand. This is to prevent any oil or fuel spills. The river sand (clean or contaminated) must be removed from the site once construction has been completed. All contaminated material must be disposed of at a registered waste disposal facility

- No vehicle must be re-fuelled, serviced or repaired on the construction site, except in designated areas.

- No cement or concrete should be mixed on the soil surface or within drainage lines. Cement mixers must be placed on large trays to prevent accidental spills onto the soil surface. Where cement or concrete is mixed on the soil, contaminated soils should be removed and disposed of at a registered waste disposal site

- Care should be taken at all times to ensure that dirty water does not enter into any drainage line or adjacent surface water feature.

- Temporary storm-water runoff basins and drainage ditches may have to be constructed in order to capture storm-water.

- Sediment transport of storm-water must be minimised e.g. by using silt traps, geo-textiles, diversionary berms, soil stabilisation and temporary settling ponds.

- Establish, if necessary, sediment filter fences made of straw bales, geotextile filter fabric, gravel or sandbags around stockpiled soil and in sloping areas to capture silt laden runoff;

- Ensure sediment filter fences are maintained until work has finished in that area. Rubbish and other extraneous matter should be removed from fences as it decreases the ability of structures to filter water and trap sediment;

- Details of storage of all chemicals must be submitted to the Resident Engineer or his representative for approval.

- Contaminated soil (e.g. in vehicle parking areas, under generators) must be removed to an appropriate permitted solid waste disposal facility.

- Environmental awareness training must ensure that staff is aware of the need to prevent water pollution.

- A Water Quality Method Statement must be submitted by the appropriate contractor(s) to the Resident Engineer or his representative for approval.

- Should a polluting incident occur, the Resident Engineer or his representative shall immediately contact the regional office of the Department of Water Affairs (requirement of National Water Act) and the Department of Environmental Affairs. Cleanup shall take place in consultation with the Department.

Targets

- Approved Water Management Method Statement.
- No contamination of surface or groundwater.

2.1.1.9 Waste Management

Objective

To limit the potential for groundwater and surface water pollution as well as the visible and malodorous accumulation of waste materials. To prevent littering and associated environmental impacts.

Aspects

General construction and decommissioning activities

Procedure

- A system for identifying, classifying and disposing of solid waste must be devised. Before construction begins, it is important to establish who will be responsible for identifying any local and or provincial requirements (e.g., recycling standards and proper disposal of solid wastes) and who will be responsible for complying with these requirements.
- Waste should be classified as domestic (including litter), hazardous, toxic or recyclable.
- Waste materials must be sorted and sent for recycling, where the quantity allows this and if the facilities are available. Certain waste materials are valuable and could be sold to (local) entrepreneurs for further use.
- No littering is permitted on site; litterbins must be provided throughout the site. These litter bins must be predator and scavenger proof.

- Centralised eating and rest facilities must be provided for workers in order to facilitate litter control.

- All solid waste must be disposed of off-site at suitably permitted waste facilities. This includes any building rubble left after construction.

- A register of waste disposal and sorting records must be retained by the contractors and submitted to the Resident Engineer or his representative for auditing purposes.

- Appropriate temporary disposal areas must be covered and be on an impermeable floor.

- A Waste Management Method Statement must be submitted by the appropriate contractor to the Resident Engineer or his representative for approval

Targets

- Approved Waste Management Method Statement.

- National Water Act (Act 36 of 1998) and National Waste Act (Act 59 of 2008)

- All waste material must be removed from the site and suitably disposed of; no solid wastes shall be stored on-site for more than one week.

2.1.1.10 Fuel and Hazardous Materials Storage

Objective

To ensure that materials are appropriately stored to minimise the potential for pollution and accidents.

Aspects

Storage of fuels solvents, and other hazardous and toxic substances

Procedure

- Fuel, solvents and other hazardous or toxic substances must be securely stored in a restricted, locked facility approved by the Resident Engineer or his representative.

- Fuel and hazardous materials containers must be properly and boldly labelled.

- Storage facilities must be regularly maintained.

- An emergency response plan (e.g. in case of fire) must be formulated, including steps taken to manage the capture and treatment of polluted water and sediment.

- A Fuels and Hazardous Materials Storage Method Statement must be submitted by the appropriate contractor to the Resident Engineer or his representative for approval.

- The provisions of the Hazardous Substances Act (Act 15 of 1973) must be adhered to.

Targets

- Approved Fuels and Hazardous Materials Storage Method Statement.

- Approved Emergency Response Procedure Method Statement.

- Fuels and hazardous liquids must be stored in an impervious, bunded and covered area with a capacity of 110% of the largest single storage tank.

2.1.1.11 Social Issues

Objective

To ensure the health and safety of the construction workforce and surrounding landowners, and workers. To ensure that activities associated with construction, particularly the presence of the workforce, do not create social problems or exacerbate any which may already exist; and that construction activities do not impact on the normal operations of surrounding businesses and residents.

Aspects

Staff and surrounding landowners welfare, health and safety. Non-interference with surrounding commercial activities. Facilitation of safe traffic passage on the N2 and surrounding road network.

Procedure

Employment

- A policy of employing local people should be implemented wherever possible. This will ensure that benefits of the construction are provided to local communities and will prevent an influx of job seekers to the site. This policy must be finalised before the hiring of sub-contractors.

- Local sub-contractors should be employed wherever possible to maximise the localised economic benefits of the project.

- No recruitment of workers must occur on site.

- Access to the construction site must be strictly controlled.

- A policy regarding alcohol and weapons on the construction site must be formulated. This policy must be finalised prior to the commencement of work.

- A mechanism must be established to receive and address complaints from the staff.

- For security reasons, cash wages should be paid off site.

Health and Safety

- Adequate ablution facilities and chemical toilet facilities must be erected and maintained in good order on the site for the duration of the construction and decommissioning phase. Toilets should be removed from site when construction is completed. Waste must be disposed of at a registered waste site.

- Adequate clean drinking water must be available to construction staff at all times during the construction period.

- An area must be demarcated for staff to conduct all necessary cooking activities. The site must be selected to ensure that there is no risk of fires. It would be advisable to ensure that small gas cookers are available on site.

- A complaints register must be kept of any issues raised by surrounding landowners. These must be attended to immediately

General

- A Social Issues Method Statement must be submitted by the appropriate contractors to the Resident Engineer or his representative for approval

- Construction areas must be barricaded and adequate signage in place to notify the public of operations

- Access for residents and commuters must not be prohibited or interrupted

Targets

- Approved Social Issues Method Statement.
- Labour Relations Act, 1995 (Act 66 of 1995).

2.1.1.12 Site Rehabilitation

Objective

To rehabilitate areas that have been disturbed during construction with the intent of preventing erosion, re-vegetating open areas, and safe usage by the public.

Aspects

Dismantling and removal of all construction infrastructure, reshaping disturbed areas on site, replacement of vegetation if any was removed. Ensuring that adequate erosion control measures are in place

Procedure

- The first step in the rehabilitation operation is a general clean up of the total area around the works. All construction infrastructure, equipment, materials and wastes must be removed from the site upon completion of construction (or earlier, in a phased manner, if possible).
- Disturbed areas must be graded and landscaped to improve the aesthetic appearance of the site and approximate the pre-disturbance status.
- Where necessary, temporary stabilisation of areas should be done before final rehabilitation;
- Re-vegetation of area with locally collected seed and individual plant specimens removed prior to construction in areas where this is appropriate.

- It is generally wise to retain any existing drainage controls, such as contour banks, rock filters and cut-off drains, upslope of the area being rehabilitated, to slow down surface run-off. A rough surface will capture more water and allow rainfall to infiltrate rather than flow directly downhill. Artificial structures should be removed once the site is fully rehabilitated.

- The soil erosion measures installed need to be checked regularly.

Targets

- Approved Site Rehabilitation Method Statement.

- Site rehabilitation to be completed within one month after the end of the construction period, or by an alternative date stipulated by the Resident Engineer or his representative.

2.1.2 Response to Public Complaints

The Resident Engineer or his representative must respond to queries and complaints from the public. In responding to such queries and / or complaints the Resident Engineer or his representative must document all such communications in a complaints register. All queries and complaints must be reported to the project proponent. All remedial action taken on a complaint must be recorded in the complaints register.

2.1.3 Environmental Compliance Monitoring

The Resident Engineer or his representative and / or the Site Environmental Officer must devise a monitoring programme in order to ensure compliance with the procedures and targets.

The Resident Engineer or his representative is responsible for monitoring the procedures and targets applicable to each environmental management

requirement. The Resident Engineer or his representative in conjunction with the Environmental Officer must decide on the frequency of inspections.

For each of the environmental management requirements, the specific elements listed below should be monitored. This list is intended as a guide and is not necessarily exhaustive; consequently, other elements might need to be monitored to ensure compliance with the relevant target.

2.1.3.1 Restriction of Access to Sites

- The Site Environmental Officer should inspect the demarcated area on a regular basis and inform the contractors of any violations or areas where markings must be replaced.

2.1.3.2 Fauna

- All animal mortalities must be recorded and reported to the Resident Engineer or his representative.

2.1.3.3 Flora

- The ECO must check that all the necessary permits are in place for removal of protected and threatened species (should this be necessary)

- Plants that can be used in rehabilitation must be removed prior to construction commencing and stored for planting

2.1.3.4 Cultural Historic and Archaeology

- During earthmoving, excavation and site rehabilitation the Site Environmental Officer must monitor for potential cultural historic, and archaeological sites daily, or more frequently at his/her discretion.

2.1.3.5 Air Quality

- Dust must be visually monitored on a regular basis (daily), or more frequently in conditions conducive to dust generation, as determined by the Site Environmental Officer.

2.1.3.6 Noise and Vibrations

- The Site Environmental Officer must subjectively monitor noise and vibration levels on a frequent basis.

- The Site Environmental Officer must implement a formal noise-monitoring programme if persistent complaints are recorded.

2.1.3.7 Water Consumption

- Daily consumption of water must be monitored and recorded against the set water quota. Any excessive usage or peaks must be investigated.

2.1.3.8 Water Quality

- The Site Environmental Officer must visually inspect runoff basins, drainage ditches and sediment traps on a daily basis to ensure that they are in an acceptable condition.

- Other potential sources of surface and groundwater pollution must be inspected daily.

2.1.3.9 Waste Management

- The Site Environmental Officer must inspect on-site waste disposal facilities / temporary storage areas daily, to ensure that they are sufficient and that they are properly maintained.

- During site inspections the Site Environmental Officer must check for waste material, which is inappropriately (temporarily) disposed of or stored.

2.1.3.10 Fuel and Hazardous Materials Storage

- The Site Environmental Officer must ensure that materials are stored in the designated area set aside for that purpose.

- During daily site inspections the Site Environmental Officer must check storage facilities to ensure that they are in a proper state of repair.

2.1.3.11 Social Issues

- The Site Environmental Officer must monitor the site regularly (as part of daily inspections) and be alert to potential social problems on and off site.

2.1.3.12 Site Rehabilitation

- The Site Environmental Officer must monitor site landscaping and rehabilitation commencing after construction

- Monitor erosion control measures.

2.1.3.13 Site Housekeeping

- The Site Environmental Officer must monitor the site for litter and other waste material

2.1.4 Corrective and Preventive Action / Management of Environmental Problems

The Site Environmental Control Officer must devise a Corrective Action Procedure for implementing corrective and preventive action. The Corrective Action Procedure is to be implemented by all contractors and sub contractors on site. A flow-chart of responsible persons must be drawn-up that identifies a reporting structure for non-compliance.

2.1.5 Documentation

The Site Environmental Control Officer and Resident Engineer or his representative must devise forms (i.e. pro forma) for:

- Daily, weekly and monthly (or as appropriate) monitoring of environmental management requirements and targets (these should be integrated with those for Quality, Health, Safety and, possibly, Maintenance).
- Non-compliance (time, offender), including a register of “offenders”
- Recommended corrective action
- Resolution of non-compliance problems

These records should be made available for external review.

The Site Environmental Control Officer and Resident Engineer or his representative must also devise forms for:

- Method Statements
- Logging complaints received in a complaints register
- Evaluating the environmental awareness training programme
- Evaluating the job-specific environmental training programmes
- Auditing of activities

The Site Environmental Control Officer, Resident Engineer or his representative, Contractor and sub-contractors must keep a record of all

meetings attended, waste disposal documents, audits undertaken and other environmental issues as appropriate.

2.1.6 Roles and Responsibilities for the Implementation of the Environmental Management Programme

This section defines the roles of the key parties involved in the implementation of the EMPr and mitigation measures suggested in the Basic Assessment Report relevant to construction phase.

2.1.6.1 The Developer

Suwenda 40 (Pty) Ltd, as the project initiator, has the overall accountability and responsibility for environmental management during the design, construction and operational phases of the development. Further it is their responsibility to ensure that the conditions of the Environmental Authorisation and mitigation measures suggested in the Basic Assessment Report are communicated to, implemented and complied with by the project managers, contractors and sub-contractors.

While it is the responsibility of the contractors and the sub-contractors to prepare and implement the detailed Method Statements, the developer will remain accountable for their implementation.

The developer (and not the Project Manager, Resident Engineer or the contractors) will be responsible for liaison with the relevant authorities with respect to the implementation of the Environmental Authorisation and the EMPr.

With respect to the EMPr for the construction phase, the developer is responsible for:

- Liaising with the project engineer, architects and builders, to ensure that all components of the facility are designed to meet all the listed environmental conditions as well as all of the legal requirements.
- Reviewing the Method Statements prepared by project engineers, the contractors and sub-contractors for specific activities relating to the construction phase.
- Reviewing and approving management plans prepared by the project engineers, contractors and sub-contractors.
- Reviewing and approving any environmental monitoring programmes that are recommended by the environmental consultant, the site environmental control officer or the authorities.
- Advising on actions to be taken in the event of incidents or public complaints.
- Providing the results of environmental reports to the relevant authority
- Ensuring that the required audits are undertaken on a timely basis and that the results of the audits are communicated to all operation personnel.

2.1.6.2 Authorities (Please note that the extract below assumes that a positive Environmental Authorisation will be issued, and is therefore only relevant if such occurs)

The authorities are responsible for the timely processing and issuing of the necessary permits and authorisations for the development. The authorities will ensure that the developer complies with the terms that are stipulated within the Environmental Authorisation should and when it be issued. Where

necessary, the authorities will assist the developer in understanding and meeting the specified requirements.

The authorities may perform random controls to ensure compliance with the conditions. In such case, the developer will assist the authorities in every possible way so as to facilitate the control. In case of long-term non-compliance, the developer will be required to provide an action plan with corrective measures for approval by the authorities.

2.1.6.3 Responsibilities: Resident Engineer

All obligations relevant to the developer concerning the implementation of the EMPr, will apply to the Resident Engineer or his representative, contractors and sub -contractors associated with the construction phase of the development. The developer will inform the Resident Engineer or his representative of these obligations, as well as of the Method Statements required in terms of these obligations, and will control their implementation. The Resident Engineer or his representative is to convey the requirements of the EMPr to the contractors and their sub-contractors; and ensure that they comply with these obligations.

It is the responsibility of the project engineers, contractors and sub -contractors to prepare and implement Method Statements which detail the means they will employ in order to meet the objectives set in the Construction EMPr.

The contractors and sub-contractors will be required, where specified, to provide Method Statements to the Resident Engineer or his representative setting out in detail how the management actions will be implemented to ensure that the environmental management objectives will be achieved. The method statements of different sub-contractors will be consolidated by the Resident Engineer or his representative into a Management Plan for a

particular component of the EMPr. These Management Plans must be reviewed and approved by the developer prior to the commencement of the relevant construction activity.

The Resident Engineer shall through the developer appoint a Site Environmental Control Officer (or officers, if more than one is required), whose primary role shall be to coordinate the environmental management activities during the construction phase of the development.

The Resident Engineer or his representative working in close cooperation with the Site Environmental Control Officer ensures that the EMPr is implemented. The Resident Engineer or his representative is the direct link between the Site Environmental Control Officer and the Contractors and sub-contractors. Specific responsibilities include:

- Distribution of copies of the EMPr to the project team
- Advising the developer on the appointment of any specialist if required
- Attending Project Progress Meetings, where the performance of the EMPr is discussed and / or reviewed.
- Commission of monitoring programme recommended by the Site Environmental Control Officer
- Ensuring that measures are taken to address any problems in the implementation of the EMPr
- Briefing the contractors regarding their EMPr responsibilities and ensure that they implement the conditions of the EMPr

- Formalising systems and delegating authority to ensure that the EMPr is effectively implemented
- Regular site inspections and monitoring to ensure compliance with the prescribed procedures in the EMPr
- Devising a Corrective Action Procedure for implementing corrective and preventive action
- Regular consultation with the Site Environmental Control Officer, as appropriate
- Facilitating the implementation of a general and specific environmental awareness training programme
- Devising a system to evaluate the training programme regularly and recommend changes as required
- The creation, in consultation with the Site Environmental Control Officer, of a Method Statement pro-forma, for distribution to the appropriate contractors and their sub-contractors
- The examination, revision and approval, of contractors Method Statements
- Keeping records of waste disposal, audits, inspections, monitoring and corrective actions
- Ensuring that copies of the EMPr are available to all contractors and sub-contractors
- Identification of any new significant environmental impacts and their associated aspects, and the necessary environmental management requirements to manage them

- Organising regular internal audits on the implementation of the EMPr

2.1.6.4 Responsibilities: Contractors and Sub-Contractors

The Contractor/s and sub-contractors have final responsibility and are accountable to the Developer for the effective implementation and monitoring of the EMPr.

The contractor and sub-contractors are responsible to the Resident Engineer or his representative for the effective implementation of the EMPr within their respective line functions. Specific responsibilities include:

- The full implementation of all of the requirements of the EMPr in terms of the approved method statements.
- Ensuring that all sub-contractors are familiar with and implement the EMPr
- Identifying procedures applicable to the activities they perform and / or control
- Identifying, in consultation with the Resident Engineer or his representative which sub-contractors are responsible for compiling (which) method statements
- Compiling method statements to meet the procedures and targets
- Submitting method statements to the Resident Engineer or his representative for approval
- Devising a system for monitoring compliance with method statements and procedures

- Identifying environmental training needs and implementing the environmental awareness training programme commissioned by the Resident Engineer or his representative
- Implementing corrective and preventive actions recommended by the Resident Engineer or his representative
- Reviewing of the EMPr implementation and effectiveness at site meetings with the Resident Engineer or his representative and the Site Environmental Control Officer
- Ensuring regular internal auditing of the implementation of the EMPr.
- Maintaining and submitting records of waste disposal activities and corrective actions taken to rectify environmental problems on site.
- Attending EMPr monitoring meetings with the Resident Engineer or his representative
- Keeping of a complaints register on site.

2.1.6.5 Responsibilities: Site Environmental Control Officer

A Site Environmental Control Officer with appropriate environmental and construction experience must be appointed by the Project Manager or Resident Engineer (through the developer) to advise and assist the Resident Engineer or his representative and project team where necessary and to monitor the implementation of the EMPr. The Site Environmental Control Officer reports to the developer through the Resident Engineer or his representative and or depending on circumstances to the Independent Environmental Consultant appointed by the developer.

His/Her duties include:

- To raise the awareness of the contractor and sub-contractors and their staff to the environmental sensitivity of the project area and to foster an appropriate environmental attitude during the contract period.

- Supporting and advising the Resident Engineer or his representative, especially as regards review of Method Statements, auditing, monitoring and corrective and preventive action

- Accompanying the Resident Engineer or his representative on site inspections at a frequency determined by the developer, the Resident Engineer or his representative and the Environmental Consultant

- Recommending environmentally appropriate solutions to environmental problems

- Recommending additional environmental management measures as appropriate

- Attending Project Progress Meetings, as necessary or on a basis determined by the developer and the Resident Engineer or his representative

2.1.6.6 Responsibilities: Environmental Consultant

The developer will retain the services of an Independent Environmental Consultant during the construction phase of the development. The role and function of the independent environmental consultant is to:

- Assist the developer in ensuring that the conditions of the Environmental Authorisation and mitigation measures in the Basic Assessment Report are adhered to

- Undertake periodic independent environmental audits on a time frame to be agreed to between the developer and the consultant
- Assist in liaison with Interested and Affected Parties and other stakeholders in the project
- Assist in the review and compilation of method statements to cover the various aspects of the work to be undertaken on site
- Assist the Site Environmental Control Officer in his day to day functions when necessary
- Review audits undertaken by the Site Environmental Control Officer
- Assist with environmental monitoring programmes established to ensure that a high level of conservation is attained on the construction site
- Attend site and other meetings as decided upon by the developer and the consultant

Chapter 3: Reference List

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Appendix 1: Declared Weeds and Invader Plants

Extracts from GNR.1048 of 25 May 1984: Regulations (Department Of Agriculture) as amended Notice *Government Gazette* R.2687 10029 6 December 1985 R.280 22166 30 March 2001

WEEDS AND INVADER PLANTS

15. Declaration of weeds and invader Plants

(1) Plants of the kinds specified in column 1of Table 3 as category 1 Plants are hereby declared weeds to the extent indicated in column 3 of the said Table opposite the names of the respective kinds of Plants.

(2) Plants of the kinds specified in column 1 of Table 3 as category 2 Plants and as category 3 Plants are hereby declared invader Plants to the extent indicated in column 3 of the said Table opposite the names of the respective kinds of Plants.

(Regulation 15 substituted by GNR.280 of 2001.)

15A Combating of category 1 Plants

(1) Category 1 Plants may not occur on any land or inland water surface other than in biological control reserves.

(2) A land user shall control any category 1 Plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.

(3) No person shall, except in or for purposes of a biological control reserve:

(*a*) establish, Programmet, maintain, multiply or propagate category 1 Plants;

(*b*) import or sell propagating material of category 1 Plants or any category 1 Plants;

(*c*) acquire propagating material of category 1 Plants or any category 1 Plants.

(4) The executive officer may, on good cause shown in writing by the land user, grant written exemption from compliance with the requirements of sub-regulation (1) on such conditions as the executive officer may determine in each case.

(Regulation 15A inserted by GNR.280 of 2001.)

15B Combating of category 2 Plants

(1) Category 2 Plants may not occur on any land or inland water surface other than a demarcated area or a biological control reserve.

(2)(a) The executive officer may on application in writing demarcate an area as an area where category 2 Plants may occur, be established and be maintained.

An area in respect of which a water use licence for stream flow reduction activities has been issued in terms of section 36 of the National Water Act, 1998 (Act No. 36 of 1998) shall be deemed to be a demarcated area.

(3) The executive officer shall demarcate an area for the occurrence, establishment and maintenance of category 2 Plants only if:

(a) the category 2 Plants in the area are cultivated under controlled circumstances; and

(b) the land user concerned has been authorised to use water in terms of the National Water Act, 1998 (Act No. 36 of 1998); and

(c) the category 2 Plants or products of category 2 Plants in the area are demonstrated to primarily serve a commercial purpose, use as a woodlot, shelter belt, building material, animal fodder, soil stabilisation, medicinal or other beneficial function that the executive officer may approve; and

(d) all reasonable steps are taken to curtail the spreading of propagating material of the category 2 Plants outside the demarcated areas.

(4) When an area is demarcated for the occurrence, establishment and maintenance of category 2 Plants the executive officer may impose such additional conditions as may reasonably be deemed necessary to keep the category 2 Plants in the area in check.

(5) No person shall sell propagating material of category 2 Plants or any category 2 Plants to another person unless such other person is a land user of a demarcated area or of a biological control reserve.

(6) No person shall acquire propagating material of category 2 Plants or any category 2 Plants unless such material or such Plants are intended for use in a demarcated area or in a biological control reserve.

(7) Propagating material of category 2 Plants or category 2 Plants shall only be imported or sold in accordance with the provisions of the Programmet Improvement Act, 1976 (Act No. 53 of 1976), the Agricultural Pests Act, 1983 (Act No. 36 of 1983) and the environment conservation regulations.

(8) A land user shall control any category 2 Plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.

(9) Unless authorised thereto in terms of the National Water Act, 1998 (Act No. 36 of 1998), no land user shall allow category 2 Plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring,

natural channel in which water flows regularly or intermittently, lake, dam or wetland.

(10) The executive officer may, on good cause shown in writing by the land user, grant written exemption from compliance with one or more of the requirements of sub-regulations (1), (3), (5), (6), (8) and (9) on such conditions as the executive officer may determine in each case.

(Regulation 15B inserted by GNR.280 of 2001.)

15C Combating of category 3 Plants

(1) Category 3 Plants shall not occur on any land or inland water surface other than in a biological control reserve.

(2) Subject to the provisions of sub-regulation (3), the provisions of sub-regulation (1) shall not apply in respect of category 3 Plants already in existence at the time of the commencement of these regulations.

(3) (a) No land user shall allow category 3 Plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland.

(b) The executive officer may impose such additional conditions as may reasonably be deemed necessary with regard to category 3 Plants already in existence at the time of the commencement of these regulations.

(c) A land user must take all reasonable steps to curtail the spreading of propagating material of category 3 Plants.

(d) The executive officer may, after consultation with the land user, issue a direction in terms of section 7 of the Act that category 3 Plants in existence at the time of the commencement of these regulations must be controlled by means of the measures prescribed in regulation 15F.

(4) No person shall, except in or for purposes of a biological control reserve:

(a) Programmet, establish, maintain, multiply or propagate category 3 Plants;

(b) import or sell propagating material of category 3 Plants or any category 3 Plants;

(c) acquire propagating material of category 3 Plants or any category 3 Plants.

(5) The executive officer may, on good cause shown in writing by the land user, grant written exemption from compliance with one or more of the requirements of sub-regulations (1), (3) and (4) on such conditions as the executive officer may determine in each case.

(Regulation 15C inserted by GNR.280 of 2001.)

15D Designation of biological control reserves

(1) The executive officer may on application in writing designate an area as a biological control reserve.

(2) The executive officer shall designate an area as a biological control reserve only if:

(a) the area concerned is used for the breeding of biological control agents by a biological control expert; and

(b) no other measures that may destroy or render the biological control ineffective are applied in that area; and

(c) the area concerned serves as a refuge from where biological control agents can move or be distributed to other infestations of category 1, 2 and 3 Plants.

(Regulation 15D inserted by GNR.280 of 2001.)

15E Methods of control

(1) Where category 1, 2 or 3 Plants occur contrary to the provisions of these regulations, a land user shall control such Plants by means of one or more of the following methods of control as is appropriate for the species concerned and the ecosystem in which it occurs:

(a) uprooting, felling, cutting or burning;

(b) treatment with a weed killer that is registered for use in connection with such Plants in accordance with the directions for the use of such a weed killer;

(c) biological control carried out in accordance with the stipulations of the Agricultural Pests Act, 1983 (Act No. 38 of 1983), the Environment Conservation Act, 1989 (Act No. 73 of 1989) and any other applicable legislation;

(d) any other method of treatment recognised by the executive officer that has as its object the control of the Plants concerned, subject to the provisions of sub-regulation (4);

(e) a combination of one or more of the methods prescribed in paragraphs (a), (b), (c), and (d), save that biological control reserves and areas where biological control agents are effective shall not be disturbed by other control methods to the extent that the agents are destroyed or become ineffective.

(2) The methods contemplated in sub-regulation (1) shall also be applied with regard to the propagating material and the re-growth of category 1, 2 and 3 Plants in order to prevent such Plants from forming seed or re-establishing in any manner.

(3) The performance of an act of control is not in itself proof that the objects of the control methods have been achieved and follow-up operations are mandatory to achieve the appropriate level of combating.

(4) Where uncertainty exists about the presence or efficacy of any biological control agent, a biological control expert shall be consulted.

(5) Any action taken to control category 1, 2 and 3 Plants shall be executed with caution and in a manner that will cause the least possible damage to the environment.

(Regulation 15D inserted by GNR.280 of 2001.)

15F Application of other laws

Nothing contained in this regulation shall derogate in any way from any obligation imposed on any land user in term of any other law.

16. Indicators of bush encroachment

(1) Indigenous Plants of the kinds specified in column 1 of Table 4 are regarded as indicator Plants indicating bush encroachment in the areas specified in column 2 of the said Table opposite the names of the respective kinds of Plants.

(2) A land user of an area in which natural vegetation occurs and that contains communities of indicator Plants shall follow practices to prevent the deterioration of natural resources and to combat bush encroachment where it occurs.

(3) One or more of the following practices shall be followed with regard to communities of indicator Plants contemplated in sub-regulation (2) in order to remove the cause of the deterioration of the natural resources and to improve and maintain the production potential of the natural pastoral land:

(a) uprooting, felling or cutting;

(b) treatment with a weed killer that is registered for use in connection with such Plants in accordance with the directions for the use of such a weed killer;

(c) the application of control measures regarding the utilisation and protection of veld in terms of regulation 9;

(d) the application of control measures regarding livestock reduction or removal of animals in terms of regulations 10 and 11;

(e) any other method or strategy that may be applicable and that is specified by the executive officer by means of a directive.

(Regulation 16 substituted by GNR.280 of 2001.)

- **Table 1: Declared Weeds And Invader Plants**

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Acacia baileyana F. Muell.	Bailey-se-wattel / Bailey's wattle	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Acacia cyclops A. Cunn. ex G. Don	Rooikrans / Red eye	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Acacia dealbata Link	Silwerwattel / Silver wattle	Indringer / Invader	2	Kategorie 1 Programmet in Wes-Kaap/ Category 1 Programmet in Western Cape Kyk / See subreg. 15.C(7)(c)
Acacia decurrens (J.C. Wendl.) Willd.	Groenwattel / Green wattle	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Acacia elata A. Cunn. ex Benth. (*A. terminalis* misapplied in S.A.)	Peperboomwattel / Pepper tree wattle	Indringer / Invader	3	
Acacia implexa Benth.	Screw-pod wattle	Onkruid / Weed	1	
Acacia longifolia (Andr.) Willd.	Langblaarwattel / Long-leaved wattle	Onkruid / Weed	1	
Acacia mearnsii De Wild.	Swartwattel / Black wattle	Indringer / Invader	2	Kategorie 1 Programmet in Suid Afrika, behalwe KwaZulu-Natal en Mpumalanga waar dit kommersieël verbou word / Category 1 Programmet South Africa, except in KwaZulu-Natal and Mpumalanga where it is used commercially
Acacia melanoxylon R. Br.	Australiese swarthout / Australian blackwood	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Acacia paradoxa DC. (=A. armata R. Br.)	Kangaroo wattle	Onkruid / Weed	1	
Acacia podalyriifolia A Cunn.	Vaalmimosa / Pearl acacia	Indringer / Invader	3	
Acacia pycnantha Benth.	Gouewattel / Golden wattle	Onkruid / Weeds	1	
Acacia saligna (Labill.) H.L. Wendl.	Port Jackson / Port Jackson willow	Onkruid / Weeds	1	
Agave sisalana Perrine	Garingboom / Sisal hemp, Sisal	Indringer / Invader	2	
Alhagi maurorum Medik. (=*A. camelorum* Fisch.)	Kameeldoringbos / Camel thorn bush	Onkruid / Weed	1	
Anredera cordifolia (Tenore) Steen. {*A. baselloides* (H.B.K.) Baill. Misapplied in South Africa}	Madeira vine, Bridal wreath	Onkruid / Weed	1	
Araujia sericifera Brot.	Motvanger / Moth catcher	Onkruid / Weed	1	
Argemone ochroleuca Sweet subsp *ochroleuca*	Witblom bloudissel / White flowered Mexican poppy	Onkruid / Weed	1	
Arundo donax L.	Spaanse riet /	Indringer /	3	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
	Giant reed, Spanish reed	Invader		
Atriplex lindleyi Moq. subsp. *inflata* Wilson (Muell.)	Blasiesoutbos / Sponge-fruit saltbush	Indringer / Invader	3	
Atriplex nummularia Lindley subsp. *Nummularia*	Oumansoutbos / Old man saltbush	Indringer / Invader	2	
Azolla filiculoides Lam.	Rooiwatervaring / Azolla, Red water fern	Onkruid / Weeds	1	Kyk / See subreg. 15.C(7)(c)
Caesalpinia decapetala (Roth) Alston (= *C. sepiaria* Roxb.)	Kraaldoring / Mauritius thorn	Onkruid / Weed	1	
Campuloclinium macrocephalum (Less.) DC. (=Eupatorium macrocephalum Less.)		Onkruid / Weed	1	
Cannabis sativa L.	Slegs hemp, nie dagga nie / Hemp only, not dagga	Indringer./ Invader	2	Beheerde aanProgrammeting/ Controlled cultivation
Cardaria draba (L.) Desv.	Peperbos / Pepper-cress, Hoary cardaria,	Onkruid / Weed	1	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
	White top			
Cardiospermum grandiflorum Swartz	Blaasklimop / Balloon vine	Onkruid / Weed	1	
Casuarina cunninghamiana Miq.	Kasuarisboom / Beefwood	Indringer / Invader	2	Slegs vir gebruik as windbrekers en nie vir duin stabilisasie nie/ Only for use as windbreakers, not for dune stabilisation
Casuarina equisetifolia L.	Perdestertboom / Horsetail tree	Indringer / Invader	2	Slegs vir gebruik as windbrekers en nie vir duin stabilisasie nie / Only for use as windbreakers, not for dune stabilisation
Cereus jamacaru DC. (*C. peruvianus* misapplied in S.A)	Nagblom / Queen of the Night	Onkruid / Weed	1	
Cestrum aurantiacum Lindl.	Oranjesestrum / Yellow or Orange cestrum	Onkruid / Weed	1	
Cestrum laevigatum	Inkbessie / Inkberry	Onkruid /	1	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Schlechtd.		Weed		
Cestrum parqui L'Hérit	Inkbessie / Chilean cestrum	Onkruid / Weed	1	
Chromolaena odorata (L.) R.M. King & H. Robinson (=*Eupatorium odoratum* L.)	Paraffienbos, Chromolaena / Triffid weed, Chromolaena	Onkruid / Weed	1	
Cirsium vulgare (Savi) Ten. (=*C. lanceolatum* Scop.)	Skotse dissel, Speerdissel / Scotch thistle, Spear thistle	Onkruid / Weed	1	
Convolvulus arvensis L.	Akkerwinde, Klimop / Field bindweed, Wild morning-glory	Onkruid / Weed	1	
Cortaderia jubata (Lem.) Stapf	Pampasgras / Pampas grass	Onkruid / Weed	1	
Cortaderia selloana (Schult.) Aschers. & Graebn.	Pampasgras, Silwergras / Pampas grass	Onkruid / Weed	1	
Cotoneaster franchetii Bois.	Dwergmispel / Cotoneasters	Indringer / Invader	3	
Cotoneaster pannosus Franch.	Silwerdwergmispel / Silver-leaf cotoneaster	Indringer / Invader	3	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Cuscuta campestris Yunck.	Gewone dodder / Common dodder	Onkruid / Weed	1	
Cuscuta suaveolens Ser.	Luserndodder / Lucerne dodder	Onkruid / Weed	1	
Cytisus monspessulanus L. (=*C. candicans* (L.)DC., *Genista monspessulana* (L.) L. Johnson)	Montpellier broom	Onkruid / Weed	1	
Datura ferox L.	Grootstinkblaar / Large thorn apple	Onkruid / Weed	1	
Datura innoxia Mill.	Harige stinkblaar / Downy thorn apple	Onkruid / Weed	1	
Datura stramonium L.	Gewone stinkblaar / Common thorn apple	Onkruid / Weed	1	
Echinopsis spachiana (Lem.) Fiedr. & Rowley {=*Trichocereus spachianus* (Lem.) Riccob.}	Orrelkaktus /Torch cactus	Onkruid / Weed	1	
Echium Programmetagineum L. (= *E lycopsis* L.)	Pers echium / Patterson’s curse	Onkruid / Weed	1	
Echium vulgare L.	Blou – echium / Blue	Onkruid /	1	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
	echium	Weed		
Egeria densa Programmech. (= *Elodea densa* (Programmech.) Casp.	Waterpes / Ditch moss, Water thyme	Onkruid / Weed	1	
Eichhornia crassipes (Mart.) Solms-Laub.	Waterhiasint / Water Hyacinth	Onkruid / Weed	1	
Elodea canadensis Michaux	Canadian water weed	Onkruid / Weed	1	
Eucalyptus camaldulensis Dehnh.	Rooibloekom / Red river gum	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Eucalyptus cladocalyx F. Muell.	Suikerbloekom /Sugar gum	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Eucalyptus grandis Hill ex Maid (*E. saligna* Sm. (p.p.))	Salignabloekom / Saligna gum, Rose gum	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Eucalyptus lehmannii (Schauer) Benth.	Spinnekopbloekom / Spider gum	Indringer / Invader	3	
Eucalyptus paniculata Sm.	Grysysterbasbloekom / Grey ironbark	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Eucalyptus sideroxylon A. Cunn. ex Woolls	Swartysterbasbloekom / Black ironbark, Red ronbark	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Gleditsia triacanthos L.	Amerikaanse driedoring, Soetpeulboom / Honey locust, Sweet locust	Indringer / Invader	2	
Hakea drupacea (Gaertn.f) Roemer & Schultes (=*H. suaveolens* R. Br.)	Soethakea / Sweet hakea	Onkruid / Weed	1	
Hakea gibbosa (Sm.) Cav.	Harige hakea / Rock hakea	Onkruid / Weed	1	
Hakea sericea Schrad.	Syerige hakea / Silky hakea	Onkruid / Weed	1	
Harrisia martinii (Lab.) Britton	Toukaktus, Harrisia kaktus /Moon cactus, Harrisia cactus	Onkruid / Weed	1	
Hypericum perforatum L.	Johanneskruid / St. John’s wort, Tipton weed	Indringer / Invader	2	Beheerde aanProgrammeting/ Controlled cultivation
*Ipomoea indica (*Burm.f.) Merr. (=*I. Congesta* R. Br.)	Purperwinde / Morning glory	Indringer / Invader	3	
Ipomoea purpurea (L.)	Purperwinde / Morning	Indringer /	3	?

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Roth	glory	Invader		
Jacaranda mimosifolia D. Don	Jakaranda / Jacaranda	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Lantana camara L. en enige entiteit wat deels of geheel ontstaan het uit die *Lantana camara* kompleks deur verbastering of seleksie op natuurlike of kunsmatige wyse / and any entity which has partly or wholly been derived from the *Lantana camara* complex by means of hybridisation or selection under natural or artificial conditions	Lantana / Lantana, Tickberry	Onkruid / Weed	1	
Leptospermum laevigatum (Gaertn.) F. Muell.	Australiese mirt / Australian myrtle	Onkruid / Weed	1	
Leucaena leucocephala (Lam.) De Wit	Reuse wattel / Leucaena	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Ligustrum japonicum	Japanese liguster /	Indringer /	3	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Thunb.	Japanese wax – leaved privet	Invader		
Ligustrum lucidum Ait.	Chinese liguster / Chinese wax – leaved privet	Indringer / Invader	3	
Ligustrum ovalifolium Hassk.	Kaliforniese liguster / Californian privet	Indringer / Invader	3	
Ligustrum sinense Lour.	Chinese liguster / Chinese privet	Indringer / Invader	3	
Ligustrum vulgare L.	Gewone liguster / Common privet	Indringer / Invader	3	
Litsea glutinosa (Lour.) C.B. Robinson (=*L. sebifera* Pers.)	Indiese lourier /Indian laurel	Onkruid / Weed	1	
Lythrum salicaria L.	Purple loosestrife	Onkruid / Weed	1	
Macfadyena unguis-cati (L.) A. Gentry	Katteklouranker /Cat's claw creeper	Onkruid / Weed	1	
Melia azedarach L.	Maksering, Bessieboom / "Syringa", Persian lilac	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Metrosideros excelsa Soland. Ex. Gaertn.	Nieu-Seelandse perdestert / New	Indringer / Invader	3	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
(=*M. tomentosa* A. Rich.)	Zealand bottle brush			
Mimosa pigra L.	Giant sensitive Programmet	Onkruid / Weed	1	
Morus alba L.	Witmoerbei, Gewone moerbei / White mulberry, Common mulberry	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Myoporum tenuifolium Forst. F. (*M. acuminatum* misapplied in S.A.)	Manatoka	Indringer / Invader	2	
Myriophyllum aquaticum (Vell.) Verdc.	Waterduisendblaar / Parrot's feather	Onkruid / Weed	1	
Myriophyllum spicatum L.	Spiked water-milfoil	Onkruid / Weed	1	
Nassella tenuissima (Trin.) Barkworth (=*Stipa tenuissima* Trin.)	Witpolgras / White tussock	Onkruid / Weed	1	
Nassella trichotoma (Nees) Hack. ex Arech. (=*Stipa trichotoma* Nees)	Nassella polgras / Nassella tussock	Onkruid / Weed	1	
Nerium oleander L.	Selonsroos / Oleander	Onkruid /	1	Steriele kultivars

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie/ Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
		Weed		uitgesluit / Excluding sterile, double-flowered cultivars
Nicotiana glauca R.C. Grah.	Wildetabak / Wild tobacco	Onkruid / Weed	1	
Opuntia aurantiaca Lindl.	Litjieskaktus / Jointed cactus	Onkruid / Weed	1	
Opuntia exaltata Berger	Langdoringkaktus / Long spine cactus	Onkruid / Weed	1	
Opuntia ficus-indica (L.) Mill.	Boereturksvy, Grootdoringturksvy / Mission prickly pear, Sweet prickly pear	Onkruid / Weed	1	Uitgesonderd alle doringlose cultivars en seleksies / Excluding all spineless cultivars and selections
Opuntia humifusa (Raf.) Raf. (= *O. compressa* (Salisb.) (Macbride)	Large flowered prickly pear, Creeping prickly pear	Onkruid / Weed	1	
Opuntia imbricata (Haw.) DC. {=*Cylindropuntia imbricata* (Haw.) Knuth}	Imbrikaatkaktus, Kabelturksvy / Imbricate cactus, Imbricate prickly pear	Onkruid / Weed	1	

Soort Programmet / Kind of Programmet		Tipe / Type	Kategorie/ Category	Spesiale voorwaardes / Special conditions
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Opuntia lindheimeri Engelm.	Klein rondeblaarturksvy / Small round-leaved prickly pear	Onkruid / Weed	1	
Opuntia monacantha Haw. (=*O vulgaris* Mill.)	Suurturksvy, Luisiesturksvy / Cochineal prickly pear, Drooping prickly pear	Onkruid / Weed	1	
Opuntia rosea DC.	Roseakaktus / Rosea cactus	Onkruid / Weed	1	
Opuntia spinulifera Salm-Dyck	Blouturksvy, Groot rondeblaar turksvy / Saucepan cactus, Large roundleaved prickly pear	Onkruid / Weed	1	
Opuntia stricta (Haw.) Haw.	Suurturksvy / Pest pear of Australia	Onkruid / Weed	1	

Soort Programmet / Kind of Programmet		Tipe / Type	Kategorie / Category	Spesiale voorwaardes / Special conditions
Botaniese naam / Botanical name	***Gewone naam / Common name***			

Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Orobanche minor Sutton	Klawerbesemraap, Bremraap / Lesser broomrape, Clover broomrape	Onkruid / Weed	1	
Paraserianthes lophantha (Willd.) Nielsen (=*Albizia lophantha* (Willd.) Benth.)	Australiese Albizia, stinkboon / Australian Albizia, Stink bean	Onkruid / Weed	1	
Parthenium hysterophorus L.	Parthenium	Onkruid / Weed	1	
Passiflora coerulea L.	Siergrenadella / Blue passion flower	Onkruid / Weed	1	
Passiflora edulis Sims	Grenadella / Purple granadilla, Passion fruit	Indringer / Invader	2	
Pennisetum setaceum (Forssk.) Chiov.	Pronkgras /Fountain grass	Onkruid / Weed	1	
Pennisetum villosum R. Br. ex Fresen.	Veergras / Feathertop	Onkruid / Weed	1	
Pereskia aculeata Mill.	Pereskia /Barbados gooseberry	Onkruid / Weed	1	
Pinus elliotti Engelm.	Basden / Slash pine	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Pinus halepensis Mill.	Aleppoden / Aleppo pine	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Pinus patula Schlechtd. & Cham.	Treurden / Patula pine	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Pinus pinaster Ait.	Trosden / Cluster pine	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Pinus radiata D.Don	Radiataden / Radiata pine	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Pinus taeda L.	Loblollyden / Loblolly pine	Indringer / Invader	2	Kyk / See subreg. 15.C(7)(c)
Pistia stratiotes L.	Waterslaai / Water lettuce	Onkruid / Weed	1	
Pittosporum undulatum Vent.	Australiese kasuur, Soet Pittosporum / Australian cheesewood, Sweet pittospormum	Onkruid / Weed	1	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie / Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Pontederia cordata L.	Pickerel weed	Indringer / Invader	3	Kategorie 1 in landelike gebiede / Category 1 in non-urban areas
Populus alba L.	Witpopulier / White poplar	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Populus deltoides Bart. ex. Marsh	Vuurhoutjiepolpulier / Match poplar	Indringer / Invader	2	
Populus x canescens (Ait.) J. E. Sm.	Vaalpopulier / Grey poplar	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Prosopis glandulosa Torr. var *torreyana* (Benson) Johnston and hybrids / en hibriedes	Heuningprosopis / Honey mesquite	Indringer / Invader	2	
Prosopis velutina Wooton and hybrids / en hibriedes	Fluweelprosopis / Velvet mesquite	Indringer / Invader	2	
Psidium guajava L. and hybrids / en hibriedes	Koejawel / Guava	Indringer / Invader	2	
Psidium guineense Swartz	Brasiliaanse koejawel / Brazilian guava	Indringer / Invader	3	
Psidium littorale Raddi var *longipes* (O. Berg)Fosb. (=*P. cattleianum* Sab.)	Aarbeikoejawel / Strawberry guava	Indringer / Invader	3	
Pueraria lobata (Willd.) Ohwi	Kudzuranker / Kudzu vine	Onkruid / Weed	1	
Pyracantha angustifolia (Franch.) C.K. Schneid.	Geelbranddoring / Yellow firethorn	Indringer / Invader	3	
Pyracantha crenulata (D. Don) M.J. Roem.	Rooivuurdoring / Himalayan firethorn	Indringer / Invader	3	
Ricinus communis L	Kasterolieboom / Castor-oil Programmet	Indringer / Invader	2	
Robinia pseudoacacia L.	Witakasia / Black locust	Indringer / Invader	3	Kyk / See subreg.

Soort Programmet / Kind of Programmet		Tipe / Type	Kategorie / Category	Spesiale voorwaardes / Special conditions
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
				15.C(7)(c)
Rorippa nasturtium – aquaticum (L.) Hayek (=*Nasturtium officinale* R. Br.)	Bronkors / Watercress	Indringer / Invader	3	
Rosa rubiginosa L. (=*R. eglanteria* L.)	Wilderoos / Eglantine, Sweetbriar	Indringer / Invader	3	
Rubus cuneifolius Pursh. and hybrid *R x proteus* C.H. Stirton	Amerikaanse braam, / American bramble	Onkruid / Weed	1	
Rubus fruticosus L agg.	Braam / European blackberry	Indringer / Invader	2	
Salix babylonica L.	Treurwilger /Weeping willow	Indringer / Invader	3	
Salix fragilis L.	Crack or brittle willow	Onkruid / Weed	1	
Salvinia molesta D. S. Mitchell and other species of the Family Salviniaceae	Watervaring / Kariba weed	Onkruid / Weed	1	
Schinus terebinthifolius Raddi	Brasiliaanse peperboom / Brazilian pepper tree	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Sesbania punicea (Cav.) Benth.	Rooi sesbania / Red sesbania	Onkruid / Weed	1	
Solanum elaeagnifolium Cav.	Satansbos / Silver-leaf bitter apple	Onkruid / Weed	1	
Solanum mauritianum Scop.	Luisboom / Bugweed	Onkruid / Weed	1	
Solanum seaforthianum Andr.	Aartappelranker / Potato creeper	Onkruid / Weed	1	
Solanum sisymbrifolium Lam.	Wildetamatie, Doringtamatie / Wild tomato, Dense-thorned bitter apple	Onkruid / Weed	1	
Spartium junceum L.	Spaanse besem / Spanish broom	Onkruid / Weed	1	

Soort Programmet / Kind of Programmet		**Tipe / Type**	**Kategorie / Category**	**Spesiale voorwaardes / Special conditions**
Botaniese naam / Botanical name	***Gewone naam / Common name***			
Kolom 1 / Column 1		**Kolom 2 / Column 2**	**Kolom 3 / Column 3**	**Kolom 4 / Column 4**
Tamarix ramosissima Ledeb.	Perstamarisk / Pink tamarisk	Indringer / Invader	3	
Tamarix chinenis Lour.	Chinese tamarisk / Chinese tamarisk	Indringer / Invader	3	
Tecoma stans (L.) H.B.K.	Geelklokkies / Yellow bells	Onkruid / Weed	1	
Tipuana tipa (Benth.) Kuntze	Tipoeboom / Tipu tree	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Tithonia diversifolia (Hemsl.) A. Gray	Mexikaanse sonneblom / Mexican sunflower	Onkruid / Weed	1	
Tithonia rotundifolia (Mill.) S.F. Blake	Rooisonneblom / Red sunflower	Onkruid / Weed	1	
Toona ciliata M.J. Roem. (=*Cedrela toona* Roxb. ex Rottl. & Willd.)	Toonboom / Toon tree	Indringer / Invader	3	Kyk / See subreg. 15.C(7)(c)
Ulex europaeus L.	Gaspeldoring / European gorse	Onkruid / Weed	1	
Xanthium spinosum L.	Boetebos / Spiny cocklebur	Onkruid / Weed	1	
Xanthium strumarium L.	Kankerroos / Large cocklebur	Onkruid / Weed	1	

➢ Table 2: Declared Indicators of Bush Encroachment

Soort Programmet / Kind of Programmet		***Gebied waar van toepassing / Application area***
Botaniese naam / Botanical name	***Gewone naam / Common name***	
Kolom 1 / Column 1		**Kolom 2 / Column 2**
Acacia caffra (Thunb.) Willd.	Haakdoring, Wag-'n-bietjie /Common hookthorn	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noord-Wes / North-West
Acacia erubescens Welw. ex Oliv.	Blouhaak / Blue thorn	Mpumalanga, Gauteng, Oos, Noord en Wes Kaap / Eastern, Northern and Western Cape, Noord-Wes / North-West, Noordelike Provinsie / Northern Province
Acacia fleckii Schinz	Bladdoring, Geelhaak / Plate thorn	Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Acacia hebeclada DC. subsp. h*ebeclada*	Trassiedoring, Trassiebos, Muisdoring / Mousebush, Candle thorn	Mpumalanga, Gauteng, Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape, Noordwes / North-West, Noordelike Provinsie / Northern Province, Vrystaat / Free State
Acacia karroo Hayne	Soetdoring, Pendoring / Sweet thorn, Karoo thorn	Republiek / Republic
Acacia mellifera (Vahl) Benth. subsp. *Detinens* (Burch.) Brenan	Swarthaak / Black thorn	Mpumalanga, Gauteng, Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape, Noordwes / North-West, Noordelike Provinsie / Northern Province
Acacia nigrescens Oliver	Knoppiesdoring / Knob-thorn	Mpumalanga, Noordelike Provinsie / Northern Province Noordwes / North-West
Acacia nilotica (L.) Willd. ex Del. subsp. *Kraussiana* (Benth.) Brenan	Lekkerruikpeul, Snuifpeul, Stinkpeul / Scented thorn, Redheart	Kwazulu-Natal, Mpumalanga, Gauteng, Noordwes / North-West, Noordelike Provinsie / Northern Province
Acacia reficiens Wawra subsp. *Reficiens*	Vals haak-en-steek, Geelhaak / False umbrella thorn	Mpumalanga, Gauteng, Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape, Noordwes /

Soort Programmet / Kind of Programmet		***Gebied waar van toepassing / Application area***
Botaniese naam / Botanical name	***Gewone naam / Common name***	
Kolom 1 / Column 1		**Kolom 2 / Column 2**
		North-West, Noordelike Provinsie / Northern Province
Acacia robusta Burch. subsp. R*obusta*	Enkeldoring, Brosdoring / Splendid thorn	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Acacia senegal (L.) Willd. Var.*rostrata* Brenan	Driehaakdoring, Drievingerdoring / Threehook thorn, Three-thorned Acacia	Kwazulu-Natal, Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Acacia tenuispina Verdoorn	Fyndoring	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Acacia tortilis (Forsk.) Hayne subsp. *Heteracantha* (Burch.) Brenan	Haak-en-steek / Umbrella thorn, Curly pod Acacia	Kwazulu-Natal, Mpumalanga, Gauteng, Oos, Noord en Wes Kaap / Eastern, Northern and Western Cape, Noordelike Provinsie / Northern Province Noord-Wes / North-West
Colophospermum mopane (Kirk ex Benth.) Kirk ex J. Léonard	Mopanie / Mopane	Mpumalanga, Noordelike Provinsie / Northern Province Noordwes / North-West
Combretum apiculatum Sond. Subsp. *Apiculatum*	Rooibos / Red bush willow	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Commiphora pyracanthoides Engl.	Gewone kanniedood, Kurkbas / Cork tree, Common corkwood	KwaZulu-Natal, Mpumalanga, Gauteng, Noord-Wes / Noordwest, Noordelike Provinsie / Northern Province
Dichapetalum cynosum (Hook.) Engl.	Gifblaar / Poison leaf	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Dichrostachys cinerea (L.) Wight & Arn. subsp. a*fricana* Brenan & Brumm.	Sekelbos / Sickle bush	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province Noord-Wes / Noordwes, Wes- en Noord-Kaap / Western and Northern
Grewia bicolor Juss.	Basterrosyntjie (bos) / Bastard raisin bush	Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Grewia flava DC.	Fluweelrosyntjie, Wilderosyntjie	KwaZulu-Natal, Mpumalanga,

Soort Programmet / Kind of Programmet		***Gebied waar van toepassing / Application area***
Botaniese naam / Botanical name	***Gewone naam / Common name***	
Kolom 1 / Column 1		**Kolom 2 / Column 2**
	(bos) / Wild raisin, Velvet raisin	Gauteng, Noordwes / North-West, Noordelike Provinsie / Northern Province
Grewia flavescens Juss.	Skurwerosyntjie (bos) / Rough leaved raisin, Sandpaper raisin	Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Leucosidea sericea Eckl. & Zeyh.	Ouhout / Oldwood	Republiek / Republic
Lopholaena coriifolia (Sond.) Phill. & C.A. Sm	Pluisbossie / Lopholaena	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Maytenus senegalensis (Lam.) Exell	Rooipendoring / Red spikethorn	KwaZulu-Natal
Rhamnus prinoides L'Herit.	Blinkblaar / Gloss leaf	Republiek / Republic
Rhigozum trichotomum Burch.	Wildegranaat, Driedoring / Wild granate	Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Rhus ciliata Licht. ex Schult.	Suurkaree / Sour karree	Republiek / Republic
Rhus glauca Thunb.	Blinkblaar, Suurbessie	Republiek / Republic
Rhus lancea L.f.	Karee / Karree	Mpumalanga, Gauteng, Noordelike Provinsie / Northern Province, Noordwes / North-West
Rhus lucida L. forma *lucida*	Blinktaaibos, Besembos / Glossy taaibos	Republiek / Republic
Rhus rehmanniana Engl.	Suur taaibos / Sour taaibos	Republiek / Republic
Tarchonanthus camphoratus L.	Kanferbos, Vaalbos / Camphor bush, Sagewood	Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape
Terminalia sericea Burch. ex DC.	Sandvaalboom, Sandgeelhout / Silver cluster leaf, Transvaal silvertree, Silver Terminalia	KwaZulu-Natal, Mpumalanga, Gauteng, Oos-, Noord- en Wes-Kaap / Eastern, Northern and Western Cape, Noordelike Provinsie / Northern Province Noordwes / North-West

Appendix 2: Protected Trees under the National Forest Act

Botanical Name	English Common Names	Other Common Names Afrikaans (A), Northern Sotho (NS), Southern Sotho (S), Tswana (T), Venda (V), Xhosa (X), Zulu (Z)	National Tree Number
Acacia erioloba	Camel thorn	Kameeldoring (A) / Mogohlo (NS) / Mogôtlhô (T)	168
Acacia haematoxylon	Grey camel thorn	Vaalkameeldoring (A) / Mokholo (T)	169
Adansonia digitata	Baobab	Kremetart (A) /Seboi (NS)/ Mowana (T)	467
Afzelia quanzensis	Pod mahogany	Peulmahonie (A) / Mutokota (V) / Inkehli (Z)	207
Balanites subsp. *maughamii*	Torchwood	Groendoring (A) / Ugobandlovu (Z)	251
Barringtonia racemosa	Powder-puff tree	Poeierkwasboom (A) / Iboqo (Z)	524

Boscia albitrunca	Shepherd's tree	Witgat (A) / Mohlôpi (NS) / Motlhôpi (T) / Muvhombwe (V) / Umqgomoqqomo (X) / Umvithi (Z)	122
Brachystegia spiciformis	Msasa	Msasa (A)	198.1
Breonadia salicina	Matumi	Mingerhout (A) /Mohlomê (NS) / Mutu-lume (V) / Umfomfo (Z)	684
Bruguiera gymnorrhiza	Black mangrove	Swart-wortelboom (A) / Isikhangati (X) / Isihlobane (Z)	527
Cassipourea swaziensis	Swazi onionwood	Swazi-uiehout (A)	531.1
Catha edulis	Bushman's tea	Boesmanstee (A) / Mohlatse (NS) / Igqwaka (X) / Umhlwazi (Z)	404
Ceriops tagal	Indian mangrove	Indiese wortelboom (A) / Isinkaha (Z)	525
Cleistanthus schlechteri var. *schlechteri*	False tamboti	Vals-tambotie (A) / Umzithi (Z)	320
Colubrina nicholsonii	Pondo weeping thorn	Pondo-treurdoring (A)	453.8
Combretum imberbe	Leadwood	Hardekool (A) / Mohwelere-tšhipi (NS) / Motswiri (T) / Impondondlovu (Z)	539
Curtisia dentata	Assegai	Assegaai (A) / Umgxina (X) / Umagunda (Z)	570
Elaeodendron transvaalensis	Bushveld saffron	Bosveld-saffraan (A) / Monomane (T) / Inqwavuma (Z)	416
Erythrophysa transvaalensis	Bushveld red balloon	Bosveld-rooiklapperbos (A) / Mofalatsane (T)	436.2
Euclea pseudebenus	Ebony quarri	Ebbehout -qhwarrie (A)	598
Ficus trichopoda	Swamp fig	Moerasvy (A) / Umvubu (Z)	54
Leucadendron argenteum	Silver tree	Silwerboom (A)	77
Lumnitzera racemosa var. *racemosa*	Tonga mangrove	Tonga-wortelboom (A) / Isikhaha-esibomvu (Z)	552
Lydenburgia abbottii	Pondo bushman's Tea	Pondo-boesmanstee (A)	407
Lydenburgia cassinoides	Sekhukhuni bushman's tea	Sekhukhuni-boesmanstee (A)	406
Mimusops caffra	Coastal red milkwood	Kusrooimelkhout (A) / Umthunzi (X) / Umkhakhayi (Z)	583
Newtonia hildebrandtii var. *hildebrandtii*	Lebombo wattle	Lebombo-wattel (A) /Umfomothi (Z)	191
Ocotea bullata	Stinkwood	Stinkhout (A) / Umhlungulu (X) / Umnukane (Z)	118
Ozoroa namaquensis	Gariep resin tree	Gariep-harpuisboom (A)	373.2
Philenoptera violacea	Apple-leaf	Appelblaar (A) / Mphata (NS) / Mohata (T) / Isihomohomo (Z)	238
Pittosporum viridiflorum	Cheesewood	Kasuur (A) / Kgalagangwe (NS) / Umkhwenkwe (X) / Umfusamvu (Z)	139
Podocarpus elongatus	Breede River yellowwood	Breederivier-geelhout (A)	15

Podocarpus falcatus (Afrocarpus falcatus)	Outeniqua yellowwood	Outniekwa-geelhout (A)/ Mogôbagôba (NS)/ Umkhoba (X)/ Umsonti (Z)	16
Podocarpus henkelii	Henkel's yellowwood	Henkel-se-geelhout (A) / Umsonti (X) / Umsonti (Z)	17
Podocarpus latifolius	Real yellowwood	Opregte-geelhout (A) / Mogôbagôba (NS)/ Umcheya (X) / Umkhoba (Z)	18
Protea comptonii	Saddleback sugarbush	Barberton-suikerbos (A)	88
Protea curvata	Serpentine sugarbush	Serpentynsuikerbos (A)	88.1
Prunus africana	Red stinkwood	Rooi-stinkhout (A) / Umkhakhase (X) / Umdumezulu (Z)	147
Pterocarpus angolensis	Wild teak	Kiaat (A) / Morôtô (NS) / Mokwa (T) / Mutondo (V) Umvangazi (Z)	236
Rhizophora mucronata	Red mangrove	Rooi-wortelboom (A) / Isikhangathi (X)/ Umhlume (Z)	526
Sclerocarya birrea subsp. *caffra*	Marula	Maroela (A) / Morula (NS) / Morula (T) / Umganu (Z)	360
Securidaca longepedunculata	Violet tree	Krinkhout (A) / Mmaba (T)	303
Sideroxylon inerme subsp. *inerme*	White milkwood	Wit-melkhout (A) / Ximafana (X) / Umakhwelafinggane (Z)	579
Tephrosia pondoensis	Pondo poison pea	Pondo-gifertjie (A)	226.1
Warburgia salutaris	Pepper-bark tree	Peperbasboom (A)/ Molaka (NS)/ Mulanga (V)/ Isibaha (Z)	488
Widdringtonia cedarbergensis	Clanwilliam cedar	Clanwilliam-seder (A)	19
Widdringtonia schwarzii	Willowmore cedar	Baviaanskloof-seder (A)	21

Appendix 3: List of TOPS (in terms of Biodiversity Act 10of 2004)

SCHEDULE

Scientific Name	Common Name
PISCES	
Labeo seeberi	Clanwilliam Sandfish
REPTILIA	
Caretta caretta	Loggerhead Sea Turtle
Dermochelys coriacea	Leatherback Sea Turtle
Eretmochelys imbricate	Hawksbill Sea Turtle
AVES	
Grus carunculatus	Wattled Crane
Hirundo atrocaerulea	Blue Swallow
Neophron percnopterus	Egyptian Vulture
Poicephalus robustus	Cape Parrot
MAMMALIA	
Bunolagus monticularis	Riverine Rabbit
Chrysospalax villosus	Rough-haired Golden Mole
FLORA	
Adenium swazicum	Swaziland Impala Lily
Aloe pillansii	False Quiver Tree
Diaphananthe millarii	Tree Orchid
Dioscorea ebutsiniorum	Wild **Yam**
Encephalartos aemulans	Ngotshe Cycad
Encephalartos brevifoliolatus	Escarpment Cycad
Encephalartos cerinus	Waxen Cycad
Encephalartos dolomiticus	Wolkberg Cycad
Encephalartos heenanii	Woolly Cycad
Encephalartos hirsutus	Venda Cycad
Encephalartos inopinus	Lydenburg Cycad
Encephalartos latifrons	Albany Cycad
Encephalartos middelburgensis	Middelburg Cycad

Encephalartosnubimontanus	Blue Cycad
Encephalartos woodii	Wood's Cycad

CATEGORY: **Endangered Species** – Indigenous species facing a high risk of extinction in the wild in the near future, although they are not a critically endangered species	
Scientific Name	**Common Name**
INVERTEBRATA	
Colophonspp – All species	Stag Beetles
PISCES	
Barbus andrewi	Whitefish
Barbus serra	Sawfin
Pristis microdon	Largetooth Sawfish
REPTILIA	
Chelonia mydas	Green Turtle
Cordylus giganteus	Giant Girdled Lizard
Lepidochelys olivacea	Olive Ridley Turtle
Psammobates geometricus	Geometric Tortoise
Anthropoidesparadiseus	Blue Crane
Balearica regulorum	Grey Crowned Crane
Ephippiorhynchus senegalensis	Saddle-billed Stork
Gypaetus barbatus	Bearded Vulture
Gyps africanus	White-backed Vulture
Gyps coprotheres	Cape Vulture
Necrosyrtes monachus	Hooded Vulture
Pelecanus rufescens	Pink-backed Pelican
Scotopelia peli	Pel's Fishing Owl
Torgos tracheliotus	Lappet-faced Vulture
Amblysomus robustus	Robust Golden Mole
Damaliscus lunatus	Tsessebe
Diceros bicornis	Black Rhinoceros
Equus zebra	Mountain Zebra

Lycaon pictus	African Wild Dog
Neamblysomus gunningi	Gunning's Golden Mole
Ourebia ourebi	Oribi
Paraxerus palliates	Red Squirrel
Petrodromus tetradactylus	Four-toed Elephant-shrew
Angraecum africae	Tree Orchid
Encephalartos arenarius	Dune Cycad
Encephalartos cupidus	Blyde River Cycad
Encephalartos horridus	Eastern Cape Blue Cycad
Encephalartos laevifolius	Kaapsehoop Cycad
Encephalartos lebomboensis	Lebombo Cycad
Encephalartos msinganus	Msinga Cycad
Jubaeopsis caffra	Pondoland Coconut
Siphonochilus aethiopicus	Wild Ginger
Warburgia salutaris	Pepper-bark Tree
Newtonia hilderbrandi	Lebombo Wattle

CATEGORY: Vulnerable Species - Indigenous species facing a high risk **of** extinction in the wild in the medium-term future, although they are not a critically endangered	
Scientific Name	**Common Name**
Peripatopsis alba	White Cave Velvet Worm
PISCES	
Epinephelus andersoni	Catface Rockcod
Labeobarbus capensis	Clanwilliam Yellowfish
Labeobarbus kimberleyensis	Vaal-Orange Largemouth Yellowfish
Myxus capensis	Freshwater Mullet
Oreochromis placidus	Black Tilapia
Serranochromis meridianus	Lowveld Largemouth
AVES	
Trigonoceps occipitalis	White-headed Vulture
Aquila rapax	Tawny Eagle
Ardeotis kori	Kori Bustard

Ciconia nigra	Black Stork
Circaetus fasciolatus	Southern Banded Snake Eagle
Eupodotis caerulescens	Blue Korhaan
Falco fasciinucha	Taita Falcon
Falco naumanni	Lesser Kestrel
Falco peregrinus	Peregrine Falcon
Geronticus calvus	Bald Ibis
Neotis ludwigii	Ludwig's Bustard
Polemaetus bellicosus	Martial Eagle
Terathopius ecaudatus	Bateleur
Tyto capensis	Grass Owl

MAMMALIA

Acinonyx jubatus	Cheetah
Chrysospalax trevelyani	Giant Golden Mole
Cricetomys gambianus	Giant Rat
Damaliscus pygargus pygargus	Bontebok
Dendrohyrax arboreus	Tree Hyrax
Hippotragus equinus	Roan Antelope
Manis temminckii	Pangolin
Neamblysomus julianae	Juliana's Golden Mole
Neotragus moschatus	Suni
Otomops martiensseni	Large-eared Free-tailed Bat
Panthera leo	Lion
Panthera pardus	Leopard
Philantomba monticola	Blue Duiker
Aloe albida	Grass Aloe
Encephalartos eugene-maraisii	Waterberg Cycad
Encephalartos ngoyanus	Ngoye Dwarf Cycad
Merwilla plumbea	Blue Squill
Zantedeschia jucunda	Yellow Arum Lily

CATEGORY: Protected Species – Indigenous species **of** high conservation value or national importance that require national protection	
Scientific Name	**Common Name**
INVERTEBRATA	
Aloeides clarki	Coega Copper Butterfly
Ceratogyrus spp – All species	Horned Baboon Spiders
Echinodiscus bisperforatus	Pansy Shell
Dromica spp – All species	Tiger Beetles
Graphipterus assimilis	Velvet Ground Beetle
Hadogenes spp – All species	Flat Rock Scorpions
Haliotis midae	South African Abalone
Xarpactira spp – All species	Common Baboon Spiders
Ichnestoma spp – All species	Fruit Chafer Beetles
Manticora spp – All species	Monster Tiger Beetles
Megacephala asperata	Tiger Beetle
Megacephala regalis	Tiger Beetle
Nigidius auriculatus	Stag Beetle
Oonotus adspersus	Stag Beetle
Oonotus interioris	Stag Beetle
Oonotus rex	Stag Beetle
Oonotus sericeus	Stag Beetle
Opisthacanthus spp - All species	Creeping Scorpions
Opistophthalmus spp – All species	Burrowing Scorpions
Platychile pallida	Tiger Beetle
Prosopocoilus petitclerci	Stag Beetle
Prothyma guttipennis	Tiger Beetle
Pterinochilus spp – All species	Golden Baboon Spiders
AMPHIBIA	
Pyxicephalus adspersus	Giant Bullfrog
Pyxicephalus edulis	African Bullfrog
PISCES	
Anchichoerops natalensis	Natal Wrasse
Brycinus lateralis	Striped Robber
Carcharodon carcharius	Great White Shark
Epinephelus lanceolatus	Brindle Bass

Epinephelus tukula	Potato Bass
Hydrocynus vittatus	Tigerfish
Latimeria chalumnae	Coelacanth
Lithognathus lithognathus	White Steenbras
Nothobranchius orthonotus	Spotted Killifish
Nothobranchius rachovii	Rainbow Killifish
Polysteganus undulosus	Seventy-four Seabream
Pristis zijsron	Longcomb Sawfish
Varicorhinus nelspruitensis	Incomati Chiselmouth
REPTILIA	
Bitis gabonica	Gaboon Adder
Bitis schneideri	Namaqua Dwarf Adder
Bradypodion taeniabronchum	Smith's Dwarf Chameleon
Cordylus cataphractus	Armidillo Girdled Lizard
Crocodylus niloticus	Nile crocodile
Python natalensis	African Rock Python
AVES	
Bucowus leadeateri	Southern Ground-Hornbill
Circus ranivorus	African Marsh Harrier
Neotis denhami	Denham's Bustard
Spheniscus demersus	Jackass Penguin
Atelerix frontalis	South African Hedgehog
Ceratotherium simum	White Rhinoceros
Connochaetes gnou	Black Wildebeest
Crocuta crocuta	Spotted Hyaena
Felis nigripes	Black-footed Cat
Parahyaena brunnea	Brown Hyaena
Leptailurus serval	Serval
Loxodonta africana	African elephant
Lutra maculicollis	Spotted-necked Otter
Mellivora capensis	Honey Badger
Raphicerus sharpei	Sharpe's Grysbok

Redunca arundinum	Reedbuck
Vulpes chama	Cape **Fox**
FLORA	
Adenia wilmsii	No common name
Aloe simii	No common name
Clivia mirabilis	"Oorlogskloof" Bush Lily
Disa macrostachya	No common name
Disa nubigena	No common name
Disa physodes	No common name
Disa procera	No common name
Disa sabulosa	No common name
Encephalartos altensteinii	Bread **Palm**
Encephalartos caffer	**Breadfruit** Tree
Encephalartos dyerianus	**Lowveld** Cycad
Encephalartosfriderici-guilielmi	No common name
Encephalartos ghellinckii	No common name
Encephalartos humilis	No common name
Encephalartos lanatus	No common name
Encephalartos lehmannii	No common name
Encephalartos longifolius	No common name
Encephalartos natalensis	Natal Giant Cycad
Encephalartospaucidentatus	No common name
Encephalartosprinceps	No common name
Encephalartossenticosus	No common name
Encephalartos transvenosus	Modjadje Cycad
Encephalartos trispinosus	No common name
Euphorbia clivicola	No common name
Euphorbia meloformis	No common name
Euphorbia obesa	No common name
Harpagophytumprocumbens	Devil's Claw
Harpagophytum zeyherii	Devil's Claw
Hoodia gordonii	Ghaap
Hoodia currorii	Ghaap
Protea odorata	Swartland Sugarbush
Stangeria eriopus	No common name

Appendix 4: Environmental Incident Log and Complaint Form

Environmental Log and Incident Report

Date	Environmental Incident	Notes- Include an exProgrammeation if possible for the condition / incident and persons responsible. Include photographic records and other material	Corrective Action Taken	Signature

Complaint Form

Complaint Record Sheet	**File No** **Reference**	**Date**
Complaint Lodged By:		
Capacity of Complainant		
Complaint Logged by		
Details of Complaint:		
Proposed Remedial Action		
Notes by ECO / Auditor		

ECO	**Date**	**Auditor**	**Date**
Resident Engineer	**Date**		

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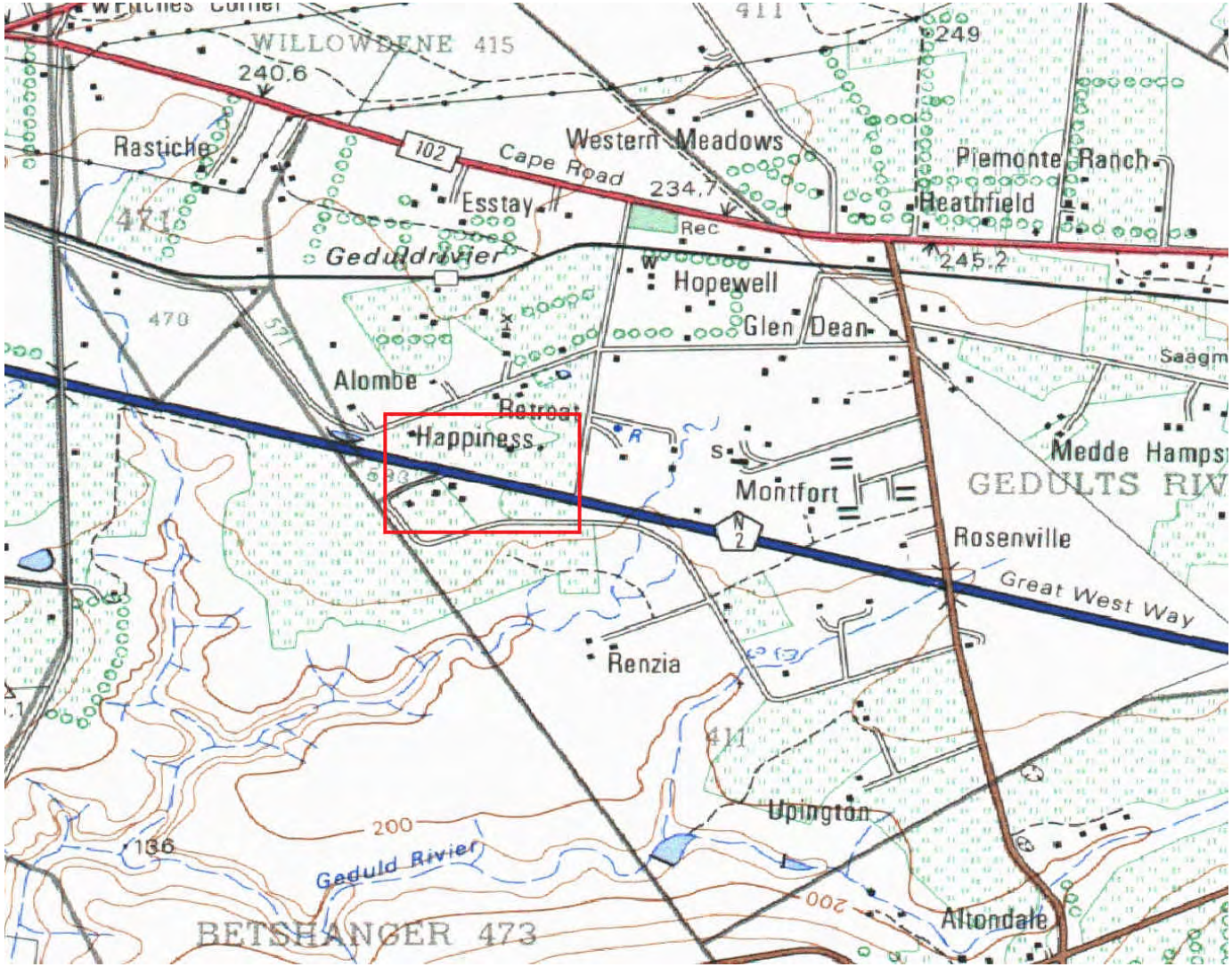
Document Printed June 2012

Appendix G: Other information



➢ **Figure 10: An extract from a 1:50 000 topographical map (relative site location in red).**

Classification of the site according to Mucina and Rutherford (2006):
Algoa Sandstone Fynbos occurs on flat to slightly undulating plains supporting grassy shrubland (mainly graminoid fynbos). Grasses become dominant, especially in wet habitats. In the south this fynbos unit borders on Albany Coastal Belt and Algoa Dune Strandveld and forms transitional mosaics with both. It also borders on patches of Southern Coastal Forest in this area. Important taxa include the following:

Endemic taxa: ***Agathosma gonaquensis*** (critically endangered), ***Cyclopia pubescens*** (critically endangered), *Erica etheliae* (data deficient) and *Holothrix longicornu* (critically endangered).

Tall shrubs: *Protea eximia, Protea neriifolia* and *Protea repens.*

Low shrubs: *Agathosma hirta, Agathosma ovata,* ***Erica zeyheriana*** (vulnerable), ***Euryops ericifolius*** (endangered), *Helichrysum appendiculatum, Helichrysum teretifolium, Leucadendron salignum, Leucadendron spissifolium* subsp. *phillipsii, Leucospermum cuneiforme,* ***Protea cynaroides*** (critically endangered), *Protea foliosa* and *Tephrosia capensis.*

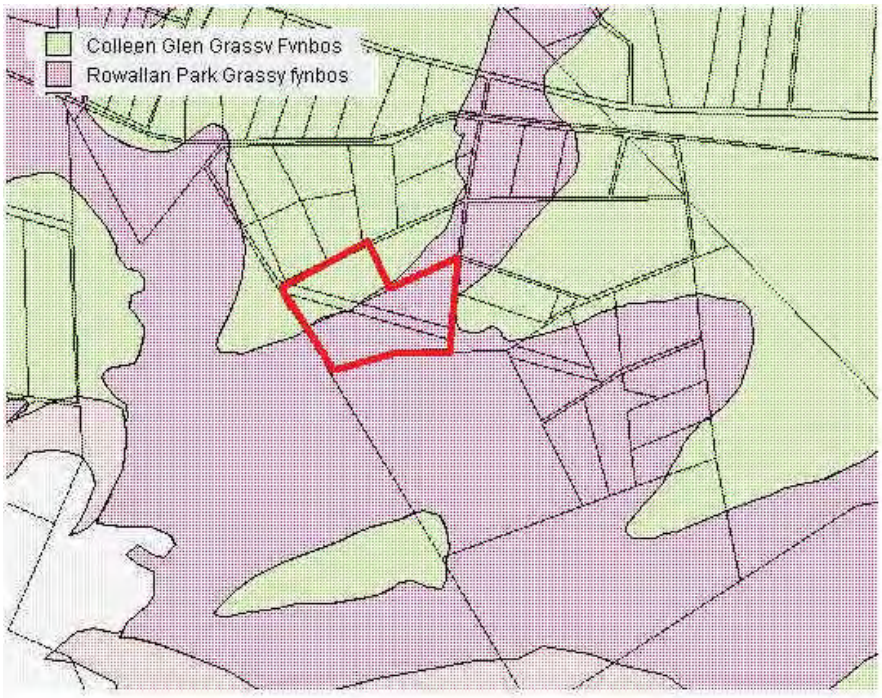
Succulent herbs: *Crassula pellucida* subsp. *Marginalis.*

Graminoids: *Andropogon eucomus, Brachiaria serrata, Cymbopogon pospischilii, Cynodon dactylon, Digitaria eriantha, Ehrharta calycina, Eustachys paspaloides, Ischyrolepis capensis, Pentaschistis heptamera, Pentaschistis pallida, Thamnochortus cinereus, Themeda triandra* and *Tristachya leucothrix.*

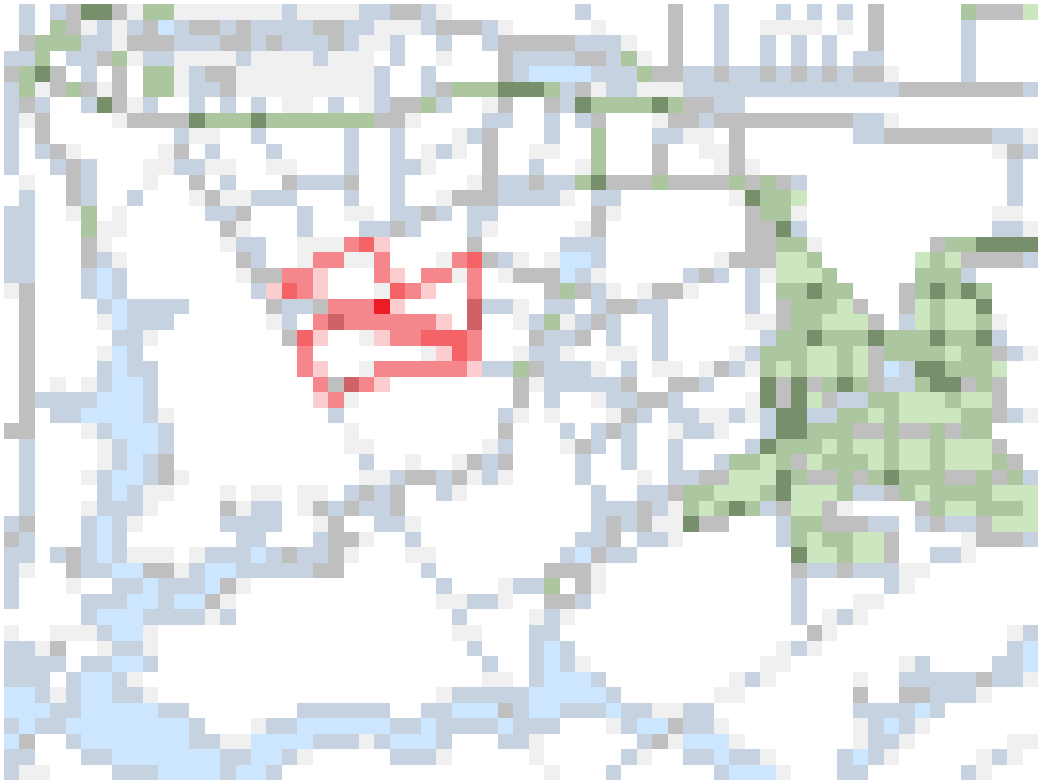
Distribution of Algoa Sandstone Fynbos within the Eastern Cape Province is limited to the coastal flats of Port Elizabeth from Van Stadens River in the west to Southdene –

Summerstrand in the east. This vegetation type is located mostly some kilometers from the coast and close to the coast at only Maitland River Mouth and urbanized Summerstrand. The conservation status of this vegetation type is classified as 'Endangered' and the protection status as 'poorly protected'. The conservation target (percent of area) as set by the NSBA is 23%. At present only 2% has been conserved in the Van Stadens Wild Flower Reserve, The Island Nature Reserve as well as in several private nature reserves. More than 50% of Algoa Sandstone Fynbos has been transformed by cultivation and the urban sprawl of the Nelson Mandela Metropolitan Area. Several Australian *Acacia* species occur as invasive aliens, but only to a limited extent.

Classification of the site according to the NMBM MOSS Plan (2009):



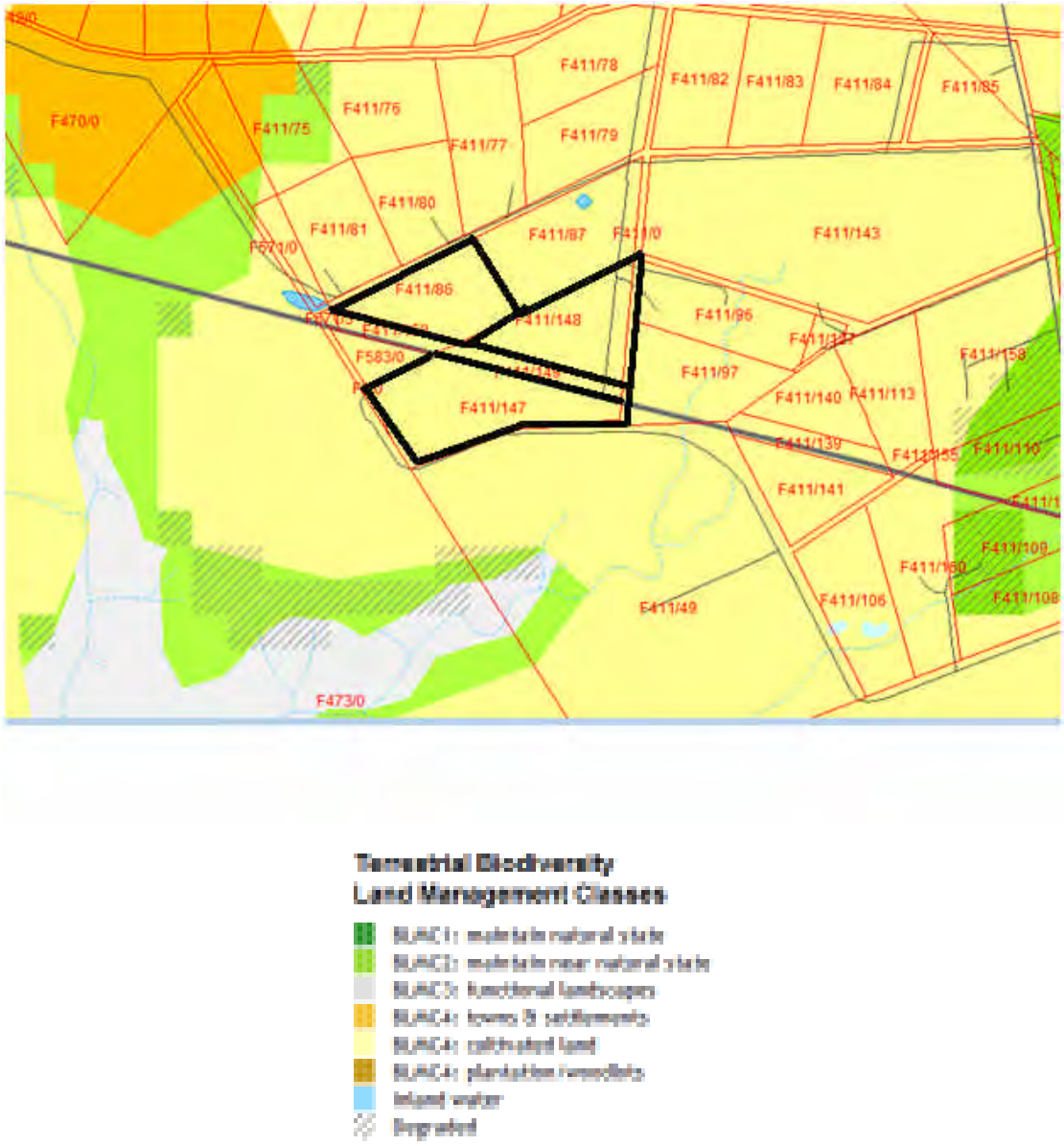
- **Figure 11: Vegetation in the area where the service and rest facility is proposed is classified as Rowallan Park Grassy Fynbos. The on-and-off ramp will partially be situated in an area classified as Colleen Glen Grassy Fynbos.**



- **Figure 12: There are no Critical Biodiversity Areas (in green) or ecological process areas that traverse the site (outlined in red) according to the NMBM MOSS Plan (2009) The Geduldsrivier that flows south, east and west of the site forms part of the greater Maitlands River corridor (in blue).**

East Cape Biodiversity Conservation Plan (2007):

According to this plan, the site is classified as a BLMC4 area where the land cover is cultivated land.



- **Figure 13: The site is classified as 'cultivated land' in the ECBCP (2007). The relative site boundary is outlined in black.**

- **Figure 14: An extract from the NMBM Spatial Development Framework Plan (2009). The rest and service station falls in a 'Rural Zone 2' area.**

- **Table 1: List of flora recorded on site with an indication of their protected status (National Red Data list and Nature and Environmental Conservation Ordinance)**

SPECIES	RDB	NECO
Anacardiaceae		
Searsia lucida		
Searsia pterota	LC	
Searsia undulata	LC	
Asteraceae		
Chrysanthemoides monilifera	LC	
Conyza bonariensis *		
Helichrysum foetidum		
Helichrysum subglomeratum	LC	
Haplocarpha lyrata	LC	
Senecio inaequidens	LC	
Taraxacum officinale *		
Campanulaceae		
Lobelia flaccida	LC	
Wahlenbergia undulata	LC	
Cyperaceae		
Cyperus sp 1		
Cyperus sp 2		
Schoenoplectus sp.		

Ebenaceae		
Diospyros dichrophylla	LC	
Ericaceae		
Erica glandulosa		Protected
Erica sp.		Protected
Fabaceae		
Acacia mearnsii *		
Acacia saligna *		
Gentianaceae		
Sebaea hymenosepala	LC	
Geraniaceae		
Pelargonium lobatum	LC	
Mesembryanthemaceae		
Carpobrotus sp.	LC	Protected
Myrtaceae		
Eucalyptus sp. *		
Oxalidaceae		
Oxalis caprina	LC	
Oxalis corniculata *		
Oxalis polyphylla	LC	
Pinaceae		
Pinus sp. *		