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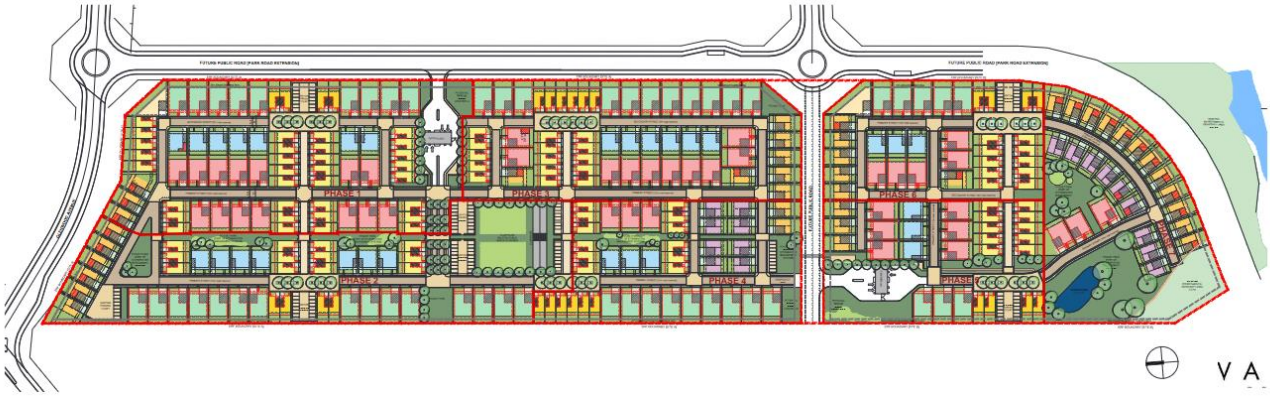
Version 1.1

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

In terms of
Regulation 22 (b) of Government Notice No. R385 in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998), July 2006 as amended 2008 and the Environmental Impact Assessment Regulations 2014 (as amended)

For Springfield Estate: Residential Development on Portion 53 of Farm 195, George



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GEO23/1134/20
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SPRINGFIELD ESTATE
RESIDENTIAL DEVELOPMENT ON PORTION 53 OF FARM 195, GEORGE

Submitted for:
Commencement

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Table of Contents

1 INTRODUCTION 7
2 DEVELOPMENT PROPOSAL 8
2.1 APPROVALS TO BE IN PLACE BEFORE COMMENCEMENT 9
3 TERMS OF REFERENCE 10
3.1 LISTED ACTIVITIES APPLIED FOR IN THE NEMA ENVIRONMENTAL APPLICATION 10
3.2 ENVIRONMENTAL CONTROL OFFICER (ECO) 13
3.2.1 SELECTION OF THE ECO 13
3.2.2 ROLES AND RESPONSIBILITIES OF THE ECO 14
4 CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION (EA) 15
5 MANAGEMENT OUTCOMES AND OBJECTIVES 19
6 SPECIFICALLY REQUIRED ENVIRONMENTAL MANAGEMENT PRACTICES 25
6.1 PRE-CONSTRUCTION PHASE 25
6.1.1 ENVIRONMENTAL INDUCTION (EDUCATION) 25
6.1.2 METHOD STATEMENT 25
6.1.3 VEGETATION CLEARANCE AND PLANT RESCUE PROGRAMME 26
6.1.4 PROTECTION OF FAUNA (ANIMALS) 27
6.1.5 SOIL PROTECTION 27
6.1.6 DISCOVERY OF HERITAGE RESOURCES 28
6.2 GENERAL CONSTRUCTION REQUIREMENTS 29
6.2.1 ACCESS TO THE SITE 29
6.2.2 SITE AGENT 30
6.2.3 USE OF LOCAL LABOUR 30
6.2.4 DEMARCATION OF NO-GO AREAS 31
6.2.5 CONSTRUCTION SITE CAMP 35
6.2.6 STORAGE OF CONSTRUCTION MATERIAL 35
6.2.7 FIRE PROTECTION 36
6.2.8 HEALTH AND SAFETY 36
6.2.9 WASTE MANAGEMENT 36
6.2.10 ABLUTION FACILITIES 37
6.2.11 SOIL EROSION AND STORMWATER MANAGEMENT 38
6.2.12 CONCRETE AND CEMENT WORKS 39

6.2.13 NOISE, DUST MANAGEMENT AND NUISANCE MEASURES 40
6.2.14 STABILIZATION REQUIREMENTS (AFTER CONSTRUCTION) 41
6.3 BUILDING CONSTRUCTION PHASE 41
6.3.1 IMPLEMENTATION OF ENERGY AND WATER SAVING TECHNIQUES 41
7 REHABILITATION PHASE 42
8 MONITORING REQUIREMENTS AND REPORTS 43
9 AUDITING REQUIREMENTS 44
10 HOMEOWNERS ASSOCIATION (HOA) 45
11 OPERATIONAL PHASE 45
11.1 RESIDENTIAL AREA MANAGEMENT 46
11.1.1 INTERNAL PRIVATE OPEN SPACE AREAS, ROAD RESERVES AND GARDENING 46
11.1.2 DOMESTIC ANIMALS AND ANIMAL MANAGEMENT 46
11.2 STORMWATER MANAGEMENT 46
11.3 FENCING 52
11.4 WASTE MANAGEMENT 52
11.5 INVASIVE ALIEN PLANT CONTROL 53
12 DECOMISSIONING PHASE 53
13 PENALTIES FOR NON-COMPLIANCE 53
14 CONCLUSION 53

List of Annexures

Annexure A	Locality Map
Annexure B	Site Development Plan
Annexure C	"No-Go" Mapping
Annexure D	Environmental Induction Sheet and Register
Annexure E	Method Statement Form
Annexure F	Register of Rescued Indigenous vegetation
Annexure G	Stormwater management plan
Annexure H	Architectural design guideline
Annexure I	CV of EAPs
Annexure J	EA dated 25 October 2023 & GA

National Environmental Management Act

An EMPr must comply with Section 24N of NEMA and the Environmental Impact Assessment Regulations 2014 (GN 982 Appendix 4) which requires that it must include the following:

REQUIREMENTS	REPORT SECTION
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	**Annexure J**
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	**Section 2**
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	**Annexure C**
(d) a description of the impact management [objectives] outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities; (iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	**Section 5, 6, 7 & 10**
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	**Section 5, 6, 7 & 10**
(f) a description of proposed impact management actions, identifying the manner in which the impact management [objectives and] outcomes contemplated in paragraph (d) [and (e)] will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	**Section 5, 6, 7 & 10**
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	**Section 3, 5, 6, 7 & 10**
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	**Section 3, 7 and 8**
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	**Section 3, 5, 6, 7 & 10**
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	**Section 3, 5, 6, 7, 9 & 10**

(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	**Section 3, 5, 6, 7, 9 & 10**
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	**Section 3, 5, 6, 7, 9 & 10**
(m) an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	**Section 3**
(n) any specific information that may be required by the competent authority.	**N/A**

1 INTRODUCTION

HilLand Environmental, independent Environmental Assessment Practitioners (EAP), have been appointed by the applicant, **Springfield Estates (Pty) Ltd**, represented by **Mr J Rodrigues**, to ensure compliance with the regulations contained in the National Environmental Management Act (NEMA, No. 107 of 1998, as amended) and the Environmental Impact Assessment Regulations, 2014 (as amended) for the residential development on Portion 53 of Farm 195, George (Springfield Estate).

This Environmental Management Programme (EMPr) is submitted as per the requirements of a Basic Assessment in terms of NEMA and **will replace the existing approved EMPr for the development (Phase construction 1 currently in progress). This EMPr has been approved by DEADP (condition 10).**

This EMPr is binding on the applicant, their representatives, and ALL successors in title / future developers in full or in part for the development as contemplated in this application and any future amendments to the approved layout / development plan, as well as the future Home Owners Association (HOA) and all property owners in the development.

The monitoring of compliance of the EMPr is mandatory in terms of the construction phase and a compliance reporting is required at the **end** of the construction phases:

- installation of all **civil** services;
- construction of top structures as per the development programme and approved SDP.

This EMPr, in terms of the NEMA "duty of care", also includes the operational- and rehabilitation phases that were highlighted as part of the process and it will be the **Developer's and subsequently the HOA's responsibility** to ensure compliance with the operational phases as they fall outside the scope of the Listed Activities to be authorized in terms of NEMA, but they will fall under NEMBA as part of the alien clearing control plan of the southern open space.

The report is divided to provide a clear distinction between the construction phase(s) and the ongoing operational aspects of the development.

This EMPr must be included in the tender documents of **all** prospective contractors and must also be included in the final contract awarded. **The EMPr is binding on all contractors, sub-contractors, agents, consultants and construction staff on the property.**

The full and approved EMPr will be made available to all contractors working on the project. Certain fundamental aspects are therefore of importance:

- The EMPr and these requirements are binding on all contractors and their sub-contractors.
- **It is the responsibility of the applicant/ holder /developer /owner / HOA** to ensure that his/her main contractor and any sub-contractors are made aware of the environmental requirements for working on the estate.

- The contractor(s) will be required to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non-compliance issued).

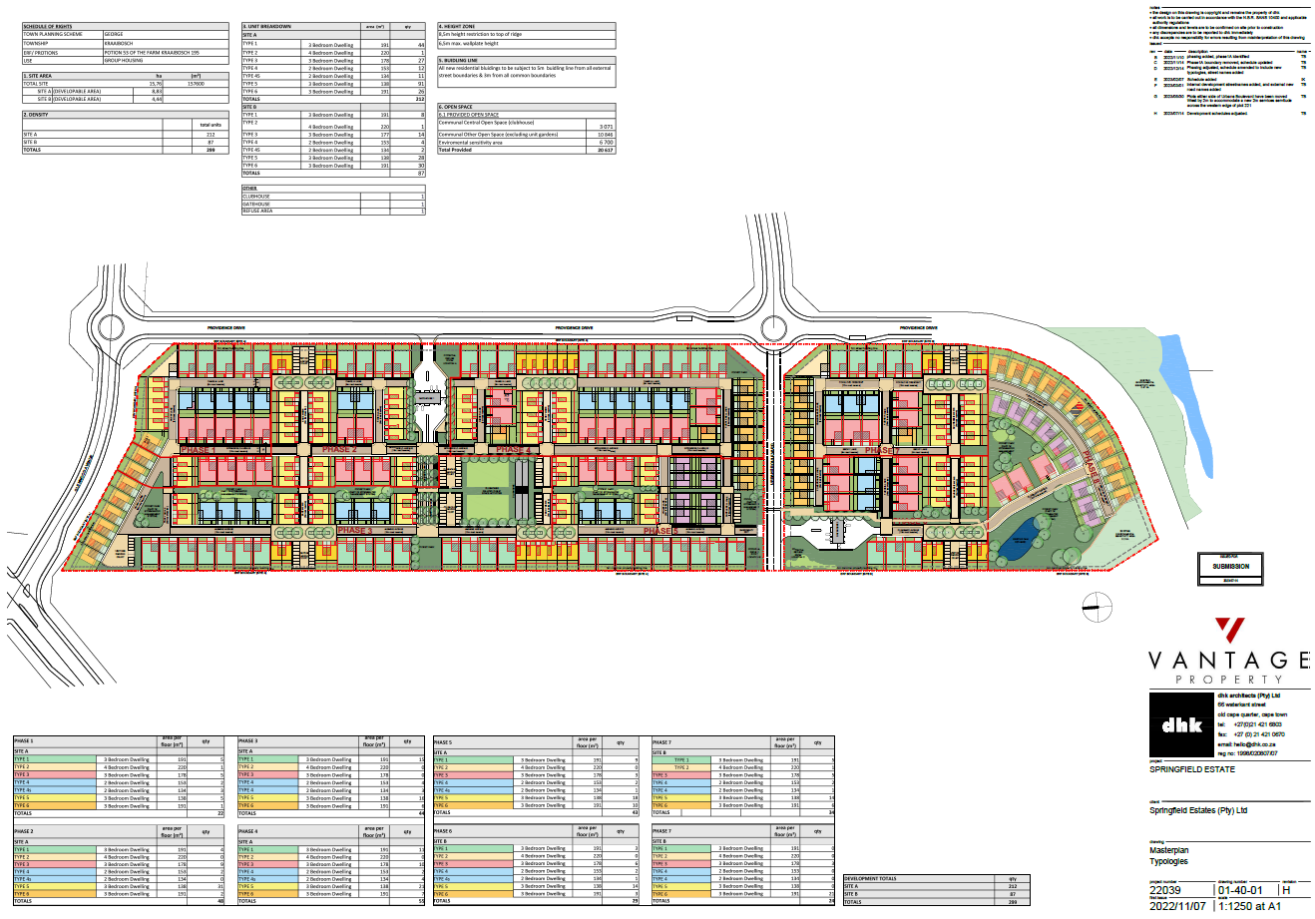
Please note that this EMPr is a dynamic document, which will grow and be changed with new developments in the field as the need arises.

2 DEVELOPMENT PROPOSAL

The development consists of a mixed residential estate community which includes:

- 299 units consiting of various housing types (19 units per Ha)
- Internal roads;
- Clubhouse
- Gatehouse
- Refuse area
- Internal open space areas to be used for recreational activities/infrastructure

Maintaining the 'Environmental sensitivity area' – buffer area along the Modderrug River as originally approved.



SDP is also attached to Annexure B.

As per the existing ROD, no development of sewage servitudes and associated infrastructure may occur within the 1:100 year floodline (except where pipelines or roads cross rivers). No development (i.e activities, buildings or associated infrastructure) may occur on slopes of 1:4, or steeper (i.e. ≥25°).

The development setback boundary of 30m along the edge of the Modderrug River and surrounding the edge of dams/wetlands must be maintained free of construction activities.

ONLY activities included in the Modderrug River Rehabilitation Programme may take place within this zone and are focused on river rehabilitation and restoration of the riparian zone.

The compliance with the EMPr is required for the construction phase for both civil services and buildings as the case may be.

2.1 APPROVALS TO BE IN PLACE BEFORE COMMENCEMENT

- Environmental authorisation from DEADP (Annexure J);
- Land use approval and plan approvals (George Municipality);
- General Authorisation (GA) from BOCMA (Annexure J).

It must also be noted that the Environmental Authorisation requires seven days' notice to DEADP before commencement of activities (condition 8 – 25 January 2024).

3 TERMS OF REFERENCE

The main terms of reference of this EMPr are to identify and mitigate any potential negative environmental impacts that may be associated with listed activities approved in terms of NEMA for the construction of the residential development.

The full and approved EMPr must be made available to all contractors working on the project and must be included in all tender documentation. Certain fundamental aspects are therefore of importance:

The EMPr and these requirements are binding on all contractors and their sub-contractors.

It is the responsibility of the applicant/ holder /developer /owner / HOA to ensure that any contractor(s) or sub-contractor(s) is made aware of the environmental requirements.

The contractor will be required to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non-compliance issued).

3.1 LISTED ACTIVITIES APPLIED FOR IN THE NEMA ENVIRONMENTAL APPLICATION

The following listed activities are approved in terms of the ROD (2008):

These are activities identified in Schedule 1 of the Government Notice No. R. 1182 of the 5 September 1997, as amended, being:

- Item 1(d): The construction, erection or upgrading of roads, railways, airfields and associated structures.
- Item 1(n): The construction, erection or upgrading of sewerage treatment plants and associated infrastructure.
- Item 2(c): The change of land use from agricultural or zoned undetermined use or an equivalent zoning, to any other land use.

These items are hereinafter referred to as "the activities".

Similarly listed activities in terms of NEMA EIA Regulations, 2014 as amended which are approved:

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1**	Describe the portion of the proposed project to which the applicable listed activity relates.
27	**The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation**, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan	**This would be similarly listed as the clearing of indigenous vegetation would have been required to transform the area from agriculture to any other land use as per the approval.**

		The development on the property to implement the SDP will require the clearing of indigenous vegetation. The property currently has kikuyu and pasture grasses which have been managed agriculturally for horses while awaiting the start of development. As indicated in the ROD "*the property has been unutilized for agricultural purposes over time. The natural vegetation unit that occurred at the property, viz. Garden Route Shale Fynbos has been transformed for the most part.* **All vegetation clearing will be covered in this EMPr**
28	**Residential**, mixed, retail, commercial, industrial or institutional **developments where such land was used for agriculture**, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: **(i) will occur inside an urban area,** where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	**This would be similarly listed in order for the development to have taken place and transform the area from agriculture to any other land use.** The development consists of a residential development on Portion 53 of Farm 195 which was historically utilised for agricultural purposes. The property is located within the urban edge and urban area of George and is approximately 15.65ha in extent.
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed project to which the applicable listed activity relates.
4	**The development of a road wider than 4 metres with a reserve less than 13,5 metres.** **i. Western Cape** i. <u>Areas zoned for use as public open space or equivalent zoning</u>; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. **Inside urban areas:** (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	**Similarly listed but no longer applicable –** There are no roads within areas zoned for public open space. (these form part of the equivalent zoning which is being handled as a separate NEMA BAR application). Development was previously outside an urban area but is now within an urban area and as such this activity is no longer applicable for the construction of internal roads. **Construction of all internal roads will comply with the EMPr.**
12	**The clearance of an area of 300 square metres or more of indigenous vegetatio**n except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan **(i) Western Cape** **i. Within any critically endangered or endangered ecosystem** listed in terms of section 52 of the NEMBA or prior to the publication of such a list,	**This would be similarly listed as the clearing required to transform the area from agriculture to any other land use would have resulted in the clearance of vegetation on the property which is now mapped as Critically Endangered Garden Route Granite Fynbos (2022).**

	within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	However, as indicated within the ROD, the property was historically used for agricultural purposes and any natural vegetation has been transformed for the most part. Land zoned as equivalent Open Space which will be cleared forms part of a separate NEMA BAR application. **All vegetation clearing will be covered in this EMPr**

Listed activities for the northwestern corner of the property (deemed equivalent zoning):

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
4	**The development of a road wider than 4 metres with a reserve less than 13,5 metres.** **i. *Western Cape*** **i. Areas zoned for use as public open space or equivalent zoning;** **ii. Areas outside urban areas;** **(aa) Areas containing indigenous vegetation;** (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	Although the property is within the urban edge of George and is approved for development and is surrounded by development, DEADP may deem the area to be "not in an urban area". The intended zoning of the erf that will now be developed, which includes construction of roads, is development overlay zone and is transformed as confirmed in the current EA/ROD. There will however be "clearance of indigenous vegetation" as per the NEMA definition. The open space equivalent zone is NOT zoned or designated for conservation use in any way – the only conservation areas in the current ROD are along the river which remain unchanged. **All road construction falls under this EMPr**
12	**The clearance of an area of 300 square metres or more of indigenous vegetation** except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. **i. Western Cape** **i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;**	The clearance of the vegetation will be required and will be in excess of 300m² or more of mapped Critically Endangered Garden Route Granite Fynbos. Although it is already confirmed in the current EA/ROD that the property is transformed and no longer supports the ecosystem. The clearance of mapped vegetation (endangered threat status) will take place. And there will be clearance of indigenous vegetation within the residential housing and associated infrastructure in the equivalently zoned area. **All vegetation clearing will be covered in this EMPr**

	ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; **iv. <u>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or</u>** v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	

These activities relate to the proposed construction of a residential estate on the property and the impacts associated with those activities are covered in this EMPr.

Various technical reports and specialist assessments have been undertaken in order to inform the application and the impacts anticipated and the mitigation measures proposed are included in this report.

3.2 ENVIRONMENTAL CONTROL OFFICER (ECO)

An environmental control officer (ECO) must be appointed to oversee the installation of services during **civil and top structure construction** on-site, ensure compliance with the Environmental Authorisation (EA) and the Environmental Management Programme (EMPr) and to assist with issues as they may arise on site. **Any phase will be regarded as complete once the associated communal landscaping for that area is complete**.

It will be the ECO's responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in the EA (and any amendments/new EA's) are implemented and complied with by the owner / developer /HOA as the case may be.

The **applicant/developer / HOA** will be responsible for the remuneration of the ECO and any other expenses encountered in the process of environmental monitoring of the construction.

3.2.1 SELECTION OF THE ECO

The appointed ECO must be able to demonstrate that (s)he is of sufficient competency to undertake the required task. This includes:

- Previous experience of environmental control of similar sites.
- Working experience with contractors.
- Knowledge of the particular project and expected areas of concern.

3.2.2 ROLES AND RESPONSIBILITIES OF THE ECO

The ECO will undertake the following tasks:

- Ensure **compliance** with the EMPr at all times during the pre-construction and civil construction phases;
- Ensure compliance with relevant management **conditions** of the EA (as amended and any new) during the pre-construction and civil construction phases;
- To work in close co-operation with the resident engineer, contractors, management and HOA of the site;
- Meet with the contractors to set out the environmental parameters within which they must work (pre-construction and civil construction phase);
- Provide an **Environmental Induction (Environmental Education)** with all contractors **prior** to the commencement of any work (pre-construction phase (civil building));
- Indicate where all no-go areas are to be demarcated and to ensure adherence to these delimitations at the induction session **BEFORE** any construction commences on-site (pre-construction phase);
- Indicate where **plant rescue** may be necessary, and what species should be rescued on this site (pre-construction phase);
- Indicate where **erosion protection and siltation prevention measures** are required or need to be supplemented and to ensure correct implementation;
- Advise on **rehabilitation requirements** according to the different areas;
- Check up on general environmentally friendly construction practices (e.g. no littering, safe and secure environment, contamination risks, etc.);
- Ensure that the correct earthworks practices are adhered to, e.g., no encroachment into the surrounding vegetation, separation of topsoil and subsoil, correct stockpiling and stripping of topsoil).
- Provide a report back at site meetings (during the pre-construction and civil construction phase) to report on and assess the success of the environmental control and to determine any further environmental control measures which may be necessary;
- The ECO should visit the site **weekly** during the **construction phase** and rehabilitation thereof. The ECO is to be available at any time as required by the contractors, resident engineer or authorities;
- The ECO should conduct a **monthly** inspection of the **rehabilitation phase** following civil construction to ensure success until the area is suitably reinstated and secure;
- The ECO has the discretion to undertake more frequent visits if he/she feels this is justified due to the actions of the contractors and to make ad hoc visits in order to ensure compliance;
- The ECO is to keep a site diary; a photographic record of activities taking place on site as well as copies of all monthly reports submitted to the Department, a schedule of current site activities including the monitoring of such activities and complaints register of all public complaints and the remedies applied to such complaints;
- **Monthly monitoring reports** must be submitted to the developer (team), local authority and DEADP during the **civil construction phase**;

- The ECO is to submit a **completion report** to the competent authority (**DEADP- George Office**) and **applicant** at the following stages:
  - upon completion of the civil construction phase
  - upon completion of the top structure construction phase(s)

  these reports need to be submitted **before** the EA lapses;
- It must be noted that the **ECO HAS THE AUTHORITY TO SUSPEND WORK ON SITE FOR ANY ACTION BEING UNDERTAKEN THAT DOES NOT COMPLY WITH THE ENVIRONMENTAL REQUIREMENTS OF THE SITE**. Such a stop order has immediate effect and will be communicated through the resident engineer to the contractor responsible.

4 CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION (EA)

Conditions of the Environmental Authorisation (16/3/3/1/D2/19/0007/23 – dated 25 October 2023) are listed below.

E. Conditions of Authorisation
Condition
1. This Environmental Authorisation is granted for the period from date of issue until **30 November 2033** (validity period), during which period the Holder must ensure that the— (a) physical implementation of all the authorised listed activities, including the installation of bulk services and the construction of the top structures, is started with and concluded at the site; (b) construction monitoring and reporting requirements are undertaken at the site and submitted to the Competent Authority in time to allow said authority to process such documents timeously; (c) post construction rehabilitation and monitoring requirements is undertaken and completed at the site; and (d) environmental auditing requirements are complied with; and that such auditing is finalised in time to allow the competent authority to be able to process the environmental audits timeously within the specified validity period.
2. The Holder must finalise the post construction rehabilitation and monitoring requirements within a period of 3-months from the date the development activity (construction phase) is concluded.
3. The Holder is authorised to undertake the listed activities specified in Section B above in accordance with the Preferred Alternative described in the Integrated Final Basic Assessment Report ("FBAR") and Final Impact Report dated 19 July 2023 on the site as described in Section C above. This Environmental Authorisation is only for the implementation of the Preferred Alternative which entails: The Holder is herein authorised to undertake the following activities that includes the listed activities as it relates to the transformation of land previously used for agriculture and the clearance of indigenous vegetation for the construction of the residential development and associated structures and infrastructure. The specific details of the proposed development on the property comprises of the following: • 299 units consisting of various housing types (19 units per Ha); • Internal roads; • Clubhouse; • Gatehouse; • Refuse area; • Internal open space areas to be used for recreational activities/infrastructure.

The development must be implemented in accordance with the layout developed by dhk architects (Pty) Ltd. (dated 07/11/2022) Drawing number 01-40-01 Rev H (Annexure 2).
4. This Environmental Authorisation may only be implemented in accordance with an approved Environmental Management Programme ("EMPr").
5. The Holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the Holder.
6. Any changes to, or deviations from the scope of the alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.
7. The Holder must in writing, within 14 (fourteen) calendar days of the date of this decision– 7.1. notify all registered Interested and Affected Parties ("I&APs") of – 7.1.1. the decision reached on the application; 7.1.2. the reasons for the decision as included in Annexure 3; 7.1.3. the date of the decision; and 7.1.4. the date when the decision was issued. 7.2. draw the attention of all registered I&APs to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended) detailed in Section G below; 7.3. draw the attention of all registered I&APs to the manner in which they may access the decision; 7.4. provide the registered I&APs with the: 7.4.1. name of the Holder (entity) of this Environmental Authorisation, 7.4.2. name of the responsible person for this Environmental Authorisation, 7.4.3. postal address of the Holder, 7.4.4. telephonic and fax details of the Holder, 7.4.5. e-mail address, if any, of the Holder, 7.4.6. contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations (as amended). 7.5. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the applicant notified the registered I&APs of this decision. 7.6. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided (i.e., the listed activities), including site preparation, must not commence until the appeal is decided.
8. Seven calendar days' notice, in writing, must be given to the Competent Authority before commencement of any activities. 8.1. The notice must make clear reference to the site details and EIA Reference number given above. 8.2. The notice must also include proof of compliance with the following conditions described herein: **Conditions no.: 7**, **10** and **12.**
9. Seven calendar days' written notice must be given to the Competent Authority on completion of the construction activities.
10. The draft or Environmental Management Programme ("EMPr") submitted as part of the application for Environmental Authorisation is herewith approved and must be implemented and adhered to. 10.1.

The EMPr must be amended to incorporate the following — 10.1.1. Incorporate all the conditions given in this Environmental Authorisation; 10.1.2. Include the auditing schedule as set out by this Environmental Authorisation.
11. The EMPr must be included in all contract documentation for all phases of implementation. 12. The Holder must appoint a suitably experienced Environmental Control Officer ("ECO"), for the duration of the construction and rehabilitation phases of implementation contained herein.
13. The ECO must– 13.1. be appointed prior to commencement of any works (i.e. removal and movement of soil); 13.2. ensure compliance with the EMPr and the conditions contained herein; 13.3. keep record of all activities on the site; problems identified; transgressions noted and a task schedule of tasks undertaken by the ECO; 13.4. remain employed until all development activities are concluded, and the post construction rehabilitation and monitoring requirements are finalised; and 13.5. the ECO must conduct site inspections at least every 2 (two) weeks and must submit ECO Monitoring Reports on a monthly basis to the competent authority.
14. A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities and be made available to anyone on request, and where the Holder has website, such documents must be made available on such publicly accessible website.
15. Access to the site referred to in Section C must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. 16. The Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited.
17. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme: 17.1. Auditing during the non-operational phase (construction activities): 17.1.1. During the period which the development activities have been commenced with on the site, the Holder must ensure annual environmental audit(s) are undertaken and the Environmental Audit Report(s) submitted annually to the Competent Authority. 17.1.2. A final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within **three (3) months** of completion of the construction phase.
18. The Environmental Audit Report(s), must– 18.1. be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process; 18.2. provide verifiable findings, in a structured and systematic manner, on– 18.2.1. the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and 18.2.2. the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.

18.3. identify and assess any new impacts and risks as a result of undertaking the activity;

18.4. evaluate the effectiveness of the EMPr;

18.5. identify shortcomings in the EMPr;

18.6. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;

18.7. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;

18.8. indicate the date on which the maintenance/ rehabilitation was commenced with and the progress of the rehabilitation;

18.9. include a photographic record of the site(s) applicable to the audit; and

18.10. be informed by the ECO reports.

19. The Holder must, within 7 calendar days of the submission of the audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

20. A development setback boundary of 30 metres along the edge of the Modderkloof / Modderrugrivier and surrounding the edge of dams / wetlands must be maintained free of any construction activities.

21. The Stormwater Management Plan developed by SMEC, dated 17 May 2023, must be implemented on the site.

22. The area immediately south of the development abutting the Modderrug River must be managed as an open space area and must not be developed. Further to this— 22.1. No new buildings, structures or bulk engineering services infrastructure may be constructed / installed in this open space area within 32 metres from the edge Modderrug River, unless the necessary authorisation has been obtained.

22.2. A public walkway system must be established at least 32-metres away from the watercourse, in the open space system. The walkways must be able to accommodate wheelchairs, pedestrians and cyclists and be at least 2.0m in width.

22.3. No fencing may cross the river and the fencing must be restricted to the residential area.

22.4. The Holder must ensure that all alien invasive plant species will be removed from the open space area within the specified validity period.

22.5. A "Conservation Management Plan" (CMP) must be developed and implemented for the management of the Modderrug River open space during the validity period of this Environmental Authorisation.

Such CMP must address and / or incorporate the following—

(a) No planting except for rehabilitation in terms of an approved management plan.

(b) The corridor must remain linked to form a green belt with adjacent properties with open space areas.

(c) No collection or damaging of fauna and flora.

(d) Financial provisions for the management and upkeep of the conservation area.

Note: The CMP should be incorporated in the constitution of estate's Homeowners Association (HOA).
23. Should any heritage remains be exposed during excavations or any other actions on the site(s), these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape. Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority. Heritage remains include meteorites, archaeological and/or paleontological remains (including fossil shells and trace fossils); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; shipwrecks; and/or graves or unmarked human burials including grave goods and/or associated burial material.

5 MANAGEMENT OUTCOMES AND OBJECTIVES

- Biodiversity requirements (Hoare, 2023):

Although the site can be classified as being of a low sensitivity from botanical, faunal and general terrestrial diversity perspective and is already approved for development, the development needs to be undertaken in a manner that it protects and causes minimal negative impacts to the surrounding areas. The following mitigation measures are proposed:

- Clearance of vegetation limited to the development zone as indicated on the SDP;
- The buffer areas towards the south must be regarded as a strict no-go area. All work, stockpiles, offices, resting areas, parking areas etc. must remain in the development zone;
- Alien invasive plant control must be done in the southern section of the property adjacent to the Modderrug River in accordance with an ACP in terms of NEMBA and the rehabilitation of this disturbed and invaded areas should promote establishment of site-appropriate indigenous thicket species.
- Plant rescue of the few isolated indigenous geophytes must take place and these species to be replanted into the rehabilitation corridor along the riparian zone and buffer.

- Aquatic requirements (Confluent Environmental, 2023):

Stormwater Management

A key impact related to large residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. These watercourses may not necessarily fall within the development

footprint but may still ultimately receive stormwater by connecting the development into an existing stormwater network that discharges into the watercourse. In this way, stormwater generated from the site can still affect watercourses located far outside of the development footprint.

It is therefore important that stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. For example, the City of Cape Town guideline is that developments must provide for 24-hour extended detention of the 1-year return interval 24-hour storm event. In this respect the following measures, *inter alia*, should be considered:

- Rainwater harvesting tanks be installed at all residences;
- Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;
- Use of permeable paving to encourage infiltration into the soil; and
- Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.

Buffer Zones

Implementation of buffer zones as determine in this assessment are considered as important with respect to protecting adjacent watercourses from construction and operational phase activities. The following recommendations must be adhered to:

- Buffers are to be considered No-Go areas.
- Buffers as indicated in Figure 9 must be clearly demarcated.

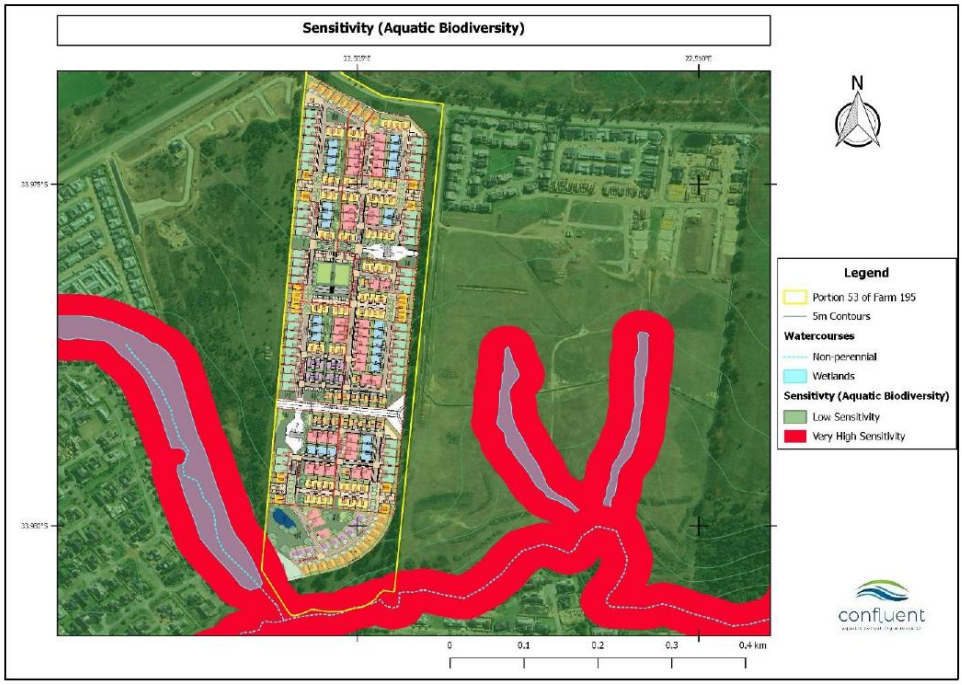


Figure 9: Map indicating areas mapped as Very High and Low sensitivity for aquatic biodiversity.

- No construction activities are permitted to occur within the buffer areas.
- No materials (i.e. soil, waste or construction materials etc.) may be stockpiled within the buffer.

National Water Act

The development footprint and connection to the bulk sewer line falls outside of the riparian zone of the Modderrug River. These activities fall outside of the 1:100 year floodline, the development do not fall within the regulated area of the Modderrug River. No Section 21 (c) and (i) authorisation are required with respect to the Modderrug River. The existing WUL (and associated conditions) for Road 3 should however be consulted to determine that the design of the stormwater network can accommodate stormwater from the development without causing any additional degradation to receiving watercourses.

The development does fall within 500 m of wetlands located to the east and west of the property, and according to GN509 of the National Water Act, would require either a General Authorisation or Water Use License, depending on the level of risk posed to these wetlands (see Section 1.2 above). There are however multiple developments planned adjacent to Portion 53 of Farm 195 and the Breede-Olifants Catchment Management Agency (BOCMA) have requested a risk assessment to determine the level of assessment and authorisation required with respect to these wetlands.

The risk assessment indicated a low risk and as such a general authorisation will be required. The GA application has been lodged with BOCMA.

The following objectives were identified in the assessment:

Objective: **Prevention of loss of natural vegetation** - this impact is at face value minimal as there is little to no remaining natural vegetation on or off the site. The rehabilitation in the riparian zone will see return of the natural vegetation over time which is a positive impact and conservation outcome.

Impacts to avoid:

- Unnecessary access into the riparian buffer area
- Unnecessary disturbance of topsoil and remaining vegetation

Management actions:

- Where applicable - All pathways and recreational use in the riparian rehabilitation zone to be limited and designed to follow contours, limit erosion and control use so that it will not result in damage.
- Ongoing maintenance of the open space area through alien clearing and management of pathways and rehabilitation.
- Plant rescue in the development area of the few remaining indigenous species to be used in the rehabilitation and landscaping areas
- Restoration and rehabilitation of the riparian corridor to recreate a riparian buffer zone of indigenous vegetation.

Management Outcome:

- Sound conservation management area which meets the ecological corridor requirements and supports the ESA principles.

Objective: **Prevention of soil erosion** – loss of topsoil and subsequent erosion, especially on steeper slopes can lead to damage to infrastructure over time and disturbance to riparian ecosystems (through the silt loading)

Impacts to avoid:

- Unnecessary disturbance of soil
- Unnecessary disturbance of vegetation
- Loss of soil on disturbed areas

Management actions:

- SUDS principles in storm water management limit concentration of storm water and encourage infiltration of water back into the soil profile.
- Areas susceptible to erosion must be covered / protected and erosion mitigation measures must be implemented – silt fencing, hay bales, swales, sand bags and other means of slowing water down and allowing sediment to be deposited before it is transported away from its origin.
- Only disturb the area where installation of services is taking place so as to avoid unnecessary exposed areas where erosion may take place (development in phases).
- Stabilization and landscaping must be done following construction and to the satisfaction of the ECO to limit exposed areas
- During alien clearing avoid disturbance of the soil and do not remove the roots of alien trees.
- Regular inspection of any services on site during the operational phase to early identify any potential erosion problems (pipelines, manholes, fences, pathways etc.) and repair immediately to prevent the escalation and damage from occurring.

Management Outcome:

- Soil erosion will be kept to a minimum during construction and maintenance during the operational phase will ensure that erosion does not become a problem.

Objective: **Prevention of pollution** – during the construction phase potential pollution sources are construction vehicles leaking, cement / concrete batching areas, washing areas for paints, litter etc. During the operational phase potential pollution sources are blocked sewer manholes resulting in sewage spills, litter, oil spillage on roads etc

Impacts to avoid:

- Potential leaks from vehicles/construction machinery
- Spillages of hazardous substances
- Leakage of chemical ablution facilities
- Blockages in sewer system and overflow
- Contamination run-off from the construction site
- Waste, such as construction materials etc., which may be blown / washed away into the surrounding environment

Management actions:

- Vehicles and machinery must be well-maintained
- Drip-trays must be used for vehicles / machinery while standing in the camp site
- Leaks on construction vehicles to be immediately repaired or the vehicle removed from site until it no longer leaks.

- Ablution facilities must be well-maintained and regularly emptied
- Litter control essential throughout construction and operational phases
- Cement / concrete must be mixed on impermeable surfaces, concrete batching areas must have surrounding bunding to prevent the movement out of the area of spillage, no washing of any ready mix trucks on site
- Operational management must include regular inspections of pollution sources (even where they are municipal services like the sewer line running through the property and manholes)
- Monitoring by contractor and ECO

Management Outcome:

- No contamination of the environment and adjacent sensitive area (open space - south) and / or adjacent properties / areas
- Good housekeeping

Objective: Prevention of impact of potential heritage resources - none anticipated to be likely on site, however once excavations begin there must be due care to observe if any become evident.

Impacts to avoid:

- Damage to potential heritage resources on the property

Management actions:

- As per the EMPr, should any heritage resources be discovered, work will cease and HWC will be contacted to advise further

Management Outcome:

- Potential heritage impacts are mitigated and avoided

Objective: **Management of open space**

Impacts to avoid:

- Incorrect or no management of communal open space areas

Management actions:

- Alien invasive management to be done throughout the lifetime of the development in accordance with the approved ACP in terms of NEMBA
- All areas of disturbed topsoil to be revegetated / landscaped as soon as possible to prevent loss of topsoil

- Development levy to be secured for ongoing alien management, rehabilitation and landscaping of the internal open space areas
- Rescue and stockpile topsoil from the construction areas to use for rehabilitation and landscaping
- Management to continue by the HOA throughout the lifetime of the development in accordance with the Modderrug River Rehabilitation Plan.
- Management and maintenance budget to be included in the annual HOA budget for the internal open space areas
- Management measures implemented should be done in accordance with the EMPr and inputs made by the ECO
- Maintenance of all pathways to ensure no erosion is starting to take place. Bark or woodchips on pathways to act as a surface and prevent erosion.

Management Outcome:

- Sound management of riparian zone and buffer area.
- Sound management of the internal open space areas
- Continued use and enjoyment of the internal open space areas by the residents
- No uncontrolled movement through or disturbance of the riparian habitat
- An integrated landscape between the homes and infrastructure consisting of mostly indigenous species, that blends seamlessly into the rehabilitated riparian area
- Provide a habitat for movement of wildlife through the unfenced and rehabilitated riparian area (buffer and riparian zone).

6 SPECIFICALLY REQUIRED ENVIRONMENTAL MANAGEMENT PRACTICES

6.1 PRE-CONSTRUCTION PHASE

6.1.1 ENVIRONMENTAL INDUCTION (EDUCATION)

- All civil construction and building staff **must** be briefed by the ECO in an environmental education programme regarding the environmental status and requirements of the site, **prior** to any activities commencing on site. This will include providing general guidelines for minimizing environmental damage during construction, as well as education with regards to basic environmental ethics, such as prevention of littering, the lighting of fires, etc. Records of environmental training (attendance register and training content) must be kept. Please refer to Annexure D of this EMPr.
- Induction required for **all contractors** prior to them commencing on site.

6.1.2 METHOD STATEMENT

- Before the contractor(s) begins each construction activity the Contractor and Site Agent shall, **prior to the commencement** of such activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following:

- Location of the construction camp
- Storage of construction materials and hazardous substances (if any)
- Location of the stockpile sites for the top 30cm of topsoil (required in windrows in and around each phase for use in the rehabilitation and landscaping)
- Location of any stockpile sites for subsoil or plan for removal from site
- Solid waste plan
- Wastewater plan
- Erosion and sedimentation control plan
- Fire control
- Protection of natural features
- Cement and concrete batching plan

The ECO is to approve the method statement **before** the works may commence. A pro-forma method statement showing what is required is attached in Annexure E.

6.1.3 VEGETATION CLEARANCE AND PLANT RESCUE PROGRAMME

- The clearance of vegetation on the entire development area will over time be a requirement for the development. However, **as vegetative cover is critical to preventing erosion and movement of silt, the vegetation must only be cleared in the immediate working area for any activity for the phase under construction.**
- Demarcation of this area and no-go fencing between the working zone and riparian open space to the south as highlighted on the no-go map.
- All activities must be restricted to the demarcated working zone.
- No work may commence in a phase until the required hay bale protective screen has been installed along the buffer area.
- **Plant rescue must be undertaken prior to the commencement of any clearing activities taking place on-site or in a particular phase**. ECO to advise as to what requires transplant in each phase. A record of rescued plant is to be maintained (please refer to the attached table that should be filled out in Annexure F).
- Rescue plants **must be collected and stored** in the on-site nursery located within the working zone for later use in the landscaping phase, or replanted directly into the rehabilitation zone along the Modderrug River.
- For successful transplant a sod including the desired plant with its roots intact should be removed and replanted.
- The grass area is to be mowed **AFTER** plant rescue but prior to commencement to reduce the vegetation biomass. This mulch will form part of the organic material collected with the topsoil.
- Alien clearing to continue in the riparian area
- Although none noted by the specialist, should any endangered species or protected species listed in Schedule 3 and 4, in terms of the Western Cape Nature Conservation Laws Amendment Act, 2000 (Act No. 3 of 2000) or Protected Tree Species in accordance with the National Forests Act, 1998 (Act No.84 of 1998) be discovered

during vegetation clearance, it may not be removed without the relevant permit and licensing. Please see Annexure K for this list of species as adapted from these Acts.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction and Construction phases							
Clearance of vegetation	Development on Portion 53 of Farm 195	Plant rescue programme must be implemented **prior** to the commencement of vegetation clearing as per the EMPr Vegetation clearing must be **limited** to the work area and clear demarcation of the no-go areas will be required to ensure no disturbance beyond the development area	During the pre-construction of the development	Plant rescue to be conducted **in conjunction** with the ECO prior to the commencement of vegetation clearance (civil service installation and infrastructure construction)	**Weekly** inspection of pre-construction activities (vegetation clearing) will be required	Applicant. Contractor. ECO.	To be included in the **monthly** monitoring report

6.1.4 PROTECTION OF FAUNA (ANIMALS)

- The removal, damage or disturbance of animals must be avoided.
- Should any animal be caught up or trapped in the construction area, the ECO should be requested to assist (e.g., relocate snakes trapped in the construction trench etc.)
- The contractor(s) shall be responsible for ensuring all employees are aware of the need to prevent any harmful effects on wildlife on or around the construction site as a result of their activities.
- The contractor(s) shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place.
- The riparian area is a strict NO-GO area unless undertaking a task specific to the area.

6.1.5 SOIL PROTECTION

- As topsoil is a valuable resource, it **must be stripped to stockpile from all construction areas <u>before work commences in that specific area</u>**. ECO to advise as to where to stockpile, to be restricted to the development zone and it may not be located within the buffer area along the Modderrug River.
- Disturbance of vegetation and topsoil is only to take place according to a programme

in approved construction areas as the work in that area is due to begin – this is to avoid large areas being exposed to erosion risk when work is not taking place in that area.

- The topsoil must be stockpiled for use in rehabilitation and landscaping and must **not** be contaminated with other building materials and / or subsoil.
- Where possible, topsoil can be placed directly into the required landscaping areas or swales so that they have time to settle and so the soil does not have to be double handled. Where landscape berms / swales are created, they need to be shaped to their final shape immediately prior to the soil settling and becoming hard and difficult to move.
- Such landscape berms or swales must be vegetated with a cover crop to prevent movement and thereafter be planted with the desired indigenous landscaping material.
- Topsoil can only be removed from the site with the written approval of the ECO.
- The vegetation roots and any surface organic matter are to be removed together with the topsoil and are to be stockpiled for use during the rehabilitation phase.
- The stockpiles must be protected against erosion including wind (vegetation can be permitted to grow on the stockpile to keep it secure and prevent wind movement. No alien invasive plants may grow on the stockpile).
- The soil removed for construction of **services** (which will all be underground such as the sewage / water network, stormwater outlet structures etc.) must not be removed, but placed to the side of the trench, while the sub-soil is placed to the other side. The soil is returned in the same order with the vegetated topsoil closing the trench and stimulating re-growth.
- No topsoil stripping is to take place prior to the completion of the plant rescue programme.
- Any surplus subsoil that needs to be stockpiled for cut and fill operations must be stockpiled in an approved stockpile area as agreed to by the ECO.
- Stockpiles must be screened and protected from wind and water erosion. It is important that no spillage into the open space riparian buffer area is tolerated.
- Silt fencing needs to be installed before construction works commence to ensure that there is limited movement of silt on site. Silt fencing between the development zone and riparian area will be importance, to protect the riparian area so that NO silt can leave the site.

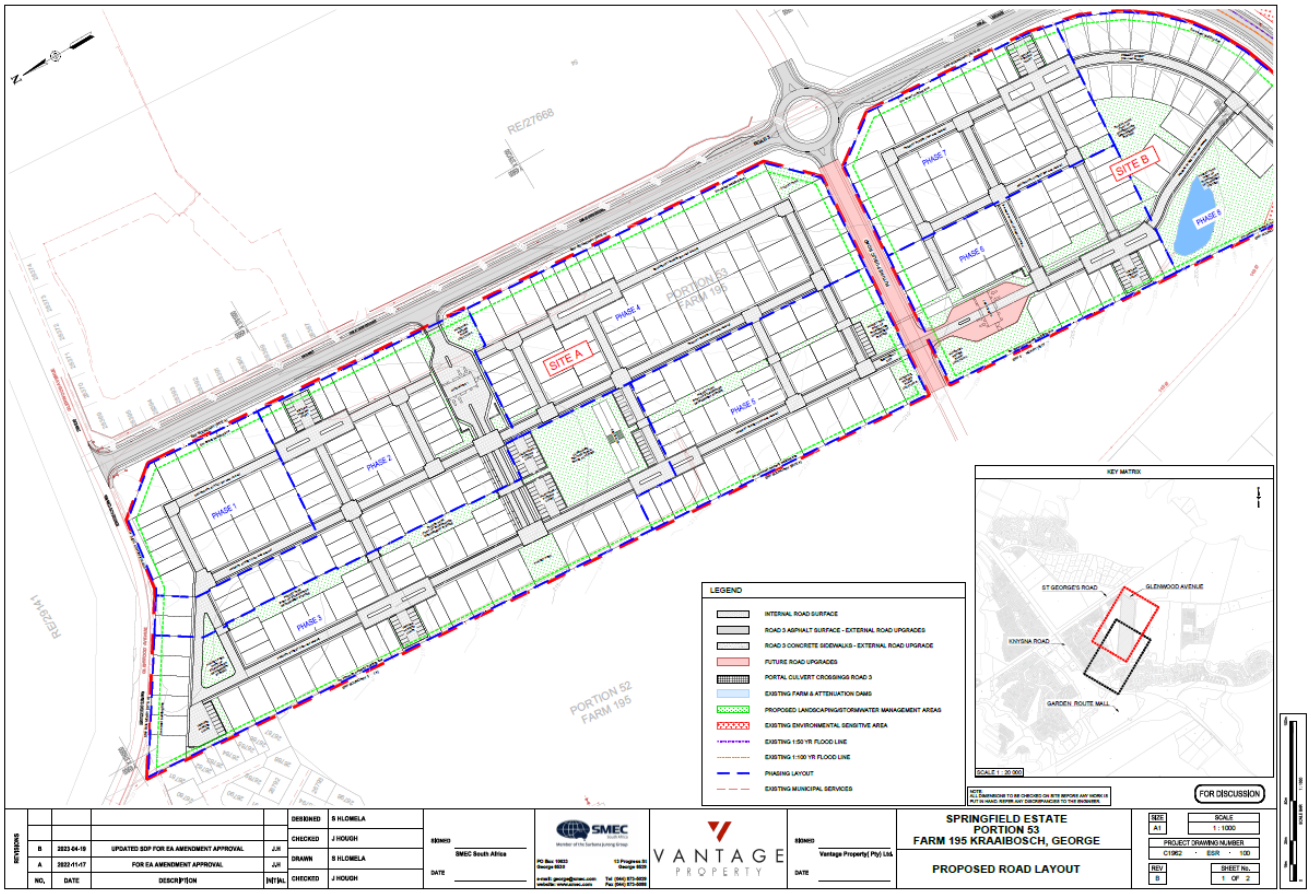
6.1.6 DISCOVERY OF HERITAGE RESOURCES

However, although not anticipated, should it be suspected that an object or structure of heritage value has been uncovered during earthworks or the clearing of vegetation (including but not limited to bones, burial sites, structures older than 50 years, stone tools, shell middens, pottery etc.), then all work is to immediately **cease,** and the ECO is to be contacted to inform Heritage Western Cape (HWC). Work shall not recommence until HWC have visited the site, inspected the object in question and advised on how to proceed. If the object requires removal by a trained archaeologist, this process will be at the expense of the developer. It is the contractor's responsibility to ensure all staff on site is aware of this procedure.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction and Construction phases							
Clearance of vegetation and earthworks required during the construction phase (civil and construction on the property)	Development on Portion 53 of Farm 195	Should any object or structure of heritage value be discovered, work is to **cease**, ECO is to be contacted and advise accordingly	Pre-construction and construction phase	ECO to monitor compliance during the pre-construction and construction phase	Continual monitoring of compliance	Contractor to ensure that work ceases should any object or structure of heritage value be discovered, and the ECO should be contacted The ECO is to contact HWC and advise accordingly	To be included in compliance monitoring report

6.2 GENERAL CONSTRUCTION REQUIREMENTS

6.2.1 ACCESS TO THE SITE



Roads Layout, SMEC 2023

Access to the site is via Glenwood Avenue and new road east of the development (road 3) as indicated on the above plan. Two gatehouses will be provided for the development. Ingress and egress movement will be controlled by means of an access control gate situated on the property.

Construction vehicles and future residents will use these accesses. Any alternative construction access is to be approved by the ECO and local authority prior to being used.

Construction vehicles are to respect the rights of other road users and the residents of the development and any surrounding developments (Kraaibosch Park that also gain access via these roads).

The following will be of importance:

- Movement of construction vehicles must be **restricted** to the designated roads only - any temporary haul roads must be approved by the ECO.
- Rules of conduct for contractors are likely to be set up by the developer and subsequent HOA and will include contractors complying with the EMPr and any construction access routes designated for such purposes.
- Access to the area is to be monitored during construction.
- The contractor(s) must ensure that vehicles leaving the site are clean and, wherever possible, do not deposit mud, any other earth material and concrete on the road surface. Where this is unavoidable, it must be cleaned on a daily basis and may not be permitted to enter the storm water system.
- During the construction of the new residential development and the new entrance to the property, it is essential that traffic flow is **correctly managed** especially since the roads are used by other developments. This implies appropriate signage and visible demarcation of the work area and the areas which traffic must adhere to.

6.2.2 SITE AGENT

- The main contractor shall appoint a responsible agent to ensure that they comply with this EMPr and all its conditions. This party is to report directly to the ECO and will need to attend the induction and be briefed on the requirements by the ECO.

6.2.3 USE OF LOCAL LABOUR

- It is strongly recommended that local labour is used for the construction phase of this project. "Local" implies people within the George area.
- Records are to be kept of all personnel and subcontractors employed by the contractor. The main contractor is to provide the breakdowns of their various sub-contractors. **These records are to be provided to the ECO by the contractor(s) on a monthly basis.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Socio-economic benefits through the creation of short- and long-term employment	Construction and operation of the development	The use of local labour to maximise positive benefit to the local area	During the construction and operational phase of the development	ECO inspections and contractor and management/ developer to ensure compliance	**Monthly** monitoring of submission of records by the **contractor**(s)	Management. Contractor. ECO.	ECO to monitor. To be included in the **monthly** monitoring report

6.2.4 DEMARCATION OF NO-GO AREAS

The southern open space, riparian buffer area will be regarded as a strict no-go area. No construction works may impact on these areas, only rehabilitation works including the alien clearing may be undertaken in these areas. NO activities may take place beyond this line without approval from the ECO and an approved Method Statement for such works.

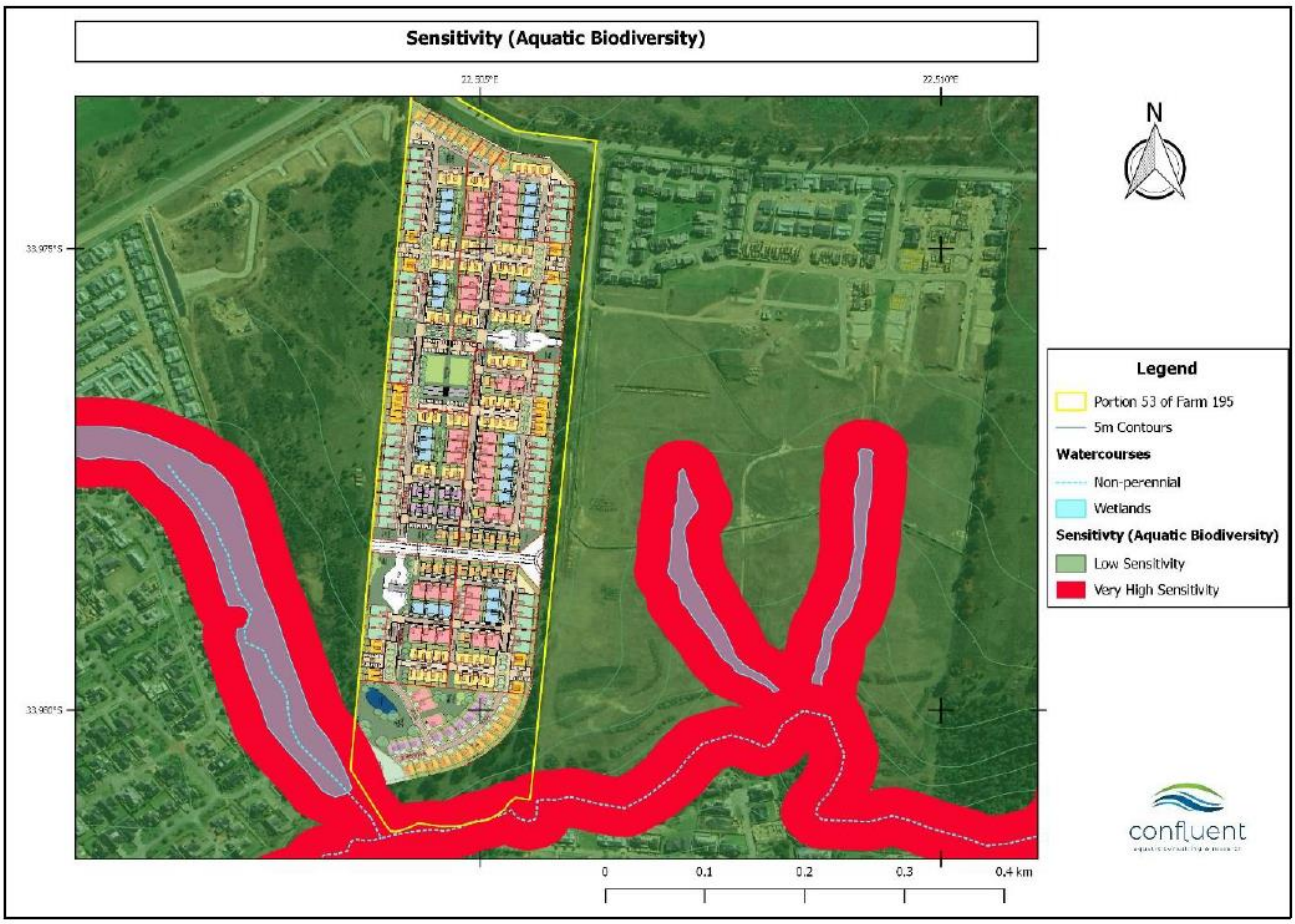
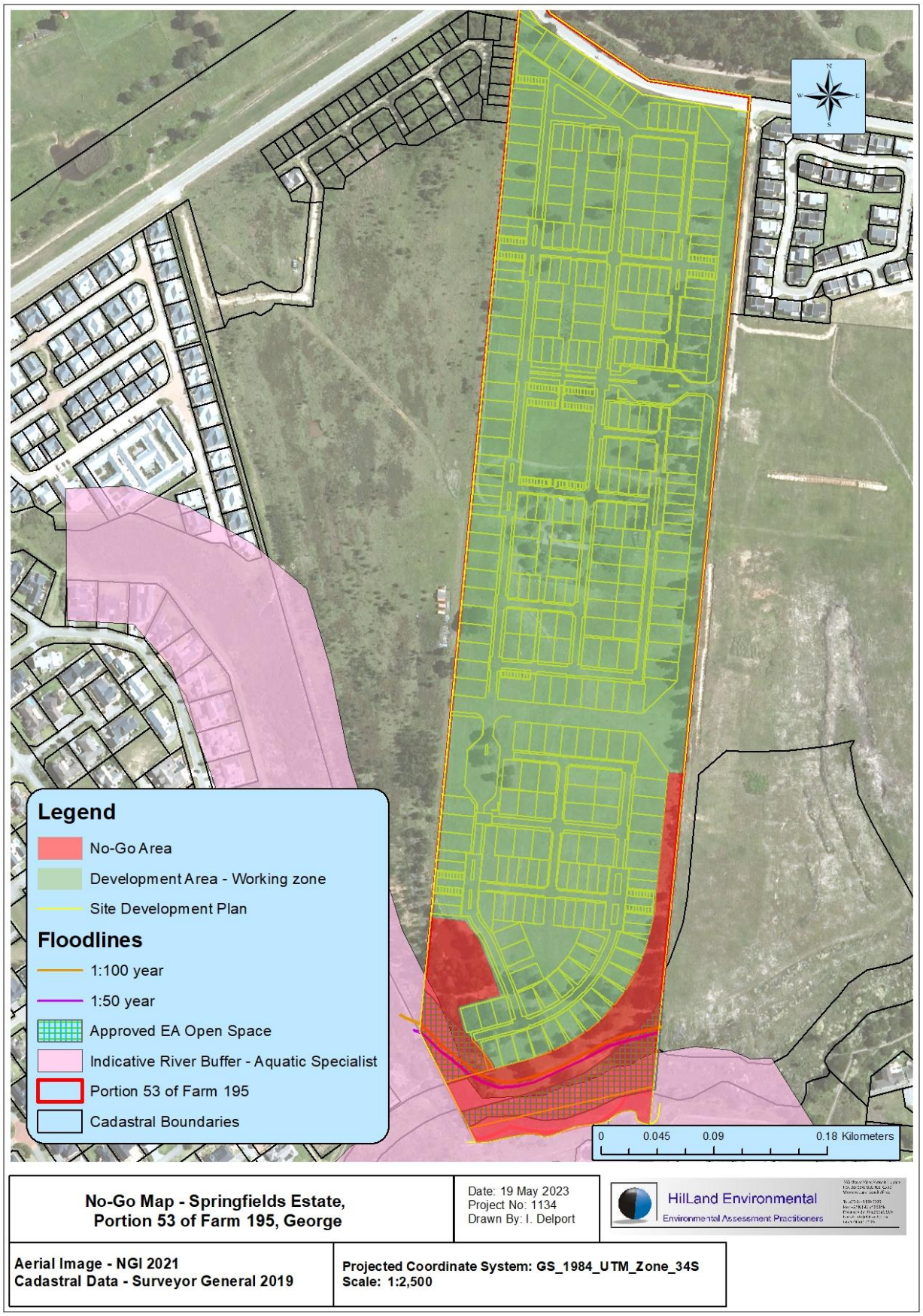


Figure 9: Map indicating areas mapped as Very High and Low sensitivity for aquatic biodiversity.

- All people working on site must be made aware of the boundaries within which work is to be done.
- As there may be multiple contractors on site at any time it is critical that each contractor is aware of the extent of their work area and remain within the work area.
- During civil construction the areas not under construction are regarded as NO-GO areas.
- During construction of top structures, the entire site is regarded as NO-GO with the exception of the site that has been handed over to the specific builder(s).


Legend
No-Go Area
Development Area - Working zone
Site Development Plan
Floodlines
1:100 year
1:50 year
Approved EA Open Space
Indicative River Buffer - Aquatic Specialist
Portion 53 of Farm 195
Cadastral Boundaries
0 0.045 0.09 0.18 Kilometers
No-Go Map - Springfields Estate,
Portion 53 of Farm 195, George
Date: 19 May 2023
Project No: 1134
Drawn By: I. Delport
HilLand Environmental
Environmental Assessment Practitioners
Aerial Image - NGI 2021
Cadastral Data - Surveyor General 2019
Projected Coordinate System: GS_1984_UTM_Zone_34S
Scale: 1:2,500

The following applies:

- **<u>Civil contractors and Building contractors</u>** - all areas **outside** that of the defined works (roads and pipeline routes or building platforms) is deemed a no-go area.
- Disturbance within the work area is to be kept to the minimum, as **all disturbed areas will require stabilization** (placing topsoil and re-seeding to ensure vegetative cover) on completion of the work **by the contractor**.
- All construction activities must be **restricted** to the demarcated areas to ensure that no further disturbance into the surrounding vegetation.
- No encroachment or activities may take place outside the work areas.
- Storage sites for construction material and access must be approved by the ECO prior to commencing (and areas will require rehabilitation after use).
- No-Go areas will be required to be demarcated by the contractor to ensure that they are visible at all times, to all personnel.
- Methods of demarcation will be agreed with the ECO and may include danger tape, rope, fencing, shade cloth, mulch bags, wire fencing etc. Method of demarcation will depend on the work that will be undertaken.
- In light of the above, should access be required through a no-go area, permission must be obtained from the ECO in writing prior to the use of such an area. The riparian open space area may only be accessed for rehabilitation / specified maintenance purposes.
- Adjacent properties to the construction site may not be entered by any construction staff if permission is not granted by the owner.
- The ECO must monitor adherence to the No-Go area policy.
- Access into the No-Go areas by personnel is strictly forbidden (i.e., Work breaks such as lunch are not permitted outside the defined work area - no entry into the neighbouring properties or open space areas). A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R5 000 per incident).

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Demarcation of no-go areas and protection of sensitive areas	Development on portion 53 of farm 195	The contractors are to comply with the requirements of the EMPr Demarcation of working areas is required by means of shade netting (**around development area(s)**) and danger tape / netting (civil construction and trenches)	During the construction of the development (civil and building construction)	ECO and contractor to continually monitor compliance during construction	ECO to conduct **weekly** inspections of construction works	Contractor to implement no-go demarcation ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the **monthly** monitoring report

6.2.5 CONSTRUCTION SITE CAMP

- The area must be indicated and approved by the ECO (through the submission of the **method statement** by the contractor).
- Ablution facilities (chemical toilets) are to be provided at the site camp for use of the staff (one toilet per 15 people) **– to be in place prior to commencement of activities on site (includes clearance of vegetation/earthworks)**.
- A dedicated area must be created within the site camp for refuse and waste management. These are to be disposed of at the various approved waste disposal sites.
- **No** accommodation with the exception of a night watchman is permitted on site by contractors or their staff during the construction period**.**
- **No open fires are to be permitted. The storage of any potential ignition sources on the property must be removed from site at end of day.**
- Storage of all materials required for the contract must occur within this site camp, or otherwise approved area (by the ECO).
- **Any concrete batching plant areas** are to be approved by the ECO prior to utilisation and must be equipped with suitable settling ponds and trapping mechanisms to ensure that contaminated water does not leave the restricted area.
- No ready-mix trucks are permitted to rinse their tanks on site or along the access roads to and from the site. **Any spillage is to be immediately cleaned by the responsible contractor / supplier / owner.**
- **No** temporary diesel storage tanks may be brought to the site.
- Adequate signage must be erected at the construction site to ensure that safety regulations are adhered to.

6.2.6 STORAGE OF CONSTRUCTION MATERIAL

The following must be adhered to:

- All stockpile sites to be approved by the ECO and/or landowner, **prior** to the commencement of stockpiling.
- All stockpile sites within the development area are to be demarcated with silt-fences and/or danger tape, where necessary.
- Silt protection measures around stockpile sites may be required.
- All construction material should be stored within the site camp / boundary (if space allows it).
- **No** construction material is to be stored outside of the site camp / development area without written permission from the appropriate landowner, HOA and ECO.
- **No** construction material is to be stored on steep sloped areas (close proximity to the open space area).
- No hazardous materials to be stored on site like diesel, petrol etc. without written approval by DEADP.

- Any material removed from bulk earthworks that is not going to be used as part of the cut and fill, **MUST** be removed from site to an approved disposal site immediately. Temporary storage of cut material for future fill MUST be agreed by the ECO and MAY NOT be beyond the development footprint.

6.2.7 FIRE PROTECTION

- The contractor must take all reasonable and active steps to avoid increasing this risk of fire (especially to prevent damage to surrounding properties and vegetation). **No** open fires or naked flames for heating or cooking shall be allowed anywhere on site. The contractor shall ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal. Cigarettes must **not** be disposed of onsite and must be disposed of properly in receptacles for this purpose.

  No burning of waste on ANY PART of the site should be permitted.

- The contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire start. The contractor shall ensure that his staff are aware of the fire danger at all times and are aware of the procedure to be followed in the event of a fire. The contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it.

6.2.8 HEALTH AND SAFETY

- The Occupational Health and Safety Act (Act number 85 of 1993) must be complied with.
- The H&S Officer is to copy the ECO in on his/her reports for record purposes.

6.2.9 WASTE MANAGEMENT

- It is recommended that an integrated waste management approach must be used that is based on waste minimisation and must include reduction, recycling, re-use and disposal where appropriate. Only approved waste disposal methods are allowed. The contractor shall ensure that all site personnel are instructed in the proper disposal of all waste. The contractor shall ensure that **sufficient disposal facilities** are available.

- **Recycling** must be encouraged on-site and recycling bins must be provided and clearly marked.

- Disposal of all waste materials must be done at suitable facilities. **No dumping** of any waste material on or off-site is permitted.

- Documentary evidence of all disposed contaminated products, waste or residues, which have been generated during the construction phase must be kept.

- The contractor shall ensure that the site is maintained in a **neat and tidy** condition and kept **free of litter (including the open space area)**. Measures must be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work, the contractor shall provide **litter bins, containers (which must be closeable to prevent wind-blown litter littering the site)** and **refuse collection facilities** for later disposal. Litter to be removed from the site on a **daily** basis (through daily litter picking before the site is closed for the day). Rubbish bins must be provided on-site and regularly cleaned / emptied.

- **Solid waste** may be temporarily stored on-site in a **designated area** approved by the ECO prior to collection and disposal. Solid waste must be removed on a **weekly basis** to a licensed municipal waste site.

- Waste storage **containers** shall be covered, tip-proof, weatherproof and scavenger proof. The **waste storage area** shall be **fenced off** to prevent wind-blown litter.

- The contract staff must be clearly briefed on the 'no litter policy'. **The site is to be kept clean of litter, even if it is not caused by the contractor staff.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction of buildings and associated waste	Development on Portion 53 of farm 195	Waste management should be done in accordance with the EMPr	During the construction of the development (civil and building(s) construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct **weekly** inspections of construction works	Contractor to implement sound waste management ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the **monthly** monitoring report

6.2.10 ABLUTION FACILITIES

- Ablution facilities must be provided for all contraction staff working on site (this includes during pre-construction activities).
- Contractors must provide chemical ablution facilities for all construction personnel working on the site. The number of chemical toilets required must adhere to the H&S requirements applicable at the time of the contract.
- Toilets shall be of a **neat** construction and shall be provided with doors and locks and shall be secured to prevent them from blowing over.
- Sanitation provision and servicing shall be to the satisfaction of the environmental control officer (ECO).

- The contractor shall ensure that the toilet(s) are emptied **regularly** and also **before** weekends and public holiday periods.
- Failure to use the chemical toilet provided and making use of the vegetation either on or off-site **will result in maximum penalty fine being awarded in addition to requiring the contractor to clean up**.

6.2.11 SOIL EROSION AND STORMWATER MANAGEMENT

- The stormwater management plan (SUDS) must be implemented as proposed.
- Limit clearing of vegetation as far as possible as this prevents the movement of silt.
- Stringent mitigation measures must be imposed during construction to minimise runoff, possible silt run-off and contamination of water leaving the site (especially into the open space area (riparian area)).
- Use of silt-fencing, rows of onion bags, mulch, brushwood, sandbags and deflection berms (the choice depending on the situation). These mitigation measures are essential in all exposed areas.
- Areas requiring erosion control mechanisms are to be identified by the contractor and ECO. Instructions by the ECO are to be given to the contractor as required.
- In the event of erosion damage or silt movement, the contractor will be liable for a fine and is responsible for the clean-up and required to reinstate the conditions to normal as determined by the ECO.
- To decrease the risk of water pollution, all construction materials must be secured (e.g., only stockpiling at a pre-determined site, around which there must be a silt protection boundary) so that there is **no wash away**.
- In the case of contaminated water run-off, silt can be stopped by means of sandbags and following the rain the contaminated area should be cleaned. All measures must be taken to avoid contaminated water entering any water bodies (perennial – Modderrug River) and adjacent open space area in any way.
- It is the responsibility of the contractor working inside any trench at any specific time to ensure that their works are protected from damage which may be caused through runoff of rainwater inside the trench. The use of sandbags, mulch bags or any other appropriate methods of slowing down the flow of water within a trench is required.
- As per the engineering report, All construction works on the Development shall be monitored against the EMPr with specific attention to the following aspects:
  - Retaining of surface run-off until the attenuation areas are complete and functional.
  - Mitigation of debris and silt build-up during times of heavy rain.
  - Controlling dust during the construction of works.
  - Construction of the stormwater attenuation pond as soon as possible.
  - Landscaping to commence and be completed as soon as possible.
  - Demarcating all no-go areas as defined by the EMPr.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Potential erosion during the construction of the development.	Development on Portion 53 of Farm 195	The contractor is to comply with the EMPr requirements regarding erosion prevention. Emergency erosion protection materials (haybales, sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on-site to treat erosion area as soon as it appears	During the construction of the development (civil and building(s) construction)	ECO and contractor to continually monitor the site during construction for signs of potential erosion	ECO to conduct **weekly** inspections of construction works	ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the **monthly** monitoring report.

6.2.12 CONCRETE AND CEMENT WORKS

- No concrete mixing or batch bund areas within 50m of the top of slope leading to the Modderrug River.
- Mixing areas must be defined on-site and **clearly** demarcated.
- Cement powder has a high alkalinity pH rating, which can contaminate and affect both soil and water pH dramatically. A shift in pH can have serious consequences on the functioning of the soil, water organisms and plants.
- All concrete must be mixed in a batching area that is bunded.
- Cement mixing must be either ready-mix, from the batching area or mixed on trays / on thick plastic and not on the soil.
- **Bunding** through the use of sandbag walls around any mixing areas is recommended, together with an impermeable base.
- **Contaminated soil** from such bunds to be disposed of at the municipal waste disposal site.
- When using Ready-mix concrete, care must be taken to prevent spills from the trucks while offloading.
- **Cement contaminated water may not enter any open space area or water bodies (south).**
- The contractors and sub-contractors need to ensure that the used cement bags do not create a litter problem.
- Any cement or concrete contaminated soil must be removed and disposed of appropriately.
- Excess or spilt concrete should be disposed of at a suitable registered landfill site.

- No water for the mixing of cement may be sourced from any river system (Modderrug River).
- No cement water or the like may enter the storm water system which will end up in the Modderrug River – **bunding is essential**.
- **No mixing to be done in environmentally sensitive areas or areas where there is a high risk of cement contaminated water entering the SUDS stormwater system.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Cement and concrete works	Development on Portion 53 of farm 195	Cement and concrete works are to comply with the EMPr Appropriate bunding and mixing on impermeable surfaces must be implemented	During the construction of the development (civil and building(s) construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct **weekly** inspections of construction works	Contractor to implement mitigation measures as per the EMPr ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the **monthly** monitoring report

6.2.13 NOISE, DUST MANAGEMENT AND NUISANCE MEASURES

- During civil construction, work is limited to normal working hours as dictated by the local authority.
- The building(s) should comply with the normal Municipal building control requirements.
- Dust mitigation measures must be implemented as required. This will include spraying of water on gravel roads or exposed areas that generate dust or covering haul roads / exposed areas with wood chip to reduce the generation of dust.
- Dust management includes the management of dust off any stockpile sites
- Temporary stockpile sites may not be placed in areas that are going to result in a nuisance or eyesore to neighbours.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction of residential development	Development on Portion 53 of farm 195	Contractor to comply with SANS 10400 regulations pertaining to noise creation. Dust mitigation measures must be implemented as necessary	During the construction of the development (civil and building construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct **weekly** inspections of construction works	Contractor to implement mitigation measures as per the EMPr ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the **monthly** monitoring report

6.2.14 STABILIZATION REQUIREMENTS (AFTER CONSTRUCTION)

- Stabilization of disturbed area as a result of civil construction must be rehabilitated to the satisfaction of the ECO. This will include, but is not limited to the following:
    - use of sandbags, mulch bags as erosion ministration measures, seeding of bare areas with an indigenous grass seed mixture / the use of indigenous grass sods (ECO to advice) etc.
- The ECO is to advise on the rehabilitation measure that should be implemented as it will be case specific.
- No bare or exposed areas are to be left for a period of more than 2 months (if construction is due to commence on that exposed are within 2 months no rehabilitation is required, if construction is to commence after a 2-month period, the area must be immediately rehabilitated and must remain stabilized until the future construction works commence).
- The stormwater system must be protected through the installation of additional silt-fencing and re-vegetation of exposed areas. All stormwater flow must be protected against erosion and continual maintenance thereof will be required as the surface runoff will change as the construction progresses.
- Any silt traps need to be cleared on a weekly basis during the construction phase to ensure that silt traps remain effective.

6.3 BUILDING CONSTRUCTION PHASE

Unit-buildings - The total footprint of a building zone / phase should be demarcated with 1.5 m (height) shade cloth for the **entire** period of the construction to prevent unnecessary disturbance. All areas outside this demarcation must be considered **no-go areas for all construction staff**.

It is recommended that all buildings follow the construction phase requirements of this EMPr while building to ensure no adverse impact on the surrounding natural areas or to the landscaping and rehabilitation done and to the SUDS storm water systems which form part of the landscape. It is anticipated that the developer will be undertaking all construction, however this would apply to any owner builder as well. An owner builder would need to demarcate their building area. The developer and subsequently the HOA should set up a system to enforce this.

A design guideline for top-structures are attached to this EMPr.

6.3.1 IMPLEMENTATION OF ENERGY AND WATER SAVING TECHNIQUES

Water savings and energy saving measures to be applied wherever possible.

The use of low flow water fittings, installation of rain water harvesting tanks and the link to the SUDS stormwater system.

7 REHABILITATION PHASE

On completion of any area of construction, rehabilitation is required. Any damage to private property or open space area (south) must be reinstated to the state it was before construction commenced and must be done to the satisfaction of the landowner and ECO.

Rehabilitation of damaged areas (development area) will include, but is not limited to the following:

- All building rubble must be completely removed and disposed of at an approved landfill site;
- Compacted topsoil must be raked loose;
- Contaminated soil must be disposed of at an approved landfill site;
- Return topsoil to the area;
- Reinstate the vegetation in accordance with the Landscape Master Plan;
- Implementation of additional erosion control methods as required – instructed by the ECO;
- Maintenance of SUDS stormwater system at all times.

- **riparian rehabilitation**

The open space area along the river will be conserved as a riparian corridor and the existing alien dominated vegetation will be rehabilitated back to indigenous vegetation. The rehabilitation will be done in conjunction with the alien clearing done.

This open space area will be systematically rehabilitated to riparian thicket and forest (part done by the developer and part by the HOA).

Only the alien clearing contractor and the rehabilitation contractor(s) are permitted to work in the riverine "no-go" area under the guidance of the ECO.

A trail may be created using shredded wood finish and log edges to be set out on site. These trails will follow contours to ensure that there is no erosion and will be for pedestrian access only. No vehicular access will be allowed into this area.

Recreational use to be confirmed with the ECO prior to installation to ensure that it meets the requirements of NEMA.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction commencement of forest rehabilitation & Rehabilitation phase							
Rehabilitation of damaged areas and forest rehabilitation	Development on Portion 53 of Farm 195	Rehabilitation measures should be implemented as per the EMPr	Upon completion of civil service installations	Contractor to implement mitigation measures	ECO to conduct **weekly** inspections of rehabilitation	Contractor to implement mitigation measures	ECO to monitor during rehabilitation phase. ECO

		All building rubble must be completely removed and disposed of at an approved landfill site; Compacted topsoil must be raked loose; Contaminated soil must be disposed of at an approved landfill site; Indigenous grass seed can be sowed within required areas (as indicated by the ECO); Open space areas are to be planted with indigenous vegetation; Implementation of additional erosion control methods as required; & Implementation of forest rehabilitation measures	and building(s) construction	ECO and contractor to monitor rehabilitation phase	of home building and every 6 months for remaining rehabilitation measures implemented	ECO and contractor to monitor rehabilitation phase Applicant to ensure implementation of systematic alien clearing in forest areas (pre-construction as included on the rehabilitation plan)	to submit **final compliance monitoring report** upon completion of **civil** construction and **rehabilitation** phase and **building** construction and **rehabilitation** phase to sign-off environmental compliance. To be included within compliance report.

8 MONITORING REQUIREMENTS AND REPORTS

- An **induction** meeting with the ECO and the contractor (**civil and building**) to ensure that they are aware of the requirements of this EMPr and the EA before the commencement of the installation of services or building works.
- An induction meeting between the alien clearing team and ECO is recommended to ensure that the approved clearing methods are implemented.
- Induction registers to be kept for all contractors on site.
- The ECO must inspect work areas prior to civil installations and demarcate no-go areas or indicated areas of sensitivity.
- The ECO is to do a site inspection **once a week** of all **civil installations** and submit a **monthly** compliance monitoring report to the applicant, developer, contractor and DEADP.

- The ECO is to monitor the **building works** on a **weekly basis** and submit a compliance monitoring report every second month to the applicant, developer, HOA and DEADP as the case may be while construction is in progress.
- The ECO **monitoring reports** are to advise on any remedial actions or changes that are required to the method statements in order to ensure that the impacts identified and any that may become evident are mitigated and managed. Should it be necessary the EMPr must be updated / amended to take these into account if they cannot be adequately handled in a revised method statement.
- Upon **completion of civil installations**, a **final monitoring report** must be submitted by the ECO to sign-off compliance with environmental requirements. The report must be submitted to DEADP, the applicant, the developer, management and HOA as the case may be.
- On **completion the buildings (top structures – per phase)** the ECO is to issue a **completion report** prior to occupation certificates being issued. This may be done in phases based on the developer's programme.
- Once **all phases are completed** the ECO is to issue **the final monitoring report** to DEADP, the applicant, the developer, management and the HOA.
- Copies of all compliance reports should be sent to DEADP for record purposes.

9 AUDITING REQUIREMENTS

- The holder of the Environmental Authorisation (EA) must appoint a suitable and qualified **independent EAP** (not the ECO or EAP who undertook the NEMA EIA process) to conduct annual environmental audits and submitted to the competent authority.
- a Completion Audit to audit compliance with the EA and EMPr **within 3 months of the completion of the construction phase (full installation of all civil services and top structures**).
- The audit is to report on the success of the implementation of the EA and the EMPr as the case may be.
- This audit must be **undertaken prior to the completion date of the EA**.
- Auditing requirements are to cover **ONLY the Construction phase for Civil services and Buildings** and do not extend to the operational phase of the development.

Specific dates referenced in the EA

Date of issue of EA:	25 October 2023
Validity Period of authorisation	This Environmental Authorisation is granted for the period from date of issue until **30 November 2033** (validity period), during which period the Holder must ensure that the— (a) physical implementation of all the authorised listed activities, including the installation of bulk services and the construction of the top structures, is started with and concluded at the site;

	(b) construction monitoring and reporting requirements are undertaken at the site and submitted to the Competent Authority in time to allow said authority to process such documents timeously; (c) post construction rehabilitation and monitoring requirements is undertaken and completed at the site; and (d) environmental auditing requirements are complied with; and that such auditing is finalised in time to allow the competent authority to be able to process the environmental audits timeously within the specified validity period.

Additional environmental auditing may be undertaken as required within the EA or as determined by the Environmental Regulations applicable at the time. The audit report must adhere to the requirements of the applicable legislation and / or regulations at the time.

10 HOMEOWNERS ASSOCIATION (HOA)

As per the ROD, a HOA needs to be established with a pertinent constitution by the applicant which will be responsible for the following:

- Energy efficient measures to reduce energy and water consumption as described in the EMPr;
- Management of Private Open Spaces within the residential development. The management of these areas is outlined in the EMPr.

11 OPERATIONAL PHASE

The HOA of the residential development is bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998 (as amended). As such it is recommended that the Operational phase monitoring should be conducted by the HOA (who may appoint an ECO to assist and offer advice as required by the HOA).

As construction is a primary source of disturbance and damage to the environment, any contractors working for the HOA (doing alterations etc.) should comply with the general conditions above in relation to building contractors.

The EA for the development covers the initial construction, installation of services and construction of all the top structures. At that point the final audit is undertaken, and the EA is regarded as having been concluded.

The operational phase of the development is not subject to NEMA unless any specific items that trigger NEMA are undertaken.

The Developer will commence with the various activities on the site and the HOA will take over the long-term implementation and maintenance of the development.

11.1 RESIDENTIAL AREA MANAGEMENT

11.1.1 INTERNAL PRIVATE OPEN SPACE AREAS, ROAD RESERVES AND GARDENING

The HOA is encouraged to plant water-saving, local indigenous plants and to maintain a balance of **80% locally indigenous vegetation** within the internal open space areas.

Listed invasive species are prohibited and must be removed as observed.

The use of indigenous trees and shrubs as screening plants, such as along the streets and boundaries of the development areas, as indicated in the Visual Streetscape report.

The following is essential within these internal open space areas;

- These areas may be used for approved recreational activities, structures and / or water features;
- These areas should be continually monitored for any signs of erosion; &
- These areas will fall under the responsibility of the residential development's management / HOA.
- The HOA should develop a policy regarding the private landscaping of communal areas (like road verges), to avoid potential conflict.

Rainwater harvesting is a requirement for landscaping purposes.

11.1.2 DOMESTIC ANIMALS AND ANIMAL MANAGEMENT

The HOA must develop a policy for domestic animals within the estate.

11.2 STORMWATER MANAGEMENT

It is proposed that all stormwater for the minor storms up to the 1:5-year return period will be accommodated in a stormwater pipe system, which will include mountable kerbs, channels, kerb inlets, manholes and outlet structures.

For the major storms higher than the 1:5-year return period, the stormwater run-off will be accommodated inside the road reserve, open earth stormwater channels, swales and overland escape routes.

All the stormwater generated on the Development will be discharged and attenuated in a stormwater attenuation facility in the south-western corner of the site before being discharged into the Road 3 stormwater network. The principle of post-development run-off to be equal or less than the pre-development run-off will be followed.

The proposed treatment train for the Springfield Development will be a selection or combination of the following:

1. Source Controls:
a. Rainwater harvesting at each house through the collection of stormwater runoff in a suitable tank and reused for irrigation.

2. Local Controls:
a. Where permitted a combination of a swale and sub-surface drains will be installed on either side of the road where the swales will act as bio-filtration and the sub-surface drain will intercept the water and convey it to the regional control facility.
b. Swales will be linked to open earth stormwater channels which will be lined with suitable grass and vegetation to reduce the velocities of surface runoff and thereby promoting filtration of runoff water into the soil.
c. Open-earth stormwater channels will contain smaller retention areas or strips where the runoff velocities are further reduced to promote higher infiltration and filtration.
d. Litter traps will be installed at selected points to mitigate the probability of pollution in the nearby streams.

3. Regional Controls:
a. Stormwater runoff from the source and local controls will be collected inside the retention pond located at the end of the stormwater system. The retention pond will be divided into two components with the primary component promoting filtration and infiltration before flowing over a low-level weir and accumulating inside the secondary component which will be the detention facility during larger storm events. The accumulated stormwater runoff will be released at a pre-development runoff volume into the Road 3 stormwater network. Please see Figure 2-3 for example of a typical retention pond (SMEC, 2023).

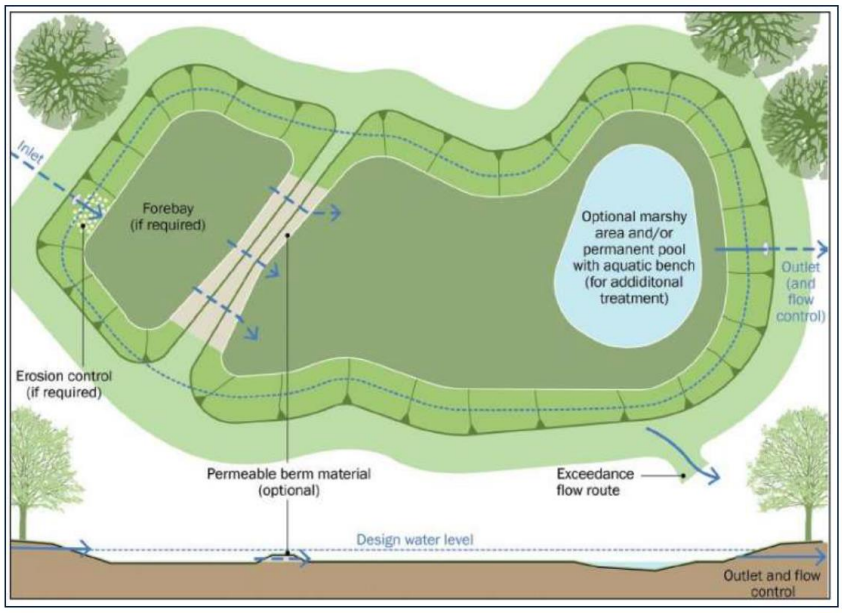


Figure 2-3: Example of a Typical Retention Pond

The storm water system design must make provision for erosion protection, due to greater surface run-off after construction that will contribute to higher flows. It is therefore essential that the open stormwater channels, swales and run-off areas must be vegetated and rehabilitated as soon as possible after the completion of bulk earthworks and roadworks. Erosion control measures could be a combination of attenuation ponds, reed beds, geosynthetic soil savers, stone pitching, silt traps, geofabrics, gabion baskets and mattresses, energy dissipaters and grass lined swales.

The proposed methods to minimise erosion include:

- *Open earth channels and swales should be lined with grass or landscaped into gardens.*
- *Natural rock and boulders to be installed at high velocity sections inside the swales and open channels to act as energy dissipaters.*
- *Cut and fill embankments will be covered with a topsoil and temporary erosion control will be installed prior to landscaping. The temporary erosion control proposed is to cover the topsoil with a biodegradable jute (hessian) cloth and stake it to prevent slippage. Refer to* ***Figure 2-4*** *for example of a biodegradable soil saver.*

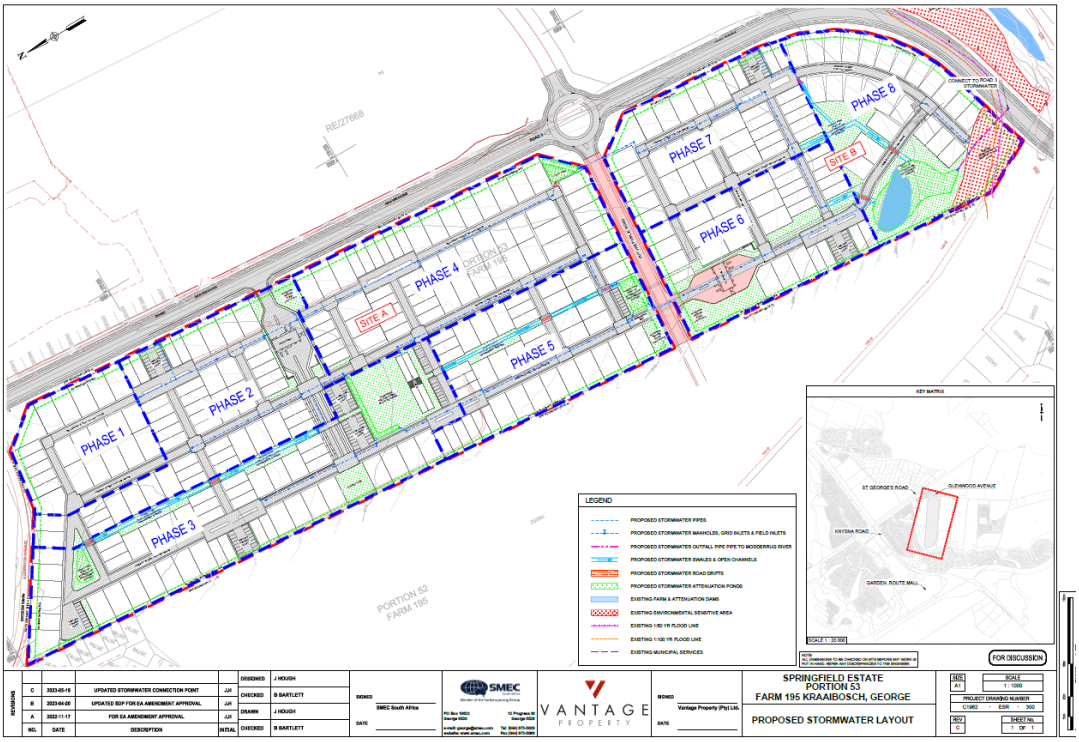
Figure 2-4: Example of Biodegradable Soil Saver

- *Landscaping should be completed as soon as possible to mitigate the risk of future erosion.*
- *As far as possible cut and fill embankments should not be steeper than 1:3. Should this not be possible, embankments will be covered with a suitable geosynthetic membrane.*
- *The installation of sufficiently sized rocks and boulders stacked in an interlocking pattern to act as energy dissipation within the open channels and swales where the velocities and the risk of erosion is higher.*

As with all systems the SUDS storm water management system must be maintained and monitored by the HOA to ensure that there is no erosion or intervention required.

The stormwater control philosophy is one of reducing concentration and encouraging spread and infiltration into the natural vegetation and recharging the natural infiltration laterite layer.

A stormwater management plan has been compiled (attached to Annexure H).



Stormwater management plan (SMEC, 2023)

Recommendations made by the aquatic specialist:

A key impact related to large residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. These watercourses may not necessarily fall within the development footprint but may still ultimately receive stormwater by connecting the development into an existing stormwater network that discharges into the watercourse. In this way, stormwater generated from the site can still affect watercourses located far outside of the development footprint.

It is therefore important that stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. For example, the City of Cape Town guideline is that developments must provide for 24-hour extended detention of the 1-year return interval 24-hour storm event. In this respect the following measures, *inter alia*, should be considered:

- Rainwater harvesting tanks be installed at all residences;
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Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Operational phase							
Operation of stormwater management structures/ measures	Stormwater infrastructure installed	The stormwater outlets will be located close to the development footprint in order to limit disturbance. The incorporation of detention and retention ponds will allow stormwater to dissipate naturally into the environment. Stringent erosion control will be implemented where necessary during the operation of the development. Ongoing maintenance will ensure that any localised erosion will be rehabilitated	During the operational phase of the development	Management / HOA to monitor and implement mitigation measures ECO to monitor during operation of the development	Management / HOA to implement mitigation measures and conduct regular inspections ECO to conduct inspections as required	Management / HOA and appointed contractor to implement and monitor ECO to monitor	ECO to monitor To be included in the **yearly** monitoring report.

		before it becomes problematic. The stormwater control philosophy is one of reducing concentration and encouraging spread and infiltration into the natural vegetation. Implementation mitigation measures as per the stormwater management plan.					

11.3 FENCING

It is anticipated that security fencing will be installed around the entire development zone and along the future Road 3 (both sides of the road). The HOA will be responsible for ongoing maintenance of the fence line.

11.4 WASTE MANAGEMENT

A collection point must be established.

The development's refuse is collected by the local authority – please comply with their collection requirements. Homeowners must be encouraged to re-use, reduce and recycle (**this needs to be included in the HOA's house rules to ensure compliance**). A suitable refuse area will be located within the development area for the collection of solid waste generated by the development. HOA to provide homeowners / residents with guidance as to when and how waste collection will be handled.

Normal domestic refuse will form part of the municipal waste stream. **No waste may be disposed of in the internal or riparian open space areas, or anywhere else if not designated as a waste disposal area – this includes any form of domestic garden waste.** All waste must be disposed of in appropriate municipal or other authorised dumping sites.

NO dumping of garden refuse on any part of the common property or open space area is permitted.

11.5 INVASIVE ALIEN PLANT CONTROL

In terms of the Alien and Invasive Species Regulations, NEM:BA, 2014 specific alien plant species are prohibited and should be removed (by implementing approved methods).

Any alien invasive species germinating must be removed immediately for the life of the development. Initial alien clearing over the entire property is to be undertaken by the Holder of the EA / developer so that any areas handed over to the HOA are free of alien vegetation or are in the process of being removed are part of the controlled forest rehabilitation plan. The ongoing management and removal of alien vegetation remains the responsibility of the HOA and the individual landowners on their private properties.

12 DECOMISSIONING PHASE

Should there ever be a need for decommissioning, decommissioning activities need to adhere to the applicable legislation at the time. All material foreign to the site must be removed from the site and must be disposed of at an approved waste disposal site.

Any material that can be recycled should be recycled.

13 PENALTIES FOR NON-COMPLIANCE

Penalties in terms of Chapter 9 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, are applicable for any action, which leads to damage to the natural environment.

In addition to the penalties in terms of the Act (NEMA), spot fines up to a maximum value of R10 000 per offence can be instituted at the discretion of the ECO for any breach or non-compliance in terms of the EMPr and EA (FINES ISSUED WILL INCREASE EXPONENTIALLY FOR REPEAT OFFENCES).

In the event of damage being caused, the contractor will be responsible for the cost of cleanup, repair or rehabilitation as necessary, as well as being liable for the fine.

A fund is to be established for the collection of fines and the spending of this fund is to be at the discretion of the ECO for environmental rehabilitation of the area.

14 CONCLUSION

This EMPr is binding on all contractors on site and constitutes Best Practice for construction activities. This EMPr may be updated with specific conditions required by the Environmental Authorisation.

This EMPr is binding for the full construction phase of Civil Services (all phases) and for the construction of all units (all phases).