



Version 1

MAINTENANCE MANAGEMENT PLAN (MMP)

In terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998, as amended) (NEMA) and Environmental Impact Assessment (EIA) Regulations, 2014 (as amended)

for

MAINTENANCE TO AND MANAGEMENT OF THE STORMWATER INFRASTRUCTURE FOR PROJECT 28(1) FLOOD DAMAGE REPAIR IN GEORGE MUNICIPAL AREA

Compiled by	HillLand Environmental
HillLand reference	GEO23/1252/03
Date	18 April 2024
DEADP reference	16/3/3/6/1/D2/8/0047/24
DEADP case officer	Steve Kleinhans

ISSUED BY:

HillLand Environmental

PO Box 590

George, 6530

Tel: 044 889 0229

Fax: 086 542 5248

E-mail: cathy@hilland.co.za / admin@hilland.co.zaWebsite: www.hilland.co.za**MAINTENANCE MANAGEMENT PLAN (MMP)****2021MDRG STORMWATER DAMAGE TO INFRASTRUCTURE PROJECT 28(1)
MAINTENANCE TO AND MANAGEMENT OF THE STORMWATER INFRASTRUCTURE FOR PROJECT 28(1) –
GEORGE MUNICIPAL AREA****Submitted to:****DEADP Comment and public review****CONDITIONS OF REPORT USE:**

The report is the property of the sponsor and the author, who may publish it, in whole, provided that:

1. That written approval is obtained from the author and that **HillLand Environmental** is acknowledged in the publication;
2. That **HillLand Environmental** is indemnified against any claim for damages that may result from publication;
3. The contents of this report may not be used for purposes of sale or publicity or advertisement without the prior written approval of **HillLand Environmental**.
4. **HillLand Environmental** accepts no responsibility for failure to follow the recommended programme.
5. **HillLand Environmental** accepts no responsibility for deviation or non-compliance of any specifications or guidelines provided in the report.
6. All figures, plates and diagrams are copyrighted and may not be reproduced by any means, in any form, in part or whole.

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:

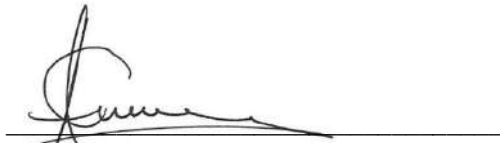
REQUIREMENTS	REPORT SECTION
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Appendix F
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 8
(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;	See method statement
(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 7, 10
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 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 7, 10
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Throughout the EMPr
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Throughout the EMPr
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	
(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 10.1
(n) any specific information that may be required by the competent authority.	Appendix A
1. Where a government notice gazetted by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.	N/A

EAP - DECLARATION OF INDEPENDENCE:

I, **Cathy Avierinos (EAPASA – 2019/1053)**, as the appointed environmental assessment practitioner ("EAP") hereby declare that:

In terms of the general requirement to be independent:

- Other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity;
- Work performed for this study was done in an objective manner irrespective of how such findings may be favourable or not to the client;
- I do not have any influence over the decision-making process undertaken by the governing authorities;
- I declare that there are no circumstances that may compromise my objectivity in undertaking this study or producing this report;
- All facts and findings will be presented in an objective manner in accordance with my professional and scientific experience and the data derived from the study;
- I have the necessary qualifications and experience to undertake the study;
- All particulars furnished in this report are true and correct.



Signature of the appointed EAP

HillLand Environmental (Pty) Ltd

Company

18 April 2024

Date

Table of Contents

- 1 INTRODUCTION AND BACKGROUND 7**
- 2 AUTHORITY ENGAGEMENT 9**
- 3 PERSONAL DETAILS 11**
- 4 DEFINITIONS AND ACRONYMS 13**
- 5 RELEVANT LEGISLATION..... 15**
 - 5.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT NO. 107 OF 1998 AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS (2014, AS AMENDED) (NEMA & EIA REGULATIONS) 15**
- 6 SITE CONTEXT, LOCATION OF THE ACTIVITY AND SPECIALIST INPUT 19**
- 7 MMP OBJECTIVES 25**
- 8 DECRPTION OF THE ACTIVITY 25**
- 9 METHOD STATEMENT..... 26**
- 10 GENERAL ENVIRONMENTAL MAINTENANCE AND MANAGEMENT MITIGATION MEASURES FOR IMPLEMENTATION 35**
 - 10.1 ENVIRONMENTAL CONTROL OFFICER (ECO)..... 35**
 - 10.1.1 SELECTION OF THE ECO..... 35**
 - 10.2 PRE-CONSTRUCTION PHASE 35**
 - 10.2.1 ENVIRONMENTAL EDUCATION..... 35**
 - 10.2.2 METHOD STATEMENT..... 35**
 - 10.2.3 SITE AGENT..... 36**
 - 10.2.4 ABLUTION FACILITIES 36**
 - 10.2.5 TIMING OF MAINTENANCE ACTIVITIES 36**
 - 10.2.6 SITE DEMARCATION..... 36**
 - 10.2.7 SITE CAMP AND STORAGE OF MATERIALS..... 37**
 - 10.2.8 ACCESS..... 37**
 - 10.2.9 TOPSOIL RECOVERY AND PLANT RESCUE 37**
 - 10.3 CONSTRUCTION PHASE..... 37**
 - 10.3.1 WASTE MANAGEMENT 37**
 - 10.3.2 EROSION CONTROL AND STORMWATER MANAGEMENT..... 38**
 - 10.3.3 EXCAVATIONS AND EARTHWORKS..... 38**
 - 10.3.4 PROTECTION OF SURROUNDING HABITAT 38**
 - 10.3.5 SITE CLOSURE AND REHABILITAITON 38**
 - 10.3.6 MAINTENANCE MANAGEMENT ACTIVITIES 38**
 - 10.3.7 AQUATIC SPECIALIST’S SPECIFIC MITIGATION MEASURES REQUIRED (CONFLUENT ENVIRONMENTAL, 2024) 39**

11 PENALTIES FOR NON-COMPLIANCE..... 42

12 MONITORING AND REPORTING..... 43

 12.1 MAINTENANCE WORK MONITORING PROCEDURE..... 43

13 CONCLUSION..... 43

14 DECLARATION 44

THE PERSON THAT WILL BE UNDERTAKING THE MAINTENANCE..... 44

List of Appendices:

Appendix A	Reporting Form A & B
Appendix B	Specialist reports
Appendix C	Legal advert
Appendix D	CV of EAPs

1 INTRODUCTION AND BACKGROUND

HillLand Environmental (Pty) Ltd, independent Environmental Assessment Practitioners (EAPs), have been appointed by the WEC Consult as the consulting engineers representing **George Municipality**, to produce an Maintenance Management Plan (MMP) for maintenance of the stormwater infrastructure part of the stormwater maintenance and management for the sites identified in the Project 28(1) in George Municipal area. This will ensure compliance with the regulations contained in the National Environmental Management Act (NEMA, No. 107 of 1998, as amended) and Environmental Impact Assessment Regulations, 2014 (as amended).

This MMP is being produced specifically to allow for repairs and maintenance to municipal infrastructure damaged by flooding first identified after the 2021 floods, but which has been increasing with each subsequent rainfall event and flood incident.

Various specific sites have been identified and are addressed in this report, however the MMP caters for the procedures required to be followed for any repairs or maintenance required as a result of flood damage with the intent to ensure that the municipality can continue with routine inspections and maintenance to avoid any serious damage or risk to infrastructure as a result of storm water flow damage.

This Maintenance Management Plan will remain in effect (once approved by DEADP) for the installation and continued maintenance of municipal services infrastructure at risk or exposed in Borchers, Parkdene, Ballotsview and Thembaletu, George Municipal area.

- The MMP will remain in effect for a period of 10 years;
- Reporting will be done in accordance with the MMP
- An update or review of the MMP should be done prior to the end of the 10 year period in order to ensure that the MMP remains compliant with the environmental regulations (applicable at that time) and is then authorised for a further 10 year period.

The following Maintenance Management Principles apply:

	Question	If the answer to any of the questions is YES, then a MMP may be applicable.
2.1	Is there a watercourse on or adjacent to the property?	Yes
2.2	Has there been a history of flood damage or vandalism to the existing infrastructure or watercourse – erosion and/or sedimentation?	Yes
2.3	Is there infrastructure or any community at risk of being damaged by flooding?	Yes
2.4	Is the design of infrastructure considered inadequate in terms of managing the risk of flooding, erosion and/or sedimentation?	Yes
2.5	Would you consider an improved design to existing infrastructure to reduce maintenance needs?	Yes
2.6	Are there specific incidences where the watercourse is obstructed or blockages occur that alter the flow of the river during floods?	Yes
2.7	Is there an existing obstruction in the watercourse that has changed the flow of the river under normal conditions?	Yes

2.8	Is there a marked increase in the rate of erosion/sedimentation being experienced which threatens operations and assets?	Yes
2.9	Is there a presence of alien or bush encroachment vegetation within the watercourse and/or the presence of woody debris after flooding?	Yes

Maintenance Category	Types of maintenance activities (examples only)
<p>Category A:</p> <p>Sediment removal as a result of deposition or sediment deposition as a result of erosion</p>	<ul style="list-style-type: none"> • Clearing sediment or placing sediment at: <ul style="list-style-type: none"> ○ Stormwater inlet and outlet structures become blocked with foreign material which results in erosion damage by storm water not following the correct flow path ○ Removal of illegally dumped waste & litter, illegally dumped rubble and damaged stormwater infrastructure ○ Remove and reinstate collapsed or damaged infrastructure and infilling of eroded material to reinstate the natural slopes around the infrastructure.
<p>Category B:</p> <p>Emergency repairs – urgent action required to manage risk and damage to assets</p>	<ul style="list-style-type: none"> • Repairs to exposed and damaged infrastructure (e.g. pipelines, manholes, protective gabions, swales and roads or road verges) • Removal of material built up as a result of flooding/sedimentation and increasing risk to infrastructure • Address damage and replacement of damaged infrastructure (e.g. pipelines, stormwater outlets, road works) • Manage the condition of flood protection berms, and existing structures such as gabions, canalized and stormwater systems to repair damage before infrastructure or assets are at risk
<p>Category C:</p> <p>Managing alien invasive and bush encroachment plant species</p>	<ul style="list-style-type: none"> • Clearing of alien invasive vegetation within the riparian areas which damage the natural system, cause blockages to water flow and which screen or hide infrastructure making maintenance inspections and repairs exceptionally difficult. • Removal of any cleared alien material from the system so that it cannot be moved by flood waters and cause blockages and damage elsewhere.
<p>Category D:</p> <p>Rehabilitation and restoration activities for maintaining ecological infrastructure</p>	<ul style="list-style-type: none"> • Restoring and maintaining the natural vegetative growth within the riparian systems • Actively rehabilitating riparian zones through planting of locally indigenous species • Removal of obstructions which cause damage to the natural systems (barriers to flow)

2 AUTHORITY ENGAGEMENT

The following authorities have been / are being consulted to provide input based on the proposed maintenance activities and flood damage repairs.

- Breede-Olifants Catchment Management Agency (BOCMA)
- Department of Environmental Affairs and Development Planning (DEADP)
- CapeNature
- George Municipality

Single or Multiple properties / WUA / IB / local authority applying for a single MMP to cover a stretch of a watercourse longer than 1 kilometer (>1000 meters) OR a catchment or sub-catchment area

(i) Given written notice to the owner(s) or person(s) in control of the land if the person(s) undertaking the maintenance activity(ies) is not the owner or person in control of the land.	Yes / No	Applicant is the land owner
(ii) Given written notice to non-participating adjacent landowners (up to 1km upstream and downstream from furthest upstream and downstream maintenance site and opposite side of the river banks) of the development of the MMP. <i>This must also include general notice to adjacent WUA or IB of the proposed MMP development if application is made by a WUA or IB.</i>	Yes / No	Ward councillor to advise surrounding land occupiers or owners and site notices to be placed at each site
(iii) Stakeholder meeting held for all participating and non-participating landowners, in which details and methodology of MMP is presented. A minimum of two meetings are required, to present on the development of the plan and a final draft version of the plan.	Yes / No	Meetings held with the affected authorities DEADP and BOCMA
(iv) Given written notice to any organ of state having jurisdiction in respect of any aspect of the activity(ies) proposed within the development of the MMP.	Yes / No	DEADP, BOCMA and CapeNature requested to comment on the MMP
(v) Provide written notice and confirmation to the relevant Water Users Association (WUA) or Irrigation Board (IB), of the development of the MMP <i>(if a MMP is not requested and managed through a WUA/IB).</i>	Yes / No	BOCMA requested to comment
(vi) Describe any other measures taken to inform the public about this MMP. A complete list of measures that are in place to deal with interactions with the public, if it becomes necessary and required by the competent authority during implementation of the project, must be provided for.	Yes / No	Evidence to be referenced accordingly based on the measures taken and/or developed.

Comment to date has been requested from BOCMA and CapeNature and DEADP have guided the requirements

Public comment

A legal advertisement calling for comment on the MMP has been placed in the George Herald, 18th April 2024 providing a 21 day comment period as agreed with DEADP.

All comments will be included in the final MMP to be submitted to DEADP and BOCMA for approval and implementation.

3 PERSONAL DETAILS

REGION 1 (City of Cape Town Metropolitan and West Coast District) <input type="checkbox"/>	REGION 2 (Cape Winelands District, Overberg District) <input type="checkbox"/>	REGION 3 GEORGE OFFICE: REGION 3 (Central Eden District) Karoo
--	--	--

Name of person/authority who will undertake responsibility for the activity:	George Municipality			
	Represented by The Director: Civil Engineering Services – Mr Johannes Franciscus Koegelenberg			
Contact person (if other):	Mr Johannes Franciscus Koegelenberg			
Postal address:	PO Box 19, George			
Telephone:	6530			
Fax:	044 801 91111			
Email:	jkoegelenberg@george.gov.za			
Name of person who has prepared the MMP:	Cathy Avierinos and Stefan Delpont, HillLand Environmental (Pty) Ltd			
Contact Person (if other):	Cathy Avierinos/ Stefan Delpont			
Postal address:	P.O.Box 590			
Telephone:	George	George	George	
Fax:	(044)8890229	(044)8890229	(044)8890229	
E-mail:	cathy@hilland.co.za / environmental@hilland.co.za			
Name of landowner(s) on whose behalf the plan has been developed:*	As above George Municipality			
Contact person(s):				
Postal address:				
Telephone:	()	Postal code:		
Fax:	()	Cell:		
E-mail:				
Municipality for proposed project:	George Municipality			
Farm name(s), erf(s) and portion number(s) etc*:	Site 28(1).1 MMP only	33°59'15.98"S, 22°28'6.29"E	RE/13486	C02700020001348600000
	Site 28(1).2 NEMA EA	33°59'14.24"S, 22°28'6.79"E	RE/13486	C02700020001348600000
	Site 28(1).37 MMP only	34° 0'21.32"S, 22°30'38.83"E	RE/204/197	C02700000000019700204
	Site 28(1).69 NEMA EA	34° 0'2.53"S, 22°29'23.84"E	RE/1821	C02700100000182100000

	Site 28(1).77 NEMA EA	33°59'55.30"S, 22°29'9.41"E	1829	C02700100000182900000
	Site 28(1).115-120 MMP only	34° 1'4.48"S, 22°29'17.43"E	3879	C02700100000387900000
Magisterial District or Town:	George Municipal area			
Name(s) of watercourse(s) in question:	Various tributaries to and along the Skaapkop and Meul Rivers within the Borchersds, Themabethu, Parkdeen and Ballotsview municipal areas of George.			
*In instances where there is more than one landowner, please attach a list of landowners with their full names, contact details, farm name, farm number, portion number, Erf number, coordinates and signed declaration confirming approval for development and responsibility of the MMP				

4 DEFINITIONS AND ACRONYMS

Definitions:

"Activity" means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity. Activity in this document refers to the activities as listed in Listing Notice 1, 2 and 3 of the Environmental Impact Assessment Regulations, 2014 (as amended).

"Bush Encroachment" means stands of plants of the kinds specified in column 1 of Table 4 of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) where individual plants are closer to each other than three times the mean crown diameter.

"Diverting" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, cause the instream flow of water to be rerouted temporarily or permanently.

"Ecological Infrastructure" refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.

"Estuary" has the meaning assigned to it in the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)

"Flood event" is the event where land is inundated by the overflowing of water from a river channel and where this event causes significant damage to infrastructure or results in watercourse erosion and/or sediment deposition.

NOTE that flooding can be a natural phenomenon in many river- or wetland systems which, due to encroachment and human modification of the form and function of the affected system, may have evolved into a potential hazard to life or property.

"Flow-altering" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, alter the instream flow route, speed or quantity of water temporarily or permanently.

"General Authorisation" in this document refers to the General Authorisation in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) or Section 21(i) (GN. 509 of 26 August 2016).

"Impeding" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently, but excludes the damming of flow so as to cause storage of water.

"Indigenous vegetation" refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

"Maintenance" means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

“Maintenance Management Plan” means a management plan for maintenance purposes defined or adopted by the competent authority.

“River Management Plans” as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), any river management plan developed for the purposes of river or storm water management in any municipal/metropolitan area or described river section, river reach, entire river or sub quaternary catchment that considers the river in a catchment context.

“River reach”, a length of river characterised by a particular channel pattern and channel morphology, resulting from a uniform set of local constraints on channel form. A river reach is typically hundreds of meters in length.

“Stretch” a section of watercourse, delineated between two or more mapped coordinates, within which proposed maintenance activities are to take place as guided by an MMP.

“Thalweg” refers to the line of lowest elevation within a valley or watercourse.

“Watercourse” means:

- (a) a river or spring;
- (b) a natural channel in which water flows regularly or intermittently;
- (c) a wetland, lake or dam into which, or from which, water flows; and

any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and

a reference to a watercourse includes, where relevant, its bed and banks.

“Wetland” means, land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Acronyms:

CBA	Critical Biodiversity Area
DEADP	Department of Environmental Affairs & Development Planning
DWS	Department of Water & Sanitation
BOCMA	Breede-Olifants Catchment Management Agency
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
GA	General Authorisation, in terms of the National Water Act, 1998 (Act No. 36 of 1998)
GN	Government Notice
IB	Irrigation Board
MEC	Member of Executive Council
MMP	Maintenance Management Plan

5 RELEVANT LEGISLATION

This section provides a description of the legal framework within which the Maintenance Management Plan (MMP) has been prepared and will be implemented.

5.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT NO. 107 OF 1998 AND ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS (2014, AS AMENDED) (NEMA & EIA REGULATIONS)

The repair and maintenance of the storm water infrastructure and other municipal services damaged or at immediate risk of damage through stormwater flow and flood damage in order to ensure maintenance of the system and services as designed and installed. The maintenance and rehabilitation work to be undertaken does not constitute the installation of new infrastructure or services but is purely for the protection and reinstatement of existing services and infrastructure. The works will be undertaken in terms of the applicable listed activity as authorised in terms of the NEMA or as adopted in this MMP.

Please note, where NEMA Environmental Authorisation is required, the EA must first be issued and following the EA being issued, ongoing maintenance will be undertaken in accordance with this MMP.

The following listed activities have been considered and are included in the Maintenance Management Plan for the flood damaged stormwater infrastructure in Borchards, Parkdene, Ballotsview and Thembalethu, George Municipal area.

LISTING NOTICE 1: (GNR 327)		
9.	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— <ul style="list-style-type: none"> (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— <ul style="list-style-type: none"> (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or where such development will occur within an urban area.	<p>No new infrastructure is proposed or covered by this MMP unless specifically authorised in terms of NEMA.</p> <p>The maintenance work proposed falling within the urban area <u>as agreed to by DEADP</u> is excluded from this listed activity.</p> <p><u>Any future works must first be agreed by DEADP before this listed activity is excluded.</u></p>
12.	The development of— <ul style="list-style-type: none"> (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— <ul style="list-style-type: none"> (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; — excluding— <ul style="list-style-type: none"> (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; 	<p><u>New development of structures or infrastructure with a footprint of 100m² or more within a watercourse or within 32m of the watercourse must first be agreed to by DEADP to confirm if the urban area or road reserve exclusions apply.</u></p> <p><u>Sites which fall under this activity include Site 69</u></p>

	<p>(bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such development occurs within an urban area;</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves;</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared.</p>	
<p>19.</p>	<p>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> <p>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>DEADP have defined which of the proposed flood damage repairs are covered as maintenance in terms of this MMP and which first require Environmental Authorisation in terms of NEMA before the repair works can be undertaken in accordance this MMP and the method statement prepared and agreed to.</p> <p><u>For any future repair works DEADP approval and agreement must be reached before continuing with any works which is within this 10m³ threshold within a watercourse.</u></p> <p><u>Sites which fall under this listed activity and require authorisation include site 69 Themablethu and site 77 Thembaletu</u></p>
<p>45.</p>	<p>The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure—</p> <p>(i) has an internal diameter of 0,36 metres or more; or</p> <p>(ii) has a peak throughput of 120 litres per second or more; and</p> <p>(a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or</p> <p>(b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;</p> <p>excluding where such expansion—</p> <p>(aa) relates to transportation of water or storm water within a road reserve or railway line reserve; or</p> <p>(bb) will occur within an urban area.</p>	<p>No expansion is proposed within these thresholds.</p> <p><u>Any proposed expansion within these thresholds in future needs to first be approved by DEADP or agreed that the urban area exclusion is applicable.</u></p>
<p>48.</p>	<p>The expansion of—</p> <p>(i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or</p> <p>(ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more;</p> <p>where such expansion occurs—</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>excluding—</p>	<p><u>Any expansion of structures or infrastructure by 100m² or more within a watercourse or within 32m of the watercourse must first be agreed to by DEADP to confirm if the urban area or road reserve exclusions apply.</u></p> <p><u>Sites falling under a NEMA EA for this activity include site 2 Borchersds, site 69 Thembaletu and site 77 Thembaletu</u></p>

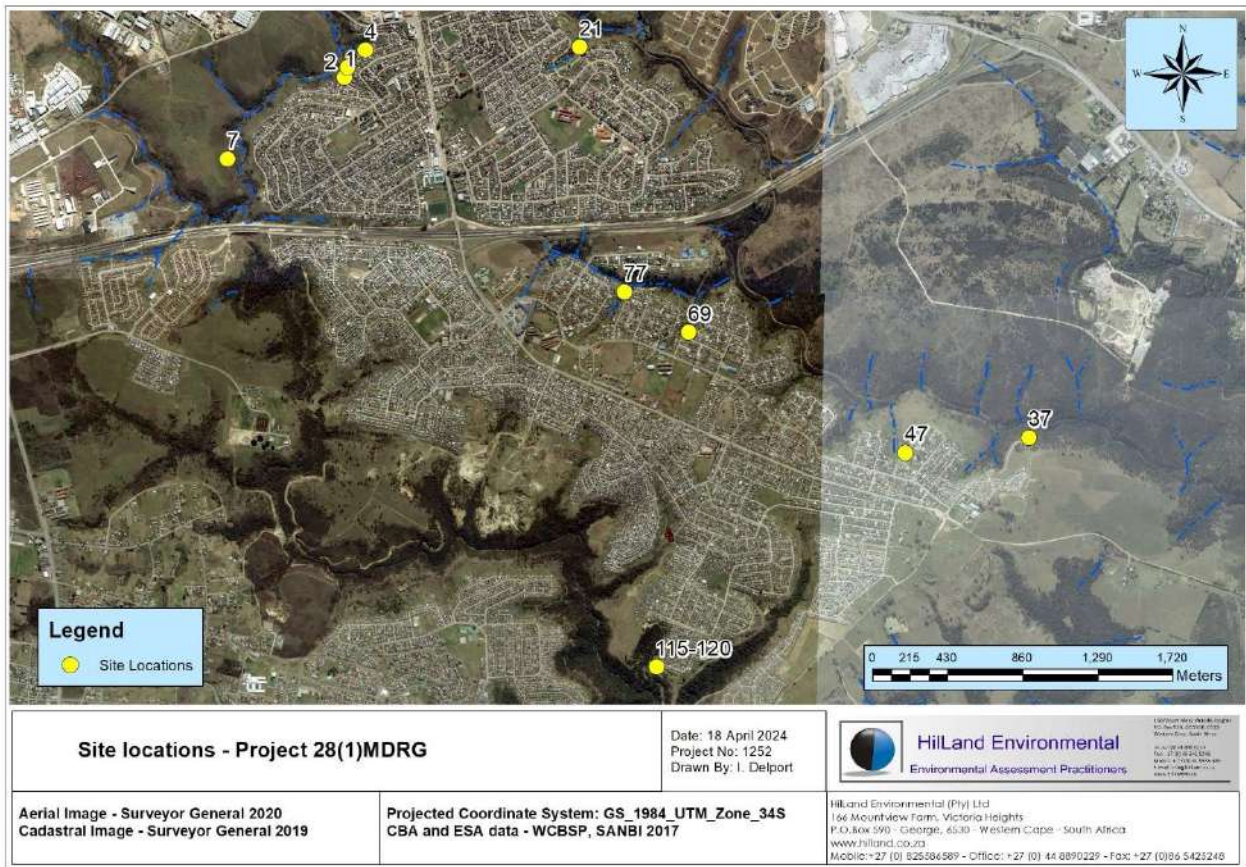
	<p>(aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</p> <p>(bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies;</p> <p>(cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies;</p> <p>(dd) where such expansion occurs within an urban area; or</p> <p>(ee) where such expansion occurs within existing roads, road reserves or railway line reserves.</p>	
LISTING NOTICE 3: (GNR 324)		
<p>12</p>	<p>The clearance of an area of 300 square metres or more of indigenous vegetation <u>except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</u></p> <p>i. Western Cape</p> <p>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;</p> <p>ii. Within critical biodiversity areas identified in bioregional plans;</p> <p>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;</p> <p>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</p> <p>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.</p>	<p>As a rule if temporary clearing is below the 300m² threshold then this activity would not be applicable, however, where there is doubt or a possibility that temporary or permanent clearing could exceed the threshold then this must be considered and clarity obtained from DEADP <u>before</u> undertaking any clearance.</p> <p>Temporary disturbance during the maintenance and rehabilitation should not trigger this activity .</p> <p><u>DEADP have confirmed various sites as falling under the Maintenance Management Plan exclusion.</u></p> <p>For the purpose of this MMP the temporary disturbance of vegetation at each of the sites has been evaluated and the rehabilitation of the vegetation at each site on completion is required.</p> <p>Sites falling under a NEMA EA and MMP for this activity – Site 2</p> <p>Sites falling under the MMP for this activity – Site 1 Borchers, Site 37 Thembaletu and sites 115-120 Thembaletu</p>
<p>14.</p>	<p>The development of—</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or</p> <p>(ii) infrastructure or structures with a physical footprint of 10 square metres or more;</p> <p>where such development occurs—</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>i. Western Cape</p>	<p>This activity is not triggered within the scope of this MMP as there are no specific listed areas applicable in this area. (e.g. there are no protected areas etc applicable).</p>

	<p>i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.</p>	
<p>23.</p>	<p>The expansion of— (i) dams or weirs where the dam or weir is expanded by 10 square metres or more; or (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more;</p> <p>where such expansion occurs— (a) within a watercourse; (b) in front of a development setback adopted in the prescribed manner; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</p> <p>excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>i. Western Cape</p> <p>i. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an international convention; (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; or (hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.</p>	<p>This activity is not triggered within the scope of this MMP as there are no specific listed areas applicable in this area. (e.g. there are no protected areas etc applicable).</p>

6 SITE CONTEXT, LOCATION OF THE ACTIVITY AND SPECIALIST INPUT

Existing stormwater management structures have been and are being undermined and damaged by storm / flooding events which are now threatening public and municipal services infrastructure and property and must be repaired/rehabilitated and maintained accordingly.

Terrestrial and Aquatic Biodiversity specialists' studies have been undertaken for each of the listed sites.

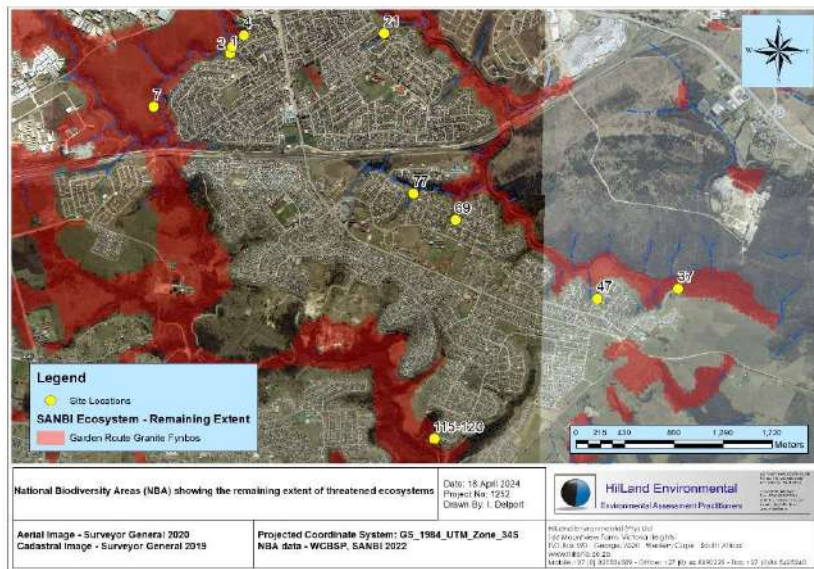
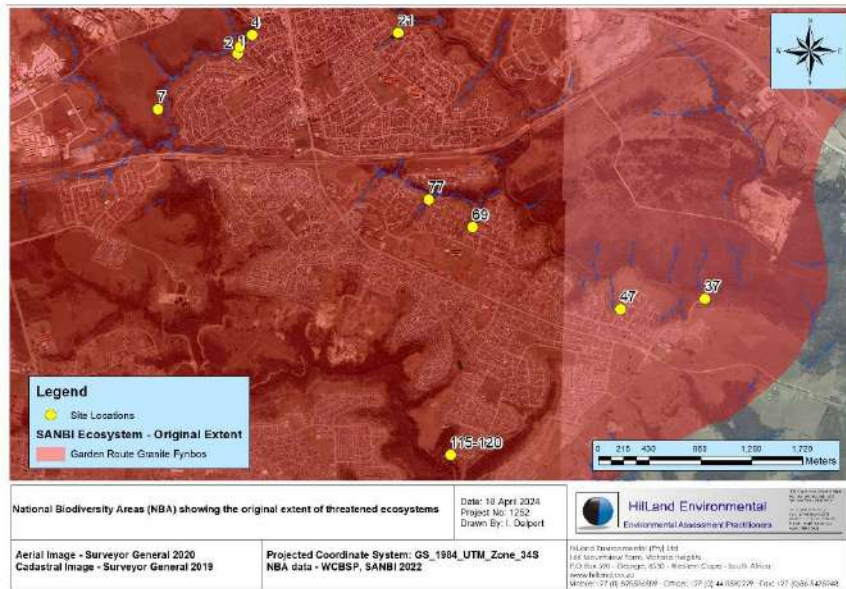


*Note – the MMP is applicable to sites 1, 37, 115-120
NEMA EA process is applicable to sites 2, 69 and 77

BIODIVERSITY

The National Biodiversity Areas (NBA, 2022) mapping places all the sites within an area mapped as originally containing Critically Endangered Garden Route Granite Fynbos Ecosystem.

The ecosystem threat status is determined based on the remaining extent of original ecosystems – simply stated, the more the original ecosystem has been transformed over time, the less remains in an intact form, the higher the ecosystem threat status of what remains. The remnant / remaining extent mapping, maps what remains of the original ecosystem – the difference between the original and the remnants is used to determine the ecosystem threat status. Areas already recorded as transformed have already been calculated as a “loss” to the ecosystem.



The urban areas of Thembaletu, Borchards, Ballotsview and Parkdene have largely resulted in the transformation of the original ecosystem with little to know intact ecosystems remaining. Illegal dumping, clearance of land, alien infestation, grazing of livestock and other activities are currently taking place in many of the areas in an around the residential urban area.

The various erosion sites are all linked to failing existing stormwater systems where management / repair / maintenance of structures and the surrounding disturbed areas is urgently required. Some of the sites are mapped as falling within these remaining extent areas of the ecosystem, however the erosion at these sites is resulting in continual loss of any remaining natural system.

Repair at each of the sites will require temporary works beyond the extent of the current damage and rehabilitation of the areas on completion of the repair works.

The municipal urban infrastructure such as roads, stormwater pipes and outlets, sewage and water pipes, which service this urban area are under threat through lack of maintenance of stormwater infrastructure and significant erosive events linked to high intensity rainfall, resulting in undercutting, erosion, collapse of pipes and other serious threats to remaining infrastructure. Erosion as a result of stormwater and failures linked to stormwater tend to exponentially increase and require active intervention to control and manage and repair.


The terrestrial biodiversity specialist has confirmed that (see report attached appendix D):



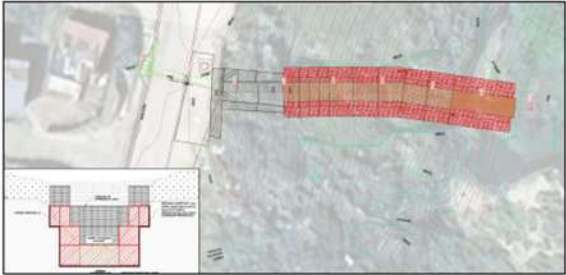

4. CONCLUSION

It can be concluded with a high degree of confidence that the sensitivity of the site as defined by the protocols for terrestrial biodiversity and plant species is **Low**. No fynbos persists here, nor does any other naturally occurring vegetation type. Planned rehabilitation activities will therefore not have any impact on any critically endangered vegetation type or on any plant species of conservation concern (SCC). The sites have been thoroughly transformed, with a high density of alien plant species everywhere on the, as illustrated in Table 1.

The aquatic specialist has confirmed that only sites 2, 69 and 77 fall within a watercourse or the regulated areas of a watercourse and will require a GA in terms of the NWA and that the aquatic ecosystems of the whole area are highly modified and degraded (see full report appendix D).

The table below summarizes the works proposed and key findings and observations of the specialists with respect to each of the sites.

Site number and summary of works proposed	Specialist findings/observations/Photo's
<p>project 28(1) 1 – Borcherds DEADP confirm that works can take place in terms of an MMP. Activity 12(i) and (iv) of LN3</p> <ul style="list-style-type: none"> • more than 32m from the watercourse • temporary and permanent clearance of vegetation which is intended to not exceed 300m² • NEMA EA is not specifically required • NEMA duty of care applicable 	<p>Erosion of steep embankment caused by stormwater discharge at top of embankment</p>  <p>Sites 1 and 2</p>

		<p>Site 1:</p> <p>Heavily transformed and degar. Eroded channel, with high rates of solid waste. Invaded by <i>Solanum mauritianum</i> and <i>Ricinus communis</i>. Bordered by kikuyu (<i>Cenchrus clandestinus</i>).</p>
<p>project 28(1) 2 - Borcherds</p> <p>GA required in terms of the NWA.</p> <p>DEADP require NEMA authorisation for this site due to the NEMA thresholds of activity 48 LN1 and potentially 12(i) and (iv) of LN3</p> <p>MMP to be followed once EA has been issued.</p>	<p>Erosion of steep embankment caused by stormwater discharge at top of embankment</p>  <p><i>Figure 6: Photographs of Site 2 showing eroded, incised channels below existing gabion structures. Channels are bordered by Cenchrus clandestinus and invaded by Ricinus communis and Solanum mauritianum.</i></p>  <p><i>Figure 7: Plan view of proposed gabion hydraulic structure for Site 2.</i></p>	
<p>project 28(1) 37 Thembaletu</p> <p>DEADP confirm that NEMA MMP will be applicable to the clearance of vegetation while constructing the gabion to replace the existing fill slope that is being eroded. Activity 12(i) and (iv) of LN3</p> <p>MMP is applicable</p>	<p>Slip along steep embankment immediately adjacent to sewage pump station.</p> 	

		<p>Site 37:</p> <p>Heavily transformed and degraded. Eroding slope. Very high levels of dumping/solid waste. Heavily invaded by <i>Acacia mearnsii</i>.</p>
--	--	--

<p>project 28(1) 69a & Thembalethu</p> <p>GA required in terms of the NWA DEADP confirmed that cumulatively sites 69a and 69b will require NEMA approval.</p> <p>MMP will be applicable once NEMA EA has been issued.</p>	<p>Erosion of steep embankment caused by stormwater discharge at top of embankment</p> <div data-bbox="552 598 1136 1039">  </div> <p>Figure 9: Photographs illustrating the steep embankment down to the eroded non-perennial drainage line.</p> <div data-bbox="600 1092 1088 1459">  </div> <p>Figure 10: Plan view of stepped gabion hydraulic structures terminating at a non-perennial stream of the Meul River (Site 69).</p> <div data-bbox="535 1512 941 1848">  </div>
<p>project 28(1) - 77 Thembalethu</p>	<p>Erosion of the streambed leading to exposure of sewage pipeline crossing the stream.</p>

GA required in terms of the NWA.

DEADP confirm that NEMA EA is required prior to commencement

This may be reviewed based on emergency regulations and flood damage.

MMP will be applicable after EA is issued.

- Repairs to protect the undermining of a sewer line as an immediate threat. Sewer exposed and temporary pipe replaced



Figure 12: Photographs at Site 77 illustrating the exposed sewage pipeline, eroded bed and banks and incised channel.

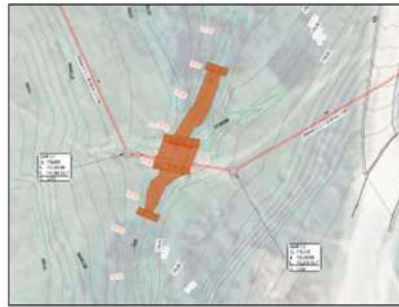


Figure 13: Plan view of the gabion stream protection at Site 77.

project 28(1) - 115-120 Thembalethu
DEADP confirm NEMA MMP is required
 Activity 12(i) and (iv) of LN3

- Teramesh vegetated channels to direct stormwater to a defined channel to protect sewage infrastructure
- Permanent infrastructure falls below the NEMA thresholds
- Rehabilitation of disturbed areas to revegetate the areas

Erosion of embankment caused by stormwater discharge, undermining sewage infrastructure (which was leaking)



Sites 115-120:

Transformed. Dominated by *C. clandestinus* with isolated patches of *J. effusus*, *S. mauritanum*, *Rubus sp.* and *N. ivifolia*.

All works to be done in accordance with this MMP.

7 MMP OBJECTIVES

The main terms of reference of this MMP are to identify and mitigate any potential negative environmental impacts that may be associated with the repair works and maintenance to the flood damaged stormwater infrastructure in Borchers, Parkdene, Ballotsview and Thembaletu, George Municipal area. The specific purpose is to protect existing municipal urban infrastructure and ensure that the natural system functioning is not compromised and is rehabilitated as best as possible. Regular maintenance of stormwater infrastructure is essential to ensure that damage does not continue to the point where environmental damage and risk to infrastructure becomes an issue.

This MMP covers various specific maintenance activities as a result of flood damage and substantial damage having taken place or threat to other services and infrastructure. The MMP also covers what would be viewed as general maintenance and duty of care required to prevent environmental damage and risk to infrastructure from occurring in the first instance.

While implementing the various maintenance requirements, the applicant / 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) and to ensure that their actions do not inadvertently trigger other NEMA activities which would have required environmental authorisation prior to taking place.

8 DESCRIPTION OF THE ACTIVITY

The measures to be implemented include, but are not limited to:

- removal of dumped waste and litter or rubble.
- refurbish / replace gabion structures.
- rehabilitation of eroded areas and implementation of erosion protection structures.
- reinstatement of retaining walls.
- reconstruction of stormwater pipes, outlets, headwalls, and associated infrastructure.
- revegetation of areas disturbed during construction and installation of the protective structures.

For any future maintenance works the anticipated construction programmes to be specified in Form A – Appendix A when submitted to the DEADP.

The scope of works proposed is permanent solution to the current stormwater situation at each of the listed sites.

Specific design and method statements are included for the sites under consideration.

9 METHOD STATEMENT

The initial flood damage repair work will be done in accordance with the specific engineer's design and method statements (see below).

For ongoing maintenance regular inspections of the stormwater structures in relation to municipal infrastructure in Borchards, Parkdene, Ballotsview and Thembaletu needs to be undertaken to ensure early identification of problems, documentation of the problems and reporting of any environmental issues noticed and getting agreement as to what is required to maintain the structure or infrastructure.

Any follow up, maintenance or repairs required within Borchards, Parkdene, Ballotsview and Thembaletu, George Municipal area that will require:

- **clearance of vegetation of more than 300m² within Open Space areas ;or**
- **infilling or depositing of any material of 10 cubic metres or more** into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of **10 cubic metres or more** from a watercourse;

will have to follow the following procedures:

- Engineers to specify the works required, specify areas and volumes or works required and produce a method statement
- Municipality to consult with DEADP and BOCMA in relation to the Method Statement proposed
- DEADP will determine if NEMA is triggered and an EA is required, or if the work falls within the scope of Maintenance and can be done in terms of this MMP.
- Once method statement and Form A has been approved by DEADP, the works can continue in terms of this MMP as approved by DEADP.
- Submit Form B on completion of activity.

Any follow up, maintenance or repairs required within Borchards, Parkdene, Ballotsview and Thembaletu, George Municipal area that will require vegetation clearing of less than 300m² within Open Space or infilling or depositing of any material of **less** than **10 cubic metres** into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of **less** than **10 cubic metres** from a watercourse will have comply with the requirements of the MMP and reporting form A must be submitted to DEADP before commencement with maintenance activity and Form B at the completion of the maintenance activity.

- The method statement submitted together with Form A must be submitted to DEADP in order to confirm that NEMA listed activities are not triggered prior to undertaking the works.

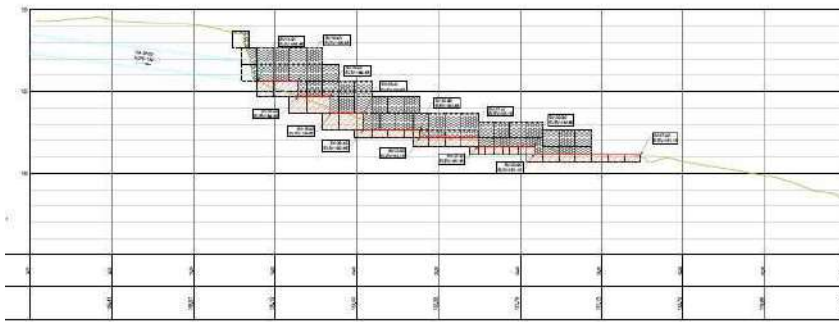
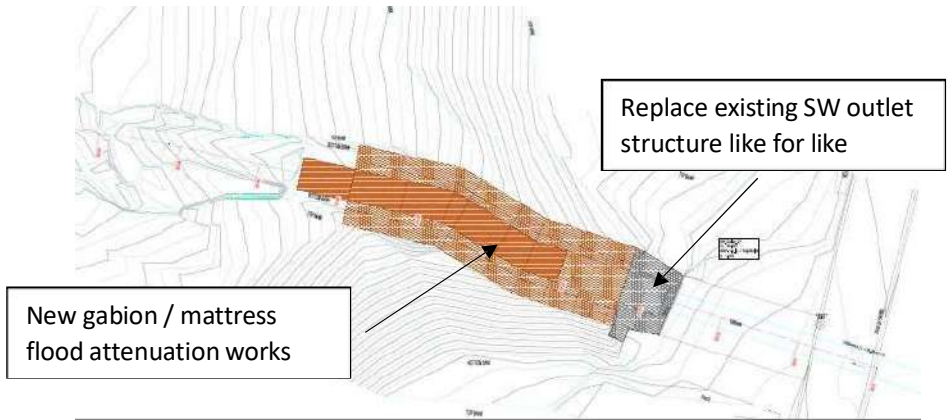
The following method statement has been prepared by the consulting engineer, WEC Consult, 2024, and must be implemented for the construction phase of these specific sites.

METHOD STATEMENTS – PROJECT 28(1) MDRG - GEORGE MUNICIPALITY

Site 28(1).1

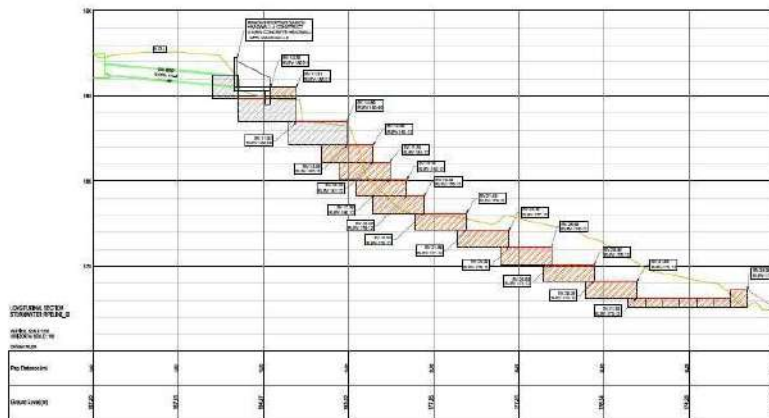
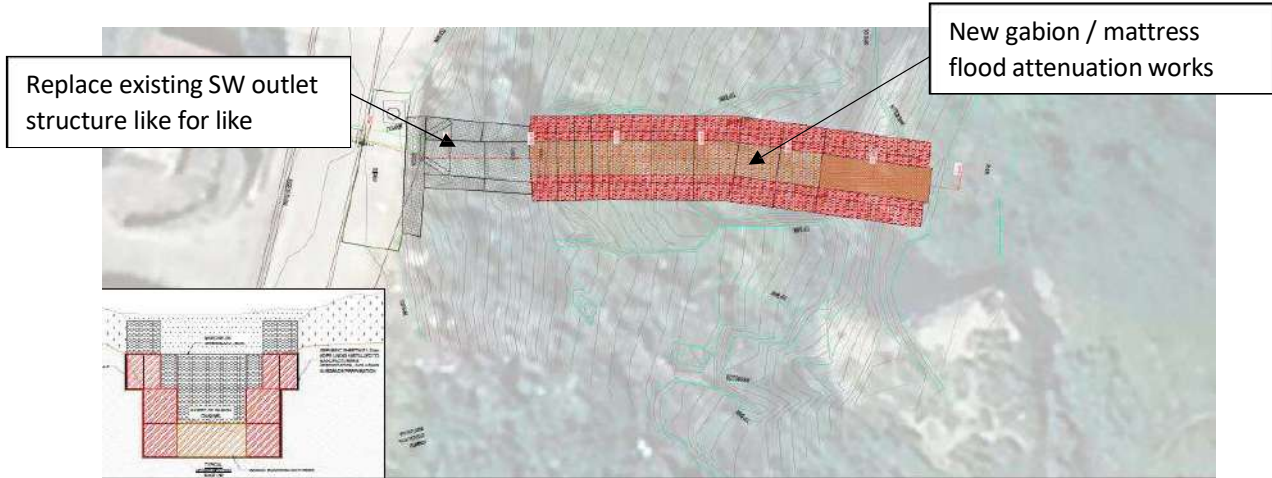


- Access to site from the adjacent public road only.
- Work area to be demarcated and screened off to prevent expansion into surrounding areas.
- All vegetation clearing to be kept to the minimum.
- Total disturbed area as per the diagram above (includes access and working area)
- **Outside 32m offset from nearest watercourse.**



Site 28(1).2

- **NEMA EA in place prior to works being undertaken**
- NEMA EA conditions to be complied with
- Access to site from adjacent public road only.
- Work area to be demarcated and screened off to prevent expansion into surrounding areas.
- Total disturbed area as per the diagram above (includes access and working area)
- **Inside 32m offset from nearest watercourse.**



Site 28(1).37



- Access from cul-de-sac / entrance to pumpstation only
- Work area to be demarcated and screened off to prevent expansion into surrounding areas.

- Limit disturbance of surrounding vegetation
- Total disturbed area as per the diagram above (includes access and working area)
- Rehabilitation of any areas temporarily disturbed within the working area.



Site 28(1).69a & 69b



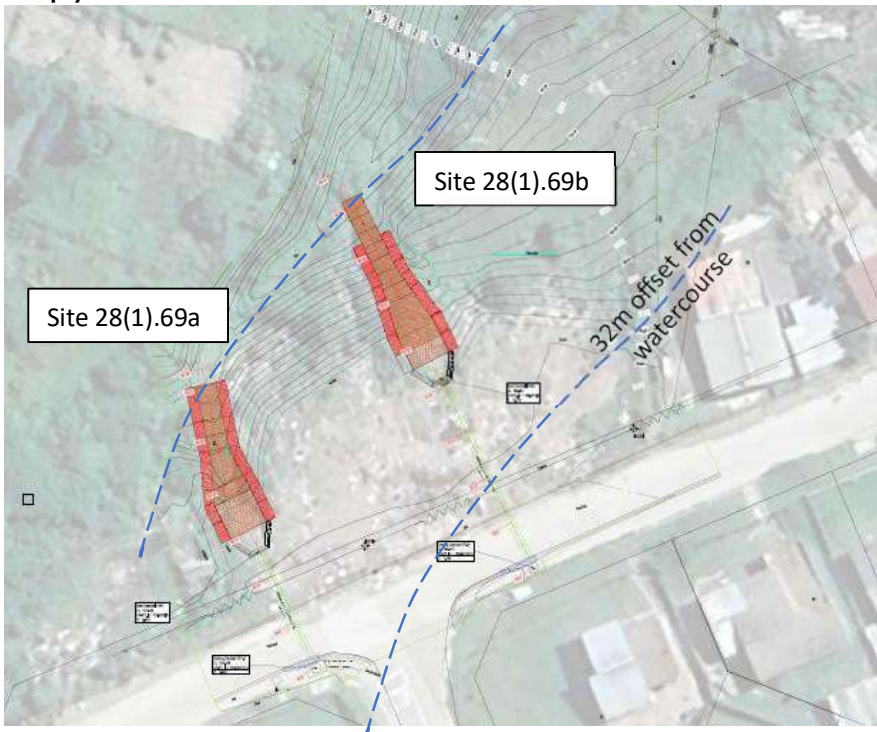
Site 28(1).69a – (new works)

- Total disturbed area within 32 from watercourse = 94 m²
- Replace existing SW pipe & construct new outlet
- Gabion mattresses for flood attenuation towards watercourse
- In watercourse total 16m² mattresses & total 8m³ excavation
- Access from adjacent public road

Site 28(1).69b –

- Total disturbed area within 32 from watercourse = 97 m²
- New SW pipe & construct new outlet
- Gabion mattresses for flood attenuation towards watercourse
- In watercourse total 12m² mattresses & total 6.5m³ excavation
- Access from adjacent public road

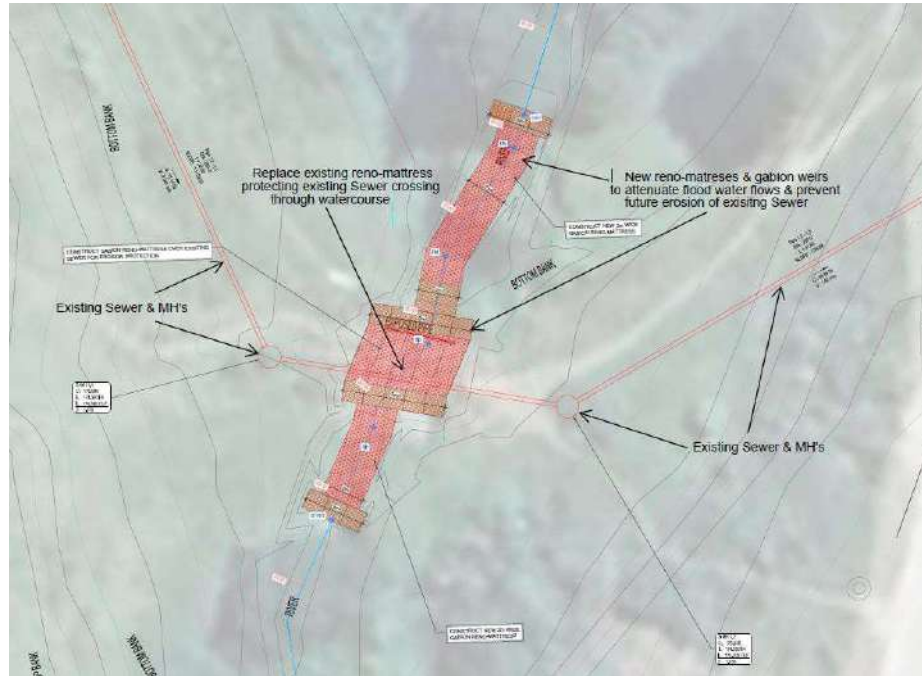
**Work at site 69 to only commence once the EA in terms of NEMA has been issued
Comply with the NEMA EA conditions**



Site 28(1).77

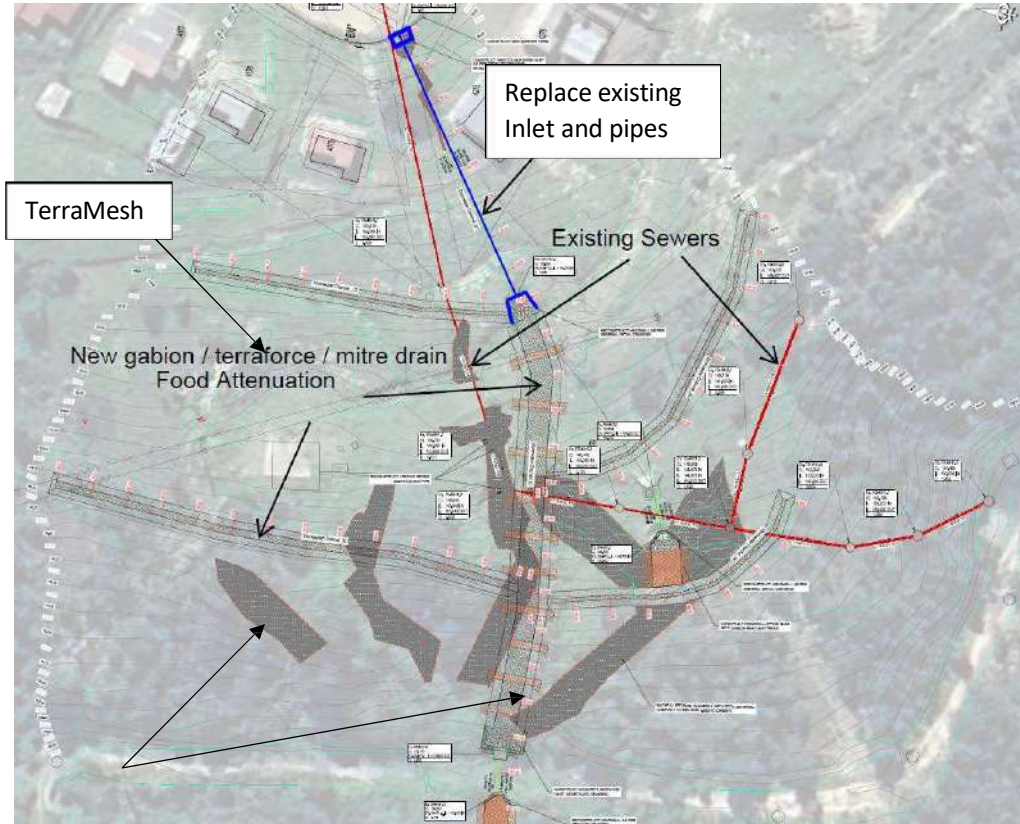
- Access from public road adjacent
- Total disturbed area = 185 m², EXPANSION OF EXISTING - 110 m² (54m³ total excavation in watercourse)
- Repair / replace SW & sewer manholes and protect in watercourse
- **Urgent repairs required to avoid undermining of existing Sewer and possible contamination of watercourse**

- **NEMA EA and NWA GA required prior to works commencing**
- **Comply with the NEMA EA**



Site 28(1).115-120

- Access from adjacent public road above & public footpath below
- Total work area = 1,800 m² (disturbed area)
- More than 32m from nearest watercourse
- Repair / replace SW pipes and outlet structures, New erosion protection, gabions, mattresses
- Revegetation of all disturbed areas
- **Urgent repairs required to avoid undermining of existing Sewers and possible SW contamination**



- Replace existing infrastructure (SW pipe & outlet) = 150m² (blue)
- New infrastructure: (land rehabilitation)
- New swales to be constructed (mitre drains) = 240m²
- New Terramesh and gabions constructed for main drainage channel (North/South on plan shown above) = 130m²

10 GENERAL ENVIRONMENTAL MAINTENANCE AND MANAGEMENT MITIGATION MEASURES FOR IMPLEMENTATION

10.1 ENVIRONMENTAL CONTROL OFFICER (ECO)

An Environmental Control Officer (ECO) **must** be appointed to oversee the pre-construction, construction and rehabilitation phases of the projects, to ensure compliance with the MMP and to assist with issues as they may arise on-site.

The applicant will be responsible for the remuneration of the ECO and any other expenses encountered in the process of environmental monitoring of the pre-construction, construction and rehabilitation phase of this project.

The ECO will have to compile and submit a final completion report to the Competent Authority within 30 calendar days from the date of completion of the initial repair works and any subsequent maintenance work.

10.1.1 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.

10.2 PRE-CONSTRUCTION PHASE

10.2.1 ENVIRONMENTAL EDUCATION

All construction staff should be briefed by the ECO in an environmental education programme regarding the environmental status and requirements of the site, **before** the commencement of any activities on the site. This will include providing general guidelines for minimising environmental damage during the construction, as well as education with regards to basic environmental ethics, such as prevention of littering, lighting fires etc. Records of environmental training (attendance register and training content) must be kept.

10.2.2 METHOD STATEMENT

The engineer / contractor must, **prior to the commencement** of activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following (as applicable):

- Location of the construction site/area
- Access to the construction site
- Demarcation of the working area
- Temporary stormwater / erosion and sedimentation control
- Protection of natural features (if any)
- Reshaping and rehabilitation

The method statement must be included as part of Form A for any works envisaged.

10.2.3 SITE AGENT

The contractor must appoint a responsible agent to ensure that they comply with this MMP and any conditions of its approval. This party is to report directly to the ECO, engineer and contractor on matters concerning the environment, will need to attend the environmental induction and be briefed on the requirements by the ECO. It is recommended that communication regarding queries, concerns and updates is done through phone calls, electronic photos, emails and reports.

10.2.4 ABLUTION FACILITIES

The contractor must provide chemical ablution facilities for all construction personnel working on-site. One (1) facility for every 15 persons on site is required. Toilets must be of a neat construction and must be provided with doors and locks and must be secured to prevent them from blowing over. Sanitation provision and servicing shall be to the satisfaction of the environmental control officer.

The contractor must 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.

10.2.5 TIMING OF MAINTENANCE ACTIVITIES

The works proposed must be completed within the timeframe specified in Form A.

10.2.6 SITE DEMARCATION

The working zone must be strictly demarcated according to the method statement (WEC Consult) above – Section 9, and any subsequent method statement approved by DEADP. Any deviations must be approved by the ECO to confirm NEMA applicability.

Adequate signage must be erected for the public.

All people working on site must be made aware of the boundaries in which work is to be done. Those areas, in which **no** work is required, are considered as no-go areas.

The following applies:

- All construction/installation activities must be restricted to the approved site plan and must remain within the demarcated areas.
- No encroachment or activities may take place outside of the working areas;
- No-go areas will be required to be demarcated by the contractor to ensure that they are visible at all times, to all personnel

- The selection of no-go demarcation materials must take the site location into account and the risk of theft of such material must be taken into account in the choice or selection of the no-go demarcation methods selected;

Access into No-Go areas by machinery is strictly forbidden as this will result in a greater area of disturbance than approved. **A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R10 000 per incident and may result in the project being stopped and UNLAWFUL NEMA actions or penalties being incurred.**

10.2.7 SITE CAMP AND STORAGE OF MATERIALS

- Due to the restricted space, excessive dumping and threat of theft of materials no camp site is anticipated to be used for these small repairs. Materials brought to site as needed to avoid the risk of theft.
- Ablution facilities (chemical toilets) are to be provided and maintained at each active working site for use of the staff at a ratio of one (1) toilet to every 15 workers.
- Site generated litter to be kept in the site bakkie.
- No open fires are to be permitted.

10.2.8 ACCESS

Access to each site according to the method statement (WEC Consult) above – Section 9, and any subsequent approved method statement.

10.2.9 TOPSOIL RECOVERY AND PLANT RESCUE

The ECO is to inspect the pegged working area prior to works commencing to indicate if there is topsoil that can be rescued for use in the final rehabilitation or if there are any specific plants that need to be rescued prior to works commencing. Any such rescue plants are to be retained for planting once the works are complete. ECO to advise as to the best methods and location of such material while works is ongoing. Any insitu topsoil which remains on site will contain seeds that naturally occur in the area (including alien seeds which will need later removal and control).

10.3 CONSTRUCTION PHASE

10.3.1 WASTE MANAGEMENT

Historically dumped material (building rubble / litter etc.) within the working area must be removed from the site before construction / installation commences and the end location of the material removed needs to be confirmed as a lawful waste site.

Site generated litter to be kept in the site bakkie. The contractor(s) must ensure that all site personnel are instructed in the proper disposal of all waste.

The contractor will need to ensure that no illegal dumping takes place while the site is under his control.

Any hazardous waste discovered on site must be disposed of at an approved **hazardous landfill site**.

10.3.2 EROSION CONTROL AND STORMWATER MANAGEMENT

Silt curtain /fence / sandbags below the working area must be installed before work commences to prevent siltation or contamination downstream of the construction zone.

Additional sandbags may be required to stabilise the working space and to divert stormwater away from the construction site during construction. These silt protection measures must be maintained throughout the construction period and removed once construction is complete.

10.3.3 EXCAVATIONS AND EARTHWORKS

All excavations must be done as directed by the engineer in terms of the use of heavy machinery. Due to the scope of the proposed maintenance works, it is not envisaged that much heavy machinery will be required. All works to be approved in the method statement.

All excavations and earthworks **must** be limited to the working area defined.

10.3.4 PROTECTION OF SURROUNDING HABITAT

Works are only to occur within the demarcated working area. All areas beyond this demarcated area will be off-limits to any construction activities.

10.3.5 SITE CLOSURE AND REHABILITATION

Once the installation of the protective measures are completed, all construction material **must** be removed from the site and the working areas must be rehabilitated. The balance of the work area should be reshaped to suit the surrounding landscape behind the gabion baskets and stormwater infrastructure, and this must be stabilised using appropriate methods, including the planting of indigenous grasses and any other methods deemed necessary by the engineer and ECO to reinstate the site.

10.3.6 MAINTENANCE MANAGEMENT ACTIVITIES

The following activities are required in terms of regular inspection of all stormwater infrastructure within the area defined in this MMP.

- UNLAWFUL DUMPING - dumping in or around the stormwater infrastructure can change the flow pattern of stormwater and runoff and can result in unintended erosion damage. Regular inspection and removal of unlawfully dumped material which could affect the flow of water in and around stormwater infrastructure is required.
- COLLAPSE OR SUBSIDENCE BEHIND STORM WATER INFRASTRUCTURE – subsidence or collapse behind stormwater infrastructure can lead to it being undermined and result in erosion and collapse of the structures. Regular inspection for subsidence or collapse around stormwater

infrastructure and immediate repairs and compaction is essential to prevent future failure of structures.

- UNDERCUTTING AT THE OUTLET POINT - regular inspection of the final discharge point at stormwater structures is essential to ensure that undercutting and subsequent headward erosion is not occurring. Any undercutting noticed should be immediately reported to the engineers for instructions as to how to prevent undercutting and future failure of the structure.
- INSPECT BASKETS FOR VANDALISM – damage to the wire baskets through vandalism can result in failure of the structure. All gabion baskets and renomattress structures should be regularly inspected for vandalism damage and this should be repaired before the structure can fail.
- EXPOSED PIPES – especially sewage pipes which become exposed due to localised erosion (along footpaths etc) should be regularly inspected and such localised erosion repaired before the pipes can become at risk of failure.
- UNUSUAL WATER FLOW – regular inspections or investigation of the cause of unusual or unexpected water flow in streets and storm water (e.g noticing flowing water when there has been no rainfall etc), this can be an indication of a leaking water or sewer pipe which is in need of repair before additional damage is caused.
- ALIEN VEGETATION CLEARING – alien invasive vegetation within watercourses and specifically around stormwater infrastructure masks potential damage that is in need of repair. All stormwater outlets should be regularly inspected and all alien vegetation removed in accordance with the Municipal Alien Control Plans.
- BLOCKAGES – stormwater inlets and outlets which become blocked are the cause of subsequent erosion damage as stormwater cannot flow where it is intended to flow. Inspect and regularly remove any material (litter, soil, rubble, cut branches, driftwood etc) that is causing or can cause an obstruction to stormwater flow.

10.3.7 AQUATIC SPECIALIST'S SPECIFIC MITIGATION MEASURES REQUIRED (CONFLUENT ENVIRONMENTAL, 2024)

Impact 1: Generic Construction Phase Impacts

General construction impacts associated with vehicles, workers and storage of construction equipment and include the following:

- Pollution of watercourses through leakage of fuels, oils, and other pollutants from vehicles and construction machinery, or from washing of equipment and vehicles;
- The presence of construction workers on site will require the need for appropriate ablution facilities. Poor management of these facilities could potentially lead to sewage spills or leaks which could contaminate watercourses;
- Storage of construction materials or the temporary lay-down of equipment within an area that drains in the direction of the watercourse;

Mitigation

- Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the watercourse;
- No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed within the buffer of the watercourse;
- Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills;
- The area(s) chosen for the stockpiling of imported building materials should be demarcated, and notices put up declaring what must be stockpiled where.
- Chemical toilets should be provided on-site at 1 toilet per 10 persons;
- Waste from chemical toilets must be disposed of regularly (at least once a week) in a responsible manner by a registered waste contractor;
- Cement/concrete used in the construction must not be mixed on bare ground or within the watercourse. An impermeable/bunded area must be established in such a way that cement slurry, runoff and cement water will be contained and will not flow into the surrounding environment, the stream or riparian zone or contaminate the soil;
- Active alien invasive plant control measures must be implemented to prevent invasion by exotic and alien vegetation within disturbed areas;
- Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream habitat outside of these areas;
- Workers must be properly instructed in the proper care of the environment, especially with respect to poaching, disturbance of nesting and roosting areas, disposal of human waste , garbage etc.;
- The watercourse should be inspected on a regular basis (at least weekly) by an appropriately qualified ECO for signs of disturbance, sedimentation and pollution during the construction phase. If signs of disturbance, sedimentation or pollution are noted, immediate action should be taken to remedy the situation and, if necessary, a freshwater ecologist should be consulted for advice on the most suitable remediation measures.

Impact 2: Mobilisation of Sediment Caused by the Excavation of the Bed & Banks for Installation of Gabions, Reno Mattresses and Stormwater Outlets.

- Installation of stormwater infrastructure on steep slopes will require the excavation of sections of the banks which will expose bare soil to the environment and could lead to high rates of erosion and sedimentation, particularly during heavy rainfall events. This can result in high levels of turbidity as well as infilling of aquatic habitat by high sediment loads. Given the current PES of affected watercourses these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. The No-Go option will result in continued erosion of steep slopes and deposition of sediment in watercourses

Mitigation

- Construction activities must be timed to coincide with low rainfall probability (dry season) to avoid erosion of exposed banks;
- Since stormwater infrastructure will be built where erosion potential is high, construction must be sequenced so that they are put in place with the minimum possible delay. Disturbance of areas where stepped gabion structures are to be placed should be undertaken only when final preparation and placement can follow immediately behind the initial disturbance;
- A construction schedule must be developed and clearly defined so as to avoid multiple sites being exposed and unattended to at any moment in time. The completion date for each phase of development must be indicated and all clearing, excavation, and stabilisation operations must be completed before moving onto the next phase;
- Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream and riparian habitat outside of these areas;
- Following the installation of stormwater infrastructure, exposed banks must be stabilised with appropriate geotextiles (e.g. SoilSaver®) or vegetated with appropriate indigenous vegetation. Banks should ideally be regraded to achieve slopes of 1:4 or flatter.
- Wooden stakes must be used to anchor erosion control mats as there is a high probability that metal stakes will be stolen.

Impact 3: Disturbance of Aquatic and Riparian Habitat caused by the Excavation of the Bed & Banks

- Additional impacts associated with the construction phase involve the loss of additional habitat and biota as a result of disturbances (e.g. from construction vehicles and machinery) that occur outside of the areas designated for the installation of gabion walls. Given the current PES of the watercourses these impacts are not expected to be particularly severe if the appropriate mitigation measures are implemented. The No-Go option will result in continued degradation of habitat due to erosion of the bed and banks.

Mitigation

- Areas where instream construction activities will take place must be confined to clearly demarcated areas so as to prevent unnecessary disturbance of instream and riparian habitat outside of these areas;
- A single point of access must be used to access each site; and
- The toe of the stepped hydraulic gabion structures must not extend beyond the edge of the macro-channel of the watercourse (i.e. must not impede or obstruct high flows or flood events) and must ensure discharge of stormwater without causing erosion of the bank.

Impact 4: Operational Phase - Modification to Instream Habitat Caused by Discharge of Stormwater Runoff

- The most serious impacts related to stormwater discharge relate the input of high volumes of water at high velocity, which frequently results in the erosion of the bed and banks of receiving watercourses. In this respect the proposed stormwater outlets includes energy dissipation structures designed to reduce the velocity of the water discharged which will help to prevent erosion problems. For this reason, the proposed design is considered as a positive impact relative to the current scenario (i.e. heavily eroded channels depositing high quantities of sediment into the river). More direct, controlled discharge of stormwater into the river could however lead to unanticipated erosion of the bed and banks due to high volumes of discharge.

Mitigation:

- The stormwater outlet structure must be inspected on a routine basis to ensure that is free of any blockages and debris and is operating according to design specifications;
- The bed and banks of the river must be routinely inspected (especially following heavy rainfall events) to ensure that the outlet structure is not causing unnecessary erosion of the bed and banks of the river. Any erosion observed must immediately be attended to through appointment of a suitably qualified aquatic specialist.
- All gabion structures must be inspected on a routine basis to ensure that the baskets are intact and that rocks have not displaced. Any faults must be immediately repaired; and
- Gabion structures must be lined with geotextiles to prevent the migration of fines that would otherwise undermine these structures.

11 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 (**FINES ISSUED WILL INCREASE EXPONENTIALLY FOR REPEAT OFFENCES**).

In the event of damage being caused, the contractor will be responsible for the cost of clean-up, 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 Municipality and ECO for environmental rehabilitation of the area.

12 MONITORING AND REPORTING

As this is a Maintenance Management Plan, the initial works were required to correct flood damaged municipal infrastructure, while ongoing maintenance will be required to prevent future damage to private and public infrastructure. The proposed additional construction will need to be monitored and a completion report submitted. All or any maintenance work will need to be reported on as and when necessary (Form A and B).

Form A must be completed at least 7-working days before the commencement of any maintenance activity (to be submitted to DEADP), and Form B on completion of such works:

12.1 MAINTENANCE WORK MONITORING PROCEDURE

- An **induction** meeting with the ECO and the contractor to ensure that they are aware of the requirements of this MMP before the commencement of any activities on site. Induction registers to be kept for all contractors on site.
- The ECO must inspect the site prior to commencement of activities to identify and confirm the demarcation of the no-go areas.
- The ECO is to do a site inspection **weekly** during the construction and rehabilitation phase and submit a **final** compliance monitoring report to the contractor, applicant and competent authority.

13 CONCLUSION

This Maintenance Management Plan (MMP) for the installation and continued maintenance of municipal services infrastructure at risk or exposed in Borchards, Parkdene, Ballotsview and Thembaletu, George Municipal area. It is recommended that the MMP is updated or reviewed every 10 years.

14 DECLARATION

THE PERSON THAT WILL BE UNDERTAKING THE MAINTENANCE

I, in my ~~personal capacity~~ or **duly authorised** by **George Municipality**, thereto hereby declare that I/we:

- Request the MMP to be adopted by the Competent Authority;
- Regard the information contained herein to be true and correct for this Maintenance Management Plan;
- Am fully aware of my responsibilities in terms of the National Environmental Management Act of 1998 ("NEMA") (Act No. 107 of 1998) and that, notwithstanding the adoption of this MMP, I/we shall comply with any other statutory requirement applicable, which may include, but not limited to the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the National Water Act, 1998 (Act No. 36 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) ("EIA Regulations"), in terms of NEMA;
- Am fully aware that the proposed maintenance constitutes a listed activity in terms of the NEMA EIA Regulations, 2014 (as amended) and that an environmental assessment for environmental authorisation may be required for any other listed activities not included as part of this MMP;
- Acknowledge that any activity undertaken that does not form part of the defined and adopted MMP, will be subject to the Section 24(F) of NEMA and that appropriate enforcement and compliance requirements will follow;
- Shall undertake only those tasks described in the MMP, failing which environmental authorisation will be required, where applicable;
- Shall provide the competent authorities with access to all information at my disposal that is relevant to this request;
- Shall be responsible for any costs incurred in complying with environmental legislation;
- Hereby indemnify the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of, inter alia, any loss or damage to property or person as a consequence of undertaking this MMP; and
- Am aware that a false declaration is an offence in terms of Regulation 48(1)(a) GN No. R. 982 of 4 December 2014 (as amended).

Signature of the proponent:

Date:

George Municipality

Name of institution/company:

Appendix A

REPORTING FOR INTENT TO UNDERTAKE MAINTENANCE ACTIVITIES – FORM A				
Section A: Landowner Details				
Name	Surname	Farm No.	Erf No.	Today's Date
Section B: Details of proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP.	Activity Type:	Reference code (make reference to MMP)	Footprint area (m²)	Volume of material (m³)
Equipment to be used:	Description of method for planned activity:			Date when work will commence:
Date of last flood event for site:	Note any further damage and comments regarding the state of the site			
Section C: Photographs of activity location before maintenance				
Before A Coordinates: S E				
Before B Coordinates: S E Date of photos taken:				

REPORTING FOR COMPLETION OF MAINTENANCE ACTIVITIES – FORM B				
Section A: Landowner Details				
Name	Surname	Farm No.	Erf No.	Today's Date
Section B: Details of proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP.	Activity Type:	Reference code (make reference to MMP)	Footprint area (m ²)	Volume of material (m ³)
Equipment that was used:	Description of method for completed activity and if commence date changed			Date activity completed
Date of last flood event for site:	Note any challenges or difficulties experienced in following the MMP method statement			
Section C: Photographs of activity location after maintenance				
After A Coordinates: S E				
After B Coordinates: S E Date of photos taken:				