

Basic Assessment Report



edtea

Department :

Economic Development, Tourism and
Environmental Affairs

PROVINCE OF KWAZULU-NATAL

(For official use only)

EIA File Reference Number:
NEAS Reference Number:
Waste Management Licence Number:
(if applicable)
Date Received:

DC/
KZN/EIA/

BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- **Environmental Authorization** subject to basic assessment for an activity that is listed in Listing Notices 1 or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- **Waste Management Licence** for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

Kindly note that:

1. This **basic assessment report** meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Economic Development, Tourism & Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
9. The KZN Department of Economic Development, Tourism & Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.
10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. **Please note that this report must be handed in or posted to the District Office of the KZN Department of Economic Development, Tourism & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).**

"Leading the attainment of inclusive growth for job creation and economic sustenance"

DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	DC22/0048/2014
File reference number (Waste Management Licence):	

SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	Terratest (Pty) Ltd		
Physical address:	6 Pin Oak Avenue, Hilton		
Postal address:	PO Box 794, Hilton		
Postal code:	3245	Cell:	072 508 0906
Telephone:	033 343 6789		Fax:
E-mail:	richardsonj@terratest.co.za		

2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (yrs)
John Richardson	BSc Hons (Geography and Environmental Management)	IAIAsa	7.5
Riona Patak	BSc Hons Environmental Science	IAIAsa	2

3. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
Phillip Hull	MSc Hydrology	Hydrology	Section E	1:10, 1:20, 1:50 And 1:100 Year Floodline And Hydraulic Study Report

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				Ashdown Stream, Edendale Stormwater Management Plan
Nitesh Ramdayal	BSc Hons Geology	Geology	Section C (3)	Geotechnical Investigation Report – Ashdown Stream Bank Rehabilitation
Jake Alletson	BSc (Hons) Zoology	Biodiversity	Section C (4)	Assessment Of The Biodiversity And Riparian Zone Conditions At The Site Of A Proposed Stream Bank Stabilisation Operation On The Ashdown Stream Near Edendale, Pietermaritzburg

SECTION B: ACTIVITY INFORMATION

1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

Proposed Ashdown Stream Bank Rehabilitation Project, Edendale, Pietermaritzburg, KwaZulu-Natal.

2. PROJECT DESCRIPTION

Provide a detailed description of the project:

Introduction

Terratest (Pty) Ltd have been appointed by the Msunduzi Municipality to provide the environmental services required for the proposed stream bank rehabilitation, Ashdown, KwaZulu-Natal.

Location

The site is located on the along the bank of house P15, Ashdown, Pietermaritzburg, KwaZulu-Natal.

Description

The Ashdown Stream is a tributary of the Msunduzi River. The meander has resulted in undercutting of the stream bank and has resulted in destabilisation of the area, which in turn has resulted in a dwelling (P15) being put at risk of collapse if further undercutting of the stream bank occurs. Rehabilitation and stabilization is required.

Specialist Studies

The following specialist studies have been completed for the proposed upgrade:

- Wetland and Riparian Impact Assessment
- Geotechnical Assessment;

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- Geohydrological Assessment and
- Hydrological Assessment.

Alternatives:

- **Alternative 1:** The use of gabions as a retaining structure all along the bend of the existing river extending at least 30m up and downstream on either side of the house. Gabion mattresses are to be placed at the excavated river bed level and gabion baskets of adequate width and number to be built to approximately 3,00 metres high, exceeding the ground level at the top of the bank by at least 150mm. The length required is approximately 60 metres of gabion retaining structure including adequate transitions ($\pm 5m$) at the ends and the extension of the existing storm water outlet concrete pipes (600mm diameter), headwall reinstatement works and exit structure, on competition.

- **Alternative 2:** This option allows for the removal of the bend and straightening of the river course so that it will flow approximately 10 metres away from the house P15. This involves the use of heavy earth moving equipment to straighten (canalize) the river between the "inlet" and the "outlet" points to reduce the risk to house P15 and others. This canalization will take place over a distance of approximately 30 metres and include backfilling the bend portion of the river thus eliminating the bend portion completely.

- **Alternative 3 (no-go alternative):**
 In this alternative the bank will remain as is. This does not address any of the negative impacts currently experienced. The stream will continue cutting the bank and increasing the risk of harm for residents within house P15. This increases the risk of stream bank collapse as well as environmental and social risk.

3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

GN. R 544 (Listing Notice 1) Similar Listed Activity in NEMA 2014: Activity 12 of GN R. 983	11	The construction of: (xi) infrastructure or structures covering 50 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.
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		It is proposed that infrastructure in excess of 50 square metres will be constructed within 32 metres of the watercourse.
<p>GN. R 544 (Listing Notice 1)</p> <p>Similar Listed Activity in NEMA 2014: Activity 19 of GN R. 983.</p>	18	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic metres from:</p> <p>(i) a watercourse; excluding where such infilling, depositing , dredging, excavation, removal or moving;</p> <p>(a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (b) occurs behind the development setback line.</p> <p>Due to the location and nature of the proposed activity, construction will occur within the watercourse.</p>

4. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as

the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

Sections B 5 – 15 below should be completed for each alternative.

5. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites were applicable.

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 ¹ (preferred or only site alternative)		
Alternative S2 (if any)		
Alternative S3 (if any)		

In the case of linear activities:

Alternative:	Latitude (S):			Longitude (E):		
Alternative S1 (preferred or only route alternative)						
• Starting point of the activity	20°	19'	39.539"	29°	38'	0.65"
• Middle point of the activity	29°	38'	1.11"	30°	19'	39.97"
• End point of the activity	30°	19'	40.878"	29°	38'	1.514"
•						
Alternative S2 (if any)						
• Starting point of the activity	29°	38'	0.681"	30°	19'	39.681"
• Middle point of the activity	29°	38'	1.11"	30°	19'	39.97"
• End point of the activity	29°	38'	1.255"	30°	19'	40.487"

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 500m along the route for each alternative alignment.

6. PHYSICAL SIZE OF THE ACTIVITY

¹ "Alternative S.." refer to site alternatives.

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Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1² (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

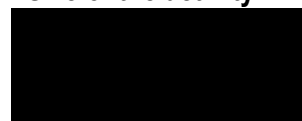
Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:



Length of the activity:

	60m
	30m

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

No servitude will be present.

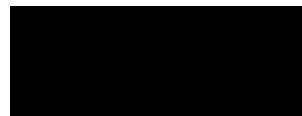
Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:



7. SITE ACCESS

Does ready access to the site exist?

YES

If NO, what is the distance over which a new access road will be built



Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

8. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this report.

The site or route plans must indicate the following:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;

² "Alternative A.." refer to activity, process, technology or other alternatives.

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- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;
- 8.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 8.6. walls and fencing including details of the height and construction material;
- 8.7. servitudes indicating the purpose of the servitude;
- 8.8. sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):
 - rivers, streams, drainage lines or wetlands;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 8.10. the positions from where photographs of the site were taken.

9. SITE PHOTOGRAPHS

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

10. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

11. ACTIVITY MOTIVATION

11.1. Socio-economic value of the activity

What is the expected capital value of the activity on completion?

What is the expected yearly income that will be generated by or as a result of the activity?

Will the activity contribute to service infrastructure?

Is the activity a public amenity?

R4 million	
None	
	NO
	Ne

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How many new employment opportunities will be created in the development phase of the activity?	5
What is the expected value of the employment opportunities during the development phase?	R1.5 million
What percentage of this will accrue to previously disadvantaged individuals?	50%
How many permanent new employment opportunities will be created during the operational phase of the activity?	None
What is the expected current value of the employment opportunities during the first 10 years?	None
What percentage of this will accrue to previously disadvantaged individuals?	N/A

11.2. Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

The Ashdown Stream is a tributary of the Msunduzi River. The meander has resulted in undercutting of the stream bank and has resulted in destabilisation of the area, which in turn has resulted in a dwelling (P15) being put at risk of collapse if further undercutting of the stream bank occurs. Rehabilitation and stabilization is required to prevent the stream bank collapse.

According to the Ezemvelo KZN Wildlife Critical Biodiversity Areas database, the area consists of a built-up settlement. The collapse of the stream will result in the collapse of house P15 and the increased risk of collapse of neighbouring homes. In addition, sedimentation of the watercourse and surrounding area will have an adverse effect on the ecology of the area.

Social: The current housing infrastructure situated on the stream bank is now at risk due to the eroding of the stream bank. The proposed development would allow for the stabilisation of the stream bank thereby ensuring safety of the housing units on the bank.

Economic: The construction phase of the project will create local employment opportunities which promotes local economic development in the area.

Indicate any benefits that the activity will have for society in general:

The activity will create a safer living environment to the dwellings on the stream bank.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

The activity, during the construction phase, will create local employment opportunities, skills creation and knowledge transfer. The activity will create stability of the stream bank which would increase the safety of the households on the stream bank.

12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are relevant to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act (Act 107 of 1998) – for its potential to cause degradation of the environment (Section 28).	Department of Environmental Affairs	1998
Environmental Conservation Act (Act 73) – for potential environmental degradation.	Department of Environmental Affairs	1989
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) – for protection of biodiversity.	Department of Agriculture and Environmental Affairs & Ezemvelo KZN Wildlife	2004
The National Heritage Resources Act (Act No 25 of 1999 as amended) – for the identification and preservation of	Department of Arts and Culture (Amafa KwaZulu-	1999

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items of heritage importance.	Natal)	
Guideline 4: Public Participation in support of the EIA Regulations (2005)	Department of Environmental Affairs and Tourism	2006
Guideline 7: Detailed Guide to Implementation of the Environmental Impact Assessment Regulations (2006)	Department of Environmental Affairs and Tourism	2007
National Water Act (1998)	Department of Water and Sanitation	1998*
EIA Regulations (2010)	Department of Economic Development, Tourism and Environmental Affairs	2010

*A pre-consultation meeting has been conducted with the Department of Water and Sanitation. A water use license is in the process of being applied for.

13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

13.1. Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? YES

If yes, what estimated quantity will be produced per month? 5m³

How will the construction solid waste be disposed of? (describe)

Solid waste generated during the Construction Phase will be stored in skips on site. These skips will be transported by road to a local municipal landfill site fortnightly, or as needed. Alternatively, the Contractor may sub-contract to a registered Waste Service Provider.

Where will the construction solid waste be disposed of? (provide details of landfill site)

The Contractor will sub-contract to a registered Waste Service Provider to remove and appropriately dispose of all construction solid waste. The nearest registered landfill site has been identified as the New England Road Landfill Site, Pietermaritzburg.

Will the activity produce solid waste during its operational phase? NO

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of? (provide details of landfill site)

As the operational phase is the use of the gabion structures to stabilise the stream, no waste will be produced.

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? NO

If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs to obtain clarity regarding the process requirements for your application.

Is the activity that is being applied for a solid waste handling or treatment facility? NO

If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs to obtain clarity regarding the process requirements for your application.

13.2. Liquid effluent

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Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

	NO
--	----

If yes, what estimated quantity will be produced per month?

N/A

Will the activity produce any effluent that will be treated and/or disposed of on site?

	NO
--	----

If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs to obtain clarity regarding the process requirements for your application.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	
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If yes, provide the particulars of the facility:

Sewage effluent will result from the use of chemical toilets utilised on site. As per the Construction Contract (yet to be drafted), an appointed Service Provider will be tasked with the treatment and/or removal of this waste to a licenced waste facility. The waste facility details at this time cannot be provided as the Construction Contract, as noted above, has not as yet been drafted.

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	
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If yes, is it controlled by any legislation of any sphere of government?

	NO
--	----

If yes, contact the KZN Department of Economic Development, Tourism & Environmental Affairs to obtain clarity regarding the process requirements for your application.

If no, describe the emissions in terms of type and concentration:

Emissions will take the form of dust and engine emissions that will result from the operation of vehicles and construction equipment on site. This will be limited to the construction period.

13.4. Generation of noise

Will the activity generate noise?

YES	
-----	--

If yes, is it controlled by any legislation of any sphere of government?

	NO
--	----

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

Noise produced will be limited to vehicles and equipment during the Construction Phase only. The noise levels during the Operational Phase will be nil.

14. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

municipal

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

N/A

Does the activity require a water use permit from the Department of Water Affairs?

YES*

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

* The EAP has liaised with DWS regarding the project and requirements which need to be met. A copy of the correspondence with the DWS and Terratest (Pty) Ltd has been included in Appendix G of this report. The DWS has been engaged with through the circulation of this document, as per the Public Participation Process. Their comments will be included in the Final BA Report and in Appendix E: Public Participation Report.

15. ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

SECTION C: SITE/ AREA/ PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No.

(e.g. A):

- Subsections 1 - 6 below must be completed for each alternative.

1. GRADIENT OF THE SITE

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Indicate the general gradient of the site.

Alternative S1:

Flat	1:50	–	
	1:20		

Alternative S2 (if any):

Alternative S3 (if any):

2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box).

Alternative S1 (preferred site):

	Side slope of hill/mountain	
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Alternative S2 (if any):

	Side slope of hill/mountain	
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Alternative S3 (if any):

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section?

YES	NO
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If YES, please complete the following:

Name of the specialist:	N. Ramdayal		
Qualification(s) of the specialist:	BSc Hons Geology		
Postal address:	P.O. Box 1194, Hillcrest		
Postal code:	3650		
Telephone:	031 765 1900	Cell:	
E-mail:		Fax:	031 765 1935

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?

	YES	NO
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If YES, specify and explain:

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?

	YES	
--	-----	--

If YES, specify and explain:

A natural spring is found upstream from the site. It is recommended that the contractor be made aware of the possible spring location, so that it is not damaged during construction or prevented from discharging into the stream line by the proposed gabion wall.

Are any further specialist studies recommended by the specialist?

	NO
--	----

If YES, specify:

If YES, is such a report(s) attached in Appendix D?

	YES
--	-----

Signature of specialist: _____

Date: _____

Is the site(s) located on any of the following (cross the appropriate boxes)?

Alternative S1: _____	Alternative S2 (if any): _____	Alternative S3 (if any): _____
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Shallow water table (less than 1.5m deep)	YES		YES	NO	YES	NO
Dolomite, sinkhole or doline areas		NO	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES		YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES		YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES		YES	NO	YES	NO
Any other unstable soil or geological feature		NO	YES	NO	YES	NO
An area sensitive to erosion	YES		YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

4. GROUNDCOVER

Has a specialist been consulted for the completion of this section?

YES

If YES, please complete the following:

Name of the specialist:	Jake Alletson		
Qualification(s) of the specialist:	BSc (Hons) Zoology		
Postal address:	PO Box 794, Hilton		
Postal code:	3245		
Telephone:	033 343 6789	Cell:	083 787 1584
E-mail:	alletsonj@terratest.co.za	Fax:	033 343 6788
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?			NO
If YES, specify and explain:			
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?		YES	NO
If YES, specify and explain:	A wetland has been identified upstream of the site.		
Are any further specialist studies recommended by the specialist?			NO*
If YES, specify:			
If YES, is such a report(s) attached in <u>Appendix D</u> ?			NO

Signature of specialist:

Date:

***A wetland and riparian report has been completed as part of the proposed project. The report has been included in Appendix D.**

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

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Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. LAND USE CHARACTER OF SURROUNDING AREA

Cross the land uses and/or prominent features that currently occur within a 500m radius of the site and give a description of how this influences the application or may be impacted upon by the application:

Land use character			Description
Natural area		NO	
Low density residential	YES		The area consists of a combination of low and medium density residential units.
Medium density residential	YES		The area consists of a combination of low and medium density residential units.
High density residential		NO	
Informal residential	YES		The area consists of informal residential units.
Retail commercial & warehousing		NO	
Light industrial		NO	
Medium industrial		NO	
Heavy industrial		NO	
Power station		NO	
Office/consulting room		NO	
Military or police base/station/compound		NO	
Spoil heap or slimes dam		NO	
Quarry, sand or borrow pit		NO	
Dam or reservoir		NO	
Hospital/medical centre		NO	
School/ crèche		NO	
Tertiary education facility		NO	
Church		NO	
Old age home		NO	
Sewage treatment plant		NO	
Train station or shunting yard		NO	
Railway line		NO	
Major road (4 lanes or more)		NO	
Airport		NO	
Harbour		NO	
Sport facilities		NO	
Golf course		NO	
Polo fields		NO	
Filling station		NO	

“Leading the attainment of inclusive growth for job creation and economic sustenance”

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Landfill or waste treatment site		NO	
Plantation		NO	
Agriculture		NO	
River, stream or wetland	YES		The site is within a stream. A wetland area has been identified 20m upstream of the proposed site.
Nature conservation area		NO	
Mountain, hill or ridge	YES		The site is situated along the bank.
Museum		NO	
Historical building		NO	
Protected Area		NO	
Graveyard		NO	
Archaeological site		NO	No archaeological features have been identified on site.
Other land uses (describe)		NO	

6. CULTURAL/ HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or within 20m of the site?

NO

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist:

Will any building or structure older than 60 years be affected in any way?

NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

NO

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

* Due to the location of the proposed activity i.e. within a watercourse, it is highly unlikely that any heritage resources would be present. Should any heritage resource be identified, all work will cease immediately and AMAFA will be notified. This document has been distributed to AMAFA for comment.

SECTION D: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—

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- (i) the site where the activity to which the application relates is or is to be undertaken; and
- (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the local and district municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
 - (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that an application for environmental authorization has been submitted to the KZN Department of Economic Development, Tourism & Environmental Affairs in terms of the EIA Regulations, 2010;(ii)
 - (iii) a brief project description that includes the nature and location of the activity to which the application relates;
 - (iv) where further information on the application can be obtained; and

- (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

4. DETERMINATION OF APPROPRIATE PROCESS

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Economic Development, Tourism & Environmental Affairs as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as Appendix E to this report.

6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.

Has any comment been received from the district municipality?

	NO
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If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

A copy of this document has been submitted to the District Municipality for comment.

Has any comment been received from the local municipality?

NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

The local municipality is the applicant.

Has any comment been received from a traditional authority?

NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from this authority with regard to this application):

[REDACTED]

7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

No comments received to date.

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

Comment has been made by Dusi-Umgweni Conservation Trust (DUCT) which requests DUCT to be registered as an Interested and Affected Party. Further comment from DUCT include:

- DUCT urges that proper design & construction are carefully undertaken so that there be no long term impacts on the surrounding environment most especially nearby wetlands (if there are any).
- The working area must be set out in such a way that the amount of activity near environmentally sensitive areas is reduced as far as possible.

A full copy of correspondence is attached in Appendix E.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached as Appendix E to this report):

Comment has been made by Dusi-Umgweni Conservation Trust (DUCT) which requests DUCT to be registered as an Interested and Affected Party. Terratest (Pty) Ltd has registered DUCT as an Interested and Affected Party. Furthermore, Terratest's response to DUCT indicates that:

"Recommendations will be integrated into the draft Basic Assessment Report and which will be distributed for comment prior to submission to the Department of Economic Development, Tourism and Environmental Affairs." Further information including all comments received and responses will be provided for in Appendix E of this report.

2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the planning and design phase:

Alternative S1 (preferred alternative)

ONLY ONE SITE ALTERNATIVE HAS BEEN CONSIDERED I.E. STREAM BANK STABILISATION ADJACENT TO HOUSE P15. NO OTHER SITE ALTERNATIVE WOULD MEET THE NEED AND DESIRABILITY OF THIS APPLICATION.

Direct impacts:

- Disturbance of flora during site investigations.

Indirect impacts:

- Increased alien vegetation presence;
- Creation of job opportunities for skilled personnel (e.g. specialists, engineers, etc.); and
- Social anxiety in respect of concerned IAPs i.e. movement on-site could create a level of social anxiety in the surrounding community and adjacent land owners.

Cumulative impacts:

- Social anxiety may arise should the surrounding community not be adequately notified of the proposed activity;
- Additional disturbance to local fauna and flora in the immediate area.

Alternative S2 (if any)

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- Soil erosion of the stream bank;
- Sedimentation of the watercourse;
- Local residents would still be at risk; and
- No disturbance to flora and fauna.

Indirect impacts:

- Increased risks to residents along the stream bank; and
- Increased risk of stream bank collapse.

Cumulative impacts:

- No planning impacts.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

- Identify sensitive fauna and flora prior to conducting

Alternative S2

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE

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<p>assessments;</p> <ul style="list-style-type: none"> • Any necessary Specialist Studies must be identified in order to inform the project team, Applicant and relevant authorities of any specific conditions on the site; • Care to be taken when undertaking site inspections • No unnecessary removal or disturbance of vegetation. 	<p>NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.</p> <p>No mitigation measures necessary as no other site alternative exists.</p>
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b. Process, technology, layout or other alternatives

List the impacts associated with any process, technology, layout or other alternatives that are likely to occur during the planning and design phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

- If not properly designed, the structure could cause instability along the alignment and result in collapse of the bank;
- Disturbance of flora may be created through human activity on-site; and
- Disturbance of fauna may be created through human activity on-site.

Indirect impacts:

- Increased alien vegetation presence;
- Erosion from construction activities could be created;
- Social anxiety in respect of concerned IAPs i.e. movement on site could create a level of social anxiety in the surrounding communities, as well as to adjacent landowners.

Cumulative impacts:

- Increased soil erosion could impact on ecological processes; and
- Disturbance of vegetation during site investigations resulting in increased alien vegetation presence downstream of the site.

Alternative A2 (if any)

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

Direct impacts:

- If not properly designed, the structure could cause instability along the alignment and result in collapse of the bank;
- Disturbance of flora may be created through human activity on-site; and
- Disturbance of fauna may be created through human activity on-site.

Indirect impacts:

- Increased alien vegetation presence;
- Erosion from construction activities could be created;
- Social anxiety in respect of concerned IAPs i.e. movement on site could create a level of social anxiety in the surrounding communities, as well as to adjacent landowners.

Cumulative impacts:

- Increased soil erosion could impact on ecological processes; and
- Disturbance of vegetation during site investigations resulting in increased alien vegetation presence downstream of the site.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- No direct impacts – no construction therefore no planning inputs required.

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Indirect impacts:

- No indirect impacts – no construction therefore no planning inputs required.

Cumulative impacts:

- No cumulative impacts – no construction therefore no planning inputs required.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

Alternative A2:

<p>THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.</p> <ul style="list-style-type: none"> • Identify sensitive fauna and flora prior to conducting assessments; • Measures must be taken to ensure minimal disturbance whilst undertaking site assessments during the Planning Phase to avoid disturbance to potentially sensitive flora and fauna on-site; and • Inform the surrounding communities and general public of the proposed activity as soon as possible. This will serve to ease potential social anxiety. 	<p>THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.</p> <ul style="list-style-type: none"> • Identify sensitive fauna and flora prior to conducting assessments; • Measures must be taken to ensure minimal disturbance whilst undertaking site assessments during the Planning Phase to avoid disturbance to potentially sensitive flora and fauna on-site; and • Inform the surrounding communities and general public of the proposed activity as soon as possible. This will serve to ease potential social anxiety.
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2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

Alternative S1 (preferred site)

<p>THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.</p> <p>Direct impacts:</p> <ul style="list-style-type: none"> • There is potential for the site and surrounding areas to become polluted if construction activities are not properly managed (e.g. oil and cement spills, litter from personnel on-site, sewage from ablutions etc.); • The receiving environment may be polluted due to accidental spillages of petrochemicals from the vehicles and equipment; • Physical disturbance of the soil and plant removal may result in soil erosion; • Disturbance of the site may lead to encroachment of alien plant species on-site and into the surrounding areas; • Waste generation could be created by the following: <ul style="list-style-type: none"> – Solid waste - plastics, metal, wood, concrete, stone; – Chemical waste - petrochemicals, resins and paints; and – Sewage as may be generated by construction workers. • Slow-moving construction vehicles on the surrounding roads may cause congestion and / or

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accidents;

- If not properly maintained, increased road use to existing surrounding road infrastructure for access purposes by construction personnel, may cause damage;
- Construction personnel / construction vehicles – movement of construction personnel and vehicles may pose a potential health and safety risk to road users and local residents in the immediate area;
- There is potential for construction labour to trespass onto neighbouring properties;
- Disruption to residents through increased activity and noise in the area;
- Increased temporary employment and skills development / knowledge transfer for local community members;
- Loss of flora and fauna; and
- Destabilisation of the stream banks resulting in collapsing of the slopes.

Indirect impacts:

- Provision of temporary employment opportunities during construction (for engineers, labourers etc.);
- Skills development and knowledge transfer during Construction Phase to members of the local community employed to assist in construction;
- Revenue for local businesses supplying the contractors (i.e. construction materials, machine hire etc.);
- Alien plant infestation – seed dispersal via building material and equipment imports, vehicles and personnel;
- Soil disturbance and plant removal – increased competition from alien plant species;
- Noise impacts generated from construction activity i.e. vehicles, equipment and personnel; and
- Faunal disturbance may occur potentially from the additional noise from increased vehicular movement at the construction site.

Cumulative impacts:

- Environmental degradation; and
- Additive disturbance to IAPs during the Construction Phase

Alternative S2 (if any)

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- Soil erosion of the stream bank
- Sedimentation of the watercourse
- Traffic on the surrounding roads will not be affected;
- Potential pollution created by construction activities will not occur; and
- Residents will not be affected by construction works.

Indirect impacts:

- Local jobs will not be created specific to the road upgrade, thus unemployed people in the area will not benefit;
- Skills creation and knowledge transfer, will not be disseminated to the local community.

Cumulative impacts:

- Further erosion of the stream bank; and
- Increased risk to dwellings on stream bank.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

- Site personnel (i.e. construction staff) must undergo Environmental Training and be educated on keeping any vegetation disturbance to a minimum and on the separation and correct disposal of different types of waste;

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- All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials is supported;
- All solid wastes should be disposed of at a registered landfill site and records maintained to confirm safe disposal. Should a Service Provider be appointed to collect and dispose of solid waste, they are to maintain such records and make them available to the Contractor as and when requested;
- Adequate scavenger-proof refuse disposal containers should be supplied to control solid waste on-site;
- The construction site should be inspected for litter on a daily basis. Extra care should be taken on windy days;
- Methods for reducing and managing waste e.g. recycling, reuse of materials, should be considered;
- Soil that is contaminated with, e.g. cement, petrochemicals or paint, should be disposed of at a registered waste disposal site and is NOT to be buried on site;
- Drip trays and spill kits are to be made readily available for use should any construction machinery develop a leak;
- Chemical waste should be stored in appropriate containers and disposed of at a licensed disposal facility;
- Any leftover material must be appropriately disposed of (i.e. at a permitted landfill site, recycled or issued to the local community for their use);
- An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase;
- Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development;
- It must be ensured that all hazardous contaminants are stored in designated areas that are sign-posted, lined with an appropriate barrier and bunded to 110% of the volumes of liquid being stored to prevent the bio-physical contamination of the environment;
- Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or water-proof drums;
- Any spills on-site must be reported to the relevant Authority (i.e. Department of Water and Sanitation) and must be remediated as per the EMPr (Appendix F);
- The area surrounding the upgraded road must be regularly checked for signs of erosion. If erosion is evident, corrective action must be taken;
- Personnel must not be allowed to trespass onto neighbouring properties and poaching or harvesting of indigenous flora / fauna is strictly forbidden;
- Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix F);
- Any exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Vigorous grasses planted with fertiliser are very effective at covering exposed soil;
- All construction machinery and equipment must be regularly serviced and maintained to keep noise, dust and possible leaks to a minimum, as per the requirements of the EMPr (Appendix F);
- Appropriate temporary traffic control and warning signage must be erected and implemented on all affected roads in the vicinity;
- Construction workers / construction vehicles must take heed of normal road safety regulations, thus all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual;
- Dust to be controlled through the application of water to the road surface;
- A Community Liaison Officer could assist in raising any concerns / complaints noted by the affected community to the Construction Team;
- A Complaints Register must be prepared and neighbours / landowners must be made aware of the process to lodge any complaints or issues. There should be adequate consultation with property owners, local and traditional authorities and communities to ensure that all affected parties are informed of the timing and extent of any disruptions; and
- Local community members must be employed wherever possible.

Indirect impacts:

- A monitoring programme must be implemented to enforce the continual eradication of alien and invasive species during the Construction Phase;
- The Construction Camp should be positioned on previously disturbed areas (if possible);
- The Construction Camp must be contained so as to prevent any visual intrusion and be kept in a clean and orderly state at all times. This will also deter rodents and other fauna from entering the camp;
- No works shall be executed between sunset and sunrise and on the non-working and special non-working days as stated in the Contract Data unless otherwise agreed between the Engineer and Contractor;
- No work is to be permitted on Sundays or Public Holidays;

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- Construction personnel must be made aware of the need to prevent unnecessary noise such as hooting and shouting;
- No hunting is permitted on-site or the surrounding areas;
- No animals required for hunting e.g. dogs, under the supervision of construction workers, should be allowed into the area. All construction personnel on the property must be informed of this ruling; and
- Any construction personnel found to be poaching in the area should be subjected to a disciplinary hearing.

Cumulative Impacts:

- Additive disturbance of soil, flora, fauna and neighbours;
- Ensure that original mitigatory impacts regarding soil erosion, flora, fauna disturbance and social anxiety are enforced and adhered to in the Construction Phase; and
- All mitigation measures as detailed above have been included in the EMPr (refer to Appendix F).

Alternative S2

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

No mitigation measures necessary as no other site alternative exists.

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the construction phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

- Physical disturbance of the soil and plant removal may result in soil erosion / loss;
- Waste generation could be created by the following:
 - Solid waste - plastics, metal, wood, concrete, stone, asphalt;
 - Chemical waste- petrochemicals, resins and paints; and
 - Sewage as may be generated by employees;
- Loss of flora and fauna;
- Soil erosion and sedimentation into the watercourse; and
- Pollution of water resources due to construction activities.

Indirect impacts:

- Construction personnel / construction vehicles – movement of construction personnel and vehicles pose a potential health and safety risk to road users and local residents;
- Increased temporary employment and skills development for local community members;
- Alien plant infestation – seed dispersal via building material and equipment imports, vehicles and personnel;
- Stabilisation of stream bank; and
- Establishment of alien vegetation

Cumulative impacts:

- Loss of flora and fauna;
- Soil erosion and sedimentation into the watercourse;
- Destabilisation of the stream banks resulting in collapsing of the slopes ;
- Pollution of water resources due to construction activities;
- Establishment of alien vegetation; and
- Negative impact on aquatic ecosystems.

Alternative A2

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

Direct impacts:

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- Loss of flora and fauna;
- Waste generation could be created by the following:
 - Solid waste - plastics, metal, wood, concrete, stone, asphalt;
 - Chemical waste- petrochemicals, resins and paints; and
 - Sewage as may be generated by employees
- Increased temporary employment and skills development for local community members;
- Soil erosion and sedimentation into the watercourse due to increased flow velocities and scouring of the downstream environment; and
- Pollution of water resources due to construction activities.

Indirect impacts:

- Increased temporary employment and skills development for local community members;
- Alien plant infestation – seed dispersal via building material and equipment imports, vehicles and personnel
- Noise impacts generated from construction activity i.e. vehicles, equipment and personnel;
- Scouring resulting in soil erosion and sedimentation in the downstream environment;
- Potential flooding of the downstream environment;
- Destabilisation of banks downstream of the current site.

Cumulative impacts:

- Loss of flora and fauna;
- Soil erosion and sedimentation into the watercourse;
- Destabilisation of the stream banks resulting in collapsing of the slopes ;
- Pollution of water resources due to construction activities;
- Destabilisation of stream bank;
- Establishment of alien vegetation;
- Negative impact on aquatic ecosystems; and
- Flooding of the downstream environment.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- Soil erosion of the stream bank
- Sedimentation of the watercourse
- Traffic on the surrounding roads will not be affected;
- Potential pollution created by construction activities will not occur; and
- Residents will not be affected by construction works.

Indirect impacts:

- Local jobs will not be created specific to the road upgrade, thus unemployed people in the area will not benefit;
- Skills creation and knowledge transfer, will not be disseminated to the local community.

Cumulative impacts:

- Further erosion of the stream bank; and
- Increased risk to dwellings on stream bank.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1:

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

1. Flora disturbance:

- All exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Vigorous grasses planted with fertiliser are very effective at covering exposed soil; and
- Necessary rehabilitation measures (e.g. seeding, removing alien plants etc.) should be introduced to ensure species composition reverts to a more natural state (with regards to affected areas).

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2. Faunal Disturbance:
 - Inform construction personnel of sensitive fauna prior to construction to mitigate against possible interference.
3. Soil erosion and surface / stormwater management:
 - The site should be monitored by the Contractor weekly for any signs of off-site erosion;
 - All areas impacted by earth-moving activities must be re-shaped post-construction to ensure natural flow of runoff and to prevent ponding;
 - All exposed earth must be rehabilitated promptly with suitable vegetation to stabilize the soil;
 - No-go areas must be demarcated must be afforded a buffer to prevent disturbance where applicable; and
 - Ensure all contaminants are stored in designated areas that are sign-posted, lined with an appropriate barrier and bunded adequately (i.e. 110% of total capacity contained within the bund) to prevent the bio-physical contamination of the environment.
4. Air quality:
 - Road dampening should be undertaken to prevent excess dust during construction.
5. Waste generation:
 - All solid wastes should be disposed of at a registered landfill site and records maintained to confirm safe disposal;
 - Adequate scavenger-proof refuse disposal containers should be supplied to control solid waste on-site;
 - Demarcated and adequately fenced areas should be provided during construction for the effective storage of construction materials;
 - The construction site should be inspected for litter on a daily basis. Extra care should be taken on windy days;
 - Methods for reducing and managing waste e.g. recycling, reuse of materials, should be considered;
 - It should be ensured that existing waste disposal facilities in the area are able to accommodate the increased waste generated from the proposed construction;
 - Any contaminated water associated with construction activities should be contained in separate areas or receptacles such as Jo-Jo tanks or water-proof drums, and should not be allowed to enter into the natural drainage systems;
 - Soil that is contaminated with, e.g. cement, petrochemicals or paint, should be disposed of at a registered waste disposal site;
 - Chemical waste should be stored in appropriate containers and disposed of at a licensed disposal facility; and
 - Portable sanitation facilities should be erected for construction personnel. Use of these facilities should be enforced (these facilities should be kept clean so that they are a desirable alternative to the surrounding vegetation). These facilities should also be monitored and serviced regularly.
6. Road safety:
 - Construction workers / construction vehicles should take heed of normal road safety regulations, thus all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual.
7. Water Impacts:
 - Construction workers / construction vehicle operators must comply with recommendations within the EMP to ensure no harm is caused to the natural environment.

Indirect impacts:

1. Alien plant infestation:
 - A monitoring programme should be implemented to enforce the continual eradication of alien and invasive species during the Construction Phase (see Appendix F).
2. Noise:
 - Operational Hours: No works shall be executed between sunset and sunrise and on the non-working and special non-working days as stated in the Contract Data unless otherwise agreed between the Engineer and Contractor;
 - No work is to be permitted on Sundays or Public Holidays; and

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- Construction personnel should be made aware of the need to prevent unnecessary noise such as hooting and shouting.
3. Poaching of local fauna:
- No hunting is permitted on-site or in the surrounding areas;
 - No animals required for hunting e.g. dogs, under the supervision of construction workers, should be allowed into the area;
 - All construction personnel should be informed of this ruling; and
 - Any construction personnel found to be poaching in the area should be subjected to a disciplinary hearing.
4. Social anxiety:
- All IAPs should be contacted to inform them of the starting date of construction and the proposed duration;
 - All IAPs should be notified of the construction process and the manner to which it should be implemented via public notices; and
 - All IAPs should be given the correct correspondence information should they wish to contact the Contractor during the Construction Phase.

Cumulative Impacts:

- Ensure that original mitigatory impacts regarding soil erosion, flora, fauna disturbance and social anxiety are enforced and adhered to in the Construction Phase.

All mitigation measures as detailed above have been included in the EMPr (refer to Appendix F).

Alternative A2:

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

The mitigation measures as noted in Alternative A1 are applicable.

2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

Alternative S1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

- Decrease in erosion of the stream bank;
- Decreased sedimentation into the stream.
- Natural process predominantly maintained as opposed to canalisation.

Indirect impacts:

- Increased safety of individuals residing above the bank; and
- Potential increase in alien invasive vegetation

Cumulative impacts:

- Decreased erosion of the stream bank;
- Decreased sedimentation of the watercourse; and
- Increased safety of individuals residing above the bank.

Alternative S2 (if any)

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

"Leading the attainment of inclusive growth for job creation and economic sustenance"

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- Soil erosion of the stream bank
- Sedimentation of the watercourse
- Traffic on the surrounding roads will not be affected;
- Potential pollution created by construction activities will not occur; and
- Residents will not be affected by construction works.
- Increased risk of bank collapsing and residential dwelling being affected.

Indirect impacts:

- Local jobs will not be created specific to the construction phase, thus unemployed people in the area will not benefit;
- Skills creation and knowledge transfer, will not be disseminated to the local community.

Cumulative impacts:

- Further erosion of the stream bank; and
- Increased risk to other dwellings on stream bank.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1	Alternative S2
<ul style="list-style-type: none"> • Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix F); and • The site and surrounding areas must be monitored for signs of erosion. Should any signs be noted, the erosion mitigation measures, as noted in the EMPr (Appendix F), must be implemented. 	<p>Not Applicable</p>

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the operational phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Direct impacts:

- Decrease in erosion of the stream bank;
- Decreased sedimentation into the stream.

Indirect impacts:

- Increased safety of individuals residing above the bank; and
- Potential increase in alien invasive vegetation

Cumulative impacts:

- Decreased erosion of the stream bank;
- Decreased sedimentation of the watercourse; and
- Increased safety of individuals residing above the bank.

Alternative A2

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

Direct impacts:

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<ul style="list-style-type: none"> • Decrease in erosion of the stream bank adjacent to house P15; • Decreased sedimentation into the stream adjacent to house P15; • Increased flow velocities creating a scour effect downstream which will result in soil erosion and sedimentation into the downstream environment. <p>Indirect impacts:</p> <ul style="list-style-type: none"> • Increased safety of individuals residing above the bank; and • Potential increase in alien invasive vegetation; • Increased risk of flooding of the downstream environment due to the increased flow velocities. <p>Cumulative impacts:</p> <ul style="list-style-type: none"> • Decreased erosion of the stream bank; • Decreased sedimentation of the watercourse; and • Increased safety of individuals residing above the bank.
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No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

<p>Direct impacts:</p> <ul style="list-style-type: none"> • Soil erosion of the stream bank • Sedimentation of the watercourse • Traffic on the surrounding roads will not be affected; • Potential pollution created by construction activities will not occur; and • Residents will not be affected by construction works. <p>Indirect impacts:</p> <ul style="list-style-type: none"> • If not properly designed, the structure could cause instability along the alignment and result in collapse of the bank; • Skills creation and knowledge transfer, will not be disseminated to the local community. <p>Cumulative impacts:</p> <ul style="list-style-type: none"> • Further erosion of the stream bank; and • Increased risk to dwellings on stream bank.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1	Alternative A2
<ul style="list-style-type: none"> • Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix F); and • The site and surrounding areas must be monitored for signs of erosion. Should any signs be noted, the erosion mitigation measures, as noted in the EMPr (Appendix F), must be implemented. 	<ul style="list-style-type: none"> • Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix F); • The site and surrounding areas must be monitored for signs of erosion. Should any signs be noted, the erosion mitigation measures, as noted in the EMPr (Appendix F), must be implemented; and • Continual monitoring of the downstream environment to determine the impact after high flood events.

2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the decommissioning or closure phase:

Alternative S1 (preferred alternative)

"Leading the attainment of inclusive growth for job creation and economic sustenance"

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

It is highly unlikely that the gabions will be decommissioned in the near future. However, should this be necessary, the Decommissioning Phase impacts would be considered the same as those noted in the Construction Phase impacts (refer to Section E, 2.2a). Similarly, the mitigation impacts as noted in the Construction Phase would also be applicable.

Alternative S2

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- No direct impacts – no construction therefore no decommissioning inputs required.

Indirect impacts:

- No indirect impacts – no construction therefore no decommissioning inputs required.

Cumulative impacts:

- No cumulative impacts – no construction therefore no decommissioning inputs required.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative S1

Alternative S2

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

N/A

It is highly unlikely that the gabions would be decommissioned in the near future. However, should this be necessary, the Decommissioning Phase impacts would be considered the same as those noted in the Construction Phase impacts (refer to Section E, 2.2a). Similarly, the mitigation impacts as noted in the Construction Phase would also be applicable.

b. Process, technology, layout or other alternatives

List the impacts associated with process, technology, layout or other alternatives that are likely to occur during the decommissioning or closure phase (please list impacts associated with each alternative separately):

Alternative A1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

It is highly unlikely that the gabions will be decommissioned in the near future. However, should this be necessary, the Decommissioning Phase impacts would be considered the same as those noted in the Construction Phase impacts (refer to Section E, 2.2a). Similarly, the mitigation impacts as noted in the Construction Phase would also be applicable.

Alternative A2

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE

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P15.

It is highly unlikely that the canal will be decommissioned in the near future. However, should this be necessary, the Decommissioning Phase impacts would be considered the same as those noted in the Construction Phase impacts (refer to Section E, 2.2a). Similarly, the mitigation impacts as noted in the Construction Phase would also be applicable.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

Direct impacts:

- Soil erosion of the stream bank
- Sedimentation of the watercourse
- Traffic on the surrounding roads will not be affected;
- Potential pollution created by construction activities will not occur; and
- Residents will not be affected by construction works.

Indirect impacts:

- If not properly designed, the structure could cause instability along the alignment and result in collapse of the bank;
- Skills creation and knowledge transfer, will not be disseminated to the local community.

Cumulative impacts:

- Further erosion of the stream bank; and
- Increased risk to dwellings on stream bank.

Indicate mitigation measures to manage the potential impacts listed above:

Alternative A1

Alternative A2

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

Although it is highly unlikely that the gabion would be decommissioned in the near future, the mitigation measures for the technology alternative have been noted below.

Although it is highly unlikely that the canal would be decommissioned in the near future, the mitigation measures for the technology alternative have been noted below.

- When decommissioning, all materials must be adequately disposed of (i.e. at a registered landfill site and / or recycled);
- Care must be taken to not pollute the surrounding environment;
- The area must be monitored for signs of erosion. Should soil erosion be evident, corrective action must be taken as per the recommendations of the EMPr (Appendix F); and
- The site must be rehabilitated to represent natural, indigenous vegetation.

- When decommissioning, all materials must be adequately disposed of (i.e. at a registered landfill site and / or recycled);
- Care must be taken to not pollute the surrounding environment;
- The area must be monitored for signs of erosion. Should soil erosion be evident, corrective action must be taken as per the recommendations of the EMPr (Appendix F); and
- The site must be rehabilitated to represent natural, indigenous vegetation.

Further mitigation measures are noted in Section 2.2b, under

Further mitigation measures are noted in Section 2.2b, under

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Construction Phase mitigation measures.	Construction Phase mitigation measures.
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2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1 (preferred site)	Alternative S2
<p>THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.</p> <p>An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F).</p> <p>It is recommended that the Contractor appoint a Designated Environmental Officer (DEO) from his staff who must be responsible for ensuring implementation and compliance with the requirements of the EMPr on a daily basis. Any non-compliance incident must be documented by the DEO in an Environmental Site Register, which must include the nature and magnitude of the action taken to correct the non-compliance; the actions taken to mitigate its effects and the outcomes of those actions. Any significant emergency incidents during the project must be reported to the Competent Authority (i.e. EDTEA and the DWS) immediately by the DEO.</p> <p>Furthermore, it is recommended that the external EMPr and Environmental Authorisation compliance monitoring take place on a monthly basis by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented. Monthly environmental compliance reports prepared by the appointed ECO are to be submitted to the EDTEA.</p>	<p>No other site alternative exists that will meet the need and desirability of the proposed development, therefore no monitoring required.</p>

Alternative A1 (preferred alternative)	Alternative A2
<p>THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.</p> <p>An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F).</p> <p>It is recommended that the</p>	<p>THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.</p> <p>An Environmental Management Programme (EMPr) has been compiled and is attached to this report (see Appendix F).</p> <p>It is recommended that the Contractor appoint a Designated</p>

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<p>Contractor appoint a Designated Environmental Officer (DEO) from his staff who must be responsible for ensuring implementation and compliance with the requirements of the EMPr on a daily basis. Any non-compliance incident must be documented by the DEO in an Environmental Site Register, which must include the nature and magnitude of the action taken to correct the non-compliance; the actions taken to mitigate its effects and the outcomes of those actions. Any significant emergency incidents during the project must be reported to the Competent Authority (i.e. EDTEA and the DWS) immediately by the DEO.</p> <p>Furthermore, it is recommended that the external EMPr and Environmental Authorisation compliance monitoring take place on a monthly basis by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented. Monthly environmental compliance reports prepared by the appointed ECO are to be submitted to the EDTEA.</p>	<p>Environmental Officer (DEO) from his staff who must be responsible for ensuring implementation and compliance with the requirements of the EMPr on a daily basis. Any non-compliance incident must be documented by the DEO in an Environmental Site Register, which must include the nature and magnitude of the action taken to correct the non-compliance; the actions taken to mitigate its effects and the outcomes of those actions. Any significant emergency incidents during the project must be reported to the Competent Authority (i.e. EDTEA and the DWS) immediately by the DEO.</p> <p>Furthermore, it is recommended that the external EMPr and Environmental Authorisation compliance monitoring take place on a monthly basis by an independent Environmental Control Officer (ECO) to ensure that the requirements of the EMPr are being correctly implemented. Monthly environmental compliance reports prepared by the appointed ECO are to be submitted to the EDTEA.</p>
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3. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account, with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative S1 (preferred site)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

Only one site alternative has been considered within this report (S1) due to the current state of the environment, i.e. stream bank adjacent to house P15. No other site alternative would meet the Need and Desirability of this specific project. All impacts identified can be minimised provided mitigation measures are adhered to.

Alternative S2

NO OTHER SITE ALTERNATIVE EXISTS THAT WILL MEET THE NEED AND DESIRABILITY OF THE PROPOSED DEVELOPMENT.

Alternative A1 (preferred alternative)

THE PREFERRED ALTERNATIVE IS THE PLACEMENT OF GABIONS ALONG THE STREAM BANK ADJACENT TO HOUSE P15.

This alternative involves the placement of gabion mattresses along 60m of the stream bank to allow for the stabilisation of the stream bank.

The impacts related to the stabilization of the stream bank will mainly be during the Construction Phase of the activity. These impacts can be mitigated as described in the document above. Furthermore, detailed mitigation and management principles for the Construction Phase are included in the EMPr (Appendix F).

Areas of biophysical concern include vegetation and fauna, groundwater, soil disturbance and air quality. However, with the correct implementation of the prescribed mitigation measures, these impacts can be kept to a minimum. Further, the recommendations as noted in the Specialist Reports (attached as Appendix D) will be implemented prior to and during construction.

The employment of local community members and the dissemination of skills and knowledge transfer is highly recommended. The use of a Community Liaison Officer can greatly assist in bridging the gap between the local community and the Contractor.

The proposed activity will have no significant negative impact on the receiving biophysical environment if the mitigation measures and management of the impacts (particularly during the Construction Phase) are undertaken. Most of the negative impacts are expected to be of low significance and short duration. No significant negative impacts are expected during the operational phase of the project. It is imperative that an approved EMPr be in place for the construction activities, as well as for the decommissioning of the Contractor's Camp etc. when moving off site. A DEO should be appointed to enforce EMPr compliance on a daily basis and an independent ECO should be appointed to audit the compliance of the EMPr on a monthly basis

The social impact will have a high significance to the local community during the Operational Phase (positive impact with a long term duration). This is due to the increased safety and stability of the bank upon which the residential dwelling lies.

Based on the impacts identified in this assessment report; the successful mitigation of these impacts; and the positive social and environmental impacts that will result from the activity, it is the opinion of the Environmental Assessment Practitioner (EAP) that no fatal flaws are present, and that as a result, there is no need for the EDTEA not to grant Environmental Authorisation for this Application.

Alternative A2

THE ALTERNATIVE IS TO STRAIGHTEN AND CANALIZE THE STREAM ADJACENT TO HOUSE P15.

This alternative involves the straightening of the stream bank to allow the flow of the stream 10m away from the stream bank. This involves the use of heavy machinery on site. Backfilling of the bank will occur to stabilise the current bank at risk.

The impacts related to the stabilization of the stream bank will mainly during the Construction Phase of the activity. These impacts can be mitigated as described in the document above. Furthermore, detailed mitigation and management principles for the Construction Phase are included in the EMPr (Appendix F).

Areas of biophysical concern during the construction phase include vegetation and fauna, groundwater, soil disturbance and air quality. However, with the correct implementation of the prescribed mitigation measures, these impacts can be kept to a minimum. Further, the recommendations as noted in the Specialist Reports (attached as Appendix D) will be implemented prior to and during construction.

The employment of local community members and the dissemination of skills and knowledge transfer is highly recommended. The use of a Community Liaison Officer can greatly assist in bridging the gap between the local community and the Contractor.

The proposed activity will have a significant negative impact on the receiving downstream biophysical environment during the operational phase of the activity. This is attributed to the increased flow velocity which can cause flooding and erosion of the downstream environment. It is imperative that an approved

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EMPr be in place for the construction activities, as well as for the decommissioning of the Contractor's Camp etc. when moving off site. A DEO should be appointed to enforce EMPr compliance and an independent ECO should be appointed to audit the compliance of the EMPr.

No-go alternative (compulsory)

THE NO GO ALTERNATIVE WOULD BE NOT TO STABILIZE THE STREAM BANK.

The No-go Alternative has been considered and assessed. The current situation is deemed unfavourable due to the current state of the stream bank and the risk to surrounding residents.

SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPr sufficient to make a decision in respect of this report?

YES

If "NO", please contact the KZN Department of Economic Development, Tourism & Environmental Affairs regarding the further requirements for your report.

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

- Vegetation disturbance must be kept to a minimum and on the separation and correct disposal of different types of waste;
- All waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials is supported;
- All solid wastes must be disposed of at a registered landfill site and records maintained to confirm safe disposal. Should a Service Provider be appointed to collect and dispose of solid waste, they are to maintain such records and make them available to the Contractor as and when requested;
- Adequate scavenger-proof refuse disposal containers should be supplied to control solid waste on-site;
- The construction site should be inspected for litter on a daily basis. Extra care should be taken on windy days;
- Methods for reducing and managing waste e.g. recycling, reuse of materials, should be considered;
- Soil that is contaminated with, e.g. cement, petrochemicals or paint, must be disposed of at a registered waste disposal site and is NOT to be buried on site;
- Drip trays and spill kits are to be made readily available for use should any construction machinery develop a leak;
- Chemical waste should be stored in appropriate containers and disposed of at a licensed disposal facility;
- Any leftover material must be appropriately disposed of (i.e. at a permitted landfill site, recycled or issued to the local community for their use);
- An appropriate number of toilets (1 toilet for every 20 workers) must be provided for labourers during the Construction Phase;
- Appropriate stormwater / surface water management measures must be put in place before construction commences and maintained throughout the lifetime of the development;
- It must be ensured that all hazardous contaminants are stored in designated areas that are sign-posted, lined with an appropriate barrier and bunded to 110% of the volumes of liquid being stored to prevent the bio-physical contamination of the environment;
- Any contaminated water associated with construction activities must be contained in separate areas or receptacles such as Jo-Jo tanks or water-proof drums;

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- Any spills on-site must be reported to the relevant Authority (i.e. Department of Water and Sanitation) and must be remediated as per the EMPr (Appendix F);
- The area surrounding the development area must be regularly checked for signs of erosion. If erosion is evident, corrective action must be taken;
- Personnel must not be allowed to trespass onto neighbouring properties and poaching or harvesting of indigenous flora / fauna is strictly forbidden;
- Alien plant encroachment must be monitored and prevented as outlined in the EMPr (Appendix F);
- Any exposed earth should be rehabilitated promptly with suitable vegetation to protect the soil. Vigorous grasses planted with fertiliser are very effective at covering exposed soil;
- All construction machinery and equipment must be regularly serviced and maintained to keep noise, dust and possible leaks to a minimum, as per the requirements of the EMPr (Appendix F);
- Appropriate temporary traffic control and warning signage must be erected and implemented on all affected roads in the vicinity;
- Construction workers / construction vehicles must take heed of normal road safety regulations, thus all personnel must obey and respect the law of the road. A courteous and respectful driving manner should be enforced and maintained so as not to cause harm to any individual;
- Dust to be controlled through the application of water to the road surface;
- A Community Liaison Officer could assist in raising any concerns / complaints noted by the affected community to the Construction Team;
- A Complaints Register must be prepared and neighbours / landowners must be made aware of the process to lodge any complaints or issues. There should be adequate consultation with property owners, local and traditional authorities and communities to ensure that all affected parties are informed of the timing and extent of any disruptions; and
- Local community members must be employed wherever possible.
- A monitoring programme must be implemented to enforce the continual eradication of alien and invasive species during the Construction Phase;
- The Construction Camp should be positioned on previously disturbed areas (if possible);
- The Construction Camp must be contained so as to prevent any visual intrusion and be kept in a clean and orderly state at all times. This will also deter rodents and other fauna from entering the camp;
- No works shall be executed between sunset and sunrise and on the non-working and special non-working days as stated in the Contract Data unless otherwise agreed between the Engineer and Contractor;
- No work is to be permitted on Sundays or Public Holidays;
- Construction personnel must be made aware of the need to prevent unnecessary noise such as hooting and shouting;
- No hunting is permitted on-site or the surrounding areas;
- No animals required for hunting e.g. dogs, under the supervision of construction workers, should be allowed into the area. All construction personnel on the property must be informed of this ruling;
- Any construction personnel found to be poaching in the area should be subjected to a disciplinary hearing;
- Ensure that the mixing/decanting of all chemicals and hazardous materials takes place on a tray or impermeable surface in excess of 100m from the riparian area and outside the 1:100 year floodline;
- No storage construction materials whatsoever, or placement of temporary ablution facilities, must take place within 100 meters of a watercourse or wetland or within the 1:100 year floodline;
- Soil stockpiles must be positioned at least 50m or outside of the 1:100 year flood, whichever is the greater from watercourses or wetlands;
- No hazardous material shall be stored within the 1:100 year floodline or within 100m from the riparian area;
- Ensure a safe stream diversion is created while installing a doing earthworks in the watercourse;
- Ensure the diversion is large enough to account for times of increased flow;
- Keep the diversion on grade with the natural streambed to enable fish passage. It is important to keep the stream habitat as complete and unchanged as possible to keep a stable stream environment for any aquatic biota;
- Check diversions after all major storm events and repair damage immediately;
- Follow appropriate methods to ensure no sediment enters watercourse; stabilise area of

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construction immediately;

- Single access and exit points to bank areas, for construction purposes, may be established;
- Unnecessary compaction of soil during construction should be avoided and / or reversed; and
- No activity should take place anywhere within 20 m of the wetland area. If work is to be done in that general area, then the wetland boundary must be marked and a temporary exclusion fence be put in place on the boundary.

SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information