



EIA REFERENCE NUMBERS: 16/3/3/1/A8/33/3042/18

ENQUIRIES: Ms. M. Schippers

DATE OF ISSUE: 2019 -09- 2 5

The Municipal Manager
City of Cape Town
Private Bag X9181
CAPE TOWN
8000

Attention: Mr. M. Pinder

Tel: (021) 400 4918

Fax: (021) 400 2902

Dear Sir

ACKNOWLEDGEMENT OF RECEIPT OF THE FINAL BASIC ASSESSMENT REPORT ("BAR") FOR THE PROPOSED LENGTHENING OF A ROAD (ERICA DRIVE) AND INFILLING OF WATERCOURSES, BELHAR.

1. The final BAR dated 11 September 2019 and received by this Department on 20 September 2019, refers.
2. This letter serves as an acknowledgement of receipt of the aforementioned document by this Directorate.
3. This Directorate will now review the final BAR and notify you of the outcome within the legislated timeframes.
4. **Please note that the duly dated and originally signed declaration as completed by the applicant, the Environmental Assessment Practitioner and specialists who conducted a specialist study as part of the Environmental Impact Assessment process must be submitted as a matter of urgency. Failure to submit this information may prejudice the outcome of your application.**
5. Kindly quote the abovementioned reference number in any future correspondence in respect of the application.
6. Please note that the activity may not commence prior to an environmental authorisation being obtained from the competent authority.
7. This Directorate reserves the right to revise or withdraw comments or request further information based on any information received.

8. Your interest in the future of our environment is greatly appreciated.

Yours faithfully



HEAD OF DEPARTMENT

Copies: (1). Ms. J. Pienaar (Eco Impact Legal Consulting)
(2). Mr. D. Georgeades (City of Cape Town)
(3). Mr. D. Daniels (Department of Water and Sanitation)
(4). Mr. B. Niemand (DEA&DP: DDF)

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EIA REFERENCE NUMBER: 16/3/3/1/A8/13/3042/18
NEAS REFERENCE: WCP/EIA/0000529/2018
ENQUIRIES: Ms. M. Schippers
DATE OF ISSUE: 2020 -01- 23

The Municipal Manager
City of Cape Town
Private Bag X9181
CAPE TOWN
8000

Attention: Mr. M. Pinder

Tel: (021) 400 4918
Fax: (021) 400 2902

Dear Sir

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED): THE PROPOSED INFILLING OF WATERCOURSES AND CLEARANCE OF INDIGENOUS VEGETATION FOR THE WIDENING AND LENGTHENING OF A ROAD (ERICA DRIVE), BELHAR.

1. With reference to the above application, the Department hereby notifies you of its decision to **grant** Environmental Authorisation, attached herewith, together with the reasons for the decision.
2. In terms of Regulation 4 of the Environmental Impact Assessment Regulations, 2014 (as amended), you are instructed to ensure, within 14 days of the date of the decision on the application, that all registered interested and affected parties ("I&APs") are provided with access to the decision and reasons for the decision, and that all registered I&APs are notified of their right to appeal.
3. Your attention is drawn to Chapter 2 of the Appeal Regulations, 2014, which prescribes the appeal procedure to be followed. This procedure is summarised in the attached Environmental Authorisation.

Yours faithfully

ZAAHIR TOOBY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)
DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND DEVELOPMENT PLANNING

Copies to: (1) Ms. J. Plenaar (Eco Impact Legal Consulting (Pty) Ltd.)
(2) Mr. D. Georgeades (City of Cape Town)

Fax: (021) 671 9967
Fax: (086) 576 2919



EIA REFERENCE NUMBER: 16/3/3/1/A8/13/3042/18
NEAS REFERENCE: WCP/EIA/0000529/2018
ENQUIRIES: Ms. M. Schippers
DATE OF ISSUE:

2020 -01- 23

ENVIRONMENTAL AUTHORISATION

ENVIRONMENTAL AUTHORISATION IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS, 2014 (AS AMENDED) FOR THE PROPOSED INFILLING OF WATERCOURSES AND CLEARANCE OF INDIGENOUS VEGETATION FOR THE WIDENING AND LENGTHENING OF A ROAD (ERICA DRIVE), BELHAR.

With reference to your application for the abovementioned, find below the outcome with respect to this application.

DECISION

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 as amended on 07 April 2017 ("NEMA EIA Regulations, 2014") the Competent Authority herewith **grants environmental authorisation** to the applicant to undertake the listed activities specified in section B below with respect to the preferred alternative described in the Basic Assessment Report ("BAR") dated 11 September 2019.

The granting of this Environmental Authorisation is subject to compliance with the conditions set out in section E below.

A. DETAILS OF THE APPLICANT FOR THIS ENVIRONMENTAL AUTHORISATION

The Applicant
c/o Mr. M. Pinder (City of Cape Town)
Private Bag X9181
CAPE TOWN
8000

Tel: (021) 400 4918
Fax: (021) 400 2902

The abovementioned juristic person is the holder of this Environmental Authorisation and is hereinafter referred to as "the applicant".

B. LISTED ACTIVITIES AUTHORISED

The listed activities in terms of the NEMA EIA Regulations as amended on 07 April 2017.

Listed activities	Activity/Project description
<p>Listing Notice 1</p> <p>Activity Number: 19 Activity Description:</p> <p><i>The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</i></p> <p><i>but excluding where such infilling, depositing, dredging, excavation, removal or moving—</i></p> <ul style="list-style-type: none"> <i>(a) will occur behind a development setback;</i> <i>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</i> <i>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</i> <i>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</i> <i>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</i> 	<p>The development and widening of the road will result in the infilling of watercourses.</p>
<p>Listing Notice 3</p> <p>Activity Number: 4 Activity Description:</p> <p><i>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</i></p> <p>i. Western Cape</p> <ul style="list-style-type: none"> <i>i. Areas zoned for use as public open space or equivalent zoning;</i> <i>ii. Areas outside urban areas;</i> <ul style="list-style-type: none"> <i>(aa) Areas containing indigenous vegetation;</i> <i>(bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or</i> <i>iii. Inside urban areas:</i> <ul style="list-style-type: none"> <i>(aa) Areas zoned for conservation use; or</i> <i>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.</i> 	<p>A section of the road will be developed across an area zoned for use as public open space.</p>

<p>Activity Number: 12 Activity Description:</p> <p><i>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p>i. Western Cape</p> <ul style="list-style-type: none"> i. <i>Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i> ii. <i>Within critical biodiversity areas identified in bioregional plans;</i> iii. <i>Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas;</i> iv. <i>On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or</i> v. <i>On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.</i> 	<p>The development of the road will result in the clearance of indigenous vegetation classified as a critically endangered and endangered ecosystem.</p>
<p>Activity Number: 18 Activity Description:</p> <p><i>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.</i></p> <p>i. Western Cape</p> <ul style="list-style-type: none"> i. <i>Areas zoned for use as public open space or equivalent zoning;</i> ii. <i>All areas outside urban areas:</i> <ul style="list-style-type: none"> (aa) <i>Areas containing indigenous vegetation;</i> (bb) <i>Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or</i> iii. <i>Inside urban areas:</i> <ul style="list-style-type: none"> (aa) <i>Areas zoned for conservation use; or</i> 	<p>A section of the road to be widened will run across an area zoned for use as public open space.</p>

<p>(bb) Areas designated for conservation use in Spatial Development Framework adopted by the competent authority.</p>	
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The abovementioned is hereinafter referred to as "the listed activities".

The applicant is herein authorised to undertake the following alternative related to the listed activities:

The proposed activity entails the development and widening of a road (Erica Drive) and associated infrastructure with a length of approximately 3.24km. The road will run from Erica Drive over the R300 to Highbury Road. The development and widening of the road will result in the infilling of watercourses and clearance of indigenous vegetation. The proposed development will also include the development of an on and off ramp at the R300. The road will cross areas that has been zoned for use as public open space.

C. PROPERTY DESCRIPTION AND LOCATION

The proposed road works will take place on various Erven that will run from Erica Drive to Highbury road, Belhar.

Co-ordinates:

Starting point

33° 56' 29.78" South
18° 38' 52.03" East

Middle point

32° 56' 30.92" South
18° 40' 12.42" East

End point

33° 56' 43.31" South
18° 40' 53.12" East

ERF NUMBER	SG 21 DIGIT CODE
27039	C01600020002703900000
20880-RE	C01600020002088000000
14791-RE	C01600020001479100000
13106-RE	C01600730001310600000
13108-RE	C01600730001310800000
13109-RE	C01600730001310900000
25544	C01600730002554400000
25545	C01600730002554500000
12483-RE	C01600730001248300000
12484-RE	C01600730001248400000
25546	C01600730002554600000
12836	C01600730001283600000
12797	C01600730001279700000
12796	C01600730001279600000
12749	C01600730001274900000
8179	C06700130000817900000

7807-RE	C06700130000780700000
6266-RE	C06700130000626600000
6054	C06700130000605400000
651	C06700130000065100000
25577	C06700130002557700000
25576	C06700130002557600000
9261-RE	C06700130000926100000

Refer to Annexure 1: Locality Map and Annexure 2: Map of the Route

hereinafter referred to as "the route".

D. DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

ECO Impact Legal Consulting (Pty) Ltd.
c/o Ms. J. Piencar
P. O. Box 45070
CLAREMONT
7735

Tel: (021) 671 1660

Fax: (021) 671 9967

E. CONDITIONS OF AUTHORISATION

Scope of Authorisation

1. The holder is authorised to undertake the listed activities specified in Section B above in accordance with and restricted to the preferred Alternative described in the BAR dated 11 September 2019.
2. The holder must commence with the listed activities within the stipulated validity period which this Environmental Authorisation is granted for, or this Environmental Authorisation shall lapse and a new application for Environmental Authorisation must be submitted to the Competent Authority.
3. This Environmental Authorisation is:
 - 3.1. Granted for a period of **five (5) years**, from the date of issue, during which period the holder must commence with the authorised listed activities.
 - 3.2. The development must be concluded within 10 years from the date of commencement of the first listed activity
4. The holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
5. Any changes to, or deviations from the scope of the preferred alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.

Written notice to the Competent Authority

6. A minimum of seven calendar days notice, in writing, must be given to the Competent Authority before commencement of the development phase.
 - 6.1. The notice must make clear reference to the details of the route and EIA Reference number given above.
 - 6.2. The notice must also include proof of compliance with the following conditions described herein:

Conditions: 7, 13 and 19.

Notification and administration of appeal

7. The applicant must in writing, within 14 (fourteen) calendar days of the date of this decision and in accordance with Regulation 4 (2) –
 - 7.1. Notify all registered interested and affected parties of –
 - 7.1.1. the outcome of the application;
 - 7.1.2. the reasons for the decision as included in Annexure 3;
 - 7.1.3. the date of the decision; and
 - 7.1.4. the date of issue of the decision;
 - 7.2. Draw the attention of all registered interested and affected parties to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 detailed in section F below;
 - 7.3. Draw the attention of all registered interested and affected parties to the manner in which they may access the decision;
 - 7.4. Provide the registered Interested and Affected Parties with-
 - 7.4.1. the name of the holder (entity) of this Environmental Authorisation;
 - 7.4.2. the name of the responsible person for this Environmental Authorisation;
 - 7.4.3. the postal address of the holder;
 - 7.4.4. the telephonic and fax details of the holder;
 - 7.4.5. the e-mail address if any; and
 - 7.4.6. the contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations.

Commencement

8. The listed activities, including preparation of the route, must not be commenced with within twenty (20) calendar days from the date the applicant notified the registered I&APs of this decision.
9. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided.

Management of activity

10. The draft Environmental Management Programme ("EMPr") submitted as part of the application for Environmental Authorisation is hereby approved and must be implemented.
11. An application for an amendment to the outcomes EMPr must be submitted to the Competent Authority if any amendments are to be made to the EMPr other than those required by this Environmental Authorisation, and this may only be implemented once the amended EMPr has been authorised by the Competent Authority.
12. The EMPr must be included in all contract documentation for all phases of implementation.

Monitoring

13. The holder must appoint a suitably experienced Environmental Control Officer ("ECO"), or site agent where appropriate to ensure compliance with the EMPr and the conditions contained herein.
14. A copy of the Environmental Authorisation and the EMPr, audit reports and compliance monitoring reports must be kept at the site office and must be made available to anyone on request.
15. Access to the route referred to in section C above must be granted and, the Environmental Authorisation and EMPr must be produced to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein. The Environmental Authorisation and EMPr must also be made available for inspection by any employee or agent of the applicant who works or undertakes work along the route.

Auditing

16. In terms of Regulation 34 of the NEMA EIA Regulations, 2014, the holder must conduct an environmental audit to determine compliance with the conditions of the Environmental Authorisation and the EMPr and submit the environmental audit report to the Competent Authority.
 - 16.1. The audit report must be prepared by an independent person and must contain all the information required in Appendix 7 of the NEMA EIA Regulations, 2014 (as amended);
 - 16.2. An audit report must be submitted to the Competent Authority within three (3) months of the development phase commencing and every three (3) years thereafter;
 - 16.3. A final audit report must be submitted to the Competent Authority within three (3) months of completion of the development;
 - 16.4. The audit report must indicate compliance status with the conditions of this Environmental Authorisation, and the EMPr and make recommendations for improved environmental management;
 - 16.5. The holder must, within 7 days of the submission of an audit report to the Competent Authority, notify potential and registered I&APs of the submission and make the report available to anyone on request; and

16.6. If the audit report is not submitted, the Competent Authority may give 30 days written notice and may have such an audit undertaken at the expense of the applicant and may authorise any person to take such measures necessary for this purpose.

Specific conditions

17. Should any heritage remains be exposed during excavations or any actions along the route, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape (in accordance with the applicable legislation). Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains include: archaeological remains (including fossil bones and fossil shells); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artifacts and bone remains; structures and other built features; rock art and rock engravings and graves or unmarked human burials.
18. The Wetland Offset must be implemented in accordance with the requirements of the Department of Water and Sanitation.
19. The route of the proposed road must be clearly demarcated and all areas outside the designated route must be demarcated as "no-go" areas prior to the commencement of the proposed development.
20. The recommendations as included in the Wetland Impact Compensation Plan (dated May 2019 and compiled by Scientific Aquatic Services) must be implemented (herewith attached as Appendix A).
21. The recommendations as included in the Freshwater Impact Assessment Report (dated 22 November 2017 and compiled by Eco Impact Legal Consulting (Pty) Ltd.) must be implemented (herewith attached as Appendix B).
22. Employment opportunities must be afforded to the local community (as far as possible).
23. All noise and sounds generated during the proposed development must comply with the relevant SANS codes and standards and the relevant noise regulations.
24. Dust suppression methods must be used to mitigate dust during the development phase. No potable water must be used for dust suppression. Alternative dust suppression methods (such as shade netting screens and/or straw stabilisation, etc.) must be implemented instead.
25. The use of all generators along the route must include the use of drip trays.
26. The following conditions regarding the temporary storage of fuel along the route during development phase must be complied with:
 - 26.1. No fuel must be stored within 32m of a watercourse;
 - 26.2. The combined capacity of the temporary fuel storage tanks must not exceed 30m³;
 - 26.3. Temporary fuel storage tanks must be bunded (110% of the proposed tank's capacity) to contain any possible spills and to prevent any infiltration of fuel into the ground; and

- 26.4. Temporary fuel storage tanks must be designed and installed in accordance with relevant SANS codes. The tanks must be constructed to conform to the requirements of all relevant legislation.

F. GENERAL MATTERS

1. The holder is responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the holder.
2. Any changes to, or deviations from the scope of the description set out in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder to apply for further authorisation in terms of the applicable legislation.
3. The applicant must notify the Competent Authority in writing, within 24 hours thereof if any condition herein stipulated is not being complied with.
4. The applicant must submit an application for amendment in terms of Chapter 5 of the NEMA EIA Regulations, 2014 (as amended) of the Environmental Authorisation to the Competent Authority where any detail or scope with respect to the Environmental Authorisation must be amended, added, substituted, corrected, removed or updated.
5. Please note that an amendment is not required if there is a change in the contact details of the holder. In this case, the Competent Authority must only be notified of such changes.
6. Non-compliance with a condition of this Environmental Authorisation or EMPr may result in suspension of this Environmental Authorisation and may render the holder liable for criminal prosecution.

G. APPEALS

Appeals must comply with the provisions contained in the National Appeal Regulations 2014.

1. An appellant (if the holder) must –
 - 1.1. Submit an appeal in accordance with Regulation 4 to the Appeal Administrator and a copy of the appeal to any registered I&APs, any Organ of State with interest in the matter and the decision maker within 20 (twenty) calendar days from the date the holder was notified by the Competent Authority of this decision.
2. An appellant (if NOT the holder) must –
 - 2.1. Submit an appeal in accordance with Regulation 4 to the Appeal Administrator, and a copy of the appeal to the holder, any registered I&AP, any Organ of State with interest in the matter and the decision maker within 20 (twenty) calendar days from the date the holder notified the registered I&APs of the decision.
3. The holder (if not the appellant), the decision-maker, I&AP and Organ of State must submit their responding statements, if any, to the appeal authority and the appellant within 20 (twenty) calendar days from the date of receipt of the appeal submission.

4. This appeal and responding statement must be submitted to the address listed below:

By post: Western Cape Ministry of Local Government, Environmental Affairs and
Development Planning
Private Bag X9186
CAPE TOWN
8000

By facsimile: (021) 483 4174; or

By hand: Attention: Mr Marius Venter (Tel: 021 483 3721)
Room 809, 8th Floor Utilitas Building, 1 Dorp Street, Cape Town, 8001

Note: You are also requested to submit an electronic copy (Microsoft Word format) of the appeal and any supporting documents to the Appeal Administrator to the address listed above and/ or via e-mail to DEADP.Appeals@westerncape.gov.za.

5. A prescribed appeal form as well as assistance regarding the appeal processes is obtainable from the office of the Minister at: Tel. (021) 483 3721, E-mail DEADP.Appeals@westerncape.gov.za or URL <http://www.westerncape.gov.za/eadp>.

H. DISCLAIMER

The Western Cape Government, the Local Authority, committees or any other public authority or organisation appointed in terms of the conditions of this Environmental Authorisation shall not be responsible for any damages or losses suffered by the holder, developer or his/her successor in any instance where development or operation subsequent to development is temporarily or permanently stopped for reasons of non-compliance with the conditions as set out herein or any other subsequent document or legal action emanating from this decision.

Your interest in the future of our environment is appreciated.

Yours faithfully



MR. ZAHIR TOEFY
DIRECTOR: DEVELOPMENT MANAGEMENT (REGION 1)

DATE OF DECISION: 23/01/2020

Copies to: (1) Ms. J. Pienaar (Eco Impact Legal Consulting (Pty) Ltd.)
(2) Mr. D. Georgeades (City of Cape Town)

Fax: (021) 671 9967
Fax: (086) 576 2919

FOR OFFICIAL USE ONLY:

EIA REFERENCE NUMBER:

16/3/3/1/A8/13/3042/18

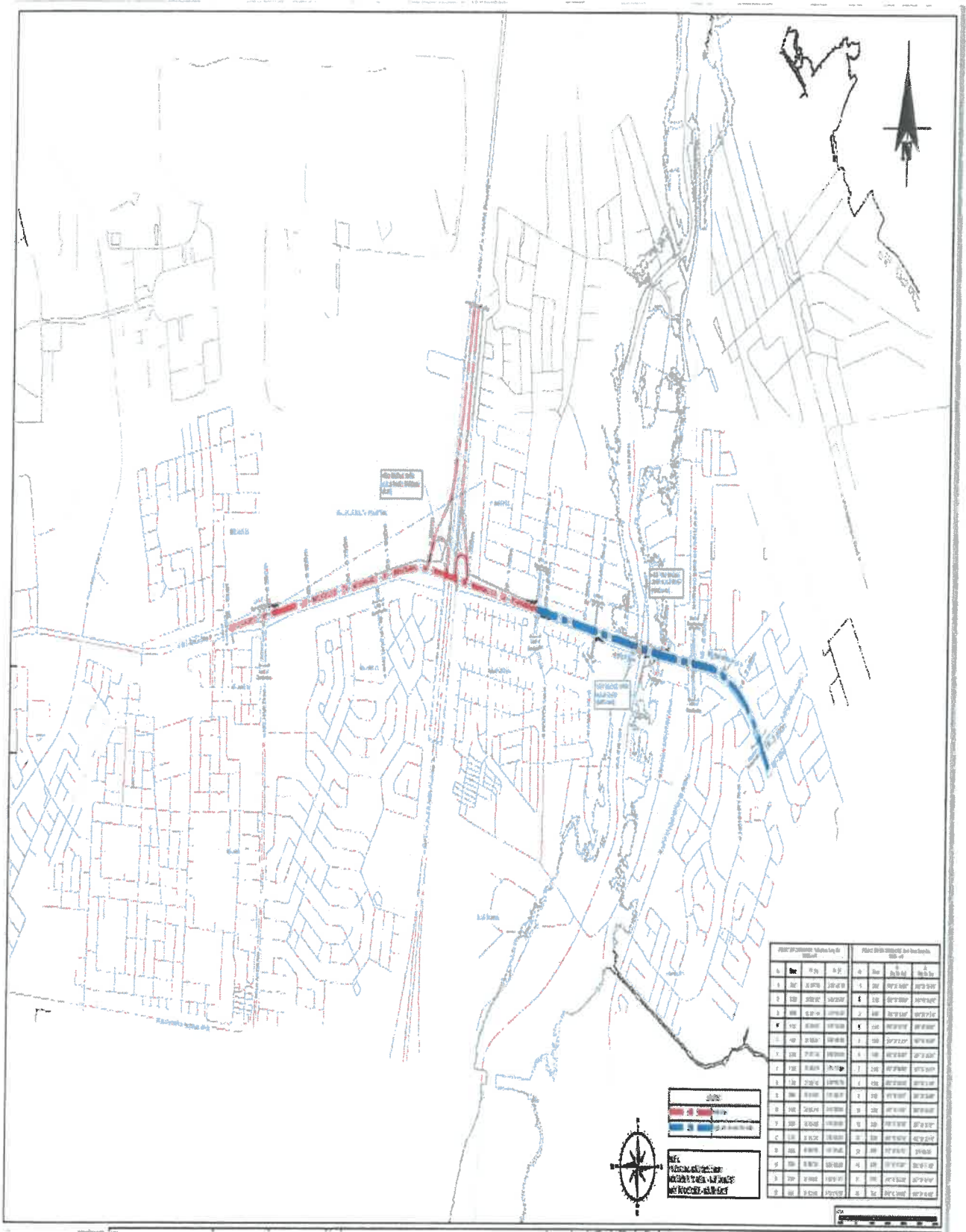
NEAS EIA REFERENCE NUMBER:

WCP/EIA/0000529/2018

ANNEXURE 1: LOCALITY MAP



ANNEXURE 2: PLAN OF THE ROUTE



ANNEXURE 3: REASONS FOR THE DECISION

In reaching its decision, the Competent Authority, *inter alia*, considered the following:

- a) The listed activities applicable in terms of the NEMA EIA Regulations as amended on 07 April 2017.
- b) The information contained in the application form dated 13 November 2018 and received by the Competent Authority on 16 November 2018, the BAR received by the Competent Authority on 20 September 2019 and the EMPr submitted together with the BAR;
- c) The assessment of the activity in the BAR received by the Competent Authority on 20 September 2019;
- d) Relevant information contained in the Departmental information base, including, the Guidelines on Public Participation, Alternatives and Exemptions (dated March 2013);
- e) The objectives and requirements of relevant legislation, policies and guidelines, including section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998);
- f) The comments received from interested and affected parties and the responses provided thereon, as included in the BAR received by the Department on 20 September 2019; and
- g) No site visits were conducted where the proposed development will be located. The Competent Authority had sufficient information before it to make an informed decision.

All information presented to the Competent Authority was taken into account in the consideration of the application for Environmental Authorisation. A summary of the issues which, according to the Competent Authority, were the most significant reasons for the decision, is set out below.

1. Public Participation

The public participation process ("PPP") included, *inter alia*, the following:

- identification of and engagement with interested and affected parties;
- fixing a notice board along the route where the listed activities are to be undertaken;
- giving written notice to the owners of the land and owners and occupiers of land adjacent to the route where the listed activities are to be undertaken, the municipality and ward councillor, and the various organs of state having jurisdiction in respect of any aspect of the listed activities; and
- the placing of a newspaper advertisement in the 'Tygerburger' on 14 March 2018.

The Department is satisfied that the PPP that was followed met the minimum legal requirements and all the comments raised and responses thereto were included in the comments and response report.

Specific management and mitigation measures have been considered in this environmental authorisation and in the EMPr to adequately address significant concerns raised.

2. Alternatives

Preferred Alternative (herewith authorised)

The alternative entails the development and widening of a road and associated infrastructure with a length of approximately 3.24km. The road will run from Erica Drive over the R300 to Highbury Road. The development and widening of the road will result in the infilling of watercourses and clearance of indigenous vegetation. The proposed development will also include the development of an on and off ramp at the R300. The road will cross areas that has been zoned for use as public open space.

"No-Go" Alternative

The "no-go" alternative will result in the status quo being maintained. The preferred alternative will not result in unacceptable environmental impacts, therefore the "no-go" alternative was not warranted.

3. Impacts, assessment and mitigation measures

3.1. Activity Need and Desirability

There is currently major congestion on Erica Drive with limited access to the Kuilsriver area. The development and widening of the road will alleviate congestion and will provide alternative access to the Kuilsriver area. The proposed development is therefore required by the applicant.

3.2. Freshwater Impacts

A Freshwater Impact Assessment was conducted by Eco Impact Legal Consulting (Pty) Ltd. (dated 22 November 2017). This specialist study was externally reviewed and according to the reviewed Freshwater Impact Assessment Report (dated October 2018 and compiled by Scientific Aquatic Services) only two natural wetlands occur along the route of the proposed road instead of the initial nine wetlands identified. According to the review specialist the other 7 wetlands are artificial. The review specialist concurred with the recommendations of the Freshwater Specialist Report conducted by Eco Impact Legal Consulting (Pty) Ltd with respect to the Kuils river and the natural wetlands.

According to the reviewed specialist report, one of the two natural wetlands will be infilled as a result of the proposed development. Approximately 0.28ha of 0.48ha of the wetland will be lost. The report further indicates that due to the significant disturbance of both wetlands and their close proximity to urbanization, it is not expected that species of conservation concern would be found within these wetlands. The water quality of these wetlands is considered to be poor due to runoff from the adjacent waste disposal facility and road runoff. A wetland offset will be implemented to compensate for the loss of wetland habitat. The Department of Water and Sanitation has indicated in comment (dated 06 December 2019) that the proposed wetland offset seems feasible and meet Departmental requirements.

The widening of the road will result in works to be undertaken along the banks of the Kuils river. According to the Freshwater Impact Assessment Report (dated 22 November 2017 and compiled by Eco Impact Legal Consulting (Pty) Ltd.), the area is significantly degraded and has been channeled. The overall significance of the potential impacts on the Kuils river is therefore expected to be of low negative significance.

3.3. Botanical Impacts

According to the Botanical Impact Assessment Report (dated November 2017 and compiled by Eco Impact Legal Consulting (Pty) Ltd.) remnants of Cape Flats Sand Fynbos and Cape Flats Dune Strandveld classified as a critically endangered and endangered ecosystem, respectively, in terms of the National Environmental Management: Biodiversity Act, (Act No. 10 of 2004) ("NEM:BA"), List of Threatened Ecosystems in Need of Protection, December 2011 are found along the route of the road. The report further indicates that most of the area is considered to be of low botanical sensitivity and no plant species of conservation concern were recorded along the route of the proposed road. The area west and east of the R300 is considered to be of medium botanical sensitivity. The loss of the area considered to be of medium botanical sensitivity is regarded to be of medium to low negative significance.

3.4. Heritage/Archaeological Impacts

A Notice of Intent to Develop was submitted to Heritage Western Cape ("HWC"). HWC in their comment (dated 20 November 2017) indicated that there is no reason to believe that the proposed development will impact on heritage resources.

3.5. Noise Impacts

All noise and sounds generated during the development and operational phase of the proposed development will comply with the relevant SANS codes and standards and the municipal by-laws. Furthermore, noise impacts will be mitigated by the implementation of the conditions in this environmental authorisation and the EMPr.

3.6. Dust Impacts

Potential dust generated during the development phase will be mitigated by the implementation of the conditions of this environmental authorisation and the mitigation measures included in the EMPr. No potable water will be used to mitigate dust nuisance as far as is practically possible. Alternative dust suppression methods (such as shade netting screens and/or straw stabilisation) will be implemented instead.

3.7. Impact Assessment and significance rating

- 3.7.1. The loss of indigenous vegetation as a result of the proposed development has been identified in the BAR as being of medium negative significance after mitigation. The impacts will be further mitigated by the implementation of the EMPr and conditions of this environmental authorisation.
- 3.7.2. The loss of wetland habitat as a result of the proposed development has been identified in the BAR as being of medium negative significance after mitigation. A wetland offset will be implemented to compensate for the loss of wetland habitat. The impacts will be further mitigated by the implementation of the EMPr and conditions of this environmental authorisation.
- 3.7.3. Potential impacts on the Kuils river as a result of the proposed development have been identified in the BAR as being of low negative significance after mitigation. The impacts will be further mitigated by the implementation of the EMPr and conditions of this environmental authorisation.
- 3.7.4. Potential noise impacts as a result of the proposed development have been identified in the BAR as being of low negative significance after mitigation. Potential impacts will be mitigated by the implementation of the EMPr and conditions of this environmental authorisation.
- 3.7.5. The generation of dust as a result of the proposed development has been identified in the BAR as being of low negative significance as appropriate dust suppression methods will be implemented. Potential impacts will be mitigated by the implementation of the EMPr and conditions of this environmental authorisation.

National Environmental Management Act Principles

The National Environmental Management Act Principles (set out in section 2 of the NEMA, which apply to the actions of all organs of state, serve as guidelines by reference to which any organ of state must exercise any function when taking any decision, and which must guide the interpretation, administration and implementation of any other law concerned with the protection or management of the environment), *inter alia*, provides for:

- the effects of decisions on all aspects of the environment to be taken into account;
- the consideration, assessment and evaluation of the social, economic and environmental impacts of activities (disadvantages and benefits), and for decisions to be appropriate in the light of such consideration and assessment;
- the co-ordination and harmonisation of policies, legislation and actions relating to the environment;
- the resolving of actual or potential conflicts of interest between organs of state through conflict resolution procedures; and
- the selection of the best practicable environmental option.

The development will result in both negative and positive impacts.

Negative Impacts Include:

- Loss of indigenous vegetation;
- Loss of wetland habitat; and
- Noise and dust impacts

Positive impacts Include:

- The proposed development will alleviate traffic congestion;
- The proposed development will create additional access routes to different areas; and
- Some employment opportunities.

In view of the above, the NEMA principles, compliance with the conditions stipulated in this Environmental Authorisation, and compliance with the EMP, the Competent Authority is satisfied that the proposed listed activities will not conflict with the general objectives of integrated environmental management stipulated in Chapter 5 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and that any potentially detrimental environmental impacts resulting from the listed activities can be mitigated to acceptable levels.

You are reminded of the general duty of care towards the environment in terms of Section 28(1) of the NEMA which states: *"Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."*

-END

APPENDIX A

THE RECOMMENDATIONS AS INCLUDED IN THE WETLAND IMPACT COMPENSATION PLAN

Step 1: Planning

1.1. Obtaining all relevant authorisations and permits

Before rehabilitation activities can commence all necessary permits and authorisations will be required, including but not limited to:

- Water Use Authorisation for all rehabilitation activities; and
- Rezoning/ conservation servitude or similar for the rehabilitation areas this may not be in place before rehabilitation commences, however, proof of initiation of this process should be available on request.

1.2. Appointment of a Contractor and all required specialists

During the planning phase certain aspects need to be considered in order to effectively implement this plan. This includes:

- Appointment of a suitably qualified Contractor(s) to undertake the required work:
- Appointment of an ECO to audit and monitor the rehabilitation activities as well as to undertake the required post rehabilitation monitoring;
 - The ECO is to compile a monthly audit report indicating all observations, actions and any remediation measures that were implemented and the reports are to be submitted to the DWS.
- Should the Contractor not have the appropriate expertise for implementation of this plan then it is the responsibility of the Contractor to appoint a suitably qualified freshwater ecologist to oversee the implementation.

1.3. Planning for on-site requirements




The following objectives and control measures must be implemented as part of the planning phase.

Table 5: Relevant objectives and control measures to be implemented as part of the planning phase

Objectives or requirements	Control Measures
Establishment and Access.	<ul style="list-style-type: none"> ➤ The properties on which the western and eastern wetland is located must be correctly zoned as an open conservation servitude and no future developments may be allowed. ➤ The existing wetland footprint area and the proposed reinstatement footprint area must be pegged by a suitably qualified freshwater ecologist and demarcated with danger tape (although fencing is considered preferable). At no point should construction equipment extend past the designated construction site (unless for the required rehabilitation works). All vehicles must remain within the proposed Erica Drive road reserve and approved access roads to enter the site. No indiscriminate movement of vehicles is allowed within any of the wetlands. ➤ Adequate signage (in the adequate various languages) must be placed around the planned rehabilitation areas.
Indigenous plant harvesting and propagation.	<ul style="list-style-type: none"> ➤ As part of the proposed rehabilitation plans, indigenous wetland species must be re-instated within the wetland habitat and the newly reinstated wetland area. As such, plans should be made for where the species are to be sourced and budgetary allowances made for the purchasing of various species. ➤ One such nursery from which indigenous plant species can be obtained is from the Cape Flats LIFE (plant list available in Appendix B). ➤ Availability of species needs to be secured before rehabilitation activities commence to ensure that plants are ready and available for re-vegetation (Step 3), so as not to leave areas exposed and vulnerable to erosion and incision.



Table 7: Relevant Objectives and Control Measures to be implemented as part of the AIP clearing

Objectives or requirements	Control Measures
Initial Control	
Chemical Control	<ul style="list-style-type: none"> • Dense seedling growth must be controlled with knapsack sprayers with a flat fan nozzle; • Suitable dye must be used to limit over- or under spray of areas; • Chemical control will entail limited usage of registered herbicides for a specific species and one must adhere to the measurements on the product label; and • Label instructions may not be exceeded due to negative impacts on surrounding flora and fauna for the use of herbicides containing Glyphosate, Diquat and Paraquat within the identified watercourses associated with the rehabilitated area.
Species Specific Treatment   	<p>The following are species specific treatment for the three main AIPs noted within the rehabilitation areas. Use of these listed chemical treatments should occur after or during the mechanical removal process and may be used on other common weeds, as deemed appropriate by the ECO.</p> <p>Treatment of Port Jackson (<i>Acacia saligna</i>):</p> <ul style="list-style-type: none"> • Seedlings must be hand pulled and no herbicide is needed; • Young plants should be lopped/pruned and treated by means of a foliar spray of 50ml of Triclopyr Ester* mixed with 10l of water and applied at a rate of 3 l/ha; and • Adult plants must first be cut down to a stump and frilled before being treated with 300ml of Triclopyr Amine salt* mixed in 10 l of water applied at a rate of 1.5 l/ha. Additionally, a Triclopyr Ester* solution can also be applied to approximately 0.6m length of stump. • All branches that have been mechanically removed must be transported off site to a designated dumping facility. Cut branches should not be left in stockpiles as the seeds will likely germinate. <p>Treatment of Kikuyu Grass (<i>Pennisetum clandestinum</i>)</p> <ul style="list-style-type: none"> • A herbicide with active ingredient Glyphosate*, dalapon or haloxyfop-P methyl ester should be used. Plants should be sprayed during their active growing season (autumn). It is to be noted that Glyphosate* or haloxyfop herbicides may not be used within the watercourses where water is free flowing as it is known to be toxic to aquatic life. • Haloxyfop-P Methyl Ester is deemed to have a minimal environmental impact (although on an acute basis is toxic to aquatic life) and is not expected to leach into groundwater. Furthermore, it has been identified to degrade in soils under normal environmental conditions³. <p>Treatment of Patterson's Curse (<i>Echium Plantagineum</i>)</p> <ul style="list-style-type: none"> • Plants can easily be hand pulled and no herbicide is needed, however, chemical control can be used with active ingredients chlorsulfuron, mesulfuron methyl, triasulfuron or Glyphosate* to control seed sets during the flowering season.
Follow-up Control	
Follow-up AIP treatment	<ul style="list-style-type: none"> • Follow-up control is essential to control alien saplings, seedlings and coppice regrowth to achieve and sustain the progress that was made in the initial phase. If the follow up control phase is neglected, the alien infestation may become worse and denser than before the eradication process started. • Follow-up should be quarterly after the initial AIP clearing, thereafter, annually, within the growing season (September – November) for at least seven (7) years. • An annual assessment before mobilisation of the clearing crew should be undertaken to determine equipment and personnel requirements in order to secure the necessary funding. • After initial control operations dense regrowth may arise as new regrowth will sprout in the form of stump coppice, seedlings and root suckers. The following should therefore be applied: <ul style="list-style-type: none"> ○ Plants that are less than 1 m in height must be controlled by foliar application. ○ Areas with dense seedlings should not be uprooted or hoed out, as these areas will result in soil disturbance and will in return promote flushes and germination of alien seedling growth.

³ The DOW Chemical Company. 2011. Product Safety Assessment: haloxyfop-P Methyl Ester



Although not considered an AIP, *Phragmites australis* is known to dominate wetlands associated with deep sandy soils and outcompete other indigenous vegetation. As such, this species needs to be controlled and managed within the rehabilitated and reinstated wetland flat. The following table provides a description of the various mechanisms that should be used to control *P. australis*.

Figure 15: Summary of mechanisms used for the control of *Phragmites australis*.

Control Type	Description
Mechanical Control	
Mowing and Cutting	For a perennial rhizomatous grass, mowing does little to reduce <i>P. australis</i> dominance. It was identified that mowing actually stimulates shoot production and resulted in increased density of Phragmites shoots (but decreased shoot height and biomass) in wetlands (Gu'sewell 2003; Hazelton <i>et al.</i> 2014). On a large scale, hand cutting is noted to be ineffective due to the time and labour requirements, however, is considered an important strategy of rapid response efforts. Overall, simply cutting will be ineffective in eliminating <i>P. australis</i> , but with proper timing, cutting may help reduce dominance (through depletion of underground reserves) and control further expansion (Hazelton <i>et al.</i> 2014). It is, however, imperative that all cut material be removed and disposed of off-site in order to prevent recolonization of rhizomes.
Burning	Burning has not been effective unless coupled with either hydrological restoration or herbicide application (Marks <i>et al.</i> 1994). Burning alone has produced variable results and in some instances was noted to stimulated <i>Phragmites</i> growth and stand development (Hazelton <i>et al.</i> 2014).
Chemical Control	
Herbicides	<p>Because of the physiology of <i>P. australis</i>, well-established stands are difficult to control with only one herbicide treatment. Creating multiple stresses on the plants is the most effective way to control phragmites. There are two broad-spectrum herbicides, Glyphosate and Imazapyr that are commercially available and known to control <i>P. australis</i> effectively when used properly. These chemicals are nonselective and will enter any plant species (targeted and non-target plant species) through contact with the leaves or stems and be translocated to the rhizomes. As such, application of glyphosate should be done to targeted <i>P. australis</i> after senescence of other indigenous species (during the Cape Town dry season) to minimise effects (Hazelton <i>et al.</i> 2014). Both herbicides are available in separate formulas for application either on aquatic or terrestrial sites. Improper use of the terrestrial formulations in an aquatic habitat may harm fish and macro invertebrates and therefore label instructions may not be exceeded due to negative impacts on surrounding flora and fauna.</p> <p>Two types of applications are noted to be the most effective for the treatment of <i>P. australis</i>:</p> <p>Foliar Treatment: Spray should be applied to wet the leaves and, when present, the flower plumes of the target plants. Excessive application, such that the chemicals are dripping off the plants, should be avoided due to injuries to desirable indigenous plants. This application can be undertaken in areas where <i>P. australis</i> is dense, with limited other species (NRCS, 2013).</p> <p>Cut stem treatment: This method should be used in isolated or scattered stands of <i>P. australis</i>, where impacts to desirable, native plant species must be avoided. Cut plants to waist height and add one drop of herbicide to hollow stems with a squirt bottle or syringe. Be careful to remove seed heads from the site after cutting to prevent seed spread. Due to the pervasiveness of this species and its ability to aggressively recolonize through seed or rhizomes, long-term management and monitoring are necessary. Once areas of phragmites have been controlled (e.g., greater than 85-percent reduction), it is recommended that an annual maintenance control program be implemented (NRCS, 2013).</p>
Biological control	
Once <i>Phragmites australis</i> proliferation is within controllable levels, plant competition by other indigenous species will likely assist with the long term restoration trajectory. Areas where <i>P. australis</i> have been killed should be replanted/ re seeded with indigenous species as soon as possible (In line with precautionary timeframe after chemical control) in order to allow for establishment so as to competitively exclude <i>P. australis</i> samplings. Unmanaged areas where <i>P. australis</i> has been controlled effectively, but not replanted with indigenous species, are often invaded by <i>P. australis</i> immediately either by seeds or regrowth from rhizomes that were not killed (Hazelton <i>et al.</i> 2014).	




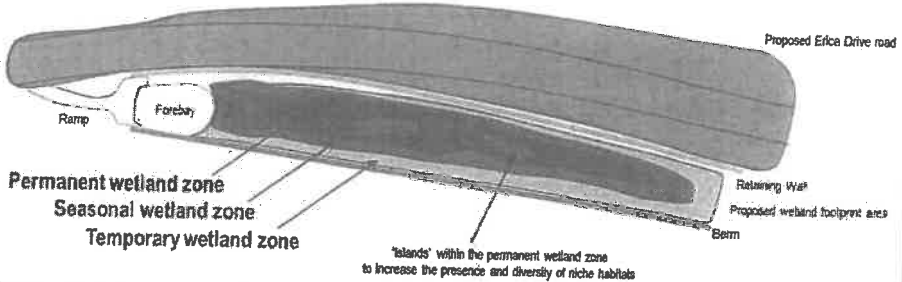
Step 3: Site- Specific Wetland Rehabilitation

A detailed site-specific rehabilitation plan has been developed for the western wetland flat and the reinstatement thereof. Some aspects are also applicable to the development of the stormwater attenuation facility associated with the eastern wetland flat. Successful rehabilitation depends upon conceptual planning, research and design flexibility. The proposed site-specific mitigation measures for the construction and rehabilitation phases are listed in Table 7 below and the anticipated wetland area to be rehabilitated are visually represented therein.

Table 8: Rehabilitation interventions and control measures proposed for the western wetland flat.

Objective/ Requirement	Control measures
General mitigation	<p><u>General</u></p> <ul style="list-style-type: none"> It is imperative that no construction equipment or personnel enter the wetland to be rehabilitated, unless authorised as part of the rehabilitation interventions. The extent of the remaining portion of the western wetland flat and the footprint area of the eastern wetland flat must be pegged by a suitably qualified freshwater ecologist (although fencing is preferred). At no point may vehicles or construction equipment move within the remaining portion of the western wetland flat, nor within the extent of the eastern wetland flat. All vehicles should remain on designated roads within the road reserve. No equipment may be stored within the delineated wetlands while not in use. Any designated storage and parking bays must be located no closer than 32m of the envisaged extent of the western wetland flat and the Kuils River (associated with the eastern wetland flat). <p><u>Vegetation Clearing and earthworks</u></p> <ul style="list-style-type: none"> Any rehabilitation works should be undertaken just before the rainy season (between the months of February – May) so that vegetation growth can be quickly re-established. In order to construct the proposed Erica Drive, vegetation will need to be cleared within and surrounding the western wetland flat. All vegetation removed (especially since many of the current vegetation is identified as AIP) must be disposed of at a suitable disposal facility. All excess material removed as part of the reinstatement and rehabilitation of the western wetland flat must be utilised as part of the soil profiling activities (preferably to create the small berm south of the extended wetland footprint) or be removed from site. At no point may this material be disposed on site or within any of the other watercourses identified within the surrounding area. Topsoil will have a high density of alien invasive seeds which will need to be controlled into the operational phase.
Rehabilitation earthworks associated with the western wetland flat	<p><u>Summary of the findings</u></p> <p>The wetland is in a largely degraded state as a result of urbanisation and the Bellville South Industrial waste disposal site and surrounding urbanisation. Due to the severe transformation of the topography of the surrounding landscape, the hydrological regime of this wetland has also been impacted. The shallow interflow that recharges this wetland was noted to be contaminated (based on the odour of the soil when soil samples were taken). Infilled areas surrounding the wetland allow for additional contaminated surface runoff to enter this wetland, changing the flow patterns and the inundation period thereof. Furthermore, the vegetation is considered severely modified, due to the high diversity of weeds and AIPs (see Figure 10).</p> <p><u>Rehabilitation interventions proposed</u></p> <p>It is the opinion of the freshwater specialist that fairly extensive works need to be undertaken within this wetland and surrounding area, as part of the proposed rehabilitation and reinstatement to ensure the required ecoservice provision is maintained/improved and a PES of at least Category D (as per the requirements of the Wetland Offset) is achieved over the long-term. The following main activities were identified and the following sections provide relevant mitigation and rehabilitation requirements to address the activities:</p> <ul style="list-style-type: none"> Removal of vegetation (Please see 'Step 2: AIP clearing' above); Excavation of the proposed reinstated wetland footprint area (approximating 0,5 hectares); Construction of a berm along the southern extent of the wetland; and Revegetation of the reinstated wetland footprint area.



Objective/ Requirement	Control measures
	<p style="text-align: center;">EXCAVATION OF THE PROPOSED WETLAND FOOTPRINT AREA</p> <ul style="list-style-type: none"> The western wetland flat was noted to have various piles of deposited material (Figure 15). These deposits are dominated by <i>Pennisetum clandestinum</i> and litter which have altered the geomorphological and hydrological processes as well as the wetting patterns within the wetland. It is therefore recommended that all deposits be removed from the wetland and the area sloped to maintain the average 2% fall in an easterly direction and ensure that it is free draining and that no concentration of flow occurs. This slope will also ensure that the inflow of stormwater at the forebay of the wetland (western portion) flows through the wetland (in an easterly direction), and hydrologically drives the reinstated wetland. <div style="display: flex; justify-content: space-around;">  </div> <p>Figure 16: Infilling (purple arrows) noted within and around the western wetland flat.</p> <ul style="list-style-type: none"> In order to ensure that the new wetland footprint area corresponds to geomorphology and hydrological regime of the existing wetland flat, the outer boundary of the wetland footprint should be sloped to create seasonal and temporary wetland zones. This can be achieved by (Figure 16 and 17): <ul style="list-style-type: none"> Excavating the central to southern portion of the proposed wetland footprint to a maximum depth of 0.5m (creating the permanent wetland zone). At a depth of 0.7m the groundwater table was encountered (see Section 3.2). If the depth of the wetland is to be excavated to 0.5m, it is likely that groundwater will pond at the surface, in certain areas, creating a permanently inundated zone; and Less material should be excavated towards the outer perimeter of the proposed footprint area, creating a gradual slope (having a depth of maximum 0.3m) towards the boundary of the footprint area (creating seasonal and temporary wetland zones). The wetland footprint area should not be uniformly levelled/excavated as variable ponding should be encouraged in areas of the wetland flat to increase the presence and diversity of niche habitats (Figure 16 and 17). Oversight from a freshwater specialist is recommended for this component of the rehabilitation phase to ensure the hydrological retention of the system is not adversely altered. <div style="text-align: center;">  </div> <p>Figure 17: Proposed zonation of the western wetland flat footprint area</p>



Objective/ Requirement	Control measures
	<div data-bbox="411 353 1305 795" style="text-align: center;"> </div> <p data-bbox="395 795 1292 828">Figure 18: Cross section of the footprint area of the wetland, indicating the desired zonation.</p> <p data-bbox="395 851 925 884">Figure 12 and 13 below provides an overview of where the</p> <ul data-bbox="395 884 1300 1030" style="list-style-type: none"> • Litter was also observed to be disposed of in the wetland. All removed material should be disposed of at a registered waste disposal facility. • The base of the wetland should be lined with pebbles and small rocks in selected areas. This will aid with flood attenuation (by increasing the surface roughness) but also aid with the establishment of vegetation and prevent the establishment of a monoculture of reeds. <p data-bbox="395 1052 662 1086"><u>Rehabilitation considerations</u></p> <ul data-bbox="395 1086 1300 1400" style="list-style-type: none"> • The rehabilitation of the remaining extent of the western wetland flat and the reinstatement of wetland habitat should only be undertaken towards the end of the construction of the proposed Erica Drive. Dust generated from the construction works may smother new re-instated vegetation, specifically saplings and smaller species (e.g. <i>Isopelis</i> and <i>Ficinia</i> spp). • All rehabilitation work must be done during the drier summer months leading up to the rainy season (May – April) to reduce contamination of surface water and ensure maximum survival of new plant species (see section below of re-vegetation). Some watering of plants during the first dry season may be necessary to ensure survival. • Should the ECO not have the relevant expertise, it is recommended that the rehabilitation be overseen by a suitably qualified wetland specialist to ensure maximum service provision is achieved over the long-term in terms of hydrology, geomorphology, water quality and biota. <p data-bbox="438 1422 1252 1456" style="text-align: center;">CONSTRUCTION OF A BERM ALONG THE SOUTHERN EXTENT OF THE WETLAND</p> <ul data-bbox="395 1456 1300 1993" style="list-style-type: none"> • The proposed berm should be constructed from material removed from the proposed footprint area (<i>in-situ</i> soil). However, it should be ensured that the soil is weed free. • The berm should be designed in such a way that it meanders (i.e. mimic a natural dune environment) with undulating slopes. This will assist in the creation of microhabitats. No steep slopes which may limit vegetation growth and result in erosion are allowed and all slopes should not exceed a 3:1 ratio. • This berm should be revegetated with appropriate terrestrial indigenous vegetation from the Cape Flats Dune Strandveld vegetation group (as classified by Mucina & Rutherford, 2006) that will aid with the stabilisation of the berm. This vegetation should be agreed upon by the landscape architect and the freshwater specialist and/or a suitably qualified botanist. Recommended species include: <ul style="list-style-type: none"> ○ Tall shrubs: <ul style="list-style-type: none"> ○ <i>Chrysanthemoides monilifera</i> ○ <i>Olea exasperata</i> ○ <i>Metalsia muricata</i> ○ <i>Searsia laevigata</i> ○ <i>Searsia glauca</i> ○ Succulents: <ul style="list-style-type: none"> ○ <i>Carpobrotus acinaciformis</i>



Objective/ Requirement	Control measures
	<ul style="list-style-type: none"> o <i>Carpobrotus edulis</i>) o Larger tree species: <ul style="list-style-type: none"> o <i>Sideroxylon inerme</i> o <i>Euclea racemosa</i> o <i>Tarchonanthus camphoratus</i> o <i>Pterocelastrus tricuspidatus</i> o <i>Robsonodendron maritimum</i> <p style="text-align: center;">RE-VEGETATION OF THE WETLAND FOOTPRINT AREA</p> <p>The last stage of the rehabilitation activities should be to re-instate indigenous obligate and facultative wetland vegetation within the reinstated wetland footprint area. Propagation and purchasing of the required species should have been undertaken as part of the Planning (Step 1) and must be ready and available for transplantation as soon as the AIP clearing and re-sloping activities have been completed. This is also applicable to the proposed stormwater attenuation facilities. The following points are of key importance for re-vegetation:</p> <ul style="list-style-type: none"> • Planting must start as soon as possible after soil profiling so as to reduce the duration of bare ground being exposed, which could lead to erosion and sedimentation of the area, and to establish ecological habitats. Furthermore, all disturbed areas as part of the rehabilitation, as well as where AIP have been removed should also be re-instated with indigenous vegetation. • Re-instatement of indigenous vegetation should be undertaken in early May for the larger specimens (growing season) and early spring (August/September) for the smaller saplings. This will ensure that the hot summer months are avoided, and that species will be planted prior to the onset of winter rainfall, which will maximize growth and early establishment. • Water will need to be made available for irrigation purposes for the first season after indigenous vegetation has been planted. It is recommended that all planted specimens within the seasonal and temporary zone be watered during the first summer. It is anticipated that there will be a loss of some planted saplings. Additional specimens should be planted one year after the rehabilitation works, prior to the rainy season to maximise success for long-term proliferation. • Should the Contractor not have the relevant expertise on planting of specimens, they should appoint a suitably qualified botanist or landscape architect to assist with the re-vegetation. • Saplings must be replanted annually during the winter period for the first 3 years after completion of construction, in order to maximise the success rate of revegetation. Since vegetation loss is common during re-establishing activities, provisioning of additional saplings will ensure a higher success rate. <p>The following criteria is recommended to be used to inform the selection of wetland plant species for the wetland footprint area and the stormwater attenuation facilities: Plants must be hardy, and ideally able to withstand:</p> <ul style="list-style-type: none"> • Elevated nutrients; • Periodically high hydrocarbons (oils); • Occasional high sediment inflows; • Elevated ammonia concentrations; • Periods of low oxygen, depending on zonation; and • Periodic inundation (it is assumed that inundation is likely during the rainy season). • Plants must be readily available; • Plants must establish rapidly to facilitate prompt onset of wetland function; • Plants should ideally be locally indigenous and no plants that are alien and invasive (e.g. Port Jackson) should be planted or allowed to remain in the area surrounding the Erica Drive development. <p>It is important to note that the Contractor must ensure a variety of plants be used within the wetlands and consideration must be given to the wetland zonation (the wetlands are predominantly seasonal and temporary) when selecting plant species. It is noted that <i>Pennisetum clandestinum</i> has already invaded the area, so regular maintenance will be required until the reinstated vegetation is self-sustaining.</p>



Objective/ Requirement	Control measures
	<p>WETLAND SPECIES</p> <p>The below list was compiled through the use of the field guide titled "Easy identification of some South African Wetland plants (Grasses, restios, sedges, rushes, bulrushes, Eriocaulons and Yellow-eyed grasses)" (van Ginkel <i>et al.</i> 2011) where plant species were cross referenced with the broader Cape Flats area. Additionally, wetland species as listed for the Southwest Sand Fynbos and Western Strandveld vegetation types in the book titled "Vegetation of South Africa, Lesotho and Swaziland" (Mucina and Rutherford, 2006) were added. Additional plant species can be sourced from the Cape Flats LIFE locally indigenous fynbos exchange list available in Appendix C (plants marked with an asterisk "*" can be sourced from Cape Flats).</p> <ul style="list-style-type: none"> • <i>Bolboschoenus maritimus</i> • <i>Calopsis paniculata</i> • <i>Carex clavata</i>* • <i>Cyperus congestus</i> • <i>Cyperus textillis</i>* • <i>Elegia asperiflora</i> • <i>Elegia capensis</i> • <i>Elegia fistulosa</i> • <i>Eleocharis dregeana</i> • <i>Epischoenus gracilis</i> • <i>Ficinia nodosa</i>* • <i>Isolepis cernua</i> • <i>Isolepis diabolica</i> • <i>Isolepis hystrix</i> • <i>Isolepis marginata</i> • <i>Isolepis setacea</i> • <i>Juncus dregeanus</i> • <i>Juncus effusus</i>* • <i>Juncus lomatophyllus</i>* • <i>Pycneus polystachyos</i> • <i>Zantedeschia aethiopica</i> (already present on site) <ul style="list-style-type: none"> • Proliferation of any of the following common Western Cape weed and alien plant species should be removed by hand and the use of chemicals be limited to when absolutely necessary, in order to prevent die back of remaining indigenous vegetation and to prevent contamination of the wetlands: <ul style="list-style-type: none"> • <i>Acacia saligna</i> (see Table 3) • <i>Pennisetum clandestinum</i> (see Table 3) • <i>Echium plantagineum</i> (see Table 3) • <i>Ricinus communis</i> • <i>Plantago lanceolata</i> • All chemical control must be monitored as per the requirements stipulated in Table 6 of this report.
Stormwater Management	<ul style="list-style-type: none"> • The stormwater attenuation facilities proposed as part of the Erica Drive development (see Figures 5 - 7) should be designed to be as natural as possible (earthed and unlined) and vegetated to function as a constructed wetland for water quality filtration. • These facilities should be zoned the same as that of the reinstated wetland. It should have a permanently inundated zone (not deeper than 0,5m – as per Figure 5) with seasonal and temporary zones towards the outside perimeter of the stormwater attenuation facility. This will ensure that this facility functions as a typical hydrogeomorphic unit (wetland flat) found within this region. • Storm inlets and outlet points must be designed at ground level so as to prevent erosion and gully formation. Suitable engineering solutions (such as concrete aprons or gabion mattresses) should be utilised at all outlets to reduce the speed at which the water flows into the attenuation facility. • The tie-in of the forebay into the natural wetland (applicable to the western wetland flat) and the stormwater attenuation facilities must be designed and constructed in such a way that turbulent and/or supercritical flows are not created.



Objective/ Requirement	Control measures
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- The tie-in point of the forebay must be at or near the same elevation as the base of the natural wetland/stormwater attenuation facility to minimise the risk of erosion and sedimentation (Figure 18).
- An energy dissipating structure should be installed at the toe of the forebay to prevent erosion and scouring where the stormwater will be discharged into the natural wetland/stormwater attenuation facility. This structure should be impermeable and be buried below the base of the natural wetland/stormwater attenuation facility.
- Pebbles and stones should be placed between the energy dissipating structure and the base of the natural wetland/stormwater attenuation facility, to prevent the formation of a drop, which could cause erosion to occur. Vegetation must also be established to bind the soil of the bed, and to prevent erosion. This will also diffuse flow and lower the velocity of water into the natural wetland/stormwater attenuation facility (Figure 18).

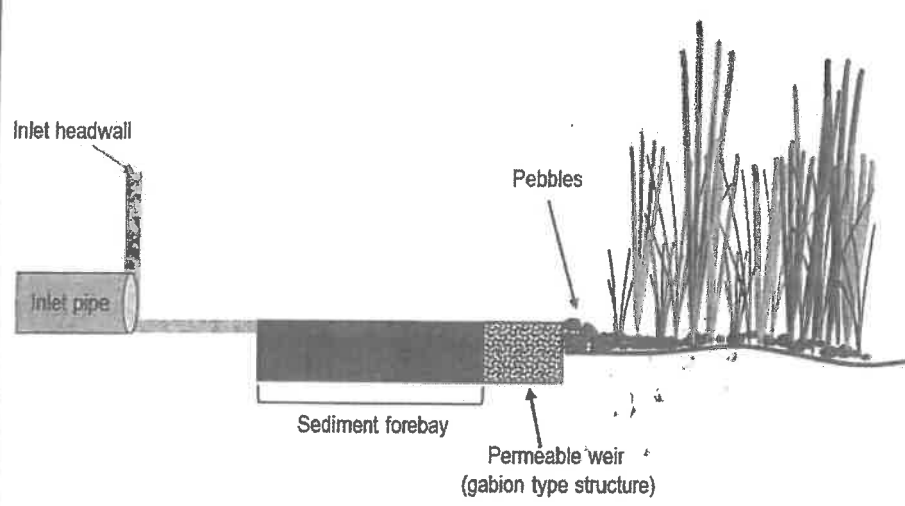


Figure 19: As schematic of the energy dissipating structures which must be included as part of the design of the stormwater inlets.

- Litter traps should be installed at all outlets to catch any litter/solid wastes from entering the system (Figure 19). This can be in the form of a stormwater drain net or grates. These traps must be regularly cleaned during the operational phase to prevent blockages.



Figure 20: Example of litter traps from stormwater outlets.



Step 4: Operational phase management and Monitoring

Prudent monitoring of the extended footprint of the western wetland flat and the stormwater attenuation facility associated with the eastern wetland flat are of utmost importance, as this will ensure a continual flow of data, enabling all parties involved to accurately assess and manage the progress of the rehabilitation interventions and any arising issues. To ensure the accurate gathering of data, the following techniques and guidelines should be followed:

- Site walk through surveys should be applied as the preferred method of monitoring (at specified frequencies) with specific focus on:
 - Erosion monitoring (for the duration of the raining season);
 - Sedimentation (for the duration of the raining season);
 - Alien and invasive vegetation proliferation (at the start and end of the growing season);
 - Spills events (regularly at the direction of the relevant engineer);
 - Surface water monitoring; and
 - Waste and litter problems.
- General habitat unit overviews should also be undertaken;
- Stability and appropriateness of stormwater controls;
- All data gathered should be measurable (qualitative and quantitative);
- Monitoring actions should be repeatable;
- Data should be auditable; and
- Reports should present and interpret the data obtained.

The monitoring plan comprises but is not limited to the following:

- Identification of areas of concern. These are areas that are affected by disturbances such as:
 - Erosion;
 - Waste dumping;
 - Alien vegetation species encroachment;
 - Soil compaction; and
- Ensuring that the management/rehabilitation measures as stipulated in Section 6 of this report are adhered to;
- A list of all alien vegetation species must be compiled as well as possible control methods such as manual, chemical or mechanical.
- Gathering all equipment required for the monitoring process; and
- Compiling a monitoring report.

Table 9: Monitoring actions for the eastern and western wetland flats.

Aspect	Monitoring Location	Frequency of sampling	Frequency of Reporting
AIP control	1. Screening of the entire rehabilitation area(s); 2. Logging locations of any newly coppiced species to be treated/removed.	1. Before the initial AIP clearing a baseline assessment should be taken to indicate densities and species; 2. After the initial AIP clearing densities should be re-recorded, including all methods and chemicals used; 3. Quarterly assessment during the first year post rehabilitation. Densities and locations of newly coppiced AIPs to be recorded; and 4. Annually during the growing season for the second and third year, post rehabilitation to ensure long-term maintenance measures are effective.	1. Before and after AIP clearing report should be compiled; 2. Quarterly report during the first year post AIP clearing; and 3. Annually during each growing season, for at least 3 years post rehabilitation – report should include information from before and after mobilisation of follow-up clearing teams.



Aspect	Monitoring Location	Frequency of sampling	Frequency of Reporting
Waste and litter problems	<ol style="list-style-type: none"> All areas which are frequently traversed by personnel during the rehabilitation phase. Stormwater inlets and outlets 	Monitoring of waste or litter problems should occur daily where rehabilitation and AIP clearing is taking place. The Contractor is to ensure that no staff litter on site.	Monthly monitoring report compiled by the appointed ECO.
Erosion	<ol style="list-style-type: none"> All rehabilitated areas; and All areas disturbed by construction activities. 	<ol style="list-style-type: none"> Weekly during rehabilitation activities; After every major rainstorm and / flood for the first wet season post rehabilitation. 	Monthly monitoring report compiled by the appointed ECO.
Re-vegetation	The western wetland flat and the stormwater attenuation facility associated with the eastern wetland flat.	<ol style="list-style-type: none"> Monthly for 6 months after reinstatement of vegetation; Annually during the growing season for at least three (3) years post rehabilitation to ensure plant survival and to ensure that no AIPs are outcompeting indigenous species. 	<ol style="list-style-type: none"> Before commencement of rehabilitation activities, a report should be compiled listing existing species as well as any endangered species that may need to be rescued. Should the Contractor not have the expertise to undertake this list, they are to appoint a suitable botanist to assist; Monthly for 6 months after the reinstatement; and Annually during each growing season, for at least 3 years post rehabilitation.

This monitoring plan must be implemented by a competent person and submit the findings to the responsible authority for evaluation.



APPENDIX B

THE RECOMMENDATIONS AS INCLUDED IN THE FRESHWATER IMPACT ASSESSMENT REPORT

4. IMPACT ASSESSMENT OF THE ACTIVITIES

POTENTIAL IMPACTS ON THE KUILS RIVER

The affected Kuils River area is significantly degraded/transformed and has been channelled. There is also an existing bridge structure located on and next to the proposed bridge/road development over the Kuils River tributary. The overall significance of the potential impacts on the Kuils River is therefore expected to be of low significance due to the existing transformed state of the affected areas.

Proposed Mitigation Measures during Construction, Operational and Decommissioning Phases:

- The construction disturbance zone must be limited to 10m up- and downstream of the end of the new road footprint and this edge must be demarcated on site.
- No work camps or construction phase stockpiling may be located within 50m of the channel of the River or such that construction associated material or waste will flow, blow or leach into the channel.
- Any activities involving cement must be tightly controlled to prevent its passage into the river – uncured cement will increase pH and thus potentially affect ammonia toxicity.
- All refuelling areas must be adequately bunded.

POTENTIAL IMPACTS ON THE WETLANDS

Expansion and dualling of Erica Drive would have the following definite, permanent and irreversible impacts on the identified aquatic ecosystems:

The project layout would result in the complete and portions infilling of Wetlands 1, 2, 3, 4, 7 and 8 as identified and account for permanent encroachment into a total wetland area of approximately 1.23ha of the larger identified wetlands (out of a total wetland area of approximately 4.12ha).

The affected portions of the wetlands would be permanently destroyed. The ecological significance of this loss is considered of **medium negative significance** – a rating that takes account of the existing level of degradation and fragmentation of the system, but also of the rapid rate of degradation of the identified wetlands.

The following impacts are likely to occur within the wetland depressions in the area:

- Degradation as a result of compaction, excavation, passage of vehicles over wetland areas.
- Dumping of construction waste (old tar, paving, rubble) in wetland area.
- Visual degradation associated with litter (e.g. cement bags, litter from workers).
- Permanent destruction of soil function as a result of spillage of oils, fuels other contaminants from refuelling areas.
- Permanent loss of existing wetland habitat due to proposed road developments.

Without mitigation, these measures would be permanent, and would be of medium negative significance, with a medium cumulative significance rating as well, given that they are additional impacts on wetland areas that have already been shrunken as a result of the proposed layout.

Proposed Mitigation Measures during Construction, Operational and Decommissioning Phases:

- Due to the location of the proposed activities being site specific direct mitigation/prevention of impacts is not possible. It is recommended however that on - or off-site wetland offset mitigation should be implemented, to create seasonally inundated wetland depression habitat of at least the area lost or greater, and of a similar or better

quality. The existing wetlands have been completely cut off from all other aquatic ecosystems and are unlikely to play any significant future role in terms of biodiversity conservation. It is therefore recommended that the existing degraded wetland areas that will not be impacted upon be rehabilitated as offset mitigation focus, with allowance made for at least area-for-area wetland replacement and that this be incorporated into the site specific stormwater management structures that must be designed for the proposed development. A wetland ecologist must have input into the final design; extent and landscaping of the recommended wetland offsets and associated stormwater management measures on site.

- The disturbance zone must be kept to a maximum of 10m beyond the edge of the new road – this must be fenced off/demarcated along the full wetland width, using wire fencing and shade cloth and access by personal and machinery beyond the demarcation may not take place, other than for purposes of daily litter collection which must take place on foot.
- Litter must be collected from the abutting wetlands on a daily basis and by foot. All litter must be stored in suitable containers and disposed of at a licensed landfill site on at least a weekly basis.
- No vehicles may be refuelled within 30m of the mapped wetland edges, and any refuelling areas must be appropriately bunded.
- Site camps and areas for the storage of construction equipment and / or waste may not be located within 30m of the edge of any demarcated wetland.
- Construction that requires infilling of a wetland must take place from the terrestrial edge, and not from the wetland edge, to minimise unnecessary damage;
- At the end of construction, allowance must be made for landscaping the area of disturbed wetland abutting the construction area plus a 10m setback area.

5. CUMULATIVE IMPACTS

Cumulatively, the potential impacts of the activities to be undertaken will be of a low to medium negative significance and will be mitigated by providing wetland offset areas and short term rehabilitation of the disturbed areas and longer term monitoring and control of the growth of alien invasive plants.

6. RECOMMENDATIONS AND CONCLUDING REMARKS

The Kuils River flows through the proposed Erica Drive dualling from north to south. The freshwater ecological features on the site have been totally modified and channelled. On the site, surrounding land use, the channelling of the river and the existing constructed bridge has resulted in all of the indigenous riparian vegetation being removed from the river and streams. In terms of the importance and sensitivity of the features, the numerous impacts have greatly reduced their species richness and diversity. In order to maintain what remains of the ecological functioning of the systems on the site, it is recommended that construction methodology be provided by the civil contractor to the freshwater ecologist and approval first be granted before construction commences to ensure that the construction activities are mitigated and to prevent any further degradation of the Kuils River. The construction activities must be monitored by an Environmental Control Officer. The pillars of the expanded bridge must be in line with the existing bridge pillars in order to not affect or impact on the existing hydrology or river flow.

Six of the identified wetlands on site will be impacted upon. The impacted wetlands have largely modified wetland integrity as a large loss of natural habitat, biota and basic ecosystem functions has occurred. The Wetland Health Present Ecological Status of the impacted wetlands was assessed to be largely modified and in a moderate ecological importance state and sensitivity.

It is clear that the route will definitely impact, on a permanent basis, on an extent of depression wetlands. The former impacts are not mitigatable, and this report has