

April 2017

DRAFT

ENVIRONMENTAL AUTHORISATION

AMENDMENT APPLICATION

for the

**ESTABLISHMENT OF RICHARDS BAY CENTRAL
INDUSTRIAL AREA, KWAZULU-NATAL.**



Compiled for



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ACRONYMS AND ABBREVIATIONS

AMAFA	Amafa (Heritage) KwaZulu-Natali
BID	Background Information Document
CA	Competent Authority
CARA	Conservation of Agricultural Resources Act, Act 43 of 1983
CBA	Critical Biodiversity Area
CRR	Comments and Response Report
DEAT	Department of Environmental Affairs and Tourism
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DM	District Municipality
DAFF	Department of Agriculture, Forestry and Fisheries
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water Affairs and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EKZNW	Ezemvelo KwaZulu-Natal Wildlife
EMPr	Environmental Management Programme
EXIGENT	Exigent Engineering Consultants
GN	Government Notice
I&AP	Interested and Affected Party
IWWMP	Integrated Water and Waste Management Plan
KZN	KwaZulu-Natal
MAP	Mean Annual Precipitation
MAR	Mean Annual Runoff
NBA	National Biodiversity Authority
NBF	National Biodiversity Framework
NEMA	National Environmental Management Act, Act 107 of 1998
NEM:BA	National Environmental Management: Biodiversity Act, Act 10 of 2004
NEM:AQA	National Environmental Management: Air Quality Act, Act 39 of 2004
NEM:WA	National Environmental Management: Waste Act, Act 59 of 2008
NFA	National Forest Act, Act 84 of 1998
NFEPA	National Freshwater Ecosystem Priority Areas
NGOs	Non-Government Organizations
NHRA	National Heritage Resources Act, Act 10 of 1997
NWA	National Water Act, Act 36 of 1998
PPP	Public Participation Process
SAHRA	South African Heritage Resource Agency
SANBI	South African National Botanical Institute
TOR	Terms of References

REPORT AVAILABILITY

The draft Environmental Authorisation Amendment Application will be available for review from **26 April 2017** to **29 May 2017** for download from public.exigent.co.za

All comments can be submitted to charleen@exigent.co.za or fax: 086 614 7327 by close of business 29 May 2017.

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EXECUTIVE SUMMARY

Exigent Engineering Consultants CC has been appointed by the uMhlathuze Local Municipality to conduct the amendment application for the Central Industrial Area located in Richards Bay. The Central Industrial Area is located within the uMhlathuze Local Municipality as part of the King Cetshwayo District Municipality, KwaZulu-Natal.

The competent authority responsible for the consideration of the proposal is the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs. The application is undertaken in terms of Environmental Impact Assessment Regulations published in terms of Government Notice No. R. 982 of 4 December 2014 under Section 24(5), and 44 of the National Environmental Management Act (Act No. 107 of 1998). The EIA Regulations have been amended as Government Notice No. R. 326 of 7 April 2017 under Section 24(5), and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

On 28 March 2012 Environmental Authorisation was granted for the proposed CIA development site according to the NEMA regulations (Act No. 107 of 1998) as amended in GNR 386 and GNR 387 of 21 April 2006. The EA indicated that the authorisation is valid for five years. The Environmental Management Programme has been approved, as it complied with section 24N of NEMA and regulation 33 of the EIA Regulations, 2010. No construction works were to take place within the delineated No-Go zone (areas of high sensitivity). No development was permitted within the boundaries of the seasonal wetlands.

On 23 March 2017, the KwaZulu-Natal Department of Economic Development, Tourism and Environmental Affairs granted the authorisation for a part one amendment as per the Government Notice 982. This authorisation has been granted in order to provide the applicant with additional 12 months on the original environmental authorisation's lapse date. The amended environmental authorisation which has been granted, along with the original environmental authorisation has been attached as Appendix I of this document. The date of expiry of the amended authorisation is 29 March 2018.

Based on the Exigent (2017) delineation and the comments which have been received from the consulting engineer, an amended layout for the Central Industrial Area development site has been proposed. The part 2 amendment has been done in order to change the initial Central Industrial Area development site's layout based on a specialist informed layout as well as to extend the environmental authorisation validity period with an additional five (5) years in order to align with other Departmental requirements, for instance Department of Agriculture, Forestry and Fisheries permitting and Department of Water and Sanitation Water Use Licence.

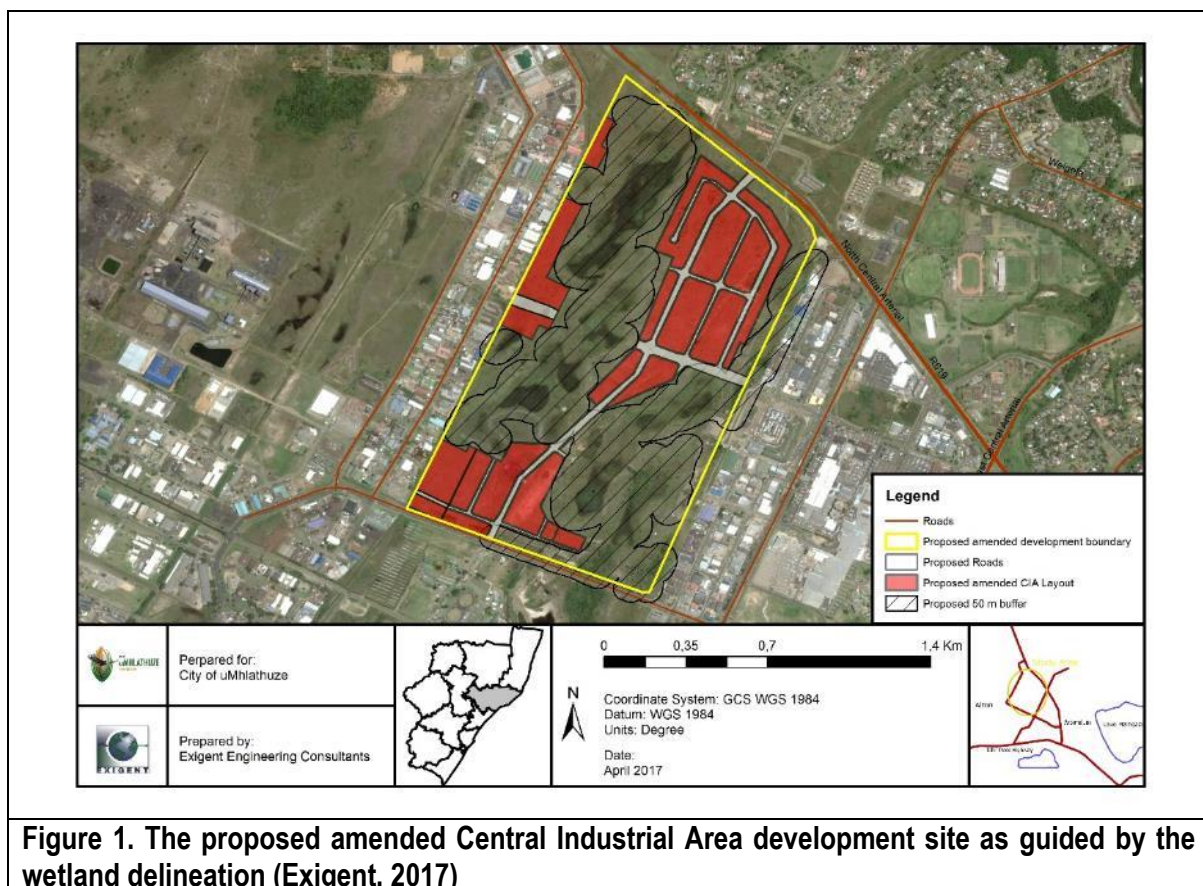
The Public Participation Process for the project will be undertaken in accordance to the National Environmental Management Act, Government Notice Regulation 982 of 4 December 2014 as amended in Government Notice Regulation 326 of 7 April 2017. Newspaper advertisements will be placed in the Zululand Observer notifying the public of the proposed project and inviting them to participate. The Draft Amendment report will be distributed to the relevant stakeholders, as well as Interested and Affected Parties. All comments received during Public Participation Process will be captured and addressed within the Final Part 2 Amendment Report.

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The advantages and disadvantages of the proposed project has been described in terms of the socio-economic and biophysical environment. It has been concluded that the greatest disadvantages rested on the impact which the Central Industrial Area would have on the biophysical environment. The advantages of the Central Industrial Area included social and economic advantages.

The impact assessment methodology which was followed took into account the extent, duration, severity, frequency and the probability of the impact. The impacts were identified to be Low to High, with the loss of vegetation, the hydrological impacts and the pollution with high impact values before mitigation and medium with mitigation measures in place. The socio-economic impact will have a limited positive impact.

Three wetland vegetation communities have been identified within the site boundary. These communities include the grassy / sedge freshwater wetlands, wetlands which were associated to the remnant coastal forests, and the reed / bulrush wetlands in the drainage channel. All three wetness zones were found within the site boundaries. The sensitive areas have been presented in such a way as to protect the permanent (peat containing), large portions of the seasonal wetlands and sections of the temporary wetland zones. The figure below indicates the proposed amended Central Industrial Area layout which has been based on the Wetlands Delineation Report which has been done by Exigent (2017).



The amendment report aimed to identify the additional impacts which the proposed amended Central Industrial Area development site would pose for the economic, social and environmental sectors with the local and regional area. One specialist study was undertaken and measures for mitigation and management is identified for inclusion in the amended Environmental Management Programme (Appendix F of this report).

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In conclusion, the amendment application is for a Part 2 Amendment in terms of Government Notice Regulations 982 (as amended on 7 April 2017). As part of the amendment, the applicant is proposing:

- An alternative layout to the layout which has been approved on 28 March 2012;
- As well as an extension of five (5) years for the authorisation which has been provided as part of a Part 1 Amendment, authorised on 23 March 2017.

Specific conditions are proposed in terms of the layout, with specific reference to the road connecting the two main developable areas. The construction of the road must be within the reserve of the existing road which leads through the development site.

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1. INTRODUCTION

Exigent Engineering Consultants CC (hereafter referred to as Exigent) has been appointed by the uMhlathuze Local Municipality (ULM) to conduct the amendment application for the Central Industrial Area located in Richards Bay. The Central Industrial Area (CIA) is located within the ULM as part of the King Cetshwayo (previously known as uThungulu) District Municipality, KwaZulu-Natal (KZN).

The competent authority (CA) responsible for the consideration of the proposal is the KZN Department of Economic Development, Tourism and Environmental Affairs (DEDTEA). The application is undertaken in terms of Environmental Impact Assessment (EIA) Regulations published in terms of Government Notice (GN) No. R. 982 of 4 December 2014 under Section 24(5), and 44 of the National Environmental Management Act (NEMA) (Act No. 107 of 1998). The EIA Regulations have been amended as Government Notice No. R. 326 of 7 April 2017 under Section 24(5), and 44 of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998).

This Environmental Authorisation Amendment Application has been compiled in accordance with the requirements of the NEMA, in particular, GNR 982, published on 4 December 2014 (as amended in GNR 326 on 7 April 2017). This outlines the requirements of the Environmental Impact Assessment Process for the purpose of an environmental authorisation (EA) for a Part 2 amendment application. The layout of this report has been set forth in such a way as to partially follow the requirements as per those set forth for the Basic Assessment Report (BAR), however it has been modified to suit the needs of the Part 2: Amendment requirements. Table 1-1 indicates the regulations which have been addressed and the section of the Amendment Report where these requirements can be found.

Table 1-1. Requirements of GNR 982 section

GNR 982 SECTION AND SUBSECTION		DESCRIPTION OF REGULATION	SECTION	PAGE
31 (a)	(i)	Assessment of the impacts of the proposed change. The impacts and risks identified including nature, significance, consequence, extent, duration and probability of impacts, including the degree to which these impacts can be reversed, cause irreplaceable loss of resources and can be avoided, managed or mitigated.	7	40
31 (a)	(ii)	Advantages and Disadvantages of the proposed change.	4	29
31 (a)	(iii)	Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change.		
31 (a)	(iv)	Any changes which has been made to the EMPr	Appendix F and Section 10	
31 (a)	(i)	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including supporting documents and inputs.	5	30
31 (a)	(ii)	Summary of the issues raised by interested and affected parties and in indication in the manner in which the issues were incorporated, or the reasons for not including them.	5.4	32

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GNR 982 SECTION AND SUBSECTION		DESCRIPTION OF REGULATION	SECTION	PAGE
31 (a)	(i)	Methodology used in determining and ranking the nature, significance, consequence, extent, duration and probability of potential impacts and risks.	7.1	40
31 (a)	(i)	Positive and negative impacts that the proposed activity and alternatives will have on the environment and community that will be affected, focussing on geographical, physical, biological, social, economic, heritage and cultural aspects.	7.2	43
31 (a)	(i)	Possible mitigation measures that could be applied and level of residual risk.	7.2	43
31 (a)	(i)	Description of process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including:		
31 (a)	(i)	A description of all environmental issues and risks that were identified during the environmental impact assessment process.	7.2	43
31 (a)	(i)	An assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.	7.2	43

1.1. Environmental Assessment Practitioner

Exigent was established in 1998 providing multidisciplinary engineering and environmental services. The Exigent Environmental Business Unit provides sustainable answers within an environmental developmental framework. Our foundations are built upon ecological principles with wide ranging expertise in environmental management and assessment processes. The qualifications and experience of the primary assessors and report compilers are listed in Table 1-2.

Table 1-2. Environmental Assessment Practitioner details

EAP	QUALIFICATION	EXPERIENCE
Ms Jacolette Adam	MSc	17 years of professional experience in the environmental sector, and has been a certified Professional Natural Scientist since 2002 (400088/02). She is also a Fellow member of the Water Institute of South Africa (WISA), Environmental Law Association (ELA) of SA, the International Association for Impact Assessment South Africa (IAIASA) and has successfully completed numerous environmental assessments throughout South Africa for a wide range of clients.
Ms Charleen Smuts	MSc	Charleen is a Candidate of Professional Natural Scientist, member of the South African Affiliate of the International Association for Impact Assessment (IAIASA), the South African Wetland Society (SAWS) and the Botanical Society of South Africa (BOTSOC). She has obtained her BSc in 2005 and has since gained a MSc from the University of Pretoria in 2012. She has 4 years of experience and has conducted numerous ecological and wetland delineation and functionality assessments. Furthermore, Charleen has been involved in a wide range of environmental authorisation projects.
Miss Madeleine Knoetze	BSc	Madeleine has 2 years of experience in the field of environmental management. She is a member of the International Association for Impact Assessments South Africa (IAIASA). She has assisted in the completion of a numerous environmental assessments, as well as ecological and wetland assessments. She is skilful in the field of Geographic Information Systems (GIS) leading to involvement in large and small scale mapping projects in KwaZulu-Natal and Gauteng.

1.1 Project location

The proposed amended Richards Bay Central Industrial Area (hereafter referred to as the CIA) development site is located within the uMhlatuze Local Municipality (ULM) as part of the King Cetshwayo District Municipality. The area allocated to the CIA development is found in Richards Bay Central, KwaZulu-Natal (Figure 1-1). The proposed amended area of the CIA is approximately 186 hectares in extent. Photos of the proposed CIA development site has been provided in Figure 1-2 and Figure 1-3.

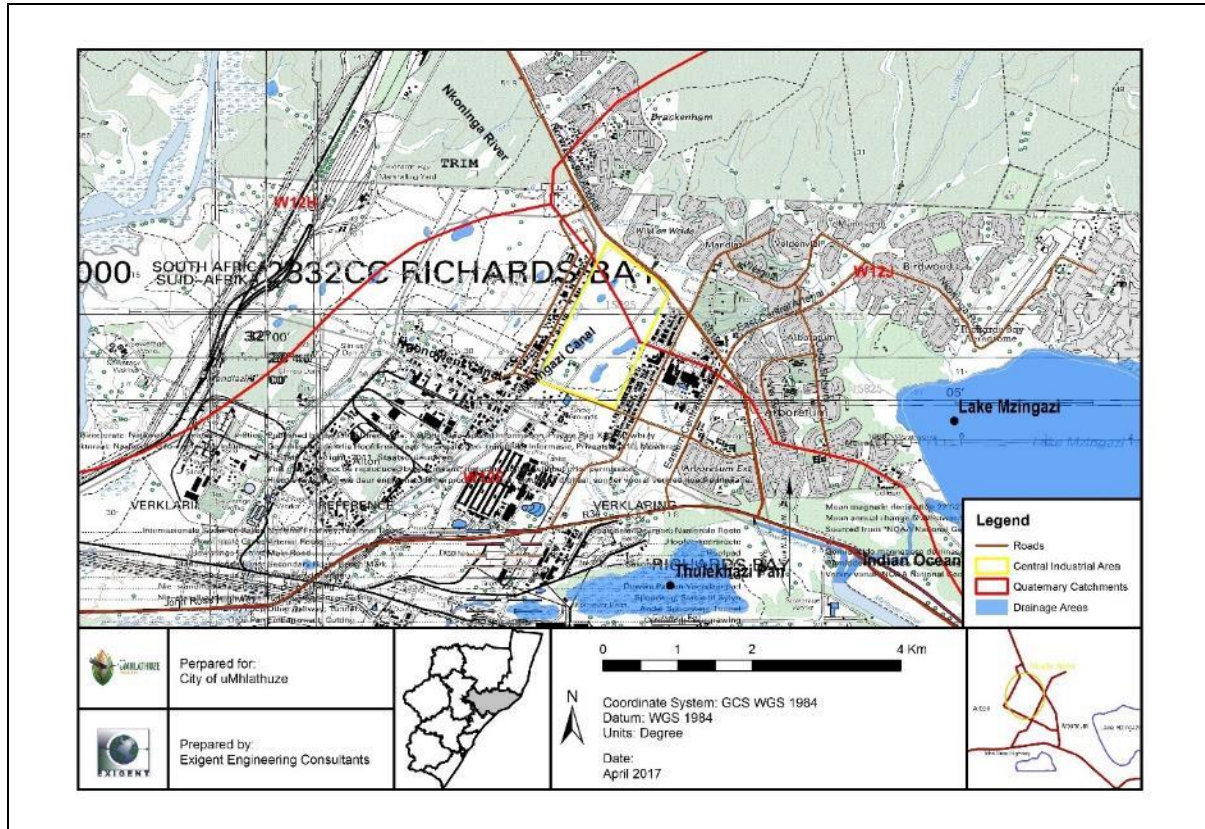
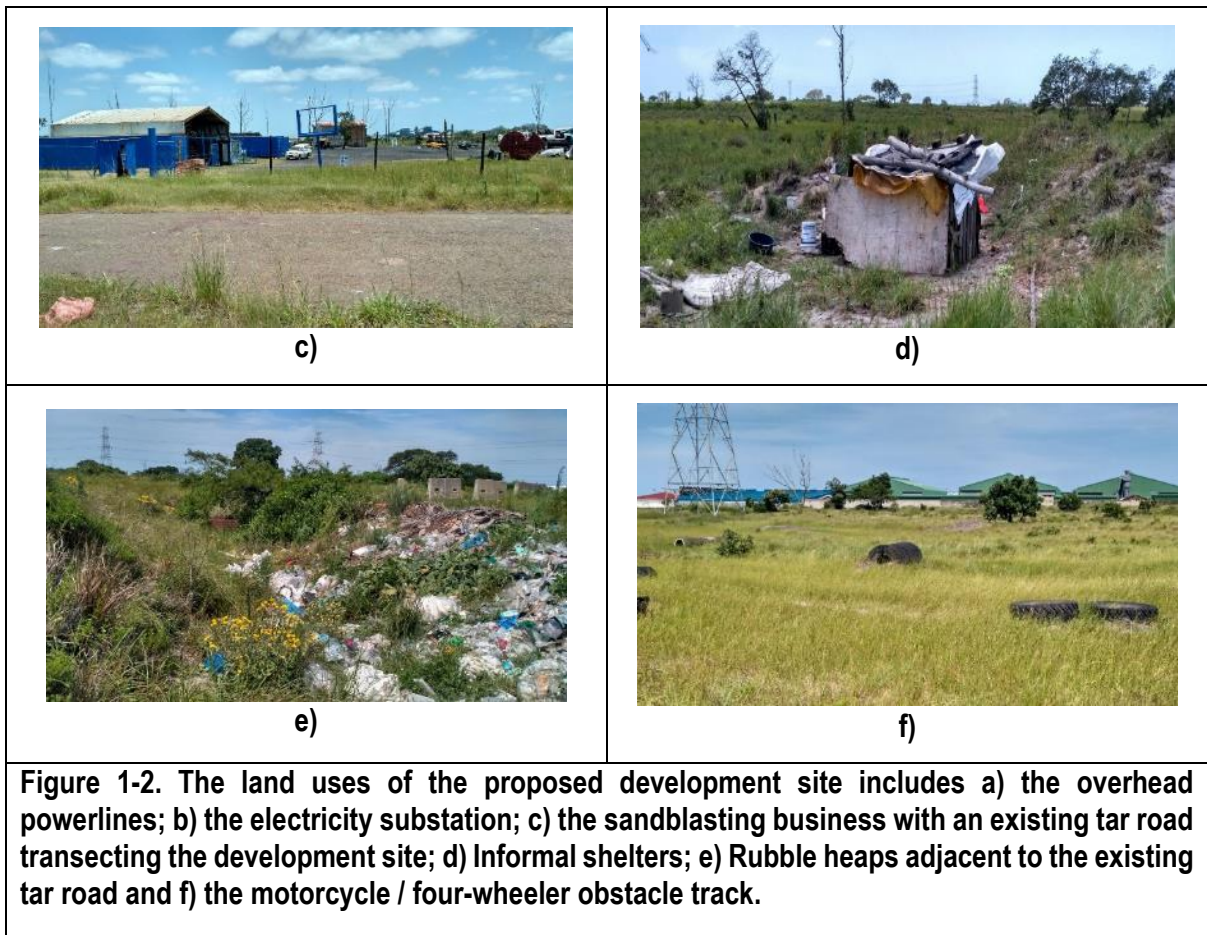


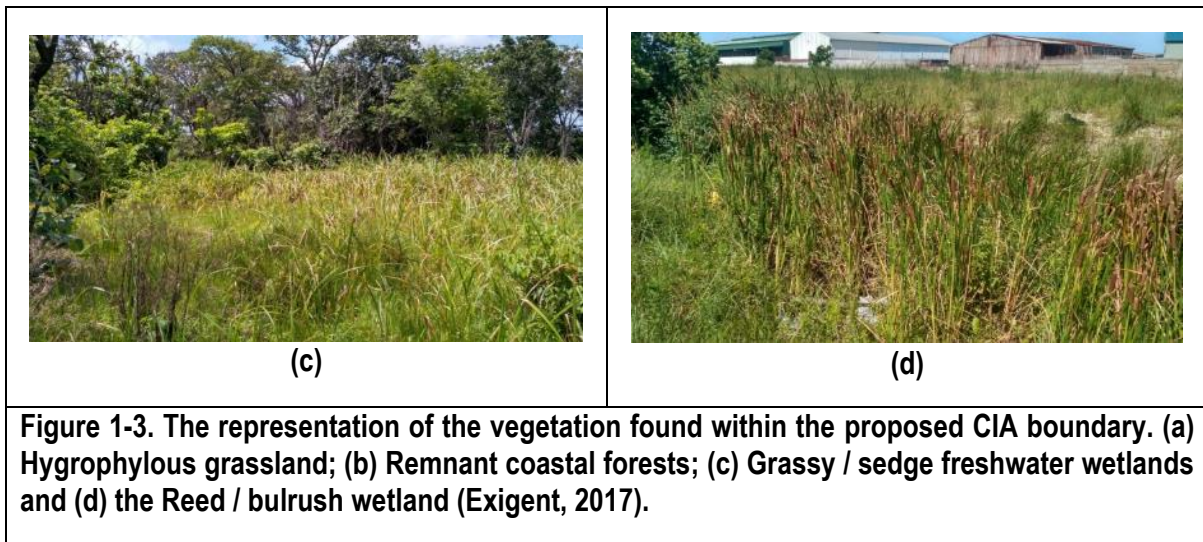
Figure 1-1. Locality of the Richards Bay Central Industrial Area.





The vegetation communities which have been observed within the proposed amended CIA development site include hygrophilous grasslands and an integrate wetland system which consists of three different wetland vegetation communities (Figure 1-3). These vegetation units include the grassy / sedge freshwater wetlands, the reed / bulrush wetlands and the remnant coastal forest wetland. These wetland vegetation communities have been described in the wetland specialist report (Exigent, 2017) and has subsequently been briefly discussed in Section 6 of this report.





The proposed CIA development occurs within quarter degree grid cell 2832CA and 2832CC, quaternary catchment W12J and W12F as part of the Usutu to Mhlathuze Water Management Area (WMA), with the geographical coordinates centre of the CIA are located at:

LATITUDE/LONGITUDE	DEGREES	MINUTES	SECONDS
South	28	44	47.67
East	32	02	29.91

The 21-digit Surveyor General code of the cadastral land parcels are:

N	0	G	U	0	0	0	0	0	0	0	1	5	8	2	5	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

The Richards Bay Central Industrial Area (hereafter referred to as CIA) is located on Reserve 6 (Erf 15825 Portion 0) in Richards Bay Central. The Land Use Management System (LUMS) zoning has zoned the area as *Conservation, Light Industry, Services, Proposed roads, Undetermined, and Mixed Use Medium Impact*.

1.2. Project description

1.2.1. PROJECT HISTORY

1.2.1.1. Environmental Impact Assessment Process

Coastal & Environmental Services (CES) were previously appointed by the City of uMhlathuze to undertake the Environmental Authorisation Process for the CIA development. The following dates indicate the timeframe along which the project ran:

- Draft Scoping report: Dated May 2009;
- Draft EIAR: Dated August 2010;
- Final EIAR: Dated November 2010; and
- Environmental Authorisation: Dated 28 March 2012.

The following activities were identified to be triggered by the Government Notice No. R. 386 and R. 387 dated 21 April 2006. It is based here on which a Scoping and Environmental Impact Assessment Process

was required for the process. This table includes the activities which would have been triggered in the GNR 983, GNR 984 and GNR 985 for similar activities. Following the 4 December 2014 amendments of the NEMA (GNR 982, GNR 983, GNR 984 and GNR 985), further amendments to the Act were promulgated on 7 April 2017 in GNR 324, GNR 325, GNR 326 and GNR 327. The similar activities from the amended GNR have also been described in the table.

Table 1-3. The description variation between the 2006, 2010 and 2014 amended NEMA regulations.

Component of the project	Listing Notice / Activity No.	Similarly listed in 2010 Listing Notices	Similarly listed in 2014 Listing Notices	Similarly listed in 2017 Listing Notices
Richards Bay Central Industrial Area	<p>Activity 1 (k) of GNR 386 of 2006: <i>The construction of facilities or infrastructure, including associated structures or infrastructure, for – (k) the bulk transportation of sewage and water, including storm water, in pipelines with- (i) an internal diameter of 0.36 metres or more; (ii) a peak throughput of 120 litres per second or more.</i></p>	<p>Activity 9 of GNR 544: <i>The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water- (i) with an internal diameter of 0,36 metres or more; (ii) with a peak throughput of 120 litres per second or more, excluding where; a) such facilities or infrastructure are for bulk transportation of water, sewage or storm water drainage inside a road reserve; or b) where such construction will occur within urban area further than 32 metres from a watercourse.</i></p>	<p>Activity 9 of GNR 983: <i>The development of infrastructure exceeding 1000 metres in length for the bulk transportation of water or storm water (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where (b) where such a development will occur within an urban area.</i></p> <p>Activity 10 of GNR 983: <i>The development of and related operation of infrastructure exceeding 1000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes (i) with an internal diameter of 0,36 metres or more; or with a peak throughput of 120 litres per second or more; excluding where (b) such development will occur within an urban area.</i></p> <p><u>This is no longer applicable to the</u></p>	<p>Activity 9 of GNR327: <i>The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or stormwater drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.</i></p> <p>Activity 10 of GNR 327 <i>The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of</i></p>

			<u>proposed project as it is in an urban area.</u>	sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area. <u>This is no longer applicable to the proposed project as it is in an urban area.</u>
	Activity 4 of GNR 386 of 2006: The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake in-stream dam, floodplain or wetland.	Activity 18 of GNR 544: The infilling or deposition of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, grit, pebbles or rock from (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater but excluding where such infilling, depositing, dredging, exaction, removal or moving (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority (ii) occurs behind the development setback line.	Activity 19 of GNR 983: 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 of more than 5 cubic metres from (i) a watercourse; (ii) the seashore; or (iii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater.	Activity 19 of GNR 327: 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.
	Activity 15 of GNR 386 of 2006: Construction of a road that is wider than 4 metres or that has a reserve wider than 6 metres, excluding roads that fall within the ambit of another listed activity or which are access roads of less than 30 metres long.	Activity 4 of GNR 546: The construction of a road wider than 4 metres with a reserve less than 13.5 metres.	Activity 4 of GNR 985: The development of a road wider than 4 metres with a reserve less than 13,5 metres. (d) In KwaZulu-Natal: (xi) Sensitive areas as identified in an environmental management framework as	Activity 4 of GNR 324: The development of a road wider than 4 metres with a reserve less than 13,5 metres. (d) In KwaZulu-Natal: (xi) Sensitive areas as identified in an environmental management framework as contemplated in

			contemplated in chapter 5 of the Act and as adopted by the competent authority; (xiii) In urban areas: (cc) within urban protected areas.	chapter 5 of the Act and as adopted by the competent authority; (xiii) In urban areas: (cc) within urban protected areas.
	<p>Activity 16 of GNR 386 of 2006: The transformation of undeveloped, vacant or derelict land to- (a) establish infill development covering an area of 5 hectares or more, but less than 20 hectares; or (b) residential, mixed, retail, commercial, industrial or institutional use where such development does not constitute infill and where the total area to be transformed is bigger than 1 hectare.</p>	<p>Activity 23 of GNR 544: The transformation of undeveloped, vacant or derelict land to- (i) residential, retail, commercial, recreational, industrial or institutional use, inside an urban, and where the total area to be transformed is 5 hectares or more, but less than 20 hectares, or (ii) residential, retail, commercial, recreational, industrial or institutional use, outside an urban area and where the total area to be transformed is bigger than 1 hectare but less than 20 hectares; except where such transformation takes place for linear activities.</p>	<p>Activity 27 of GNR 983: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>No longer applicable as a similar activity from GNR 325 is triggered.</p>	<p>Activity 27 of GNR 327: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>No longer applicable as a similar activity from GNR 325 is triggered.</p>
	<p>Activity 2 of GNR 387 of 2006: Any development activity, including associated structures and infrastructure, where the total area of the development is, or is intended to be, 20 hectares or more.</p>	<p>Activity 15 of GNR 545: Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; Except where such physical alteration takes place for: (i) Linear development activities; or (ii) agriculture or afforestation where activity 16 in this schedule will apply.</p>	<p>Activity 15 of GNR 984: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>	<p>Activity 15 of GNR 325: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.</p>

The initial environmental authorisation as obtained by CES is limited to the initial preparation of the CIA development site in terms of services to be provided, these services include electricity, stormwater drainage, water reticulation and supply, sewage and access roads for the development area. The original

EIA included the provision of civil and electrical services to all subdivisions as per the proposed layout. This will persist throughout this amendment application as well.

Currently the existing infrastructure located within the boundaries of the proposed CIA development site includes a power station, which has been accounted for in the original EIA and the PDA layout of the CIA development site. There is a minor tarred road leading north from Chalk Line road through to the North Central Arterial. Along this road there is a small, informal sand blasting business towards the south of the property. There are large overhead powerlines located on the site's northern and eastern boundaries.

Access

The access roads will have a width of 8 m and a reserve of 20 m. The local distributor road will have a width of 8 m and a reserve of 20 m.

Stormwater Drainage

The bulk municipal stormwater system which borders the CIA consists of an open canal which runs parallel to the Central Arterial Road Reserve, Guldengracht, and the West Central arterial on the western, southern and eastern side of the CIA respectively. The canals toward the southern and eastern side of the CIA discharges into the Ngodweni Canal.

The proposed CIA development site's stormwater will be discharged into the municipal system. Minor systems within the proposed development site will include surface drainage from the individual sites, stormwater connection to each site, stormwater kerb inlets to drain roads and subsurface piped reticulation as well as open canals.

The natural depressions have been proposed as the retention area for stormwater. These areas are naturally approximately 1,5m to 3,5m lower than the rest of the proposed CIA development site. It has been proposed that three separate retention ponds be constructed to facilitate the catchment of debris and purification of the water before being discharged into the Ngondweni Canal.

Four existing small quarry excavations along Guldengracht will be converted into retention ponds. These ponds will have a collective area of 1,48 hectares. The stormwater which is generated on the South-Western portion of the CIA will be discharged into these ponds along with the retention ponds and the open canal, in turn into the Ngodweni Canal.

Stormwater from the North-Eastern portion of the CIA will discharge into a new open canal which is set to run parallel to the West Central Arterial road reserve. As a result of this the stormwater will flow through the retention ponds and discharge into the Ngondweni Canal.

Sewage

The sewage reticulation system for the proposed CIA development will be designed according to the Guidelines for the Provision of Engineering Services and Amenities in Township Developments". According to the Johannesburg Metropolitan Council guidelines for the determination of sewer flow from light industrial townships, the estimated flow is 15 000 litres per day per hectare, plus 12% with a peak factor of 2.

The proposed CIA development infrastructure will connect to the main sewer system via two possible connections.

Water reticulation and supply

An estimated 4 000 litres of water per erf per day will be required within the CIA. A minimum peak factor of four has been used and fire flow of 25 litres per stand.

Fire hydrants will be a maximum of 120 m apart and will be connected to the main reticulation grid.

Solid Waste

Solid waste will be collected from the individual erven on a weekly basis by the ULM. The Richards Bay CIA does not provide an area which can be utilized for the temporary storage of solid waste. Provision will be made for industrial waste within the Municipality's strategic waste plans.

Electricity

It has been proposed that two 11 kilovolt cables be installed leading from the Scorpio 132 kilovolt substation

A link towards the proposed CIA 11 kilovolt substation will run through the proposed CIA development site from the proposed extension of Mark Strasse.

1.2.1.2. Concerns raised during previous EIAP

During the Environment Impact Assessment Process three specialist studies were conducted, this excluded the traffic assessment and the geotechnical studies undertaken for the site. These specialist study, along with their main concerns were:

- **Ecological Specialist Report**

The ecological specialist identified most of the study area to be quite degraded, however it is of high conservative importance. The report highlighted that the forest patches towards the south east of the proposed CIA development site should be set aside as conservation areas and they should be actively managed as part of the corridor system.

- **Wetland Specialist Report**

Various seasonal wetland zones were identified during the wetland specialist study undertaken by CES. The wetland delineation clearly indicated the seasonal wetlands along with the 'no wetland' areas and presumed the rest of the CIA development site to be 'temporary wetlands'. One of which had peat, an extremely sensitive soil type, within its boundaries. Two different buffer zones (one of 50 m and another of 100 m) were considered for the seasonal wetlands within the CIA boundary.

A No-Go area was demarcated by the specialist based on the location of the seasonal zones, along with the buffers and the 'no wetland' areas. The report recommended the investigation of biodiversity offsets should an alternate site not be found or deemed feasible

- **Heritage Specialist Report**

The Heritage Impact Assessment undertaken by CES identified 13 points at which settlements were located based on the aerial imagery of 1937, however evidence of these settlements was not found during the field survey. The proposed CIA development site has been a wetland for at least the last 1000 years with human settlements having presumable present over the last 100 years in slightly elevated areas.

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The specialist recommended that the areas be re-surveyed after vegetation clearance, and specific areas should be monitored during any form of earth moving.

In conclusion of the specialists identifies specific areas which require conservation or re-evaluation at various phases of the proposed CIA development (Figure 1-4)

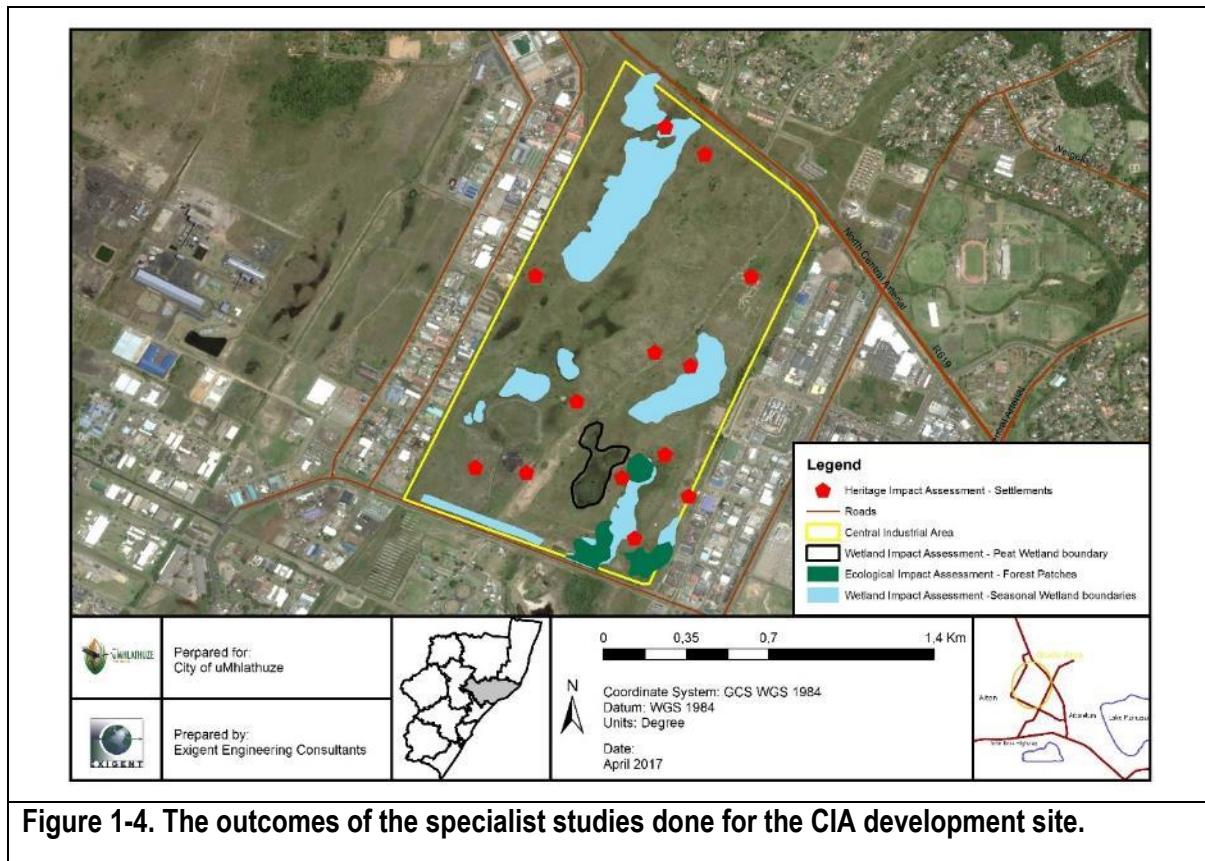


Figure 1-4. The outcomes of the specialist studies done for the CIA development site.

1.2.1.3. Conclusions of the EIA Process

On 28 March 2012 Environmental Authorisation (EA) was granted for the proposed CIA development site according to the NEMA regulations (Act No. 107 of 1998) as amended in GNR 386 and GNR 387 of 21 April 2006.

The EA indicated that the authorisation is valid for five years. The EMPr has been approved, as it complied with section 24N of NEMA and regulation 33 of the EIA Regulations, 2010. No construction works were to take place within the delineated No-Go zone (areas of high sensitivity). No development was permitted within the boundaries of the seasonal wetlands. No dumping or storage of building materials were permitted within the wetland buffer zone. All storm water run-offs from the road areas must be collected and piped as to discharge into the municipal storm water system. Drainage must be controlled as to prevent off-site contamination or water damage to properties located downstream from the site. The drainage system must be designed in such a way as to eliminate any further impacts, such as contamination and eutrophication of the wetlands. This system must be maintained regularly. No infilling, excavation, drainage or hardened surfaces were permitted within the wetland zones (i.e. temporary, seasonal and permanent) within the CIA development site. The fence demarcating the no-go

areas, as well as any other fencing in or surrounding the CIA must have spacing which allows ease of movement for small animals.

1.2.2. STATUS QUO OF DEVELOPMENT SITE

1.2.2.1. Existing services within the proposed development site

Services already existing within the proposed development site include a substation towards the eastern boundary of the site. Overhead power lines transect the proposed CIA development site along all four boundaries.

A water pipeline system runs from east to west along the northern boundary of the proposed development site, with large concrete access points located approximately 25 m from the North Central Arterial.

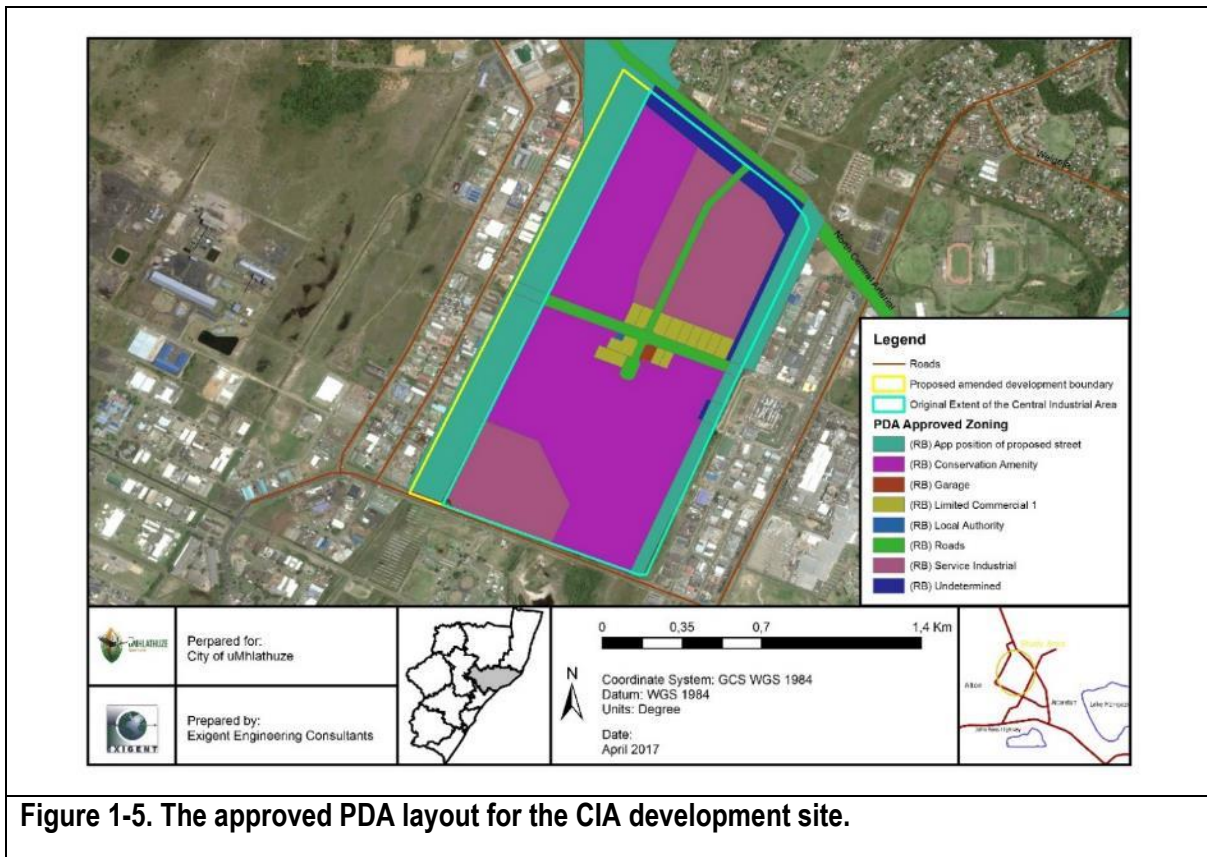
A road leads through the centre of the proposed development site from north to south, creating a link between the North Central Arterial and Guldengracht Road. It is along this road which a sand blasting business is situated towards the Guldengracht entrance into the proposed CIA development site. There is an abundance of dumping adjacent to this road. The dumping is limited to a maximum of 20 m from the edge of the road on both sides.

There are numerous footpaths transecting the proposed development site, these footpaths are concentrated towards the eastern boundary of the proposed site, where there are more people utilizing the open space.

1.2.2.2. PDA Layout

The layout which has been approved according to the KZN Planning and Development Act, 2008 (Act No. 6 of 2008) ("PDA"), which has been submitted for zoning purposes, took into account the No-Go area which has been authorised by DEDTEA in 2012. The "PDA" layout has since been approved and has been zoned as *Limited Commercial 1, Garage, Service Industrial, Local Authority, Conservation Amenity, and Proposed roads* (Figure 1-5).

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The area which the PDA Layout earmarks 65 hectares for development. This area includes all services (road, electricity and water servitudes) as per the specifications of the EIA. The “PDA” Layout takes into account the proposed transportation corridor towards the western boundary of the proposed CIA development site.

The feasibility of the “PDA” Layout, however is considered to be questionable based on the findings of the wetland delineation as done by Exigent (2017), wherein which it was indicated that the extent of the various wetland zones has been re-evaluated and it has been indicated that the layout would intersect sections of peat containing wetlands. The EA which was granted by DEDTEA also indicated that no works were allowed within the temporary, seasonal or permanent zones of the wetlands. However, the temporary zones’ boundaries were not regarded during the “PDA” Layout.

1.2.3. PROJECT DESCRIPTION

1.2.3.1. New CIA Development Site

The City of uMhlathuze Local Municipality proposes to extend the proposed Central Industrial Area site boundary, as to include the transportation corridor. Following an updated wetland delineation, conducted by Exigent (2017), an amended layout to the PDA layout has been proposed, taking into account the environmental sensitivity of the proposed development site. The amended development site aims to expand the previously authorised area, due to the elevated ecological sensitivity of the development site based on the Exigent (2017) findings.

The total area which has been considered during this amendment application is 178 ha. Within the proposed CIA development site boundaries, temporary, seasonal and permanent wetland zones have been identified.

Based on the findings of the geotechnical report prepared by Messrs, Drennan Maud & Partners and the wetland delineation done by Exigent (2017), the consulting engineers, Ilifa Africa Engineers (Pty) Ltd., have indicated that an amended layout would be feasible under specific conditions. In conjunction to the Messrs, Drennan Maud & Partners report, the consulting engineers have indicated that work within the permanent and seasonal wetlands would present numerous challenges. Due to the vast extent of wetland across the proposed CIA development site, intersecting sections of wetlands will be unavoidable. A bridge will have to be constructed over the permanent wetland towards east of the proposed CIA development site boundary. Due to the location of the proposed CIA development site, bulk services are available within relative close proximity to the site, and thus economic development can be ensured.

Based on the Exigent (2017) delineation and the comments which has been received from the consulting engineer, an amended layout for the CIA development site has been proposed (Figure 1-6).

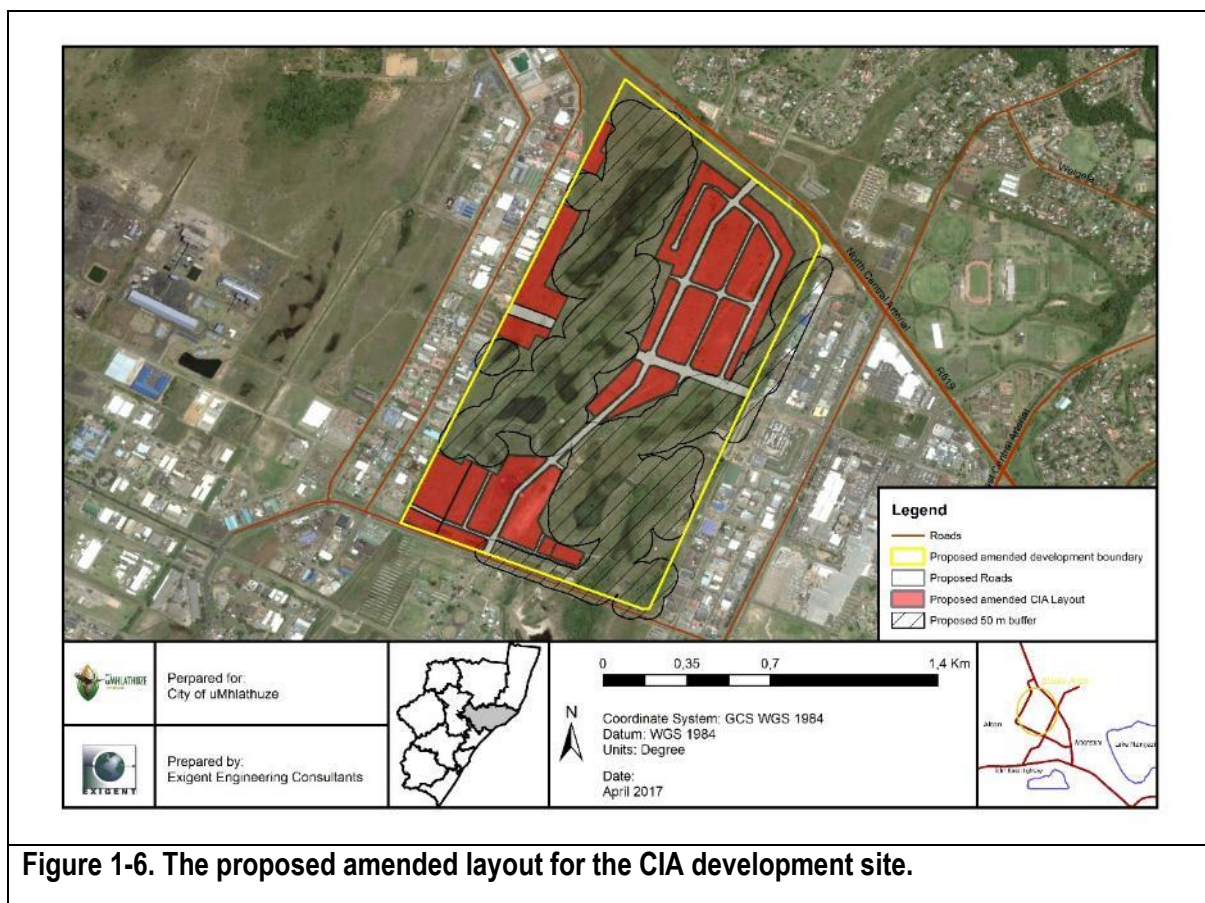


Figure 1-6. The proposed amended layout for the CIA development site.

1.2.3.2. Scope of Amendment Application

The Richards Bay Central Industrial Area development site is located within the western area of the Central Business District (CBD). The proposed development site is approximately 186 hectares in extent, whereas previously it had an extent of 132 hectares. On 27 March 2012, the DEDTEA granted the uMhlatuze Local Municipality with an environmental authorisation for the proposed CIA development

located in Richards Bay. The layout which has been approved had a large exclusion zone, which prohibited development within a specialist defined No-go area. The ULM proposes to amend the layout which has been approved in order to provide for a larger developable area. The newly proposed layout includes the transportation services corridor toward the west of the proposed CIA development site within the total area for consideration in terms of extent of the proposed CIA development. Accompanying the new development area.

The extent of the developable area, based on the approved layout, as well as the Priority Development Areas (PDA) layout, was approximately 55 hectares, whereas the newly proposed CIA development site layout has an area of approximately 78,56 hectares. This new layout takes into consideration the opinions of the conducted specialist studies, as well as the amended specialist studies done for the proposed CIA development area.

On 23 March 2017, the KZN DEDTEA granted the authorisation for a part one amendment as per the GN 982. This authorisation has been granted in order to provide the applicant with additional 12 months on the original EA's lapse date. The amended EA which has been granted, along with the original EA has been attached as Appendix I of this document. The date of expiry of the amended authorisation is 29 March 2018.

In conclusion, the part 2 amendment has been done in order to change the proposed CIA development site's layout based on a specialist informed layout as well as to extend the EA's validity period with an additional five (5) years in order to align with other Departmental requirements, for instance DAFF permitting and DWS Water Use Licence.

2. LEGAL FRAMEWORK

2.1. National Environmental Management Act (NEMA), Act 107 of 1998

The National Environmental Management Act ([NEMA] Act 107 of 1998) is an all-encompassing act regulating various aspects of natural resource use, integrated environmental management and pollution control. The Act provides for:

- the right to an environment that is not harmful to the health and well-being of the South African people;
- sustainable development, environmental protection, equitable distribution of natural resources; and;
- the formulation of environmental management frameworks.

2.1.1. NEMA Regulations listing notices

Environmental regulations were promulgated in terms of NEMA in 2014 to guide environmental management. These regulations include:

- GNR. 982 The Minister of Environmental Affairs, hereby make the regulations pertaining to environmental impact assessments, under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).

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- GNR. 983. The purpose of this Notice is to identify activities that would require environmental authorizations prior to commencement of that activity and to identify CAs in terms of section 24(2) and 24(D) of the Act.
- GNR. 984. The purpose of this notice is to identify activities that would require an environmental authorization prior to the commencement of that activity and to identify CAs in terms of sections 24(2) and 24(D) of this act.
- GNR. 985. The purpose of this notice is to list activities and identify CAs under sections 24(2) and 24(D) of the Act, where environmental authorisation is required prior to commencement of that activity in specific identified geographical area only.

The amended Environmental regulations were promulgated on 7 April 2017 in terms of the various NEMA Regulations guide environmental management. These regulations include:

- **GNR. 326.** The Minister of Environmental Affairs, hereby make the regulations pertaining to environmental impact assessments, under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998).
- **GNR. 327.** The purpose of this Notice is to identify activities that would require environmental authorizations prior to commencement of that activity and to identify CAs in terms of section 24(2) and 24(D) of the Act.
- **GNR. 325.** The purpose of this notice is to identify activities that would require an environmental authorization prior to the commencement of that activity and to identify CAs in terms of sections 24(2) and 24(D) of this act.
- **GNR. 324.** The purpose of this notice is to list activities and identify CAs under sections 24(2) and 24(D) of the Act, where environmental authorisation is required prior to commencement of that activity in specific identified geographical area only.

No new activities will be triggered through the change of the existing proposed layout of the CIA development site.

It will be the duty of all business owners whom will be utilizing the proposed CIA development site to carry out the appropriate environmental assessment processes according to the specific activities which they will trigger due to the nature of their individual activities.

2.2. National Water Act, Act 36 of 1998

The National Water Act ([NWA] Act 36, 1998) identifies 11 consumptive and non-consumptive water uses which must be authorised under a tiered authorisation system. Section 27 of the NWA specifies that the following factors regarding water use authorisation must be taken into consideration:

- The efficient and beneficial use of water in the public interest;
- The socio-economic impact of the decision whether to issue a licence;
- Alignment with the catchment management strategy;
- The impact of the water use, resource directed measures; and
- Investments made by the applicant in respect of the water use in question.

Section 21 of the NWA identifies listed activities for which a Water Use License should be obtained. The applicable Section 21 listed activities are listed below:

- *21c): Impeding or diverting the flow of water in a watercourse;*

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- 21(f): *Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit.*
- 21 g): *Disposing of waste in a manner which may detrimentally impact on a water resource;*
- 21 i): *Altering the bed, banks, course or characteristics of a watercourse; and*
- 21 j): *Removing, discharging, or disposing of waste found underground if it is necessary for the efficient continuation of an activity or for the safety of people;*

A license will be required in order to carry out any activity involving modifications to watercourses or wetlands as well as any such activity within 500 m from the boundary of a wetland (the wetland's regulatory area, as defined by GN509). This licensing will be done following the authorisation of the Environmental Authorisation Amendment in terms of the NEMA regulations.

2.3. National Heritage Resources Act, Act 25 of 1999 and KwaZulu Natal Heritage Act, Act 10 of 1997

In terms of Section 38 (1) of the Heritage Resources Act ([HRA] Act No 25 of 1999), a Heritage Impact Assessment must be undertaken for the following developments:

- (a) *The construction of a road, wall, powerline, pipeline, canal, or other similar form of linear development or barrier exceeding 300m in length;*
- (b) *Any development or other activity which will change the character of a site*
 - (i) *Exceeding 5 000 m² in extent; or*
 - (ii) *Involving three or more existing even or subdivisions thereof; or*
 - (iii) *Involving three or more even or divisions thereof which have been consolidated within the past five years; or*
 - (iv) *The costs of which will exceed a sum set in terms of regulations by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority;*
- (c) *The re-zoning of a site exceeding 10 000 m² in extent; or*
- (d) *Any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.*

KwaZulu-Natal Heritage Act, 1997 (Act 10 of 1997) holds similar provisions to those of the National Heritage Resources Act (NHRA). Amafa / Heritage KwaZulu Natali (Amafa) is the relevant provincial heritage authority for the protection and management of heritage resources in KZN. By means of a Memorandum of Understanding, Amafa acts as the agent for the national agency (SAHRA) in the province

The primary objective of the KZN Heritage Act is the care, maintenance, repair and management, as well as the protection, of all forms of historically and culturally important sites, including, for example, public monuments and archaeological sites, important cultural objects and traditional burial sites.

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As a result of the proposed CIA development site exceeding an area of 5 000 m², a Heritage Impact Assessment (HIA) has been undertaken as part of the original EIA process for the proposed CIA development site. Due to the specialist's scope of work including the additional area no further HIA reporting is required.

2.4. National Environmental Management: Waste Act, Act 59 of 2008

The National Environmental Management: Waste Act ([NEMWA], Act 59 of 2008) was implemented on 1 July 2009 and section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed.

The objectives of NEMWA involve the protection of health, well-being and the environment by providing reasonable measures for the minimization of natural resource consumption, avoiding and minimizing the generation of waste, reducing, recycling and recovering waste, and treating and safely disposal of waste as a last resort.

In general, the act seeks to ensure that people are aware of the impact of waste on their health well-being and the environment, and in the process giving effect to section 24 of the constitution, in ensuring an environment that is not harmful to health and well-being.

None of the waste management activities as stipulated in Section 19 (1) of the NEMWA, gazetted on 3 July 2009, will be triggered through the proposed upgrade of the pump station and pipeline infrastructure.

2.5. National Environmental Management: Air quality Act, Act 39 of 2004

The National Environmental Management Air Quality Act ([NEM:AQA] Act 39 of 2004) was a landmark act which focused on the ambient air quality and the receptor as opposed to the previous act which defined air quality by regulating the emissions which impact air quality. As a result of the NEM:AQA, standards for ambient air quality have been developed which are managed through the local municipalities or provincial municipalities.

The NEM:AQA enabled the publication of the Listed Activities and Minimum Emission Requirements, which require emitters to apply for and obtain an Atmospheric Emissions License (AEL) related to installations such as combustion installations in various industries.

Should any licensing be required in terms of the NEM:AQA, the company renting the erven which require the licensing are to carry out the procedures under their own capacities.

2.6. Conservation of Agricultural Resources Act, Act 43 of 1983

The Conservation of Agricultural Resources Act ([CARA] Act 43, 1983) provides for the:

- Protection of wetlands; and
- Requires the removal of listed alien invasive species.

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The National Department of Agriculture is the responsible authority for enforcing the CARA. This Act also requires that any declared invader species on the proposed site must be controlled according to their declared invader status.

The approved Environmental Management Programme (EMPr), attached as Appendix F, includes the compulsory removal of invader plants from the study area. During the construction phase of each activity which is to occur within the boundary of the proposed CIA development site, it will be the land owner's duty to implement the alien irradiation and monitoring programme. Additional mitigation measures are included in Section 10.

2.7. National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act ([NEMBA] Act 10 of 2004) provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA, 1998; and provides for and includes:

- The protection of species and ecosystems that warrant national protection;
- The sustainable use of indigenous biological resources;
- The fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources;
- The establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith;
- Biodiversity planning and monitoring;
- Protection of threatened or protected ecosystems;
- Protection of threatened or protected species; and
- The control of alien species, invasive species and genetically modified organisms.

Species that are classified as threatened and/or protected are listed in Government Gazette 151 of February 2007 and the regulations are included in Government Gazette 152 of February 2007, with the most recent amendment in Government Notice 576 of July 2011.

Threatened ecosystems in need of protection are listed Government Notice 1002 of December 2011.

The National Environmental Management: Biodiversity Act (10/2004): Alien and Invasive Species Lists, 2016 (No 864) was published on 29 July 2016 in GN 40166. In conjunction with these Regulations, the following Notices and Lists were also promulgated in terms of Sections 66(1), 67(1), 70(1)(a), 71(3) and 71A:

- Notice 1: Notice in respect of Categories 1a, 1b, 2 and 3, Listed Invasive Species, in terms of which certain Restricted Activities are prohibited in terms of section 71A(1); Exempted in terms of section 71(3); require a Permit in terms of section 71(1);
- Notice 2: Exempted Alien Species in terms of Section 66(1);
- Notice 3: National Lists of Invasive Species in terms section 70(1); and
- Notice 4: Prohibited Alien Species in terms of section 67(1).

The study area is located within a protected ecosystem listed in NEMBA (Act 10 of 2004). The study area is located within the Kwambonambi *Hygrophylous* grasslands which are Critically endangered. The area is not located within a EKZNW (2011) defined Critical Biodiversity Area (CBA). Very few alien and invasive species listed in GN 864 of 29 July 2016 were located within the boundaries of the proposed CIA

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development site (Exigent, 2017) and requires mitigation measures as discussed in the Environmental Management Programme, attached in Appendix F. These mitigation measures reflect on the prohibition of the invasion of alien and invasive species into the proposed CIA development site.

2.8. KwaZulu-Natal Nature Conservation Management Act, 1997 (Act 9 of 1997)

The KZN Nature Conservation Management Act ([KZN CMA] Act 9 of 1997) provides institutional structure for nature conservation in KZN. It provides guidelines to the establishment of KZN Nature Conservation Boards, KZN Nature Conservation Services and local boards for the Protected Areas and the formalities associated to each of the bodies.

2.9. National Forest Act, 1998 (Act 84 of 1998)

The National Forest Act, ([NFA] Act 84 of 1998), aims to reform the laws on forest protection and relating matters. The Act provides principle guidelines for sustainable forestry management, special measures used to protect forests and trees within natural forests and protected areas. The Act also provides uses for forests.

Based on an assessment of the list of protected tree species, as identified in Regulations 716 of the NFA, there are 17 species with a distribution range in the study area (Exigent, 2017). A permit will be required prior to removal / destruction of any of these listed specimens. Three of these species, the Swamp fig (*Ficus trichopoda*), Powder-puff tree (*Barringtonia racemosa*) and the Marula tree (*Sclerocarya birrea*) were observed on site during the site visit. The protected tree species were associated with the wetlands of the remnant coastal forests.

2.10. KZN Nature Conservation Ordinance, No 15 of 1974

The KZN Nature Conservation Ordinance ([KZN NCO] No. 15 of 1974) relates to nature conservation and concerns in the province. The ordinance lists the protected and specially protected plants in the province and prohibits the picking, sale, export or removal of protected plants. The ordinance also lists invader weeds, which must be controlled on study area and may not be sold or donated.

Schedule 12 is a list of protected indigenous species which requires a permit from EKZNW for their removal, destruction or prior to being exported from or imported into the Province.

However, in terms of Section 216A of the KZN NCO, the applicant, which is an organ of State, is not bound by the Ordinance.

2.11. Other applicable environmental legislation and guidelines

The following additional guidelines and South African Legislation was considered during the impact assessment phase.

2.11.1. Other Legislation

- Constitution of the Republic of South Africa Act, 1996 (Act 108 of 1996) with particular reference to section 24 of this Act

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2.11.2. Guidelines

- DEAT, 2002. Integrated Environmental Management, Information series 3: Stakeholder Engagement;
- DEAT, 2002. Integrated Environmental Management, Information series 4: Specialist Studies;
- DEAT, 2002. Integrated Environmental Management, Information series 12: Environmental Management Plans;
- DWAF, 2008. *Updated manual for the identification and delineation of wetlands and riparian areas*. Department of Water affairs and Forestry. Pretoria. South Africa.
- DEAT, 2004. Integrated Environmental Management Information Series, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- DEAT, 2010. NEMA Draft Implementation guideline. Public participation.
- DEAT, 2010. NEMA Draft Implementation guideline. Companion Document on the Environmental Impact Assessments Regulations.

3. DESCRIPTION OF RECEIVING ENVIRONMENT

The proposed CIA development is located within the Indian Ocean Coastal Belt Biome and has been further categorised as the Maputaland Coastal Belt vegetation type by Mucina and Rutherford (2006). The following sections describe the general characteristics of the area surrounding areas which may be impacted upon by the proposed municipal development.

3.1. Climate

The climate of the general area can be described as summer rainfall towards the interior of the Maputaland Coastal Belt but comprise generally of a weak rainfall seasonality, especially closer to the coast. The study area experiences relatively high precipitation reaching mean annual precipitation (MAP) values of approximately 1200 mm. High humidity and temperatures are experienced during summer months with the mean maximum temperature being 35.3 °C and a mean winter temperature of 5.5 °C. (Mucina & Rutherford, 2006).

The Richards Bay area sees most of its rainfall events occurring in the summer months with the maximum precipitation occurring in February, with an average of 137 mm. The average temperatures for this area varies between an average maximum temperature of 29 degrees Celsius in the summer months and that of 23 degrees Celsius during the winter months (Climate-Data.org, 13/02/17).

3.2. Geology topography and soils

The Maputaland Coastal Belt is generally a relatively flat landscape. It comprises of 18 000 years old quaternary sediments of marine origin mainly with yellowish and argillaceous redistributed sands of the Berea and Muzi Formations (Maputaland Group). The soils are nutritiously very poor and well leached, except in the interdune depressions where organic-rich soils are often present (Mucina & Rutherford, 2006). The main land types "Ha" and "Hb" present on site may include the Constantia, Shepstone and Vilafontes soil forms while the less distributed "Db" land type on site is associated with a wide variety of geological units such as the basement granites, Natal Group sandstones, Dwyka tillites, Ecca shales and sandstones, mudstones, shale and/or sandstones of the Escourt, Emakwezini, Nyoka, Ntabene and

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Clarens Formations, siltstone/sandstone of the Zululand Group and some Cenozoic deposits. The “Db” broad soil pattern are generally situated in low gradient slopes and are therefore prone to inundation/flooding. “Db” landtype unit is characterised by duplex soils with non-red B horizons (Council for Geoscience, 2012).

The proposed CIA development is underlain by the Kwambonambi Formation which is light grey-brown and pale yellow. The clay content of the soil increases downward into the soil profile, probably originating from the Port Durnford sandy clays (Drennan, Maud and Partners, 2008). The Kwambonambi formation as well as the Port Durnford formation forms part of the Maputaland Group. The older Port Durnford formation consists of mainly carbonaceous mudstone and claystones. The Kwambonambi formation consists of a variety of grey, orange and red sands. Peat occurs on the seaward, wetter margins of this formation (Roberts *et al.*, 2006).

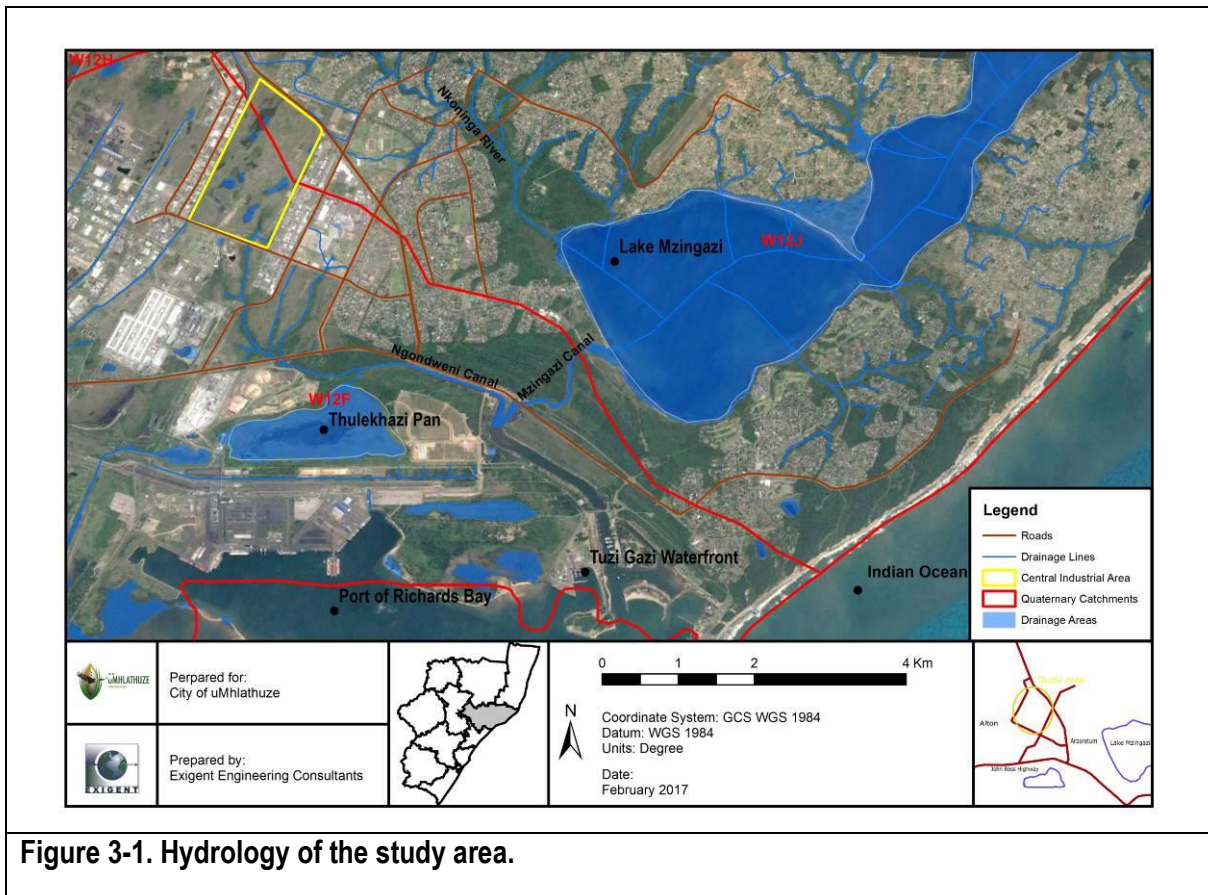
The proposed CIA development site mainly comprises of light grey to light brown sandy soils which dominates the soil profiles. The permanently and, upon occasional, seasonally wet areas within the site contain peat soils. Peat is a highly organic soil which is of high conservative importance. The peat exhibits a black colour which varies in humification scale and depth across the site.

3.3. Hydrology

The proposed CIA development site is located within the W12F and W12J quaternary catchments (Figure 3-1). The proposed project find itself in the Usutu to Mhlathuze Water Management Area (WMA), and Sub-Catchment: Mhlathuze Sub-area. The major water resources of the uMhlathuze Catchment are the uMhlathuze and Nseleni rivers, Goedertrouw dam and several irrigation dams and impoundments, several lakes and pans (such as Lake Cubhu, Mzingazi Lake, Nhlabane Lake and Nsezi Lake). Other sources of water include riparian areas along most of the riverine habitat, hillslope seepages, valley bottom wetland systems and the Mhlathuze River Floodplain and Estuary (DWA, 2014).

The proposed development is located within the Indian Ocean Coastal Belt Group 1 Wetland vegetation type (NFEPA, 2012). This wetland vegetation type is classified as Least Threatened. All Swamp Forest wetland habitat within the Usutu to Mhlathuze WMA however, is categorised as highest priority and are important to conserve (DWA, 2014). Dominant land uses in this catchment include cultivation, forestation, communal lands, urbanisation and developments, infrastructure, nature reserves and dams and impoundments (DWA, 2014).

The hydrology of the area surrounding the proposed CIA development site has been projected in Figure 1-3. In this image, it can be seen that a large tributary of the Ngondweni channel originates within the site boundary. Various artificial drainage lines run parallel to the proposed project boundary, draining the water from both the development site, as well as surrounding properties. There are also numerous open water bodies within the proposed site boundary which are expected to drain into the larger Ngondweni channel. The Ngondweni channel feeds into the Thulazihleka Pan. This Pan feeds into the Mzingazi Canal as well as the Richards Bay harbour.



The National Freshwater Ecosystems Priority Areas (NFEPA) database contains various water and water related features, including the wetland delineation and vegetation data, catchment information, area of high groundwater recharge and water management areas within South Africa. The NFEPA (2012) database indicates that the study area is in Indian Ocean Coastal Belt Group 1 area. Figure 3-2 depicts NFEPA wetland areas within the proposed development boundary. The wetland data indicates the presence of three wetland types within the proposed development boundary, these wetland types include two valley floor wetlands, a bench wetland and numerous slope wetlands scattered across the development area. No NFEPA classified rivers flows within the development boundary. The closest NFEPA river is the Nundwane River located towards the west of the proposed development site.

After site inspection, it was determined that the all of the three types NFEPA defined wetlands are in fact larger intertwined valley bottom system which provides water to the Ngondweni channel and in return to the Thulazihleka Pan. The valley bottom wetland system has been described in the vegetation and wetland specialist report.

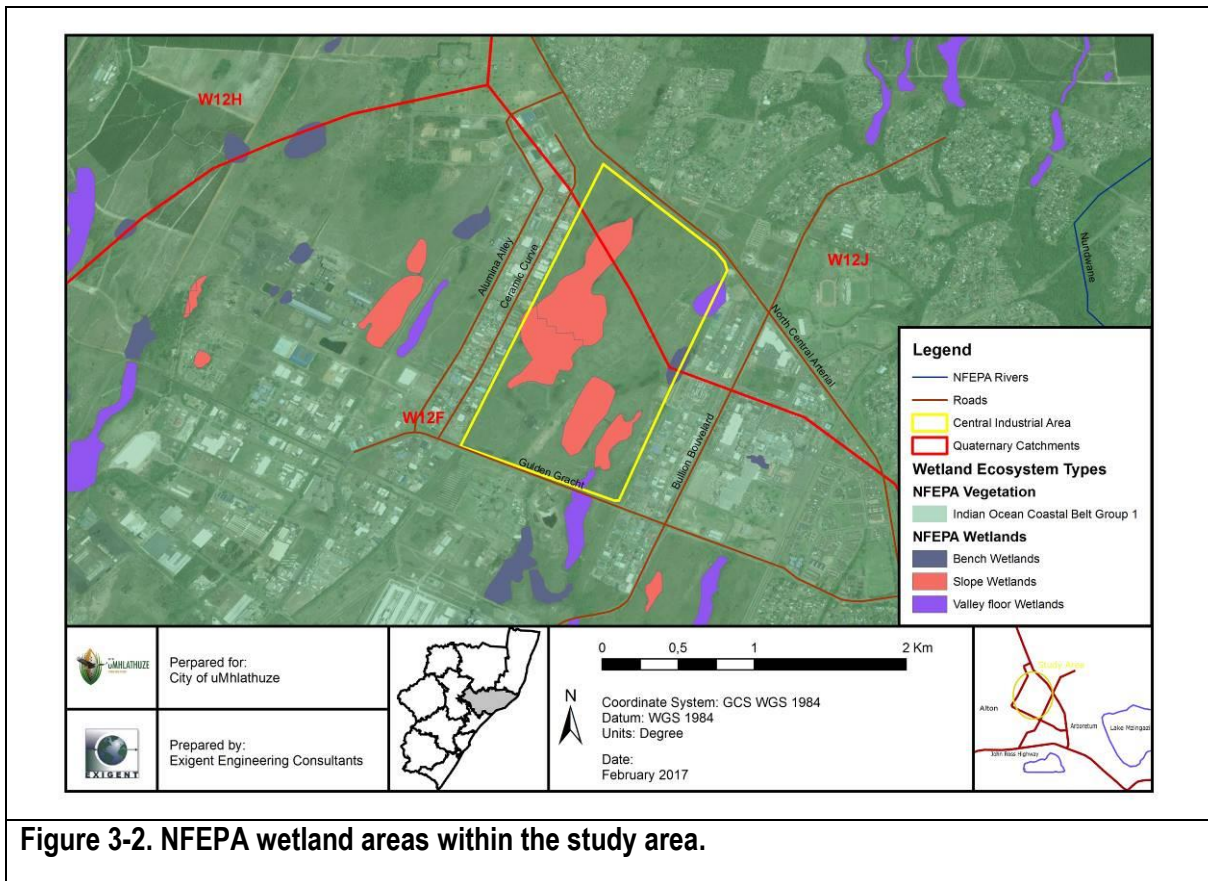


Figure 3-2. NFEPA wetland areas within the study area.

3.4. Vegetation

The proposed CIA development site is located within the Indian Ocean Coastal Belt Biome, as part of the Maputaland Coastal Belt vegetation type (Mucina & Rutherford, 2006). The EKZNV Vegetation Map data (2011) however further classifies the study area into three biomes of various vegetation units. These include the Maputaland Wooded Grassland as part of the Indian Ocean Coastal Belt Biome, Subtropical Freshwater wetlands, subtropical alluvial vegetation and *Ficus trichopoda* Swamp Forests as part of the Azonal Biome and Coastal Lakes which form part of Water bodies (Figure 3-3).

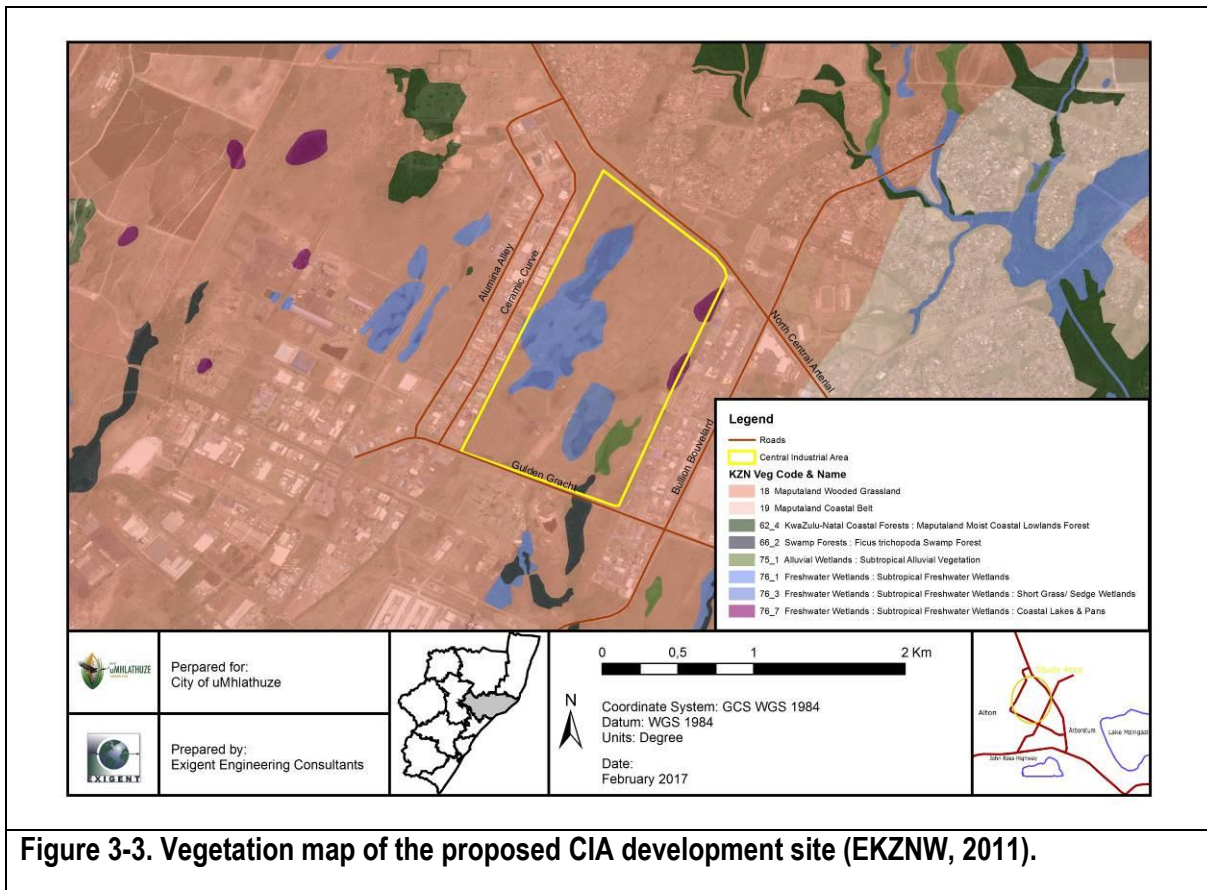


Figure 3-3. Vegetation map of the proposed CIA development site (EKZNW, 2011).

The wetland vegetation type is imbedded within all mainland biomes of South Africa. Siebert *et al.* (2011) confirms the presence of Maputaland Wooded Grassland as far south as Richards Bay. Mucina & Rutherford (2006) recognise the Maputaland Wooded Grassland vegetation type as a vegetation unit embedded within the Maputaland Coastal Belt but it has been treated as a separate vegetation unit.

The proposed development is located solely within the critically endangered ecotype of the Ecosystem Threat Status as classified by the National Biodiversity Assessment (SANBI 2011, Figure 3-4). According to Musina and Rutherford (2006) the Maputaland Coastal Belt vegetation type is classified as Vulnerable (VU). Small percentages of Maputaland Coastal Belt are being conserved in Nature Reserves such as the iSimangaliso Wetland Park, Sileza, Enseleni and Amathikulu while a large percentage have already been transformed by plantations, cultivation, and urban sprawl. Typical alien and invasive species found are *Lantana camara* and *Chromolaena odorata* (Mucina & Rutherford, 2006).

EKZNW's dataset (2011) classifies the various vegetation types into four different conservation statuses. The *Ficus trichopoda* Swamp Forest has been classified as being Critically Endangered (CR). The Maputaland Wooded Grasslands and the Alluvial wetlands: Subtropical Alluvial Vegetation has been classified as being Endangered (EN). The Freshwater wetlands: Subtropical Freshwater wetlands has been classified as being Vulnerable (VU). The Freshwater wetlands: Subtropical Freshwater wetlands: Short Grass / Sedge wetlands along with the coastal lakes have been classified as being Least Threatened (LT) (EKZNW, 2011).

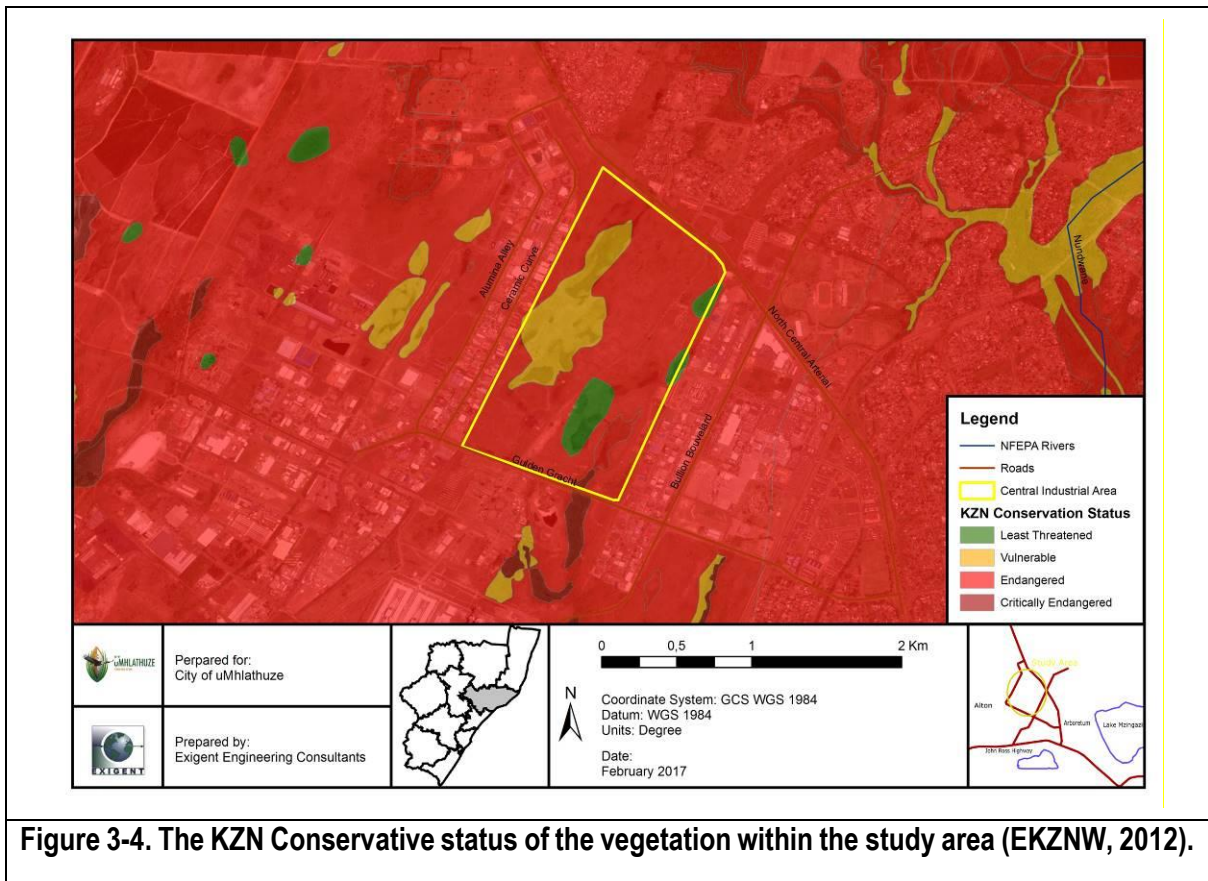


Figure 3-4. The KZN Conservative status of the vegetation within the study area (EKZWN, 2012).

Based on EKZWN Minset data (2012), the proposed CIA development site lies within the features classified as Biodiversity Area (Figure 3-5). Areas identified as Biodiversity Areas (BAs) represent the natural and/or near natural environmental areas (i.e. non-transformed areas) not identified within the optimisation software output. This lack of selection should not be misinterpreted as reflecting areas of no biodiversity value. Whilst it is preferred that development be focussed within these areas, this still must be conducted in an informed and sustainable manner (EKZWN, 2012).

Based on the Exigent (2017) site inspection and the environmental authorisation (2012) obtained for this project, it has become clear that the proposed CIA development site is of great biodiversity concern, and the preservation of the biodiversity corridor is of fundamental importance.

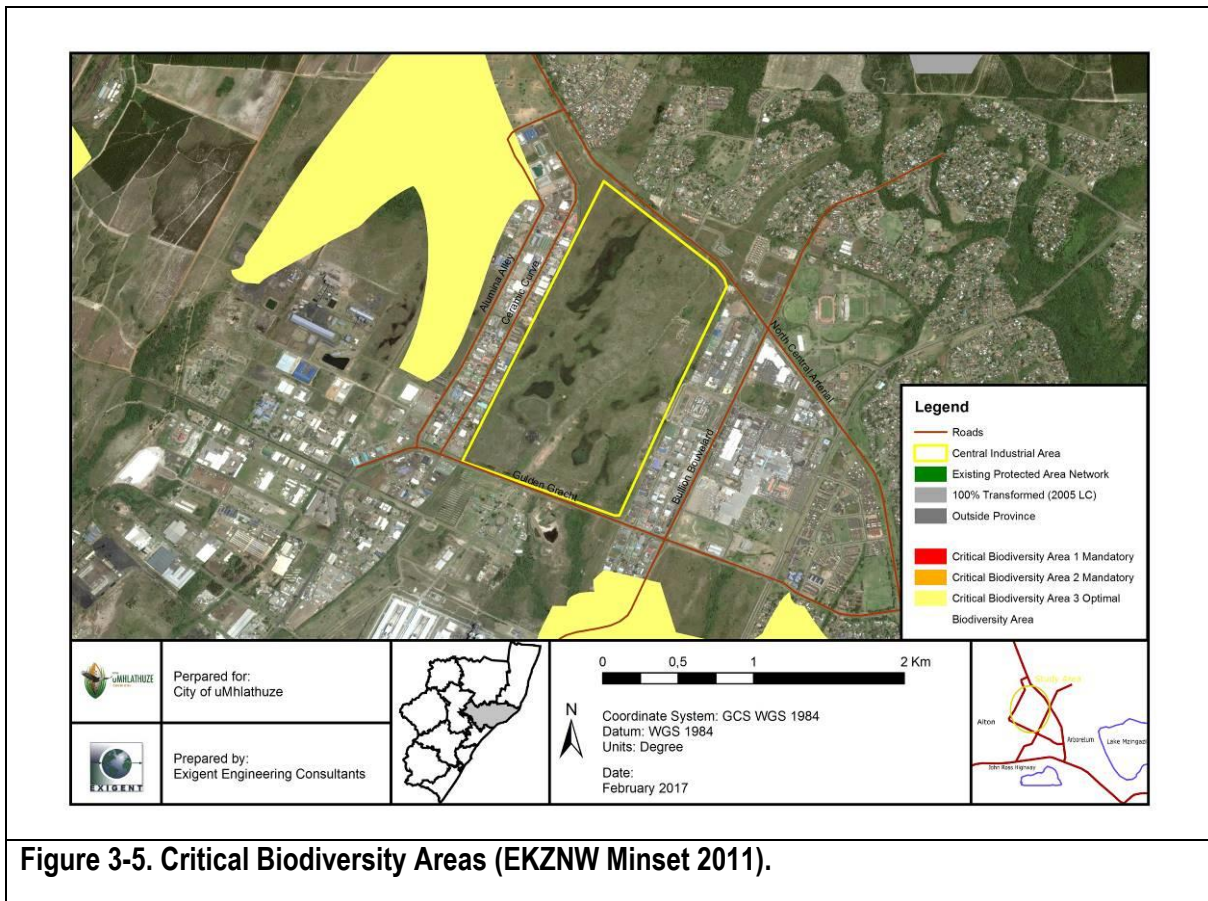


Figure 3-5. Critical Biodiversity Areas (EKZNW Minset 2011).

3.5. Social and socio-economic environment

The proposed CIA development site lies within the uMhlatuze Local Municipality. The population size of the municipality is 334,459 people of which 31% of people are unemployed and 40.8% of the youth are unemployed (www.statssa.gov.za, 15/02/2017). According to Statistics SA (www.statssa.gov.za, 15/02/2017) 7,5% of the population have no schooling. Out of the 334 459 people in the municipality only 18.8% have completed secondary school and a small number of only 14,6% of people have higher education (www.statssa.gov.za, 15/02/2017).

Employment rates are usually associated with education levels therefore employment and incomes have been based on education levels. 10.5% of the population comprises of children that are younger than 15 years old. A high level of 15% of the population do not have an income. An estimated number of 18210 people are employed, 38532 people are unemployed, and 12948 are discouraged work seekers and 88314 people are not economically active (www.statssa.gov.za, 15/02/2017).

4.5.1 uMhlatuze Local Municipality Integrated Development Plan (IDP)

According to the ULM's Integrated Development Plan (IDP) as updated for the 2015/16 period, the ULM is the largest municipality within the King Cetshwayo (Previously known as uThungulu) District Municipality. According to the 2011 census the uMhlatuze Local Municipality houses 334 459 people which is an estimated 15% increase from the previous census cycle in 2001. The population growth rate within the Municipality is approximately 1.45% increase per annum. Based on this projected growth rate,

the population size was estimated to be 354 284 people in 2015 (UIDP, 2015/16). Should the projected population growth rate be higher there would be a significant increased pressure for improved municipal services.

According to the age breakdown defined by the Municipal IDP the majority of the ULM consists out of the generation group between the ages of 15 and 64. This generation group contributed 67.5% of the ULM's population and 60.7% of the District's population in 2011 (UIDP, 2015/16). The 2011 population pyramid for the ULM suggests that the municipality has an expanding or increasing population wherein which a slight youth bulge can be observed. Engineering

4.5.2 King Cetshwayo District Municipality IDP

According to the King Cetshwayo District Municipality IDP (uThungulu IDP, 2015) the region has a high agricultural potential and the naturally fertile soil is favourable for sustainable agricultural practices.

The vision of the King Cetshwayo District Municipality is to create a economically viable district which contains effective infrastructure which encourages job creation through economic growth, rural development and which promotes the district's heritage. The core values of the District are that of integrity, transparency, commitment, co-operation, innovation and accountability.

The King Cetshwayo District Municipality extends over 8 213 km² and houses a population of 907 519 people. The District has a total of 202 976 households whereby 80 % of these households are that of the rural population and 20 % are that of the urban population. The gender distribution over the municipality indicates that 47.1 % of the population within the district consists of males and females contribute to 52.9 % thereof. The life expectancy of the population was set at 57.1 years based on the 2011 census. A majority of the population's households has an annual income which ranges between R 9 601 and R 38 200, with 14 % of the population not receiving any income at all. The IDP (2015) revealed that 80.6 % of the District's population have an income which is less than R 76 400 per annum.

The main economic contributors of the District in 2011 includes agriculture, mining, construction, retail, communication, Finance & Bus services, communication & social services, general government, utilities (which has the smallest contribution in the list) and manufacturing (which has the largest contribution).

Key challenges which the District faces include:

- Basic service delivery
- Local Economic Development
- Governance and Public Participation
- Municipal Transportation and Organizational Development
- Municipal Financial Viability and Management
- Spatial Planning and Spatial Development Frameworks

It is stated that the region has a high agricultural potential, which has not been properly employed. There is a great opportunity when it comes to improving the agricultural sector as a majority of the population (close to 80%) reside in the poverty stricken rural areas (uThungulu IDP, 2015). There is a need for this sector to be properly marketed, developed & improved especially when it comes to agricultural based programmes, farmer support and fresh produce market establishment. Growth and involvement in this sector should be encouraged as this sector provides an opportunity to assist in alleviating poverty and

unemployment. As unemployment is quite high in the King Cetshwayo district, Small, Medium and Micro Enterprises (SMMEs) play a vital role. Adequate attention should therefore be given to entrepreneurs in the development of new and sustainable SMMEs. The mining sector although one of the biggest contributors economically has a negative effect on the environment and its resources and therefore is not encouraged.

A number of hindrances to the growth of the economic sector within the King Cetshwayo District Municipality have been identified, notably:

- Impact of HIV and AIDS on labour
- Brain drain to more urbanised locations
- Lack of funding for SMME's
- Lack of capacity in terms of skills in LED sections of Local Municipality
- Lack of funding and business skills for SMME's
- Lack of access to markets

The following critical steps in developing and promoting the economic sector in the District are noted:

- Availability of labour in the district
- Broad based tourism appeal
- Strong agricultural sector
- Good transportation networks (roads and rail)
- Availability of relevant sector plan (Local Economic Development strategy)
- Effective Inter-governmental relation (IGR) structures

4. ADVANTAGES AND DISADVANTAGES

The National NEMA Regulations require that the Advantages and Disadvantages of the proposed project be outlined as part of the Impact Phase. The following section will describe the motivation, advantages and disadvantages of the proposed amended project as set out in General Notice 891 of 2014.

4.1. Motivation for the proposed amendment

In order to boost the economic sustainability of the uMhlathuze Local Municipality an additional industrial area has been proposed. This industrial area aims to attract both local and distant investors. The motivation, as stated by the uMhlathuze Local Municipality, for the proposed CIA development site is that Richards Bay has been identified as one of eight South Africa's Industrial Development Zones (IDZ's). The justification of the IDZ's are to encourage international competitiveness with regard to the manufacturing sector.

Local economic development has been determined to be one of the key challenges which has been identified within the King Cetshwayo District Municipality (uThungulu IDP, 2015). The development of the proposed CIA will allow advancement in the critical step of labour enforcement over a long period of time within the District.

The motivation surrounding the proposed amendment of the CIA development site is to accommodate a larger developable area, whilst taking into consideration the connectivity of the various habitats, which have been identified by the specialist, on the proposed CIA development site.

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4.2. Advantages of the proposed amendment

The advantages of the proposed amended development site have been evaluated in light of economic development and social development.

In an economic development sense the proposed amended layout will boost the economic viability of the usage of the development site as it enlarges the area which will be made available for the future developments within the CIA. This will promote economic growth within the uMhlathuze Local Municipality and in turn the King Cetshwayo District Municipality. Due to Richards Bay being earmarked as one of the eight industrial development zones of South Africa, a larger development site will reflect on the country's economics as well. The proposed amended layout will provide an increased amount of local labour of both skilled and unskilled labourers during the construction phase of the proposed project.

The proposed amended layout will improve the social environment of the areas located within close proximity to the development site. Due to increased surveillance within the proposed development area, security will be improved on site.

4.3. Disadvantages of the proposed amendment

When regarding the disadvantages of the proposed amended layout are being considered from a biophysical perspective.

The loss of the biophysical environment, specifically the wetland vegetation communities within the site boundaries will be impacted upon by the proposed layout.

5. PARTICIPATION PROCESS

5.1. Objectives

The primary objectives of the Public Participation Process (PPP) include:

- Meaningful and timeous participation of the Interested and Affected Parties (I&APs) and stakeholders;
- Identification of issues and concerns of key stakeholders and I&AP with regards to the proposed development, i.e., focus on important issues;
- Promotion of transparency and an understanding of the proposed project and its potential environmental (social and biophysical) impacts;
- Accountability for information used for decision-making;
- To serve as a structure for liaison and communication with I&APs and stakeholders; and

5.2. Land owners

The landowner of the property which has been earmarked for the proposed amended CIA development site is the City of uMhlathuze.

5.3. Approach

5.3.1. Identification of and Consultation with Key Stakeholders and Landowners

The first step in the PPP entails the identification of key I&APs and Stakeholders. These include:

- Local and provincial government;
- Affected and neighbouring landowners; and
- Environmental Organisations.

Identification of I&APs will take place through existing databases, door to door interaction, responses to newspaper advertisements, networking and a proactive process to identify key I&APs within close proximity to the study area. All I&AP information (including contact details), together with dates and details of consultations and a record of all issues raised will be recorded within a comprehensive database of affected landowners (and occupiers where relevant). This database will be updated on an on-going basis throughout the project process, and will act as a record of the communication/involvement process. This database will be prepared and be continually updated by Exigent throughout the course of the PPP for the proposed amendment of the CIA development site and will be utilised to record I&APs and stakeholder responses throughout the process. Surrounding land and business owners and key stakeholders will be given the opportunity to comment during the public review period of this amendment report.

The following stakeholders, in terms of Government Organisations and Environmental Organisations, were identified prior to the proposed project's public review period:

- DWS;
- DAFF;
- Department of Health;
- Department of Transport;
- Amafa;
- EKZNW;
- uMhlathuze Local Municipality (they are the applicant);
- King Cetshwayo District Municipality;
- Ward Councilor 2 (of uMhlathuze Local Municipality);
- ESKOM; and
- Water Resource Committee (and Working for Wetlands).

In addition to the entities listed above, all business / property owners located adjacent to the proposed CIA development have been identified as stakeholders (Affected parties) for the purpose of the commenting period on the amendment report for the proposed CIA development site.

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5.3.2. Advertising

In accordance with the EIA Regulations, the review period for the Amendment Report will be advertised in the local newspaper. An English and isiZulu advert will be placed in the Zululand Observer on 29 April 2017 indicating the availability of the Amendment report for public commenting.

Copies of the newspaper advertisements will be included as part of Appendix D3 of the Final Amendment report.

5.3.3. Draft Environmental Authorisation Amendment Report

A draft Environmental Authorisation Amendment Report has been compiled distributed to the I&APs and relevant stakeholders for the proposed amendment of the CIA development layout. The aim of the Amendment report is to provide a detailed description of the proposed amendment which has been set forth by the applicant as well as to explain how I&APs can become involved in the project.

5.3.4. Public and Authority review of the draft Environmental Authorisation Amendment Report

The draft Environmental Authorisation Amendment Application will be made available for review from 26 April 2017 to 29 May 2017 for download from public.exigent.co.za.

Hard copies will be posted to the pre-identified key stakeholders and electronic copies will distributed to all I&APs whom register during the commenting period.

A 30-calendar day period will be allowed for this review process. All I&APs and Stakeholders on the project database will be notified of the availability of this report by letter, facsimile or e-mail. Copies of the draft report will be submitted to the DEDTEA. The DEDTEA will request all state departments that administer a law relating to a listed activity to comment on the draft Environmental Authorisation Amendment Report within 30 calendar days from date of submission.

5.3.5. Issues Trail (Comments and Response Report)

Issues and concerns raised during the PPP will be compiled into a Comments and Response Report (CRR) (Appendix D5), where responses will be provided by Exigent and the project team. Information from the PPP held for the Amendment Report Process will be incorporated into the final Amendment Report.

From this CRR, an action list will be compiled detailing those actions which the ULM are required to undertake in order to address specific issues raised.

5.4. Key issues from I & AP's and Stakeholders

Following publication of the adverts, placing of the site notices and circulation of the draft Amendment Report, the comments received from I&AP's and stakeholders for the proposed CIA development will be captured. These comments will be contained and responded. Copies of the original comments received will be provided within Appendix D4.

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6. SUMMARY AND FINDINGS OF THE SPECIALIST STUDIES

Only one specialist study has been conducted for the proposed amendment for the CIA development site. This report has been attached in Appendix C. It follows:

- Wetland Delineation and Functionality Assessment Report (Appendix G2).

The specialist study with the key findings have been summarised below.

6.1. Wetland Delineation and Functionality Assessment Report

A wetland delineation and functionality assessment was done by Exigent Engineering Consultants CC for the proposed amended CIA development site in Richards Bay. Wetland delineation and functionality assessment

The wetland assessment identified three different wetland vegetation communities within a large wetland system. These three wetland vegetation communities include:

- The Grassy / sedge freshwater wetlands;
- Wetlands associated with the remnant coastal forest; and
- Reed / bulrush wetlands in drainage channel.

Grassy / sedge freshwater wetlands

The grassy / sedge freshwater wetlands are the largest vegetation community and stretches approximately 92,6 hectares across the proposed amended development site. These wetlands had a unit of each of the wetness zones located within them (temporary, seasonal and permanently wet zones). Due to this, the vegetation within this unit varied greatly were species such as the obligate water plant species such as *Nymphaea nouchali* and *Nymphoides thunbergiana* (In the permanently wet zones) to *Kyllinga alba*, *Cynodon ductylon* and *Eragrostis racemosa* (In the seasonally and temporally wet zones) (Figure 6-1). The table below presents to be a summary of the species list which has been identified during the site visit.



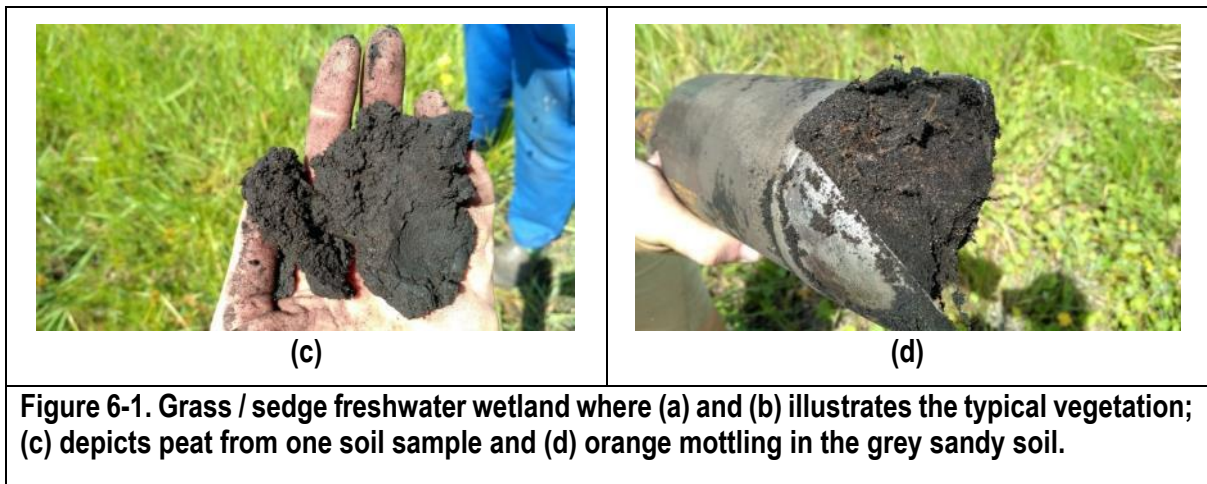


Table 6-1. Species recorded for the Grass / Sedges freshwater wetlands.

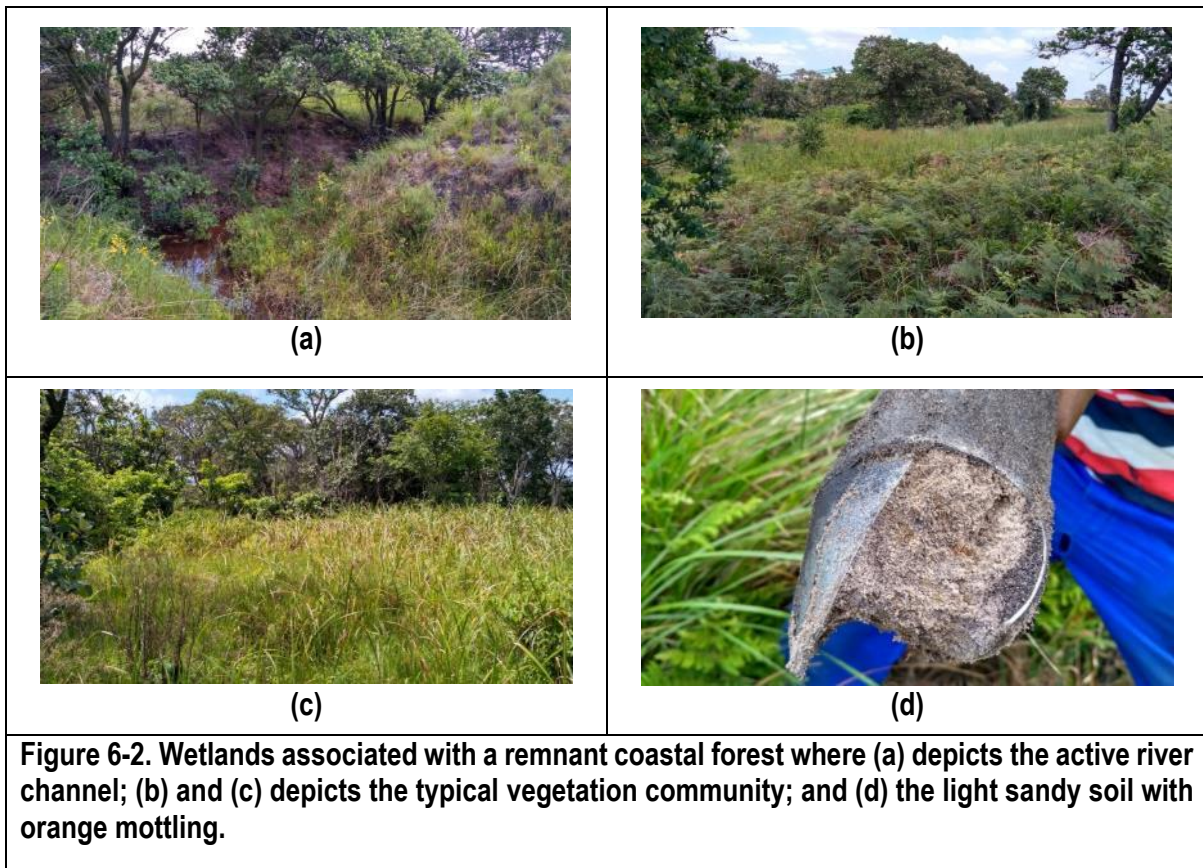
<i>Nymphaea nouchali</i>	<i>Nymphoides thunbergiana</i>	<i>Kyllinga alba</i>
<i>Cynodon dactylon</i>	<i>Eragrostis racemosa</i>	<i>Ascolepis capensis</i>
<i>Bulbostylis hispidula</i>	<i>Centella asiatica</i>	<i>Cyperus articulatus</i>
<i>Cyperus congestus</i>	<i>Cyperus fastigiatus</i>	<i>Cyperus longus</i> var. <i>tenuiflorus</i>
<i>Cyperus natalensis</i>	<i>Eleocharis acutangula</i>	<i>Isolepis cernua</i>
<i>Juncus lomatophyllus</i>	<i>Imperata cylindrica</i>	<i>Ischaemum fasciculatum</i>
<i>Typha capensis</i>		

Peat was found within this wetland vegetation community during the sampling period. The general observations revolving around the peat which was found within this community was that the top 10 cm of the sampling point's peat was undecomposed (H4 on the Von Post Humification scale) thereafter, the peat was ranged between H7 to H8 on the Von Post Humification scale (partially decomposed). Upon average the thickness of the peat layer was approximately 30 cm thick, with very little mottles within them. This wetland vegetation community was awarded a Present Ecological Status (PES) value of B and an Ecological Importance and Sensitivity (EIS) value of B.

The impacts upon this wetland vegetation community was limited with footpaths only traversing the temporarily wet zones of the wetland. Alien invasive species were located only in areas within close proximity to the existing tar road traversing the wetland community. The alien and invasive species which were identified within this wetland community included *Bidens bipinnata*, *Bidens pilosa*, *Chromolaena odorata*, *Ipomoea purpurea*, *Lantana camara*, *Ricinus communis* and *Tagetes minuta*.

Wetlands associated with the remnant coastal forest

This is a channelled valley bottom wetland which has been associated with the concentrated surface flow from a tributary which leads into the Ngondweni channel. The extent of this vegetation community is approximately 16,1 hectares and has species which are typical to those found within coastal forests. Due to anthropogenic influences the species density has been reduced which has led to the opening of the canopy (Figure 6-2).



Along with protected species such as *Ficus trichopoda* (Swamp fig) and *Barringtonia racemosa* (Powder puff tree), the riparian zone is vegetated with a variety of species. *Imperata cylindrica* is present towards the edge of the coastal forest. Peat has been identified within this vegetation community. The peat was found up to a depth of 30cm and humified classified as a H7 on the Von Post Humification Scale. The peat is underlain by a light sandy soil horizon. This wetland vegetation community was awarded a PES value of C and an EIS value of C.

Table 6-2. Species list for the remnant coastal forest.

<i>Barringtonia racemosa</i>	<i>Ficus trichopoda</i>	<i>Brachylaena discolor</i>
<i>Sterilitzia Nicolai</i>	<i>Syzygium cordatum</i>	<i>Pheonix reclinata</i>
<i>Bridelia micrantha</i>	<i>Macaranga capensis</i>	<i>Tarenna pavettoides</i>
<i>Grevia occidentalis</i>	<i>Pteridium aquilinum</i>	<i>Nephrolepis biserrata</i>
<i>Cyperus fastigiatus</i>	<i>Phragmites australis</i>	<i>Typha capensis</i>

Due to the protective nature of the canopy provided by the coastal forest, this wetland vegetation community has numerous anthropogenic influences exercised upon it. The homeless utilise it as an area of refuge. The inundated areas are used by these refugees for sanitary purposes. Other impacts which impact this wetland includes the artificial channel which runs *parallel on the eastern border of the study area, adjacent to the edge of this vegetation community. Several alien invasive species have established here. They include but are not limited to Chromolaena odorata, Lantana camara, Pennisetum clandestinum and Ricinus communis.*

Reed / Bulrush wetlands in drainage channel

Artificially channelled wetlands are located along the eastern, southern and western boundaries of the study area. These channels are permanently inundated. The eastern channel is particularly wide along the northern portion and is dominated by the plant species *Imperata cylindrica*. Here a berm allows access for pedestrians and vehicles into the study area. Other species typically found in the permanent zones were *Nymphaea lotus*, *Phragmites australis* and *Typha capensis*. Natural seasonal and temporary zones are located to the west of this eastern drainage channel. It is approximately 11,3 in extent. This wetland vegetation community was awarded a PES value of D and an EIS value of C.

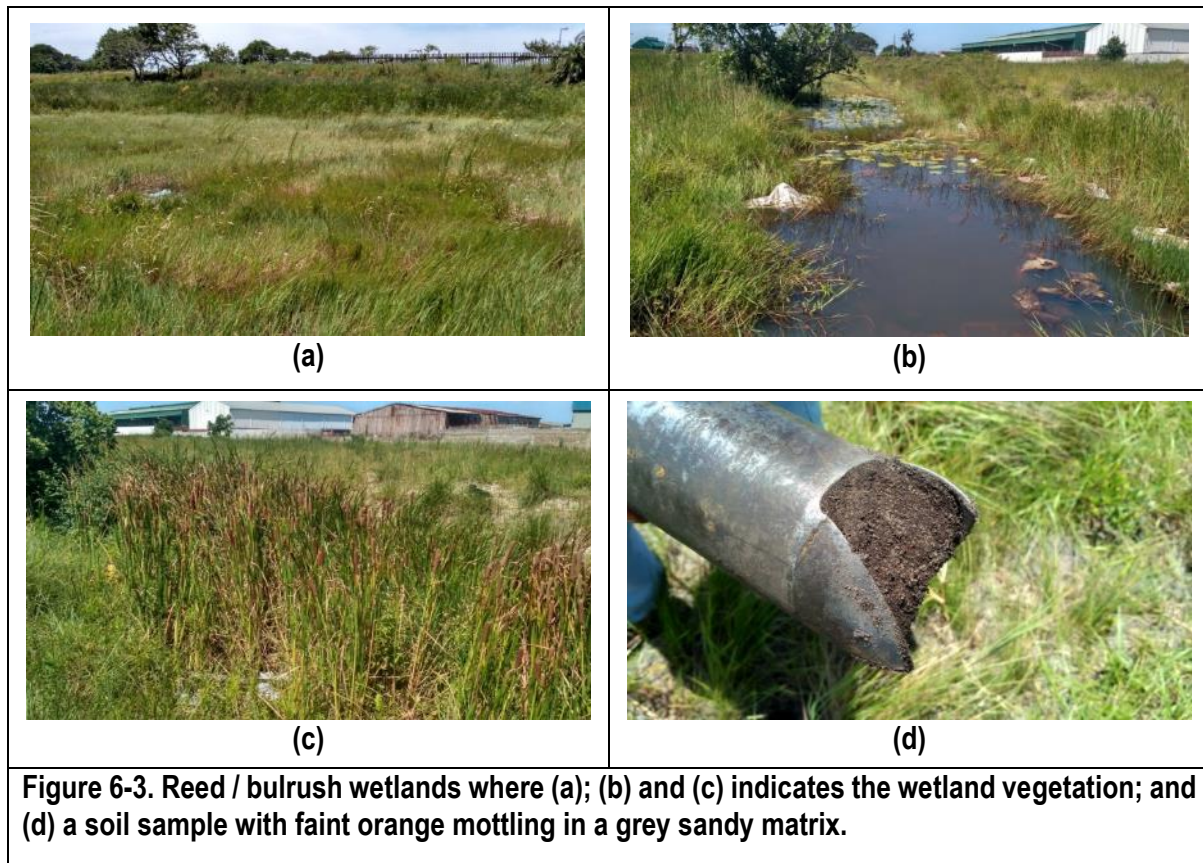


Figure 6-3. Reed / bulrush wetlands where (a); (b) and (c) indicates the wetland vegetation; and (d) a soil sample with faint orange mottling in a grey sandy matrix.

As a result of the close proximity of this wetland vegetation community to the commercial and industrial areas of Richards Bay, the anthropogenic influences on this wetland community are more evident than those observed on the other communities within the proposed amended CIA development site. Impacts included signs of diesel or oil spillages, rubbish dumping in and alongside the wetland and footpaths traversing the wetlands. Leading to the invasion of alien and weed species. These include species such as *Chromolaena odorata*, *Conyza albida*, *Datura stramonium*, *Hibiscus trionum*, *Ipomoea purpurea*, *Lantana camara*, *Melia azadarach*, *Psidium guajava*, *Pteridium aquilinum*, *Ricinus communis*, *Rumex crispes* and *Solanum mauritianum*.

Two different types of Hydrogeomorphic (HGM) units have been distinguished within the regulatory area, these are channelled valley bottom wetlands, which include the *Barringtonia racemosa* swamp forest and the *Pennisetum clandestinum* – *Cynodon dactylon* wetland. The other HGM unit is the unchannelled valley bottom wetlands which have been distinguished, this HGM unit includes the *Phragmites australis* wetland and the *Typha capensis* – *Cyperus fastigiatus* wetlands

The buffer zone which has been proposed around the wetlands has been done so around the areas of permanent wetlands and around those areas which contain peat soils within them. This has been done as peat soils is of high conservation concern. Therefore, a 50 m buffer has been proposed around these areas. In this, all of the permanently wet zones, a majority of the seasonal zones and portions of the temporarily wet zones will be protected. This will add a sense of connectivity to the wetlands within the proposed amended CIA development site.

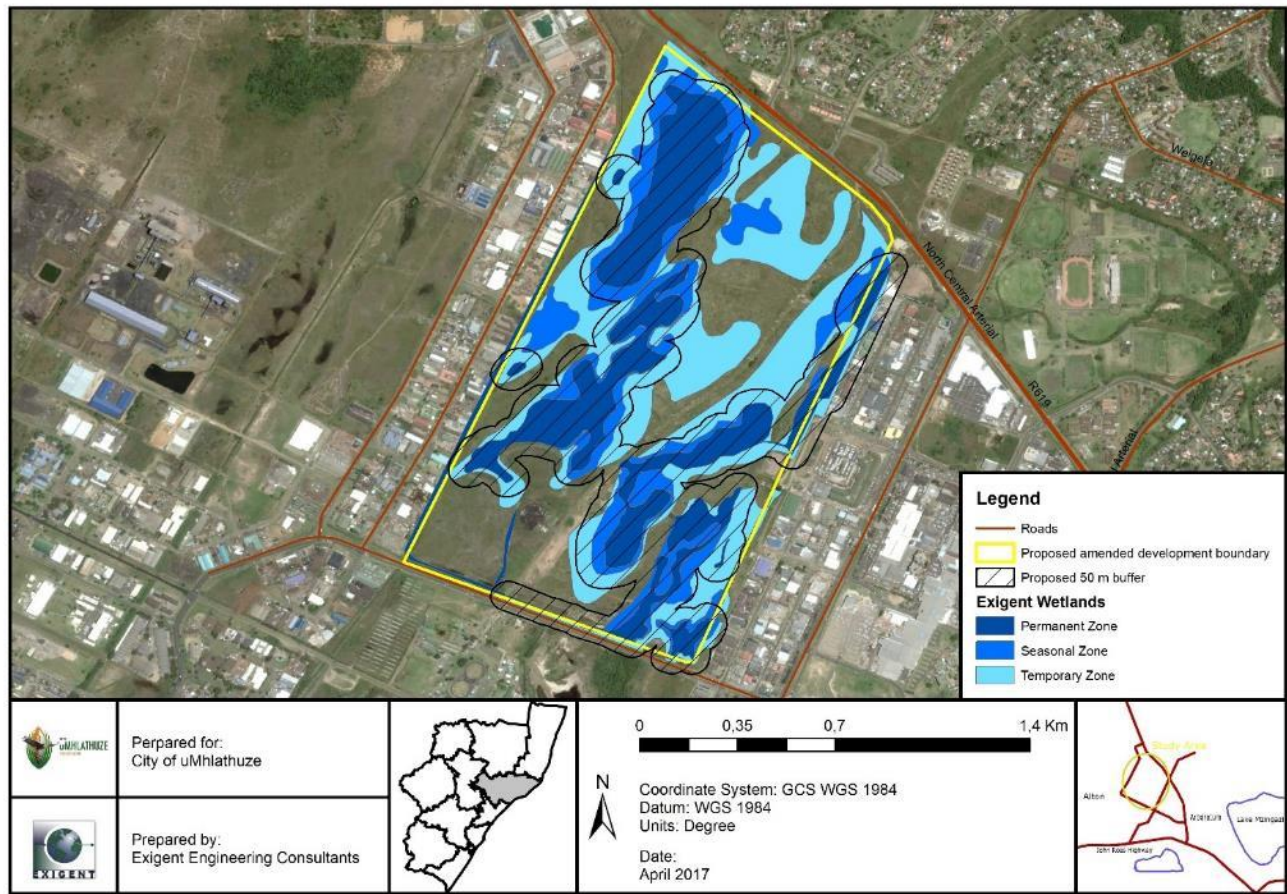


Figure 6-4. Wetland communities within the regulatory area along with their associated buffers.

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6.1.1. Plants of concern

KZN Nature Conservation Act protected and specially protected species

None of the species which have been described as having a likelihood of appearing within the proposed amended CIA development site has been observed within the boundaries during the site visit. Should the species be observed during the construction phase of the proposed project, they would require a permit of removal from EKZNW.

DAFF Protected tree species

According to the DAFF Protected tree species list the *Ficus trichopoda* (Swamp fig), the *Barringtonia racemosa* (Powderpuff tree) and the *Sclerocarya birrea* (Marula) are all three protected tree species. All of the trees of protection status require a permit for the removal of them.

Red-listed plant species

The following species have been listed as Red Data species and all have a high probability of occurring within the proposed project footprint:

- *Eulophia speciose*
- *Aloe cooperi*
- *Aloe linearifolia*
- *Cineraria atriplicifolia*
- *Kniphofia leucocephala*
- *Kniphofia littoralis*
- *Raphionacme lucens*
- *Restio zuluensis*

The following species have a medium to high probability of occurring within the proposed project footprint, whereas the last species has a medium probability of occurrence.

- *Elaeodendron croceum*
- *Asclepias grodongraevae*
- *Cyperus sensilis*
- *Freesia laxa* subsp. *azurea*
- *Adenia gummifera* var. *gummifera*

Alien and invasive species

The following alien and invasive and weed species were observed within the regulatory area of the proposed infrastructure upgrade project.

- *Chromolaena odorata*
- *Solanum mauritianum*
- *Psidium guajava*
- *Pennisetum clandestinum*
- *Lantana camara*
- *Datura stramonium*
- *Ipomoea purpurea*
- *Ricinus communis*

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- *Melia azedarach*
- *Conyza albiza*
- *Pteridium aquilinum*
- *Tagetes minuta*
- *Rumex crispes*
- *Hibisus trionum*

Refer to Appendix G4 for the full wetland report which elaborates to a greater extent of the wetlands which have been found within the study area.

7. IMPACT ASSESSMENT

7.1. Methodology in assessing potential impacts

The impacts of the proposed amended CIA development site and each alternative were assessed according to the criteria in Table 7-1 and will include the degree to which these impacts can be reversed, may cause irreplaceable loss of resources and can be avoided, managed or mitigated.

Table 7-1. Criteria by which impacts were assessed.

ASPECT	IMPACT RATING
Status of the impact: A statement of whether the impact is positive (a benefit), negative (a cost), or neutral.	
Direct impacts	Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.
Indirect impacts	Impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.
Cumulative impacts	Impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.
Nature of the impact: The evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce: <ul style="list-style-type: none"> • Positive. • Negative. 	

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ASPECT**IMPACT RATING****Extent:**

A description of whether the impact would occur on a scale limited to within the study area (local), limited to within 5 km of the study area (area); on a regional scale i.e. uMhlathuze Local Municipality & KwaZulu-Natal (region); or would occur at a national or international scale.

Local	1
Area	2
Region	3
National	4
International	5

Duration:

A prediction of whether the duration of the impact would be Immediate and once-off (less than one month), more than once, but short term (less than one year), regular, medium term (1 to 5 years), Long term (6 to 15 years), Project life/permanent (> 15 years, with the impact ceasing after the operational life of the development, or should be considered as permanent).

Immediate	1
Short term	2
Medium term	3
Long term	4
Project life/permanent	5

Severity (extent +duration + intensity)

Intensity: This provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium, high or very high. This is based on the following aspects:

- an assessment of the reversibility of the impact (permanent loss of resources, or impact is reversible after project life);
- whether or not the aspect is controversial;
- an assessment of the irreplaceability of the resource loss caused by the activity (whether the project will destroy the resources which are easily replaceable, or the project will destroy resources which are irreplaceable and cannot be replaced);
- the level of alteration to the natural systems, processes or systems.

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ASPECT		IMPACT RATING	
Negligible	The impact does not affect physical, biophysical or socio-economic functions and processes.	1	
Low/potential harmful	The impact has limited impacts on physical, biophysical or socio-economic functions and processes.	2	
Medium/slightly harmful	The impact has an effect on physical, biophysical and socio economic functions and processes, but in such a way that these processes can still continue to function albeit in a modified fashion.	3	
High/Harmful	Where the physical, bio-physical and socio economic functions and processes are impacted on in such a way as to cause them to temporarily or permanently cease.	4	
Very high/Disastrous	Where the physical, bio-physical and socio economic functions and processes are highly impacted on in such a way as to cause them to permanently cease.	5	
Incidence (frequency + probability)			
<p>Frequency: This provides a description of any repetitive, continuous or time-linked characteristics of the impact: Once Off (occurring any time during construction or operation); Intermittent (occurring from time to time, without specific periodicity); Periodic (occurring at more or less regular intervals); Continuous (without interruption).</p>			
Once Off	Once	1	
Rare	1/5 to 1/10 years	2	
Frequent	Once a year	3	
Very frequent	Once a month	4	
Continuous	≥ Once a day/ per shift	5	
<p>Probability of occurrence: A description of the chance that consequences of that selected level of severity could occur during the exposure.</p>			
Highly unlikely	The probability of the impact occurring is highly unlikely due to its design or historic experience.	1	
Improbable	The probability of the impact occurring is low due to its design or historic experience.	2	
Probable	There is a distinct probability of the impact occurring	3	
Almost certain	It is most likely that the impact will occur	4	
Definite	The impact will occur regardless of any prevention measures	5	
Risk rating	The risk rating is calculated based on input from the above assessments. The incidence of occurrence is calculated by adding the Extent of the impact to the duration of the impact. The Severity of the impact is calculated based on input from the extent of the impact, the duration and the intensity.		

ASPECT	IMPACT RATING						
	<p>Risk = Severity (extent +duration + intensity) x Incidence (frequency + probability)</p> <p>Significance: The significance of the risk based on the identified impacts has been expressed qualitatively as follows:</p> <ul style="list-style-type: none"> ○ low – the impact is of little importance/insignificant, but may/may not require minimal management ○ medium - the impact is important, management is required to reduce negative impacts to acceptable levels. ○ high - the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot be reduced to acceptable levels and/or if they are not balanced by significant positive impacts, management of negative impacts is essential. <table border="1" style="margin-left: auto; margin-right: auto;"> <tbody> <tr> <td style="background-color: yellow;">Low risk</td> <td style="background-color: yellow;">0 – 50</td> </tr> <tr> <td style="background-color: green;">Medium risk</td> <td style="background-color: green;">51 – 100</td> </tr> <tr> <td style="background-color: red;">High risk</td> <td style="background-color: red;">101 - 150</td> </tr> </tbody> </table>	Low risk	0 – 50	Medium risk	51 – 100	High risk	101 - 150
Low risk	0 – 50						
Medium risk	51 – 100						
High risk	101 - 150						

7.2. Assessment of Impacts and Risks

In terms of the identification of issues and associated impacts for the proposed project, the following should be noted:

- The issues have been identified by the EAP team, the proponent, landowners and Interested and Affected Parties.
- A broad definition of the “environment” is considered, which includes the natural (biotic and abiotic), social, cultural, economic and built environments.
- Certain issues and associated impacts have been identified as potentially occurring, but their occurrence is not definite. However, they need to be identified to inform decision-making and to enable the relevant parties to proactively address them should they occur, or prevent them from occurring.
- Both negative and positive impacts¹ are identified and described.

The following Specialist studies were commissioned:

- Wetland delineation and functionality

The Specialist Study required to assess additional potentially significant impacts identified during the Amendment Process are included as Appendix C. This study has been undertaken by independent

¹ An environmental impact, whether adverse or beneficial, is defined as a change to the environment.

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professional regarded as specialists in the discipline. The requirements for specialist's report which has been stipulated in Appendix 6 of the R982 of 2014 of NEMA have been complied with.

7.3. Mitigation and management actions for the proposed amendment

An approved EMPr (Appendix F of this Draft Amendment Report) has been approved and includes the following:

- Details and expertise of the person who prepared the amended EMPr.
- Information on any proposed management or mitigation measures that was taken to address the environmental impacts that have been identified in the Final EIAR, including environmental impacts or objectives in respect of planning and design, pre-construction and construction activities, operation or undertaking of the activity, rehabilitation of the environment, and closure (where relevant).
- A detailed description of the aspects of the activity that are covered by the Final EMPr.
- An identification of the persons who will be responsible for the implementation of the measures.
- Where appropriate, time periods within which the measures contemplated in the Final EMPr must be implemented.
- Proposed mechanisms for monitoring compliance with the EMPr and reporting thereon.

Additional measures which were identified in the amendment process have been highlighted in Section 10 of this report. The final proposed layout maps are included in Appendix B of this amendment report.

8. KEY IMPACTS AND ASSESSMENT THEREOF

These impacts which have been identified have been done so in light of the additional specialist study which has been done. The original impact assessment has also been taken into consideration for the evaluation of the key impacts and the resulting assessment.

8.1. Loss of vegetation and terrestrial habitat

Vegetation plays an important part in the functioning of ecosystems, as well as maintaining biological processes in the soil, reducing the loss of topsoil and nutrients, and recycling of nutrients. The removal of the natural vegetation will result in a loss of habitat for various fauna and flora species.

Table 8-1. Loss of vegetation and terrestrial habitat

IMPACT	<i>Loss of vegetation and terrestrial habitat (Sewer pipeline)</i>								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	
	Direct	Area	Project Life	Medium	Continuous	Definite	100	MEDIUM	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> • Clearance of indigenous vegetation must be kept to a minimum. • Localised removal of alien species on a regular basis. • Bare surfaces should be grassed as soon as possible after construction to minimise time of exposure. Locally occurring indigenous grasses should be used during rehabilitation. Alien invasive grasses such as <i>Pennisetum clandestinum</i> (Kikuyu) must not be used. 									

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- Progress of vegetation establishment must be monitored regularly by ECO, with slow recovery requiring intervention to ensure site recovery and integrity, as well as physical stability.
- Where construction occurs close to any plants of high conservation value in areas not required for the CIA development, these must be suitably and visibly demarcated and cordoned off by the ECO prior to, and during the construction phase.
- The necessary permits for removal or destruction of protected species must be obtained from EKZNW and DAFF beforehand.
- Where clearing is required outside of earthwork/construction areas, vegetation should be brush-cut rather than cleared to speed re-establishment following site closure.
- No herbicides may be used on indigenous vegetation, particularly within proximity to wetland areas.

8.2. Loss of wetland habitat

The entire study area lies within a valley bottom and forms part of a larger wetland system that drains towards the Port of Richards Bay. All areas therefore should be regarded as sensitive. Specific mitigation measures for these wetlands have been listed below.

Table 8-2. Loss of wetland habitat

IMPACT	Loss of wetland habitat (Sewer pipeline)								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation		After mitigation
	Direct	Area	Project Life	Very high	Continuous	Definite	120	HIGH	MEDIUM
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> • The no-go boundaries must be demarcated in the field by an independent qualified wetland specialist prior to commencement of construction. • Prevent excavated material from entering water resources and other sensitive areas. • No dumping of construction waste material should be allowed. • After profiling, the disturbed areas should be lightly compacted and reseeded with indigenous species, and riparian/wetland species where relevant. • Large sediment loads must be prevented from entering watercourses. • No rubble may be temporarily stockpiled or dumped within the study area. • Minimize the extent and duration of the hydrological disruption. • All vehicles should remain on designated roads with no indiscriminate driving through the study area. • Engineering designs should cater for current wetland conditions to ensure limited impact on the functioning of the wetland. • All spills should be immediately cleaned up and treated accordingly. 									

8.3. Potential loss of species of special concern

No Red Data species were observed within the boundaries of the study area. Three protected species, the Swamp fig (*Ficus trichopoda*), Powder-puff tree (*Barringtonia racemosa*) and Marula (*Sclerocarya birrea*) were observed on site during the site visit. *Ficus trichopoda* and *Barringtonia racemosa* was observed in the artificial drainage channels and the remnant coastal forest while *Sclerocarya birrea* was located within the hygrophilous grassland outside of the grassy / sedge freshwater wetland. Based on the proposed amended layout and the EA approved layout, a permit from DAFF will be required prior to removal of these species.

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Table 8-3. Potential loss of species of special concern

IMPACT	Potential loss of species of special concern								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation		After mitigation
	Direct	Area	Short-term	Very High	Once off	Definite	54	MEDIUM	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> The necessary permit applications must be obtained prior to destruction / removal of these two species. Should any other species of concern be identified, the ECO should be informed and appropriate action taken. 									

8.4. Sedimentation and erosion

Should the stormwater management design of the engineers not be adequate, erosion problems could result from the proposed CIA development. Furthermore, these designs need to ensure that surface flows reach the demarcated areas to ensure that the wetland areas receive water and remain wet and functional.

Table 8-4. Sedimentation and erosion

IMPACT	Sedimentation and erosion								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation		After mitigation
	Direct	Area	Project Life	Low	Continuous	Improbable	63	MEDIUM	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> Erosion control structures must be put in place where soil may be prone to erosion. Incorporate adequate erosion management measures in order to prevent erosion and the associated sedimentation of the wetland features. Management measures may include berms, silt fences, hessian curtains and stormwater diversion away from areas susceptible to erosion. Care should however be taken to avoid additional disturbance during the implementation of these measures. Topsoil storage should not exceed a height of 2m. During rehabilitation, prompt and progressive reinstatement of bare areas is required. The topsoil layer is to be replaced on top during reinstatement, where applicable. The control of soil erosion and siltation associated with construction and operation is important at all locations on site, particularly as the majority of the study area forms part of a wetland system. Both temporary and permanent soil erosion control measures must be used during the construction and operation phases. Checks must be carried out at regular intervals to identify areas where erosion is occurring. Remedial action, including the rehabilitation of eroded areas and, where necessary, the relocation of the paths causing erosion, is to be undertaken. Large sediment loads must be prevented from entering watercourses. A Stormwater Management Plan (SMP) must be designed for the study area in its entirety. This must include filtered low-flow dispersion discharge techniques into the demarcated wetland area to ensure that surface water flows can still provide feed to the protected wetland areas. This SMP must be approved by the CA and adherence to this SMP must be included as a condition of the Amendment Authorisation. 									

8.5. Infestation of alien invasive species

The disturbance of the natural vegetation by the proposed activities may aid exotic species to invade. Utmost care should be taken not to disperse and increase the colonisation of these species.

Table 8-5. Infestation of alien invasive species

IMPACT	Infestation of alien invasive species								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation		After mitigation
	Direct	Area	Project life	Medium	Very Frequent	Definite	90	MEDIUM	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> Removal of alien species within the construction area must be an ongoing activity throughout the construction phase. 									

8.6. Hydrological impacts

This refers to any alterations in the quantity, timing and distribution of water inputs and through flows within wetland and drainage line, especially taking cognisance of the critical role this study area plays in the larger hydrology of Richards Bay. This study area is the link between various large and important water bodies in the area, and it is critical to ensure functioning of this ecosystem. Construction activities associated with bulk earthworks (such as excavations, stockpiling, reshaping, back-filling and compaction) in the catchment area feeding downstream wetlands can alter natural patterns of surface runoff reaching water resources downslope/downstream. Excavations may impound and redirect water, thus starving downstream water resources. Infilling, compaction and rutting of soils caused by construction vehicles working outside the wetland also alter the patterns of diffuse surface and sub-surface flows by altering micro-topography and the permeability of soil profiles. Changes in flow patterns reaching aquatic ecosystems does not only affect hydrological functionality and thus ecosystem integrity, but may lead to erosion and sedimentation through increased runoff velocities linked to concentrated flow paths created during construction. Furthermore, without adequate engineering designs such as filtered low-flow dispersion discharge techniques, directing storm water into the wetland system may result in scouring of the wetland which can lead to the formation of concentrated flow paths and erosion channels. Directing stormwater away from the demarcated sensitive area will cause the wetland to deteriorate.

Table 8-6. Hydrology

IMPACT	Hydrology								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation		After mitigation
	Direct	Area	Medium term	Low	Continuous	Definite	100	HIGH	MEDIUM
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> Bare areas where vegetation has been removed pose a risk of becoming a sediment load into the wetlands during heavy rainfall or windy conditions. Bare areas should therefore be covered during such events. Any potential large sediment loads (i.e. stockpiles) must be contained by covering them. Temporary stormwater management structures should be used during construction. 									

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- Any areas damaged as a result of stormwater runoff from the construction site must be rehabilitated immediately.

8.7. Pollution of surface and groundwater due to chemical, oil and fuel spills.

Contaminants such as hydrocarbons, solids and pathogens may be generated during the construction phase from several potential sources (examples include petrol/diesel, oil/grease, paint, cement/concrete and other hazardous substances). These contaminants have the capacity to negatively affect aquatic ecosystems including sensitive or intolerant species of flora and fauna. Where significant changes in water quality occur, this will ultimately result in a shift in aquatic species composition, favouring more tolerant species, and potentially resulting in the localised exclusion of sensitive species. Sudden drastic changes in water quality can also have chronic effects on aquatic biota leading to localised extinctions. Deterioration in water quality can also affect the suitability for potential human domestic/agricultural use of wetlands. This is applicable for the construction sewage pump station infrastructure upgrade as the pipeline infrastructure upgrade will comprise mainly of manual intensive labour.

Table 8-7. Pollution of surface and groundwater due to chemical, oil and fuel spills

IMPACT	Pollution of surface and groundwater due to chemical, oil and fuel spills								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	
	Direct	Region	Long term	Very high	Continuous	Highly likely	108	HIGH	MEDIUM
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> Mixing of concrete must take place as far away from the wetland boundary as possible. An area already disturbed by previous development activities will be preferable. Construction within the highly sensitive areas must take place during the winter months in order to minimise the risk of sediment, debris and other pollutants being washed into the wetland during high rainfall events. Extra care must be taken to prevent any potentially hazardous substances from entering the wetland during rainfall events. The use of all chemicals and potentially hazardous substances must take place on a tray or an impermeable surface, away from the active channels of the impacted wetlands. This must take place on the edge of the wetland areas as far as possible. All rubble and other types of waste must be disposed at a licensed waste disposal site to prevent it from entering the wetlands. If construction machinery or equipment is used during the upgrades, they are not be re-fuelled or washed on site. In the event of the spilling of chemicals and potentially hazardous substances, this must be addressed immediately and reported to the ECO and the relevant authority. 									

8.8. Impact on archaeological artefacts

No national monuments, battlefields, or historical cemeteries are known to occur in the study area. The presence of archaeological remains was considered to be low.

Table 8-8. Impact on archaeological artefacts

IMPACT	Impact on archaeological artefacts								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	

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	Direct	Local	Short term	Negligible	Once off	Highly unlikely	15	LOW	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> As per the recommendations of the heritage impact assessment, following the clearance of the construction area, a survey must be done in order to confirm the absence of archaeological artefacts. 									

8.9. Dust, noise and waste generated during construction (general nuisance)

These sandy soils will be prone to wind erosion with associated generation of dust and windblown sand during high wind velocities. Due to the machinery which will be used during the construction phase, a noise pollution will be caused. However, the proposed development site is bordered by the already noisy industries, thus in comparison, the noise impact will be low. The mitigation measures below were proposed in addition to those which have been authorised in the original EIAR.

Table 8-9. Dust, noise and waste generated during construction (general nuisance)

IMPACT	Dust, noise and waste generated during construction (general nuisance)								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	
Direct	Local	Medium term	Medium	Frequent	Definite	80	MEDIUM	LOW	
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> Disturbed areas must be stabilised immediately after final grading has been done. Excessive liberation of dust must be controlled by the use of water-spraying or other dust-allaying agents. Rehabilitation of the natural vegetation of the excavated areas must be done immediately after the upgrade of the infrastructure at any point in order to prevent dust generated by the excavation activities from dispersing. The rehabilitation and construction must run simultaneously. 									

8.10. Socio-economic impacts – creation of job opportunities

A number of temporary employment and skills development opportunities will be created during construction. These opportunities will be of short-term duration, and will be limited to the construction requirements of the Contractor, however skills can be transferred which may be used during further opportunities.

Table 8-10. Socio-economic impacts - creation of job opportunities

IMPACT	Socio-economic impacts - creation of job opportunities								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	
Direct	Local	Short term	Medium	Continuous	Almost certain	63	MEDIUM	MEDIUM	
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> The contractor must use local labour to ensure the affected community get the most benefit from the job opportunities. Training must be provided to local labourers in order to perform more specialised jobs. 									

8.11. Socio-economic Impacts – Accessibility

The CIA development will require primary, auxiliary and services infrastructure to be constructed. The nature of the development will cause in increased number of pedestrians to wander through the undeveloped areas, causing general pollution and impacts within these areas (burning and dumping).

IMPACT	Socio-economic impacts – accessibility								
	Type	Severity			Incidence		Risk class		
		Extent	Duration	Intensity	Frequency	Probability	Before mitigation	After mitigation	
	Direct	Local	Project life	Medium	Continuous	Probable	88	MEDIUM	LOW
COMMENT/MITIGATION:									
<ul style="list-style-type: none"> • Due to the faunal signs (Hippopotamus footsteps, Crown cranes) of the remaining wetland areas, the wetland areas are not to be fenced off. • Rubbish bins must be installed in strategic locations throughout the construction and operational phases. • All access points into the undeveloped area must be regulated in such a manner as to prevent additional footpaths or tracks into these areas. 									

9. ENVIRONMENTAL IMPACT STATEMENT

The environmental issues associated with the proposed amended CIA development site has been assessed in Section 8. The mitigation measures were proposed in addition to those which have been authorised in the original EIAR.

The largest negative impact which have been identified has been the impacts on the biodiversity of the area, especially the wetland habitat. These impacts can be mitigated during the construction phase through the use of predefined controls that has been set forth by the ecological specialist.

10. SPECIALIST RECOMMENDATION FOR INCLUSION INTO EMPr AND AUTHORISATION CONDITIONS

10.1. Ecological management and mitigation

- Permits should be obtained for all required species in terms of the DAFF, KZN Nature Conservation Act as described in Section 2.
- Specific ecological management measures should be implemented.
 - This study area should be added to the Municipal alien removal programme, in order to remove exotic vegetation and maintain open space areas free from exotic invasions within the proposed development footprint for the duration of the construction phase.
 - Improve habitat quality in all wetland areas by regular removal of various forms of pollution during the construction phase.
 - All rubble, litter and any other type of waste must be removed from the development footprint and areas directly adjacent to the construction areas and regular monitoring of core ecological areas must be undertaken.
 - All concrete mixing must take place on an impermeable surface in dedicated areas, to prevent pollution of the soil and surrounding water resources.
 - All waste and materials used during the construction must be removed; no waste is to be buried or burned or left in the study area.

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- Pesticides should also be discouraged from use during the construction or operational phase of the development.
- Registered herbicides must strictly be applied to alien invasive vegetation only.

11. ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE

11.1. Wetland delineation and functionality study

- The GPS Oregon 600 which was used for wetland delineations is at best accurate to within five meters.

12. CONCLUSION

This Environmental Authorisation Amendment Report was undertaken in line with the requirements of the NEMA EIA Regulations R982 for a Part 2 Amendment. The proposed amended CIA development site requires environmental authorisation in terms of the NEMA Regulations (GNR 982, as amended in GNR 326 of 7 April 2017). The information contained in this Amendment Report provides a comprehensive description of the advantages and disadvantages which an amended CIA development site would have. These advantages and disadvantages relates to the sustainability of the project in the economic, social and environmental spheres.

An important part of any Environmental Authorisation Process is the public participation process which it accommodates. Stakeholder engagement will have been initiated on the same day which the draft Amendment Report for the proposed amended CIA development site is sent out for the 30-day public review period. The Draft Amendment report will be made available for public and stakeholder review for a period of 30 days. All comments received and issues raised will be documented and addressed and responded to in the CRR.

The amendment report aimed to identify the additional impacts which the proposed amended CIA development site would pose for the economic, social and environmental sectors with the local and regional area. One specialist study was undertaken and measures for mitigation and management is identified for inclusion in Section 10 of this amendment report. This should be considered in conjunction with the approved EMPr (Appendix F).

In conclusion, the amendment application is for a Part 2 Amendment in terms of GNR 982 (as amended on 7 April 2017). As part of the amendment, the applicant is proposing:

- An alternative layout to the layout which has been approved on 28 March 2012;
- As well as an extension of five (5) years for the authorisation which has been provided as part of a Part 1 Amendment, authorised on 23 March 2017.

Specific conditions are proposed in terms of the layout, with specific reference to the road connecting the two main developable areas. The construction of the road must be within the reserve of the existing road which leads through the development site.

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