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FINAL BASIC ASSESSMENT REPORT

EIA REF: DC28/0009/2022 KZN/EIA/0001789/2022

The Proposed Development of CFCI Esikhawini Church Auditorium at Esikhawini Extension J, ERF1976, within Ward 19 of uMhlathuze Local Municipality, KwaZulu Natal.

27 JULY 2022

Prepared by:

Emvelo Quality and Environmental Consultant (PTY) Ltd.

Prepared for:

TJ Architects International (Pty) Ltd

On Behalf of:

Covenant Fellowship Church International

Applicant	**Covenant Fellowship Church International**
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PROJECT TEAM	APPLICANT CONTACT PERSON
Phumzile Lembede Dumisani Myeni	Greg Hendrick (Project Engineer)

Overview: Assessment of impacts related to the proposed development of CFCI Esikhawini Church Auditorium at Esikhawini Extension J, ERF1976, in order to ensure the Client's compliance with all relevant environmental legislations.

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QMS-REVISION HISTORY

Revision	Revision Date	Details	Authorized	Name	Position
1	14- 07-2022	FINAL BAR	Y	Dumisani Myeni	Study Lead Env. Scientist

2	22-07-2022	FINAL BAR	Y	Tinashe Maramba	Study Contributor
3	25-07-2022	DRAFT BAR	Y	Phumzile Lembede	Principal EAP Env. Scientist

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LIST OF ACRONYMS

BAR	Basic Assessment Report
CFP	Chance Finds Procedure
DWS	Department of Water and Sanitation
DEDTEA	Department of Economic Development, Tourism and Environmental Affairs
DOT	Department of Transport
EMPr.	Environmental Management Programme
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
HGM	Hydrogeomorphic
MSDS	Material Safety Data Sheet
NEMA	National Environmental Management Act 107 (Act 107 of 1998)
NEMPAA	National Environmental Management: Protected Areas, 2003 (Act 57 of 2003)
I&AP	Interested and Affected Parties
EAP	Environmental Assessment Practitioner
GA	General Authorisation
SCADA	Supervisory Control and Data Acquisition
SCC	Species of Conservation Concern

GLOSSARY OF ITEMS

DEVELOPMENT: the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.

BIODIVERSITY: The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.

BASIC ASSESSMENT: The process of collecting, organizing, analyzing, interpreting and communicating information that is relevant to the consideration of the application, in terms of Listing Notice 1 (GNR 327 and 324 of 2017) of NEMA (as amended).

DEVELOPMENT FOOTPRINT: any evidence of physical alteration because of the undertaking of an activity.

CONTRACTOR: companies and or individual persons appointed on behalf of the client to undertake activities, as well as their sub-contractors and suppliers.

ENVIRONMENTAL CONTROL OFFICER (ECO): an individual nominated through the client to be present on-site to act on behalf of the client in matters concerning the implementation and day to day monitoring of the EMPr and conditions stipulated by the authorities as prescribed in NEMA.

ENVIRONMENT: in terms of the NEMA (as amended), the "environment" means the surroundings within which humans exist and that are made up of: the land, water, and atmosphere of the earth; micro-organisms, plant and animal life; any part or combination of (i) of (ii) and the interrelationships among and between them; the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing.

ENVIRONMENTAL IMPACT: the change to the environment, whether adverse or beneficial, wholly or partially resulting from an organization's activities, products or services.

HYDROLOGICAL SYSTEM: water bodies and their connectivity to the welfare of an ecosystem.

MITIGATION: the measures designed to avoid reduce or remedy adverse impacts.

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr): a detailed plan of action prepared to ensure that recommendations for enhancing or ensuring positive environmental impacts and limiting or preventing negative environmental impacts are implemented during the lifecycle of the project. This EMPr focuses on the construction phase, operation (maintenance) phase and decommissioning phase of the proposed project.

POLLUTION: NEMA defines pollution to mean any change in the environment caused by the substances; radioactive or other waves; or noise, odours, dust or heat emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people or will have such an effect in the future.

WATER POLLUTION: the National Water Act, 1998 (Act 36 of 1998) defines water pollution to be the direct or indirect alteration of the physical, chemical or biological properties of a water resource so as to make it less fit for any beneficial purpose for which it may reasonably be expected to be used; or harmful or potentially harmful (a) to the welfare, health or safety of human beings; (b) to any aquatic or non-aquatic organisms; (c) to the resource quality, or (d) to property.

REHABILITATION: rehabilitation is defined as the return of a disturbed area to a state which approximates the state (wherever possible) which it was before the disruption.

WATERCOURSE: can be a) a river or spring; b) a natural channel or depression in which water flows regularly or intermittently; c) a wetland, lake or dam into which, or from which, water flows; and/or d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks.

WETLAND: the land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and

which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

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

GENERAL WASTE: waste that does not pose an immediate hazard or threat to health or the environment, and includes domestic waste; building and demolition waste; bbusiness waste; and inert waste.

HAZARDOUS WASTE: hazardous waste means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

ARCHAEOLOGICAL RESOURCES: includes (a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artifacts, human and hominid remains and artificial features and structures; (b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation; wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, 1994 (Act 15 of 1994), and any cargo, debris or artifacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; features, structures and artifacts associated with military history which are older than 75 years and the site on which they are found.

INTERESTED AND AFFECTED PARTY (I&AP): for the purposes of Chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, an interested and affected party contemplated in Section 24(4) (a) (v), and which includes (a) any person, group of persons or organization interested in or affected by such operation or activity; and (b) any organ of state that may have jurisdiction over any aspect of the operation or activity.

ASSUMPTIONS AND LIMITATIONS

Certain assumptions, limitations, and uncertainties are associated with this report. This report is based on information that is currently available and, as a result, the following assumptions and limitations should be noted:

- This report is based on project information provided by the client;
- The description of the baseline environment has been obtained from environmental desktop study and specialist studies;
- The results are based on the outcomes of a single assessment. The risk assessment only included the proposed development and the anticipated activities, no ancillary activities were considered; and
- In determining the significance of impacts, with mitigation, it is assumed that mitigation measures proposed in the report are correctly and effectively implemented and managed throughout the life of the project.

EXECUTIVE SUMMARY

The Covenant Fellowship International (CFCI) since establishment has seen the growing number of congregants. CFCI Esikhawini Branch is currently leasing at Esikhawini college. As such, the need arose for the Esikhawini Branch to have their own structure as the projected membership numbers are on an upward trajectory. Therefore, site within the reach of Esikhawini membership was purchase for the purpose of development of church where church members will not spend more money on travelling to new site owned by the church. Consequently, the Environmental Impact Assessment (Basic Assessment) process has commenced, as a result of the proposed development.

Emvelo Quality and Environmental Consultant (Emvelo) has been appointed by TJ Architects International (Pty) Ltd (TJAI), on behalf of Covenant Fellowship Church International (CFCI), to undertake an environmental impact assessment (EIA) for the proposed development of an auditorium for church services at Esikhawini, Extension J, ERF1976, Ward 19 of uMhlathuze Local Municipality.

The construction activities will comprise of the following components: Construction of 2540.96m^2 main church structure (two storey building); Construction of 211.38m^2 spill out area for mass gathering; Construction of 77.31m^2 guard house; Construction of 4931.55m^2 paved parking lots; Construction of stormwater systems (to be determined in-sutu).
Total development footprint will be 8 077.57m2. The site area allocation is approximately 9000m^2.

Two (2) discrete habitat types that were delineated within the assessment area, namely green filed (wetlands and open space) and transformed (settlement).

Having mentioned the above site characteristics, the planned activities will result in excavation within the edge of watercourse (wetland) and vegetation clearance.

The NEMA Environmental Impact Assessment (EIA) Regulations (2014) as amended on 7 April 2017, govern the process of applying for environmental authorization for certain developments. A provision in the EIA Regulations is made for two forms of assessment, namely: Basic Assessment and Scoping & EIA, depending on the scope of the activity. The EIA regulations specify that: Activities identified in Listing Notice 1 and 3 (GNR 327 and 324 of 2017) require a Basic Assessment, while the activities identified in Listing Notice 2 (GNR 325 of 2017) are subject to a Scoping and EIA. The listed activities associated with the proposed development is: Listing Notice

1, Activity 12. Therefore, this application will follow a Basic ***Assessment process***, as activities in Listing Notice 1 and 3 have been triggered.

The Public Participation Process (PPP) has, to date, included: displaying onsite notices, placing of an advertisement in the Daily Sun Newspaper, distribution of Background Information Documents (BIDs), and Circulation of the Draft BAR.

The preferred alternatives are '*Alternative A: Site/Location Alternative'*, '*Alternative B: Site Layout Alternative*', '*Alternative C: Design Alternative'*, and '*Alternative D: Technology Alternative'* These preferred alternatives cannot be undertaken in isolation, as they assessment is integrated considering their interlink and interchangeable need for mitigation of impact for the proposed Esikhawini CFCI development. The '*Location/site Alternative'* for the proposed development (Esikhaleni CFCI Auditorium), proposed that the development take place within available site bought within Esikhawini J Extension which is within 3m radius of existing leased building at Esikhawini College. The preferred '*Layout Alternative'* proposes that CFCI development footprint will be reduced to 8 077.57m^2, with only its two corners of the site northern boundary intercept with wetlands (NFEPA) and SAIIAE wetlands. The '*Design Alternative'* is linked to '*Layout* and '*Technology alternatives'* as it mitigate impact during construction, but also proposes the design for mitigation of ambient noise during facility operation, through internal acoustic design within the chapel, including the sound insulation layers. The '*Technology Alternative'* also provided the use of light excavator, as the site excitability is soft to intermediate.

The summary of impacts significant during construction and operation/maintenance phase are outlined by (***Table 1***) below.

Table 1: Summarised Impacts Significance

IMPACT/ACTIVITY	SIGNIFICANCE	
	Before Mitigation	After Mitigation
Planning and Creating Environmental Awareness	-65	+40
Best Construction Practice Design	-70	+25
Site Preparation	-60	+32
Method Statements	+52	-32
Environmental Incidents	-72	+18
Excavation for foundation	-45	+25
Erosion control	-36	+10
Stockpiling soil	-55	+45
Sedimentation and Compaction of watercourse soils	-44	+10

IMPACT/ACTIVITY	SIGNIFICANCE	
	Before Mitigation	After Mitigation
Air Quality	-44	+10
Noise Pollution	-40	+16
Noise Pollution during mass church gatherings	-44	+14
Visual	-52	+44
Surface and Groundwater quality (Watercourse)	-44	+30
Dust	-44	+10
Waste: Solid	-55	+28
Waste: Effluent	-35	+28
Hazardous Materials	-28	+14
Stormwater Management	-45	+18
Loss of Important mainly Riparian vegetation	-48	+40
Loss of Threatened/near threatened/protected taxa	-52	+44
Disturbance	-48	+40
Faunal, avifaunal And Floral Species	-70	+55
Hunting/Snaring/Poaching	-22	+20
Maintenance of church area (fire/clearing/compositio shifts)	-24	+16
Proliferation of alien plant species	-28	+20
Collision	-70	+44
Loss of Habitat and Disturbance	-52	-22
Impact of construction camp on members of the loca community	-52	+22
Visual impact of the development	-40	Cannot be fully managed or mitigated
Rehabilitation of Vegetation	+48	+44

The findings of this EIA Report as well as the specialist studies conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented. Four specialist studies were considered for this EIA.

The EAP submit that the environmental process undertaken thus far complies with the requirements as prescribed by Appendix 1 of GNR 326 (EIA Regulation 2014 as amended on 07 April 2017) and that this report covers the full suite of potential environmental issues related to the proposed development of CFCI auditorium. All potential impacts have been evaluated and responded to by either complete avoidance where possible, or by recommendation of the most appropriate and feasible mitigation measures. The preferred/mitigated development proposal presented in this report is responsive to the integrated results of the assessment of potential impacts made by the various specialists on the project team.

The EAP is of the view that the Environmental Authorization should be granted on certain conditions that are outlined in this section. After an Authorization has been granted, it is the applicants' responsibility to ensure that all recommendations outlined in this report as well as in the EMPr are properly implemented.

1 INTRODUCTION

The Covenant Fellowship International (CFCI) since establishment has seen the growing number of congregants. CFCI Esikhawini Branch is currently leasing at Esikhawini college. As such, the need arose for the Esikhawini Branch to have their own structure as the projected membership numbers are on an upward trajectory. Therefore, site within the reach of Esikhawini membership was purchase for the purpose of development of church where church members will not spend more money on travelling to new site owned by the church. Consequently, the Environmental Impact Assessment (Basic Assessment) process has commenced, as a result of the proposed development.

Emvelo Quality and Environmental Consultant (Emvelo) has been appointed by TJ Architects International (Pty) Ltd (TJAI), on behalf of Covenant Fellowship Church International (CFCI), to undertake an environmental impact assessment (EIA) for the proposed development of an auditorium for church services at Esikhawini, Extension J, ERF1976, Ward 19 of uMhlathuze Local Municipality.

As such, an EIA has commenced, assisting the TJAI in identifying all potential adverse environmental consequences of the project, their extent, significance and to ensure that the environmental management requirements are adequately implemented.

This report has been prepared in compliance with the requirements of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ["NEMA"] and the Environmental Impact Assessment ("EIA") Regulations contained in Government Notice (GN) No. R982 of 2014 as promulgated in terms of the NEMA ["EIA Regulations"] as amended up to and including GN 326 in GN 40772 of 07 April 2017.

1.1 Report Structure

This report has been compiled in accordance with the 2014 NEMA EIA Regulations, as amended. A summary of the report structure, and the specific sections that correspond to the applicable regulations, is provided in Table 2 below.

Table 2: Basic Assessment Report Structure

EIA Regulation	Description – EIA Regulation (2014) as amended on 07 April 2017	Content in Report
Appendix 3(a):	Details of – i. The Environmental Assessment Practitioner (EAP) who prepared the report; and ii. The expertise of the EAP, including a curriculum vitae;	• Cover page section
Appendix 3(b):	The location of the activity. Including – i. The 21-digit Surveyor General code of each cadastral land parcel; ii. Where available, the physical address and farm name; iii. Where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	• Section 3
Appendix 3(c):	A plan which locates the proposed activity or activities applied for at an appropriate scale, or, if it is – i. A linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or ii. On a land where the property has not been defined, the coordinates within which the activity is to be undertaken;	• Section 3
Appendix 3(d):	A description of the scope of the proposed activity, including – i. All listed and specified activities triggered; ii. A description of the activities to be undertaken, including associated structures and infrastructure;	• Section 5
Appendix 3(e):	A description of the policy and legislative context within which the development is located and an explanation of how the proposed development complies with and responds to the legislation and policy context;	• Section 9
Appendix 3(f):	A motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.	• Section 7
Appendix 3(g):	A motivation for the preferred site, activity and technology alternative;	• Section 8. & Section 8.6

Appendix 3(h):	A full description of the process followed to reach the proposed preferred alternative within the site, including– (i) details of all alternatives considered; (ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs; (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them; (iv) the environmental attributes associated with the development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (v) the impacts and risks identified including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; (vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives; (vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; (viii) the possible mitigation measures that could be applied and level of residual risk; (ix) the outcome of the site selection matrix; (x) if no alternative development footprints for the activity were investigated, the motivation for not considering such; and (xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	• Section 8 • Section 10 • Section 14 • Section 15 • Appendix E5
Appendix 3(i)	A full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including- (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) 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;	• Section 15 • Section 16

Appendix 3(j)	An assessment of each identified potentially significant impact and risk, including- (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed; (vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be mitigated;	• Section 10 • Section 14 • Section 15
Appendix 3(k):	Where applicable, a summary of the findings and recommendations of any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final assessment report;	• Section 17
Appendix 3(l):	An environmental impact statement which contains- (i) a summary of the key findings of the environmental impact assessment: (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred development footprint on the approved site as contemplated in the accepted scoping report indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives	• Section 20 • Section 3
Appendix 3(m)	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;	• Appendix B
Appendix 3(n)	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	• Section 18 • Section 19
Appendix 3(0)	A description of any assumptions, uncertainties and gaps in knowledge which relate to the assessment and mitigation measures proposed;	• Assumption and limitation
Appendix 3(p)	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	• Section 21

Appendix 3(q)	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required and the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A
Appendix 3(r)	An undertaking under oath or affirmation by the EAP in relation to- (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	• Appendix A
Appendix 3(s)	Where applicable, details of any financial provision for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	N/A
Appendix 3(t)	Any specific information that may be required by the competent authority; and	N/A
Appendix 3(u)	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

2 PROJECT TITTLE

The Proposed Development of CFCI Esikhawini Church Auditorium at Esikhawini Extension J, ERF1976, within Ward 19 of uMhlathuze Local Municipality, KwaZulu Natal.

3 PROJECT LOCALITY

The project locality is described in terms of geographic locational context and site context, as explained in (***Section 3.1 & 3.2***) below.

3.1 Geographical Locational Context

The study area falls within the jurisdiction of uMhlathuze Local Municipality situated within King Cetshwayo District Municipality (KCDM), Kwa-Zulu Natal. The proposed Covenant Fellowship Church International (CFCI) development site is situated within ward 19 of Esikhawini at approximately 24km south-west of Richards Bay Town and approximately 15km south of Empangeni (***Figure 1***).

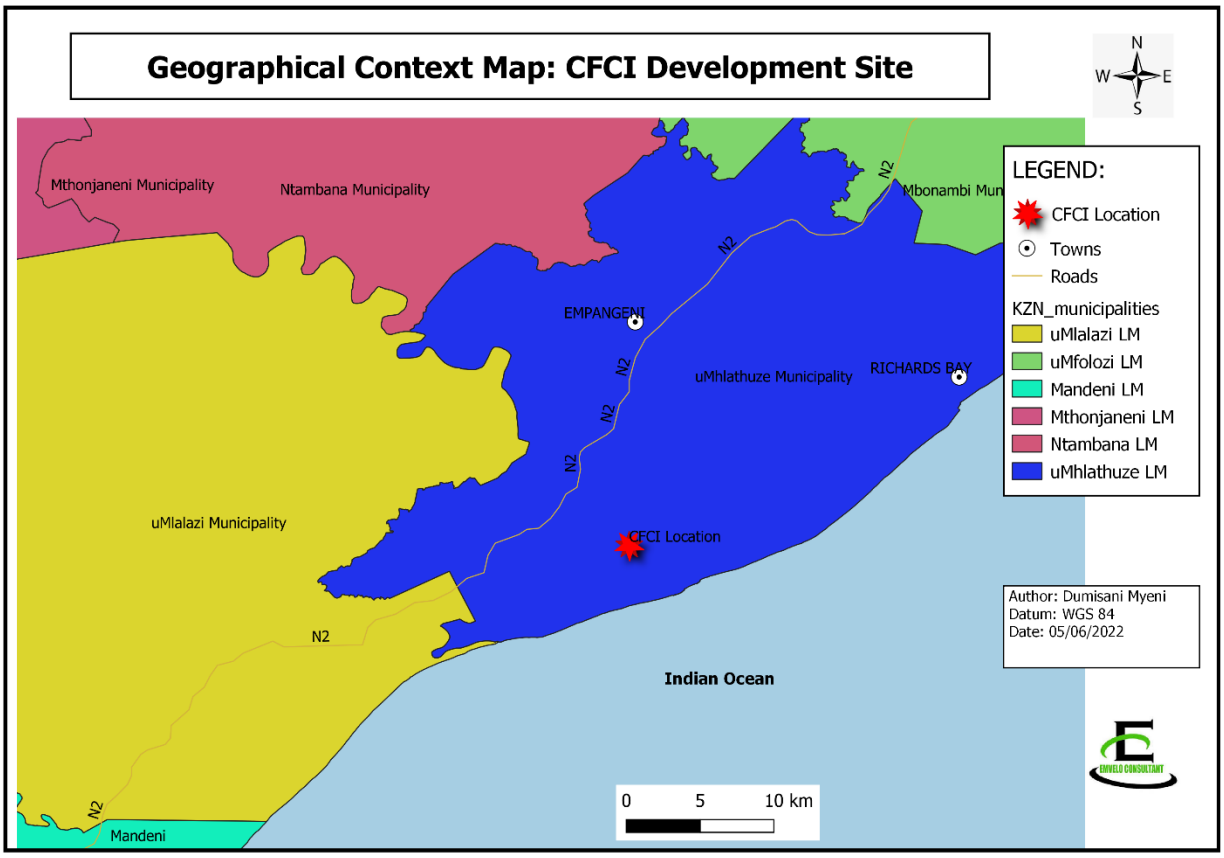

Figure 1: Geographical Context for CFCI Development Site

3.2 Site Locality Context (Site Description)

The develop of CFCI auditorium for church services will take place at Esikhawini, Extension J ERF1976, Ward 19 of UMhlathuze Local Municipality (***Figure 2***).

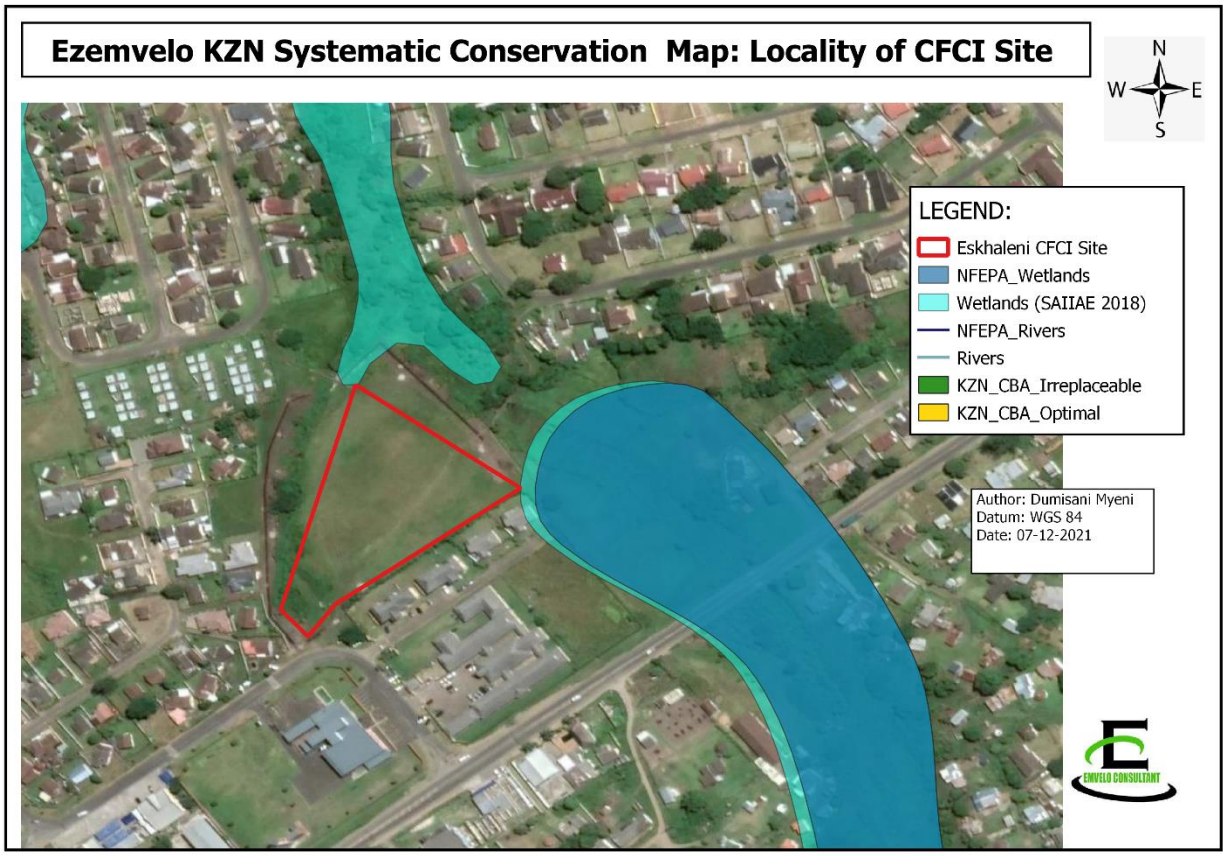

Figure 2: Locality Map- Proposed Development Site

The (***Table 3***) below, provides the Global Positioning System (GPS) co-ordinates for the proposed development boundary. The table outlines five corners of a site perimeter.

Table 3: Co-ordinates for development boundary

Corner A	
Co-ordinates	28°53'11.17"S, 31°53'41.91"E
Corner B	
Co-ordinates	28°53'13.22"S, 31°53'45.17"E
Corner C	
Co-ordinates	28°53'15.53"S, 31°53'41.49"E

Corner D	
Co-ordinates	28°53'16.16"S, 31°53'40.98"E
Corner E	
Co-ordinates	28°53'15.62"S, 31°53'40.39"E

The (***Table 4***) below, provides the 21-digits Surveyor General Code (SGC).

Table 4: 21-digits Surveyor General Code

N	O	G	U	0	5	6	9	0	0	0	0	1	9	7	6	0	0	0	0	0
N	O	G	U	0	5	6	9	0	0	0	0	2	8	6	8	0	0	0	0	0
1	**2**			**3**				**4**								**5**				

Two (2) discrete habitat types that were delineated within the assessment area, namely green filed (wetlands and open space) and transformed (settlement).

4 SITES ACCESS

The site can be access via N2 north bound from Durban N2 or N2 south bound from Richards Bay exit P535 then follow P535 towards Esikhawini, Mthombothi St for 1.4km, then turn left to Mdlebe Mpuma Rd continue for 950m, then turn Right for 120m, the destination will be on your right.

5 PROJECT DESCRIPTION

The Covenant Fellowship Church International (CFCI) proposes to develop an auditorium for church services at Esikhawini, Extension J ERF1976, Ward 19 of UMhlathuze Local Municipality.

As the result the proposed development of CFCI will include the following:

- Construction of 2540.96m^2 main church structure (two storey building);
- Construction of 211.38m^2 spill out area for mass gathering;
- Construction of 77.31m^2 guard house;

- Construction of 4931.55m^2 paved parking lots
- Construction of stormwater systems (to be determined *in-sutu*).

Total development footprint will be 8 077.57m^2. The site area allocation is approximately 9000m^2.

5.1 Project Anticipated Date

The Project is planned to start as soon as possible in order to accommodate the growing number of church members, in the process provision of sufficient space to accommodate social distancing.

5.2 Design Criteria

The design criteria discussed in this report reflect to the main project components for the proposed CFCI development.

The existing ambient noise levels measured on site would be used to inform the building shell design and the maximum allowed external noise levels, at the boundary of the site, during congregational services.

The CFCI development will form a large chapel that will mainly be used for amplified speech and band music. The chapel is positioned inside an encompassing structure and is mostly surrounded by circulation passages. Therefore, the following design approach has been adopted:

- The volume of the chapel is approximately 9 721m^3;
- Sound insulation from the church chapel to the site boundaries to meet Noise Regulation and By-Law requirements;
- Internal acoustic design within the chapel, including the sound insulation layers below the roof sheeting;
- HVAC & equipment noise mitigation, optimizing for speech intelligibility and controlling the ambient noise level inside the chapel.

- Sound absorption is provided by a layer of minimum 40mm, 47kg/m^3 fibreglass or 35mm, 80kg/m^3 polyester fibre.
- In order to control the reverberation sound energy within the chapel, a minimum combined ceiling and wall treatment area of approximately 1 500m^2 (based on an absorption performance of NRC = 0.8) is required.

Table 5: Design Criteria for Ambient Noise Mitigation

Technical Aspect	Target
Reverberation Time at Mid- Frequencies (seconds)	< 1.3
Maximum Internal Ambient Noise Level	NC25/30Dba
Maximum External Ambient Noise Level allowed at the boundary of the residential complex (By-law perspective) (LAeq)	48.74 dBA
Maximum Internal Sound Pressure Level from PA system under roof at 1m from the speaker clusters	105 dBA
Minimum required Sound Insulation of Roof Construction (Dw)	45 dB
Minimum required Sound Insulation of Chapel Walls and door combinations (R'w)	45 dB

6 LISTED AND SPECIFIED ACTIVITIES TRIGGERED

The Proposed Development of CFCI Esikhawini Church Auditorium at Esikhawini Extension J, ERF1976 will require an Environmental Authorisation (EA) prior to undertaking the proposed development. The (***Table 6***) below indicates the Listed activities in terms of the EIA 2014 Regulations (as amended on 07 April 2017) that are applicable to the proposed project.

Table 6: Listed and specified activities triggered

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Applicability
GNR No. 327 (7 April 2017) Listing Notice 1.	Listed Activity 12	[**The development of—** **(i) canals exceeding 100 square metres in size;** **(ii) channels exceeding 100 square metres in size;** **(iii) bridges exceeding 100 square metres in size;** **(iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size;** **(v)weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size;** **(vi)bulk storm water outlet structures exceeding 100 square metres in size;** **(vii) marinas exceeding 100 square metres in size;** **(viii) jetties exceeding 100 square metres in size;** **(ix) slipways exceeding 100 square metres in size;** **(x) buildings exceeding 100 square metres in size;** **(xi) boardwalks exceeding 100 square metres in size; or** **(xii) infrastructure or structures with a physical footprint of 100 square metres or more;]**	The CFCI has a total development footprint of 8 077.57m^2, with its two corners of the site northern boundary intercept with wetlands (NFEPA) and SAIIAE wetlands.

GNR & Listing Notice No.	Listed Activity	Description of the applicable listed activity	Applicability
		The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;'	

7 ACTIVITY MOTIVATION

The Covenant Fellowship International (CFCI) since establishment has seen the growing number of congregants. CFCI Esikhawini Branch is currently leasing at Esikhawini college. As such, the need arose for the Esikhawini Branch to have their own structure as the projected membership numbers are on an upward trajectory. Therefore, site within the reach of Esikhawini membership was purchase for the purpose of development of church where church members will not spend more money on travelling to new site owned by the church.

7.1 The need

The CFCI church currently has 49 branches including the Esikhawini Branch. However, the CFCI Esikhawini Branch is currently leasing at Esikhawini college. As such, the need arose for the Esikhawini Branch to have their own structure as the projected membership numbers are on an upward trajectory. It was then decided in 2019 that the church buy the proposed development site and develop it to fit approximately 1450 church members, however the facility can fit up to 2000 people based on the seating arrangement, this has been approved by the city of uMhlathuze. This church infrastructure will have offices for pastoral care.

7.2 Desirability

The development of CFCI Esikhawini branch facility will augment the current attendance capacity that currently exists at the Esikhawini CFCI Branch; and improve the facilities offered by the existing church facility by introducing more environmentally friendly, energy saving and improved water conservation technologies to the new building.

Apart from running church services the CFCI auditorium will bring skills development in terms of art and culture, as the church will be having studio to record upcoming gospel artists. The church structure will also cater for community social project such as child welfare programmes. Furthermore, the church will have the offices for pastoral care which will provide amongst other the facility counselling, including pre-marital counselling.

The church has further elaborated that seeing as how the church is a community entity, there will be community involvement from the construction phase therefore creating short term labour during this phase. The church is prepared employ a 50/50 employment split whereby

50% of labour will come from the community and 50% coming from the church as the church is determined to reduce unemployment rate.

8 SITE ALTERNATIVES

The DFFE provides guidelines on the assessment of alternatives, to which the impact assessment must be considered. Regulations indicate that any alternatives considered in an assessment process must be reasonable and feasible. Additionally, I&APs must be afforded an opportunity to provide inputs into the process of formulating alternatives. Once a full range of potential alternatives have been identified, the reasonable and feasible alternatives should be formulated as activity alternatives for further consideration during the basic assessment or scoping and EIA process (DEAT,2004a; DEAT, 2006). These alternatives are: location (site), activity (project), site layout, design, scale, routing, scheduling, process, demand, input, technology, and no-go options.

It is, however, important to note that the regulation and guidelines specifically state that only 'feasible' and 'reasonable' alternatives should be explored. It also recognizes that the consideration of alternatives is an iterative process of feedback between the applicant and the appointed EAP, which in some instances culminates in a single preferred project proposal (DEAT, 2006).

After weighing all project alternatives for this project (Discrete Alternative Approach), the preferred '*Alternative A: Site/Location Alternative'*, '*Alternative B: Site Layout Alternative*', '*Alternative C: Design Alternative'*, and '*Alternative D: Technology Alternative'* were adopted as alternatives that will meet the stated need for and purpose of the project, by providing proper mitigation measures, as discussed below.

8.1 Alternative A (Site/Location Alternative)

The '*Site/Location Alternative*' considered for the entire proposal or for a component of a proposal, locations that are geographically quite separate, and alternative locations that are in close proximity (DEAT, 2004a). The assessment of alternative sites will not be feasible as the proposed the location of the new church site was pre-determined by the CFCI Leadership

as it would not be rational to locate the proposed church further away from pre-existing congregants.

Therefore, the 'Location/site Alternative' for the proposed development (Esikhaleni CFCI Auditorium), proposed that the development take place within available site bought within Esikhawini J Extension which is within 3m radius of existing leased building at Esikhawini College.

8.2 Alternative B (Site Layout Alternative)

The '*Site Layout Alternative'* permit consideration of different spatial configurations of an activity on a particular site (DEAT, 2004). As, the result the proposed 'Site Layout Alternative' seek to avoid the interception of development activities (CFCI infrastructure) within 32m buffer of wetland regulated area. This 'Site Layout Alternative' proposed the reducing the development footprint to align the boundary from intercepting with the 32-wetland buffer at this area of development.

The layout considerations has been put in place to support the "Layout Design Alternative" as illustrated by (Figure 4 & 5) below.

8.2.1 Initial Adopted Layout

The initial adopted layout has the facility overlain within the wetland areas (***Figure 3***)

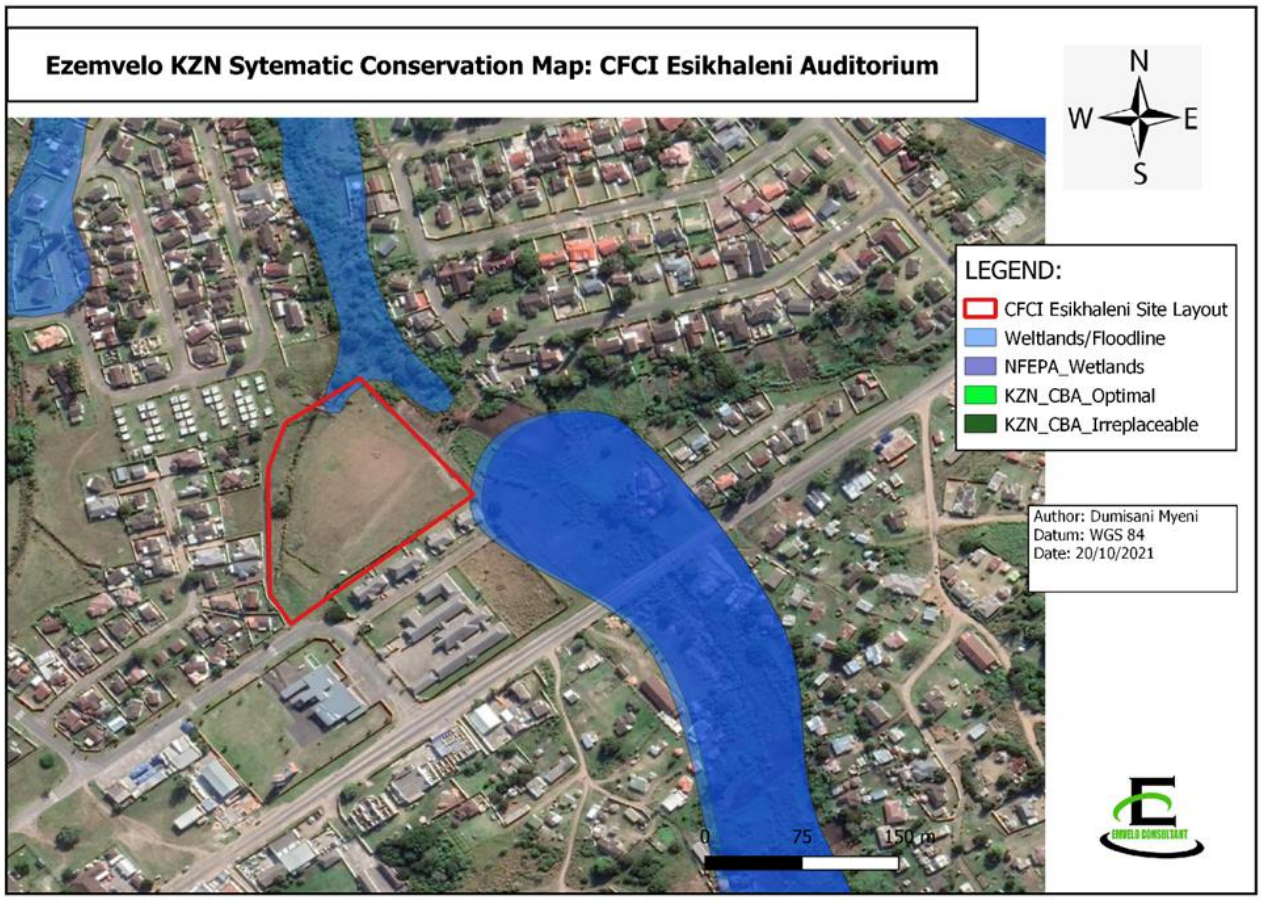

Figure 3: Initial adopted layout

8.2.2 The Most Preferred Layout for CFCI site

The preferred Layout Alternative proposes that CFCI development footprint will be reduced to 8 077.57m^2, with only its two corners of the site northern boundary intercept with wetlands (NFEPA) and SAIIAE wetlands (***Figure 4***).

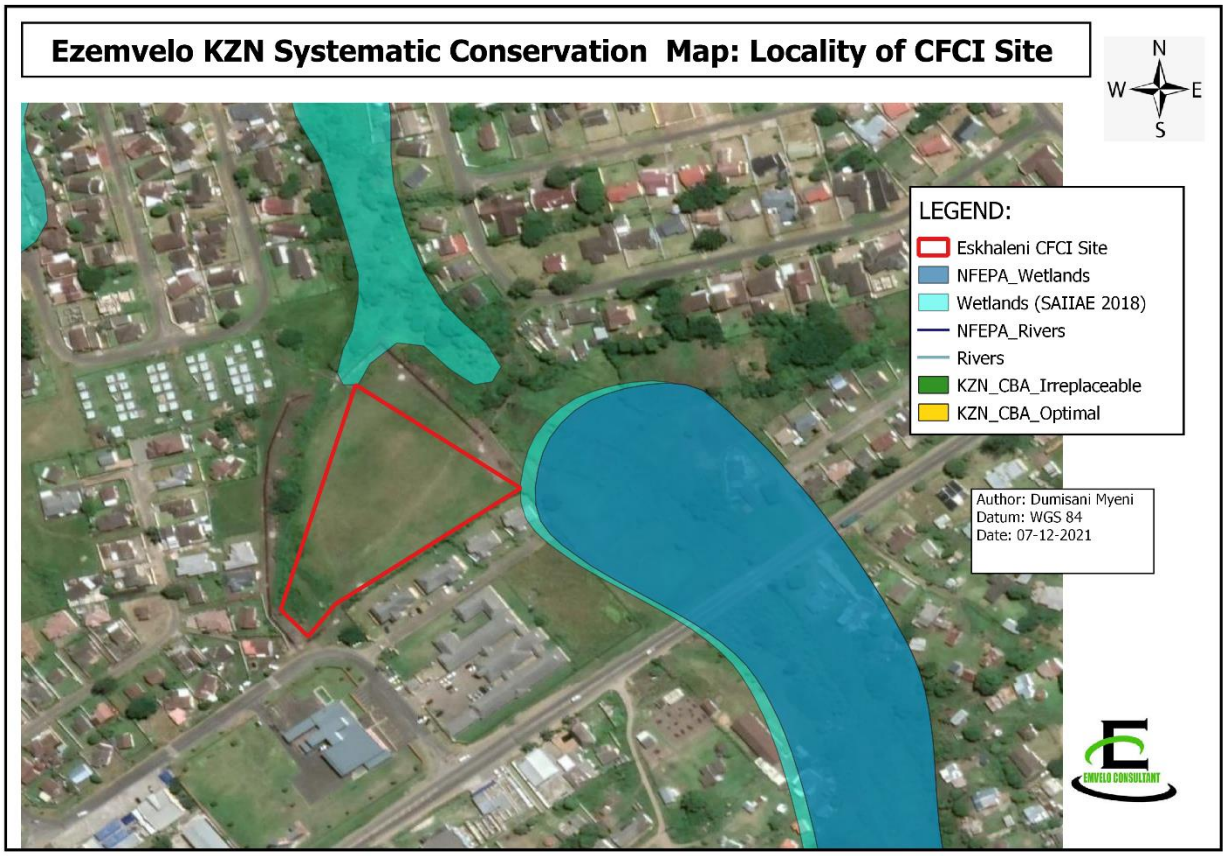

Figure 4: Map Showing Preferred Layout Alternative (only corners intercept wetlands)

8.3 Alternative C (Design Alternative)

The design alternatives form an integral part of the project proposal and becomes a part of the project description and need not be evaluated as separate alternatives (DEAT, 2004a). This 'Design Alternative' is in line with project design criteria described in (***Section 5.2***). The 'Design Alternative can be considered as isolated alternative as is interlinked to Site/Location and Layout Alternative. The design alternative proposes the design for mitigation of ambient noise during facility operation, through internal acoustic design within the chapel, including the sound insulation layers.

8.4 Alternative D (Technology Alternative)

The technology to be used in the activity, refers to a consideration of method of operation, such that an alternative includes the option of achieving the same goal by using a different method or process (DEA&DP, 2007).

Table 7: SANS1200D Excavatibility Classes (Geology and excavation technologies)

***In-sutu* Geological Conditions at different depth**	**Description of material properties/ Excavatibility and Rippability**
Soft	Material that can be efficiently removed or loaded without prior ripping, by means of bulldozer, tractor-scraper, track type front end loader, back acting excavator, without the use of pneumatic tools such as paving breaker.
Intermediate	Material that can efficiently be ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width and adequately ripped by a bulldozer of mass approximately 35t, fitted with a single-tine ripper suitable for heavy ripping, and of flywheel power approximately 220kW. Or use of pneumatic tools before removal by equipment to one specified above.
Hard rock	Excavation in material that cannot before removal, be efficiently ripped by a bulldozer. This type of bedrock that cannot be removed without blasting or without wedging and splitting
Boulder (Class A)	Excavation in material containing more than 40% volume boulders of size in the range of 0.03-20m^3, in matrix of soft material or smaller boulder.
Boulder (Class B)	Excavation in material containing more than 40% volume boulders of size in the range of 0.03-20m^3, in matrix of soft material or smaller boulder, and which require individual drilling and blasting in order to loaded by a tractor type front-end loader or by a by a tractor loader backhoe (TLB)/back acting excavator

The CFCI site is predominantly underlain by intensive sandy and clayey with most to very most between 1.5m below Existing Ground Level (EGL). There are no bedrock within sub-soil and intermediate soil. Soft bedrock is expected to occur between 2.7m and 6.3m below EG. These material within the development site has a good excavatibility to 2.7 m These materials can be classified as ***Soft***, and ***Intermediate*** , these materials can be efficiently ripped by a tractor loader backhoe (TLB) of flywheel power approximately 0.10kW per millimetre of tined bucket width. And adequately ripped by a bulldozer of mass approximately 35t, fitted with a single-tine ripper suitable for heavy ripping, and of flywheel power approximately 220kW. In addition, consideration can also be given to use of a tracked excavator of flywheel power exceeding 0.10kW per millimetre of tined bucket width.

The 'Impact Analysis' (***Refer to Section 14 &15***) and the recommendations by the EMPr are based on this construction methods.

8.5 Alternative E (No-Go Alternative)

In the absence of the proposed development, the CFCI Esikhawini branch would not be able to cater for the increasing number of congregants attending their church services. As such, the resultant overcrowding and sharing of limited resources being offered by the leased premises, i.e., Esikhawini College, could pose environmental health risks and diminishing returns as far as public amenities are concerned (***Refer to Section 7***). It is also important to note that the new church site was pre-determined by the CFCI Leadership as it would not be rational to locate the proposed church further away from pre-existing congregants, as this will result in logistical challenges and church dropouts.

The EAP is therefore of the view that the NO-GO option is undesirable in the face of social and economic needs of the Esikhawini branch CFCI members, as the ownership of the church property will easy a lease burden and accommodate new members, as well as social welfare programmes.

8.6 Preferred Alternative

The role of alternatives is to find the most effective way of meeting the need and purpose of the proposal, either through enhancing the environmental benefits of the proposed activity, and or through reducing or avoiding potentially significant negative impacts (DEAT, 2004a).

Looking at environmental impact likelihood and providing engineering to mitigate those impacts. The preferred alternatives are '*Alternative A: Site/Location Alternative'*, '*Alternative B: Site Layout Alternative*', '*Alternative C: Design Alternative'*, and '*Alternative D: Technology Alternative'* These preferred alternatives cannot be undertaken in isolation, as they assessment is integrated considering their interlink and interchangeable need for mitigation of impact for the proposed Esikhawini CFCI development.

The '*Location/site Alternative'* for the proposed development (Esikhaleni CFCI Auditorium), proposed that the development take place within available site bought within Esikhawini J Extension which is within 3m radius of existing leased building at Esikhawini College.

The preferred '*Layout Alternative'* proposes that CFCI development footprint will be reduced to 8 077.57m^2, with only its two corners of the site northern boundary intercept with wetlands (NFEPA) and SAIIAE wetlands.

The '*Design Alternative'* is linked to '*Layout* and '*Technology alternatives'* as it mitigate impact during construction, but also proposes the design for mitigation of ambient noise during facility operation, through internal acoustic design within the chapel, including the sound insulation layers. The '*Technology Alternative'* also provided the use of light excavator, as the site excitability is soft to intermediate.

Although, there are impact associated with these preferred alternatives but preferred/mitigated development proposal presented in this report is responsive to the integrated results of the assessment of potential impacts made by the various specialists on the project team. The adherence to mitigation measures will render the impacts be of temporal nature, only during construction. This will be addressed by mitigation measures discussed under (***Section 14& 15***) and EMPr.

9 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

In terms of the Environmental Regulations promulgated under the NEMA, an EIA must be conducted for any development or activity that requires an Environmental Authorisation. The listed activities in the NEMA, relevant to this project, that triggers the need for an Environmental Authorisation are listed below:

Table 8: Environmental Statutory Framework

Legislation	Relevance
Constitution of the	➢ Chapter 2 – Bill of Rights. ➢ Section 24 – Environmental Rights/ Health Or Well-Being / Depletion Of Natural Resources

Legislation	Relevance
Republic of South Africa, (No. 108 of 1996)	➢ Section 32: Access to Information ➢ Section 33: Administrative Decisions ➢ Section 38: Locus Standi ➢ Section 68: Authority for Provincial Legislation
National Environmental Management Act (NEMA) (No. 107 of 1998)	➢ Section 2: Principles in Environmental Management ➢ Section 24: Environmental Authorisations and/or Norms and Standards (EA) (➢ Section 24G: Rectification Application ➢ Section 24J: Implementation Guidelines ➢ Section 24L: Alignment of Environmental Authorisations, including Integrated Environmental Authorisations) ➢ Section 24N: Environmental Management Programmes, Rehabilitation of Disturbed Areas and Closure Plan ➢ Section 24P: Financial Provision for Remediation of environmental damage ➢ Section 24Q: Monitoring and Performance Assessment (Environmental Audit) on EMPr's ➢ Section 24S: Management of Residue Stockpiles and Residue Deposits ➢ Section 24M: Exemption from Application of Certain Provisions of The Act ➢ Section 28: Duty of Care and Remediation of Environmental Damage ➢ Section 28: Soil Pollution ➢ Section 29: Protection of Workers on Refusal to Undertake Work ➢ Section 30: Emergency Incident Causing Danger to Public or Environment ➢ Section 30A: Emergency Situation - Request for Directive to undertake listed activity without EA ➢ Section 31: Access to Environmental Information and Protection of Workers ➢ Section 32: Enforcement of Environmental Laws ➢ Section 34: Liabilities in Criminal Offences Under Environmental Laws ➢ Section 39: Control over products which could harm the environment ➢ Section 43: Appeals (Ch 9, Sec 43) ➢ Section 44 and 47: Regulations ➢ Section 47A: Regulations, Legal Documents and Steps Not In Compliance With Procedural Requirements ➢ Section 47B: Consultation with other Departments ➢ Section 47C: Extension of Time Periods ➢ Section 47D: Delivery of Documents ➢ Section 49A and 49B: Offences and Penalties
GN No. 326 (7 April 2017)	➢ Purpose - regulate the procedure and criteria as contemplated in Chapter 5 of NEMA relating to the preparation, evaluation, submission, processing, and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to and EIA, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.

Legislation	Relevance
	➢ Purpose – to identify activities that would require environmental authorizations prior to commencement of that activity and to identify competent authorities in terms of sections 24(2) and 24C of NEMA. ➢ The investigation, assessment, and communication of the potential impact of activities must follow the procedure as prescribed in regulations 19 and 20 of the EIA Regulations published in terms of section 24(5) of the Act. However, according to Regulation 15(3) of GN No. 327, Scoping and an Environmental Impact Report (S&EIR) must be applied to an application, if the application is for two or more activities as part of the same development for which S&EIR must already be applied in respect of any of the activities. ➢ Activities that are relevant to this application are: **Listing Notice 1, Listed Activity 12.**
National Water Act (Act No. 36 of 1998)	➢ Chapter 3 – Protection of water resources. ➢ Section 19 – Prevention and remedying effects of pollution. ➢ Section 20 – Control of emergency incidents. ➢ Chapter 4 – Water use. ➢ Authority – Department of Water and Sanitation (DWS).
NEMA 1998 - GN R982 of 4 December 2014 - Environmental Impact Assessment Regulations, 2014	➢ Regulation 1 and 2: Interpretation, Purpose and Commencement of Regulations) ➢ Regulation 3: Timeframes) ➢ Regulation 4: Decision on Applicant and Notification to I&AP's ➢ Regulation 5 and 6: General Requirements for Applications ➢ Regulation 7, 8 and 9: Consultations between Competent Authority and other relevant State Departments ➢ Regulation 10 and 11: Competent Authority - Right of access to information ➢ Regulation 12, 13 and 14: EAP's and Specialists' Appointments and Conditions ➢ Regulation 15: Assessment Process to be followed ➢ Regulation 16, 17 and 18: Requirements applicable to the EA Application ➢ Regulation 19 and 20: Basic Assessment Report submitted to Competent Authority ➢ Regulation 21, 22, 23 and 24: S&EIR submission to Competent Authority ➢ Regulation 25 and 26: Issue and Content of an Environmental Authorisation ➢ Regulation 31, 32 and 33: Amendment of Environmental Authorisation ➢ Regulation 34: Audits on EA's, EMPr's and Closure Plans ➢ Regulation 36 and 37: Amendments to an EMPr and Closure Plan ➢ Regulation 38: Suspension and Withdrawal of Environmental Authorisation ➢ Regulation 39, 40, 41, 42, 43 and 44: Public Participation ➢ Regulation 45, 46 and 47: General Matters ➢ Regulation 48: Offences
National Environmental	➢ NEM: AQA (Act No.39 of 2004). ➢ Air quality management ➢ Section 32 – Dust control. ➢ Section 34 – Noise control. ➢ Authority – DFFE

Legislation	Relevance
Management Air Quality Act (Act No. 39 of 2004)	
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	➢ Section 43-48: Biodiversity Management Plans (Ecosystems, Indigenous Species or Migratory Species) ➢ Section 51-55: Threatened or Protected Ecosystems and Threatening Processes ➢ Section 56-58: Threatened or Protected Species ➢ Section 64-67 and 69: Alien Species Posing a potential threat to Biodiversity ➢ Section 70 and 77: Invasive Species posing a potential threat to Biodiversity (➢ Section 101 and 102: Offences and Penalties Authority – EDTEA
Occupational Health & Safety Act (Act No. 85 of 1993)	➢ Provisions for Occupational Health & Safety Regulation 9A and 14: Hazardous Chemicals Substances ➢ Regulation 10 and 15: Disposal of HCS Waste ➢ Authority – Department of Labour.
National Heritage Resources Act (Act No. 25 of 1999)	➢ Section 34 – protection of structures older than 60 years. ➢ Section 35 – protection of heritage resources. ➢ Section 36 – protection of graves and burial grounds. Section 51: Offences and Penalties ➢ Authority – Provincial Heritage Agency : AMAFA
National Road Traffic Act 1996 (Act No. 96 of 1996)	➢ Section 51: Waste on Or Near National Road ➢ Authority – KwaZulu Natal Department of Transport and community safety
Environment Conservation Act (Act 73 Of 1989)	Section 29: Offences and Penalties Section 31A: Damage to Environment
Promotion of Access to Information Act, 2000 (Act No 2 of 2000)	➢ Section 11 and 12: Access to Records of Public Bodies ➢ Section 50: Access to Record of Private Bodies ➢ Section 51: Publication and Availability of Certain Records ➢ Section 70: Mandatory Disclosure by Public/Private Bodies
Water Services Act, 1997 (Act No. 108 of 1997)	➢ Section 3:Right of Access to Basic Water Supply and Sanitation ➢ Section 9: National Standards on Provision or Water Services ➢ Section 11: Duty to Provide Access to Water Services ➢ Section 12-18: Water Services Development Plans ➢ Section 27: Monitoring of Water Services Provided

Legislation	Relevance
	➢ Section 77: Transferability of Servitudes
Hazardous Substances Act, 1973 (Act No. 15 of 1973)	➢ Section 2-3: Grouped Hazardous Substances ➢ Group I – Hazardous Substances (GN R 452 Of 25 March 1977 and GN 801 Of 31 July 2009) ➢ Group II Hazardous Substances (GN R1382 Of 12 August 1994) ➢ Group III Hazardous Substances (GN R1302 Of 14 June 1991) ➢ Group IV Hazardous Substances (GN R247 of 26 February 1993) ➢ Section 18 and 19: Offences and Penalties
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act, 1947 (Act No. 36 of 1947)	➢ Section 3 and 7: Pest Control Operators, and use of fertilizers, farm feeds, agricultural, stock remedies and sterilising plants ➢ Section 7: Sale of fertilizers, farm feeds, agricultural remedies, and stock remedies ➢ Section 7BIS: Prohibition on acquisition, disposal, sale or use of certain fertilizers, farm feeds, agricultural remedies, and stock remedies ➢ GN R181 of 7 February 2003 - Regulation Relating to the Prohibition of the Sale, Acquisition, Disposal or Use of Agricultural Remedies ➢ Containers And Labels of Agricultural and Stock Remedies
	➢ GN 98 of 11 February 2011 - Pest Control Operator Regulations
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	➢ Section 7-9: National Norms and Standards, Provincial Norms and Standards and Waste Service Standards ➢ Section 14 and 15: Priority Waste ➢ Section 16: Duty on Waste Holder to Implement Reasonable Measures ➢ Section 17: Reduction, Re-Use, Recycling and Recovery of Waste ➢ Section 43-59: Waste Management Licences for Listed Waste Activities or Compliance to Norms and Standards ➢ Section 21 and 22: Storage of Waste ➢ Section 23 and 24: Waste Collection needs to be Authorised by the Municipality ➢ Section 25: Waste Transportation ➢ Section 26: Unauthorised Disposal of Waste and Protection of Environment ➢ Section 25: Protection of Environment at Private Land ➢ Section 35-41: Contaminated Land ➢ Section 67 and 68: Offences and Penalties ➢ Regulation 4: Waste Classification ➢ Regulation 5: Safety Data Sheets for Hazardous Waste ➢ Regulation 6: General Obligations on Waste Generators, Transporters And Managers ➢ Regulation 7: Waste Treatment ➢ Regulations 8: Waste Assessment - Waste Disposal to Landfill - Obligations on Generators and Managers

Legislation	Relevance
	➢ Regulation 9:Waste Management Activities that do not require a Waste Management Licence ➢ Regulation 10: Records on Waste Generation and Management
Advertising on Roads and Ribbon Development Act, 1940 (Act No. 21 of 1940)	➢ Section 8: Articles Or Materials On Or Near Public Roads
Health Act, 1977 (Act No. 63 of 1977)	➢ Section 20: Waste Being a Threat to Human Health
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	➢ Section 5: Prohibition on the Spreading of Weeds ➢ Section 8 and 9: Soil Conservation Schemes ➢ Regulation 8: Managing the Flow Pattern of Run-off Water ➢ Regulation 12: Burning of Veld, Prevention and Control of Veld Fires ➢ Regulation 15: Weeds and Invader Plants
National Forests Act, 1998 (Act No. 84 of 1998)	➢ Section 7: Indigenous trees ➢ Section 12-15: Protected Trees (All Areas) ➢ Section 16: Registration in Title Deeds ➢ Section 61-64: Offences and Penalties
National Veld and Forest Fire Act, 1998 (Act No. 101 of 1998)	➢ Section 9 and 10: Fire Danger Rating ➢ Section 17-19 and 34: Firebreaks ➢ Section 24 and 25: Offences and Penalties
National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003)	➢ Section 18 and 19: Special Nature Reserves ➢ Section 23-26: Nature Reserves ➢ Section 28 and 29: Protected Environments ➢ Section 37: Management of Protected Areas ➢ Section 38-42: Management Plans in Protected Areas ➢ Section 43: Monitoring performance of Protected Areas ➢ Section 45-47: Access to Protected Areas ➢ Section 48: Restricted activities in Protected Areas ➢ Regulation 49: Regulation or Restriction of Activities in Protected Areas ➢ Section 89: Offences and Penalties

Other applicable legal requirements:

a) uMhlathuze Local Municipality By-laws

b) Building Aesthetics Bylaw

c) Building Control Bylaw

d) Traffic Bylaw

e) Disaster Management Bylaw

10 DESCRIPTION OF BASELINE ENVIRONMENT

This section provides a general description of the status quo of the receiving environment in the project area. This serves to provide the context within which the Basic Assessment exercise was conducted. It also allows for an appreciation and identification of sensitive environmental features and possible receptors of the effects of the proposed project.

10.1 Climate

The Southern African region is divided into three climatic regions: Wet, dry, and moderate regions. In this regard the region of the Kwa-Zulu Natal encompasses both, with categories such as humid subtropical (*Cfa*), oceanic climate (*Cfb*), hot semi-arid climates (*BSh*), tropical savanna climate (*Aw*), and the subtropical highland oceanic climate (*Cwb*) as classified by Köppen and Geiger, but the most prevalent ones are Cfa ,Cfb, BSh and Aw (Climate-Data.org).

The climate region of Esikhawini is referenced to Richards Bay, and the climate of the study region as classified by the Köppen-Geiger system is categorised as (*Aw*). This region has a warm and temperate climate, with an average annual temperature of 21.9 °C and annual precipitation of 944 mm with its precipitation mostly received during the summer months period between November and March (***Figure 5***).

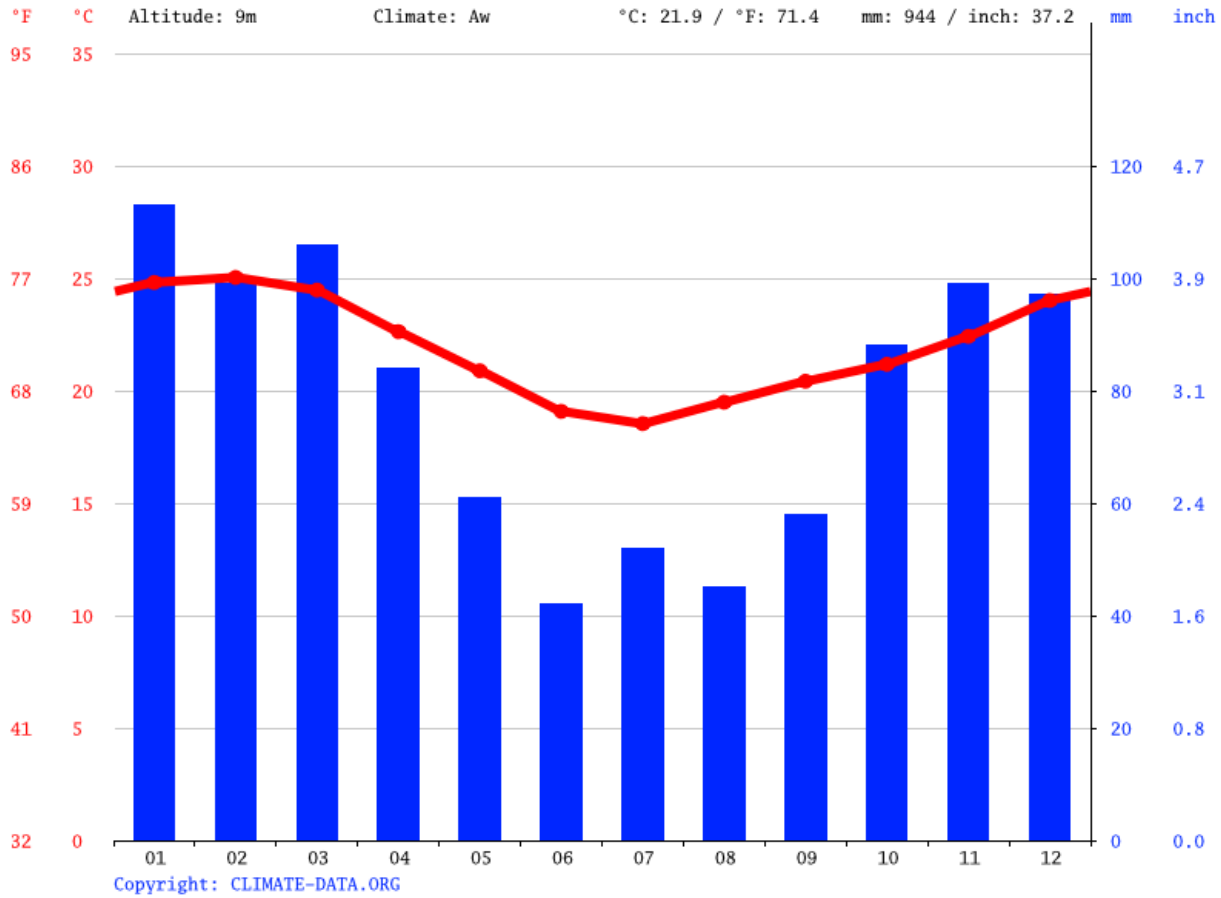

Figure 5: Richards Bay Climate Graph over a 12-month period [Source: Climate-Data.Org]

10.1.1 Potential impact

Due to various return periods and extreme events on the adjacent artificial drainage stream associated with wet period the excavation during the peak flow conditions will results to surface run-off and erosion within the vicinity of the CFCI facility. Due to site terrain and flood plains situated within the boundary of the proposed site it is inferred that construction within the watercourse will have minimal impact on the hydrological and geological elements when conducted during wet condition climate. The measures to mitigate the potential impacts will be considered further in the EMPr.

10.2 Hydrology

The hydrological system comprises an interlinked system of ecosystems such as the headwaters of a river catchment, rivers and wetlands downstream, lakes, groundwater, estuaries, and the marine environment.

The study area is located in the Quaternary Catchments W12F, within the Pongola to Mtamvuna Water Management Area (WMA) 4.

10.2.1 **Rivers and dams**

The Bordered by Thukela River at the South-West border and Mfolozi River at the North-Eastern border, the river systems in King Cetshwayo District are conglomerated within the central and coastal areas, with major rivers within the region, include; Nseleni, Matigulu, Mhlathuze, Mlalazi, Mfule, Nyalazi, Mzingwenya, Mfolozi River (Ezemvelo KZN Wildlife, 2014).

The Mean Annual Precipitation (MAP) of the study area is 1 285mm and the Mean Annual Evaporation (MAE) of the study area is 1 300 mm, with annual runoff of 47.61 million cubic meters (WR 2012). The project area drains into two non-perennial streams, which are tributaries to the Mzingwenya River (Zonhla, 2022). There were no river system with 500m regulated areas, except for artificial channel serve to be a stormwater system.

10.2.2 **Wetlands**

The major wetlands at King Cetshwayo District are mainly formed at the coastal plain situated at the south-eastern and south-western parts, namely; Mhlathuze wetland systems which host Cubu lake, and Mbongolwane wetland system at the upper reach of Matigulu River, respectively(Ezemvelo KZN Wildlife, 2014).

There are two hydrological bodies identified spanning along the east and west of the proposed New Covenant Fellowship Church International property boundary. The identified wetland were classified as the Channelled Valley Bottom wetland (HGM 1). The wetland was assessed to have a Present Ecological Sensitivity (PES) of a Category C (Moderately Modified), owing to the transformed nature of the surrounding land use and its influence on the wetland system. The Ecological Importance and Sensitivity (EIS) of the wetland was assessed being of 'High (B class)' (***Figure 6 & 7***).

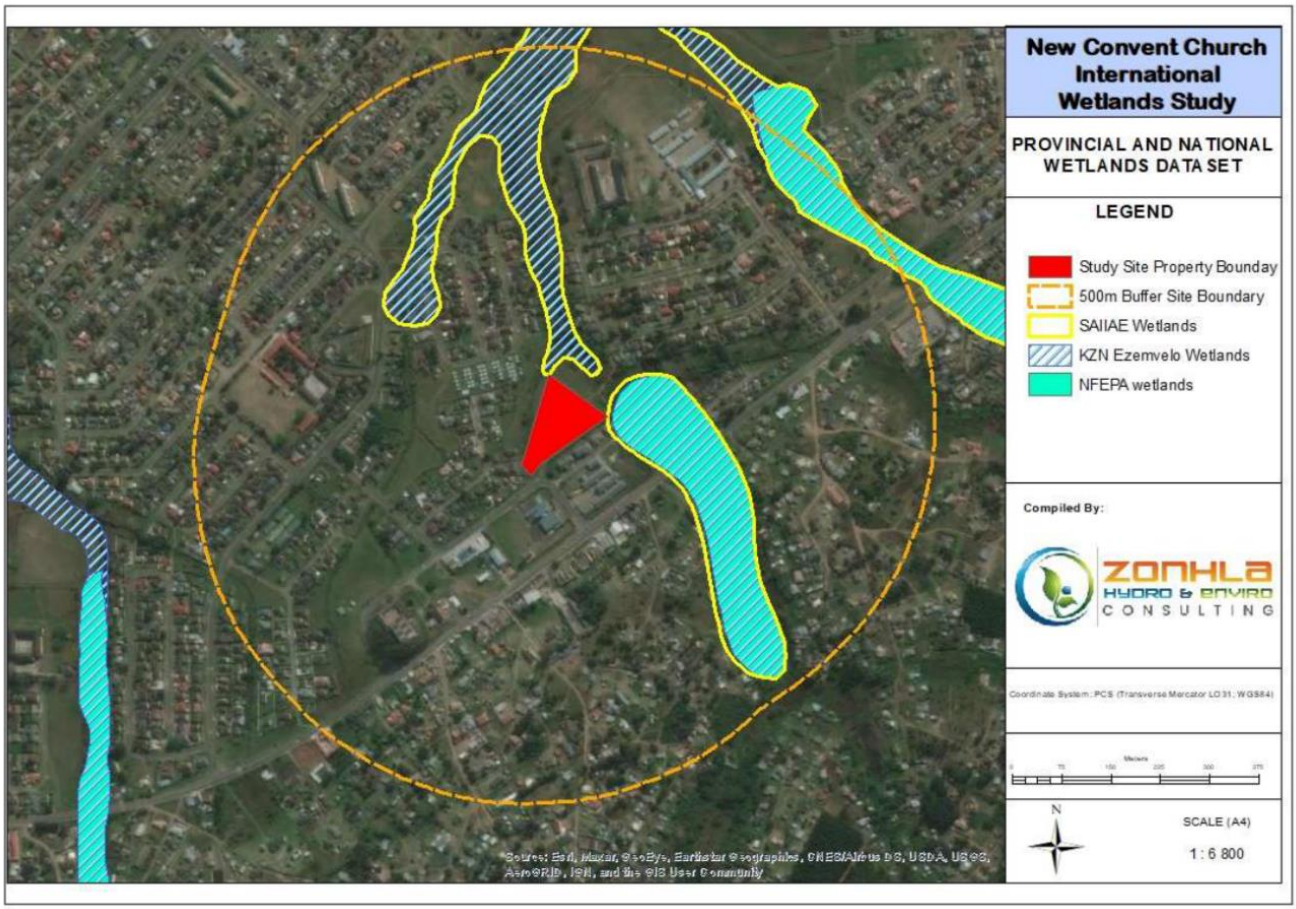

Figure 6: Map showing wetlands within the study area

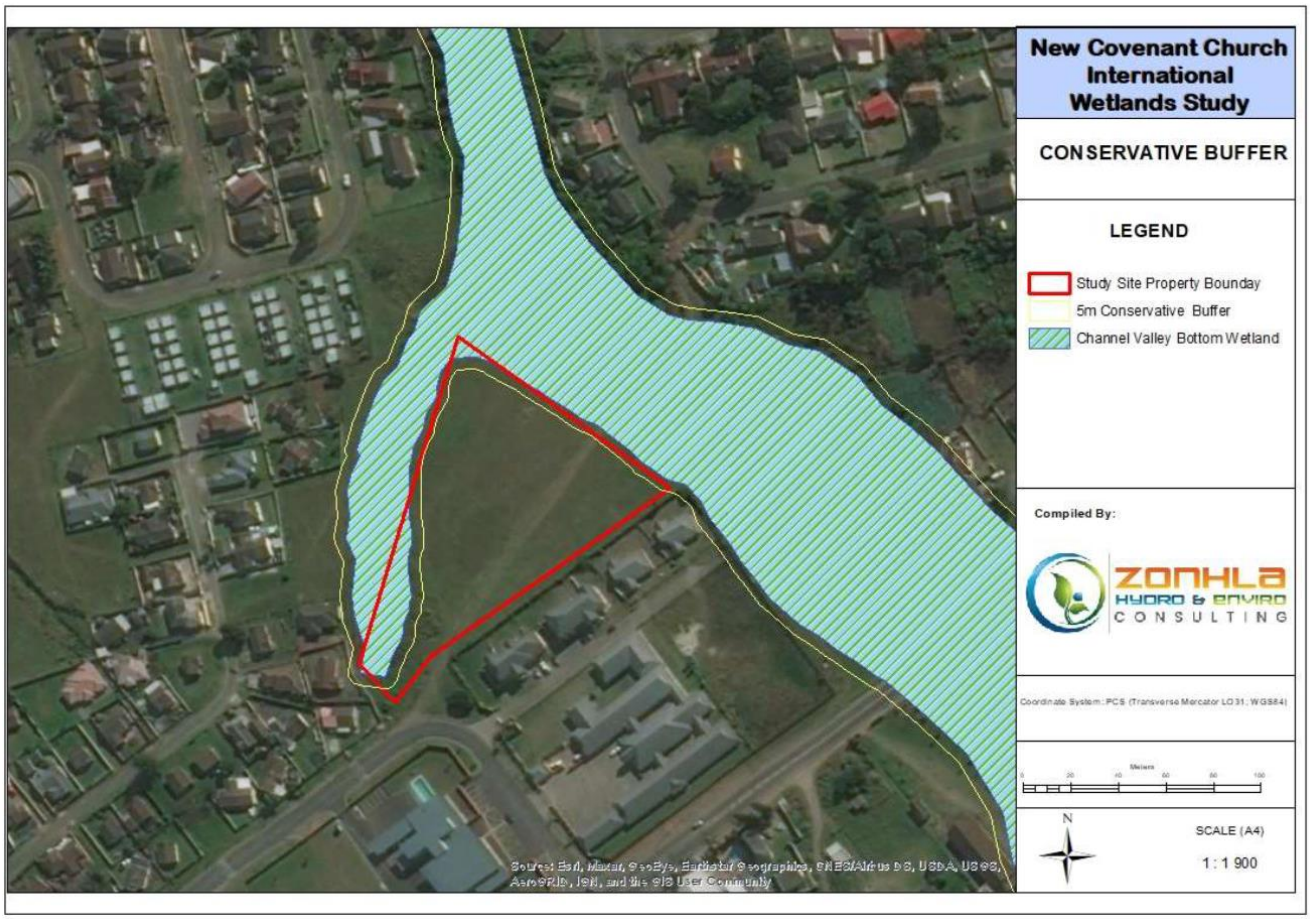

Figure 7: Delineated Wetland with 5m conservative buffer

10.2.3 Potential impacts of the project hydrological features

The impacts on wetlands systems are expected to be high if no consideration is given to minimise impacts at identified channelled valley bottom wetlands. Any construction within the watercourse is considered environmental sensitive. It is highly recommended that the recommendations by the EMPr, and Wetland Impact Assessment be adhered to, in order to mitigate any impacts that may arise.

10.3 Biomes

The King Cetshwayo District traverses eight (8) biomes, namely; Azonal Forest, Forest, Savanna, Fynbos, Grassland, Indian Ocean Coastal Belt, Wetlands and Open Water and contains 47 vegetation types (Ezemvelo KZN Wildlife, 2014).

The study area falls under the Savanna Biome, with predominantly Maputaland Coastal Belt Grassland (***Figure 8***).

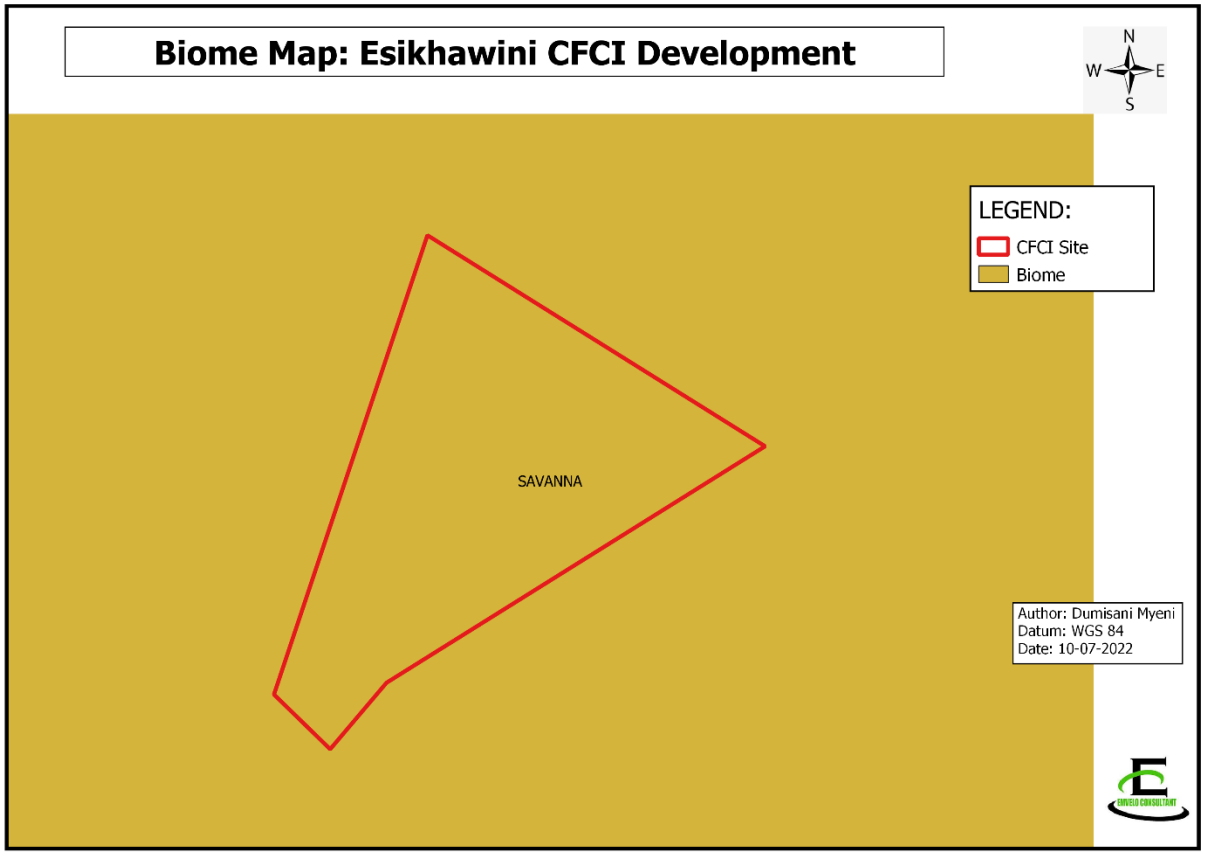

Figure 8: Map Showing the Savanna biome within project areas

10.4 Flora

The King Cetshwayo District has a very rich vegetation endemic from stratified biomes with a complex forest biome, with vegetation endemic to geographical and climatic conditions. Namely: The mangrove forest and the Swamp Forest Group Formation endemic to azonal forest biome, and with conservation status classified as “Critically Endangered”; The Ngome-

Nkandla Scarp, Dukuduku, Moist Coastal Lowlands Forest, Southern Mesic Coastal Lowlands Forest and East Coast Dune Forest, with conservation status classified as "Critically Endangered"; The Eastern Mistbelt Forest, Maputaland Mesic Coastal Lowlands Forest, Maputaland Moist Coastal Lowlands Forest, and Maputaland Dune Forest, endemic to forest biome with conservation status classified as "Endangered"; The Northern Coastal Scarp Forest classified as "Least Threatened"; And the coastal belt endemic to Subtropical Dune Thicket and Subtropical Seashore Vegetation are well protected, and their conservation status classified as "Least Threatened" (Ezemvelo KZN Wildlife,2014).

The vegetation type with the study area comprise of Maputaland Coastal Belt, with intrusion of Subtropical Alluvial Vegetation: Lowveld plain Grassland: Tall Reed Wetland (***Figure 9***). Two (2) discrete habitat types that were delineated within the assessment area, namely green filed (wetlands and open space) and transformed (settlement).

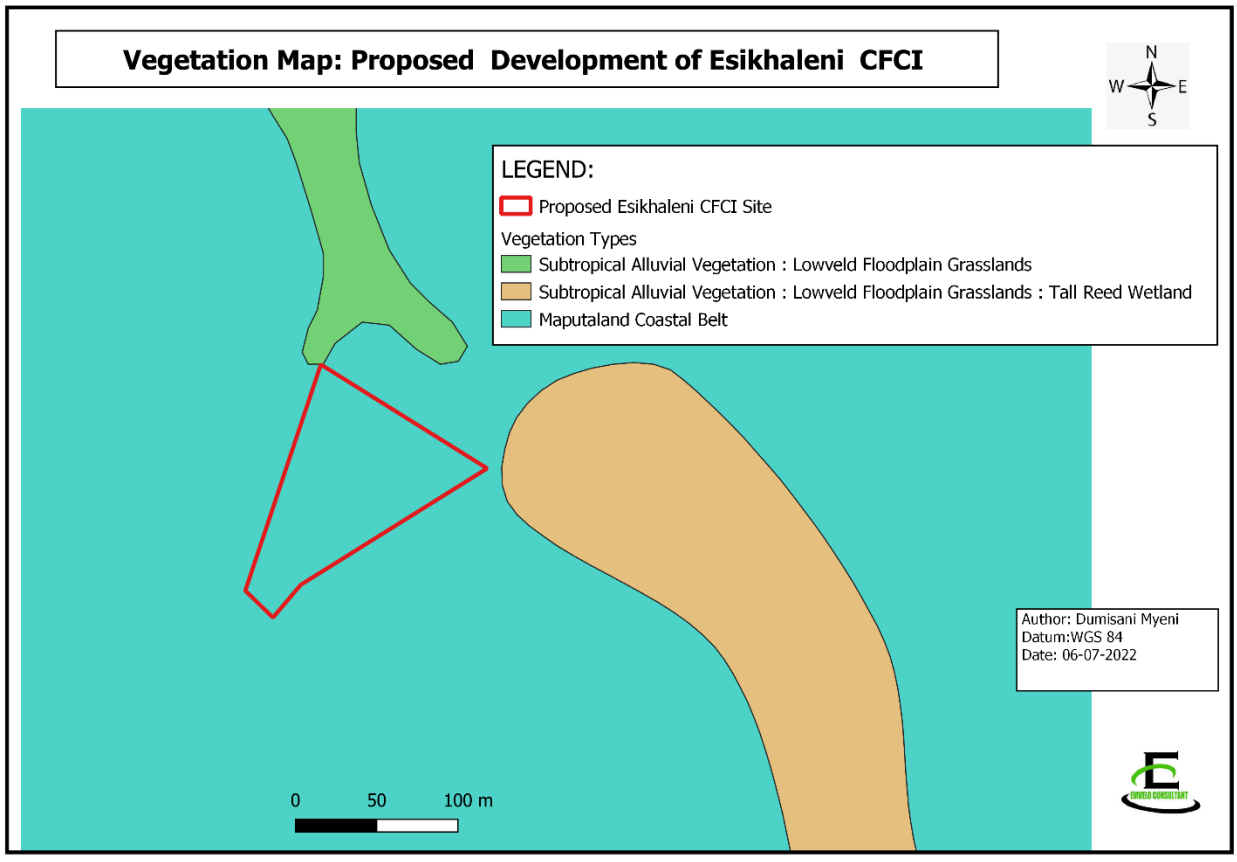

Figure 9: Map showing the vegetation types within study area

10.4.1 Potential Impacts

Potential impacts to vegetation could result from the vegetation clearance for construction required for CFCI infrastructure development. However, proper mitigation can be achieved through carefully implementation of recommendations given by the EMPr.

10.5 Protected Areas

Protected areas in South Africa are defined as parts of the landscape that are formally protected by law in terms of the NEM: PAA and managed primarily for the purpose of biodiversity conservation. There were no protected areas within 10km from proposed development site (***Figure 10***).

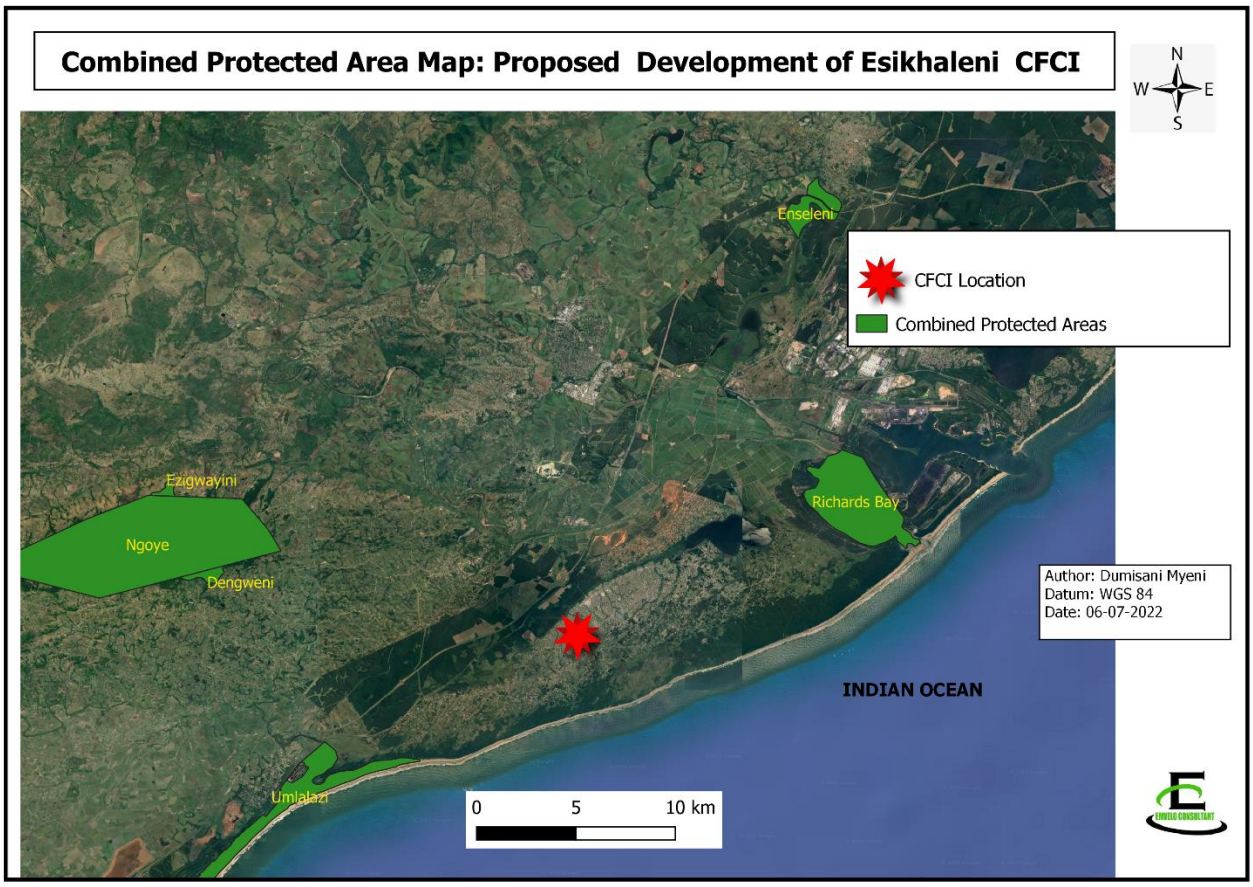

Figure 10: Map showing Protected Areas within the study area

There are two main categories of areas that are required to meet conservation targets. These two main categories include Critical Biodiversity Areas (CBAs) and Ecological Support Areas

(ESAs). The CBAs are crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets including corridors. The ESAs represent the functionality and not necessarily the entire natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within a Critical Biodiversity Areas (***Refer to table 9***).

Table 9: Subcategories of CBA and ESAs [Source: Ezemvelo KZN Wildlife ,2014]

Critical Biodiversity Areas (CBAs) **– Crucial for supporting biodiversity features and ecosystem functioning and are required to meet biodiversity and/or process targets**	
Critical Biodiversity Areas: Irreplaceable (CBA1)	Areas considered critical for meeting biodiversity targets and thresholds, and which are required to ensure the persistence of viable populations of species and the functionality of ecosystems.
Critical Biodiversity Areas: Optimal (CBA2)	Areas that represent an optimised solution to meet the required biodiversity conservation targets while avoiding high-cost areas as much as possible (Category driven primarily by process but is informed by expert input).
Ecological Support Areas (ESAs) – **Functional but not necessarily entirely natural areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within Critical Biodiversity Areas.**	
Ecological Support Areas	Functional but not necessarily entirely natural terrestrial or aquatic areas that are required to ensure the persistence and maintenance of biodiversity patterns and ecological processes within the Critical Biodiversity Areas. The area also contributes significantly to the maintenance of Ecosystem Services.
Ecological Support Areas: Species Specific	Terrestrial modified areas that provide a critical support function to a threatened or protected species, for example agricultural land or dams associated with nesting/roosting sites.
Ecological Support Areas: Buffers	Terrestrial areas identified as requiring land-use management guidance not necessarily due to biodiversity prioritisation, but in order to address other legislation/ agreements which the biodiversity sector is mandated to address, e.g., WHS Convention, Triggers Listing Notice criteria, etc.

There were no CBA and ESA identified within the study area (***Figure 11***).

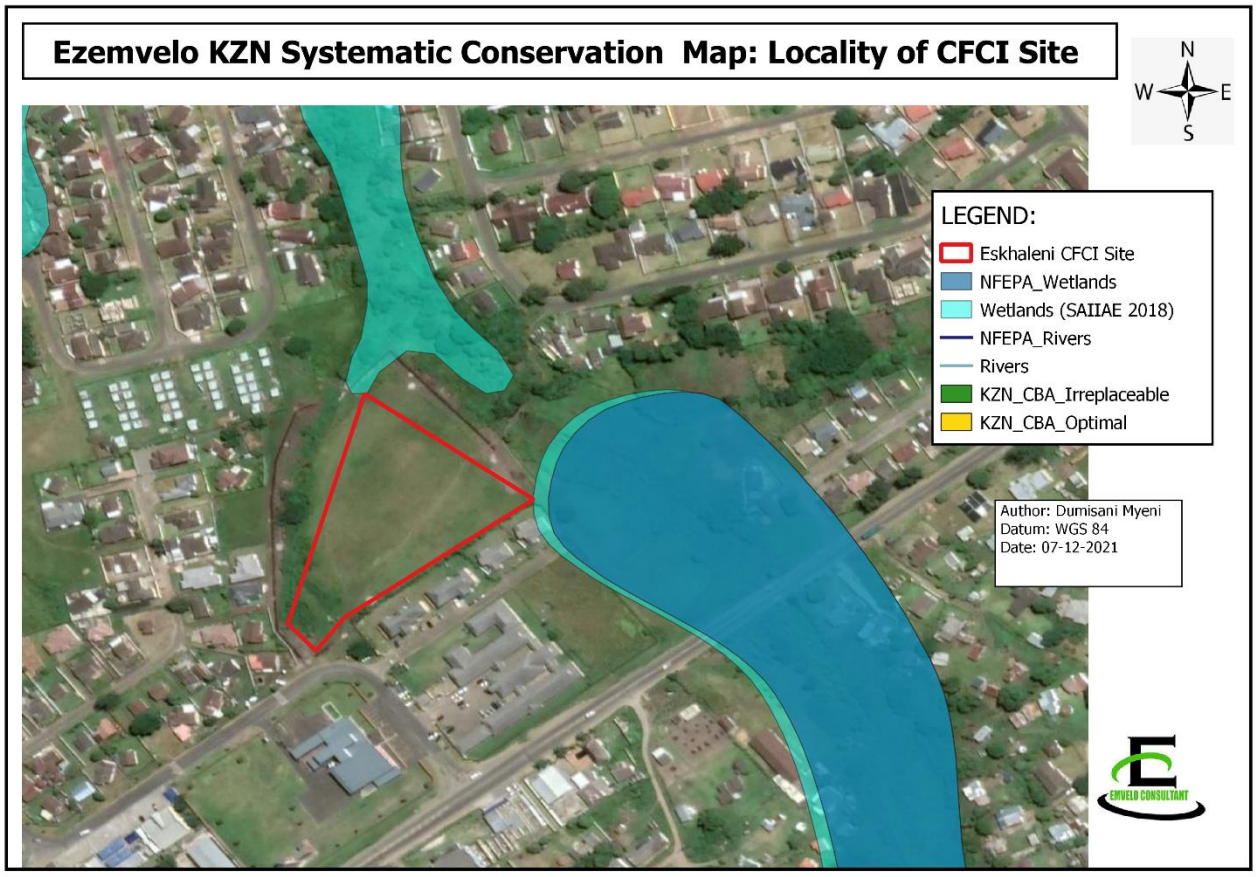

Figure 11: Map showing CBAs with the study area

10.5.1 Potential Impacts

Intensive vegetation clearance at project site can lead to fragmentation, reduction, and loss of habitat as well as loss of plant species SCC and migration of animals away from the area. However, proper mitigation can be achieved through carefully implementation of recommendations given by the EMPr.

10.6 Fauna

The King Cetshwayo region has endemic fauna which are "*Critical Endangered*", one example is the Dlinza Forest Pinwheel (*Trachycystis clifdeni*) and Discus Pinwheel (*Trachycystis placenta*) snails which are endemic to Dlinza Forest Nkandla Forest, respectively and both falls under protected areas (Ezemvelo KZN Wildlife, 2014).

In addition, when the study region was interrogated against Quarter Degree Square (2831DD) obtained from Fitzpatrick Institute of African Ornithology Virtual Museum, the study region also confirms the availability of bird species such as, Southern Banded (Fasciated) Snake-Eagle, African Marsh-Harrier, Martial Eagle, and Mangrove Kingfisher, African Finfoot all 'Endangered'. Frog Species such as Spotted Shovel-nosed Frog, Pickersgill's Reed Frog with conservation status 'vulnerable'.

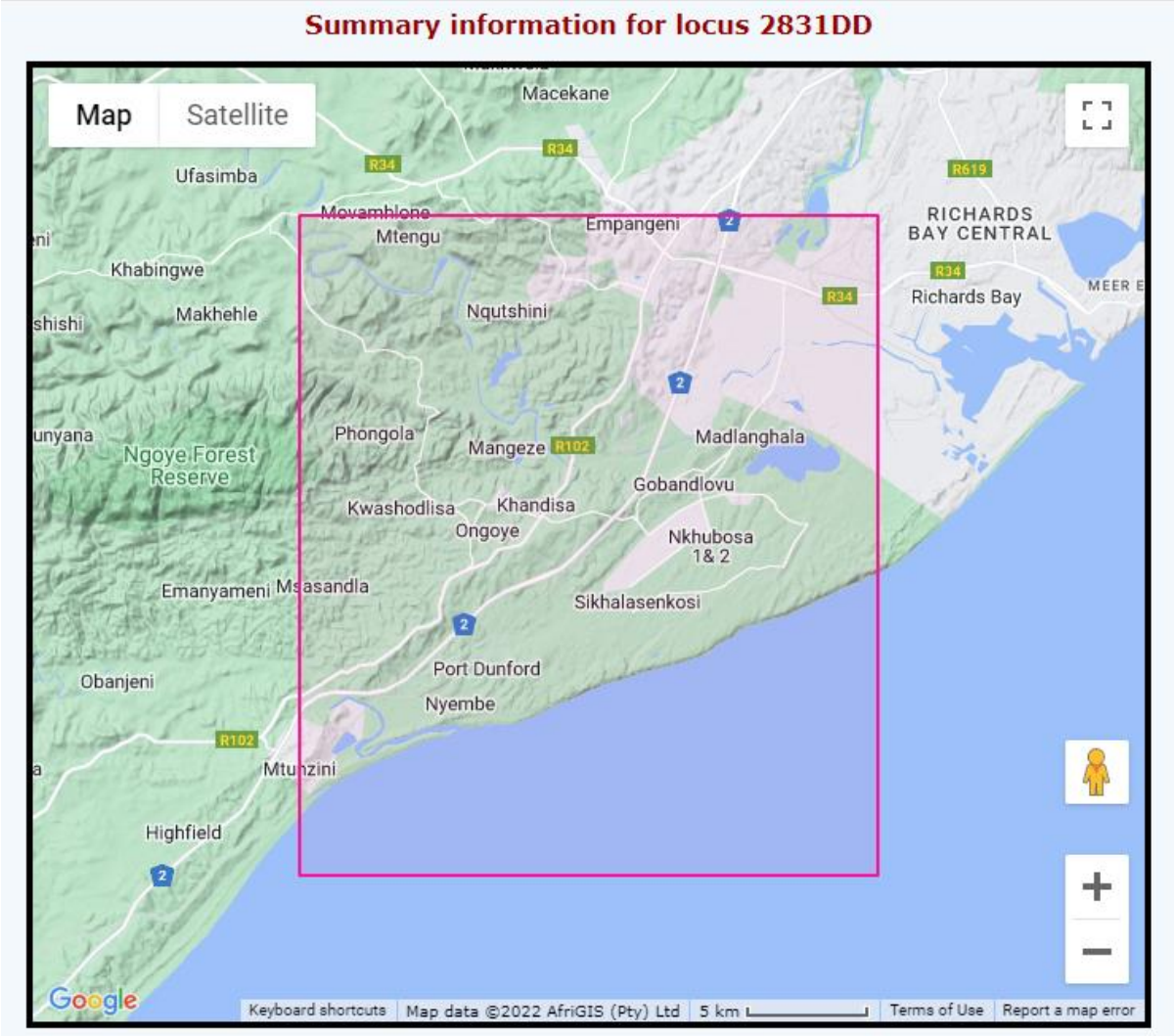

Figure 12: Quarter Degree Square (2831DD)

10.6.1 Potential Impacts

Intensive vegetation clearance within the development area for the purpose of construction of settlement within undeveloped areas could modify the watercourse natural integrity, locality fauna disturbance might occur and could led to fragmentation, reduction, and loss of habitat as well as the ecological corridors and connectivity. However, the conservational importance of the site is considered low. Therefore, no faunal species were discovered during the site investigation. Moreover, proper mitigation can be achieved through carefully implementation of recommendations given by the EMPr.

10.7 Topography

The King Cetshwayo District has a varied topography that extends from the flat coastal plains to inland hilly areas and steep valleys, each vegetation endemicity supplementary to its geographical location. In these aspects, the flat coastal region of approximately 450m above mean sea-level comprises of the Natal Coastal Belt and Zululand Coastal Plain. The terrain become increasingly extreme towards the north-west which places those areas within the altitude ranging between 900 and 1400m mean above sea-level, in the process render those part of region to be characterized by steeply incised valleys (Ezemvelo KZN Wildlife, 2014).

The study area is characterised of flat terrain with altitudes ranging between 20m and 40m AMSL (***Figure 13***).

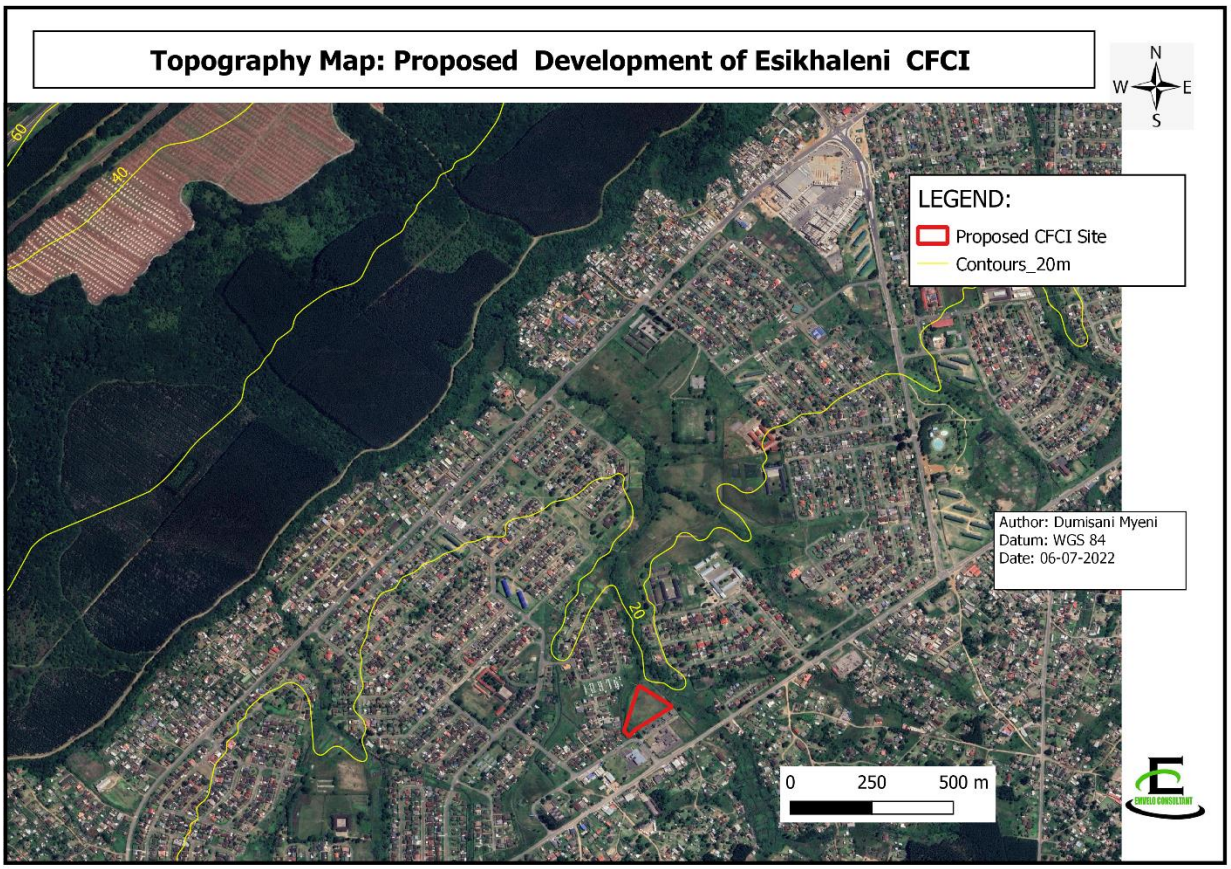

Figure 13: Contour Map showing elevations within study area

10.7.1 **Potential impacts**

The topography characteristic of the proposed site is relatively flat. Therefore, coupled with the flood line areas and wetland pans across and impervious surface renders the development site prone flooding in the event of torrential rain. However, proposed development will have minimal impacts on the overall topography of the development area, in respect to soil erosion. Notwithstanding, the Geotechnical investigation describes the necessary mitigation and construction methods where the cut slopes will be required. This will be addressed in accordance with *in-sutu* material erodibility, excavatibility, rippability, and run-off propensity. However, proper mitigation can be achieved through carefully implementation of recommendations given by the Geotechnical Assessment and EMPr.

10.8 Geology

The King Cetshwayo District features are stratified across the regions. The coastal region of King Cetshwayo District which is south-west and south-east is characterised of flat plains, which narrows towards south and widened towards north. This part of the District is underlain by Cainozoic and recent geomorphological series which include sand stones, shales and mudstones. The existence of relatively flat terrain renders this part of the region to be less susceptive to surface erosion. Whereas the western region characterised of complex undulating terrain underlain by Table Mountain series, gneiss and granite of the Natal Monocline. Unlike the coastal region, the granite derived soils in western region vary considerably but significantly susceptible to erosion at slope areas. Moreover, the geological features at central region rise from the formation of Table Mountain series and also underlain by Ecca Group Formation, granite, sandstone, shales and limestones. The Ecca Group are susceptible to slight to moderate erosion whilst the Table Mountain series is moderate to severe erosion (Ezemvelo KZN Wildlife, 2014). The study area is dominated by a homogeneous sand geological formation (**Figure 14**).

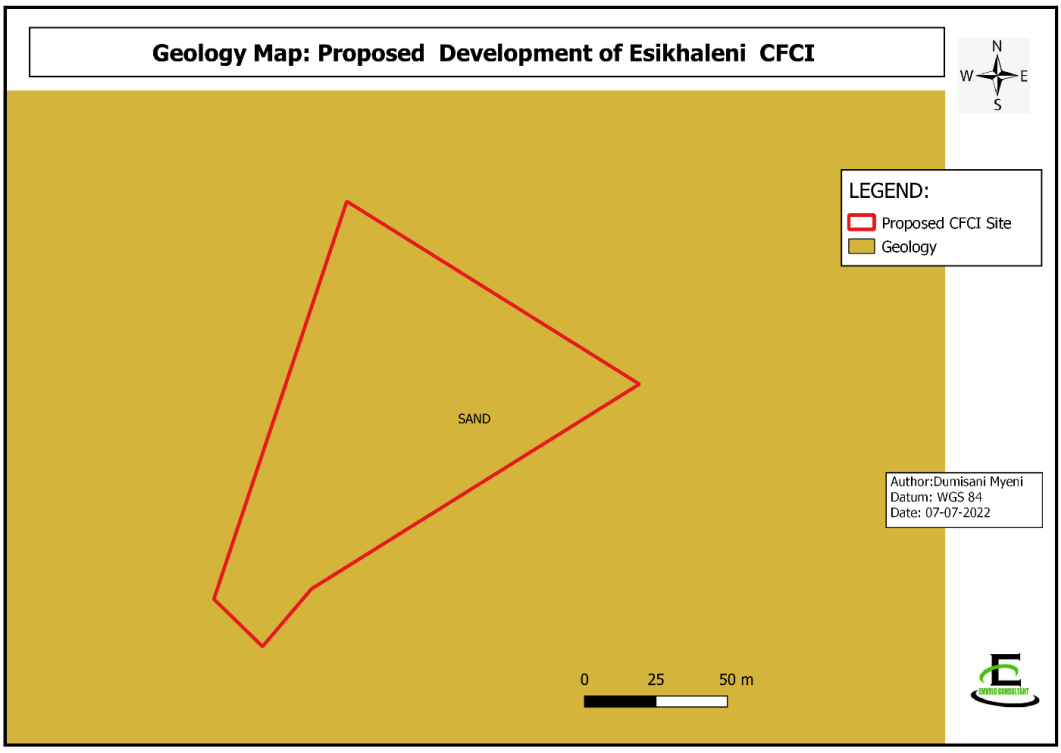

Figure 14: Map showing a dominance geological formation

The field investigation indicated that the prominent geological structures within Specon bypass study are underlain by sedimentary rocks belonging to the Transvaal Supergroup, dominantly by completely weathered Quartzite, with bedrock at 2m below Existing Ground Level (EGL).

The site investigation provided that the CFCI site is predominantly underlain by intensive sandy and clayey with most to very most between 1.5m below Existing Ground Level (EGL). There are no bedrock within sub-soil and intermediate soil. Soft bedrock is expected to occur between 2.7m and 6.3m below EG.

10.8.1 Potential impacts

The construction activities for CFCI , will include excavation within the watercourses (wetland habitat) and bulk earthwork for installation of infrastructure required for formalisation of settlement. This activity may have impact on geological stability, thus result in run-off erosion. Therefore, the mitigation measures given by the EMPr must be adhered to in order to minimise any potential significant impacts that may arise.

10.9 Visual environment and land use character

Subject to the direct visual influence of the proposed project, the zone of visual influence can be experienced at different scales by receptors located at various distances from the site. The viewshed area and zone of visual influence for new developments is classified as follows:

- High visibility - Visible from a large area (several square kilometres, >5km radius)
- Moderate visibility - Visible from an intermediate area (several hectares, 2.5 – 5 km radius).
- Low visibility - Visible from a small area around the project site (<1km radius).

The proposed development is the within a heavily developed area, which will therefore streamline with existing infrastructure. During construction activities it is likely that the project could be considered '*low visibility*' as it can be visible from a small area around the project site (<1km radius).

10.9.1 Potential Impacts

After the construction the development will bring an aesthetic value as streamline to existing infrastructure. Also, during the construction this project is not anticipated to be highly visible from great distances and will be perceived by receptors in close proximity in the category of "low visibility".

Also, the dust and other visibility aspects must be managed through proper implementation of recommendation provided by EMPr.

10.10 Heritage and cultural aspects

The study area has low sensitive in regard to heritage. A preliminary desktop study for palaeontological fossils sensitivity of the proposed site, reveals that the site falls within a very low sensitivity, as result a field assessment and protocol for finds is not required for this study (***Figure 16***).

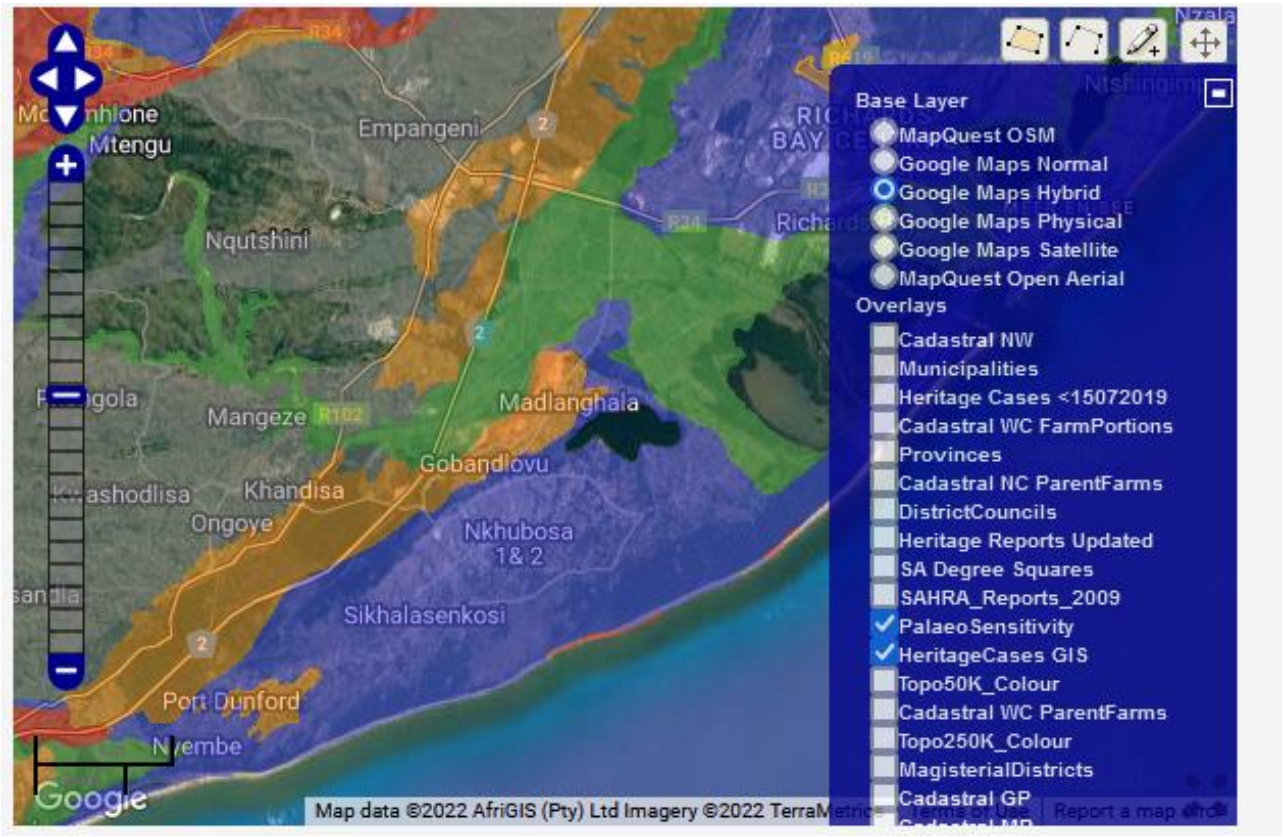

Figure 15: Palaeontological Sensitivity within Study Area

[SOURCE: https://sahris.sahra.org.za/node/add/heritage-cases]

No Stone Age settlements, structures, features, assemblages, or artefacts were recorded around the site during the survey. It is however important to note that lack archaeological sites / artefacts on the ground does not necessarily mean lack of archaeological find underground. Archaeological resources may still be discovered during excavations or any ground-breaking activities during the construction phase.

The inquiry has been lodged South African Heritage Resource Agency to ascertain whether there are any cultural and heritage sites within the study area. Findings will be incorporated into the final Basic Assessment Report.

10.10.1 Potential Impacts

During the clearing of vegetation and excavation activities, heritage resources on surface, and heritage artefact that might be buried underground may be affected. Moreover, excavations (pre-construction and construction phase) could uncover the following: stone foundations, ash middens that can contain bone, glass and clay ceramics, ash, metal objects such as spoons, knives, and knives and possible adult and infant burials (especially unmarked). However, the project will have no negative impacts, provided that all archaeological and other cultural and heritage aspects are managed through proper implementation of recommendation provided by EMPr.

10.11 Social and economic aspects

The project will have positive impacts in terms of improving livelihoods. It is also expected that the local community will benefit through jobs during the construction, operation, and maintenance phase, which will enable the transfer of skills and boost the local economy. Additionally, local businesses will benefit from the supply chain processes. This will contribute to alleviating poverty and decrease the dependency ratio of the area. Most importantly, the churches contribute into social compact.

10.11.1 Potential Impacts

The Impact associated with church will be the noise pollution emanating from mass gatherings.

10.12 Traffic

Existing roads will be utilised as far as possible during the construction and operational periods. The use of roads on private property is subject to the provisions of an Environmental Management Programme (EMPr) that will be prepared for the project. The flow of traffic to the site during the construction period will be relatively light and during operation there will be no construction traffic. The proposed development site can be accessed via an unnamed crescent that intersects with Mdlebe Mpuma Road or Iqhina Street.

11 WASTE AND AIR POLLUTION

Construction activities, like other operations, also lead to air pollution and waste generation, and such pollution and waste have detrimental effect on the receiving environment.

11.1 Waste management: construction phase

Some of the possible solid and liquid waste during the construction and assembling of the pipelines and associated infrastructure include general waste (plastic, paper, food scraps, etc.), hazardous waste (chemicals, oil, diesel, resins, drilling fluids, sewage, etc.), medical waste from onsite injuries (bandages, swabs, medication, needles, etc.) and building rubble (cement, steel, wood, etc.) The general waste will be disposed of at Polokwane landfill site, while the disposal of hazardous and medicinal waste will be handled by a certified service provider. Proper measures will be put in place to contain generated during construction, as prescribed by EMPr.

11.2 Hazardous waste

The incorrect handling and disposal of hazardous waste (lubricants, fuel, chemicals, agricultural remedies, *inter alia*) could have detrimental impacts on nearby watercourses. Potential impacts on groundwater may arise if hazardous substances are allowed to leak onto bare soil and potentially leach into the ground or disposed of incorrectly. Proper measures will be put in place to contain any spillages (oil spills) occurring during construction, as prescribed by EMPr.

11.3 Air pollution

The proposed development itself will not have direct impact on air pollution and atmospheric emission. However, certain activities during construction could have a minor impact on the ambient air as a result of emissions from the onsite equipment, machinery, and vehicles. These include dust emanating from construction activities and fumes (carbon monoxide) released by construction vehicles and machinery. Proper measures will be put in place to contain any dust and emissions occurring during construction, as prescribed by EMPr.

11.4 Noise management

The project sites will emit different levels of noise due the various construction activities, movement of heavy construction vehicles, use of machinery as well as from large number of workers on site. It is anticipated that the church will emit high noise level during services of mass gathering. However, noise impacts are expected to be of short duration and only during certain times of the construction phase, which is likely to only have impacts to the immediate environment. Proper measures will be put in place to contain any potential noise pollution impact occurring during construction, as prescribed by EMPr.

12 WATER AND SANITATION

Water Supply:

The water to be used during construction will use metered water supplied by uMhlathuze Local Municipality, with the provision of existing water within the project locality. The water use will include water construction, consumption, drinking, equipment cleaning and hygiene as well as dust suppression where required.

During the operation phase, sewer generated on the church auditorium will be connected to the existing sewer pipeline from the uMhlathuze Local Municipality. Water to be used for all church related operations during the operational phase will be supplied by the municipality.

Sanitation Facilities:

All construction sites will have chemical toilets located conveniently along the pipeline route, and all effluent waste will be disposed of at the Mhlathuze Water Wastewater Treatment Works.

Sewer and greywater system will be serviced by uMhlathuze Local Municipality.

Stormwater Management:

The site stormwater reticulation will not connect into the existing municipal infrastructure but will discharge into the stormwater trench running in the active open space on the western side of the property. A headwall will be constructed, and suitable erosion protection measures will be provided using gabions and Reno mattress.

13 THE PUBLIC PARTICIPATION PROCESS

Section 24 (4) (a) (v) of NEMA, provides that the procedures for the investigation, assessment and communication of the potential consequences or impacts of activities on the environment, must ensure, with respect to every application for an Environmental Authorisation, the public information and participation procedures which provide all interested and affected parties, including all organs of state in all spheres of government that may have jurisdiction over any aspect of the activity, with a reasonable opportunity to participate in those information and participation procedures.

13.1 Background

Public Participation Process (PPP) is part of the EIA process which is governed under the principles of NEMA as well as the EIA regulations. It is defined as the process by which an organization consults with all interested or affected parties (I&APs) which include organizations, government entities, affected communities, non-governmental organisations (NGOs), etc. It is a two-way communication process and collaborative problem solving with the goal of achieving better and more acceptable decisions.

The PPP also provides all the stakeholders including the community with a platform to raise their environmental concerns before the Competent Authority can make a final decision regarding the issuing of the Environmental Authorization. This prevents and minimizes

disputes before they become unsolvable. Chapter 6 of the EIA regulations emphasize that the information related to the proposed project must be made available to I&APs, prior to a final decision. Therefore, this process will allow I&APs to have access to the information relating to this project. The application was conducted according to Chapter 6 of the EIA Regulations 2017.

13.2 Objectives of public participation

The objectives are as follows:

- To inform and involve the community and the stakeholders about the proposed development;
- To identify and address the community and stakeholder's environmental concerns regarding this activity;
- To provide opportunities for the community, relevant government departments, surrounding businesses, the residents, and other stakeholders to raise their environmental concerns, suggest solutions and identify priorities or issues;
- To protect the environmental rights of the local community; and
- To optimise on local and indigenous knowledge of the area.

13.3 Notification of the Interested and Affected Parties (I&APs)

Section 41 of Chapter 6 of the EIA regulations have listed the different options, to be used when notifying the I&APs. The PP process for this project was conducted, as detailed in (***Table 10***) and indicated by the green blocks.

Table 10: Public Participation Processes

All the Interested and Affected parties were notified of the application by-		
Fixing a notice board at the place conspicuous to and accessible by the public at the boundary, on the fence, or along the corridor of any alternative sites. *See Appendix E: Onsite notices positions.*	**YES**	**~~NO/NA~~**
Any alternative site also mentioned in the application	**~~YES~~**	**NO/NA**
Has a written notice been given to-		

Landowner or person in control if the applicant is not in control of the land. *The land is owned by CFCI*	~~**YES**~~	**NO/NA**
The municipal councillor of the Ward in which the site and alternative site of the proposed activity. *uMhlathuze Local Municipality Ward 19. Cllr Mthiyane*	**YES**	~~**NO/NA**~~
The municipality which has jurisdiction in the area and other organs of state. *uMhlathuze Local Municipality*	**YES**	~~**NO/NA**~~
Placing an advertisement in-		
Regional newspaper (Ilanga Newspapers***, 23-24/02/2022***)	**YES**	~~**NO/NA**~~
Any official Gazette that is published specifically for providing public notice of applications	~~**YES**~~	**NO/NA**
One provincial newspaper, any official Gazette that is published with the purpose of providing public notice of applications.	~~**YES**~~	**NO/NA**

13.4 Comments from the registered Interested and Affected Parties (I&APs).

Section 43 of Chapter 6 of NEMA (EIA Regulations 2017) indicates that all I&APs are entitled to comment in writing on all reports produced by the applicant during the EIA process. This will bring the concerns raised to the attention of the applicant.

The I&APs were provided with the opportunity to raise their concerns and comments regarding the proposed development project. Firstly, a Background Information Document (BID) was sent to all relevant I&APs. The onsite notices were posted onsite on 23 February 2022. Notices were displayed in strategic positions in the project area in order to enhance accessibility from the public. Following, the posting of onsite notices, the newspaper advert was published by (*Ilanga Newspaper*, *23-24/02/2022 editio*n). A focus group meeting was facilitated by Emvelo on the 4th of March 2022. The I&APs were given a fair opportunity to comment public participation, and their comments are attached. All public participation activities are attached under (***Appendix E***).

Public participation activities and reports are attached in Appendix E (Public Participation).

14 IMPACT ASSESSMENT AND MITIGATION MEASURES

The Environmental Impact Assessment (EIA) conducted for the construction phase and the operational phase for the site, are discussed in (***section 14.1***) below.

Each impact identified is assessed in terms of probability (likelihood of occurring), scale (spatial scale), magnitude (severity) and duration (temporal scale). To effectively implement the adopted scientific approach in determining the significance of the environmental impact, a numerical value was linked to each rating scale.

The following criteria will be applied to the impact assessment for the proposed development:

Occurrence

- Probability - the probability of the impact describes the likelihood of the impact actually occurring.
- Impact duration - the duration of the impact describes the period of time during which an environmental system or component is changed by the impact.

Severity

- Magnitude – refers to the 'degree of disturbance' to biophysical systems and components which expresses the change in the health, functioning and/or role of the system or component as a result of an activity.
- Scale/extent - the extent of the impact generally expresses the spatial influence of the effects produced by a disturbance to an environmental system or component.

The following ranking scales were used:

Probability = P	*Duration = D*
5 – Definite (More than 80 % chance of occurrence)	5 – Permanent - The only class of impact that will be non-transitory (indefinite)
4 – Probable (Between 60-80% chance of occurrence)	4 - Long-term - The impact and its effects will continue or last for the entire operational life of the development (15 - 50years)
3 – Possible (Between 40-60% chance of occurrence)	

2 – Fairly Unlikely (Between 20-40% chance of occurrence 1 – Unlikely (Less than 20% chance of occurrence)	3 - Medium-term - The impact and its effects will continue or last for some time after the construction phase (5 - 15 years) 2 – Medium-short - The impact and its effects will continue or last for the period of a relatively long construction period and/or limited recovery time after this construction period (2 - 5 years) 1 – Short Term - Likely to disappear with mitigation measures or through natural processes which span shorter than the construction phase (0-2 years)
Scale = S 5 – International (beyond 200km) 4 – Regional (50-200km radius) 3 – Local (2-50km radius) 2 – Surrounding area (within 2km) 1 – Site (within100m)	*Magnitude = M* 5 - High 4– Medium High 3 – Medium 2 – Medium Low 1 – Low
Status of Impact *+ Positive / -Negative or 0-Neutral*	

Significance is derived using the following formula:

Significance= (Scale+ Duration +Magnitude/Severity) x Probability

Table 11: Significance Ratings

Aspect	Description	Weight
Probability	Improbable	1
	Probable	2
	Highly Probable	4
	Definite	5
Duration	Short term	1
	Medium term	3
	Long term	4
	Permanent	5

Scale	**Local**	**1**
	Site	**2**
	Regional	**3**
Magnitude/Severity	**Low**	**2**
	Medium	**6**
	High	**8**
Significance	**Sum (Duration, Scale, Magnitude) x Probability**	
	Negligible	**≤20**
	Low	**>20 ≤40**
	Moderate	**>40 ≤60**
	High	**>60**

Cumulative Effects: It is important to assess the natural environment using a systems approach that will consider the cumulative impact of the various actions. A cumulative impact refers to the impact on the environment, which results from the incremental impact of the actions when added to other past, present and reasonably foreseeable future actions regardless of what agencies or persons undertake such actions. Cumulative impacts can result from individually minor but collectively significant actions or activities taking place over a period of time. Cumulative impacts can take place so frequently in time that the effects cannot be assimilated by the environment.

Identification of Mitigation Measures: The mitigation measures should describe possible actions for the mitigation of the significant negative environmental impacts identified in the assessment. The philosophy of identifying mitigation measures for negative impacts will be based on the reduction of the impact at source, the management of the impact through monitoring and control, and the involvement of the I&APs in consideration of mitigating measures, where appropriate.

Maximisation of Positive Impacts: The philosophy to be followed will focus on maximizing the benefits to the local environment.

tatus	Denotes the perceived effect of the impact on the affected area
Positive(+)	Beneficial impact.
Negative (-)	Deleterious or adverse impact.
Neutral (/)	Impact is neither beneficial nor adverse.

14.1 Impact Analysis (Preferred Location, Site Layout and Design/Technology Alternatives)

Table 12: Impact Mitigation During Planning Phase

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Best Construction Practice Design	2	4	8	5	-70 High	• To comply with the control and disposal of all storm water on site, the storm water will be collected from developed areas into catchpits and discharge into the passive open space next to the property. • The reticulation must be maintained in a clear open state to allow runoff to flow unhindered. All vegetation is to be maintained in such a manner that storm water entrances do not become over grown and blocked. Grass cuttings are to be removed from site to prevent them from entering the pipes • Sound Insulation - The recommendations provided for sound insulation, design comprises of both minimising the noise pollution to the site boundaries as dictated by the by-law requirements and to reduce rain and hail impact noise. The design in this section should ideally be included in the first phase as it will be difficult and costly to implement as a retrofit, except where explicitly stated that a two phased approach may be used.	2	1	2	5	+25 Low

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						• Chapel Walls - Ideally, the envelope of the chapel, together with the doors, should provide a minimum sound insulation rating of R'w > 45dB as mentioned in Section 4 of the Acoustic Assessment Report. The cavity wall indicated that it could currently meet this requirement provided the walls extended from the floor slab to roof edge and well plastered on both sides. It must be ensured that all gaps in the brick wall and between the wall and steel roof are well sealed. • Chapel Windows - The windows separating the chapel from the external environment pose a significant noise risk to the site boundaries. It is recommended that non-openable windows be used with the following double window construction: o Two separate frames installed at the outer edge of each wall in the cavity wall i.e., the maximum airgap that can be achieved between the two frames; o Thick gauge aluminium extruded frames; o 10.38mm laminated glass for frame 1; and o 12.38mm laminated glass for frame 2 • The above approach may be considered as a two-phase approach whereby 1 window frame may be installed, and a					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						second window frame may be installed as a retro fit item should it be necessary in the future. • Doors - The chapel is mainly surrounded by circulation passages where one door directly links the chapel stage to the outside. The chapel envelope should have a minimum sound insulation rating of R'w 45dB, to maintain this rating through the doors, a double set of R'w = 30dB solid core timber doors (with a sound lobby in between) may be used at all the entrances of the chapel. The door to the side of the stage should also employ the use of a sound lobby configuration and a solid timber door with seals. • Roof - To optimise the sound insulation that can be achieved from this construction it is recommended that 50mm 80kg/m3 Factoryboard (tissue facing version and not foil facing) be used instead of the 100mm ISOVER Energylite. The additional mass layers as recommended will also provide rain and hail impact noise mitigation. • Internal Acoustic Treatment - In order to control the reverberation sound energy within the chapel, a minimum combined ceiling and wall treatment area of approximately 1					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						500m2 (based on an absorption performance of NRC = 0.8) is required. • The ceiling area makes up for the majority of the area that may be used for acoustic treatment. The full ceiling area should be utilised for acoustic absorptive surface treatment (approximately 1450 m2) with a sound absorptive material that can provide minimum NRC = 0.8 performance. However, to accommodate the low frequencies anticipated in this space, at least a 200mm depth behind the ceiling treatment should be utilised. • The critical wall treatment areas include the back and side walls of the chapel. Approximately 100m2 of surface treatment should be applied to the back wall and approximately 50m2 per side wall of surface treatment will be required. Due to the low frequency build up anticipated in this space, the back wall treatment would need at least a 100mm airgap depth behind the wall panels. • Types of developments that will not be considered within the 1:50 and 1:100-year floodlines are as follows:					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						○ No structure that will results in a loss of flood storage from the system; ○ No fill, dykes, levees or berms intended to restrict the area of floodplain inundation; ○ No ground floor in which people sleep at night; and ○ No sewer lines. • the position of the church building should be located outside of the delineated 1:50 and 1:100-year return period floodlines. • It is further recommended that mitigation measures, such as flood retention wall/berm, are investigated in order to prevent flood damage of any of the proposed infrastructure. Alternative design solutions may also be possible, such as raising the development foundation level above the simulated flood levels. • Notwithstanding the above, based on the results of the fieldwork undertaken during the investigation, it is considered that the site is generally stable and suitable for the proposed development; • All earthworks should be carried out in a manner to promote stable development of the site. It is recommended that the					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						earthworks be carried out in accordance with the guidelines given in SANS 1200 (current version) • The potential for rapidly unstable excavation conditions has been identified within the solids. As such, temporary shoring to engineers' detail for excavation into these units is strongly recommended; • Due to the adverse nature of the shallow subsurface materials generally encountered including strong groundwater seepage activity, It is considered that the fill materials encountered do not constitute a suitable founding medium for supporting structural loads arising from the proposed building structures. Based on the knowledge of the geotechnical site conditions, as confirmed by the current investigation, a piled foundation is recommended for the proposed building. • A concrete apron is recommended around structures to promote surface drainage away from building structures; and • It is also recommended that the Bill of quantities allows for permanent subsoil drainage measures to address the incidence of groundwater seepage flows in excavations shallow services.					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Planning and Creating Environmental Awareness	3	4	6	5	-65 High	• Appointment of ECO and other role players, i.e., site manager, Environmental Officer (EO), Contractor's manager and Community Liaison Officer • All role-players must understand their part in the implementation of the mitigation contained in this BAR and in the EMPr • Required method statements are compiled and approved. • Ensure environmental awareness among their employees and sub-contractors so that they are fully aware of, and understand the Environmental Specifications and the need for them • All identified protected tree species must be marked within the project footprint. • Establish procedures to effectively verify and address complaints and claims received • Complaints or liaisons with landowners with regard to environmental matters must be recorded, reported to the correct person and a record of the response is to be entered in the complaints register	3	3	2	5	+40 Low

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						• Establish lines of communications with landowners. Provide relevant contact details to landowners for queries / raising of issues or complaints • Landowners will be kept up to date with projected construction durations on their properties • Include environmental awareness aspects into the site induction program to ensure all staff is aware of the location and importance of watercourses on site. • The Contractor shall ensure that all site personnel have a basic level of environmental awareness training and that training manual and toolbox talk topics cover issues such as; o What is meant by "Environment"? o Why the environment needs to be protected and conserved etc. • Use must be made of environmental awareness posters on site. • The need for a "clean site" policy also needs to be explained to the workers.					
Site preparation	3	3	6	5	-60 Moderate	• The working width of the construction area must be clearly demarcated prior to construction. Soil and vegetation to be stripped only	3	3	2	4	+32 Low

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						from project footprint area. No-go areas particularly sensitive areas (e.g., river or drainage lines) are to be demarcated or spanned over. • If the construction camp is required in the study area, the contractor must establish a construction camp in an area as agreed with the ECO. The site for the construction camp must not be in an environmentally sensitive area such as in close proximity to a watercourse or on a steep slope. • All identified protected tree species must be marked within the project footprint. All employees must be educated on identifying protected tree species. • Workers must be educated to recognize markers on plants. Sensitive environmental features must be identified, mapped and demarcated as no go areas					
Method statements	3	4	6	4	+52 Moderate	• Contractor shall not commence work on that activity until such time as the Method Statement has been approved in writing by the developer ECO. • The Contractor shall carry out the activities in accordance with the approved Construction Method Statements. • Approved Method Statements shall be readily available on the site and shall be communicated to all relevant personnel. Approval	3	3	2	4	-32 Low

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						of the Method Statement shall not absolve the Contractor from any of his obligations or responsibilities in terms of the EMPr specifications. • Activities that will require method statements include, but not limited to: o Dust Control o Vegetation removal o The storage provisions for construction material and/or equipment					
Environmental incidents	2	1	6	8	-72 High	• The contractor must take corrective action to mitigate an incident appropriate to the nature and scale of the incident and must also rehabilitate any residual environmental damage caused by the incident or by the mitigation measures themselves. All incidents must be reported to the ECO and the developer.	2	1	6	2	+18 Negligible

Table 13: Construction Phase Impacts

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Excavation for foundation	2	1	6	5	-45 Moderate	• All excavation (if not working in the area) must be barricaded or covered to prevent safety and environmental accidents. • Minimise the time taken to complete each operation that is causing inconvenience or disruption in this area. • Make temporary access ways over any excavations. • To inform property owners of the exact time and duration of closing entrances to any properties at any one time.	2	1	2	5	+25 Low
Erosion Control	2	1	6	4	-36 Low	• The Contractor is to provide a method statement on how erosion control will be managed on site during construction and rehabilitation. • Areas where erosion is likely (e.g., steep slopes [gradient > 6%], areas cleared of topsoil and topsoil stockpiles) must be monitored. • Erosion control structures i.e., earth embankments must be put in place where soil may be exposed to high levels of erosion • due to steep slopes, soil structure etc. • All construction areas must be suitably top soiled and vegetated as soon as is possible after construction.	2	1	2	2	+10 Negligible

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Stockpiling soil	2	3	6	5	-55 Moderate	• Ensure that excavated and stockpiled soil material is stored and bermed on the higher lying areas of the site and not in any storm water run-off channels or any other areas where it is likely to cause erosion or where water would naturally accumulate. • The areas where excavated soil will be stockpiled must be bordered by berms to prevent soil loss caused by rain.	2	1	6	5	+45 Moderate
Sedimentation and Compaction of watercourse soils	2	3	6	4	-44 Moderate	• The design of the construction area must make provision for limiting sediment build up. • Reduce clearing to a minimum to maintain vegetation cover • In areas where vegetation clearing is required, surface water velocity must be dissipated using sufficient drains at appropriate intervals. • No stockpiles or construction materials will be stored or placed within any drainage line on site or areas where water naturally accumulates. • Any stockpile stored for long periods must be retained in a bunded area. Topsoil stockpiles especially, must be covered during excessively windy conditions to preserve biodiversity functionality.	2	1	2	2	+10 Negligible

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						• Create a channel for runoff to avoid numerous runoff channels that erode the soil away from watercourses; • No large scale of mixing of cement must be done within the drainage lines. Where possible, ready-mix cement must be used for the structures to be constructed. All mixing of cement must occur on top of an impermeable surface. • Re-vegetate cleared soil after construction for the control of soil erosion and water capacity. • Avoid driving on watercourses during construction of the distribution line to prevent vehicle track incision and the potential for channel initiation. Where this is unavoidable crossing structures must be in place across affected watercourses.					
Air Quality	2	3	6	4	-44 Moderate	• Vehicles transporting friable materials such as sand, Gravel etc. must be covered with a tarpaulin, and their speed must be limited to 40km/hr. • All construction vehicles must be in good working order to prevent unnecessary exhaust fumes. • Dust suppression mechanisms must be employed in areas of high vehicle movement.	2	1	2	2	+10 Negligible

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Noise Pollution	1	3	6	4	-40 Low	• The construction phase must aim to adhere to the relevant noise regulations and limit noise to within standard working hours in order to reduce disturbance of habitable areas in close proximity to the development. • Construction site yards, workshops, and other noisy fixed facilities must be located well away from noise sensitive areas. Once the proposed final layouts are made available by the contractor(s), the sites must be evaluated in detail and specific measures designed into the system. Truck traffic must be routed away from noise sensitive areas, where possible. • Noisy operations must be combined so that they occur where possible at the same time. • Blasting operations (if required) are to be strictly controlled with regard to the size of explosive charge in order to minimise noise and air blast, and timings of explosions. • No blasting must be allowed at night. • Construction activities are to be contained to reasonable hours during the day and early Evening. • Night-time activities near noise sensitive areas must not be allowed. With regard to unavoidable very noisy construction	1	1	2	4	+16 Negligible

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						activities in the vicinity of noise sensitive areas, the contractor and ECO must liaise with neighbours. • As construction workers operate in a very noisy environment, it must be ensured that their working conditions comply with the Requirements of the Occupational Health and Safety Act (Act 85 of 1993) and the contractor must take measures to discourage labourers from loitering in the area and causing noise disturbance. • Where possible labour shall be transported to and from the site by the contractor or his Sub-Contractors by the contractors' own transport.					
Visual	1	4	8	4	-52 Moderate	• Advertising on site must be in accordance with South African Manual for Outdoor Advertising Control (SAMOAC) and the local municipal bylaws. • The construction camp must be contained to prevent any visual intrusion and be kept in a clean and orderly state at all times.	1	4	6	4	+44 Moderate
Surface and Groundwater quality (Watercourses)	2	3	6	4	-44 Moderate	• Mark watercourse areas with 'No-Go' signage. • Avoid impacts on the watercourses by limiting construction/excavation activities to as small an area as possible.	2	1	2	2	+30 Low

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						• All daily activities that could involve the generation of waste must be restricted to the construction site and away from any watercourse. • Establish emergency response measures and a clearly defined chain of communication to rapidly deal with any unforeseen impacts to the watercourses, e.g., spills.					
Dust	2	3	6	4	-44 Moderate	• Dust production must be controlled by regular watering of roads and works area, should the need arise.	2	1	2	2	+10 Negligible
Waste: Solid	2	3	6	5	-55 Moderate	• All daily activities that could involve the generation of waste must be restricted to the construction site and away from any watercourse. • Construction rubble shall be disposed of in pre – agreed, demarcated spoil dumps that have been approved by the Relevant Municipality. Littering by the employees of the Contractor shall not be allowed under any circumstances. The ECO shall monitor the neatness of the work sites as well as the Contractor campsite. • All waste must be removed from the site and transported to a suitably permitted landfill site	2	3	2	4	+28 Low
Waste: Effluent	2	3	2	5	-35	• Pollution of ground and surface water must be avoided.	2	3	2	4	+28

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
					Low	• Mobile Ablution facilities must be available to all workers at ratio of 1:10 for females and males respectively and there must be at least one mobile toilet every 100 m. • Project workers are not to use watercourses for washing or bathing. • Mobile toilets shall be secured to prevent them blowing over during periods of high winds. • No human waste will be allowed to enter any water courses or natural drainage lines. • Mobile toilets must be emptied at regular intervals by suitably qualified contractors, according to appropriate health and safety standards and the waste must be disposed of at a registered municipal waste facility.					Low
Hazardous Materials	2	3	2	4	-28 Low	• If potentially hazardous substances are to be stored on site, the Contractor shall provide a Method Statement detailing the substances/materials to be used together with the procedures for the storage, handling and disposal of the materials in a manner which will reduce the risk of pollution that may occur.					+14 Negligible

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
						• All waste hazardous materials must be carefully stored as advised by the ECO, and then disposed of offsite at a licensed landfill site. Contaminants to be stored safely to avoid spillage. • Machinery must be properly maintained to keep oil leaks in check.					
Stormwater Management					-45 Moderate	• The Contractor is to provide a method statement on how stormwater will be managed on site during construction and rehabilitation. • Adequate Stormwater Management must be implemented as part of the proposed activity to prevent erosion and sedimentation of the surrounding watercourses and drainage lines					+18 Negligible
Loss of Important mainly Riparian vegetation	1	3	8	4	-48 Moderate	• No foundations, construction camps or quarries must be constru within the stipulated no-go buffer zone to protect watercourses headwater drainage lines	1	3	6	4	+40 Low
Loss of Threatened/near threatened /protected taxa	1	4	8	4	-52 Moderate	• Although endangered species of concern were recorded, th however still is a low probability of irreparable damage if mitiga measures are applied timeously and correctly	1	4	6	2	+22 Low
Disturbance	1	3	8	4	-48 Moderate	• The construction sites must be confined to disturbed areas or th identified with low conservation importance.	1	3	6	4	+40 Low

Potential Aspect or Impacts	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Faunal, avifaunal and Floral Species					-70 High	• Workforce to be instructed that no animals or birds may be caugh killed. • All road networks must be planned with care to minimize dissec or fragmentation of important avifaunal habitat type.					+55 Moderate
Hunting/ Snaring/ Poaching	1	4	6	2	-22 Low	• Hunting/snaring is strictly prohibited. Any person found hunting c the possession of any indigenous animal (including inverteb taxa) must face disciplinary measures, following the poss dismissal from the site.	1	3	6	2	+20 Negligible
Heritage and Palaeontological Resources	2	5	6	4	-52 Moderate	• During the construction phase, the contractor must ens adherence to the chance find protocols as defined by the E reports.	2	5	2	4	+36 Low

Table 14: Operational Phase Impacts

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	D	M	P			S	D	M	P	
Noise Pollution during mass church gatherings	1	4	6	4	-44 Low	• Sound Insulation - The recommendations provided for so insulation, design comprises of both minimising the noise pollu to the site boundaries as dictated by the by-law requirements to reduce rain and hail impact noise. The design in this sec should ideally be included in the first phase as it will be difficult costly to implement as a retrofit, except where explicitly stated a two phased approach may be used. • Chapel Walls - Ideally, the envelope of the chapel, together the doors, should provide a minimum sound insulation rating of > 45dB as mentioned in Section 4 of the Acoustic Assessn Report. The cavity wall indicated that it could currently meet requirement provided the walls extended from the floor slab to edge and well plastered on both sides. It must be ensured tha gaps in the brick wall and between the wall and steel roof are sealed. • Chapel Windows - The windows separating the chapel from external environment pose a significant noise risk to the	1	4	2	2	+14 Negligible

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
						boundaries. It is recommended that non-openable windows used with the following double window construction: ○ Two separate frames installed at the outer edge of e wall in the cavity wall i.e., the maximum airgap that ca achieved between the two frames; ○ Thick gauge aluminium extruded frames; ○ 10.38mm laminated glass for frame 1; and ○ 12.38mm laminated glass for frame 2 The above approach may be considered as a two-phase approach whereby 1 window frame may be installed, and a second window frame may be installed as a retro fit item should it be necessary in the future. • Doors - The chapel is mainly surrounded by circulation passa where one door directly links the chapel stage to the outside. chapel envelope should have a minimum sound insulation ratin R'w 45dB, to maintain this rating through the doors, a double s R'w = 30dB solid core timber doors (with a sound lobby in betwe may be used at all the entrances of the chapel. The door to the of the stage should also employ the use of a sound lo configuration and a solid timber door with seals.					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
						• Roof - To optimise the sound insulation that can be achieved f this construction it is recommended that 50mm 80kg Factoryboard (tissue facing version and not foil facing) be u instead of the 100mm ISOVER Energylite. The additional m layers as recommended will also provide rain and hail impact n mitigation. • Internal Acoustic Treatment - In order to control the reverbera sound energy within the chapel, a minimum combined ceiling wall treatment area of approximately 1 500m^2 (based on absorption performance of NRC = 0.8) is required. ○ The ceiling area makes up for the majority of the area may be used for acoustic treatment. The full ceiling a should be utilised for acoustic absorptive surface treatn (approximately 1450 m^2) with a sound absorptive mat that can provide minimum NRC = 0.8 performa However, to accommodate the low frequencies anticipa in this space, at least a 200mm depth behind the ce treatment should be utilised. ○ The critical wall treatment areas include the back and walls of the chapel. Approximately 100m^2 of sur					

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
						treatment should be applied to the back wall approximately 50m^2 per side wall of surface treatment be required. Due to the low frequency build up anticipa in this space, the back wall treatment would need at l a 100mm airgap depth behind the wall panels.					
Maintenance Of church area (fire/clearing/ composition shifts)	2	4	6	2	-24 Low	• Open fires are strictly prohibited and only allowed at designa areas	2	4	2	2	+16 Negligible
Hunting/ Snaring/ Poaching	1	4	6	2	-22 Low	• Hunting/snaring is strictly prohibited. Any person found huntin in the possession of any indigenous animal (including inverteb taxa) must face disciplinary measures, following the poss dismissal from the site.	1	3	6	2	+20 Negligible
Proliferation Of alien plant species	2	4	8	2	-28 Low	• Vegetation pruning, erosion, colonisation of area by alien spec etc. are monitored and inspected as an on-going process in with the EMPr • Compile and implement an alien plant control program during operational phase of the project. • Declared alien vegetation must be controlled and the spr thereof proactively managed	1	3	6	2	+20 Negligible

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
Electrocution	2	5	8	4	-60 Moderate	• It is recommended from an avifaunal perspective a "bird frien building design be used which poses little negative risk.	2	4	8	2	+28 Low
Loss of Habitat and Disturbance					-52 Moderate	• Many of the bird species will temporarily vacate the area during construction phase					+22 Low

Table 15: Decommissioning Phase Impacts

Potential Aspect or Impact	Before Mitigation				Significance rating	Mitigation Measures	After Mitigation				Significance Rating
	S	**D**	**M**	**P**			**S**	**D**	**M**	**P**	
Rehabilitation of Vegetation	2	4	6	4	+48 Moderate	• Vegetation cover is to be established as quickly as possible a completion of construction. • Topsoil removed during the construction phase must be u where possible to rehabilitate disturbed areas; • Topsoil must be analysed for its fertility and if reduced, appropr fertilisers must be used to increase the fertility of the soil pric rehabilitation. • Re-vegetate the area with plant species consistent to surroun environment, i.e., local vegetation.	2	3	6	4	+44 Moderate

						• Methods and timing of rehabilitation must be prescribed by ecologist based on site conditions at the time under the guida of the ECO. • Badly damaged areas must be fenced off to allow the are rehabilitate. • Remove invasive vegetation from damaged construction area from rehabilitated areas • Manual labour to be used to remove alien plant species instea chemical removal					
Dismantling building	1	3	6	4	+40 Low	• All scrap metals must be taken to TJIA stores. Other mate must be disposed accordingly by TJIA.	1	3	6	5	+20 Negligible

15 CUMULATIVE IMPACT ASSESSMENT AND MITIGATION MEASURES

In terms of the EIA Regulations, the cumulative impact is considered from the holistic point of view. It means that the impacts of an activity are considered from the past, present and foreseeable future, together with the impact of activities associated with that activity. The activity itself may not be significant, but when combined with the existing and reasonably foreseeable impacts eventuating from similar or diverse activities may result in a significant change. “Cumulative impacts can be: additive, synergistic, time crowding, neutralizing and space crowding” (DEAT, 2004b;14).

It is necessary to assess each potentially significant impact in terms of:

- Cumulative impacts; and
- The degree to which the impact may cause irreplaceable loss of resources.

Table 16: Criteria for Cumulative Impacts.

Cumulative Impact (CI)	Low (1)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is unlikely that the impact will result in spatial and temporal cumulative change.
	Medium (2)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is probable that the impact will result in spatial and temporal cumulative change.
	High (3)	Considering the potential incremental, interactive, sequential, and synergistic cumulative impacts, it is highly probable/ definite that the impact will result in spatial and temporal cumulative change.
Irreplaceable Loss of Resources (LR)	Low (1)	Where the impact is unlikely to result in irreplaceable loss of resources.
	Medium (2)	Where the impact may result in the irreplaceable loss (cannot be replaced or substituted) of resources but the value (services and/or functions) of these resources is limited.
	High (3)	Where the impact may result in the irreplaceable loss of resources of high value (services and/or functions).

Cumulative impacts for the proposed CFCI were assessed having taken cognizance of the following;

15.1 Impacts on the Infrastructure Development

a) The proposed CFCI church auditorium is proposed within areas that have a number of existing land uses. As such, the impacts that are already in the area will be enhanced to a degree, pre-mitigation. The effect would be to have impacts cumulating in and around the study area. Associated impacts (negative and positive) would include;

- Impacts on the flora, fauna and avifauna around the proposed development area such as encroachment of alien vegetation after local and or indigenous vegetation has been cleared and the possible increase in the mortality rates of avi-fauna due to the addition of powerlines,
- Socio-economic impacts, e.g., reduction in land value, due to the further fragmentation of land parcels and land sterilization due to the acquisition of servitudes and increase in the rate of disease after the contractor's workforce has left the locality;
- The further use of already existing access roads and construction of construction camps during construction and further use of already existing access roads during maintenance; and
- The permanent visual intrusion that will be caused by the CFCI church building structure.

b) Any housing and other infrastructure development projects planned by municipalities, communities or landowners near the proposed development site will potentially be affected by the proposed project. All the proposed infrastructure developments within the study area were taken into consideration during the Impact Assessment to determine the most viable mitigation measures for the proposed development. The potential cumulative impacts on the ground were found to be low to negligible as the location of the proposed site falls within an already disturbed and economically active area, as such, any reasonable prospect of further socio-economic or environmental degradation would constitute impacts upon existing impacts.

Table 17: Table of Impact for Infrastructure Development

Aspect	Mitigation Status	Probability	Duration	Extent	Magnitude Severity	Significance
Infrastructure Development	Without Mitigation	2	5	1	6	24
	With Mitigation	2	5	1	2	16

15.2 Impacts on Ecological Resources

The cumulative impact of constructing the proposed church auditorium within already defined ecological corridors, would cause further habitat fragmentation and a minor degree of habitat degradation as the affected ecosystems are not sensitive ecosystems. The cumulative impact of the proposed project is high to moderate over time due to the inevitable loss of endangered and vulnerable vegetation. The risk of bird collisions and electrocutions will increase in time due to the anticipated insertion of a power line/source, however, this impact should also decline as the avi-fauna adapt to the presence of the new structures. Electrocution is more common in large-bodied bird species in the area which were not identified to be present within the predominantly residential area:

- Land clearing activities and other construction-related disturbances could lead to the proliferation of exotic vegetation;
- Displacement of sensitive avifaunal species, species of conservation concern and protected trees due to habitat destruction and habitat fragmentation eventually leads to isolation and loss of those species. This is, however, considered to be low within the region;
- Destruction of nesting habitat displaces the affected species eventually leading to loss of those species;
- Cumulative loss of primary vegetation features due to exotic vegetation and vegetation transformation is high at the national level and therefore should be avoided;
- Encroachment of alien vegetation; and
- Powerlines represent the largest proportion of established aerial infrastructure throughout the country and collision impacts are of national concern. Fitment of devices

on the earth wires to make the lines more visible is reducing this impact at the national level.

Table 18: Table of Impact for Ecological Resources

Aspect	Mitigation Status	Probability	Duration	Extent	Magnitude Severity	Significance
Ecological Resources	Without Mitigation	5	3	2	8	65
	With Mitigation	5	2	2	6	50

15.3 Socio-economic Impacts

Construction activities associated with the project and future planned projects will attract "job-seeking" people to the area, which could result in subsequent "urban sprawl" within Esikhawini. “Job-seeking” opportunities near the construction site could also result in the localised depletion of natural resources and direct persecution of bird/animal taxa.

With the influx of jobseekers, comes the unwanted predatory behaviour like crime and increased sexual activity in communities resulting in the spread of diseases such as HIV/Aids and the proliferation of crime. If left unabated, the socio-economic consequences could result in cumulative health and security concerns over time. When mitigation measures are applied however, cumulatively, the potential impacts range from high to low.

Table 19: Table of Impact for Socio-economic Activities

Aspect	Mitigation Status	Probability	Duration	Extent	Magnitude Severity	Significance
Socio-economic Impacts	Without Mitigation	5	4	2	6	60
	With Mitigation	1	3	1	2	6

16 SPECIALISTS STUDIES

There were five specialist studies undertaken for this Environmental Assessment, namely:

- Wetland Impact Assessment;
- Flood line Assessment;
- Acoustics Assessment; and
- Geotechnical Assessment

Environmental Screening Tool on the site and surrounding is recognized on the following themes:

Table 20: Environmental Screening Tool Sensitivity Theme

Sensitivity	Sensitivity Theme
Very High	• Agriculture Theme • Aquatic Biodiversity Theme
High	• Animal Species Theme
Medium	• Civil Aviation Theme • Plant Species Theme
Low Sensitivity	• Terrestrial Biodiversity Theme • Defence Theme • Archaeological and Cultural Heritage Theme

Environmental Screening Tool has identified studies outlined in (***Table 21***) below.

Table 21: Specialist Studies Identified by Environmental Screening Tool

Specialist Study	Motivation for Exclusion of Specialist Study
Landscape/Visual Impact Assessment	This study was not considered viable as, the site is residential land use of the study area. The proposed site constitutes a green field with maintained brush grass. The proposed development will streamline with adjacent land use.

Specialist Study	Motivation for Exclusion of Specialist Study
Archaeological and Cultural Heritage Impact Assessment	This study was not considered viable as, Archaeological and Cultural Heritage Theme is considered low.
Palaeontology Impact Assessment	This study was not considered viable as, preliminary desktop study for palaeontological fossils sensitivity of the proposed site, reveals that the site falls within a very low sensitivity, as result a field assessment and protocol for finds is not required for this study. In line with an assessment of SAHRA's Palaoesensitivty map, no palaeontological studies are required however a protocol for finds is required as the study area is colour coded blue.
Terrestrial Biodiversity Impact Assessment	This study was not considered viable as, the terrestrial biodiversity is anticipated to be low due to the location, i.e., residential land use of the study area. The proposed site constitutes a green field with maintained brush grass.
Aquatic Biodiversity Impact Assessment	This study was not considered viable as, the development will not take place within active channel but bordered channel valley bottom wetland. However, the Flood line Assessment and Stormwater Management plan was developed for flood line active areas.
Hydrology Assessment	This study was not considered viable as, the development will not take place within active channel but bordered channel valley bottom wetland. However, the Flood line Assessment and Stormwater Management plan was developed for flood line active areas.
Socio-Economic Assessment	This study was not considered viable as, Public participation was undertaken, input from I&APs were considered in this DBAR.
Plant Species Assessment	This study was not considered viable as, no plant species of ecological concern were identified within the study area. The proposed site is a greenfield with maintained brush grass.
Animal Species Assessment	This study was not considered viable as, no animal species were identified within the study area particularly due to

Specialist Study	Motivation for Exclusion of Specialist Study
	predominant land use, i.e., residential area. The proposed site is a greenfield with maintained brush grass.

17 SUMMARY OF FINDINGS BY SPECIALISTS

The summary of findings detailed below, are derived from the: Wetland Impact Assessment; Terrestrial Ecological Impact Assessment; Heritage Impact Assessment; and Geotechnical Assessment, and are summaries as follows:

17.1 Wetland Assessment Findings

The results of the desktop study indicated the wetland type in close proximately, within the 500m buffer of the project area as described the NFEPA, KZN Ezemvelo Wildlife and SAIIAE wetlands datasets is the Channelled Valley Bottom wetland system. During the site visit, areas within the 500m radius of the study site boundary, classified as wetlands as per the NFEPA, KZN Ezemvelo Wildlife and SAIIAE wetlands database were accurately assessed for wetlands characteristics and delineated. The field assessment confirmed the presence of wetland area as reported by the NFEPA, Ezemvelo KZN Wildlife and SAIIAE wetlands. The wetland form part of the Indian Ocean Coastal Belt Group 1 (NFEPA WetVeg). The HGM 1 unit was characterised by Bullrush (Typha capensis) and Phragmites Australis vegetation in saturated soils, with Hydric soils are defined as those that typically show characteristics (redoximorphic features) resulting from prolonged and repeated saturation. This was an indication that a small portion of the proposed New Covenant Church International property boundary is within the delineated HGM 1 unit. The significant portion of the proposed new church site boundary is located within the regulated 32m buffer of the HGM 1 unit.

17.2 Flood line Assessment Findings

The resultant delineated pre-development 1:50 and 1:100-year return periods floodlines for the Unnamed Stream 1 and 2, at the proposed New Convent Church International property boundary extents of the 1:50 and 1:100-year floodlines indicated that only the western portion of the proposed New Convent Church International property boundary is inundated. It is therefore recommended the proposed church building be located outside of the delineated 1:50 and 1:100-year floods inundation areas.

Area suitable for the construction of the church building was delineated outside of the 1:100-year floodlines ("Development Area"). The size of an area that is available for development equates to approximately 6 762.8 m^2.

17.3 Acoustics Assessment Findings

The proposed CFCI church is a large chapel that will mainly be used for amplified speech and band music. The chapel is positioned inside an encompassing structure and is mostly surrounded by circulation passages.

In order to optimise the chapel space for amplified applications, the reverberation characteristics as well as the internal ambient noise levels should be controlled to maximise for speech intelligibility. It is important that the internal ambient noise levels be appropriately controlled to ensure that the congregational activities are not disrupted by unwanted external or internal noises sources such as mechanical systems or traffic. This requires that the noise generated from the mechanical system (heating, ventilation and air conditioning) be appropriately attenuated to the required maximum noise level, and the building shell have an appropriate level of sound insulation so that unwanted external noises are not audible in the venue as well as to minimise noise pollution from the chapel affecting the neighbouring facilities and infringing on the by-law requirements.

In order to meet the existing ambient noise levels at the boundary of the site, the roof construction should provide at least Dw 45dB of sound insulation; provided the activities inside the chapel does not take place outside of the daytime range of 07:00 – 22:00.

Additionally, the maximum noise levels at the boundary of the site shall be met provided that the maximum internal noise levels inside the chapel, under the roof sheeting where PA speakers are typically mounted, does not exceed 95 dBA at source.

Furthermore, in order to minimise noise disturbances from the surrounding facilities of the chapel into the main chapel and vice versa, the walls and doors combinations of the chapel should provide at least R'w > 45 dB of sound insulation.

17.4 Geotechnical Assessment Findings

The Geotech assessment found that the proposed site had been geotechnically compromised by extensive infilling for an observed thickness of at least 1.5m below EGL. In addition to this, a well-developed shallow perched aquifer further compromises the stability of the site. Earthwork should be restricted to ensure that lowering of ground level for construction is avoided.

18 RECOMMENDATIONS BY SPECIALISTS

18.1 Recommendations by Wetland Assessment Specialist

The Wetland Impact Assessment was conducted by Zonhla Environmental Consultants (Pty) Ltd. and the following recommendations were made:

The wetland habitat risk assessment determined that the project may have the moderate potential to impact the identified wetland. The impacts to the delineated wetland would be from incorrect construction methods, in a form of water quality deterioration, clearance of vegetation, biodiversity losses and water quantity. If the stipulated mitigative measures, including adherence to the DWS Environmental Best Practice Guidelines and the Work Method Statement, then the impacts are deemed to be of low significance.

- The impact of the New Covenant Church International development on the HGM 1 wetland is Medium risk without mitigation but with mitigation the impact could be reduced to Low risk.
- It was the opinion of the wetland specialist that the project posed minimum flaws and can be cautiously considered to allow for the development of the New Covenant Church International.
- Therefore, from a wetland impact assessment point of view, the development should be authorised. Based on the this, it was the specialist opinion that the project met the requirements of the “General Authorisation (GA) in terms of Section 39 of the NWA No. 36 of 1998, Water Uses as defined in Section 21(c) and (i)”, Notice 509 of 2016. Therefore, a GA in terms of GN 509 was recommended to be applied for with the DWS for the proposed project.

18.2 Recommendations From Flood line Assessment

The Flood line Assessment was conducted by Zonhla Environmental Consultants (Pty) Ltd, and the following recommendations were made:

- The position of the church building should be located outside of the delineated 1:50 and 1:100-year return period floodlines.
- It is further recommended that mitigation measures, such as flood retention wall/berm, are investigated in order to prevent flood damage of any of the proposed infrastructure. Alternative design solutions may also be possible, such as raising the development foundation level above the simulated flood levels.

These mitigation measures will need to be cognisant of not adversely impacting the surrounding infrastructure through increased flood levels. Hydraulic modelling of these scenarios should be undertaken to determine what impact, if any, suggested mitigation measures may have. Types of developments that will not be considered within the 1:50 and 1:100-year floodlines are as follows:

- No structure that will results in a loss of flood storage from the system;
- No fill, dykes, levees or berms intended to restrict the area of floodplain inundation;
- No ground floor in which people sleep at night; and
- No sewer lines.

18.3 Recommendation from Acoustics Assessment

The Acoustics assessment was conducted by L I N S P A C E (Pty) Ltd. And the following recommendations were made:

- Sound Insulation - The recommendations provided for sound insulation, design comprises of both minimising the noise pollution to the site boundaries as dictated by the by-law requirements and to reduce rain and hail impact noise. The design in this section should ideally be included in the first phase as it will be difficult and costly to implement as a retrofit, except where explicitly stated that a two phased approach may be used.
- Chapel Walls - Ideally, the envelope of the chapel, together with the doors, should provide a minimum sound insulation rating of R'w > 45dB as mentioned in Section 4 of

the Acoustic Assessment Report. The cavity wall indicated that it could currently meet this requirement provided the walls extended from the floor slab to roof edge and well plastered on both sides. It must be ensured that all gaps in the brick wall and between the wall and steel roof are well sealed.

- Chapel Windows - The windows separating the chapel from the external environment pose a significant noise risk to the site boundaries. It is recommended that non-openable windows be used with the following double window construction:
    - Two separate frames installed at the outer edge of each wall in the cavity wall i.e., the maximum airgap that can be achieved between the two frames;
    - Thick gauge aluminium extruded frames;
    - 10.38mm laminated glass for frame 1; and
    - 12.38mm laminated glass for frame 2

The above approach may be considered as a two-phase approach whereby 1 window frame may be installed, and a second window frame may be installed as a retro fit item should it be necessary in the future.

- Doors - The chapel is mainly surrounded by circulation passages where one door directly links the chapel stage to the outside. The chapel envelope should have a minimum sound insulation rating of R'w 45dB, to maintain this rating through the doors, a double set of R'w = 30dB solid core timber doors (with a sound lobby in between) may be used at all the entrances of the chapel. The door to the side of the stage should also employ the use of a sound lobby configuration and a solid timber door with seals.
- Roof - To optimise the sound insulation that can be achieved from this construction it is recommended that 50mm 80kg/m^3 Factoryboard (tissue facing version and not foil facing) be used instead of the 100mm ISOVER Energylite. The additional mass layers as recommended will also provide rain and hail impact noise mitigation.
- Internal Acoustic Treatment - In order to control the reverberation sound energy within the chapel, a minimum combined ceiling and wall treatment area of approximately 1 500m^2 (based on an absorption performance of NRC = 0.8) is required.
- The ceiling area makes up for the majority of the area that may be used for acoustic treatment. The full ceiling area should be utilised for acoustic absorptive surface

treatment (approximately 1450 m2) with a sound absorptive material that can provide minimum NRC = 0.8 performance. However, to accommodate the low frequencies anticipated in this space, at least a 200mm depth behind the ceiling treatment should be utilised.

- The critical wall treatment areas include the back and side walls of the chapel. Approximately 100m^2 of surface treatment should be applied to the back wall and approximately 50m^2 per side wall of surface treatment will be required. Due to the low frequency build up anticipated in this space, the back wall treatment would need at least a 100mm airgap depth behind the wall panels.

18.4 Recommendation by a Geotechnical Specialist

The Geotechnical Assessment was conducted by Geosure (Pty) Ltd. and the following recommendations were made:

- Notwithstanding the above, based on the results of the fieldwork undertaken during the investigation, it is considered that the site is generally stable and suitable for the proposed development;
- All earthworks should be carried out in a manner to promote stable development of the site. It is recommended that the earthworks be carried out in accordance with the guidelines given in SANS 1200 (current version)
- The potential for rapidly unstable excavation conditions has been identified within the solids. As such, temporary shoring to engineers' detail for excavation into these units is strongly recommended;
- Due to the adverse nature of the shallow subsurface materials generally encountered including strong groundwater seepage activity, It is considered that the fill materials encountered do not constitute a suitable founding medium for supporting structural loads arising from the proposed building structures. Based on the knowledge of the geotechnical site conditions, as confirmed by the current investigation, a piled foundation is recommended for the proposed building.
- A concrete apron is recommended around structures to promote surface drainage away from building structures; and

- It is also recommended that the Bill of quantities allows for permanent subsoil drainage measures to address the incidence of groundwater seepage flows in excavations shallow services.

19 RECOMMENDATIONS FROM THE EAP FOR INCLUSION IN CONDITIONS FOR ENVIRONMNTAL AUTHORISATION

The EAP is of the view that the Environmental Authorization should be granted on certain conditions that are outlined in this section. After an Authorization has been granted, it is the applicants' responsibility to ensure that all recommendations outlined in this report as well as in the EMPr are properly implemented.

19.1 Planning phase

The EAP recommends the authorization of this application. However, the following conditions and mitigation measures are recommended and should be considered in any authorization that may be granted by the competent authority in respect of the application.

a) ECO must be appointed to oversee construction activities.

b) Develop a site layout and clearly demarcate the servitude for construction corridor.

c) The site layout must make indication for no go zone, as to limit large scale vegetation clearance.

d) Include buffer determination to design layout to buffer at least 5m wetland conservation buffer from channel valley bottom wetland to protect wetland habitat and ecological corridor, and mark as no go area.

19.2 Construction Phase

The EAP recommends the authorization of this application. However, the following conditions and mitigation measures are recommended and should be considered in any authorization that may be granted by the competent authority in respect of the application.

19.2.1 Erosion and sediment load control

It is anticipated that the vegetation clearance and excavation during construction adjacent to channel valley bottom wetland zone will likely exacerbate sediment loads or erosion within the vicinity of wetland.

a) All work to be done adjacent the watercourses must not be carried out during undertaken during wet (rainy) periods or flow conditions.

b) Detailed method statement for working within the watercourse must be compiled by the contractor prior to the commencement of the project.

c) Demarcate the site servitude of 5m wetland conservation buffer for the construction corridor. The demarcation pegs and net must be signed off by the ECO.

d) No clearance and excavation must be done outside demarcated corridor. The site clearance and excavation carried must be limited to development area (construction corridor) as approved by project plans. Also, make use of natural erosion suppressors such as progressive rehabilitation using good grassland cover. Do not wait for construction to finish in order to start rehabilitation.

e) Site clearance and excavation at riparian should not be undertaken during wet (rainy) periods or river peak flow conditions.

f) During construction construct storm water system and make provision for erosion protection.

g) Excavations must not be left open for a long duration and must not be undertaken until such time that all required materials are available on-site.

h) Density control of placed fill material should be undertaken at regular intervals during fill construction.

i) All stockpiles must be established, ideally on flat ground not exceeding 2m height at least 32m away from the watercourse.

j) Sediment barriers must be installed in areas sensitive to erosion to prevent instream siltation.

k) After every rainfall event, the contractor must check the site for erosion damage and immediately repair any damage recorded.

19.2.2 Vegetation Clearance

The CFCI development infrastructure will result in vegetation clearance, for the purpose of excavation for construction set-up;

a) There must be minimal disturbance to areas in the immediate vicinity as successful vegetation recovery will depend on the remaining vegetation;

b) Determine the construction corridor and establish a no-go area to avoid large scale vegetation clearance along boundary of development site by only clearing along and within the construction corridor as approved by layout plans;

c) It is highly recommended that site camp be developed within the development site, and concentrate activities to single site camp;

d) Construction boundary must be demarcated and vegetation clearing and topsoil removal limited to these areas;

e) Survey the site for possible identification and relocation of plant SCC located within the construction corridor. Identify the relocation site within the project area to relocate the plant SCC that may be disturbed or within the construction corridor;

19.2.3 Preventing the deterioration of river (surface)water and ground water quality

It is anticipated that construction activities for the purpose of refurbishment and replacement of bulk water pipeline within instream habitat will likely have impact on surface water quality within the locality of the downstream of pipeline river crossing. Also, the handling of hydrocarbons and other hazardous chemical might have impact in ground and surface water quality.

a) Detailed method statement for working within the watercourse with provision for spillage and construction debris management must be compiled by the contractor prior to the commencement of the project;

b) ECO to conduct monthly water quality monitoring. Or regular water quality monitoring after major construction activity taking place direct within a watercourse, such as exaction of riverbanks, instream habitat, dewatering of water from coffer dams, and pouring of concrete encase for bulk pipeline infill;

c) No construction machinery must be operated direct into the water. The use construction machinery must be limited only to riverbanks, only if necessary;

a) corridor;

19.2.4 Other recommendations for considerations during construction phase

The following conditions and mitigation measures are recommended and should also be considered in any authorization that may be granted by the competent authority in respect of the application, namely:

a) Appoint an ECO to oversee and advise on site-specific environmental management requirements when needed;

b) The development area must again be surveyed prior to construction in order to locate and capture any animal SCC and relocate them.

c) Excavations must not be left open for an extended period, and must not be undertaken until such time that all required materials are available on-site, to facilitate immediate laying of the construction of subsurface infrastructure;

d) Excavated material (not more than 1.5m in height) is to be stockpiled along the trench within the working servitude for later backfilling,

e) Backfilling of trenches along the pipeline route must first place the subsoil into the trench, then place the topsoil at the top and revegetated immediately to prevent run-off and siltation;

f) All stockpiles must be kept free of weeds and invasive alien plants;

g) If at risk of being eroded, all stockpiles must be secured with sandbags around the base of the soil stockpile;

h) The local community must take priority when it comes to employment and all skills that can be sourced from the local communities. Additionally, locals must be given the opportunity to participate in the development and only specialized skills must be sourced from outside of the surrounding communities;

i) All reasonable precautions must be taken to minimize noise generated on-site.

j) Construction vehicles and machinery must be kept in good working order so as not to generate excessive noise levels;

k) Storage areas must be managed properly by applying the suggested mitigation measures recommended in this document;

l) All employees and contractor staff must undergo environmental training covering the following areas: The Environmental Authorisation, the EMPr, Spill Management, Waste Management, Emergency Procedures and Evacuation Procedures;

m) No workers are permitted to be accommodated overnight in the site except for essential security personnel.

19.2.5 Site Rehabilitation

The following conditions and mitigation measures are recommended for site rehabilitation, namely:

a) Only indigenous plants which are able to establish easily and will need less maintenance because they have already adapted to the local conditions should be considered for re-vegetation should be used during rehabilitation, and rehabilitation success should be monitored;

b) Progressively removal alien plant species;

c) The Contractor must ensure that all temporary structures, materials, waste and facilities used for construction activities are removed upon completion of the project.

d) Fully rehabilitate all disturbed areas and protect them from erosion

e) The control and eradication of a listed invasive species from the construction footprint, including the site camp must be carried out using methods that are appropriate for the species concerned and the environment within which it occurs.

f) The methods employed to control and eradicate a listed invasive species must also be directed at the new growth, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.

g) Mechanical control methods such as digging, hoeing, pulling out of weeds and invasive plants are recommended.

19.3 Operation and maintenance

The EAP recommends the authorization of this application. However, the following conditions and mitigation measures during operation and maintenance are recommended and should be considered in any authorization that may be granted by the competent authority in respect of the application.

19.3.1 Stormwater management

The stormwater management is critical to mitigate the run-off and banks erosion.

a) Best practice pipeline river crossing design and construction practices to be followed to provide good drainage and prevent erosion.

b) The project design must take into consideration stormwater management. The design of the storm water system must make provision for erosion protection.

c) Develop and implement the stormwater management plan throughout the construction and operational phase.

d) Ongoing maintenance and monitoring regimes be implemented for the stormwater management system. Such as inspection for evidence of sediment and debris build-up, particularly on a regular basis during the wet season and after any heavy rainfall events during the dry season.

19.3.2 Other recommendations for considerations during operation/maintenance phase

The following conditions and mitigation measures for construction and operation/maintenance are recommended and must also be considered in authorization that may be granted by the competent authority in respect of the application, namely:

a) No construction machinery must be operated direct into the water. The use construction machinery must be limited only before 5m wetland conservation buffer, only if necessary;

b) The local community must take priority when it comes to employment and all skills that can be sourced from the local communities. Additionally, locals must be given the opportunity to participate in the development and only specialized skills must be sourced from outside of the surrounding communities;

c) All reasonable precautions must be taken to minimize noise generated on-site.

d) Construction vehicles and machinery must be kept in good working order so as not to generate excessive noise levels;

e) Storage areas must be managed properly by applying the suggested mitigation measures recommended in this document;

f) All employees and contractor staff must undergo environmental training covering the following areas: The Environmental Authorisation, the EMPr, Spill Management, Waste Management, Emergency Procedures and Evacuation Procedures;

g) No workers are permitted to be accommodated overnight in the site except for essential security personnel.

20 ENVIRONMENTAL IMPACT STATEMENT

The findings of this EIA Report as well as the specialist studies conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented. Four specialist studies were considered for this EIA.

This BAR serves to primarily assess the likely impacts the development may have on the surrounding environment and to provide recommendations regarding available alternatives, mitigation and management measures. The process aims to ensure that impacts are identified and where negative impacts are anticipated that these are prevented, minimised and remedied (unless the impacts are unavoidable like visual impacts) and where positive impacts are identified that these are enhanced as far as possible.

The BAR presents the relevant information to the Competent Authority for the purposes of decision making. In making a decision regarding this application the key findings must be considered as well as the other information contained within this report. The suggested mitigation measures must also be considered and compliance therewith should form a condition of any decision made to proceed with the development.

In addition, these conditions should be incorporated into a Construction Phase Environmental Management Plan which serves to guide and inform sustainable environmental practices during the construction process. The complete identified management and mitigation measures are listed in the accompanying EMPr.

21 CONCLUSION AND EAP OPINION

The decision to grant or refuse authorisation in terms of Section 24 of NEMA must be made in the light of the provisions of NEMA. Section 24 provides that, in order to give effect to the general objectives of integrated environmental management laid down in NEMA, the potential impact on the environment of listed activities must be considered, investigated, assessed, and reported on to the Competent Authority charged by the Act with deciding applications for environmental authorisation. A Basic Assessment Report (BAR) concerning the impact of the proposed activity and alternative activity options on the environment, has been compiled and submitted as prescribed and authorisation may only be issued after consideration of such report.

We submit that the environmental process undertaken thus far complies with these requirements and that this report covers the full suite of potential environmental issues related to the proposed development. All potential impacts have been evaluated and responded to by either complete avoidance where possible, or by recommendation of the most appropriate and feasible mitigation measures. The preferred/mitigated development proposal presented in this report is responsive to the integrated results of the assessment of potential impacts made by the various specialists on the project team.

Based on comparative evaluation of the various alternatives, including the No-Go option, it is evident that the preferred '*Alternative A: Site/Location Alternative'*, '*Alternative B: Site Layout Alternative*', '*Alternative C: Design Alternative'*, and '*Alternative D: Technology Alternative'* for the construction of CFCI auditorium can meet the required objections to offset the No-Go option (subject to the implementation of recommended development mitigation measures). This Draft BAR (DBAR) therefore, concludes that the proposed development has been considered via a balanced approach, mindful of cumulative impacts, need and desirability of the project and that the overall negative environmental impacts will be of very low significance. As such, the project can be considered for environmental authorisation subject to implementation of the recommended phased approach and specialist mitigation measures as specified in the EMPr.

This Draft Basic Assessment Report is available for a review and comment period of 30 days, from ***27th of July 2022*** to the ***26th of August 2022***. Comments and submissions received in response to this report will be submitted to EDTEA (the competent authority).

Written submissions must be addressed to:

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APPENDICES

APPENDIX A. DECLARATION OF INFORMATION

APPENDIX B. ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

APPENDIX C. LOCALITY MAP AND CASE IMAGES

C-1: Locality & Sensitivity Maps

C-2: Case Images

APPENDIX D. SITE LAYOUT AND DESIGNS

APPENDIX E. PUBLIC PARTICIPATION PROCESS

E-1: Onsite notices

E-2: Newspaper advert

E-3: PP Plan and Register of I&APs

E-4: Proof of Document Circulations

E-5: I&APs Comments and Responses

E-6: Background Information Document (BID)

E-7: Minutes of the Pre-Application meeting

E-8: Acknowledgement Letters

APPENDIX F. EAP'S CV(S)

APPENDIX G. SPECIALIST STUDIES

G-1: Wetland Impact Assessment

G-2: Floodline Assessment

G-3: Acoustics Assessment

G-4: Geotechnical Assessment

APPENDIX H: ENVIRONMENTAL SCREENING REPORTS

APPENDIX I: STORMWATER MANAGEMENT PLAN