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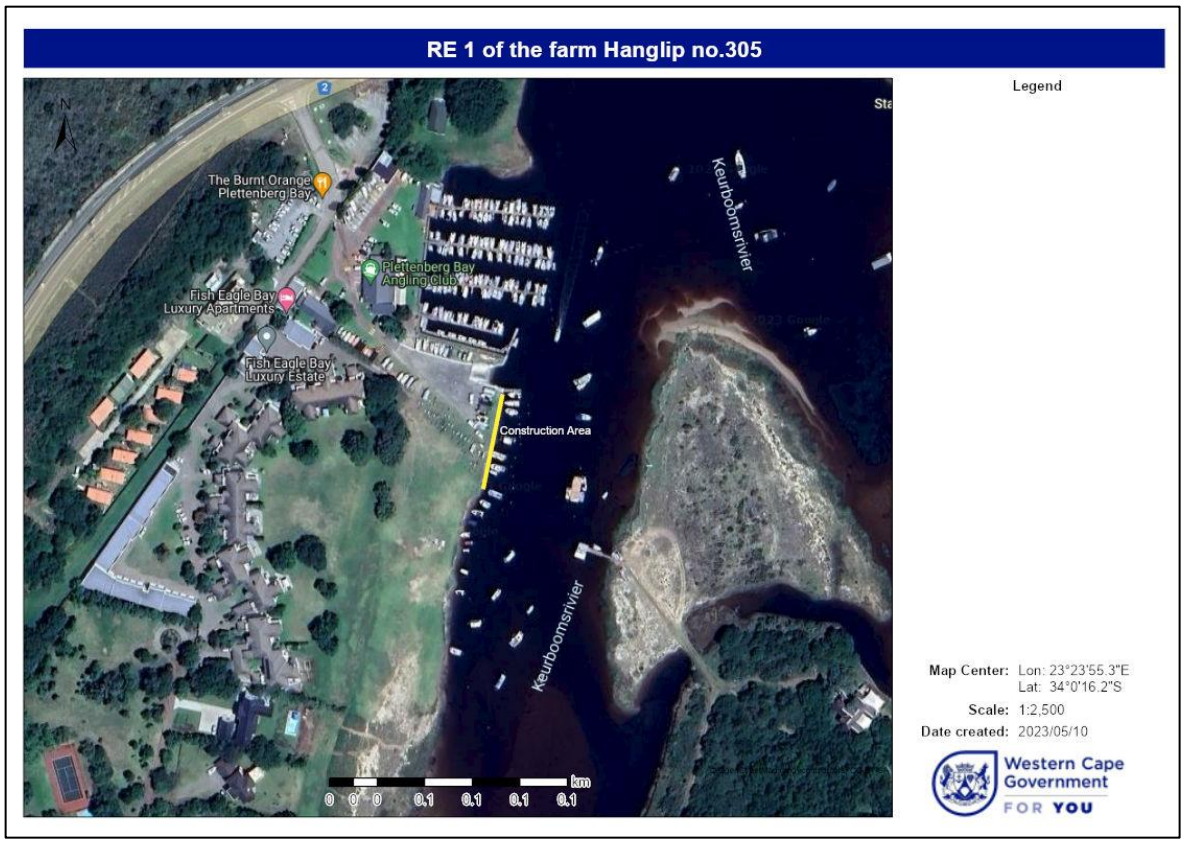
Proposed Stabilisation of a Portion of The Keurbooms River Embankment South of the Plettenberg Bay Angling Club, RE 1 of the farm Hanglip No.305

DRAFT BASIC ASSESSMENT REPORT



Date: July 2025

Compiled by: Samatha Teeluckdhari (2023/6443)
Assisted by: Lizelle Genade (Candidate 2023/7793)

S. Teeluckdhari

Lgenade

EAP Signature:_____ Candidate Signature:_____

ISSUED BY:
Eco Route

Submitted to:
DEA&DP

Document Reference:
DEA&DP REF: 16/3/3/1/D1/3/0010/25

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STATEMENT OF INDEPENDENCE

I, **Samantha Teeluckdhari** of Eco Route Environmental Consultancy, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent Environmental Assessment Practitioner (EAPASA Reg: 2023/6443) with assistance from Lizelle Genade (EAPASA Reg: Candidate 2023/7793) and receive remuneration for services rendered for undertaking tasks required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended). I have no financial or other vested interest in the project.

Western Cape Government

Department of Environmental Affairs and Development Planning

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

JULY 2025

BASIC ASSESSMENT REPORT

THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND THE ENVIRONMENTAL IMPACT ASSESSMENT REGULATIONS.

JULY 2025

(For official use only)	
Pre-application Reference Number (if applicable):	
EIA Application Reference Number:	
NEAS Reference Number:	
Exemption Reference Number (if applicable):	
Date BAR received by Department:	
Date BAR received by Directorate:	
Date BAR received by Case Officer:	

GENERAL PROJECT DESCRIPTION

(This must Include an overview of the project including the Farm name/Portion/Erf number)

Proposed Stabilisation of a Portion of The Keurbooms River Embankment South of the Plettenberg Bay Angling Club, RE 1 of the farm Hanglip No.305

IMPORTANT INFORMATION TO BE READ PRIOR TO COMPLETING THIS BASIC ASSESSMENT REPORT

1. **The purpose** of this template is to provide a format for the Basic Assessment report as set out in Appendix 1 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment ("EIA") Regulations, 2014 (as amended) in order to ultimately obtain Environmental Authorisation.

2. The Environmental Impact Assessment ("EIA") Regulations is defined in terms of Chapter 5 of the National Environmental Management Act, 19998 (Act No. 107 of 1998) ("NEMA") hereinafter referred to as the "NEMA EIA Regulations".

3. *Submission of documentation, reports and other correspondence:*

   The Department has adopted a digital format for corresponding with proponents/applicants or the general public. If there is a conflict between this approach and any provision in the legislation, then the provisions in the legislation prevail. If there is any uncertainty about the requirements or arrangements, the relevant Competent Authority must be consulted.

   The Directorate: Development Management has created generic e-mail addresses for the respective Regions, to centralise their administration. Please make use of the relevant general administration e-mail address below when submitting documents:

   DEADPEIAAdmin@westerncape.gov.za
   Directorate: Development Management (Region 1):
   City of Cape Town; West Coast District Municipal area;
   Cape Winelands District Municipal area and Overberg District Municipal area.

   DEADPEIAAdmin.George@westerncape.gov.za
   Directorate: Development Management (Region 3):
   Garden Route District Municipal area and Central Karoo District Municipal area

   General queries must be submitted via the general administration e-mail for EIA related queries. Where a case-officer of DEA&DP has been assigned, correspondence may be directed to such official and copied to the relevant general administration e-mail for record purposes.

   All correspondence, comments, requests and decisions in terms of applications, will be issued to either the applicant/requester in a digital format via email, with digital signatures, and copied to the Environmental Assessment Practitioner ("EAP") (where applicable).

4. The required information must be typed within the spaces provided in this Basic Assessment Report ("BAR"). The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.

5. All applicable sections of this BAR must be completed.

6. Unless protected by law, all information contained in, and attached to this BAR, will become public information on receipt by the Competent Authority. If information is not submitted with this BAR due to such information being protected by law, the applicant and/or Environmental Assessment Practitioner ("EAP") must declare such non-disclosure and provide the reasons for believing that the information is protected.

7. This BAR is current as of **April 2024**. It is the responsibility of the Applicant/ EAP to ascertain whether subsequent versions of the BAR have been released by the Department. Visit this Department's website at http://www.westerncape.gov.za to check for the latest version of this BAR.

8. This BAR is the standard format, which must be used in all instances when preparing a BAR for Basic Assessment applications for an environmental authorisation in terms of the NEMA EIA Regulations when the Western Cape Government Department of Environmental Affairs and Development Planning ("DEA&DP") is the Competent Authority.

9. Unless otherwise indicated by the Department, one hard copy and one electronic copy of this BAR must be submitted to the Department at the postal address given below or by delivery thereof to the Registry Office of the Department. Reasonable access to copies of this Report must be provided to the relevant Organs of State for consultation purposes, which may, if so indicated by the Department, include providing a printed copy to a specific Organ of State.

10. This BAR must be duly dated and originally signed by the Applicant, EAP (if applicable) and Specialist(s) and must be submitted to the Department at the details provided below.

11. The Department's latest Circulars pertaining to the "One Environmental Management System" and the EIA Regulations, any subsequent Circulars, and guidelines must be taken into account when completing this BAR.

12. Should a water use licence application be required in terms of the National Water Act, 1998 (Act No. 36 of 1998) ("NWA"), the "One Environmental System" is applicable, specifically in terms of the synchronisation of the consideration of the application in terms of the NEMA and the NWA. Refer to this Department's Circular EADP 0028/2014: One Environmental Management System.

13. Where Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA") is triggered, a copy of Heritage Western Cape's final comment must be attached to the BAR.

14. The Screening Tool developed by the National Department of Environmental Affairs must be used to generate a screening report. Please use the Screening Tool link https://screening.environment.gov.za/screeningtool to generate the Screening Tool Report. The screening tool report must be attached to this BAR.

15. Where this Department is also identified as the Licencing Authority to decide on applications under the National Environmental Management: Air Quality Act (Act No. 29 of 2004) ('NEM:AQA"), the submission of the Report must also be made as follows, for-
    Waste Management Licence Applications, this report must also (i.e., another hard copy and electronic copy) be submitted for the attention of the Department's Waste Management Directorate (Tel: 021-483-2728/2705 and Fax: 021-483-4425) at the same postal address as the Cape Town Office.

    Atmospheric Emissions Licence Applications, this report must also be (i.e., another hard copy and electronic copy) submitted for the attention of the Licensing Authority or this Department's Air Quality Management Directorate (Tel: 021 483 2888 and Fax: 021 483 4368) at the same postal address as the Cape Town Office.

DEPARTMENTAL DETAILS	
CAPE TOWN OFFICE: **DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 1)** (City of Cape Town, West Coast District, Cape Winelands District & Overberg District)	**GEORGE REGIONAL OFFICE:** **DIRECTORATE: DEVELOPMENT MANAGEMENT (REGION 3)** (Central Karoo District & Garden Route District)
The completed Form must be sent via electronic mail to: DEADPEIAAdmin@westerncape.gov.za Queries should be directed to the Directorate: Development Management (Region 1) at: E-mail: DEADPEIAAdmin@westerncape.gov.za Tel: (021) 483-5829 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 1) Private Bag X 9086 Cape Town, 8000	The completed Form must be sent via electronic mail to: DEADPEIAAdmin.George@westerncape.gov.za Queries should be directed to the Directorate: Development Management (Region 3) at: E-mail: DEADPEIAAdmin.George@westerncape.gov.za Tel: (044) 814-2006 Western Cape Government Department of Environmental Affairs and Development Planning Attention: Directorate: Development Management (Region 3) Private Bag X 6509 George, 6530

MAPS

Provide a location map (see below) as Appendix A1 to this BAR that shows the location of the proposed development and associated structures and infrastructure on the property.	
Locality Map:	The scale of the locality map must be at least 1:50 000. For linear activities or development proposals of more than 25 kilometres, a smaller scale e.g., 1:250 000 can be used. The scale must be indicated on the map. The map must indicate the following: • an accurate indication of the project site position as well as the positions of the alternative sites, if any; • road names or numbers of all the major roads as well as the roads that provide access to the site(s) • a north arrow; • a legend; and • a linear scale. For ocean based or aquatic activity, the coordinates must be provided within which the activity is to be undertaken and a map at an appropriate scale clearly indicating the area within which the activity is to be undertaken. Where comment from the Western Cape Government: Transport and Public Works is required, a map illustrating the properties (owned by the Western Cape Government: Transport and Public Works) that will be affected by the proposed development must be included in the Report.
Provide a detailed site development plan / site map (see below) as Appendix B1 to this BAR; and if applicable, all alternative properties and locations.	
Site Plan:	Detailed site development plan(s) must be prepared for each alternative site or alternative activity. The site plans must contain or conform to the following: • The detailed site plan must preferably be at a scale of 1:500 or at an appropriate scale. The scale must be clearly indicated on the plan, preferably together with a linear scale. • The property boundaries and numbers of all the properties within 50m of the site must be indicated on the site plan. • On land where the property has not been defined, the co-ordinates of the area in which the proposed activity or development is proposed must be provided. • The current land use (not zoning) as well as the land use zoning of each of the adjoining properties must be clearly indicated on the site plan. • The position of each component of the proposed activity or development as well as any other structures on the site must be indicated on the site plan. • Services, including electricity supply cables (indicate aboveground or underground), water supply pipelines, boreholes, sewage pipelines, storm water infrastructure and access roads that will form part of the proposed development **must** be clearly indicated on the site plan. • Servitudes and an indication of the purpose of each servitude must be indicated on the site plan.

	• Sensitive environmental elements within 100m of the site must be included on the site plan, including (but not limited to): o Watercourses / Rivers / Wetlands o Flood lines (*i.e.,* 1:100 year, 1:50 year and 1:10 year where applicable); o Coastal Risk Zones as delineated for the Western Cape by the Department of Environmental Affairs and Development Planning ("DEA&DP"): o Ridges; o Cultural and historical features/landscapes; o Areas with indigenous vegetation (even if degraded or infested with alien species). • Whenever the slope of the site exceeds 1:10, a contour map of the site must be submitted. • North arrow A map/site plan must also be provided at an appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred and alternative sites indicating any areas that should be avoided, including buffer areas.
Site photographs	Colour photographs of the site that shows the overall condition of the site and its surroundings (taken on the site and taken from outside the site) with a description of each photograph. The vantage points from which the photographs were taken must be indicated on the site plan, or locality plan as applicable. If available, please also provide a recent aerial photograph. Photographs must be attached to this BAR as **Appendix C**. The aerial photograph(s) should be supplemented with additional photographs of relevant features on the site. Date of photographs must be included. Please note that the above requirements must be duplicated for all alternative sites.
Biodiversity Overlay Map:	A map of the relevant biodiversity information and conditions must be provided as an overlay map on the property/site plan. The Map must be attached to this BAR as **Appendix D**.
Linear activities or development and multiple properties	GPS co-ordinates must be provided in degrees, minutes and seconds using the Hartebeeshoek 94 WGS84 co-ordinate system. Where numerous properties/sites are involved (linear activities) you must attach a list of the Farm Name(s)/Portion(s)/Erf number(s) to this BAR as an Appendix. For linear activities that are longer than 500m, please provide a map with the co-ordinates taken every 100m along the route to this BAR as **Appendix A3**.

ACRONYMS

DAFF:	Department of Forestry and Fisheries
DEA:	Department of Environmental Affairs
DEA& DP:	Department of Environmental Affairs and Development Planning
DHS:	Department of Human Settlement
DoA:	Department of Agriculture
DoH:	Department of Health
DWS:	Department of Water and Sanitation
EMPr:	Environmental Management Programme
HWC:	Heritage Western Cape
NFEPA:	National Freshwater Ecosystem Protection Assessment
NSBA:	National Spatial Biodiversity Assessment
TOR:	Terms of Reference
WCBSP:	Western Cape Biodiversity Spatial Plan
WCG:	Western Cape Government

ATTACHMENTS

Note: The Appendices must be attached to the BAR as per the list below. Please use a ✓ **(**tick) or a **x** (cross) to indicate whether the Appendix is attached to the BAR.

The following checklist of attachments must be completed.

APPENDIX			**✓ (Tick) or x (cross)**
Appendix A:	**Maps**		
	Appendix A1:	**Locality Map**	✓
	Appendix A2:	**Coastal Risk Zones as delineated in terms of ICMA for the Western Cape by the Department of Environmental Affairs and Development Planning**	✓
	Appendix A3:	**Map with the GPS co-ordinates for linear activities**	✓
Appendix B:	**Appendix B1:**	**Site development plan(s)**	✓
	Appendix B2	**A map of appropriate scale, which superimposes the proposed development and its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffer areas;**	✓
Appendix C:	**Photographs**		✓
Appendix D:	**Biodiversity overlay map**		✓
Appendix E:	**Permit(s) / license(s) / exemption notice, agreements, comments from State Department/Organs of state and service letters from the municipality.**		
	Appendix E1:	**Final comment/ROD from HWC**	✓
	Appendix E2:	**Copy of comment from Cape Nature**	✓
	Appendix E3:	**Final Comment from the DWS**	**x**
	Appendix E4:	**Comment from the DEA: Oceans and Coast**	**x**
	Appendix E5:	**Comment from the DAFF**	**x**
	Appendix E6:	**Comment from WCG: Transport and Public Works**	**x**
	Appendix E7:	**Comment from WCG: DoA**	**x**
	Appendix E8:	**Comment from WCG: DHS**	**x**

	Appendix E9:	**Comment from WCG: DoH**	**x**
	Appendix E10:	**Comment from DEA&DP: Pollution Management**	**x**
	Appendix E11:	**Comment from DEA&DP: Waste Management**	**x**
	Appendix E12:	**Comment from DEA&DP: Biodiversity**	**x**
	Appendix E13:	**Comment from DEA&DP: Air Quality**	**x**
	Appendix E14:	**Comment from DEA&DP: Coastal Management**	✓
	Appendix E15:	**Comment from the local authority**	**x**
	Appendix E16:	**Confirmation of all services (water, electricity, sewage, solid waste management)**	**N/A**
	Appendix E17:	**Comment from the District Municipality**	**x**
	Appendix E18:	**Copy of an exemption notice**	**N/A**
	Appendix E19	**Pre-approval for the reclamation of land**	**N/A**
	Appendix E20:	**Proof of agreement/TOR of the specialist studies conducted.**	**x**
	Appendix E21:	**Proof of land use rights**	✓
	Appendix E22:	**Proof of public participation agreement for linear activities**	**x**
Appendix F:	**Public participation information: including a copy of the register of I&APs, the comments and responses Report, proof of notices, advertisements and any other public participation information as is required.**		✓
Appendix G:	**Specialist Report(s)**		✓
Appendix H:	**EMPr**		✓
Appendix I:	**Screening tool report**		✓
Appendix J:	**The impact and risk assessment for each alternative**		**x**
Appendix K:	**Need and desirability for the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013)/DEA Integrated Environmental Management Guideline**		✓
Appendix…..	**Any other attachments must be included as subsequent appendices**		**x**

SECTION A: ADMINISTRATIVE DETAILS

Highlight the Departmental Region in which the intended application will fall	CAPE TOWN OFFICE: REGION 1		GEORGE OFFICE: BEGION 3
	(City of Cape Town, West Coast District	(Cape Winelands District & Overberg District)	(Central Karoo District & Garden Route District)

Duplicate this section where there is more than one Proponent Name of Applicant/Proponent:	Plettenberg Bay Angling Club	
Name of contact person for Applicant/Proponent (if other):	Warren Webster	
Company/ Trading name/State Department/Organ of State:	N/A	
Company Registration Number:		
Postal address:	P.O. Box 2, Plettenberg Bay	
		Postal code: 6600
Telephone:	(044) 535 9057	Cell: 082 493 0385
E-mail:	admin@pbac.co.za	Fax:

Company of EAP:	Eco Route Environmental Consultancy	
EAP name:	Samantha Teeluckdhari	
Postal address:	P.O. Box 1252	
	Sedgefield	Postal code: 6573
Telephone:	+27 (0)72 773 5397	Cell: 072 773 5397
E-mail:	samantha@ecoroute.co.za	Fax: 086 402 9562
Qualifications:	BSS Geography and Environmental Management	
EAP registration no:	2023/6443	

Duplicate this section where there is more than one landowner Name of landowner:	The proposed stabilisation is within Coastal Public Property - CapeNature & Bitou Local Municipality are the stewards of the Keurbooms Estuary on behalf of the State (Department of Public Works and Infrastructure)	
Name of contact person for landowner (if other):		
Postal address:		
		Postal code:
Telephone:	( )	Cell:
E-mail:		Fax: ( )

Name of Person in control of the land:	CapeNature & Bitou Local Municipality are the stewards of the Keurbooms Estuary on behalf of the State (Department of Public Works and Infrastructure)	
Name of contact person for person in control of the land:	Megan Simons (CapeNature)/ Anje Minne (Bitou Local Municipality)	
Postal address:		
		Postal code:
Telephone:		Cell:
E-mail:		Fax: ( )

Duplicate this section where there is more than one Municipal Jurisdiction Municipality in whose area of jurisdiction the proposed activity will fall:	Bitou Local Municipality	
Contact person:	Chris Schliemann/ Anje Minne	
Postal address:	P/Bag X1002	
	Plettenberg Bay	Postal code: 6600
Telephone	(044) 501 3324	Cell:
E-mail:	CSchliemann@plett.gov.za/ aminne@plett.gov.za	Fax: ( )

SECTION B: CONFIRMATION OF SPECIFIC PROJECT DETAILS AS INLCUDED IN THE APPLICATION FORM

1.	Is the proposed development (please tick):	New	✓	Expansion	
2.	Is the proposed site(s) a brownfield of greenfield site? Please explain.				
Greenfield					
3.	**For Linear activities or developments**				
3.1.	Provide the Farm(s)/Farm Portion(s)/Erf number(s) for all routes:				
RE 1 of the farm Hanglip no.305					
3.2.	Development footprint of the proposed development for all alternatives.				+/- 50m
The proposed embankment stabilisation will be approximately 50 meters in length.					
3.3.	Provide a description of the proposed development (e.g. for roads the length, width and width of the road reserve in the case of pipelines indicate the length and diameter) for all alternatives.				
The stabilisation activities will occur along a section of the embankment of the Keurbooms River (approximately 50 meters), south of the Plettenberg Bay Angling Club, Western Cape – GPS Coordinates: 34° 0'17.20"S 23°23'55.62"E.					
3.4.	Indicate how access to the proposed routes will be obtained for all alternatives.				
Access to the embankment is via the Plettenberg Bay Angling Club.					

3.5.	SG Digit codes of the Farms/Farm Portions/Erf numbers for all alternatives	C	0	3	9	0	0	0	0	0	0	0	0	0	3	0	5	0	0	0	0	1

3.6.	**Starting point co-ordinates for all alternatives**			
	Latitude (S)	34°	0‘	15.30“
	Longitude (E)	23°	23‘	56.25“
	Middle point co-ordinates for all alternatives			
	Latitude (S)	34°	0‘	16.18“
	Longitude (E)	23°	23‘	56.09“
	End point co-ordinates for all alternatives			
	Latitude (S)	34°	0‘	16.85“
	Longitude (E)	23°	23‘	55.91“

Note: For Linear activities or developments longer than 500m, a map indicating the co-ordinates for every 100m along the route must be attached to this BAR as Appendix A3.

4.	**Other developments N/A**	
4.1.	Property size(s) of all proposed site(s):	m^2
4.2.	Developed footprint of the existing facility and associated infrastructure (if applicable):	m^2
4.3.	Development footprint of the proposed development and associated infrastructure size(s) for all alternatives:	m^2
4.4.	Provide a detailed description of the proposed development and its associated infrastructure (This must include details of e.g. buildings, structures, infrastructure, storage facilities, sewage/effluent treatment and holding facilities).	
4.5.	Indicate how access to the proposed site(s) will be obtained for all alternatives.	

4.6.	SG Digit code(s) of the proposed site(s) for all alternatives:																					

4.7.	Coordinates of the proposed site(s) for all alternatives:			
	Latitude (S)	°	‘	“
	Longitude (E)	°	‘	“

SECTION C: LEGISLATION/POLICIES AND/OR GUIDELINES/PROTOCOLS

1. Exemption applied for in terms of the NEMA and the NEMA EIA Regulations

Has exemption been applied for in terms of the NEMA and the NEMA EIA Regulations. If yes, include a copy of the exemption notice in Appendix E18.	YES	**NO**

2. Is the following legislation applicable to the proposed activity or development.

The National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) ("ICMA"). If yes, attach a copy of the comment from the relevant competent authority as Appendix E4 and the pre-approval for the reclamation of land as Appendix E19.	**YES**	NO
The National Heritage Resources Act, 1999 (Act No. 25 of 1999) ("NHRA"). If yes, attach a copy of the comment from Heritage Western Cape as Appendix E1. NID was submitted to Heritage Western Cape. Comment from Heritage Western Cape as Appendix E1	YES	**NO**
The National Water Act, 1998 (Act No. 36 of 1998) ("NWA"). If yes, attach a copy of the comment from the DWS as Appendix E3.	YES	**NO**
The National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) ("NEM:AQA"). If yes, attach a copy of the comment from the relevant authorities as Appendix E13.	YES	**NO**
The National Environmental Management Waste Act (Act No. 59 of 2008) ("NEM:WA")	YES	**NO**
The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004 ("NEMBA").	**YES**	NO
The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) ("NEMPAA").	YES	**NO**
The Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983). If yes, attach comment from the relevant competent authority as Appendix E5.	YES	**NO**

3. Other legislation

List any other legislation that is applicable to the proposed activity or development.
OSCAE permit

4. Policies

Explain which policies were considered and how the proposed activity or development complies and responds to these policies.	
National Environmental Management Act, 1998 (Act 107 of 1998)	The development follows the Environmental Impact Assessment (EIA) Regulations under NEMA, as required for obtaining Environmental Authorisation. The Basic Assessment process and specialist studies comply with the EIA protocols.
National Policy Development Framework 2020	This policy promotes sustainable and responsible development, which the proposal aligns with by addressing environmental maintenance and climate resilience.
Western Cape Land Use Planning Act, 2014 (Act 3 of 2014) and Spatial Planning and Land Use Management Act, 2013 (Act 16 of 2013)	The proposal supports sustainable land use and infrastructure protection without altering existing zoning or land use rights.
Bitou Municipal Land Use Planning Bylaw, 2015	The activity supports protective infrastructure in line with the bylaw's intentions for responsible land use adjacent to water bodies.
Bitou Municipality Integrated Development Plan (IDP) 2022–2025	The proposal supports the IDP objectives by: • Enhancing environmental asset protection. • Reducing erosion and storm surge impacts. • Contributing to regional climate change adaptation efforts.
Bitou Municipal Spatial Development Framework (SDF)	The proposed activity does not alter or conflict with the SDF. It supports objectives of coastal risk mitigation and ecosystem service protection.

Western Cape Provincial Spatial Development Framework (WCPSDF, 2014)	The development aligns with WCPSDF goals to protect the coastal zone from degradation due to natural hazards and human pressures.
Garden Route Environmental Management Framework (GREMF, 2023/2027)	The proposal is consistent with the GREMF guidance on bank stabilisation and estuary protection. Avoids significant hydrological or ecological disruptions.
Western Cape Biodiversity Spatial Plan (2023)	Although the site is within a Critical Biodiversity Area (CBA), the embankment is degraded and covered by invasive lawn grass. The rehabilitation and stabilisation aligns with the CBA management objectives by: • Preventing further degradation. • Maintaining natural river functions. • Avoiding irreversible impacts on red-listed species like Zostera capensis (eelgrass).

5. Guidelines

List the guidelines which have been considered relevant to the proposed activity or development and explain how they have influenced the development proposal.
DEA&DP Biodiversity Guideline (June 2005)
DEA&DP EIA Guideline (March 2013)
DEA&DP Guideline on Need and Desirability (March 2013)
DEA Guideline on Need and Desirability (2017)
National Development Plan (2011)
Provincial Spatial Development Framework (2014)
Bitou Municipality IDP 2017-2022
Garden Route Biodiversity Sector Plan
All these guidelines emphasize sustainability, resilience, and protection of natural assets. The project aligns by ensuring: • Minimal ecological impact. • Enhanced climate change resilience. • No significant interference with hydrological flows or habitats.

6. Protocols

Explain how the proposed activity or development complies with the requirements of the protocols referred to in the NOI and/or application form
Please see attached Site Sensitivity Verification Report. Appendix I

SECTION D: APPLICABLE LISTED ACTIVITIES

List the applicable activities in terms of the NEMA EIA Regulations

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1**	Describe the portion of the proposed development to which the applicable listed activity relates.
12	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or	The proposed activity will be approximately 220 square metres within the Keurbooms River.

	(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; — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	
15	The development of structures in the coastal public property where the development footprint is bigger than 50 square metres, excluding – (i) the development of structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (ii) the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (iii) the development of temporary structures within the beach zone where such structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared; or (iv) activities listed in activity 14 in Listing Notice 2 of 2014, in which case that activity applies	The proposed activity will be the construction and installation of engineered embankment stabilisation extending approximately 3 meters into the river; locating the activity within coastal public property.
17	Development— (i) in the sea; **(ii) in an estuary;**	The proposed activity will be the construction and installation of engineered embankment stabilisation approximately 220 square metres in the Keurbooms River labelled as an Estuary in terms of the Wetland Freshwater Priority Areas (FEPAs).

	(iii) within the littoral active zone; (iv) in front of a development setback; or (v) if no development setback exists, within a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever is the greater; in respect of— (a) fixed or floating jetties and slipways; (b) tidal pools; **(c) embankments;** **(d) rock revetments or stabilising structures including stabilising walls; or** **(e) infrastructure or structures with a development footprint of 50 square metres or more —** but excluding— (aa) the development of infrastructure and structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) the development of temporary infrastructure or structures where such structures will be removed within 6 weeks of the commencement of development and where coral or indigenous vegetation will not be cleared; or (dd) where such development occurs within an urban area.	
19A	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from— (i) the seashore; **(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater;** or (iii) the sea; — but excluding where such infilling, depositing, dredging, excavation, removal or moving— (f) will occur behind a development setback; (g) is for maintenance purposes undertaken in accordance with a maintenance management plan;	The proposed activity will require the excavation of more than 5 cubic metres of soil from the Keurbooms River.

	(h) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (i) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed development to which the applicable listed activity relates.
14	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or **(ii) infrastructure or structures with a physical footprint of 10 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 has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. i. Western Cape ii. Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; (ee) Sites or areas listed in terms of an international convention; **(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;** (gg) Core areas in biosphere reserves; or **(hh) Areas on the estuary side of the development setback line or in an estuarine**	The proposed activity will be approximately 220 square metres within the Keurbooms River. The area for construction is within a CBA and in the Estuarine Functional Zone.

	functional zone where no such setback line has been determined.	
26	Phased activities for all activities— i.listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; or ii.similarly listed in any of the previous NEMA notices, and as it applies to a specific geographical area, which commenced on or after the effective date of such previous NEMA Notices— where any phase of the activity was below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold; — excluding the following activities listed in this Notice— 7; 8; 11; 13; 20; 21; and 24.	The applicant will be undertaking the bank stabilisation in two stages: Stage 1 – this will be the construction of approximately 30 metres of the total length of the stabilisation activity being applied for. Stage 2 – this will comprise of the remaining +/- 25 metres of the stabilisation activities.

Note:

- The listed activities specified above must reconcile with activities applied for in the application form. The onus is on the Applicant to ensure that all applicable listed activities are included in the application. If a specific listed activity is not included in an Environmental Authorisation, a new application for Environmental Authorisation will have to be submitted.
- Where additional listed activities have been identified, that have not been included in the application form, and amended application form must be submitted to the competent authority.

List the applicable waste management listed activities in terms of the NEM:WA

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Category A**	Describe the portion of the proposed development to which the applicable listed activity relates.

List the applicable listed activities in terms of the NEM:AQA

Activity No(s):	Provide the relevant **Listed Activity(ies)**	Describe the portion of the proposed development to which the applicable listed activity relates.

SECTION E: PLANNING CONTEXT AND NEED AND DESIRABILITY

1.	Provide a description of the preferred alternative.

The stabilisation activities will occur along a section of the embankment of the Keurbooms River (approximately 50 metres), south of the Plettenberg Bay Angling Club, Western Cape – GPS Coordinates: 34° 0'17.20"S 23°23'55.62"E.

It is recommended that a combination of Options 2 and 4 (reprofiling the bank) be implemented. Option 2 out of the three (3) hard engineering options provided by the appointed engineer is most recommended by the aquatic specialist as it is consistent with other bank stabilisation structures that have been implemented at other locations in the estuary and entails reprofiling the bank (1.3 m horizontal to 1 m vertical) using sandbags (800 mm x 500 mm x 170 mm), and covering these with a 0.3 m x 3.0 m reno mattress (Estuarine and Plant Species – Specialist Assessment, Appendix G)

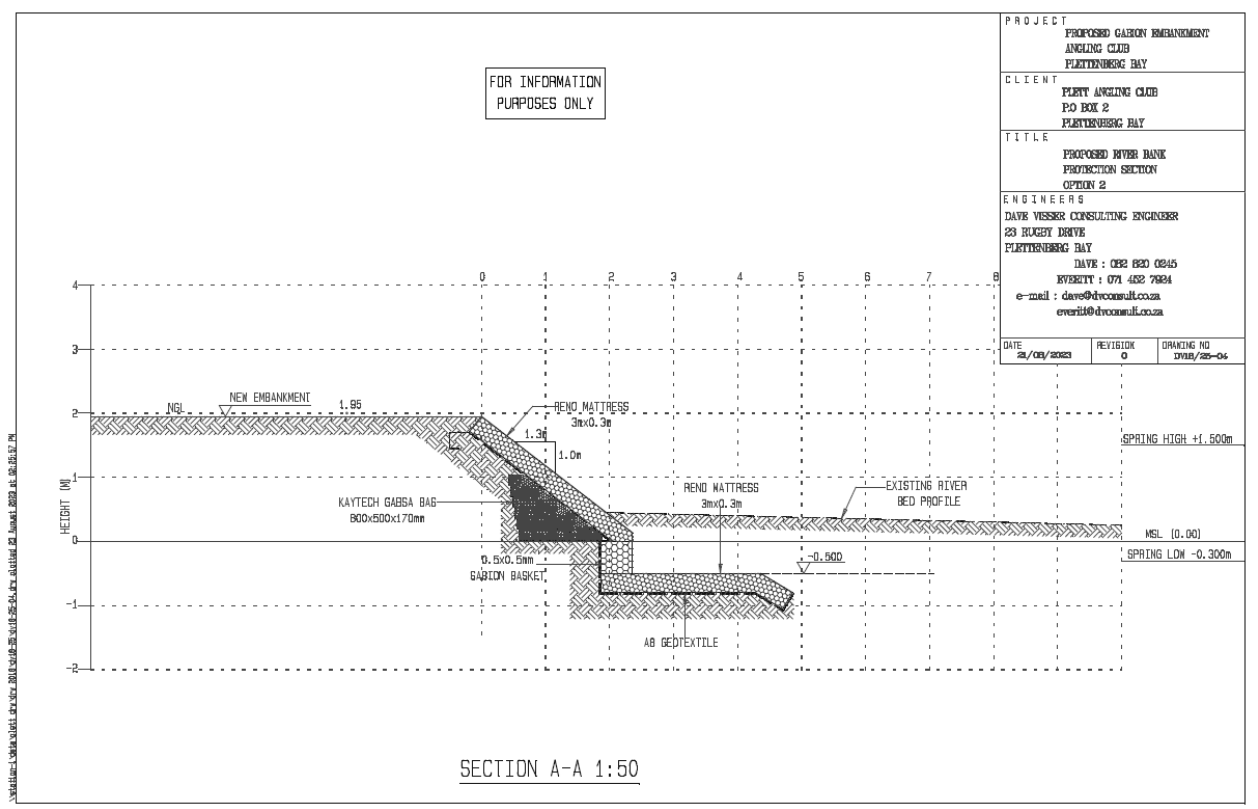


Figure 1: Option 2 – Preferred Alternative

Option 4 will result in lower construction phase impacts but will not yield any positive long-term erosion control benefit if mooring of boats and pedestrian traffic along the banks is allowed to continue. Even if boat mooring and pedestrian traffic are to be controlled, the close proximity of the tarred car park to the edge of the re-profiled estuary bank would most likely compromise the integrity of the bank in the long-term. This option would however be preferable downstream of the tarred car park as there will be sufficient space to accommodate and protect the re-profiled bank. It is therefore recommended that Option 2 be implemented adjacent to the tarred area and - provided that mooring of boats and pedestrian traffic is prohibited - that Option 4 is implemented further downstream (figure 2 below). This recommendation would whilst minimising the footprint of hard engineered structures along the shoreline represents the best compromise of the options assessed.

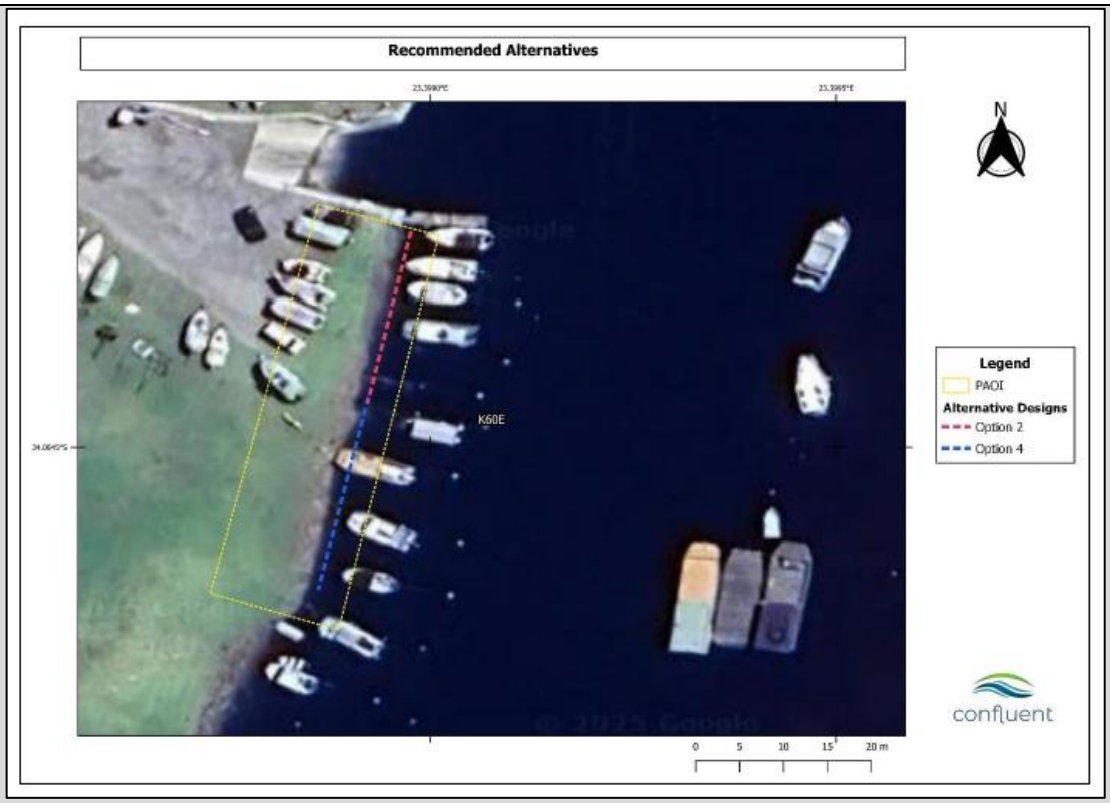


Figure 2: Map illustrating the recommended alternatives options (2 and 4) to be implemented to address bank erosion along the estuary shoreline

2.	Explain how the proposed development is in line with the existing land use rights of the property as you have indicated in the NOI and application form? Include the proof of the existing land use rights granted in Appendix E21.
The stabilisation of the embankment will be in line with the management and protection of property from future erosion because of storm surges as a result of climate change.	
3.	Explain how potential conflict with respect to existing approvals for the proposed site (as indicated in the NOI/and or application form) and the proposed development have been resolved.
N/A	
4.	Explain how the proposed development will be in line with the following?
4.1	The Provincial Spatial Development Framework.
The protection of oceans and coasts is highlighted as a policy within the WCPSDF 2014. It is known "*as the coastal zone is a desirable location for human settlement, diverse economic activities, harvesting of natural resources, and recreation, it is subject to increasing pressures.*" For this reason and more it is so important to manage the coast. The Keurbooms-Bitou Estuary Management Plan is an important management document which draws off of the policies of WCPSDF.	
4.2	The Integrated Development Plan of the local municipality.
The Integrated Development Plan of Bitou municipality for 2022-2025 aims to align the Sustainable Development Goals, National development plan and Provincial priority area by protecting and enhancing environmental assets and natural resources. The resilience of the region is closely tied to its overall risk profile, and highlights the need for disaster risk management, natural resource management and climate change adaptation. There is an undeniable pressure between infrastructure development and the environmental asset protection, as well as the impact of such development on the municipal financial sustainability and its ultimate resilience. The municipality is required to consider the area's overall economic and social development and must establish a framework for how land is used, what infrastructure and services are required, and how to protect the environment. This proposed stabilisation of the river embankment to stop and reduce erosion, is in line with all of the above as it will assist with protecting the existing infrastructure on the property adjacent to river, it will reduce further degrading of embankment , and protect it against high tides and storm surges, without extreme impact on the river itself, as well as promoting natural function.	

4.3.	The Spatial Development Framework of the local municipality.
The SDF of the Bitou Local Municipality will not be altered by the proposed activity.	
4.4.	The Environmental Management Framework applicable to the area.
The Garden Route EMF 2010 states that structures within the littoral zone will be subject to a detailed impact assessment that must take the continuous erosion and accretion of the coast, as well as wave energy dissipation into consideration. All aquatic systems are considered important and to have value. Rivers are to be kept ecologically sound and visibly healthy. The GREMF addresses threats of bank stabilisation to estuary conservation and provides guidelines to dealing with estuary conservation.	
5.	Explain how comments from the relevant authorities and/or specialist(s) with respect to biodiversity have influenced the proposed development.

Comments from DEA&DP on NOI (8 November 2023):

- The STR specifies a VERY HIGH sensitivity rating for the Aquatic Biodiversity Theme. According to the SSVR an Aquatic Impact Assessment will be undertaken. In light of the sensitivity rating identified by the STR, the specialist assessment must adhere to the requirements for the Aquatic Biodiversity Specialist Assessment as stipulated in the protocol.
- The STR indicates that the sensitivity in terms of the Terrestrial Biodiversity Theme is VERY HIGH. According to the SSVR a specialist has been appointed to conduct a site visit and confirm the sensitivity in the form of a report which meets the requirements of the gazetted protocol. In light of above, specialist assessment must comply with the content requirements of the protocol based on the findings of the specialist i.e. a Terrestrial Biodiversity Compliance Statement for LOW sensitivity or Terrestrial Biodiversity Specialist Assessment for VERY HIGH sensitivity.

Both biodiversity assessments were conducted by Confluent, SACNASP registered, who followed protocol as requested.

As per the Estuarine Assessment Report May 2025 compiled by water and biodiversity specialist, Dr. James Dabrowski of Confluent Environmental, "*the structure is intended to rehabilitate an eroded section of the channel and will result in negligible to minor impacts to the estuary. The proposal is therefore aligned to CBA management objectives.*"

6.	Explain how the Western Cape Biodiversity Spatial Plan (including the guidelines in the handbook) has influenced the proposed development.

The site is identified as 'Least Threatened' as per the Ecosystem Threat Status 2016 results, and as 'Endangered' by the SANBI Red List of Ecosystems. However, the site has been severely eroded and as per the Estuarine Assessment Report May 2025 compiled by Dr. James Dabrowski of Confluent Environmental, the water and biodiversity specialist "*the entire bank is devoid of any indigenous riparian vegetation and is covered by kikuyu lawn (Cenchrus clandestinus)*."

As per the Estuarine Assessment Report May 2025 compiled by Dr. James Dabrowski of Confluent Environmental, "*the structure is intended to rehabilitate an eroded section of the channel and will result in negligible to minor impacts to the estuary. The proposal is therefore aligned to CBA management objectives.*"

The Western Cape Biodiversity Spatial Plan(2023) emphasise the need to protect infrastructure from coastal processes by allowing for:
absorption of the impacts of severe storm sequences, shoreline movement, global sea level rise and increased storm surges, the fluctuation of natural coastal processes, and any combination of these factors. This proposed stabilisation will assist with absorption of impacts mentioned above and will not interfere with seasonal migration of animals, hydrological regimes and will not cause habitat transformation, degradation and fragmentation which occur primarily through changes in land use which either result in the outright loss of natural ecosystems, or pressures which impact negatively on habitat condition.

In the Estuarine and Plant Species – Specialist Assessment, May 2025, the water and biodiversity specialist stated that the proposed activity will not have an irreversible effect on *Eelgrass (Zostera capensis)*, which is important given the Red List status of this plant and is present on site. This species is represented elsewhere in the estuary (therefore it has a low irreplaceability rating at the site location). Also, The Knysna seahorse (Hippocampus capensis) occurs in the Keurbooms estuaries and recent studies indicate that the species also use artificial habitats (including reno mattress) extensively and that constructed artificial habitats such as marinas and boat harbours using reno mattresses within the estuaries have increased population numbers and increased the range of the species. The *Hippocampus capensis* can also tolerate a wide range of environmental conditions.

7.	Explain how the proposed development is in line with the intention/purpose of the relevant zones as defined in the ICMA.

As stated in the Integrated Coastal Management Act (Act No. 24 of 2008) (hereafter the ICM Act), the coastal protection zone is established to manage use of land that is adjacent to coastal public property and aims:

- To protect the ecological integrity, natural character, and the economic, social and aesthetic value of the neighbouring coastal public property;
- To avoid increasing the effect or severity of natural hazards;
- To protect people, property and economic activities from the risks and threats which may arise from dynamic coastal processes such as wave and wind erosion, coastal storm surges, flooding and sea-level rise;
- To maintain the natural functioning of the littoral active zone

The proposed activity is consistent with the objectives of:

The Keurbooms Estuary Management Plan (2023), which recommends bank stabilisation to repair existing damage and minimise impacts from future flood events.

The Western Cape Provincial Coastal Management Programme (PCMP 2022–2027), which prioritises climate adaptation and infrastructure protection within estuarine systems.

- Location Necessity

Due to the embankment's direct exposure to estuarine tidal action and wave energy, the activity must occur in this location to:

Prevent ongoing erosion that threatens adjacent infrastructure.

Address existing degradation and bank collapse directly at the site.
Alternative inland options would be ineffective as they would not mitigate the active erosion occurring at the water's edge.

- Benefit to the Public and Ecosystem

The stabilisation:

Protects a public-use facility (Plettenberg Bay Angling Club) and public infrastructure from flood and storm damage.

Reduces sedimentation into the estuary, supporting downstream water quality and aquatic habitat.

Incorporates eco-sensitive measures, including reno mattress profiles that allow for vegetation growth and continued littoral processes.

- Minimal and Manageable Impact

Specialist studies, including the Estuarine Impact Assessment (May 2025), confirm:

Minor ecological impacts, particularly if mitigation measures are strictly applied.

No loss of priority estuarine species or irreversible transformation of estuarine habitat.

Enhanced resilience against flood risk with limited footprint (+/-50 m).

Mitigation will include:

- Use of permeable materials.
- Replanting of indigenous vegetation.

Appointment of an ECO to enforce environmental compliance.

- Compliance with Law and Planning Frameworks

The proposal:

Complies with the National Environmental Management Act (NEMA) and EIA Regulations (2014) as amended.

Supports the goals of the Bitou Integrated Development Plan (IDP) and SDF, which promote climate resilience and sustainable coastal development.

Will obtain required environmental authorisation, ensuring legal compliance.

- Avoidance and Mitigation of Negative Effects

The footprint is confined to a degraded and already modified area dominated by invasive grasses.

Alternatives such as soft engineering and vegetation-only approaches were considered and are partially integrated into the design.

A hybrid solution—using gabions with reshaping of a portion of the bank, limiting boat access, and encouraging natural processes—was selected to reduce ecological transformation.

The proposed stabilisation is a justifiable and necessary intervention in a vulnerable estuarine zone, directly aligned with:

- ICMA objectives,
- Local estuarine and coastal management strategies, and
- The need to protect property, infrastructure, and ecosystem health from escalating climate-related risks.

The activity is supported by specialist findings, incorporates mitigation, and balances public and environmental interest in line with Section 63 of ICMA.

8.	Explain whether the screening report has changed from the one submitted together with the application form. The screening report must be attached as Appendix I.
Screening report date 7 September 2023 has not changed. See Appendix I	
9.	Explain how the proposed development will optimise vacant land available within an urban area.
N/A	
10.	Explain how the proposed development will optimise the use of existing resources and infrastructure.
The stabilisation will better protect the existing property from storm surges, and extreme high tides in the future due to climate change.	
11.	Explain whether the necessary services are available and whether the local authority has confirmed sufficient, spare, unallocated service capacity. (Confirmation of all services must be included in Appendix E16).
N/A	
12.	In addition to the above, explain the need and desirability of the proposed activity or development in terms of this Department's guideline on Need and Desirability (March 2013) or the DEA's Integrated Environmental Management Guideline on Need and Desirability. This may be attached to this BAR as Appendix K.
See Appendix K	

SECTION F: PUBLIC PARTICIPATION

The Public Participation Process ("PPP") must fulfil the requirements as outlined in the NEMA EIA Regulations and must be attached as Appendix F. Please note that If the NEM: WA and/or the NEM: AQA is applicable to the proposed development, an advertisement must be placed in at least two newspapers.

1. Exclusively for linear activities: Indicate what PPP was agreed to by the competent authority. Include proof of this agreement in Appendix E22.

Regulation 41 of the Environmental Impact Assessment, 2014 ("EIA Regulations, 2014") is complied with simultaneously during the application phase. (Acknowledgement and Comment DEA&DP, 8 November 2023)

2. Confirm that the PPP as indicated in the application form has been complied with. All the PPP must be included in Appendix F.

This is confirmed. See Appendix F.

3. Confirm which of the State Departments and Organs of State indicated in the Notice of Intent/application form were consulted with.

See I&AP Register Appendix F

4. If any of the State Departments and Organs of State were not consulted, indicate which and why.

N/A

5. if any of the State Departments and Organs of State did not respond, indicate which.

1. DWS 2. DoA 3. Forestry 4. SANParks 5. SACAA 6. Bitou Municipality 7. Garden Route District Municipality

6. Provide a summary of the issues raised by I&APs and an indication of the manner in which the issues were incorporated into the development proposal.

DEA&DP Development Management and BOCMA, subject to full compliance and inclusion of additional listed activity support the development. DEA&DP Coastal Management raised long-term ecological and procedural concerns but acknowledged alignment with policy under certain conditions. CapeNature raises significant ecological and planning concerns, especially around: • Permanent habitat transformation. • Lack of alignment with estuary management objectives. • The need for softer, nature-based alternatives like vegetation or floating jetties. • The critical role of boating in causing erosion, which has not been sufficiently addressed in the alternatives. There is emphasis on strict mitigation, compliance with specialist recommendations, and full alignment with updated management plans and coastal regulations.

Note:

A register of all the I&AP's notified, including the Organs of State, and all the registered I&APs must be included in Appendix F. The register must be maintained and made available to any person requesting access to the register in writing.

The EAP must notify I&AP's that all information submitted by I&AP's becomes public information.

Your attention is drawn to Regulation 40 (3) of the NEMA EIA Regulations which states that *"Potential or registered interested and affected parties, including the competent authority, may be provided with an opportunity to comment on reports and plans contemplated in subregulation (1) prior to submission of an application but **must** be provided with an opportunity to comment on such reports once an application has been submitted to the competent authority."*

All the comments received from I&APs on the pre -application BAR (if applicable and the draft BAR must be recorded, responded to and included in the Comments and Responses Report and must be included in Appendix F.

All information obtained during the PPP (the minutes of any meetings held by the EAP with I&APs and other role players wherein the views of the participants are recorded) and must be included in Appendix F.

Please note that proof of the PPP conducted must be included in Appendix F. In terms of the required "proof" the following is required:

- a site map showing where the site notice was displayed, dated photographs showing the notice displayed on site and a copy of the text displayed on the notice;
- in terms of the written notices given, a copy of the written notice sent, as well as:
  - if registered mail was sent, a list of the registered mail sent (showing the registered mail number, the name of the person the mail was sent to, the address of the person and the date the registered mail was sent);
  - if normal mail was sent, a list of the mail sent (showing the name of the person the mail was sent to, the address of the person, the date the mail was sent, and the signature of the post office worker or the post office stamp indicating that the letter was sent);
  - if a facsimile was sent, a copy of the facsimile Report;
  - if an electronic mail was sent, a copy of the electronic mail sent; and
  - if a "mail drop" was done, a signed register of "mail drops" received (showing the name of the person the notice was handed to, the address of the person, the date, and the signature of the person); and
- a copy of the newspaper advertisement ("newspaper clipping") that was placed, indicating the name of the newspaper and date of publication (of such quality that the wording in the advertisement is legible).

SECTION G: DESCRIPTION OF THE RECEIVING ENVIRONMENT

All specialist studies must be attached as Appendix G.

1. Groundwater

1.1.	Was a specialist study conducted?	YES	NO
1.2.	Provide the name and or company who conducted the specialist study.		
N/A			
1.3.	Indicate above which aquifer your proposed development will be located and explain how this has influenced your proposed development.		
N/A			
1.4.	Indicate the depth of groundwater and explain how the depth of groundwater and type of aquifer (if present) has influenced your proposed development.		
N/A			

2. Surface water

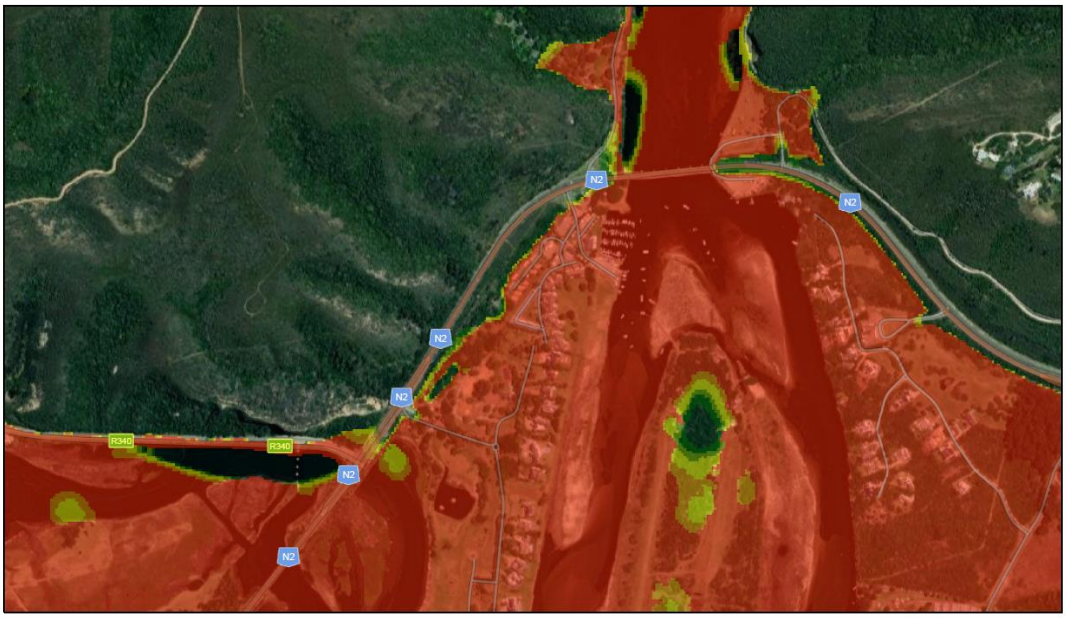
2.1.	Was a specialist study conducted? See Appendix G	YES	NO
2.2.	Provide the name and/or company who conducted the specialist study.		
Confluent Environmental (Pty) Ltd			
2.3.	Explain how the presence of watercourse(s) and/or wetlands on the property(ies) has influenced your proposed development.		
The proposed construction will take place directly adjacent to and within the Keurbooms River. According to the water and biodiversity specialist in the Estuarine and Plant species Specialist Assessment (2025), the surrounding land and catchment area needs to be managed in a way that maintains the good ecological condition of the river reach, which in this case, is the Keurbooms River. It is therefore important that development does not result in any deterioration of the river or its catchment area. The proposed activities will not result in modifications to surface flows into the estuary and will not result in the construction of infrastructure across the estuary. The development will therefore in no way impact on the base flows or hydrological regime (i.e. timing and magnitude of surface flows) of the estuary or cause fragmentation or loss of ecological connectivity. Furthermore, the activities are of such a scale that will in no way impact on the frequency of estuary mouth closure.			

3. Coastal Environment

3.1.	Was a specialist study conducted? See Appendix G	YES	NO
3.2.	Provide the name and/or company who conducted the specialist study.		
Confluent Environmental (Pty) Ltd			
3.3.	Explain how the relevant considerations of Section 63 of the ICMA were taken into account and explain how this influenced your proposed development.		

According to Section 63 of ICMA, The competent authority must ensure that the terms and conditions of any environmental authorisation are consistent with the objectives of any coastal management programme in the area. *This development is in line with the coastal management programme as was discussed above in Section E, No. 7*	
3.4.	Explain how estuary management plans (if applicable) has influenced the proposed development.
A specific management objective highlighted in the Keurbooms EMP (2017) that is relevant to the proposed development structures is that privately owned and developed land should be managed in such a way as to prevent further bank erosion during flood events. This proposed stabilisation will be in line with preventing further erosion of the embankment. Also, bank stabilisation to repair existing damage flooding from the extreme storm events and to minimize impacts from future events, are recommended in the Keurbooms-Bitou Estuarine Management Plan, 2023.	
3.5.	Explain how the modelled coastal risk zones, the coastal protection zone, littoral active zone and estuarine functional zones, have influenced the proposed development.

Coastal Flood Risk



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Coastal Flood Risk

very low | low | moderate | high | very high

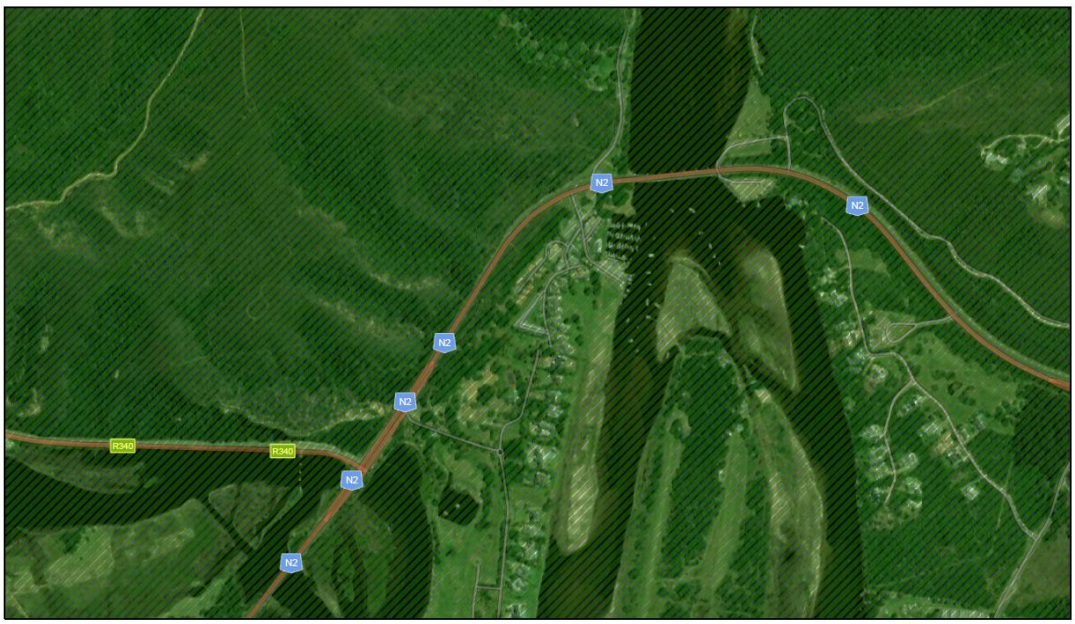
1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Esri Community Maps Contributors, Esri South Africa, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, George Municipality, Maxar

Coastal Long Term Erosion Risk



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Coastal Long term Erosion Risk

very low | low | moderate | high | very high

1:9,028

0 0.05 0.1 0.2 mi

0 0.1 0.2 0.4 km

Esri Community Maps Contributors, Esri South Africa, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS, George Municipality, Maxar

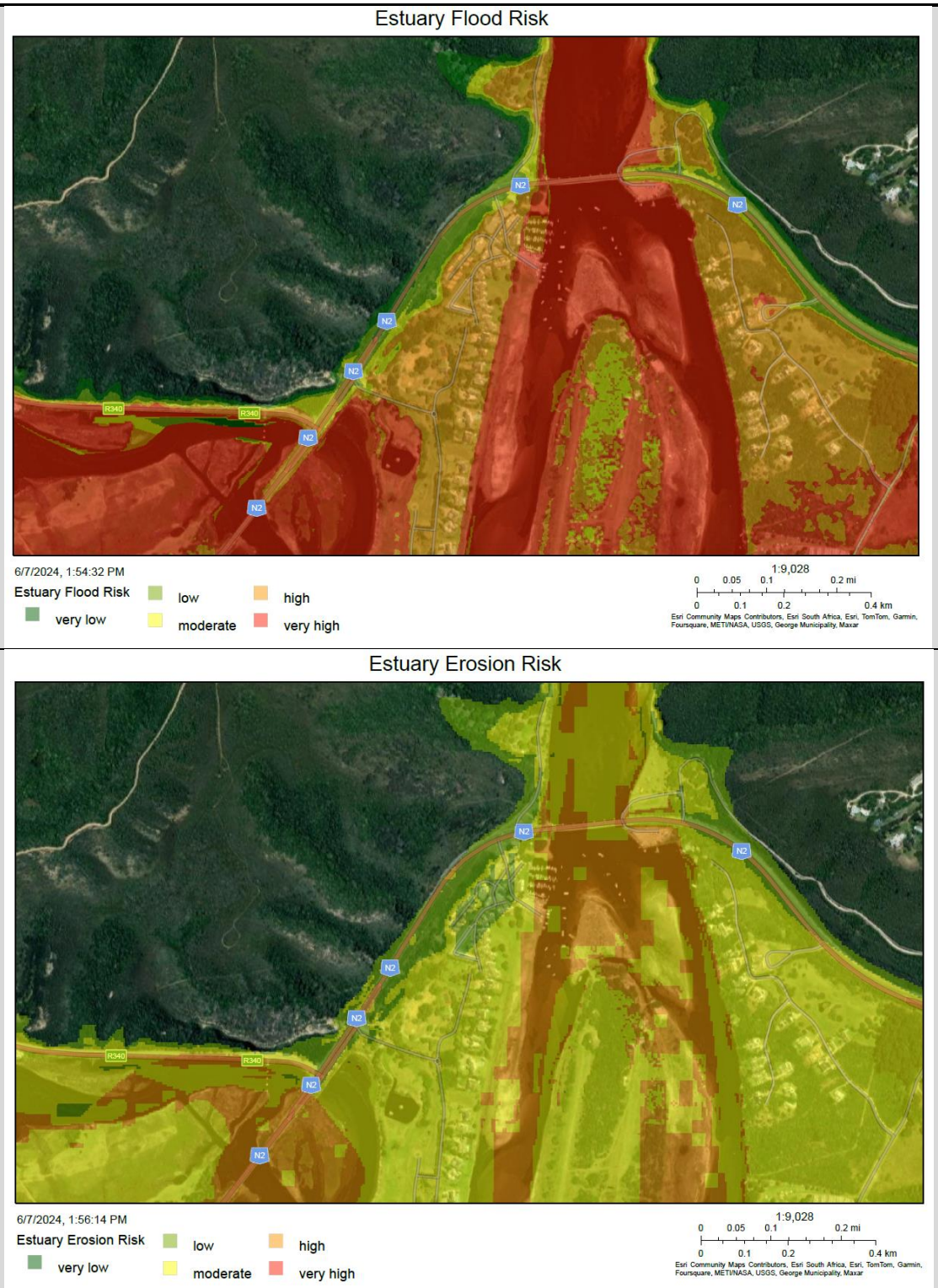

Figure 3: Coastal flood and erosion risk to the proposed bank stabilisation site.

In terms of the Integrated Coastal Management Act, the **coastal protection zone's** purpose is:

- To protect the ecological integrity, natural character, and the economic, social and aesthetic value of the neighbouring coastal public property;
- To avoid increasing the effect or severity of natural hazards
- To protect people, property and economic activities from the risks and threats which may arise from dynamic coastal processes such as wave and wind erosion, coastal storm surges, flooding and sea-level rise.
- To maintain the natural functioning of the **littoral active zone**.
- To maintain the productivity of the coastal zone; and
- To allow authorities to perform rescue and clean-up operations.

Large sections of the Keurbooms **Estuarine Functional zone** have been developed into residential and agricultural properties. The proposed development will help protect these properties against destabilising of the embankment during storm surges and high tides.

The proposed development will promote the natural function of the bank as further degradation will be prevented.

4. Biodiversity

4.1.	Were specialist studies conducted? See Appendix G	YES	NO
4.2.	Provide the name and/or company who conducted the specialist studies.		
Confluent Environmental (Pty) Ltd			
4.3.	Explain which systematic conservation planning and other biodiversity informants such as vegetation maps, NFEPA, NSBA etc. have been used and how has this influenced your proposed development.		

FEPA (Freshwater Ecosystem Priority Areas), Outeniqua strategic water source areas (SWSA), NBA 2018 Vegetation Type was used in the specialist study to determine the impact of the proposed development.

The water specialist confirm that the project areas of influence (PAOI) is limited to an approximately 55 m length of the eroded bank of the estuary (where the bank stabilisation structure will be constructed) and a distance of approximately 10 m inland from the banks and 5 m into the inter-tidal zone of the estuary (where habitat may be disturbed due to the construction activities and vehicles). The total surface area of the footprint of the PAOI is less than 1 000 m2. See figure 9 in Estuarine and Plant Species Special Assessment(May 2025) Appendix G

The Terrestrial Biodiversity specialist states in the Terrestrial Biodiversity Assessment (April 2024)(Appendix G), terrestrial vegetation has been completely transformed and no fynbos representing the Garden Route Shale Fynbos vegetation type persists here, nor does any other naturally occurring vegetation type and as a result the proposed activity will not affect terrestrial vegetation that is integral to maintaining ecological function and integrity of the FEPA sub-catchment.

4.4.	Explain how the objectives and management guidelines of the Biodiversity Spatial Plan have been used and how has this influenced your proposed development.

The Western Cape Biodiversity Spatial plan (2017) emphasise the need to protect infrastructure from coastal processes by allowing for:
absorption of the impacts of severe storm sequences, shoreline movement, global sea level rise and increased storm surges, the fluctuation of natural coastal processes, and any combination of these factors. This proposed stabilisation will assist with absorption of impacts mentioned above and will not interfere with seasonal migration of animals, hydrological regimes and will not cause habitat transformation, degradation and fragmentation which occur primarily through changes in land use which either result in the outright loss of natural ecosystems, or pressures which impact negatively on habitat condition.

The water and biodiversity specialist states in the Estuarine and plant species assessment (May, 2025) that the proposed activity will not have an irreversible effect on Eelgrass (Zostera capensis), which is important given the Red List status of this plant and is present on site. This species is represented elsewhere in the estuary (therefore it has a low irreplaceability rating at the site location). Also, The Knysna seahorse (Hippocampus capensis) occurs in the Keurbooms estuaries and recent studies indicate that the species also use artificial habitats (including reno mattress) extensively and that constructed artificial habitats such as marinas and boat harbours using reno mattresses within the estuaries have increased population numbers and increased the range of the species. The Hippocampus capensis can also tolerate a wide range of environmental conditions. See Appendix G

In the Terrestrial biodiversity report (April 2024)(Appendix G), the biodiversity specialist confirms the sensitivity of the terrestrial biodiversity theme for the site is confirmed as Low for the following reasons:
Terrestrial vegetation has been completely transformed and no fynbos representing the Garden Route Shale Fynbos vegetation type persists here, nor does any other naturally occurring vegetation type.

The proposed activity will not affect terrestrial vegetation that is integral to maintaining ecological function and integrity of the FEPA sub-catchment.

- The project area is located in the outer-most extent of the Outeniqua SWSA and no modifications to natural vegetation will occur that will affect the ability of the area to continue to produce high volumes of good quality water.

- The streambank stabilisation is unlikely to have any detrimental consequences or effects for the Garden Route National Park buffer within which it falls.

-	The site is included in the National Protected Area Expansion Strategy (NPAES), and this is likely because the site is part of a critical biodiversity area (CBA 1: Estuaries) and is located just south of the Keurbooms River Nature Reserve. However, the proposed stabilisation of the banks does not compromise the NPAES strategy, nor does it negatively impact the nearby existing protected areas. In fact, the stabilisation of the banks will prevent the degradation of the mapped CBA area and will also promote the natural function of the bank as further degradation will be prevented.
4.5.	Explain what impact the proposed development will have on the site-specific features and/or function of the Biodiversity Spatial Plan category and how has this influenced the proposed development.
Discussed above in point 4.4	
4.6.	If your proposed development is located in a protected area, explain how the proposed development is in line with the protected area management plan.
The site is included in the National Protected Area Expansion Strategy (NPAES), and this is likely because the site is part of a critical biodiversity area (CBA 1: Estuaries) and is located just south of the Keurbooms River Nature Reserve. However, the proposed stabilisation of the banks does not compromise the NPAES strategy, nor does it negatively impact the nearby existing protected areas. In fact, the stabilisation of the banks will prevent the degradation of the mapped CBA area and will also promote the natural function of the bank as further degradation will be prevented as determined by water specialist in the Estuarine and Plant species assessment (May, 2025). See Appendix G	
4.7.	Explain how the presence of fauna on and adjacent to the proposed development has influenced your proposed development.
Discussed above in point 4.4. In addition, I would like to add the conclusion of the Terrestrial Animal Species (April, 2024) report which states that no SCCs were observed during the site visit and based on the available habitat, no SCC are expected to occur in the PAOI or expected to be affected by construction and operational phase activities conducted in the PAOI.	

5. Geographical Aspects

Explain whether any geographical aspects will be affected and how has this influenced the proposed activity or development.
According to the Terrestrial biodiversity study, April 2024, the site is confirmed to occur within National Priority Areas for Protected Areas Expansion, SAN Parks Buffer Areas, Strategic Water Source Areas (SWSAs) (terrestrial), Freshwater Ecosystem Priority Area (FEPA) (terrestrial) and Red Listed Ecosystems, although the overlap with the Garden Route Shale Fynbos vegetation type and the Outeniqua SWSA is marginal. **Soil Types according to Cape Farm Mapper:** Symbol: EA Class: Soils with limited pedological development Description: Soils with minimal development, usually shallow on hard or weathering rock, with or without intermittent diverse soils. Lime rare or absent in the landscape Depth: >= 450 mm and < 750 mm Clay: < 15% **Geology Classification (1:1M) according to Cape Farm Mapper:** Code: Dc Lithostratigraphic: CERES SUBGROUP Lithology: Mudrock, shale, siltstone, feldspathic arenite and wacke UQ Geology: 872 UQ SACS NO: 120 **Mean Annual Run-off according to Cape Farm Mapper:** mm/year: 25.99 **SWSA Surface Water according to Cape Farm Mapper:** Name: Outeniqua riority: National MAP Max (mm): 1283.56 MAP Min (mm): 492.61 MAP Mean (mm): 813.35

Catchments: Quaternary according to Cape Farm Mapper:
Catchment: K60E
Area (Ha): 11759.4

Catchments: Tertiary according to Cape Farm Mapper:
Catchment ID: K60
Area (Ha): 126460.56

Catchments: Secondary according to Cape Farm Mapper:
Catchment ID: K6
Area (Ha): 126460.56

Catchments: Primary according to Cape Farm Mapper:
Catchment ID: K
Area (Ha): 713993.69

As stated in the Estuarine and Plant Species study, while a temporary disturbance to biota will occur, the scale of this disturbance is negligible and is expected to recover after a relatively short time-period. The structure will not affect RQOs for water quality, quantity, habitat and biota.

6. Heritage Resources

6.1.	Was a specialist study conducted? A NID was submitted. Response to NID available as Appendix E1	YES	NO
6.2.	Provide the name and/or company who conducted the specialist study.		
6.3.	Explain how areas that contain sensitive heritage resources have influenced the proposed development.		

7. Historical and Cultural Aspects

Explain whether there are any culturally or historically significant elements as defined in Section 2 of the NHRA that will be affected and how has this influenced the proposed development.
N/A

8. Socio/Economic Aspects

8.1.	Describe the existing social and economic characteristics of the community in the vicinity of the proposed site.
The area is situated adjacent to the Plettenberg Bay Angling Club, where diverse economic activities, and recreation takes place. Land use of surrounding area is a mix agriculture and tourism.	
8.2.	Explain the socio-economic value/contribution of the proposed development.
Protection and management of the coastline, in this case the Keurbooms river, will ensure current and future economic activities, in form of tourism, recreation and agriculture downstream.	
8.3.	Explain what social initiatives will be implemented by applicant to address the needs of the community and to uplift the area.
N/A	
8.4.	Explain whether the proposed development will impact on people's health and well-being (e.g. in terms of noise, odours, visual character and sense of place etc) and how has this influenced the proposed development.
Noise can be expected during construction phase but will not be a problem during operational phase. No affects are expected on human health. No affect expected visually, as plants expected to re-establish itself on constructed areas.	

SECTION H: ALTERNATIVES, METHODOLOGY AND ASSESSMENT OF ALTERNATIVES

1. Details of the alternatives identified and considered

1.1.	Property and site alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred property and site alternative.	
Only one site and property as preference. Eroded embankment that needs to be stabilised.	
Provide a description of any other property and site alternatives investigated.	
N/A	
Provide a motivation for the preferred property and site alternative including the outcome of the site selectin matrix.	
Erosion is taking place on this particular embankment. Stabilisation of this specific embankment will reduce erosion and promote natural function of river.	
Provide a full description of the process followed to reach the preferred alternative within the site.	
Erosion is taking place on this particular embankment. Stabilisation of this specific embankment will reduce erosion and promote natural function of river.	
Provide a detailed motivation if no property and site alternatives were considered.	
Erosion is taking place on this particular embankment. Stabilisation of this specific embankment will reduce erosion and promote natural function of river.	
List the positive and negative impacts that the property and site alternatives will have on the environment.	
N/A	
1.2.	Activity alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred activity alternative.	
As stated above.	
Provide a description of any other activity alternatives investigated.	
N/A	
Provide a motivation for the preferred activity alternative.	
As stated above.	
Provide a detailed motivation if no activity alternatives exist.	
There is only one activity being assessed. No other activity alternatives can exist in this case.	
List the positive and negative impacts that the activity alternatives will have on the environment.	
N/A	
1.3.	Design or layout alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts
Provide a description of the preferred design or layout alternative.	
The stabilisation activities will occur along a section of the embankment of the Keurbooms River (approximately 50 metres), south of the Plettenberg Bay Angling Club, Western Cape – GPS Coordinates: 34° 0'17.20"S 23°23'55.62"E. Option 2 is most recommended by the specialist as it is consistent with other bank stabilisation structures that have been implemented at other locations in the estuary and entails reprofiling the bank (1.3 m horizontal to 1 m vertical) using sandbags (800 mm x 500 mm x 170 mm).and covering these with a 0.3 m x 3.0 m reno mattress (Estuarine and Plant Species – Specialist Assessment(May, 2025) Appendix) Please see Figure 1 below.	

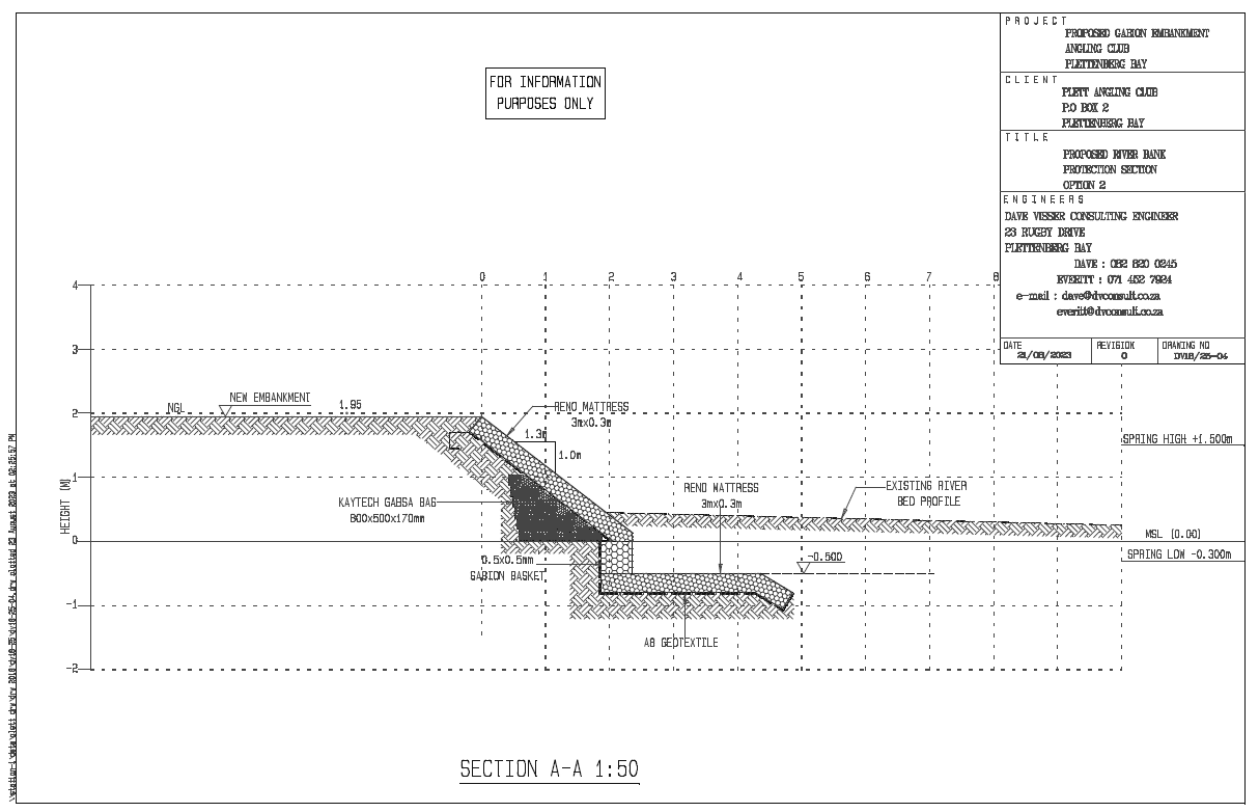

Figure 4: Option 2 – preferred alternative

The specialist further recommends a combination of options 2 and 4 - Option 4 will result in lower construction phase impacts but will not yield any positive long-term erosion control benefit if mooring of boats and pedestrian traffic along the banks is allowed to continue. Even if boat mooring and pedestrian traffic are to be controlled, the close proximity of the tarred car park to the edge of the re-profiled estuary bank would most likely compromise the integrity of the bank in the long-term. This option would however be preferable downstream of the tarred car park as there will be sufficient space to accommodate and protect the re-profiled bank. It is therefore recommended that Option 2 be implemented adjacent to the tarred area and - provided that mooring of boats and pedestrian traffic is prohibited - that Option 4 is implemented further downstream (figure below). This recommendation would whilst minimising the footprint of hard engineered structures along the shoreline represents the best compromise of the options assessed.

Provide a description of any other design or layout alternatives investigated.

All three options require the construction of a 3 m reno mattress that will be placed approximately 1 m below the existing bed profile of the estuary and will extend approximately 3 m into the estuary. This will prevent undermining the embankment.

Alternative 1: Option 1: Construction of stepped gabions over a geotextile layer (see figure 2 below)

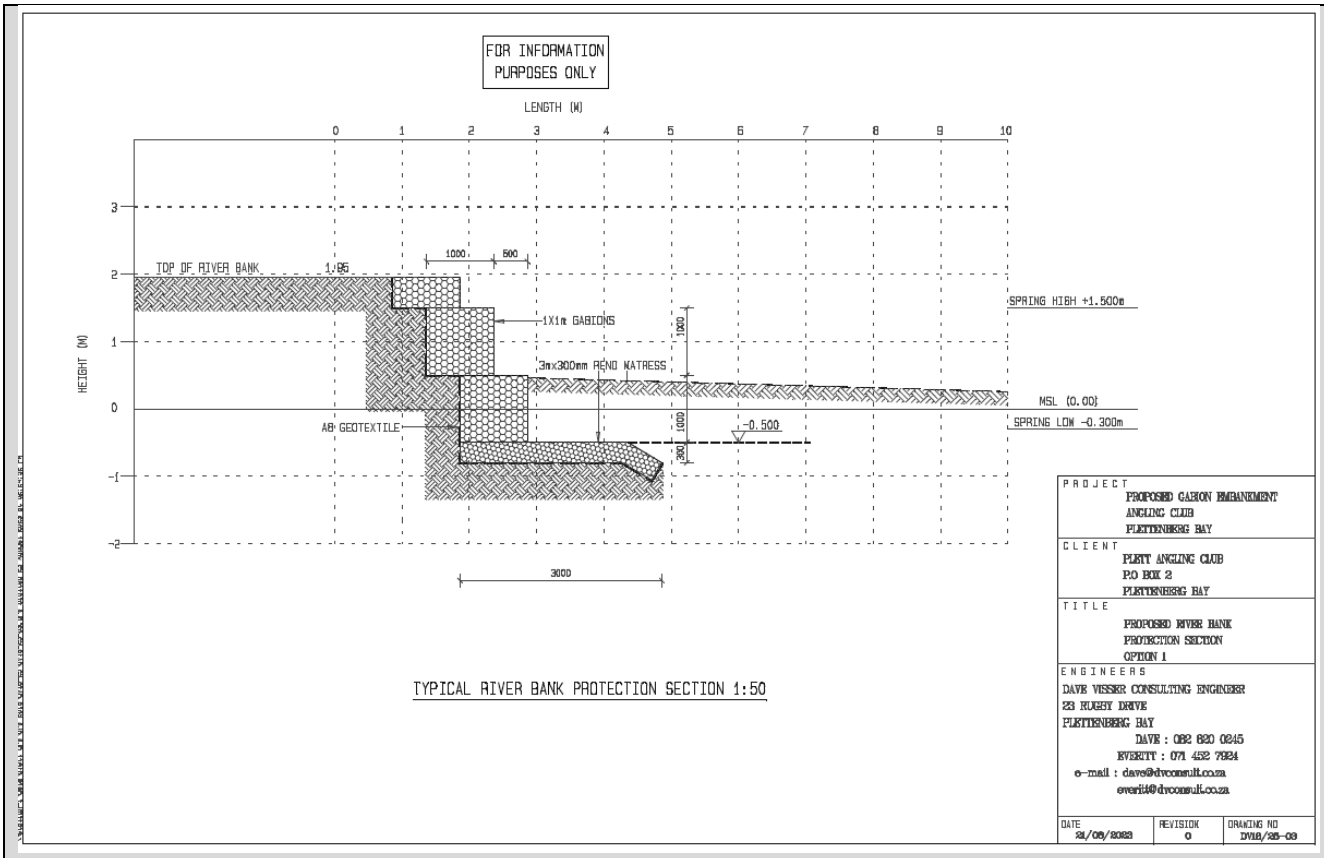

Figure 5: Option 1

Alternative 2: Option 3: Reprofiling the bank (1.3 m horizontal to 1 m vertical) using larger, heavy duty geotextile sandbags (2 m x 1.9 m x 0.65m) which will remain uncovered (see figure 3 below.)

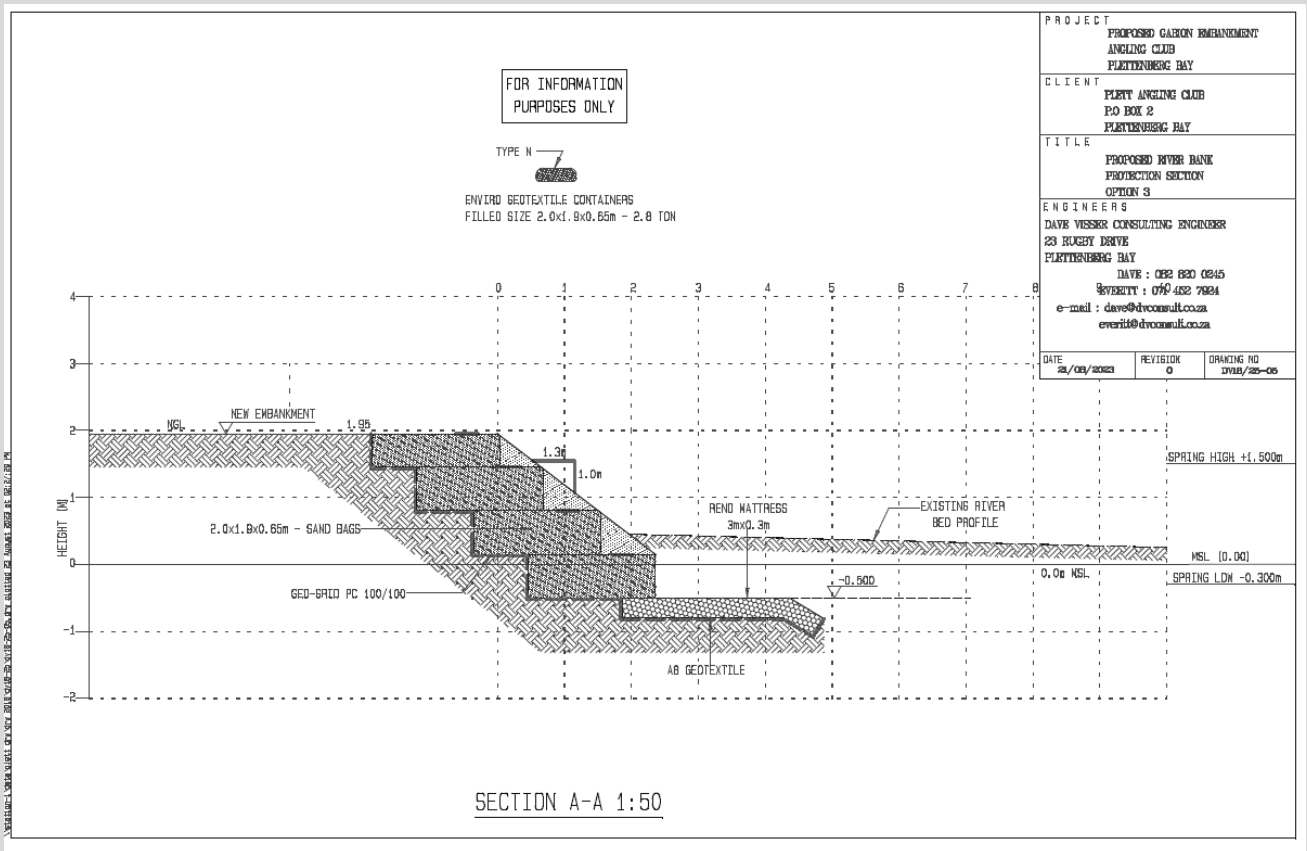

Figure 6: Option 3

CapeNature had requested during the pre-application public participation for additional alternatives to be investigated:

Vegetated Slope Stabilisation (Soft Engineering Alternative) –

This involves reprofiling the embankment to a 2:1 slope and replanting with indigenous vegetation. While ecologically desirable, this method alone may not be effective in areas where erosion is already severe and infrastructure is in close proximity. Space constraints, particularly near the boat parking area, limit feasibility in the northern section of the site.

Floating Jetty System –

A floating jetty anchored at limited points on the bank could reduce wave energy impact, promote natural littoral zone functioning, and maintain boat access. While beneficial ecologically, this would not resolve current erosion along the full length of the shoreline and still requires some bank stabilisation.

Removal or Relocation of Boating Activities –

Boating activity has been identified as a primary contributor to erosion. Removing boat moorings and discouraging access along this section of bank could reduce future erosion and allow for natural recovery. However, due to continued marina activity nearby, wave action from boat traffic would persist. This approach should be combined with other forms of bank stabilisation.

Provide a motivation for the preferred design or layout alternative.

The Estuarine and Plans species Assessment (May, 2025), notes from a historical perspective, similar bank stabilisation structures have been implemented at other locations along the estuary bank. This author has had experience with the San Marino Estate and the Silverstreams River Estate, both of which occur along the eastern bank of the estuary. In both these cases, a sloped reno mattress stabilisation structure, similar to Option 2 was implemented - in combination with the construction of floating jetties. In both cases, the reno mattress replaced a pre-existing vertical wooden bank stabilisation structure. The Silverstreams River Estate bank stabilisation commenced in the beginning of 2019 and was completed in the same year. The bank stabilisation (and jetty construction) has not had a serious impact on *Z. capensis* beds which are still present post construction.

The reno mattress will extend into the bed of the estuary and construction will therefore result in initial disturbance of inter- and subtidal habitat, including loss of *Z. capensis*. Based on experience from similar structures, the bed is however expected to re-establish over most of the reno mattress over time and it is likely that *Z. capensis* will also re-establish.

The sloping profile of Option 2 and the porous nature of the reno mattress revetment will improve the ability of the bank to absorb and dissipate the energy associated with large flooding events in comparison to the vertical profile of Option 1 and the less porous Option 3. Furthermore, this construction provides a longer-term solution to stabilising the bank against flooding events and persistent tidal flow, due to a reduced risk of structural failure.

All proposed options are likely to be effective in stabilising the estuary bank. There is a higher risk of failure for Option 3 (i.e. geotextile bags may become weathered or physically punctured/torn over time) resulting in a slightly lower positive impact rating. An example of this is the previous dune stabilisation undertaken at Buffalo Bay –

Image taken by Eco Route during a site visit in September 2023 showing sand and vegetation was lost during the storm surge and extreme hightides, exposing the sandbags

Impacts for all three options are minor although Option 2 has slightly lower impacts due to it more natural profile (compared to Option 1) and because spaces in between the rocks packed in the reno mattress offers better potential habitat options for macroinvertebrates (compared to Option 3).

Option 2 has the least impact on estuarine fauna.

Of the three proposed alternatives, Option 2 is most recommended by the aquatic and biodiversity specialists as it is consistent with other bank stabilisation structures that have been implemented at other locations in the estuary and will offer long-term stabilisation.

In terms of alternatives presented by CapeNature –

A hybrid approach combining reno mattress stabilisation (in highly eroded areas) and revegetation (where feasible) is preferred. Floating jetties and boat management should be integrated as complementary interventions.

Provide a detailed motivation if no design or layout alternatives exist.

N/A

List the positive and negative impacts that the design alternatives will have on the environment.

Positive:

- Strong stabilisation of embankment to prevent future erosion and promote function of river, with minimal impact which will be mitigated during construction phase, to allow for reestablishment of vegetation loss.
- The Knysna seahorse (Hippocampus capensis) occurs in the Keurbooms estuaries and recent studies indicate that the species also use artificial habitats (including reno mattress) extensively and that constructed artificial habitats such as marinas and boat harbours using reno mattresses within the estuaries have increased population numbers and increased the range of the species. The Hippocampus capensis can also tolerate a wide range of environmental conditions.

Negative:

Loss of vegetation. However, the specialist states in the estuarine and plant species reports that the proposed activity will not have an irreversible effect on Eelgrass (Zostera capensis), which is important given the Red List status of this plant and is present on site. This species is represented elsewhere in the estuary (therefore it has a low irreplaceability rating at the site location).

1.4.	Technology alternatives (e.g., to reduce resource demand and increase resource use efficiency) to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.

Provide a description of the preferred technology alternative:	
N/A	
Provide a description of any other technology alternatives investigated.	
N/A	
Provide a motivation for the preferred technology alternative.	
N/A	
Provide a detailed motivation if no alternatives exist.	
N/A	
List the positive and negative impacts that the technology alternatives will have on the environment.	
N/A	
1.5.	Operational alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts.
Provide a description of the preferred operational alternative.	
N/A	
Provide a description of any other operational alternatives investigated.	
N/A	
Provide a motivation for the preferred operational alternative.	
N/A	
Provide a detailed motivation if no alternatives exist.	
N/A	
List the positive and negative impacts that the operational alternatives will have on the environment.	
N/A	
1.6.	The option of not implementing the activity (the 'No-Go' Option).
Provide an explanation as to why the 'No-Go' Option is not preferred.	
Not stabilising the embankment will inevitably lead to more erosion, due to more frequent storm surges and high tides, affecting the natural functions of the river and possible damage of property. According to the specialist as stated in Estuarine and Plant assessment (May 2025), impacts associated with the No-Go option are minor due to continued active erosion of the bank which can affect the quality of supra- and intertidal habitat. Active erosion of the bank leads to a minor sedimentation impact under the No-Go option. There have been a number of incidents of serious bank erosion related to flooding events in the past and the risk of bank erosion associated with the No-Go option therefore represents a similar impact. Impacts for the No-Go option are also minor given that ongoing erosion of the bank will result in sub-optimal habitat.	
1.7.	Provide and explanation as to whether any other alternatives to avoid negative impacts, mitigate unavoidable negative impacts and maximise positive impacts, or detailed motivation if no reasonable or feasible alternatives exist.
N/A	
1.8.	Provide a concluding statement indicating the preferred alternatives, including the preferred location of the activity.
There is just one location which is the embankment area that has been eroded by storm surges and high tides. The aquatic and biodiversity specialists have stated the reasons Option 2 is the preferred in the Estuarine and Plant Assessment (May 2025) as it is a similar structure used before which have proved successful. Option 2 allows for likely re-establishment of intertidal and subtidal habitat and Z, capensis initially disturbed during construction phase. The sloping profile of Option 2 and the porous nature of the reno mattress revetment will improve the ability of the bank to absorb and dissipate the energy associated with large flooding events Furthermore, this construction provides a longer-term solution to stabilising the bank against flooding events and persistent tidal flow, due to a reduced risk of structural failure. Option 2 has slightly lower impacts due to it more natural profile and has least impact on estuarine fauna. Of the three proposed alternatives, Option 2 is most recommended as it is consistent with other bank stabilisation structures that have been implemented at other locations in the estuary.	

2. "No-Go" areas

Explain what "no-go" area(s) have been identified during identification of the alternatives and provide the co-ordinates of the "no-go" area(s).

Only area as mapped out in Figure 6 below will be disturbed. Any area beyond that will be marked as no-go areas during construction phase. This will be ensured by putting up droppers with construction netting keeping workers out of area beyond.

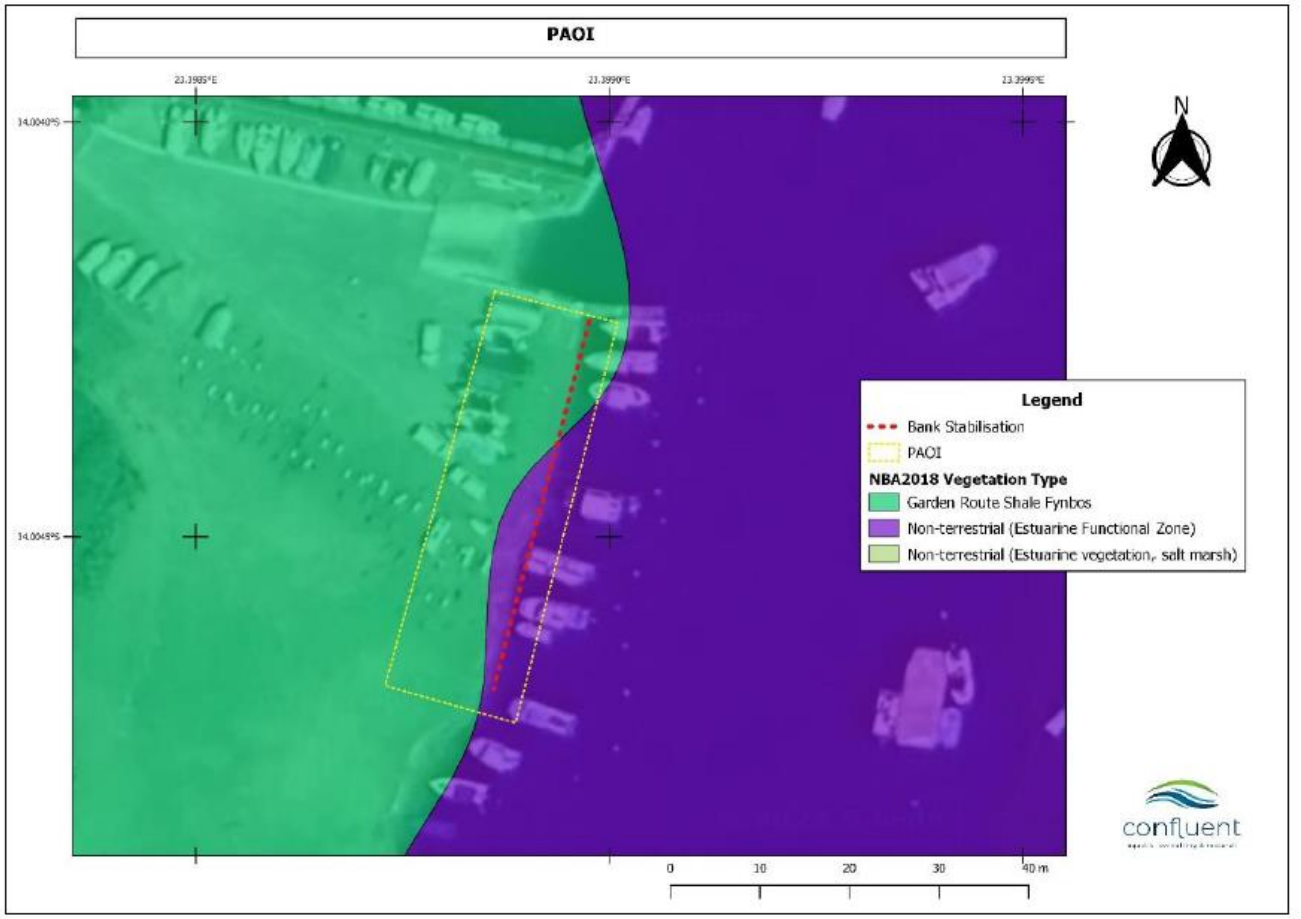

Figure 7: Restricted construction area

3. Methodology to determine the significance ratings of the potential environmental impacts and risks associated with the alternatives.

Describe the methodology to be used in determining and ranking the nature, significance, consequences, extent, duration of the potential environmental impacts and risks associated with the proposed activity or development and alternatives, the degree to which the impact or risk can be reversed and the degree to which the impact and risk may cause irreplaceable loss of resources.

Criteria are ascribed for each predicted impact. These include the intensity (size or degree scale), which also includes the type of impact, being either a positive or negative impact; the duration (temporal scale); and the extent (spatial scale), as well as the probability (likelihood). The methodology is quantitative, whereby professional judgement is used to identify a rating for each criterion based on a seven-point scale (Table 1) and the significance is auto-generated using a spreadsheet through application of the calculations.

For each predicted impact, certain criteria are applied to establish the likely significance of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the intensity (size or degree scale), which also includes the nature of impact, being either a positive or negative impact; the duration (temporal scale); and the extent (spatial scale). These numerical ratings are used in an equation whereby the consequence of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (intensity + duration + extent)

To calculate the significance of an impact, the probability (or likelihood) of that impact occurring is applied to the consequence.
Significance = consequence x probability

Depending on the numerical result, the impact would fall into a significance category as negligible, minor, moderate or major, and the type would be either positive or negative.

Table 1: Assessment criteria for the evaluation of impacts

Criteria	Numeric Rating	Category	Description
Duration	1	**Immediate**	Impact will self-remedy immediately
	2	**Brief**	Impact will not last longer than 1 year
	3	**Short term**	Impact will last between 1 and 5 years
	4	**Medium term**	Impact will last between 5 and 10 years
	5	**Long term**	Impact will last between 10 and 15 years
	6	**On-going**	Impact will last between 15 and 20 years
	7	**Permanent**	Impact may be permanent, or in excess of 20years
Extent	1	**Very limited**	Limited to specific isolated parts of the site
	2	**Limited**	Limited to the site and its immediatesurroundings
	3	**Local**	Extending across the site and to nearbysettlements
	4	**Municipal area**	Impacts felt at a municipal level
	5	**Regional**	Impacts felt at a regional level
	6	**National**	Impacts felt at a national level
	7	**International**	Impacts felt at an international level
Intensity	1	**Negligible**	Natural and/ or social functions and/ orprocesses are negligibly altered
	2	**Very low**	Natural and/ or social functions and/ orprocesses are slightly altered
	3	**Low**	Natural and/ or social functions and/ orprocesses are somewhat altered
	4	**Moderate**	Natural and/ or social functions and/ orprocesses are moderately altered
	5	**High**	Natural and/ or social functions and/ orprocesses are notably altered
	6	**Very high**	Natural and/ or social functions and/ orprocesses are majorly altered
	7	**Extremely high**	Natural and/ or social functions and/ orprocesses are severely altered
Probability	1	**Highly unlikely /None**	Expected never to happen
	2	**Rare / improbable**	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
	3	**Unlikely**	Has not happened yet but could happen once in the lifetime of the project, therefore there is apossibility that the impact will occur
	4	**Probable**	Has occurred here or elsewhere and could therefore occur
	5	**Likely**	The impact may occur
	6	**Almost certain /Highly probable**	It is most likely that the impact will occur

	7	**Certain / Definite**	There are sound scientific reasons to expect that the impact will definitely occur

When assessing impacts, broader considerations are also considered. These include the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in (Table 2, Table 3, and Table 4), respectively.

Table 2: Definition of confidence ratings.

Category	Description
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 3: Definition of reversibility ratings.

Category	Description
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention
High	The affected environment will be able to recover from the impact

Table 4: Definition of irreplaceability ratings.

Category	Description
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere

4. Assessment of each impact and risk identified for each alternative

Note: The following table serves as a guide for summarising each alternative. The table should be repeated for each alternative to ensure a comparative assessment. The EAP may decide to include this section as Appendix J to this BAR.

Impact 1 – Disturbance of estuarine habitat and biota caused by bank stabilisation options.

Options 1 to 3: The reno mattress will extend into the bed of the estuary and construction will therefore result in initial disturbance of inter- and subtidal habitat, including loss of Z. capensis. Based on experience from similar structures, the bed is however expected to re-establish over most of the reno mattress over time and it is likely that Z. capensis will also re-establish.

Option 4: The bank will need to be re-shaped which could lead to the deposition of material into the estuary.

No-Go: Impacts are minor due to continued active erosion of the bank which can affect the quality of supra- and intertidal habitat.

Impact	**Option 1**		**Option 2 (Preferred)**		**Option 3**		**Option 4**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Short term	Short term	Short term	Short term	Short term	Short term	Brief	Brief	Ongoing
Extent	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited
Intensity	High	Moderate	High	Moderate	High	Moderate	Low	Low	Low
Probability	Certain	Certain	Certain	Certain	Certain	Certain	Probable	Unlikely	Probable
Confidence	High	High	High	High	High	High	High	High	High
Reversibility	High	High	High	High	High	High	High	High	High

Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	Low
Significance	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Negligible**	**Negligible**	**Minor**

Mitigation:

- **A comprehensive method statement must be drawn up which provides a clear step by step plan of the sequence of construction activities that will be undertaken.**
- **The method statement should follow a phased approach with the aim of minimising the length of time that excavated bed or banks are exposed to fluctuating tide levels.**
- **Working areas must be clearly demarcated and disturbance (i.e. trampling, smothering etc.) of estuarine habitat outside of these demarcated areas must be minimised as far as is possible.**
- **Zostera capensis and occurring within the construction footprint must be rescued and kept on the site to be planted in any disturbance buffer (no wider than 2m) later during the phase.**

Impact 2 – Sedimentation of estuary caused by the excavation of the bed and banks of the estuary.

Option 1 to 3: The eroded embankment requires the excavation of a level platform to 1 m below the existing estuary bed profile. This excavation will need to extend approximately 3 m into the estuary. Excavation of the estuary bed is likely to result in the mobilisation of sand and sediment which can potentially smother in-stream habitats.

Option 4: Excavation will be limited mainly the bank and disturbance of the estuary bed is expected to be limited.

No-Go: Active erosion of the bank leads to a minor sedimentation impact under the No-Go option.

Impact	**Option 1**		**Option 2 (Preferred)**		**Option 3**		**Option 4**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Brief	Brief	Brief	Brief	Brief	Brief	Brief	Brief	Ongoing
Extent	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited
Intensity	High	Low	High	Low	High	Low	Moderate	Low	Very low
Probability	Certain	Probably	Certain	Probably	Certain	Probably	Probably	Unlikely	Likely
Confidence	High	High	High	High	High	High	High	High	High
Reversibility	High	High	High	High	High	High	High	High	High
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	Low
Significance	**Minor**	**Negligible**	**Minor**	**Negligible**	**Minor**	**Negligible**	**Negligible**	**Negligible**	**Minor**

Mitigation:

- **Excavations should take place during low tide to minimise the mobilisation and transport of high volumes of sediment into the estuary.**
- **Excavation of the estuary bed and placement of sandbags and reno mattress should take place systematically (i.e. one section at a time) to avoid exposing sections of excavated bed or banks to fluctuating tide levels. The excavation of a section of the bed and placement of stabilising materials should ideally be completed within a single low tide cycle, before moving onto the next section. Excavation of the bank and placement of sandbags therefore needs to be planned according to the time provided by the low tide cycle.**
- **Construction activities should be timed to avoid periods of high rainfall and should be avoided during wet weather conditions.**
- **Construction activities should also be timed in relation to potential rainfall occurring higher up in the Keurbooms river catchment to mitigate against the effects of flooding in the estuary.**
- **Silt barriers must be placed around the working area to limit the migration of sediment from the construction area.**

Impact 3 – Impairment of water quality caused by the operation of heavy machinery operating within the bed and banks of the estuary.

Options 1 to 4: Vehicles and heavy machinery will be required to construct the bank stabilisation structure and will need to be refuelled and maintained at regular intervals. Leaks of hydrocarbon contaminants (i.e. fuel, oil, grease etc.) may occur which could pollute the estuary.

Impact	Option 1		Option 2 (Preferred)		Option 3		Option 4		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Short term	Brief	Short term	Brief	Short term	Brief	Short term	Brief	No Impact
Extent	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	
Intensity	Moderate	Very low	Moderate	Very low	Moderate	Very low	Moderate	Very low	
Probability	Likely	Unlikely	Likely	Unlikely	Likely	Unlikely	Likely	Unlikely	
Confidence	High	High	High	High	High	High	High	High	
Reversibility	High	High	High	High	High	High	High	High	
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	
Significance	**Minor**	**Negligible**	**Minor**	**Negligible**	**Minor**	**Negligible**	**Minor**	**Negligible**	

Mitigation:

- **All vehicles/machinery should be readily serviced and inspected for leaks. Vehicles/Machinery needing repairs should not be used for construction at the site until repaired and fully operational.**
- **Any work or maintenance on the vehicles/machinery should be done far away from the watercourse, preferably in a work yard or on a concrete surface.**
- **Refuelling of vehicles/machinery must take place away from the estuary and on a paved surface to prevent seepage in the event of a spill.**
- **All vehicles/machinery should be parked off-site, and away from the edge of the watercourse when not in use.**

Impact 4 – Noise pollution

Noise caused by machinery and staff during construction.

Impact	Option 1		Option 2 (Preferred)		Option 3		Option 4		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Brief	Brief	Brief	Brief	Brief	Brief	Brief	Brief	No Impact
Extent	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	
Intensity	Low	Very low	Low	Very low	Low	Very low	Low	Very low	
Probability	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely	
Confidence	High	High	High	High	High	High	High	High	
Reversibility	High	High	High	High	High	High	High	High	
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	
Significance	**Negligible**	**Negligible**	**Negligible**	**Negligible**	**Negligible**	**Negligible**	**Negligible**	**Negligible**	

Mitigation:

Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.

Machinery may be fitted with silences to dampen noise.

Staff must be reminded that t noise levels must be kept low.

Impact 5 – Employment (Positive)

Empowerment of the local community members living close by relating to temporary employment opportunities.

Impact	Option 1	Option 2 (Preferred)	Option 3	Option 4	No-Go

	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Short term	Short term	Short term	Short term	Short term	Short term	Short term	Short term	No Impact
Extent	Limited	Limited	Limited	Limited	Limited	Limited	Limited	Limited	
Intensity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Probability	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Likely	
Confidence	High	High	High	High	High	High	High	High	
Reversibility	High	High	High	High	High	High	High	High	
Resource irreplaceability	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
Significance	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	

Mitigation:

Due to the proposed stabilisation of embankment, temporary construction would be inevitable.

Shade cloth around construction site.

Ensure site is neat and tidy at all times

Operational Phase

Impact 6 – Impact of bank stabilization structure on downstream bank erosion

Option 1 to 3: Due to the frequency of flooding events the Keurbooms/Bitou Estuary Management Plan (DEADP, 2017) recommended that structures and privately owned and developed land be managed in such a way as to prevent further bank erosion during flood events. It also recommends that a standardised methodology be adopted for the purposes of bank stabilization. In this respect the method proposed for this development is consistent with that adopted in neighbouring estates. Hydrological armouring of stream banks (e.g. wooden retaining wall, rip rap or reno mattress constructions) is a common technique used to stabilise banks for erosion protection. They can cause problems further downstream in that these hardened structures tend to increase the speed of water flow along an armoured reach, as the water has no points of friction to come up against and nothing to slow it down. This additional strength of flow can cause problems further downstream, as water is deflected off the hardened surface and directed at other points of the riverbank. The increased strength and speed of the water can increase erosive forces at these new locations, the result of which is the necessity of installing additional armouring, which merely moves the problem further down the stream. The sloping profile of Option 2 and the porous nature of the reno mattress revetment will improve the ability of the bank to absorb and dissipate the energy associated with large flooding events in comparison to the vertical profile of Option 1 and the less porous Option 3. Furthermore, this construction provides a longer-term solution to stabilizing the bank against flooding events and persistent tidal flow, due to a reduced risk of structural failure.

Option 4: Reprofiling the bank will leave very little space between the tarred car/boat park and the sloped bank. The lack of any buffer could lead to erosion of the embankment by surface runoff from the tarred car park. Furthermore, continued mooring of boats and pedestrian traffic along the reprofiled streambank is likely to result in continued erosion of the re-profiled streambank.

No Go: Failure to control bank erosion within the PAOI may lead to the erosion problem spreading further downstream

Impact	**Option 1**		**Option 2 (Preferred)**		**Option 3**		**Option 4**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Extent	Local	Local	Local	Local	Local	Local	Local	Limited	Local
Intensity	High	Moderate	High	Moderate	High	Moderate	Moderate	Very Low	Moderate
Probability	Likely	Likely	Likely	Likely	Likely	Likely	Likely	Unlikely	Likely
Confidence	High	High	High	High	High	High	High	High	High
Reversibility	High	High	High	High	High	High	High	High	High
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	Low
Significance	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Negligible**	**Minor**

Mitigation:

Option 1 to 3:

- **The transition from the bank stabilisation structure to the remaining natural channel bank must be smooth so that no nick point develops along the channel bank which could lead to unanticipated erosion downstream of the**

structure. In other words, the southern end of the bank stabilisation structure must "tie-in" to the natural contour of the remaining unprotected channel bank.

- **The structure must be routinely inspected to ensure that the integrity of the structure is sound and that it is not causing erosion of the channel further downstream. Any obvious signs of erosion must be immediately attended to.**

Option 4:

- **Mooring of boats and pedestrian traffic along the re-profiled bank must be strictly prohibited.**

Impact 7 – Impact of alternative options on stabilising the estuary bank

Option 1 to 3: All proposed options are likely to be effective in stabilising the estuary bank. There is a higher risk of failure for Option 3 (i.e. geotextile bags may become weathered or physically punctured/torn over time) resulting in a slightly lower positive impact rating.

Option 4: Reprofiling the bank will leave very little space between the tarred car/boat park and the sloped bank. The lack of any buffer could lead to erosion of the embankment by surface runoff from the tarred car park. Furthermore, continued mooring of boats and pedestrian traffic along the reprofiled streambank is likely to result in continued erosion of the re-profiled streambank.

No-Go: The No-Go option represents a minor negative impact due to continued erosion of the bank over time.

Impact	Option 1		Option 2 (Preferred)		Option 3		Option 4		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	Ongoing	Ongoing	Ongoing	Ongoing	Ongoing
Extent	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Local	Very Limited	Limited
Intensity	High	High	High	High	High	High	Moderate	Low	High
Probability	Likely	Likely	Likely	Likely	Probably	Probably	Likely	Unlikely	Likely
Confidence	High	High	High	High	High	High	Low	Low	High
Reversibility	High	High	High	High	High	High	High	High	High
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	Low
Significance	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Negligible**	**Minor**

Mitigation:

The stabilised bank must be routinely inspected and maintained (particularly after flood events) to ensure that the bank does not fail and that no erosion is occurring.

Impact 8 – Impact of bank stabilisation options on estuarine fauna and flora

Option 1 to 3: Reno mattress will essentially replace the existing eroded estuary bank and a thin section of inter-tidal mud/sand bank. This will alter habitat for burrowing benthic macroinvertebrates. The modification to habitat should however not have any negative impact on the potential occurrence of H. capensis given its known utilisation of artificial reno mattress habitat. This section of the estuary is however unlikely to be heavily utilised by larger vertebrate estuarine fauna due to the pre-existing high frequency of boat traffic. Impacts for all three options are minor although Option 2 has slightly lower impacts due to it more natural profile (compared to Option 1) and because spaces in between the rocks packed in the reno mattress offers better potential habitat options for macroinvertebrates (compared to Option 3).

Option 4: Continued mooring of boats and pedestrian traffic along the reprofiled streambank is likely to result in continued disturbance and erosion of the re-profiled streambank resulting in sub-optimal habitat.

No-Go: Impacts are minor given that ongoing erosion of the bank will result in sub-optimal habitat.

Impact	Option 1		Option 2 (Preferred)		Option 3		Option 4		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	Permanent	Permanent	Ongoing	Ongoing	Ongoing

Extent	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited	Very limited
Intensity	Moderate	Moderate	Low	Low	Moderate	Moderate	Low	Very Low	Low
Probability	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain	Almost certain	Unlikely	Almost certain
Confidence	High	High	High	High	High	High	High	High	High
Reversibility	High	High	High	High	High	High	High	High	High
Resource irreplaceability	Low	Low	Low	Low	Low	Low	Low	Low	Low
Significance	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Minor**	**Negligible**	**Minor**

Mitigation:

Option 1 to 3:

- **Preference should be given to the option that has the least impact on estuarine fauna (i.e. Option 2).**
- **Revegetation of substrates using rescued plant material in areas of temporary disturbance following the construction phase is an essential part of concluding the construction phase of the project. The following is a description of transplanting methods that could be used:**
- **Bundles of shoots with an attached rhizome segment can be tied together and anchored into the sediment (using a metal anchor); or**
- **Shoots and associated rhizome structures can be bound to elongated stones using biodegradable thread (e.g. cotton or hemp), which are then buried in the sediment."**

Option 4:

- **Mooring of boats and pedestrian traffic along the re-profiled bank must be strictly prohibited.**

Cumulative Impacts

While the impacts associated with the bank stabilisation structure are considered negligible to minor, the structure does represent an increase (although very small) in the total length of the estuary bank that will be stabilised by a hard, engineered structure. Historical residential and recreational development along the banks of the estuary has resulted in the removal of natural indigenous estuarine and riparian vegetation from the banks, which makes them far more susceptible to erosion. Furthermore, development within the floodline of the estuary has also imposed artificial boundaries along the estuary resulting in a concentration of flows to a narrower channel, which also contributes to erosion of the embankment. Bank stabilisation interventions are therefore inevitably required to protect the bank and properties and have been implemented along numerous properties bordering the estuary. Increased bank stabilisation results in further confinement of the channel and concentration of flows which may then lead to erosion along remaining unprotected banks. Stabilisation of the banks is therefore expected to be an ongoing requirement in the future. Future residential/urban development along the banks must be set back an appropriate distance from the banks and must maintain natural riparian and estuarine vegetation wherever possible.

SECTION I: FINDINGS, IMPACT MANAGEMENT AND MITIGATION MEASURES

1.	Provide a summary of the findings and impact management measures identified by all Specialist and an indication of how these findings and recommendations have influenced the proposed development.

Terrestrial Biodiversity Special Assessment (April,2024)

The sensitivity of the terrestrial biodiversity theme for the site is confirmed as Low for the following reasons:

- Terrestrial vegetation has been completely transformed and no fynbos representing the Garden Route Shale Fynbos vegetation type persists here, nor does any other naturally occurring vegetation type.
- The proposed activity will not affect terrestrial vegetation that is integral to maintaining ecological function and integrity of the FEPA sub-catchment.
- The project area is located in the outer-most extent of the Outeniqua SWSA and no modifications to natural vegetation will occur that will affect the ability of the area to continue to produce high volumes of good quality water.

- The streambank stabilisation is unlikely to have any detrimental consequences or effects for the Garden Route National Park buffer within which it falls.

- The site is included in the National Protected Area Expansion Strategy (NPAES), and this is likely because the site is part of a critical biodiversity area (CBA 1: Estuaries) and is located just south of the Keurbooms River Nature Reserve. However, the proposed stabilisation of the banks does not compromise the NPAES strategy, nor does it negatively

  impact the nearby existing protected areas. In fact, the stabilisation of the banks will prevent the degradation of the mapped CBA area and will also promote the natural function of the bank as further degradation will be prevented.

Estuarine and Plant Species – Specialist Assessment (May,2025):

Given the high conservation status and ecological importance of the Keurbooms Estuary (as indicated by NFEPA, the Western Cape Spatial Biodiversity Plan and the desktop eco- classification of estuaries of South Africa) and the confirmed presence (i.e. Z. capensis and H. capensis) and likely habitat suitability (i.e., Cotula myriophylloides) for and of IUCN Red Listed species, it is important that any development is planned and conducted in a sensitive manner.

While the construction phase will result in an initial minor disturbance to estuarine habitat, this is unlikely to be permanent and there is strong evidence to suggest that recovery will occur in the short term (1 to 5 years) and that estuarine fauna utilise artificial habitat. The fact that identical activities have been approved and implemented successfully at other properties along the estuary – all of which are associated with abundant eelgrass and associated faunal communities - provides further support to this view. Overall, the ecological condition of the estuary is unlikely to be negatively impacted and the proposed bank stabilisation and associated activities are aligned to the various management objectives stipulated in estuarine management and national and provincial conservation plans, which are summarised as follows:

- The structure is intended to rehabilitate an eroded section of the channel and will result in negligible to minor impacts to the estuary. The proposal is therefore aligned to CBA management objectives.
- While a temporary disturbance to biota will occur, the scale of this disturbance is negligible and is expected to recover after a relatively short time-period. The structure will not affect RQOs for water quality, quantity, habitat and biota.

In summary, the impacts associated with Options 1 to 3 are considered acceptable. Of the three proposed alternatives, Option 2 is most recommended as it is consistent with other bank stabilisation structures that have been implemented at other locations in the estuary.

Option 4 will result in lower construction phase impacts but will not yield any positive long-term erosion control benefit if mooring of boats and pedestrian traffic along the banks is allowed to continue. Even if boat mooring and pedestrian traffic are to be controlled, the close proximity of the tarred car park to the edge of the re-profiled estuary bank would most likely compromise the integrity of the bank in the long-term. This option would however be preferable downstream of the tarred car park as there will be sufficient space to accommodate and protect the re- profiled bank. It is therefore recommended that Option 2 be implemented adjacent to the tarred area and - provided that mooring of boats and pedestrian traffic is prohibited - that Option 4 is implemented further downstream. This recommendation would whilst minimising the footprint of hard engineered structures along the shoreline and represents the best compromise of the options assessed.

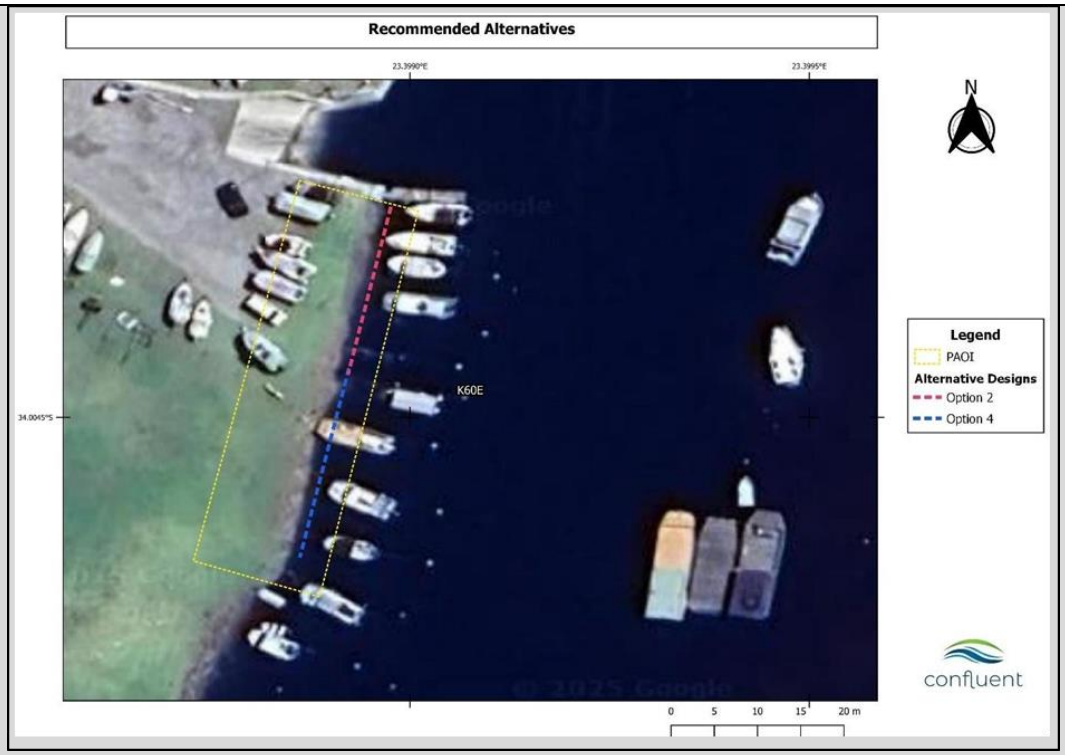

Figure 8: Map illustrating the recommended alternatives options (2 and 4) to be implemented to address bank erosion along the estuary shoreline.

Animal Species Assessment (April,2024):

- Due to the transformed nature of the habitat, the limited extent and unlikely habitat for the SCC, the PAOI is determined to have a low sensitivity for terrestrial animal species.
- The proposed streambank stabilisation will have no impact on terrestrial animal SCC and therefore a Compliance Statement is issued, with no additional conditions.

2.	List the impact management measures that were identified by all Specialist that will be included in the EMPr

- A comprehensive method statement must be drawn up which provides a clear step by step plan of the sequence of construction activities that will be undertaken.
- The method statement should follow a phased approach with the aim of minimising the length of time that excavated bed or banks are exposed to fluctuating tide levels.
- Working areas must be clearly demarcated and disturbance (i.e. trampling, smothering etc.) of estuarine habitat outside of these demarcated areas must be minimised as far as is possible.
- Zostera capensis and occurring within the construction footprint must be rescued and kept on the site to be planted in any disturbance buffer (no wider than 2m) later during the phase
- Excavations should take place during low tide to minimise the mobilisation and transport of high volumes of sediment into the estuary.
- Excavation of the estuary bed and placement of sandbags and reno mattress should take place systematically (i.e. one section at a time) to avoid exposing sections of excavated bed or banks to fluctuating tide levels. The excavation of a section of the bed and placement of stabilising materials should ideally be completed within a single low tide cycle, before moving onto the next section. Excavation of the bank and placement of sandbags therefore needs to be planned according to the time provided by the low tide cycle.
- Construction activities should be timed to avoid periods of high rainfall and should be avoided during wet weather conditions.
- Construction activities should also be timed in relation to potential rainfall occurring higher up in the Keurbooms river catchment to mitigate against the effects of flooding in the estuary.
- Silt barriers must be placed around the working area to limit the migration of sediment from the construction area.
- All vehicles/machinery should be readily serviced and inspected for leaks. Vehicles/Machinery needing repairs should not be used for construction at the site until repaired and fully operational.
- Any work or maintenance on the vehicles/machinery should be done far away from the watercourse, preferably in a work yard or on a concrete surface.

- Refuelling of vehicles/machinery must take place away from the estuary and on a paved surface to prevent seepage in the event of a spill.
- All vehicles/machinery should be parked off-site, and away from the edge of the watercourse when not in use.
- Given the high conservation status and ecological importance of the Keurbooms Estuary (as indicated by NFEPA, the Western Cape Spatial Biodiversity Plan and the desktop eco-classification of estuaries of South Africa) and the confirmed presence (i.e.,. Z. capensis and H. capensis) and likely habitat suitability (i.e., Cotula myriophylloides) for and of IUCN Red Listed species it is important that any development is planned and conducted in a sensitive manner.
- While the construction phase will result in an initial minor disturbance to estuarine habitat, this is unlikely to be permanent and there is strong evidence to suggest that recovery will occur in the short term (1 to 5 years) and that estuarine fauna utilise artificial habitat. The fact that identical activities have been approved and implemented successfully at other properties along the estuary – all of which are associated with abundant eelgrass and associated faunal communities - provides further support to this view. Overall, the ecological condition of the estuary is unlikely to be negatively impacted and the proposed bank stabilisation and associated activities are aligned to the various management objectives stipulated in estuarine management and national and provincial conservation plans, which are summarised as follows:
- The structure is intended to rehabilitate an eroded section of the channel and will result in negligible to minor impacts to the estuary. The proposal is therefore aligned to CBA management objectives.
- The bank stabilisation structure must be routinely inspected and maintained (particularly after flood events) to ensure that the structure does not fail.
- Preference should be given to the option that has the least impact on estuarine fauna (i.e. Option 2).
- Revegetation of substrates using rescued plant material in areas of temporary disturbance following the construction phase is an essential part of concluding the construction phase of the project. The following is a description of transplanting methods that could be used:
    - Bundles of shoots with an attached rhizome segment can be tied together and anchored into the sediment (using a metal anchor); or
    - Shoots and associated rhizome structures can be bound to elongated stones using biodegradable thread (e.g. cotton or hemp), which are then buried in the sediment."

Option 4:
- Mooring of boats and pedestrian traffic along the re-profiled bank must be strictly prohibited.

3.	List the specialist investigations and the impact management measures that will **not** be implemented and provide an explanation as to why these measures will not be implemented.

N/A

4.	Explain how the proposed development will impact the surrounding communities.

Little impact on community. Area is adjacent to Plettenberg Bay Angling club. Stabilisation will protect embankment and prevent any damage to property which might occur during high tides and storm surges.

5.	Explain how the risk of climate change may influence the proposed activity or development and how has the potential impacts of climate change been considered and addressed.

The proposed stabilisation of the Keurbooms River embankment is directly influenced by multiple climate change-related risks, including:

Increased frequency and intensity of storm surges and flood events: This section of the riverbank lies within a Very High Coastal Risk Zone and has already shown signs of active erosion, indicating high vulnerability.

Sea level rise and wave energy intensification: These processes can escalate erosion rates, threaten adjacent infrastructure (including public facilities), and undermine ecological functioning if left unmitigated.

Increased variability in rainfall and runoff: While the estuary mouth is not affected by this activity, destabilised banks can contribute to sedimentation and water quality deterioration, especially during high-flow events.

The proposed development has explicitly considered and incorporated climate change risks into its design, location, and mitigation strategies:

Site Necessity

The intervention is located within the erosion-prone littoral active zone, where engineered stabilisation is necessary to prevent infrastructure loss. Alternatives further inland would be ineffective at preventing tidal and storm-induced degradation.

Hybrid Engineering Approach

The preferred method (Option 2) uses a reno mattress system with vegetated sandbags, which:

Allows for wave energy dissipation.

Supports natural colonisation by indigenous vegetation, improving resilience.

Maintains estuarine connectivity and littoral functioning.

Supports Resilience Planning Goals

The activity aligns with:

The Western Cape Provincial Spatial Development Framework (WCPSDF), which prioritises climate adaptation in coastal areas.

The Bitou IDP (2022–2025), which emphasizes disaster risk reduction, protection of environmental assets, and climate change adaptation.

The Keurbooms Estuary Management Plan (2023), which explicitly recommends bank stabilisation to reduce the vulnerability of the estuary during flooding and storm surges.

Biodiversity-Compatible Design

The Western Cape Biodiversity Spatial Plan (2023) highlights the need for infrastructure that can absorb the impacts of sea level rise, storm surges, and shoreline movement without compromising ecosystem services.

The proposed structure supports these objectives by avoiding permanent habitat loss and using permeable, adaptive materials.

6.	Explain whether there are any conflicting recommendations between the specialists. If so, explain how these have been addressed and resolved.

N/A

7.	Explain how the findings and recommendations of the different specialist studies have been integrated to inform the most appropriate mitigation measures that should be implemented to manage the potential impacts of the proposed activity or development.

The findings and recommendations of the specialists have been integrated into the planning, design, and mitigation strategy of the proposed embankment stabilisation to ensure that ecological risks are minimised and long-term resilience is achieved. Mitigation measures mentioned in point 2 above will be included in EMPr to ensure it is implemented during construction and operational phases.

8.	Explain how the mitigation hierarchy has been applied to arrive at the best practicable environmental option.

Avoidance:

The proposed footprint was deliberately limited to a ±50 m section of already degraded embankment, dominated by invasive kikuyu grass, with no indigenous vegetation or sensitive fauna present on the bank itself.

The location was selected based on necessity—it is where the highest rate of erosion is occurring, immediately adjacent to public-use infrastructure (Plettenberg Bay Angling Club).

No clearing of intact vegetation or natural habitats is required, and no dredging or realignment of the estuary occurs.

Boat slipways, piers, and other intrusive alternatives were avoided to reduce habitat transformation.

Minimisation:

Where impacts could not be entirely avoided, they were minimised by:

Selecting a hybrid solution (recommended Option 2 + Option 4):

Hard engineering (reno mattresses) only in the most vulnerable section (adjacent to the car park).

Soft engineering (vegetated slope stabilisation) used further downstream where space allows.

Ensuring construction is short-term and low-impact, with limited machinery and footprint.

Including access control measures (e.g., restricting boat mooring and pedestrian movement) to reduce post-construction pressure.

Designing the structure to be permeable and vegetation-compatible, allowing some natural estuarine functioning.

Rehabilitation/Restoration:

The proposed stabilisation includes revegetation with indigenous riparian species over reno mattresses and bare slope areas.

The removal of invasive kikuyu grass will facilitate ecological restoration.

Restoration will enhance the aesthetic and ecological function of the riverbank over time.

The project includes a monitoring plan to ensure successful rehabilitation post-construction.

Offset:

Not required.

SECTION J: GENERAL

1. Environmental Impact Statement

1.1.	Provide a summary of the key findings of the EIA.

Site Sensitivity:

The embankment is actively eroding due to boat activity, storm surges, and wave action.

The site is heavily degraded, dominated by kikuyu grass, and lacks indigenous riparian vegetation.

The estuarine habitat includes Zostera capensis (eelgrass) and habitat for Hippocampus capensis (Knysna seahorse), both of which are Red Listed species.

Impacts identified and assessed:

1. Estuarine habitat disturbance - Low–Medium (temporary and recoverable)
2. Erosion and sedimentation during works - Low (with bunding and silt screens)
3. Biodiversity loss (aquatic/terrestrial) – Negligible
4. Visual and recreational impact – Low
5. Heritage/cultural impact – None

Mitigation measures proposed:

1. Hybrid engineering approach: Reno mattress (Option 2) + vegetated slope (Option 4) in suitable areas.
2. Revegetation with indigenous species post-construction.
3. Boat mooring prohibited in stabilised zones to allow vegetation recovery.
4. Strict environmental monitoring during construction by an ECO.
5. Sedimentation controls (e.g. bunds, silt curtains) and limited access zones.

1.2.	Provide a map that that superimposes the preferred activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. (Attach map to this BAR as Appendix B2)

Figure 9: Critical Biodiversity Area with 10m buffer zone

1.3.	Provide a summary of the positive and negative impacts and risks that the proposed activity or development and alternatives will have on the environment and community.

Positive

- Reduce erosion
- Promote natural functions of river
- Protection of embankment and property against severe weather events
- Climate resilient
- Water Quality Improvement: Decreased sedimentation benefits estuarine water quality and aquatic life.
- Biodiversity Support (with mitigation)
- Local Employment (construction phase)
- Loss of informal mooring space: Boaters are to use designated infrastructure only.

Negative

- Temporary transformed natural habitats. Will restore itself.
- Temporary loss of estuarine vegetation. Will reestablish itself.
- Downstream erosion (potential): If flow is redirected, neighbouring banks may erode.
-

2. Recommendation of the Environmental Assessment Practitioner ("EAP")

2.1.	Provide Impact management outcomes (based on the assessment and where applicable, specialist assessments) for the proposed activity or development for inclusion in the EMPr

These outcomes aim to avoid, minimise, or rehabilitate environmental impacts arising from the proposed stabilisation activity and ensure compliance with the mitigation hierarchy.

1. Bank erosion - prevent further embankment erosion and collapse through stabilisation.

2. Disturbance to Estuarine Habitat and Species - avoid long-term disturbance to estuarine biota, including Zostera capensis and Hippocampus capensis.

3. Loss of Indigenous Vegetation / Spread of Invasive Species - prevent degradation of the estuarine vegetation community and restore indigenous cover.

4. Sedimentation and Water Quality Impacts During Construction - prevent sedimentation into the estuary and associated turbidity.

5. Visual and Aesthetic Impacts - blend the stabilised embankment into the natural landscape over time.

6. Public Access and Recreational Safety - prevent unauthorised access to stabilised areas during vegetation establishment.

7. Long-Term Maintenance and Climate Resilience - structure must withstand tidal, storm surge, and flood conditions over time.

8. Compliance with Specialist and Legal Requirements - all mitigation measures recommended by specialists must be implemented.

2.2.	Provide a description of any aspects that were conditional to the findings of the assessment either by the EAP or specialist that must be included as conditions of the authorisation.

All recommendations made by specialist must be written into the EMPr and EA to ensure minimal negative impact is experienced.

In addition, the applicant must source sand for sandbags from the construction site.

2.3.	Provide a reasoned opinion as to whether the proposed activity or development should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be included in the authorisation.

The proposed activity should be authorised, subject to strict implementation of mitigation and management measures outlined in the specialist assessments and EMPr.

1. Environmental Need and Justification:

The site is experiencing active erosion and lies within a Very High Coastal Risk Zone.

Left unaddressed, erosion poses a significant threat to public infrastructure, safety, and the ecological functioning of the estuary.

2. Compliance with Policy and Legislative Frameworks:

The activity aligns with all necessary legislative frameworks previously mentioned in this report.

3. Specialist Support:

All specialist studies support the intervention, provided that mitigation is strictly applied.

The proposed hybrid stabilisation approach is viewed as the Best Practicable Environmental Option (BPEO) for the site.

4. Limited and Manageable Impacts:

Impacts are localised, mostly short-term, and reversible.

Sensitive species (e.g., Zostera capensis and Hippocampus capensis) are not expected to be adversely affected.

5. Climate Change Resilience:

The proposal enhances adaptation to sea-level rise and storm surge events—a key component of sustainable estuarine and coastal zone management.

Recommended Conditions of Authorisation-

1. Mitigation and Monitoring:

Full implementation of the EMPr and all specialist mitigation measures must be a condition of authorisation.

An Environmental Control Officer (ECO) must be appointed to oversee construction and enforce compliance.

2. Rehabilitation Requirements:

All disturbed areas must be revegetated with indigenous riparian species within 3 months of construction.

Invasive species (e.g., kikuyu) must be removed and controlled.

3. Boating and Access Control:

No boat mooring or pedestrian access shall be permitted along the stabilised bank to allow for vegetation recovery.

Signage and physical barriers must be installed as necessary.

4. Estuarine Monitoring:

Post-construction monitoring of Zostera capensis and aquatic habitat should occur for at least 12 months.

Results must be submitted to DEA&DP and relevant conservation authorities.

5. Construction Timing:

Construction should be timed to avoid peak breeding seasons for estuarine biota and seasons of high rainfall.

6. Sand Source Restrictions:

Sand used for sandbags must not be extracted from dunes or sensitive estuarine zones.

7. Maintenance and Reporting:

Any future erosion or damage must be repaired with prior environmental review.

ECO reports and audits must be submitted to DEA&DP.

2.4.	Provide a description of any assumptions, uncertainties and gaps in knowledge that relate to the assessment and mitigation measures proposed.

Estuarine and Plant Assessment was done in July 2023
Terrestrial Biodiversity Assessment was done in March 2024
Animal Assessment was done in March 2024

The dynamic nature of estuaries means that the structure of physical habitat and associated estuarine fauna and flora can change rapidly in response to tidal and hydrological (e.g. flooding events) influences.

The assessments are based on single site visits and represents a 'snapshot' in time assessments can vary if site visits were conducted at different times.

2.5.	The period for which the EA is required, the date the activity will be concluded and when the post construction monitoring requirements should be finalised.

Ten (10) years

3. Water

Since the Western Cape is a water scarce area explain what measures will be implemented to avoid the use of potable water during the development and operational phase and what measures will be implemented to reduce your water demand, save water and measures to reuse or recycle water.
Some water will be used through the construction phase, but mitigation measures will be written into EMPR to avoid waste. No water required during operational phase.

4. Waste

Explain what measures have been taken to reduce, reuse or recycle waste.
Normal waste measurement will be written into EMPR which will stipulate waste management using the waste hierarchy during construction phase. All waste, building rubble and recycling will be removed from site to licensed facilities.

5. Energy Efficiency

8.1.	Explain what design measures have been taken to ensure that the development proposal will be energy efficient.
N/A	

SECTION K: DECLARATIONS

DECLARATION OF THE APPLICANT

Note: Duplicate this section where there is more than one Applicant.

I, CHARLES DARREN WEBSTER, ID number 6201165075 085, in my personal capacity or duly authorised thereto hereby declare/affirm that all the information submitted or to be submitted as part of this application form is true and correct, and that:

- I am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment ("EIA") Regulations, and any relevant Specific Environmental Management Act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- I am aware of my general duty of care in terms of Section 28 of the NEMA;
- I am aware that it is an offence in terms of Section 24F of the NEMA should I commence with a listed activity prior to obtaining an Environmental Authorisation;
- I appointed the Environmental Assessment Practitioner ("EAP") (if not exempted from this requirement) which:
  - meets all the requirements in terms of Regulation 13 of the NEMA EIA Regulations; or
  - meets all the requirements other than the requirement to be independent in terms of Regulation 13 of the NEMA EIA Regulations, but a review EAP has been appointed who does meet all the requirements of Regulation 13 of the NEMA EIA Regulations;
- I will provide the EAP and any specialist, where applicable, and the Competent Authority with access to all information at my disposal that is relevant to the application;
- I will be responsible for the costs incurred in complying with the NEMA EIA Regulations and other environmental legislation including but not limited to –
  - costs incurred for the appointment of the EAP or any legitimately person contracted by the EAP;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the NEMA EIA Regulations;
  - Legitimate costs in respect of specialist(s) reviews; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;
- I am responsible for complying with conditions that may be attached to any decision(s) issued by the Competent Authority, hereby indemnify, the government of the Republic, the Competent Authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which I or the EAP is responsible in terms of the NEMA EIA Regulations and any Specific Environmental Management Act.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the Applicant: Date: 18/6/2024

Name of company (if applicable): Plettenberg Bay Angling & Boating Club.

DECLARATION OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER ("EAP")

I …Samantha Teeluckdhari……, EAP Registration number …2023/6443…….. as the appointed EAP hereby declare/affirm the correctness of the:

- Information provided in this BAR and any other documents/reports submitted in support of this BAR;
- The inclusion of comments and inputs from stakeholders and I&APs;
- The inclusion of inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties, and that:
- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
  - am not independent, but another EAP that meets the general requirements set out in Regulation 13 of NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review EAP must be submitted);
- In terms of the remainder of the general requirements for an EAP, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- I have disclosed, to the Applicant, the specialist (if any), the Competent Authority and registered interested and affected parties, all material information that have or may have the potential to influence the decision of the Competent Authority or the objectivity of any report, plan or document prepared or to be prepared as part of this application;
- I have ensured that information containing all relevant facts in respect of the application was distributed or was made available to registered interested and affected parties and that participation will be facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- I have ensured that the comments of all interested and affected parties were considered, recorded, responded to and submitted to the Competent Authority in respect of this application;
- I have ensured the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- I have kept a register of all interested and affected parties that participated in the public participation process; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations;

S. Teeluckdhari

15/07/2025

Signature of the EAP: Date:

Eco Route Environmental Consultancy

Name of company (if applicable):

DECLARATION OF THE REVIEW EAP

I ……, EAP Registration number …….. as the appointed Review EAP hereby declare/affirm that:

- I have reviewed all the work produced by the EAP;
- I have reviewed the correctness of the information provided as part of this Report;
- I meet all of the general requirements of EAPs as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the specialist (if any), the review specialist (if any), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE SPECIALIST – TO BE PROVIDED IN FBAR

Note: Duplicate this section where there is more than one specialist.

I ……, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or

  - am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 of the NEMA EIA Regulations has been appointed to review my work (Note: a declaration by the review specialist must be submitted);

- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;

- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and

- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):

DECLARATION OF THE REVIEW SPECIALIST

I ……., as the appointed Review Specialist hereby declare/affirm that:

- I have reviewed all the work produced by the Specialist(s):
- I have reviewed the correctness of the specialist information provided as part of this Report;
- I meet all of the general requirements of specialists as set out in Regulation 13 of the NEMA EIA Regulations;
- I have disclosed to the applicant, the EAP, the review EAP (if applicable), the Specialist(s), the Department and I&APs, all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the NEMA EIA Regulations.

Signature of the EAP: Date:

Name of company (if applicable):