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**CIRCULAR: DEA&DP 0004/2021**

**TO ALL MAYORS AND MUNICIPAL MANAGERS OF COASTAL MUNICIPALITIES**

**RE: THE CONSIDERATION OF COASTAL RISK IN LAND USE DECISIONS AS WELL AS THE WAY FORWARD WITH RESPECT TO THE ESTABLISHMENT AND IMPLEMENTATION OF COASTAL MANAGEMENT LINES IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: INTEGRATED COASTAL MANAGEMENT ACT, 2008 (ACT NO. 24 OF 2008) (“NEM: ICMA”)**

## **1. PURPOSE**

- 1.1 The coastal zone has always attracted people, whether for recreational purposes or for the natural resources that can be harvested from the coast or adjacent marine area. However, this concentration of people necessitates the concentration of developmental activities that are often in conflict with the natural dynamic nature of the coast, or the biophysical sensitivities associated with the coastline. It is for this reason that Section 2 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (“NEMA”) have always stated that “Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.”
- 1.2 The Western Cape Government, together with the rest of government, is under obligation to protect and preserve the inherent value of the Western Cape’s coastal zone. This implies that it has the responsibility to arrest on-going degradation driven by uninformed decision-making or irresponsible development, whilst promoting development that is responsive to the dynamic nature and risks associated with the coastal zone.
- 1.3 The NEM: ICMA provides for various tools for and specifies provisions that guide responsible land use decision making in the coastal zone that is cognisant of the sensitivities of the receiving environment. One such tool is the establishment of coastal management lines along the provincial coastline.
- 1.4 The delineation of the draft coastal management lines was informed by the relevant provisions of the NEM: ICMA as well as scientific data related to coastal risk and coastal dynamic processes.

1.5 The aim of this circular is to:

- 1.5.1 advise/guide Mayors, Municipal Managers and land use decision makers of coastal municipalities on the relevant considerations of the NEM: ICMA as well as the scientific data that have been gathered during the process towards the establishment and delineation of coastal management lines in the Province;
- 1.5.2 provide guidance to land use decision makers on the consideration of the recommendations flowing from the process towards the establishment and delineation of coastal management lines in the Province with respect to development that is located within areas that is at risk to dynamic coastal processes; and
- 1.5.3 inform all Mayors and Municipal Managers of coastal municipalities of the proposed process for the establishment of the draft coastal management lines in the Province in terms of Section 25 of the NEM: ICMA.

## **2. THE LEGAL FRAMEWORK**

- 2.1 The Department of Environmental Affairs and Development Planning ("the Department"), as the designated provincial lead agency for coastal management in terms of Section 38 of the NEM: ICMA, supports the Member of the Executive Council ("MEC") with fulfilling various legal obligations in terms of the NEM: ICMA including, *inter alia*, the establishment of coastal management lines along the provincial coastline.
- 2.2 In fulfilling this obligation, the MEC had the Department embark on a process towards the establishment of coastal management lines by the MEC for the West Coast, Overberg and Garden Route Municipal Districts, taking into account, amongst other considerations, dynamic coastal processes, impact(s) from sea level rise as well as other sensitivities along the coast.
- 2.3 In all three (3) municipal districts the process was guided by a steering committee that was comprised of officials from the Department, relevant municipal officials from both the District and Local municipalities and relevant organs of state including CapeNature, SANParks, and others.
- 2.4 During the consultation process with municipal officials, various challenges were raised with respect to the inclusion of coastal management lines into municipal zoning/land use schemes.
- 2.5 Section 25(3) of the NEM: ICMA requires that local municipalities, within whose area of jurisdiction a coastal management line has been established must delineate the coastal management line on a map or maps that form part of its zoning scheme to enable the public to determine the position of the coastal management line in relation to existing property boundaries.
- 2.6 To create a legal framework for the implementation of coastal management lines that also responds to the challenges raised by the municipalities, the Department is embarking on a process to develop a policy for the implementation of the coastal management lines that will provide the foundation for a legislative framework and will further guide municipalities to consider the coastal management line and associated coastal risk information layers. This legislative framework includes possible new regulations in terms of the NEM: ICMA. This process

will partly run in parallel to the process for the establishment of the coastal management lines in the Province.

- 2.7 The recent impacts of dynamic coastal processes, including the impact of sea level rise, coastal erosion, and the occurrence of more frequent and more extreme storm surges along our provincial coastline, have resulted in an urgent need to, in the interim, provide guidance to land-use decision makers on how to consider coastal risk in land use decisions.
- 2.8 In response to numerous requests from municipal officials and Councillors via the Municipal Coastal Committees, this circular has been developed as a guide for the consideration of the NEM: ICMA and coastal risk in land use decisions.

### 3. GUIDE TO CONSIDER THE NEM: ICMA AND COASTAL RISK IN LAND USE DECISIONS

- 3.1 The following is informed by provisions of the NEM: ICMA as well as the recommended development parameters in the project reports for the establishment of coastal management lines for the West Coast, Overberg and Garden Route District Municipalities.
- 3.2 The coastal zone, which comprises various zones, is informed by the ecological functioning of coastal ecosystems and the ecosystem services that they provide. It is important to understand the extent and nature of these ecosystems as this will determine the limitations of development within these areas.
- 3.3 Where land use decisions are made that did/do not consider or did/do not adequately consider available information pertaining to coastal processes and the associated risk(s), such development may be impacted by coastal processes (e.g., impact of erosion and / or moving sand on private property) and there is the risk that a Municipality could be held liable for damages suffered. In this respect it is important to take heed of Section 15(1) of the NEM: ICMA that states:

*“...15(1) No person, owner or occupier of land adjacent to the seashore or other coastal public property capable of erosion or accretion may require any organ of state or any other person to take measures to prevent the erosion or accretion of the seashore or such other coastal public property, or of land adjacent to coastal public property, unless the erosion is caused by an intentional act or omission of that organ of state or other person...”*

- 3.4 The NEM: ICMA defines various zones and contains provisions applicable to these various zones that must be acknowledged and implemented by authorities when considering land use decisions. These are depicted in **Annexure A: Figure 1** include:
  - 3.4.1 **'Coastal Public Property'** – this zone is defined in Section 7 of the NEM: ICMA and comprises, *inter alia*, beaches, admiralty reserve, reclaimed land, and others. Coastal public property is held in trust by the state to improve public access to the seashore; protect sensitive ecosystems; secure the natural functioning of dynamic coastal ecosystems; and to protect people, property and economic activities from risks arising from dynamic processes, including the risk of sea level rise, as well as to facilitate any other objects of the NEM: ICMA.
    - i) Any coastal land owned by the municipality that does not comprise coastal public property either by definition, reclamation or extension, should be retained and should not be sold. The leasing of such land for private purposes is also discouraged. Such land

should be maintained to ensure the functioning of ecological processes and ecological services along the coast and to facilitate public access to the seashore.

- ii) Encroachments onto coastal public property should not be condoned nor rectified. All efforts should be made to ensure that coastal public property is not privatised.
- iii) No person may construct, maintain, or extend any structure, or take other measures on coastal public property to prevent or promote erosion or accretion of the seashore except as provided for by the NEM: ICMA, the National Environmental Management Act (Act No. 107 of 1998) or any other specific environmental management act.
- iv) Where municipal or any other state infrastructure, by its nature, is required to be located within coastal public property, cognisance must be given to the location of such infrastructure in relation to dynamic coastal processes, e.g., public amenities related to the use of the seashore must not be in a sand movement corridor, as such infrastructure will be compromised by the impact of sandblasting.

3.4.2 '**Littoral Active Zone**' – this zone is defined in the NEM: ICMA and is located adjacent to the seashore (extending inland from the high-water mark), is unstable and dynamic because of natural processes; and is characterised by dunes, beaches, sand bars and other landforms composed of unconsolidated sand, pebbles or other such material which is either unvegetated or only partially vegetated. The risk information layers for the Garden Route District includes spatial layers for blowouts and mobile dunes that are components of the littoral active zone, as depicted in **Annexure A: Figure 2**.

- i) This zone is extremely dynamic. A precautionary approach must be adopted with respect to land use decision making within this zone.
- ii) Coastal dunes provide important ecological services as they play an integral role in supplying the beach with sand and protecting inland areas from coastal water intrusion. Coastal dunes absorb the impact and protect inland areas from high energy storms and act as a resilient barrier to the destructive forces of wind and waves.
- iii) Any development within the littoral active zone will impede the ecological processes relating to beach replenishment, the cycle of erosion and accretion that occur naturally along sandy shores and will negatively impact the ability of coastal dunes to mitigate the impact of sea level rise as well as the increase in the magnitude and frequency of storm surges currently being experienced along the coast.
- iv) Mobile sand is extremely destructive and will damage infrastructure located within a sand corridor (i.e., within the littoral active zone) as it will negatively impact the integrity of structures. Development within this zone will constantly require regular maintenance with respect to the removal of sand from infrastructure such as roads and from within private property. Development, specifically residential development, in this zone is not recommended.
- v) In the context of climate change, as well as the impact of erosion as a result of recent storm surge events along our coastline, it is important to ensure that the ecological integrity of littoral active zones, especially coastal dunes, remains intact.
- vi) As such, new development that by its nature does not require to be located on coastal dunes, especially primary dunes, should be restricted (e.g., residential development).

Municipal infrastructure to facilitate public access to the seashore must consider these ecological processes and must ensure that such infrastructure (e.g., boardwalks, ablution facilities, parking, etc.) is appropriately placed and engineered.

- vii) Where private property that is already developed is located on sandy shores within the littoral active zone and coastal risk areas, restrictions must be considered on such properties to ensure that no further buildings are erected on or close to the seaward property boundary of such property. This must be informed by the level of risk the property is exposed to (i.e., low, medium, or high).

3.4.3 '**Coastal Protection Zone**' – The composition of the coastal protection zone ("CPZ") is defined in Section 16 of the NEM: ICMA. The CPZ extends from the low-water mark inland comprising of various zones including coastal public property, the littoral active zone, protected areas along the coast and other areas. As part of the process to establish coastal management lines in the West Coast, Overberg and Garden Route District Municipal areas, recommendations to the MEC to determine or adjust the boundary of the CPZ in certain areas, have also been included. The recommendations in respect of the determination or adjustment of the CPZ may be viewed spatially on the Departments' web-based viewer at the following URL:

<https://westerncape.gov.maps.arcgis.com/apps/webappviewer/index.html?id=8f2793f9e36e423e85dd0337a554c02f>

- i) The purpose of the CPZ is specified in Section 17 of the NEM: ICMA and is established to ensure that the land that is adjacent to coastal public property or that plays a significant role in coastal ecosystems is managed, regulated, or restricted in a manner that is consistent with the purpose of the CPZ. This includes protecting the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property; avoiding increasing the effect or severity of natural hazards, protecting people, property and economic activities from risks arising from dynamics coastal processes including sea-level rise as well as storm surges, and the natural processes of erosion and accretion. The CPZ also serves to maintain the natural functioning of the littoral active zone, maintain the productive capacity of the coastal zone and to make land available to organs of state to perform functions such as sea rescue operations, or temporarily depositing objects and materials washed up by coastal waters.
- ii) The CPZ is an area where coastal considerations must inform all planning and land-use decision-making. Section 62 of the NEM: ICMA obliges all organs of state that regulate planning or development of land, to apply legislation in relation to land in the CPZ in a manner that gives effect to the purpose of the CPZ, as specified in Section 17 of the NEM: ICMA.
- iii) Section 63 of the NEM: ICMA (**Annexure B**) further specifies relevant factors that must be taken into account by the competent authority where an environmental authorisation is required in terms of Chapter 5 of the NEMA for any activities proposed within or that may impact the CPZ. These prescribed factors (Section 63 of the NEM: ICMA [**Annexure B**]) serve as guidance to municipalities and other land use decision makers to give effect to Section 62 of the NEM: ICMA.

3.4.4 '**Estuarine Functional Zone**' – is defined, in the NEMA EIA Regulations, 2017 (GN No. 324 of 07 April 2017) as the area in and around an estuary which includes the open water area, estuarine habitat (such as sand and mudflats, rock and plant communities) and the surrounding floodplain area, as defined by the area below the five (5) metre topographical contour (referenced from the indicative mean sea level). The estuarine functional zone therefore consists of habitats that are located adjacent to an estuary but that supports both the physical and biological processes within an estuarine system.

- i) The estuarine functional zone is important for a range of ecological services such as flood attenuation and disaster reduction but also plays a vital role in the economy of a municipal area with respect to activities such as tourism and subsistence and small-scale fishing, etc.
- ii) Estuaries are particularly vulnerable to impacts of climate change and the preservation and management of the estuarine functional zone (through the estuary management plans) is therefore critically important.
- iii) Historic development within the estuarine functional zone has resulted in an increased need to actively manipulate ecological processes, such as breaching of an estuary, to protect human life. To ensure the resilience of coastal communities, especially within the estuarine functional zone, development, and densification of urban areas within this zone should be prohibited.

3.4.5 '**Coastal Risk Information Layers**' – The Department has developed Coastal Risk Information Layers (depicted in **Annexure C**) that comprises spatial information pertaining to coastal processes and coastal risk consisting of three areas/sub-layers related to the projected coastal risk horizons. The coastal risk information layers, in addition to items 3.4.1 to 3.4.3 above, were considered with the delineation of the draft coastal management lines and must therefore be taken into consideration in land use decisions to ensure that the relevant factors, including the best available information, are taken into account.

On the Department's web-based viewer that is accessible via the URL specified in item 3.4.3, the coastal risk information layers are accessible in the 'Layer List' under 'Coastal Management' where the information for each coastal district is accessible. For the West Coast and Overberg Districts the coastal risk information layers is depicted as 'Hazard Lines' and 'Risk Zones'. For the Garden Route District, the coastal risk information layers were disaggregated into 'Erosion Lines' and 'Wave run-up' lines, as well as separate spatial layers for the constituents of the littoral active zone.

The sub-layers in the coastal risk information layers comprise the following:

- i) High risk areas – these areas are indicative of coastal risk (e.g., risks emanating from sea level rise, storms, waves, wind, erosion etc.) with a 20-year return period – i.e., a coastal risk with a 5% chance of taking place in any given year during the ensuing 100 years. On the Department's web-based viewer that is accessible via the URL specified in item 3.4.3, this area is located seaward of the **red** line and is shaded in **red** in urban areas.
- ii) Medium risk areas – coastal risk (e.g., risks emanating from sea level rise, storms, waves, wind, erosion etc.) with a 50-year return period – i.e., a coastal risk with a 2% chance of taking place in any given year during the ensuing 100 years. On the Department's web-

based viewer that is accessible via the URL in item 3.4.3, these areas are located between the **red** and **orange** lines and is shaded in **orange** in urban areas.

- iii) Low risk areas - coastal risk (e.g., risks emanating from sea level rise, storms, waves, wind, erosion etc.) with a 100-year return period – i.e., a coastal risk with a 1% chance of taking place in any given year during the ensuing 100 years. On the Department's web-based viewer that is accessible via the URL in item 3.4.3, these areas are located between the **orange** and **yellow** lines and is shaded in **yellow in urban areas**.
- iv) General risk areas – along the coastline these areas are demarcated in rural areas (as defined in the Western Cape Land Use Planning Guideline Rural Areas, 2019) where the principle of avoidance of risk must be applied. The general risk areas comprise the high, medium, and low risks areas, the littoral active zone and the coastal protection zone. The consideration of Section 63 of the NEM: ICMA must therefore be applied in these areas. Along estuaries these areas include the estuarine functional zone with an additional buffer to allow for floods and other sensitivities linked to the estuary. These areas are depicted in **purple** on the Department's web-based viewer and may also be referred to as the 'General Risk Zone' that is accessible via the URL in item 3.4.3.

3.5 The impact of recent storm events has resulted in large scale erosion along certain stretches of coastline that correspond to the projected risk horizon of the high-risk areas. This was specifically evident in Yzerfontein (West Coast District) and Myoli Beach (Garden Route District). It is therefore important to maintain ecological corridors along the coast to ensure that ecological infrastructure or important coastal features such as coastal dunes remain intact to serve as storm surge buffering thereby protecting communities against the impact of dynamic coastal processes.

3.6 It is imperative that any development that is proposed along the coast, be scrutinised and that caution is applied when considering such proposals. Any further development that is at risk from coastal processes within both the high and medium risk areas, unless warranted, should therefore be discouraged and/or prohibited.

3.7 Where development already exist in high-risk areas, strategic management options, including retreat or land swaps, may need to be considered by the municipality. In view of the coastal risk information layers, the coastal management line project reports suggested development considerations related to resilient building designs, setbacks and ecological buffers that are based on land use and the risk associated with each sub-layer (**Annexure D**).

**Annexure D, tables (1-5) provide for development considerations to reduce coastal risk for both built-up areas as well as proposed new developments within each risk area referred to in item 3.4.5 i) to iv) above. These development considerations have been adapted from those developed in the coastal management line project reports for the Overberg and Garden Route Municipal Districts.**

4. The MEC, supported by the Department, established the coastal management line for the City of Cape Town in March 2021 and will proceed with the establishment of the coastal management lines for West Coast, Overberg, and Garden Route District Municipalities. Pending the establishment of these coastal management lines in terms of Section 25 of the NEM: ICMA per coastal District by the MEC, the contents of this circular must be considered in all land use decisions that are proposed within the coastal protection zone. The spatial information referred

to above, has been provided to municipalities and is also accessible on the Department's web-based viewer at the following URL:

<https://westerncapegov.maps.arcgis.com/apps/webappviewer/index.html?id=8f2793f9e36e423e85dd0337a554c02f>.

5. Municipalities are encouraged to include this spatial information in Municipal Spatial Development Frameworks (SDFs). It is acknowledged that the scale of the coastal risk information layers is more appropriate for inclusion in local municipal SDFs, however it is essential that the coastal management lines, whether draft or established, with the associated coastal risk information also be included in district municipal SDFs as far as is reasonably possible. This is to ensure alignment between the district and local municipal SDFs and to provide local municipalities with strategic guidance with an approach to address development within areas at risk to coastal processes, in line with the development considerations in **Annexure D**.
6. The National Department for Forestry, Fisheries and the Environment (DFFE) have recently concluded the National Coastal Climate Change Vulnerability (CoVu) Assessment. The objective of the project was to develop the National Coastal Spatial Vulnerability Index for South Africa's coastline and estuaries from physical hazards attributable to climate change, such as sea level rise, flooding, erosion or storm events. The majority of the required input data was sourced from existing projects and data sources, including the LiDAR used to generate the coastal risk information layers for the Province referred to in this circular. Data and information generated in the CoVu project include extreme wave run-up for 1-in-10, 1-in-30 and 1-in-50 years storms for rocky shores at a 500m (or higher) resolution and erosion lines (for 1-in-10yr, 1-in-50yr and 1-in-100yrs) for the national coastline, generated at an appropriate resolution (depending on elevation models) and where possible. This information was distributed by DFFE to municipalities in the form of the CoVu Decision Support Tool.
7. Due to the magnitude of the CoVu assessment and the modeling methods used, the coastal risk information layers generated by the Department are at a finer scale than the data generated in the CoVu assessment. This has resulted in occasional differences in the risk information generated between the Departments' data and the CoVu assessment. It is therefore advised that municipalities first consider the data generated by the Department and thereafter apply the CoVu assessment to further support decision making.

## **8. WAY FORWARD FOR THE ESTABLISHMENT OF COASTAL MANAGEMENT LINES**

- 8.1 The process for the establishment of the coastal management lines in the Province will proceed with issuing written notices of intent to do so from the MEC to the relevant Mayors and Municipal Managers within the West Coast, Overberg and Garden Route Districts. Thereafter, the notice of intent by the MEC to establish the coastal management lines for the West Coast, Garden Route and Overberg Districts will be published in terms of Section 53 of the NEM: ICMA.
- 8.2 The Sub-Directorate: Coastal Management of the Department will facilitate the public participation consultation process and will engage with municipal officials regarding the process for the establishment of the coastal management lines. During this process, possible amendments to the draft coastal management line will be considered.

- 8.3 The Sub-Directorate: Coastal Management, together with the other relevant components of the Department, will engage with and support the municipalities with the delineation of the coastal management lines in zoning/land use schemes as required in terms of Section 25(3) of the NEM: ICMA.
- 8.4 Concurrently with the establishment process, the Department will also engage with municipal officials for the development of an appropriate legal framework for the implementation of coastal management lines (as referred to in item 2.6). This framework includes the development of a 'Policy for the implementation of coastal management lines for the Province' that has already been commenced with.
9. Should Municipalities require assistance in relation to this circular, with the coastal information layers or any associated information please contact the Department's Sub-Directorate: Coastal Management at the following contact details:

Ms I Bekko or Ms M Liddle

Email: [coastal.enquiries@westerncape.gov.za](mailto:coastal.enquiries@westerncape.gov.za)

Yours faithfully

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**Ayub Mohamed**  
**ACTING HEAD OF DEPARTMENT**  
**Date: 30 December 2021**

## ANNEXURE A

Figure 1: Image depicting components of the coastal zone as per the NEM: ICMA

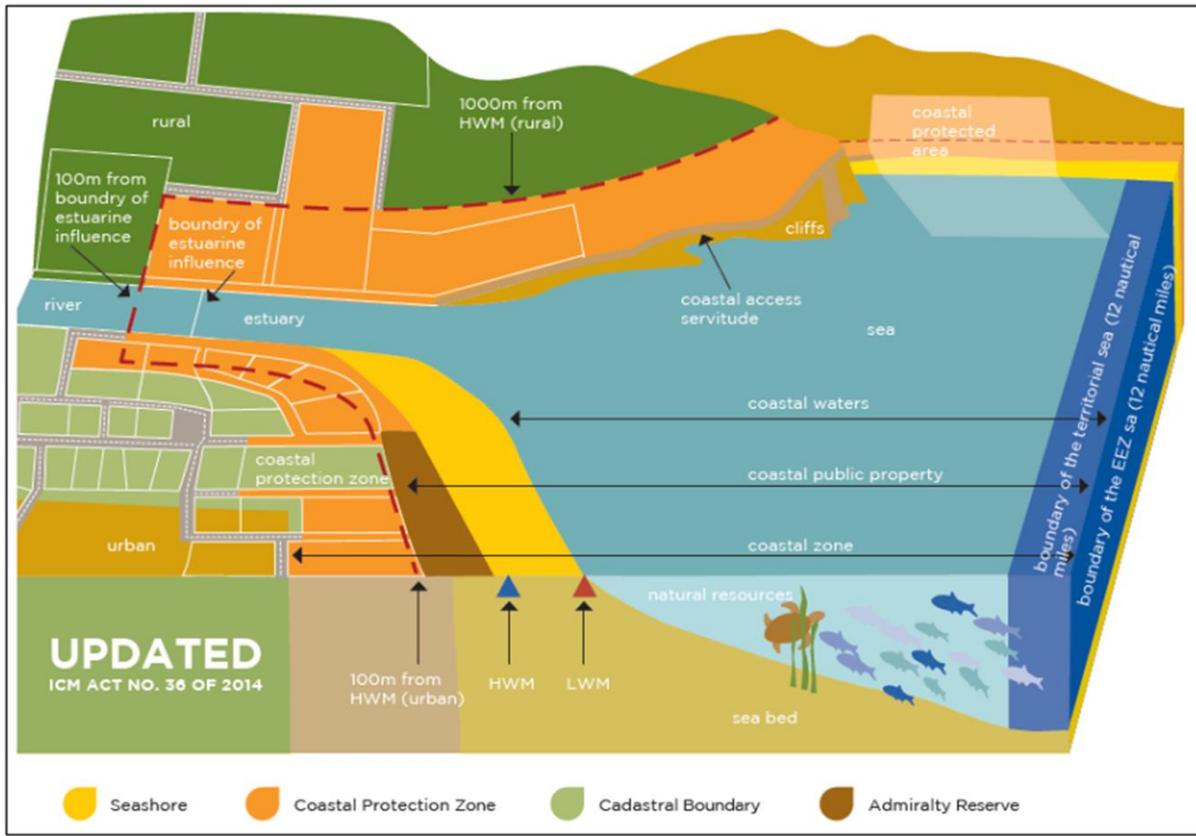
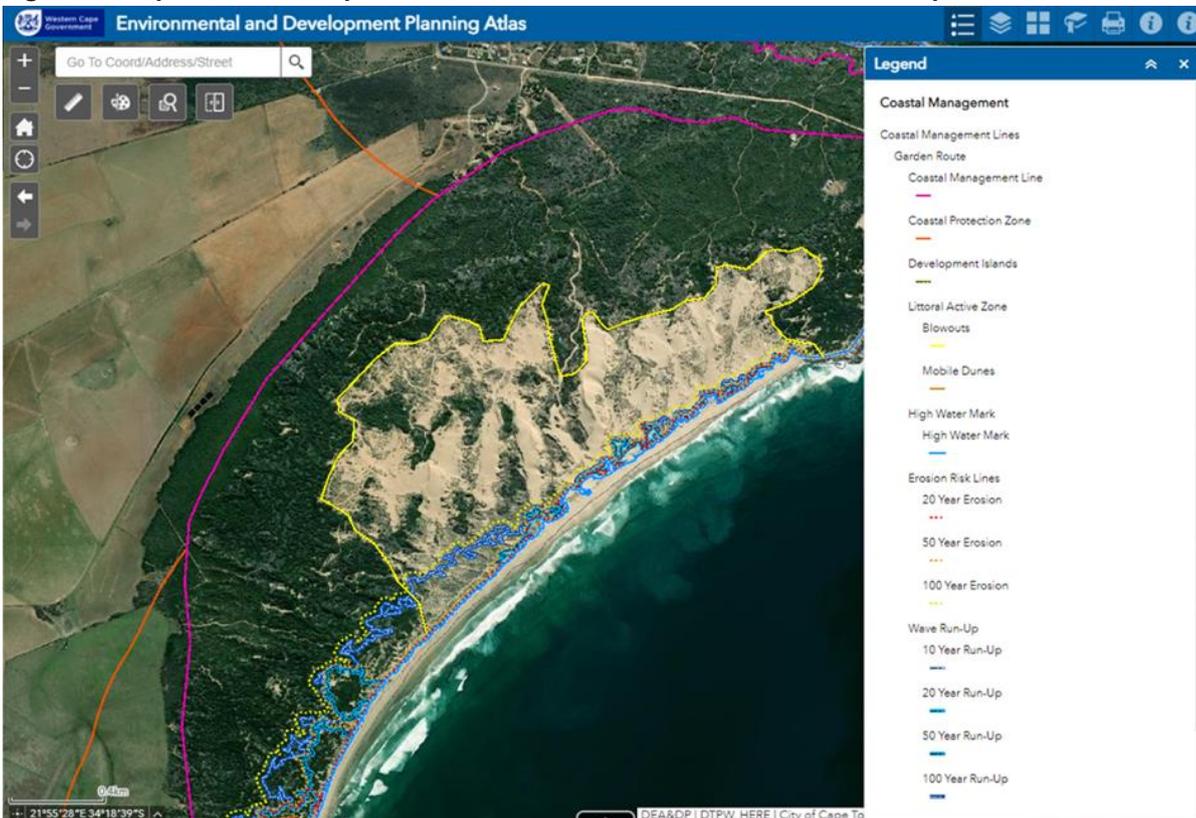


Figure 2: Depiction of components of the littoral active zone from the Departmental online viewer



## ANNEXURE B

### Relevant Sections of the NEM: ICMA

#### Section 17 Purpose of the Coastal Protection Zone (CPZ)

17. The coastal protection zone is established for enabling the use of land that is adjacent to coastal public property or that plays a significant role in a coastal ecosystem to be managed, regulated or restricted in order to-

- (a) protect the ecological integrity, natural character and the economic, social and aesthetic value of coastal public property;
- (b) avoid increasing the effect or severity of natural hazards in the coastal zone;
- (c) protect people, property and economic activities from risks arising from dynamic coastal processes, including the risk of sea-level rise;
- (d) maintain the natural functioning of the littoral active zone;
- (e) maintain the productive capacity of the coastal zone by protecting the ecological integrity of the coastal environment; and
- (f) make land near the seashore available to organs of state and other authorized persons for-
  - (i) performing rescue operations; or
  - (ii) temporarily depositing objects and materials washed up by coastal waters.

#### Section 63 (Considerations for) Environmental Authorisations for Coastal Activities

63 (1) Where an environmental authorisation in terms of Chapter 5 of the National Environmental Management Act is required for coastal activities, the competent authority must take into account all relevant factors, including -

- (a) the representations made by the applicant and by interested and affected parties;
- (b) the extent to which the applicant has in the past complied with similar authorisations;
- (c) whether coastal public property, the coastal protection zone or coastal access land will be affected, and if so, the extent to which the proposed development or activity is consistent with the purpose for establishing and protecting those areas;
- (d) the estuarine management plans, coastal management programmes, coastal management lines and coastal management objectives applicable in the area;
- (e) the socio-economic impact if the activity -
  - (i) is authorised;
  - (ii) is not authorised;
- (f) .....
- (g) the likely impact of coastal environmental processes on the proposed activity;
- (h) whether the development or activity-
  - (i) is situated within coastal public property and is inconsistent with the objective of conserving and enhancing coastal public property for the benefit of current and future generations;
  - (ii) is situated within the coastal protection zone and is inconsistent with the purpose for which a coastal protection zone is established as set out in section 17;
  - (iii) is situated within coastal access land and is inconsistent with the purpose for which coastal access land is designated as set out in section 18;
  - (iv) is likely to cause irreversible or long-lasting adverse effects to any aspect of the coastal environment that cannot satisfactorily be mitigated;
  - (v) is likely to be significantly damaged or prejudiced by dynamic coastal processes;
  - (vi) would substantially prejudice the achievement of any coastal management objective; or
  - (vii) would be contrary to the interests of the whole community;
- (i) whether the very nature of the proposed activity or development requires it to be located within coastal public property, the coastal protection zone or coastal access land;
- (j) whether the proposed activity or development will provide important services to the public when using coastal public property, the coastal protection zone, coastal access land or a coastal protected area; and
- (k) the objects of this Act, where applicable.

(2) .....

(3) .....

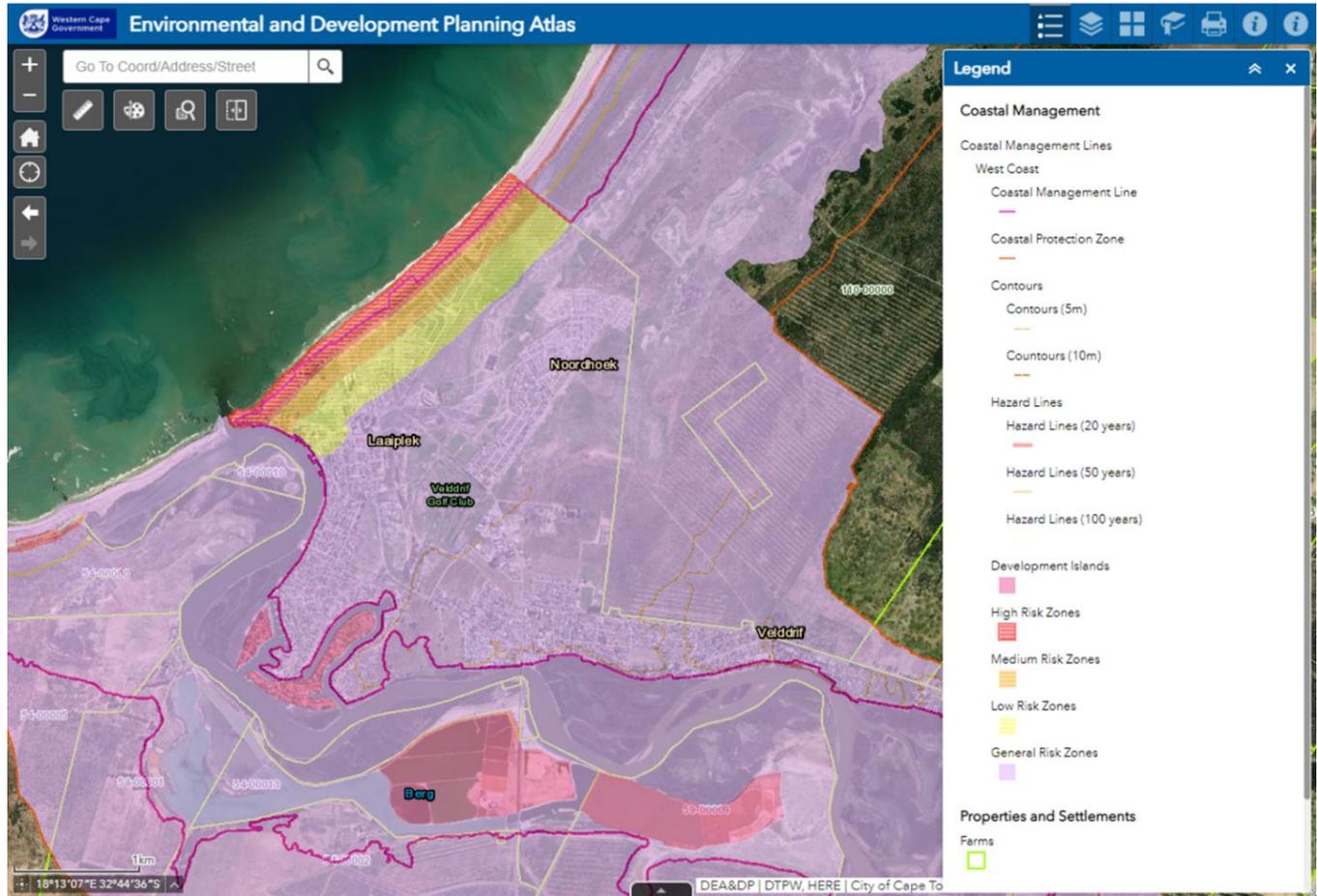
(4) .....

(5) The competent authority must ensure that the terms and conditions of any environmental authorisation are consistent with any applicable coastal management programmes and promote the attainment of coastal management objectives in the area concerned.

(6) Where an environmental authorisation is not required for coastal activities, the Minister may, by notice in the *Gazette* list such activities requiring a permit or licence.

# ANNEXURE C

## Depiction of Coastal Risk Information Layers from the Departmental online viewer



## ANNEXURE D

**Table 1: Suggested development considerations to reduce coastal risk for High-Risk Urban areas**

HIGH RISK COASTAL URBAN AREAS		
AREA	INTENTION	
<b>High Risk</b>	<ul style="list-style-type: none"> <li>• Maintain coastal quality</li> <li>• Limit public and private liability</li> <li>• Increase public awareness of the potential risks to property and human life</li> <li>• Prevent intensification of development in the high-risk area. Where existing rights are implemented, it must be tempered, and extreme caution must be applied taking liability and risk to human life into account</li> <li>• Prevent encroachment that will impact on the integrity of the shoreline ecology and exacerbate negative impacts</li> <li>• Enable safe evacuation in an emergency</li> </ul>	
<b>Primary Use</b>	<b>With special consent</b>	<b>Not Recommended</b>
<b>As per base land use controls</b>	<ul style="list-style-type: none"> <li>• Where buildings lie partly in two coastal risk areas, the higher risk area will apply</li> <li>• Infill subdivisions</li> <li>• Public resorts</li> </ul>	Industry, schools, libraries, health facilities, refuse sites & Wastewater Treatment Works (WWTW)
<b>Additional Considerations</b>		
<ul style="list-style-type: none"> <li>• All structures on properties larger than 400m<sup>2</sup> in the high-risk area require approval from a professionally registered engineer. Structures on smaller properties may obtain similar design approval based on predetermined standard conditions.</li> <li>• Structures must preferably be elevated on pilings, posts, piers-and-joists, column or similar foundations – with the lowest floor of habitable structures/buildings constructed above a pre-determined risk level.</li> <li>• Lower uninhabitable floors (i.e., garages, basements) of structures/buildings must be permeable – i.e., have openings to allow for the entry and exist of flood waters – to allow effective interior and exterior hydrostatic pressure equalisation during and post inundation.</li> <li>• Habitable basements or rooms will only be permitted if an engineer has made the necessary design arrangements to ensure that coastal risk is addressed and reduced by implementing responsible mitigation measures to the satisfaction of the Municipality.</li> <li>• Consideration during conceptual building design must be given to issues of privacy, overshadowing and visual impact and the apportionment and positioning of higher risk site areas for parking, open space and recreational areas.</li> <li>• Any new development must be designed and positioned within reason to limit potential flood damage and risk to human life, including but not limited to positioning buildings in suitably acceptable elevated portions of properties.</li> <li>• Development must be designed and constructed, within the framework of applicable building controls, in such a way that buildings and structures are positioned furthest from the foreshore whether limited by rear space, side space or the building line (up to the maximum allowed in the applicable scheme).</li> <li>• Building design must demonstrate reasonable risk reduction measures and should include innovative solutions (adaptable buildings, re-locatable buildings, flood-proofed buildings, flood resistant and resilient construction etc.) without increasing and transferring risks to adjacent properties.</li> <li>• Key mechanical and electrical services/structures (e.g., sewer (and water) infrastructure like pump stations, substations, transformers, generators, geysers and distribution boards) must be located above a pre-determined risk level.</li> <li>• After construction, any exposed ground area must be stabilised by the use of ground covering plants or mulches to minimise the risk of erosion.</li> <li>• On request from the municipality, a storm water management plan might be required to be submitted along with building plans.</li> <li>• Hardened surfaces to be minimised and suitable permeable alternative utilised to maximise natural infiltration and reduce overland flow and associated velocities with concomitant risk of erosion and damage.</li> <li>• Only fully enclosed / self-contained effluent storage and treatment systems will be permitted if links to sewer mains are not possible. These must be located either on the landward side of structures or either</li> </ul>		

side of structures and recommended by a Registered Engineer to ensure suitable sealing and safety. These areas must be monitored to ensure that planning and environmental authorisations are implemented in accordance with the conditions of authorisation.

- Development should be sited to minimise the removal of trees and endemic vegetation.
- Existing coastal processes, including dune migration and littoral drift should not be impeded and indigenous vegetation must be maintained.
- Dunes must be protected and rehabilitated where necessary to reinforce and strengthen natural barriers.
- Exotic species of vegetation should be limited to feature trees or shrubs within an indigenous setting.
- Fencing or other barriers must be permeable to accommodate storm events and limit structural damage and associated negative impacts on the environment.
- Consolidated access points/paths to the beach preferably on raised wooden / recyclable plastic boardwalks to reduce negative impact on dunes and associated vegetation.
- Limit and preferably avoid expansion of existing footpaths and volumes of existing structures and buildings within the risk area.
- Municipal engineering infrastructure (e.g., WWTW, Substation, Pumps and Reservoirs) to be located outside the risk area, unless related to public amenity (e.g., playground).
- Collective/integrated response by adjacent properties or developments to optimise resources and prevent spill over effect.

**Table 2: Suggested development considerations to reduce coastal risk for Medium Risk Urban areas**

MEDIUM RISK COASTAL URBAN AREAS		
AREA	INTENTION	
<b>Medium Risk</b>	<ul style="list-style-type: none"> <li>• Reduce public and private liability</li> <li>• Minimise risk to human life</li> <li>• Prevent intensification of development in medium risk area. Exercising of existing rights to be tempered.</li> </ul>	
Primary Use	With special consent	Not Recommended
<b>As per base land use controls</b>	<ul style="list-style-type: none"> <li>• Where buildings lie partly in two coastal risk areas, the higher risk area will apply</li> <li>• Infill subdivisions, Public resorts</li> </ul>	Industry, schools, libraries, health facilities, refuse sites & WWTW
Additional Considerations		
<ul style="list-style-type: none"> <li>• All structures on properties larger than 400m<sup>2</sup> in the medium risk area require approval from a professionally registered engineer. Structures on smaller properties may obtain similar design approval based on predetermined standard conditions.</li> <li>• Structures must preferably be elevated on pilings, posts, piers-and-joists, column or similar foundations – with the lowest floor of the structure to be above a pre-determined risk level.</li> <li>• Lower floors of structures/buildings must be permeable – i.e., have openings to allow for the entry and exist of flood waters – to allow effective interior and exterior hydrostatic pressure equalisation during and post inundation.</li> <li>• Consideration during conceptual building design must be given to issues of privacy, overshadowing and visual impact and the apportionment and positioning of higher risk site areas for parking, open space and recreational areas.</li> <li>• Any new development must be designed and positioned within reason to limit potential flood damage and risk to human life, including but not limited to positioning buildings in suitably acceptable elevated portions of properties.</li> <li>• Development must be designed and constructed, within the framework of applicable building controls, in such a way that buildings and structures are positioned furthest from the foreshore whether limited by rear space, side space or the building line (up to the maximum allowed in the applicable scheme).</li> <li>• Building design must demonstrate reasonable risk reduction measures and should include innovative solutions (adaptable buildings, re-locatable buildings, flood-proofed buildings, flood resistant and resilient construction etc.) without increasing and transferring risks to adjacent properties.</li> </ul>		

- Key mechanical and electrical services/structures (e.g., sewer (and water) infrastructure like pump stations, substations, transformers, generators, geysers and distribution boards) must be located above a pre-determined risk level.
- After construction, any exposed ground area must be stabilised by the use of ground covering plants or mulches to minimise the risk of erosion.
- On request from the municipality, a storm water management plan might be required to be submitted along with building plans.
- Hardened surfaces to be minimised and suitable permeable alternative utilised to maximise natural infiltration and reduce overland flow and associated velocities with concomitant risk of erosion and damage.
- Only fully enclosed / self-contained effluent storage and treatment systems will be permitted if links to sewer mains are not possible. These must be located either on the landward side of structures or either side of structures and recommended by a Registered Engineer to ensure suitable sealing and safety. These areas must be monitored to ensure that planning and environmental authorisations are implemented in accordance with the conditions of authorisation.
- Development should be sited to minimise the removal of trees and endemic vegetation.
- Existing coastal processes, including dune migration and littoral drift should not be impeded and indigenous vegetation must be maintained.
- Exotic species of vegetation should be limited to feature trees or shrubs within an indigenous setting.
- Fencing or other barriers must be permeable to accommodate storm events and limit structural damage and associated negative impacts on the environment.
- Municipal engineering infrastructure (e.g., WWTW, Substation, Pumps and Reservoirs) to be located outside the risk area, unless related to public amenity (e.g., playground).

**Table 3: Suggested development considerations to reduce coastal risk for Low-Risk Urban areas**

<b>LOW RISK URBAN COASTAL AREAS</b>		
<b>AREA</b>	<b>INTENTION</b>	
<b>Low Risk</b>	<ul style="list-style-type: none"> <li>• Reduce public liability</li> <li>• Avoid reasonable risk to human life</li> <li>• Prevent intensification of development in low-risk area but allow exercising of existing rights.</li> </ul>	
<b>Primary Use</b>	<b>With special consent</b>	<b>Not Recommended</b>
<b>As per base land use controls</b>	<ul style="list-style-type: none"> <li>• Where buildings lie partly in two coastal risk areas, the higher risk area will apply</li> <li>• Infill subdivisions</li> <li>• Public resorts</li> </ul>	WWTW
<b>Additional Considerations</b>		
<ul style="list-style-type: none"> <li>• Structures must preferably be elevated on pilings, posts, piers-and-joists, column or similar foundations – with the lowest floor of the structure to be above a pre-determined risk level.</li> <li>• Lower floors of structures/buildings must be permeable – i.e., have openings to allow for the entry and exist of flood waters – to allow effective interior and exterior hydrostatic pressure equalisation during and post inundation.</li> <li>• Consideration during conceptual building design must be given to issues of privacy, overshadowing and visual impact and the apportionment and positioning of higher risk site areas for parking, open space and recreational areas.</li> <li>• Building design must demonstrate reasonable risk reduction measures and should include innovative solutions (adaptable buildings, re-locatable buildings, flood-proofed buildings, flood resistant and resilient construction etc.) without increasing and transferring risks to adjacent properties.</li> <li>• Key mechanical and electrical services/structures (e.g., sewer (and water) infrastructure like pump stations, substations, transformers, generators, geysers and distribution boards) must be located above a pre-determined risk level.</li> <li>• After construction, any exposed ground area must be stabilised by the use of ground covering plants or mulches to minimise the risk of erosion.</li> <li>• On request from the municipality, a storm water management plan might be required to be submitted along with building plans.</li> </ul>		

- Hardened surfaces to be minimised and suitable permeable alternative utilised to maximise natural infiltration and reduce overland flow and associated velocities with concomitant risk of erosion and damage.
- Only fully enclosed / self-contained effluent storage and treatment systems will be permitted if links to sewer mains are not possible. These must be located either on the landward side of structures or either side of structures and recommended by a Registered Engineer to ensure suitable sealing and safety. These areas must be monitored to ensure that planning and environmental authorisations are implemented in accordance with the conditions of authorisation.
- Municipal engineering infrastructure (e.g., WWTW, Substation, Pumps and Reservoirs) to be located outside the risk area, unless related to public amenity (e.g., playground).

**Table 4: Suggested development management parameters for General Risk (Rural) areas**

GENERAL RISK COASTAL AREAS (RURAL AREAS)		
AREA	INTENTION	
<b>General Risk (rural areas)</b>	<ul style="list-style-type: none"> <li>• Maintain coastal quality</li> <li>• Prevent development, but allow exercising of existing rights in respect to single residential dwelling on agricultural land</li> </ul>	
<b>Primary Use</b>	<b>With special consent</b>	<b>Not Recommended</b>
<b>As per base land use controls.</b>	<ul style="list-style-type: none"> <li>• Intensification of development within development islands</li> <li>• Agricultural support functions</li> <li>• Public resorts</li> </ul>	General residential ( <i>urbanisation</i> ) ( <i>density to be defined</i> ), Commercial, Industry, school
Additional Considerations		
<ul style="list-style-type: none"> <li>• Structures must preferably be elevated on pilings, posts, piers-and-joists, column or similar foundations – with the lowest floor of the structure to be above a pre-determined risk level.</li> <li>• Lower floors of structures/buildings must be permeable – i.e., have openings to allow for the entry and exist of flood waters – to allow effective interior and exterior hydrostatic pressure equalisation during and post inundation.</li> <li>• Building design must demonstrate reasonable risk reduction measures and should include innovative solutions (adaptable buildings, re-locatable buildings, flood-proofed buildings, flood resistant and resilient construction etc.) without increasing and transferring risks to adjacent properties.</li> <li>• Key mechanical and electrical services/structures (e.g., sewer (and water) infrastructure like pump stations, substations, transformers, generators, geysers and distribution boards) must be located above a pre-determined risk level.</li> <li>• After construction, any exposed ground area must be stabilised by the use of ground covering plants or mulches to minimise the risk of erosion.</li> <li>• On request from the municipality, a storm water management plan might be required to be submitted along with building plans.</li> <li>• Hardened surfaces to be minimised and suitable permeable alternative utilised to maximise natural infiltration and reduce overland flow and associated velocities with concomitant risk of erosion and damage.</li> <li>• Only fully enclosed / self-contained effluent storage and treatment systems will be permitted if links to sewer mains are not possible. These must be located either on the landward side of structures or either side of structures and recommended by a Registered Engineer to ensure suitable sealing and safety. These areas must be monitored to ensure that planning and environmental authorisations are implemented in accordance with the conditions of authorisation.</li> <li>• Development should be sited to minimise the removal of trees and endemic vegetation.</li> <li>• Existing coastal processes, including dune migration and littoral drift should not be impeded and indigenous vegetation must be maintained.</li> <li>• Exotic species of vegetation should be limited to feature trees or shrubs within an indigenous setting.</li> <li>• Fencing or other barriers must be permeable to accommodate storm events and limit structural damage and associated negative impacts on the environment.</li> <li>• Consolidated access points / paths to the beach preferably on raised wooden / recyclable plastic boardwalks to reduce negative impact on dunes and associated vegetation.</li> <li>• Limit and preferably avoid expansion of existing footpaths and volumes of existing structures and buildings within the risk area.</li> </ul>		

**Table 5: Suggested development considerations to reduce coastal risk for General Risk (Estuarine) areas**

GENERAL RISK ESTUARINE AREAS		
AREAS	INTENTION	
<b>General Estuarine Risk</b>	<ul style="list-style-type: none"> <li>• Maintain coastal quality</li> <li>• Reduce public liability</li> <li>• Reduce risk to human life</li> <li>• Prevent intensification of development in general risk area, but allow exercising of existing rights</li> <li>• Prevent encroachment that will impact on the integrity of the shoreline ecology</li> <li>• Enable safe evacuation in an emergency</li> </ul>	
<b>Primary Use</b>	With special consent	Not Recommended
<b>As per base land use controls.</b>	<ul style="list-style-type: none"> <li>• In-fill sub-divisions</li> </ul>	Industry, school, WWTW, discharge of effluent from land-based sources into estuaries
<b>Additional Controls</b>		
<ul style="list-style-type: none"> <li>• All structures on properties larger than 400m<sup>2</sup> in the general estuarine risk area require approval from a professionally registered engineer. Structures on smaller properties may obtain similar design approval based on predetermined standard conditions.</li> <li>• Structures must preferably be elevated on pilings, posts, piers-and-joists, column or similar foundations in a manner that does not impede the lateral flow of water and that does not increase the opportunity for the accumulation of flood related debris – with the lowest floor of the structure to be above a pre-determined risk level.</li> <li>• Lower floors of structures/buildings must be permeable – i.e., have openings to allow for the entry and exist of flood waters – to allow effective interior and exterior hydrostatic pressure equalisation during and post inundation.</li> <li>• Building design must demonstrate reasonable risk reduction measures and should include innovative solutions (adaptable buildings, re-locatable buildings, flood-proofed buildings, flood resistant and resilient construction etc.) without increasing and transferring risks to adjacent properties.</li> <li>• Any new development must be designed and positioned within reason to limit potential flood damage and risk to human life, including but not limited to positioning buildings in suitably acceptable elevated portions of properties.</li> <li>• Any new development must be set as far back from the estuarine functional zone as possible. Either rear space or building line, which ever furthest away from the estuary, will be relaxed (up to the maximum allowed in the applicable scheme).</li> <li>• Key mechanical and electrical services/structures (e.g., sewer (and water) infrastructure like pump stations, substations, transformers, generators, geysers and DB boards) must be located above a pre-determined risk level.</li> <li>• After construction, any exposed ground area must be stabilised by the use of ground covering plants or mulches to minimise the risk of erosion.</li> <li>• On request from the municipality, a storm water management plan might be required to be submitted along with building plans.</li> <li>• Hardened surfaces to be minimised and suitable permeable alternative utilised to maximise natural infiltration and reduce overland flow and associated velocities with concomitant risk of erosion and damage.</li> <li>• Only fully enclosed / self-contained effluent storage and treatment systems will be permitted if links to sewer mains are not possible. These must be located either on the landward side of structures or either side of structures and recommended by a Registered Engineer to ensure suitable sealing and safety. These areas must be monitored to ensure that planning and environmental authorisations are implemented in accordance with the conditions of authorisation.</li> <li>• Development should be sited to minimise the removal of trees and endemic vegetation.</li> <li>• Exotic species of vegetation should be limited to feature trees or shrubs within an indigenous setting.</li> <li>• Fencing or other barriers must be permeable to accommodate storm events and limit structural damage and associated negative impacts on the environment.</li> </ul>		

- Existing coastal processes and indigenous vegetation within the estuarine functional zone must be maintained.
- Consolidated access points / paths to the beach preferably on raised wooden / recyclable plastic boardwalks to reduce negative impact on dunes and associated vegetation.
- Limit and preferably avoid expansion of existing footpaths and volumes of existing structures and buildings within the risk area.
- Municipal engineering infrastructure (e.g., WWTW, Substation, Pumps and Reservoirs) to be located outside the risk area, unless related to public amenity (e.g., playground).
- Collective/integrated response by adjacent properties or developments to optimise resources and prevent spill over effect.