

Table of Changes

Section	Category	Recommended Change	Reason
Throughout	Editorial	Highlight all terms in the DCP Dictionary green and terms in LEP Dictionary blue .	The highlighting will indicate the location of the definition and enhance readability.
		Update spelling, formatting, acronyms and numbering throughout.	To correct errors, enhance readability and reflect changes proposed as part of this amendment.
		Replace phrases 'coastal instability', 'erosion and shoreline recession' and 'beach erosion and/or coastal instability' with 'coastal hazard risk' throughout.	The term 'coastal hazard risk' is more inclusive of the 4 risk types.
		Ensure consistent reference to new mapping as "Shoalhaven Coastal Hazard Interactive Mapping", including replacement of reference to SMEC 2009 Coastal Hazard Maps in Section 5.1.1.	For consistency. Note, effective version will include hyperlink.
		Update the title of Chapter G4, from "Removal and Amenity of Trees" to "Tree and Vegetation Management".	To reflect the effective name of the chapter.
		Update all existing figures and captioning.	To reflect proposed changes to the Chapter and efforts to standardise the DCP image.
		Rephrase performance criteria to specify how a development should perform so that the desired objectives can be achieved, rather than being phrased as acceptable solutions.	To ensure uniformity across the DCP which enhances readability.
		Replace references to 2025 with 2030 throughout in relation to zone of reduced foundation capacity.	To resolve inconsistencies between the Chapter and Council's adopted sea level rise projections and Shoalhaven Coastal Hazard Review Report.
1	Deletion, Addition	Remove note regarding the adopted sea level rise benchmarks and incorporation into coastal hazard/flood mapping.	The Shoalhaven Coastal Hazard Interactive Mapping will include the relevant sea level rise benchmarks.
		Include reference to Shoalhaven Coastal Hazard Interactive Mapping in the existing note.	To enhance usability of the Chapter.

Draft Chapter G6: Coastal Management Areas

Section	Category	Recommended Change	Reason
3	Addition	Include additional commentary relating to Shoalhaven's coast and adaptive management approach.	To provide additional context as background to the Chapter in line with the Shoalhaven Coastal Zone Management Plan 2018.
4	Addition	Include the following objective: Preserve the appearance and amenity of the foreshore through consideration of the siting and design of development.	Amenity is addressed throughout the Chapter but not considered in the broader Chapter objectives.
5.1	Amendment	Amend objective iv to include reference to wave runup.	To include reference to the fourth type of risk relevant to the Chapter.
	Addition	In the dot points below the Section 5.1 heading, insert the word 'known' in front of 'areas' in relation to beach erosion and/or oceanic inundation and cliff/slope instability.	To clarify that these are the known areas of risk, not all of them.
		Include Bendalong Boat Harbour Beach in list of known areas of beach erosion and/or oceanic inundation.	To update known areas based on Council's ongoing work in this area.
		Include reference to Narrawallee Beach as a known area of cliff/slope instability	
		In the dot points below the Section 5.1 heading, expand references to other areas of coastal hazard risk to mean those not previously identified as high risk in previous coastal hazard studies.	To clarify Council's intent in this regard.
	Amendment	Replace reference to SMEC 2009 Coastal Hazard Maps in relation to other areas of potential coastal hazard risk, with the 2016 Advisian hazard mapping	The Advisian maps are up to date and most relevant.
	Amendment	In the specific objectives, change the word 'Maintain' existing coastal processes, to 'Accommodate'.	The current wording is confusing as it infers that we have control over coastal process.
5.1.1	Amendment	Amend title of precinct 3 from no restriction, to limited restriction.	To acknowledge possible risk in this location.
	New	Acknowledge there are four different levels of risk and include new precinct 4 to reflect wave runup risk.	To acknowledge wave runup is an area of coastal hazard risk.
	Amendment	Clarify that in relation to A1.2, a suitably qualified person could include a coastal engineer.	To ensure that engineering reports are prepared by suitably qualified

Draft Chapter G6: Coastal Management Areas

Section	Category	Recommended Change	Reason
			and experienced coastal engineers.
	New	Add new provision in Precinct 1 relating to wave runup and requirement for an inundation management plan.	To ensure wave runup is appropriately addressed at the development application stage.
		Add new provision in Precinct 2 requiring all new development to have a floor level above wave runup level and no obstructions to wave runup.	
	Addition	Insert reference to wave runup in relation to the Precinct 3 provision.	
	New	Add provisions relating to public infrastructure on public land in relation to Precinct 1 and 2.	To include provisions relating to public infrastructure as outlined in the former draft DCP 118. There is a gap in policy in this regard.
5.1.2 and 5.1.3	New and addition	Include a new provision relating to interallotment drainage and discharge.	To clarify drainage arrangements.
	New	Include note box that refers to Council's Generic Community Lands Plan of Management – Natural Areas and Foreshore Reserves Policy, and also conditions of consent relating to storm water arrangements.	To provide additional advisory information to assist the applicant.
5.1.3	Addition	Insert note box to clarify other areas of potential instability.	To clarify where these provisions apply.
		Insert the following at new iv) in A2.1: <i>Royal Haskoning DHV Report – Shoalhaven Coastal Cliffs and Slopes Risk Management Program – 2018</i>	To ensure the newly adopted study relating to coastal cliffs and slopes is considered when preparing a geotechnical report.
5.2	Amendment	Amend Section 5.2, as relevant, to remove specific reference to residential development.	To expand the application of the section to all development, not just residential development, to acknowledge that non-residential development may occur in coastal areas.
		Amend objective i) to include consideration of solar access, siting and scale.	To address gaps in policy.
	New	Add new figure to outline the general application of the section.	To enhance readability.

Section		Category	Recommended Change	Reason
5.2.2		Amendment	Note 2 in note box should read 'For site slopes greater than 10%...', not up to.	It is the intent of the note to require plans and verification by a registered surveyor when the slope is greater than 10%, not less. Relatively flat sites are not a concern.
		New	Include new acceptable solution relating to building height relative to mature tree cover.	To include remaining content from POL12/217 Coastal Areas – Planning and Development in relation to height, amenity and overshadowing of beaches or adjacent waterfront reserves.
		Amendment	Expand P5.1 to expand on the themes of bulk and low profile.	
		New	Include new performance criteria to ensure beaches and adjacent waterfront reserves are not overshadowed.	
		Relocation	Move relevant content of A5.3 to an advisory note.	The content is more appropriate as an advisory note than acceptable solution which is consistent with the recent approach of the DCP in this regard.
5.2.3		Amendment	Clarification of application of the subsection, both text and in the associated figure.	To clarify that this subsection applies to lots landward side of an unformed road.
		Relocation	Move A6.2 to an advisory note.	Content more appropriate as advisory note than acceptable solution.
5.2.4		New	Include new provisions relating to materials and colours being appropriate to the local landscape.	To include remaining content from POL12/217 Coastal Areas – Planning and Development in relation to sympathetic colours and materials.
5.2.5		Relocation	Move P8.2 to an advisory note.	Content more appropriate as advisory note than performance criteria.
		Deletion	Delete note box below A8.1.	Already addressed in the note box below the section heading.
5.2.5 P8.3	5.2.5 P8.2	Deletion	Delete reference to 'plastic type' fencing.	Other types of fencing may be suitable. The deletion of 'plastic type' adds flexibility in this regard.
5.2.5 P8.4	5.2.5 P8.3	Amendment	Amend provision to relate to all marine vegetation, not just specific types.	All estuarine/marine vegetation should be protected in its natural state. The <i>NSW Fisheries Management Act 1994</i> has clear laws in relation to the damage of this type of vegetation.
5.2.6		Relocation	Move P9.2 above existing A9.2 and note requirement for inclusion in a concept landscape plan.	Provision more appropriate as an acceptable solution, rather than performance criteria.

Draft Chapter G6: Coastal Management Areas

Section	Category	Recommended Change	Reason
	Addition	Add hyperlink to the Shoalhaven Plant Species List in the note box below A9.1.	To assist with the usability of the Chapter.
5.3.1	Addition	Add reference to the NSW Coastal Dune Management Manual in the note box below A11.1.	A11.1 refers to the recommended species list for planting bare dunes, and the manual provides additional information in relation to the correct techniques for revegetation and stabilisation of dunes.
		In the note box below A11.4, add reference to the fact that reshaping dunes can lead to an increased risk of coastal inundation from wave runup.	This highlights the risk and supports inclusion of wave runup in the chapter.
5.3.2	Deletion, Addition	Delete existing list of species recommended for planting on dunes and replace with industry best practice species.	To ensure species planted on sand dune are appropriate and meet industry best practice.
6.1	Addition	Require plans to identify the position and configuration of the proposed development in relation to coastal risks, including wave runup.	To ensure wave runup is appropriately addressed at the DA stage and documented appropriately.
6.2	Addition	<p>Insert the following as legislation, policies and studies that may need to be considered:</p> <ul style="list-style-type: none"> • Royal Haskoning DHV Report – Shoalhaven Coastal Cliffs and Slopes Risk Management Program – 2018 • Council's Generic Community Lands Plan of Management – Natural Areas and Foreshore Reserves Policy. • Fisheries Management Act 1994. • Shoalhaven Plant Species List. • NSW Coastal Dune Management Manual. • Shoalhaven Coastal Zone Management Plan 2018 	To ensure Section 6.2 'Other legislation or policies you may need to check' is comprehensive.

Draft Chapter G6: Coastal Management Areas

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Amendment history

Version Number	Date Adopted by Council	Commencement Date	Amendment Type
1	14 October 2014	22 October 2014	New
2	23 June 2015	1 July 2015	Amendment
3	7 November 2016	30 November 2016	Amendment
4			Draft

1 Purpose

The purpose of this Chapter is to provide guidelines for areas of coastal management throughout Shoalhaven. This Chapter specifically addresses:

- **Development** in areas of coastal management;
- **Development** in foreshore areas; and
- **Building** on sand dunes.

Advisory note:

In addition to the provisions outlined in this chapter, you must refer to the:

- Supporting documentation on [Council's website](#); and
- Shoalhaven Coastal Hazard Interactive Mapping.

2 Application

This Chapter applies to areas of Shoalhaven coastline as defined in different Sections of this Chapter.

3 Context

Shoalhaven's **coastal zone** extends 165 km along the NSW south coast, from Shoalhaven Heads to North Durras. It includes 109 beaches, bays and **headlands**, the Shoalhaven River **estuary**, 15 **coastal lakes**, and numerous small coastal creeks.

Shoalhaven coastal towns are situated to capture coastal **views** and access to the coast, being located at the mouths of **coastal lakes**, on coastal dunes, and adjacent **headlands**. This pattern of settlement means that there are a number of public and private properties and assets at **risk** from **coastal hazards** such as beach erosion, shoreline recession, coastal entrance instability, sand drift, coastal inundation, storm water erosion, and slope instability; all of which may be exacerbated by climate change.

The Shoalhaven coastline has evolved over the past 120,000 years with beaches and lakes formed by landward sand movement (marine transgression) driven by sea level rise. Coastal dynamics are complicated and unpredictable and will include periods of accretion where dunes grow and where beaches widen then periods of catastrophic storm erosion leading to the whole beach receding landward.

Sand dune systems are nature's buffer strip between the sea and land and they are vital as a defence mechanism against the erosional actions of the sea and the inland drifting of sand caused by wind erosion. Wind can blow away sand from de-vegetated beach-dune systems, cause recession of the shoreline and deplete sand reserves. This and the **removal** of **vegetation** may lead to undermining of **buildings** during extreme storm events.

Human interference with sand dunes by the **removal** of **vegetation** and the construction of **roads** and houses can have a substantial effect on dunal stability. The **removal** of **vegetation** coupled with exposure to the wind can lead to the erosion of the sand dune and can undermine the foundations under **buildings**. Once this action commences, immediate

engineering works are required to stabilise the situation to prevent possible collapse of a [building](#). [Vegetation](#) plays a vital role in keeping sand dunes stable by holding the sand together and shielding it from the wind.

Enabling a balance between the use and protection of foreshore areas, both for the present day and future generations, is important to enabling a sustainable future for Shoalhaven's coastline.

The Shoalhaven Coastal Zone Management Plan 2018 outlines an adaptive management framework that seeks to:

- Manage uncertainty, incomplete data and changing coastal systems.
- Improve and refine management responses over time.
- Reduce known coastal risk.

Council will continue to monitor the condition of the coast and shoreline responses to major storm or extreme water level events. This will ensure that Council and local communities have the best available knowledge to evaluate, review and adapt management actions.

4 Key objectives

The [objectives](#) are to:

- i. Ensure that future [development](#) in areas of coastal management considers the [risks](#) associated with coastal processes and is sympathetic to the physical constraints.
- ii. Consider local physical coastal processes and [hazards](#) to avoid significant adverse impacts from these processes.
- iii. Consider ecological processes and avoid significant adverse effects on the environment.
- iv. Ensure that future [development](#) in the [coastal zone](#) considers the [risks](#) associated with local [coastal hazards](#) such as coastal erosion, shoreline recession, coastal inundation, coastal entrance migration, slope instability and stormwater erosion and their potential increase with projected Sea Level Rise.
- v. Provide correct management techniques for coastal management.
- vi. Preserve the appearance and amenity of the foreshore through consideration of the siting and design of [development](#).

5 Controls

5.1 Areas of coastal hazard risk

Note: This section is supplementary to Clause 7.4 Coastal Risk Planning in Shoalhaven Local Environmental Plan (LEP) 2014.

This section applies to land affected by [coastal hazard risk](#). The main areas of [risk](#) are identified in [coastal hazard](#) studies and are shown on the Shoalhaven Coastal Hazard Interactive Mapping.

- Known areas of beach erosion and/or oceanic inundation include:
 - Collers Beach
 - Shoalhaven Heads
 - Culburra Beach
 - Warrain Beach
 - Currarong Beach
 - Callala Beach
 - Collingwood Beach
 - Bendalong Boat Harbour Beach
 - Narrawallee Beach
 - Mollymook Beach
- Known areas of cliff/slope instability include:
 - Penguin Head
 - Plantation Point
 - Hyams Beach
 - Berrara Bluff
 - Inyadda Point
 - Narrawallee
 - Bannisters Point
 - Collers Beach Headland
 - Rennies Beach
 - Racecourse Beach
- Other areas of potential coastal hazard risk include:
 - Properties identified but studies not yet undertaken (e.g. 2016 Advisian hazard mapping at Appendix 1 of the Shoalhaven Coastal Zone Management Plan); and
 - Other areas subjected to coastal hazard risk not previously identified as high risk in previous coastal hazard studies.

Note: If individual site investigations reveal that subsurface conditions are other than sand, the hazard lines can be reviewed with geotechnical and coastal engineering advice.

The specific objectives are to:

- i. Accommodate existing coastal processes and to avoid significant adverse impacts from those coastal processes.
- ii. Enable safe evacuation of coastal risk areas in an emergency.
- iii. Avoid significant adverse effects on the environment.

- iv. Ensure that future **development** in the **coastal zone** considers the **risks** associated with coastal processes such as coastal inundation, slope instability, coastal erosion and wave runup and that the resilience to such events is maximised.
- v. Guide foreshore **development** in areas of **risk** from **coastal hazards** identified in this Chapter.
- vi. Ensure minimal **risk** to **buildings**, private property, other public assets and existing natural features arising from coastal **risks** identified in this Chapter.
- vii. Ensure that the predicted impacts of climate change are recognised, reasonable **risk** management is observed and measures put in place in order to protect lives and assets.

5.1.1 Areas of beach erosion and/or oceanic inundation

The areas identified as being affected by beach erosion and/or oceanic inundation can be broken into four different levels of **risk**:

- Precinct 1 High **Risk** - Foreshore **building** exclusion areas (seaward of the 2030 zone of reduced foundation capacity (ZRFC)), where no new **development** within that part of an **allotment** of land is permitted, except for minor alterations to existing **buildings** or **structures**.
- Precinct 2 Moderate **Risk** – Restricted **development** area (landward of Precinct 1 between the 2030 and the 2100 ZRFC), where prescribed alterations to existing **buildings**, demolition and erection of new replacement **buildings** (where existing **buildings** are **lawful**) and **outbuildings**, located wholly or in part within Precinct 2, may be considered.
- Precinct 3 Low **Risk** – Sites landward of Precinct 2 (landward of 2100 ZRFC), limited restrictions.
- Precinct 4 – Sites outside of Precinct 1-3 at **risk** of oceanic inundation, below wave runup levels.

These precincts are shown by the mapped **hazard** lines on the Shoalhaven Coastal Hazard Interactive Mapping.

Where **buildings** lie partly in both high **risk** and moderate **risk** areas, the controls that relate to that particular **risk** area will apply to that part of the **building** within that area. A summary of the controls for various **risk** areas is shown in **Figure 1**.

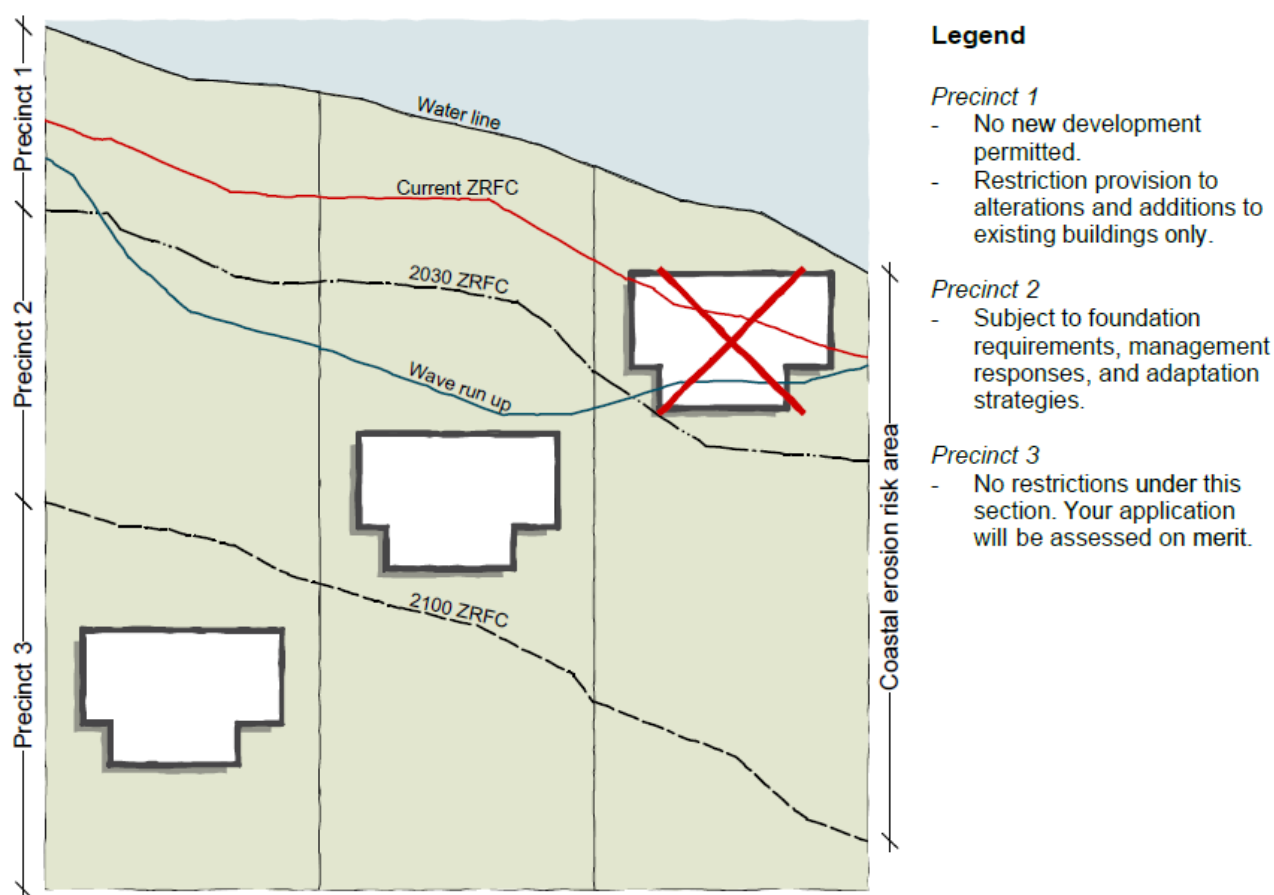


Figure 1: Summary of acceptable solutions for beach erosion and/or oceanic inundation areas

Performance Criteria	Acceptable Solutions
P1.1 Development avoids or minimises exposure to immediate coastal risks within the immediate hazard area.	<i>Precinct 1 High Risk – Seaward of the 2030 ZRFC</i>
P1.2 Development provides for the safety of residents, workers or other occupants on-site from risks associated with coastal processes.	A1.1 No new development is permitted.
P1.3 Development does not increase coastal risks to properties adjoining or within the locality of the site.	A1.2 Development that includes internal fit outs; and/or minor alterations; and/or additions or extensions to existing buildings or structures that are landward of the seaward alignment of existing buildings or structures (refer to Figure 2) must:
P1.4 Infrastructure, services and utilities on-site maintain their function and achieve their intended design performance.	<ul style="list-style-type: none"> • Demonstrate how the proposal meets performance criteria P1.1-P1.7. • Include a coastal engineering report that has been prepared by a suitably qualified person (e.g. coastal engineer). The report is to also address the development application information requirements outlined in Section 6.1 of this Chapter.
P1.5 Development accommodates natural coastal processes including those associated with projected sea level rise.	
P1.6 Coastal ecosystems are protected from development impacts.	

Performance Criteria	Acceptable Solutions
P1.7 Existing public beach, foreshore or waterfront access and amenity is maintained.	<ul style="list-style-type: none"> Not include a net increase in floor area for that part of the building in the high-risk area of greater than 10% (refer to Figure 3) with no increase in floor area seaward of current ZRFC. <p>Note: In some circumstances it may not be possible to increase the floor area due to the specific site risks.</p>
	<p>A1.3 A management response and adaption strategy relevant to the proposal is to be submitted with the development application that addresses this Chapter's objectives and the <i>NSW Coastal Planning Guideline: Adapting to Sea Level Rise August 2010</i> (eg. planned retreat, relocatable structures, lightweight materials/construction etc.).</p> <p>A1.4 A current condition report is to be submitted for the existing building prepared by a suitably qualified person that addresses:</p> <ul style="list-style-type: none"> The general condition of the building. The presence of any building defects associated with or due to deterioration of building members or materials or pests such as subterranean termites. Any non-compliances with current Building Code of Australia requirements, including footings, slabs, termite barriers, subfloor, walls and roof framework, structural steel, and any other structural elements such as posts or columns. <p>Note: The current condition report is to specifically address those parts of the existing building that are proposed to be retained.</p>
	<p>A1.5 Where the development is below the level of wave runup as shown on the Shoalhaven Coastal Hazard Interactive Mapping, an inundation management plan shall be provided that includes:</p> <ul style="list-style-type: none"> No new habitable floor areas below the level of wave runup.

Performance Criteria	Acceptable Solutions
	<ul style="list-style-type: none"> No increase in the obstruction to wave runup. Wave runup hazard mitigation measures for any existing habitable floor area below wave runup level.
A1.6	<p>A development application for the purpose of public infrastructure on public land, including community facilities (e.g. surf clubs), shall:</p> <ul style="list-style-type: none"> Specify any coastal hazard protection works required. Specify the community benefit of maintaining and redeveloping the infrastructure. Include an economic assessment of the proposal in relation to the initial capital costs and the likely long-term costs of maintaining and protecting the infrastructure, considering the particular coastal hazard risks at the location.
<i>Precinct 2 Moderate Risk – Land between the 2030 and 2100 ZRFC</i>	
A1.7	<p>Foundations for new development are to be designed by a professional structural engineer to carry all foundation loads into the 2100 Safe Foundation Zone (SFZ) except where inappropriate due to management responses and adaption strategies incorporated into the design.</p>
A1.8	<p>All new development must be designed with a floor level above wave runup level and no obstructions to wave runup.</p>
A1.9	<p>A management response and adaption strategy relevant to the proposal is to be submitted with the development application that addresses this Chapter's objectives and the <i>NSW Coastal Planning Guideline: Adapting to Sea Level Rise August 2010</i> (e.g. planned retreat, relocatable structures, lightweight materials/construction etc.).</p>
A1.10	<p>Development applications will be assessed on their merits against the performance criteria P1.1-P1.7 for</p>

Performance Criteria	Acceptable Solutions
	<p>internal fit outs, minor alterations, additions or extensions to existing buildings or structures.</p> <p>Note: Additional coastal engineering studies are unlikely to be required for development landward of 2050 ZRFC. This will be at the discretion of Council.</p>
A1.11	<p>A development application for the purpose of public infrastructure on public land, including community facilities (e.g. surf clubs), shall:</p> <ul style="list-style-type: none">• Specify any coastal hazard protection works required when the proposed infrastructure is partially or fully seaward of the 2050 ZRFC.• Specify the community benefit of maintaining and redeveloping the infrastructure.• Include an economic assessment of the proposal in relation to the initial capital costs and the likely long-term costs of maintaining and protecting the infrastructure, considering the particular coastal hazard risks at the location.
	<p><i>Precinct 3 Low Risk – Land beyond the 2100 ZRFC</i></p>
A1.12	<p>All development is to be designed to have all floor levels above wave runup levels and not to deflect or displace wave runup. A development application will be assessed on merit.</p>

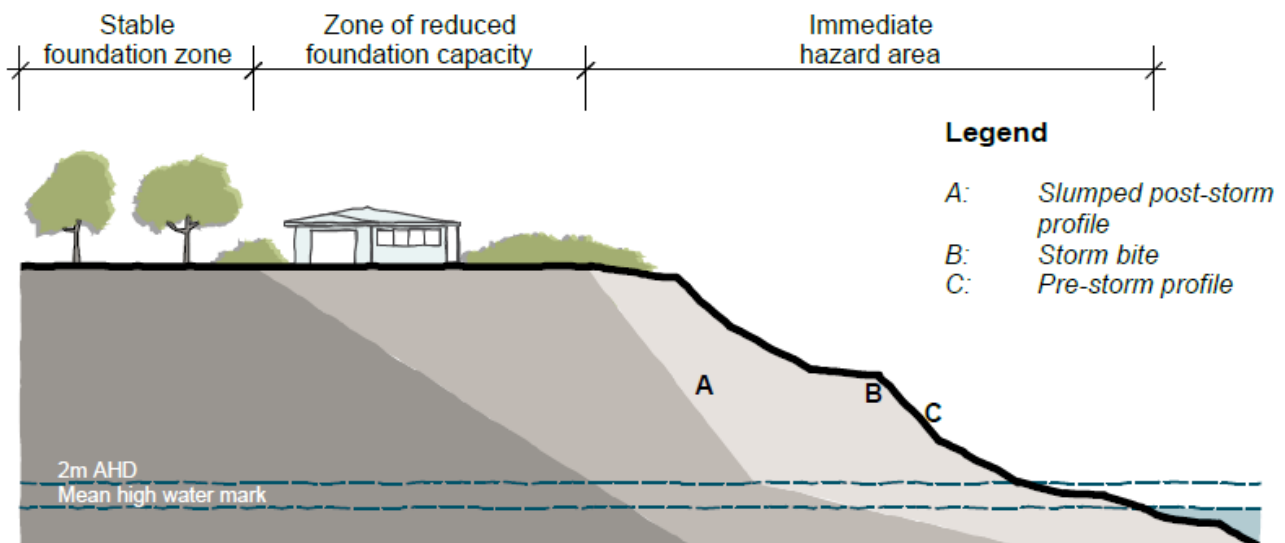


Figure 2: A typical cross-section of a sand dune

(Based on the Coastal Risk Management Guide, Department of Environment, Climate Change and Water NSW 2010)

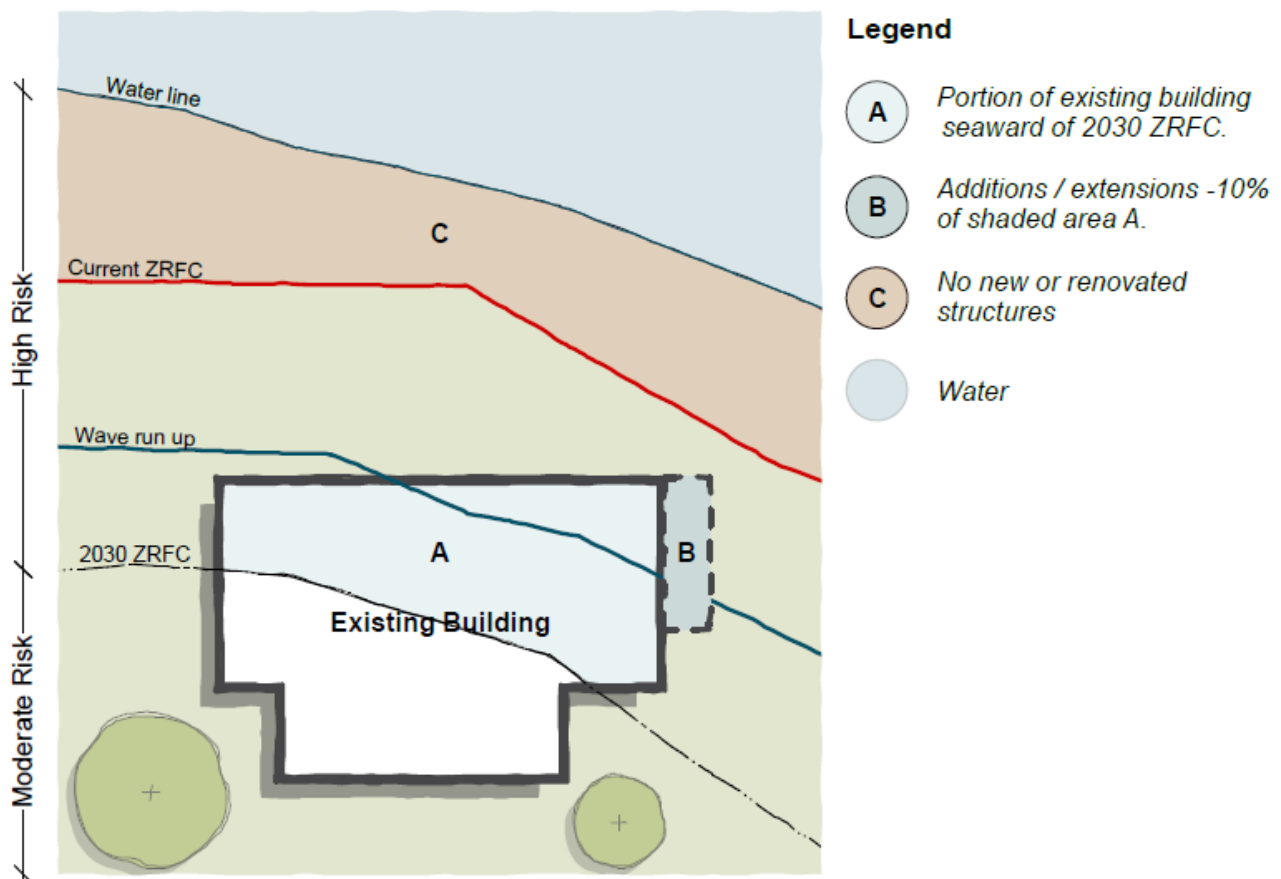


Figure 3: Plan indicating acceptable solutions area of building in high risk area

5.1.2 Areas of cliff/slope instability

The areas identified as being affected by cliff/slope instability are identified on the Shoalhaven Coastal Hazard Interactive Mapping.

Performance Criteria	Acceptable Solutions
P2.1 Development avoids or minimises exposure to immediate coastal risks within the immediate hazard area or floodway.	A2.1 A geotechnical report prepared by a professional geotechnical engineer is to be submitted with the development application. The report is to:
P2.2 Development provides for the safety of residents, workers or other occupants on-site from risks associated with coastal processes.	a. Analyse the existing site stability and the suitability of the proposed development and its likely impact on that site stability. The report is to make reference to:
P2.3 Development does not increase coastal risks to properties adjoining or within the locality of the site.	i. Shoalhaven City Council Coastal Zone Management Study and Plan – Coastal Slope Instability Hazard Study Final Report (SMEC August 2008); and
P2.4 Infrastructure, services and utilities on-site maintain their function and achieve their intended design performance.	ii. Douglas Partners Report – Supplementary Geotechnical Observations Project 72051-1 July 2011; and
P2.5 Development accommodates natural coastal processes including those associated with projected sea level rise.	iii. Douglas Partners Report – Scoping Study and Stability Assessment Project 78319 – Dec 2011; and
P2.6 Coastal ecosystems are protected from development impacts.	iv. Royal Haskoning DHV Report – Shoalhaven Coastal Cliffs and Slopes Risk Management Program – 2018.
P2.7 Existing public beach, foreshore or waterfront access and amenity is maintained.	b. Provide recommendations for engineering design of the proposal. This is to include building foundation design and stormwater drainage design and be prepared in accordance with the Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning Accompanying Commentaries and Practice Note (Australian Geomechanics Society, 2007).
	A2.2 Stormwater from adjoining development shall be managed via interallotment drainage and discharged directly into a stormwater facility of Council (pit, drain, channel, pipe etc.).

Performance Criteria	Acceptable Solutions
	<p>A2.3 Piping of stormwater through/over Council foreshore land to a stable location on the top of the slope will be only be considered where:</p> <ul style="list-style-type: none"> • The proposed development will not result in an increase in geotechnical risk; and • Other options for stormwater disposal have been exhausted (e.g. charged system, use of stormwater pump); and • The applicant is able to demonstrate that the discharge of collected stormwater from their property through the community land will not compromise the core objectives of the plan of management applying to the land. <div style="background-color: #f0f0f0; padding: 10px; margin-top: 10px;"> <p>Note:</p> <ul style="list-style-type: none"> • For additional information, refer to Council's Generic Community Lands Plan of Management – Natural Areas and Foreshore Reserves Policy. • Council may require that stormwater arrangements be maintained as a condition of consent. </div>

5.1.3 Other areas of potential coastal hazard risk

Note: Other areas of potential coastal hazard risk are those areas which may be at [risk](#) of coastal hazards but are outside of those areas that have been studied and therefore included on the Shoalhaven Coastal Hazard Interactive Mapping. An example would be a [headland](#) in a non-urban zone.

If the site is located in an area of potential [coastal hazard risk](#), a site specific [coastal hazard](#) study and/ or [geotechnical report](#) must be carried out to identify the [coastal hazard risks](#) and to enable the relevant development standards of this Section to be applied.

Performance Criteria	Acceptable Solutions
P3.1 Development avoids or minimises exposure to immediate coastal risks within the immediate hazard area or floodway .	A3.1 A site specific coastal hazard study and/or geotechnical report is to be submitted with a development application that:
P3.2 Development provides for the safety of residents, workers or other occupants on-site from risks associated with coastal processes.	<ul style="list-style-type: none"> Identifies the coastal hazard risks. Addresses performance criteria P3.1-P3.7 for assessment based on merit.
P3.3 Development does not increase coastal risks to properties adjoining or within the locality of the site.	A3.2 Stormwater from adjoining development shall be managed via interallotment drainage and discharged directly into a stormwater facility of Council (pit, drain, channel, pipe etc.).
P3.4 Infrastructure, services and utilities on-site maintain their function and achieve their intended design performance.	A3.3 Piping of stormwater through/over Council foreshore land to a stable location on the top of the slope will only be considered where:
P3.5 Development accommodates natural coastal processes including those associated with projected sea level rise.	<ul style="list-style-type: none"> The proposed development will not result in an increase in geotechnical risk. Other options for stormwater disposal have been exhausted (e.g. charged system, use of stormwater pump). The applicant is able to demonstrate that the discharge of collected stormwater from their property through the community land will not compromise the core objectives of the plan of management applying to the land.
P3.6 Coastal ecosystems are protected from development impacts.	
P3.7 Existing public beach, foreshore or waterfront access and amenity is maintained.	
	<p>Note:</p> <ul style="list-style-type: none"> For additional information, refer to Council's Generic Community Lands Plan of Management – Natural Areas and Foreshore Reserves Policy. Council may require, as a condition of consent, that stormwater arrangements are to be maintained.

5.2 Development in Foreshore Areas

This section applies to all **development** located on land that is the first lot back from a **waterfront**, including lots landward side of an unformed road (**Figure 4**).

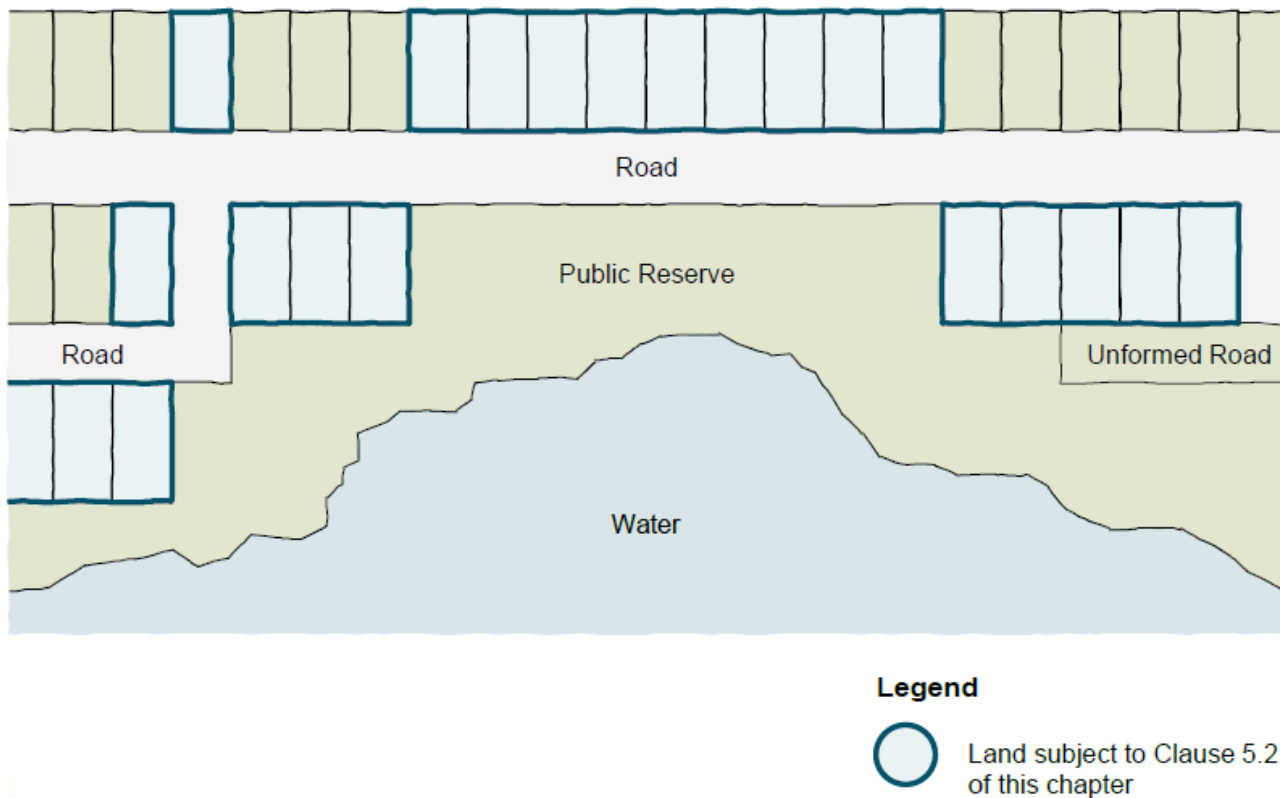


Figure 4: Example of land where Section 5.2 applies

The specific **objectives** are to:

- i. Preserve the appearance and amenity of the foreshore, including solar access, through the careful consideration of siting, height, bulk and **scale**.
- ii. Ensure that **development** is sympathetic to the physical constraints encountered along foreshore areas.
- iii. Encourage innovative design which reflects the need to preserve the amenity of foreshore areas, whilst having due regard to the physical constraints encountered in these areas.
- iv. Set appropriate environmental criteria for **development** in foreshore areas.
- v. Provide a comprehensive design-oriented approach to **development** in foreshore areas.
- vi. Achieve a site layout that provides a pleasant, attractive, manageable and resource efficient living environment.
- vii. Encourage **development** that considers the environmental attributes of a subject site.
- viii. Ensure that **development** integrates with the landscape.
- ix. Encourage the use of **building** materials and colours that complement the natural landscape and foreshore environment.

- x. Ensure that materials are suitable to withstand coastal weather conditions.
- xi. Preserve, where possible, **trees** and **vegetation** along foreshore areas.
- xii. Minimise excessive **clearing of vegetation** along foreshore areas.
- xiii. Provide essential stability and **groundcover** to highly erodible and unstable soils.
- xiv. Improve the appearance of **development** in foreshore areas through landscape works.

5.2.1 Site Planning and Layout

Performance Criteria	Acceptable Solutions
P4.1 The site layout integrates with the surrounding environment through buildings , streetscape and landscape design relating to topography and to the surrounding neighbourhood character.	A4.1 A detailed site plan should be prepared that addresses the issues outlined within this Chapter and reflects the site analysis plan.
P4.2 The site layout takes into account on-site features identified by the site analysis.	Note: Refer to Chapter G1: Site Analysis, Sustainable Design and Building Materials in Rural, Coastal and Environmental Areas for information on the preparation of a site analysis plan.
P4.3 Where proposed, dwelling s are sited and designed to maximise solar access to living areas .	

5.2.2 Building Envelope and Siting

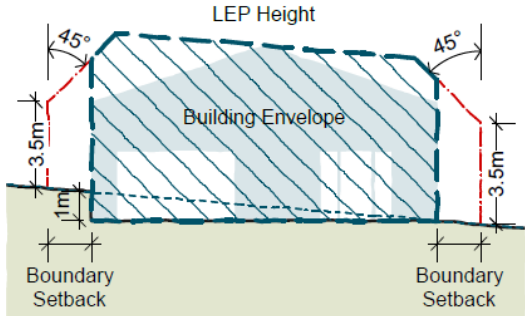
Performance Criteria	Acceptable Solutions
<p>P5.1 Buildings are located, and are of such length, bulk and height, that there is no significant loss of amenity to foreshore areas, and adjoining development. This can be achieved through:</p> <ul style="list-style-type: none"> • Building siting and height that are related to land form, with minimal cut and fill. • Building bulk that is low profile and generally distributed to reduce impact on foreshore areas, adjoining properties and the public road. 	<p>A5.1 Buildings are sited within a building envelope determined by the following method: planes are projected at 45 degrees from a height of 3.5m above ground level (existing) at the front, side and rear boundary. See Figure 5.</p> 

Figure 5: Building envelope

<ul style="list-style-type: none"> • Building heights similar to those in the public streetscape, with higher components of buildings setback, and out of direct view from the street and foreshore area. • Building forms that enable a sharing of views with neighbours. • Walls, limited in length and height, to minimise the impacts on foreshore areas, adjoining development and public road. 	<p>Note:</p> <ol style="list-style-type: none"> 1. Exemptions to building envelope encroachments include gutter, fascias, downpipes, eaves up to 0.6m, aerials and masonry chimneys. 2. For site slopes greater than 10%, or involving cut, fill or site excavations, the ground level (existing) and proposed building levels must be clearly identified on the plans and verified by a registered surveyor.
<p>P5.2 To make provision for innovative design, as well as giving consideration to difficulties that may arise in connection with steeply sloping properties, buildings only encroach outside of the general building envelope where it is demonstrated that the proposal will not adversely affect the visual amenity of the area in general.</p>	<p>A5.2 Where there is mature tree cover on or adjacent to the site, no structure shall be higher than the tree canopy.</p>
<p>P5.3 The proposed development does not adversely impact on adjoining development and has regard to privacy, overshadowing and/or solar access.</p>	<p>A5.3 Despite A5.1, variations will be considered where minimum floor levels are required in flood prone land. Where such levels may necessitate two storey construction or elevated construction, consideration will still be required to be given to issues of privacy, overshadowing, and visual impact.</p>
<p>P5.4 The development does not result in the overshadowing of beaches or adjacent waterfront reserves.</p>	<p>A5.4 Any proposed two storey building will require the following additional detail:</p> <ul style="list-style-type: none"> • A visual analysis, including a photographic assessment, that outlines how the proposal will not be visually prominent from the foreshore, or adversely affect the visual amenity of the locality. • Details outlining how the proposal will not adversely affect the privacy of adjoining development. • Details, including a shadow diagram, outlining that excessive overshadowing is not likely to occur as a result of the proposal. In this regard, it would be expected that living areas as well as useable open space areas of neighbouring dwellings receive at least 3 hours of direct sunlight between 9am and 3pm on June 21.
	<p>Note: Where a two storey building is proposed, it is recommended that preliminary consultation is undertaken with Council. Applicants are urged also to consult with adjoining land owners likely to be affected by their proposal prior to lodging a development application with Council. Such</p>

consultation will allow the concerns of affected parties to be taken into account during the design process and may thereby minimise the delays in the processing of the application.

5.2.3 Side Setbacks

The provisions in this subsection do not apply to foreshore blocks that are located on the landward side of a **road** that is opposite a **waterfront** reserve, as shown in **Figure 6**, the exception being lots landward side of an unformed road.

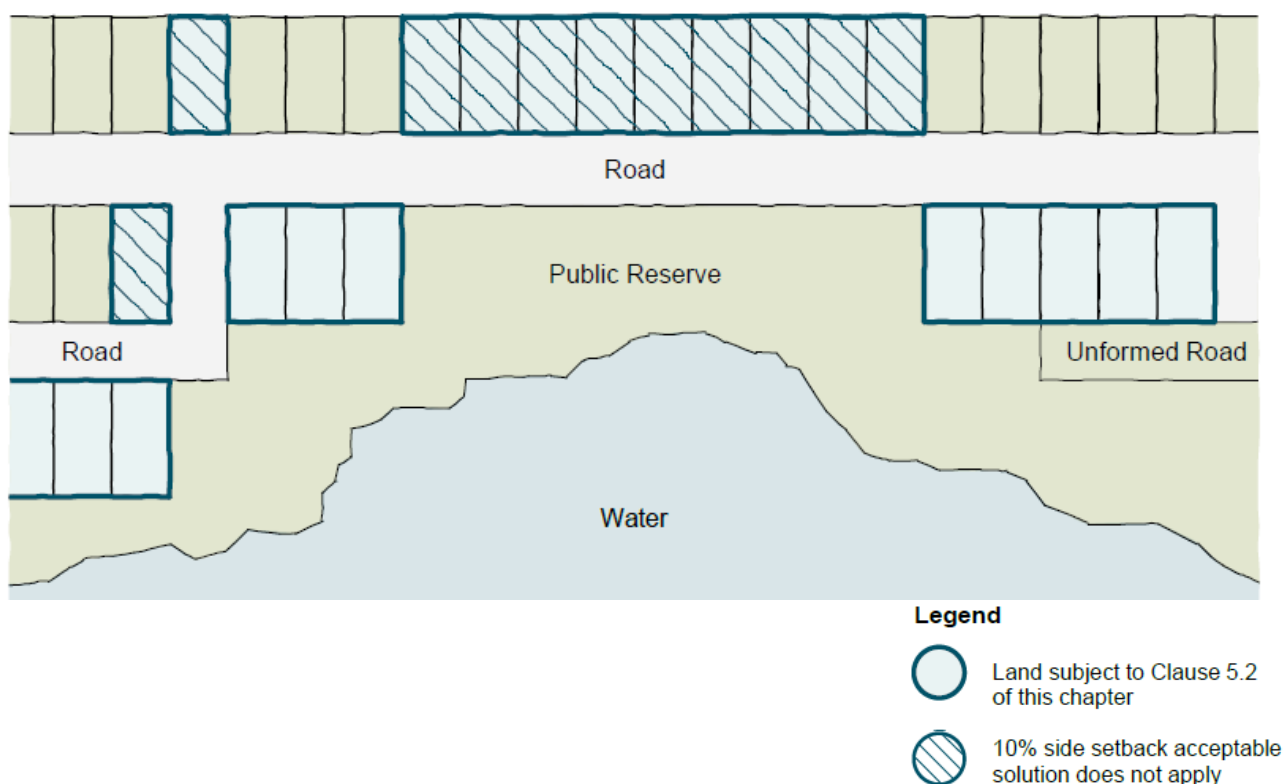


Figure 6: Example of land where side setback controls do not apply

Performance Criteria	Acceptable Solutions
P6.1 Buildings are located and are of a width that provides opportunities for intermittent views from the public road through to the water.	A6.1 The building is to be sited to provide one minimum side setback equivalent to 10% of the width of the allotment , and up to a maximum of 3.5m in any case (Refer to Figure 7).

Performance Criteria	Acceptable Solutions
	<p>Note: In cases where allotments are irregular in shape and the width varies, the width of the allotment for the purposes of calculating the side setback is the average width of the allotment over the length of the building.</p> <p>A6.2 Where possible, side setbacks should be provided along a side boundary with an adjoining building which has a similar corresponding side setback, so as to maximise the view corridor. This side setback is not to be built out with any structure.</p>

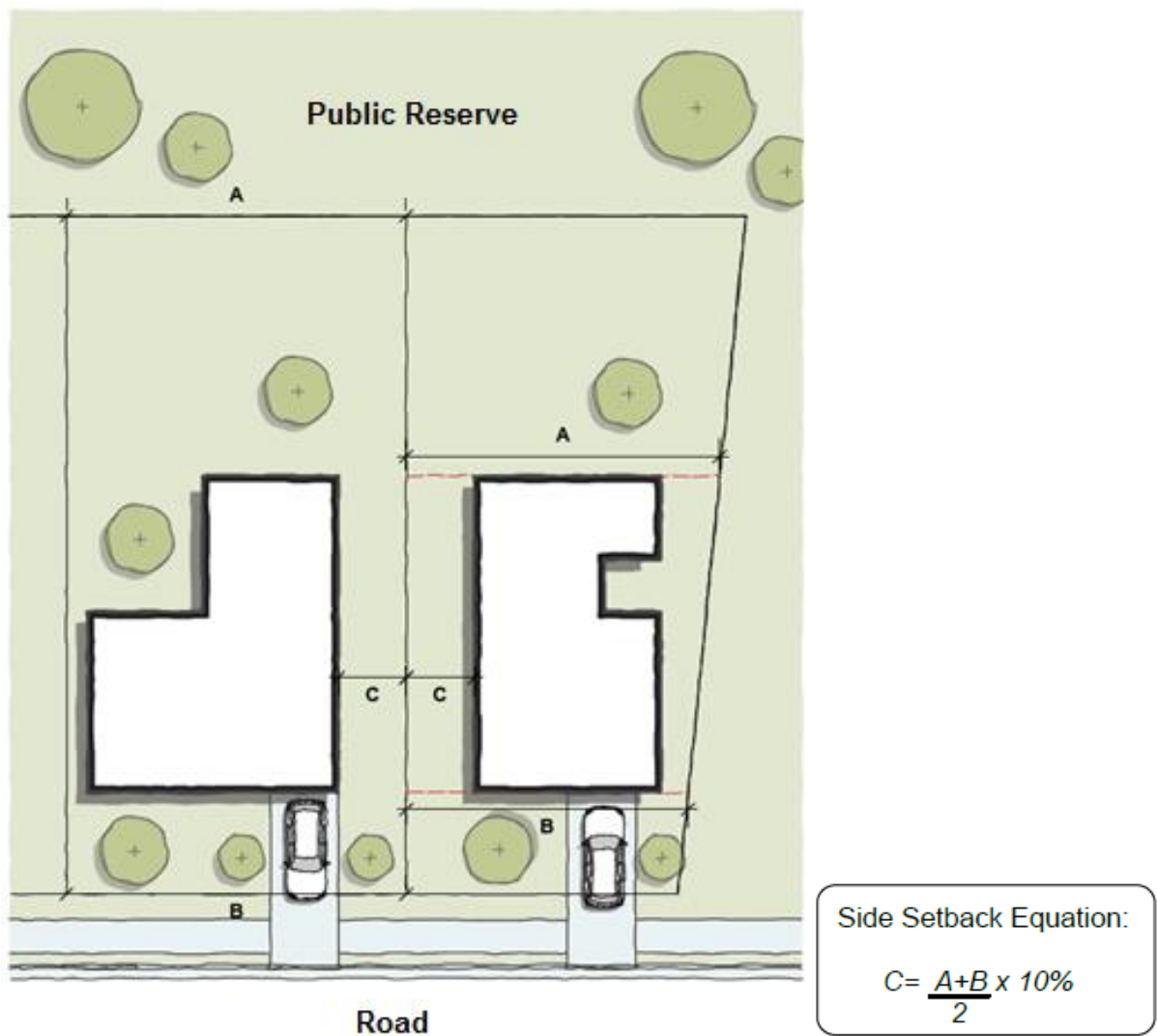


Figure 7: Side setback calculation

5.2.4 Building Materials

Performance Criteria	Acceptable Solutions
P7.1 All materials and colours used are appropriate to the local landscape.	A7.1 Details of the intended materials and colours to be used for a proposed development shall be submitted with the development application.
P7.2 Where development is located in essentially native bushland situations, consideration is given to utilising materials and colours that reflect the characteristics of the native vegetation that surround the development site.	<p>Note: Highly reflective materials are not acceptable in most situations.</p> A7.2 In locations with a high quality natural landscape value, structures should not strongly contrast with the background, whether by location, colour or choice of materials.
P7.3 Materials are salt tolerant.	

5.2.5 Trees and Vegetation

Note:

- Refer to Chapter G1: Site Analysis, Sustainable Design and Building Materials in Rural, Coastal and Environmental Areas and Chapter G4: Tree and Vegetation Management for more information on site analysis and tree management.
- No clearing of the site is to be undertaken until such time as plans and specifications have been approved.

Performance Criteria	Acceptable Solutions
P8.1 Development is sited in a manner which minimises the removal of trees and native vegetation on the site.	A8.1 Details are to be provided with any development application outlining existing vegetation on the site, and indicating what vegetation will be removed and retained
P8.2 No vegetation located on public land is damaged, disturbed or removed.	
P8.3 All vegetation that is classified as marine vegetation in Part 7 of the <i>Fisheries Management Act 1994</i> is protected in its natural state.	A8.2 Measures including the use of fencing should be utilised for the protection of vegetation during construction phase.

5.2.6 Landscaping

Note: The controls in this section are in addition to those detailed in the following Chapters:

- Chapter G3: Landscaping Design Guidelines;
- Chapter G4: Tree and Vegetation Management; and
- Chapter G5: Threatened Species Impact Assessment.

Performance Criteria	Acceptable Solutions
P9.1 Exotic species of vegetation are limited to feature trees or shrubs within a native setting.	A9.1 A concept landscape plan shall be submitted with the development application, particularly where it is proposed to develop sites which have been undeveloped and consist largely of native bushland foreshore vegetation .
P9.2 Access to public land by members of the public is preserved.	<p>Note: Council has prepared suitable Shoalhaven Plant Species Lists for the various towns and villages within Shoalhaven. Advice regarding these lists is available from Council.</p> <p>A9.2 Following construction, any exposed areas must be stabilised by the use of ground covering plants or mulches to minimise the effects of erosion. This information shall be included on the concept landscape plan.</p> <p>A9.3 All work associated with a proposal are to be confined on private property.</p> <p>A9.4 Access to public foreshore reserves by the public is not to be restricted by the extension of landscaping, or other works, onto public land from private property.</p>

5.2.7 Site Stability, Excavation and Soil and Water Management

Note: The controls in this Section are in addition to those outlined in Chapter G2: Sustainable Stormwater Management and Erosion/Sediment Control and Chapter G26: Acid Sulfate Soils and Geotechnical (Site Stability) Guidelines of this DCP.

Performance Criteria	Acceptable Solutions
P10.1 Development is designed to utilise construction techniques that reflect the slope of the land and does not introduce measures that require excessive disturbance to the natural slope of a site.	A10.1 Maximum cut and fill permitted for a site is 1m. Details of cut and fill must be provided as part of the development application, indicating how cut and fill areas will be stabilised. Refer to Figure 8 .
P10.2 Development is designed and constructed to reflect specific geotechnical difficulties that may exist in an area.	A10.2 Excavated fill or other material is not to be placed or fall onto adjoining lands.
P10.3 Measures are utilised, both during and after construction, to control erosion and sedimentation of local water courses and drainage systems.	A10.3 All stormwater quality controls are to be contained within the development site, and discharge is not to be concentrated onto adjoining lands.

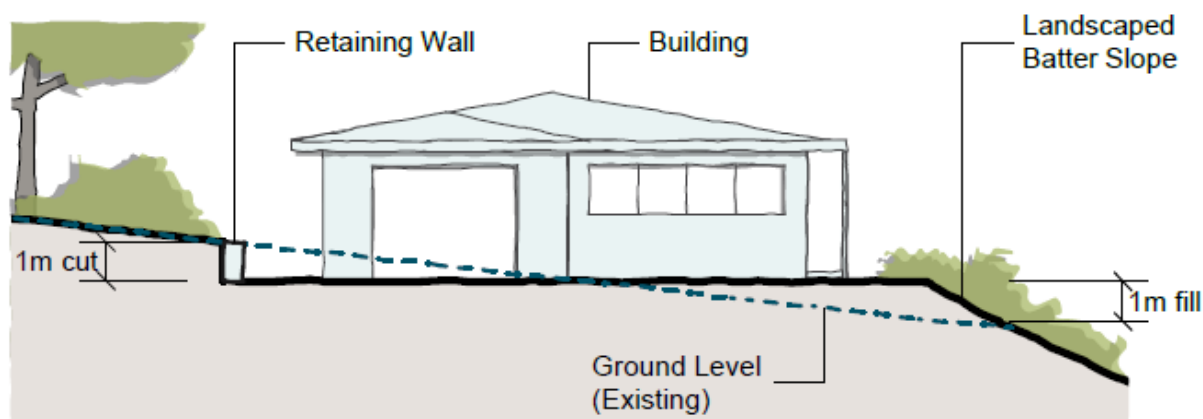


Figure 8: Cut and fill

5.3 Building on Sand Dunes

This Section applies to all land on a sand dune area where **development** is permissible with development **consent**.

The specific **objectives** are to:

- Make people aware of the problems and **risks** associated with sand dunes.
- Outline the importance of sand dune systems to the coastal environment.
- Provide details for the placement of houses on sand dunes.
- Detail the correct management techniques for the short and long-term stability of sand dune systems.

5.3.1 General

Performance Criteria	Acceptable Solutions
P11.1 Development has a minimal effect on the dune and adjoining properties.	A11.1 Bare dune areas should be replanted with recommended species and other vegetation that is not appropriate (bitou bush, asparagus fern, lantana etc) should be gradually removed.
P11.2 Areas of dunal vegetation are protected and replanted.	<p>Note: Refer to the NSW Coastal Dune Management Manual for correct techniques for revegetation and stabilisation of dunes</p> <p>This work should only be done in consultation with Council's Environmental Services Section and the NSW Office of Environment and Heritage.</p> <p>A11.2 Buildings should be sited in an area which will have minimal effect on the dune and adjoining properties. Sufficient space should be left between the building and the dividing boundary to allow vegetation to assist in stabilising the dune.</p> <p>A11.3 Batters should not exceed 1:4.</p> <p>A11.4 Reshaping of dunes is not permitted unless you have obtained approval from Council and the NSW Office of Environment and Heritage.</p> <p>Note: Only pathways set aside by Council should be used for access to the beach. Additional access points should not be cut into the dune as this will destabilise the dune and cause sand to drift inland.</p> <p>Reshaping dunes can lead to an increased risk of coastal inundation from wave runup.</p> <p>A11.5 Access roads should be kept to an absolute minimum and access ways should be shared where practical.</p> <p>A11.6 New and innovative building designs which may be more compatible with the topography and risk should be considered in the design of new buildings/structures.</p> <p>Note: Buildings using pole or demountable construction are suggested.</p>

5.3.2 Species Recommended for Planting on Sand Dunes

The **vegetation** between **development** and the beach (usually within a reserve) is particularly vital for dune stabilisation and care should be taken not to disturb this area. Replanting of bare areas on the dune is recommended for dune stability and habitat protection.

Council recommends the following species when planting or replanting a sand dune area.

Table 1: Recommended species for planting or replanting

Primary (Plant First)	Secondary Planting (Plant Second)	Tertiary Planting (Plant Last)
<i>Carpobrotus glaucescens</i> (Pig Face)	<i>Acacia longifolia</i> subsp. <i>Longifolia</i> (Sydney Golden Wattle)	<i>Casuarina glauca</i> (Casuarina)
<i>Dianella caerulea</i> (Native Lily)	<i>Correa alba</i> (White Correa)	<i>Leptospermum leavigatum</i> (Coastal Tea Tree)
<i>Ficinia nodosa</i> (Knobby Club Rush)	<i>Acacia longifolia</i> subsp <i>sophorae</i> (Coastal Wattle)	<i>Banksia integrifolia</i> (Coastal Banksia)
<i>Lomandra longifolia</i> (Spiny Matt Rush)	<i>Myoporum acuminatum</i> (Boobialla)	<i>Glochidion ferdinandi</i> (Cheese Tree)
<i>Spinifex sericus</i> (Spinifix Grass)	<i>Rhagodia candolleana</i> (Seablite)	<i>Eucalyptus botryoides</i> (Southern Mahogany)

6 Advisory Information

6.1 Development Application requirements

In addition to application requirements outlined throughout this Chapter, an application for **development** in a **coastal hazard** area must also show that:

- The proposal meets the **objectives** of this Chapter; and
- Complies with the *NSW Coastal Planning Guideline: Adapting to Sea Level Rise* August 2010.

Applications for **development** in areas of **coastal hazard** must show that the proposal satisfies the relevant **performance criteria** in this Chapter. In order to do so, the following information is to be submitted with the development application, as part of the Statement of Environmental Effects, as appropriate to the **scale** and location of the proposal:

1. Information outlining the type of proposed **development** including:
 - Nature, bulk, **scale** and location of proposed **development**.
 - Proposed use and occupation of **buildings**, and those on adjoining land.

2. Plans illustrating the position and configuration of the proposed **development** in relation to coastal **risks** including:
 - Position of the 2100, 2050 and 2030 ZRFC lines and wave run-up lines in relation to the property boundaries prepared by a registered Land Surveyor.
 - Position of the existing and proposed **buildings**.
 - Existing ground levels related to **Australian Height Datum (AHD)** around the perimeter of the **building**.
 - Existing or proposed floor levels related to **AHD**.
 - Foundation type.
 - Topographic levels of the site to an accuracy of 0.1m, and **structures** to an accuracy of 0.01m, showing relative levels related to **AHD**.
3. A report on the following **hazards** (if relevant) at the site and their potential increase in the future due to projected sea level rise:
 - Projected increase in sea level rise and its influence (if any) on the local tidal range.
 - Soft coast erosion – beach and fore dune loss and/or migration, shoreline recession, beach realignment.
 - Coastal **flooding**.
 - Coastal entrance behaviour.
 - Reconfiguration of intermittently open and closed lakes and lagoons.
 - Cliff and slope instability.
 - Ground water elevation and/or salinisation.

The report should also demonstrate whether the **development** proposal:

- Is consistent with the relevant coastline or **flood risk management plan**;
- Is consistent with any relevant section of this plan that relates to coastal or **flood** issues;
- Meets the coastal protection and **flood risk** management requirements of Shoalhaven LEP 2014; and
- Incorporates appropriate management responses and adaptation strategies.

6.2 Other legislation or policies you may need to check

Note: This section is not exclusive, and you may be required to consider other legislation, policies and other documents with your application

Council Planning Studies, Policies & Guidelines	<ul style="list-style-type: none">• SMEC, August 2008, Shoalhaven City Council Coastal Slope Instability Hazard Study – Final Report• Umwelt, August 2008, Draft Shoalhaven Coastal Zone Management Plan – Priorities for a Sustainable Shoalhaven Coastline• SMEC, December 2007, Shoalhaven Coastal Hazard Study – Summary Report -Report No. 3001209-018• SMEC, January 2008, Shoalhaven Coastal Hazard Study – Summary Report• SMEC, 2003, Callala Beach Erosion Study• Shoalhaven Coastal Zone Management Plan: Coastal Hazard Study Summary Report (July 2009)• SMEC 2009 Coastal Hazards Maps• Report on Scoping Study and Stability Assessment on Various Lots Surfers Ave, Tallwood Ave and Bannister Head Rd Narrawallee -Douglas Partners – 78319 January 2012• Report on Supplementary Geotechnical Observations – Coastal Slope Instability Hazard Study Various Sites Shoalhaven City Council LGA – Douglas Partners – Project 72051-1 July 2011• Council’s adopted sea level rise position MIN15.39612• Royal Haskoning DHV Report – Shoalhaven Coastal Cliffs and Slopes Risk Management Program – 2018• Council’s Generic Community Lands Plan of Management – Natural Areas and Foreshore Reserves Policy• Shoalhaven Plant Species List.• Shoalhaven Coastal Zone Management Plan 2018.
External Policies & Guidelines	<ul style="list-style-type: none">• NSW Coastal Planning Guidelines: Adapting to Sea Level Rise (August 2010)• NSW Coastal Policy 2009• Guideline for Landslide Susceptibility, Hazard and Risk Zoning for Land Use Planning Accompanying Commentaries and Practice Note (Australian Geomechanics Society, 2007)• NSW Coastal Dune Management Manual
Legislation	<ul style="list-style-type: none">• Coastal Management Act 2016• Shoalhaven Local Environmental Plan 2014• Fisheries Management Act 1994