Schedule 3 Assessable Development Checklist 1—Various aspects of development

(*Sustainable Planning Act 2009* version 3.2 effective 1 October 2014)

This checklist applies to the carrying out of various aspects of development, as specified in the Sustainable Planning Regulation 2009, Schedule 3, Part 1, Table 5.

You may complete this checklist as part of your development application. The checklist will:

- help you identify whether you need to make a development application for the proposed development
- help you identify the relevant Integrated Development Assessment System (IDAS) form you need to complete as part of your application
- assist in identifying the assessment manager or referral agency for development that is assessable development under schedule 3 of the Sustainable Planning Regulation 2009.

If your development involves a material change of use, reconfiguring a lot, operational work or building work, it is recommended you complete the relevant checklists: *Checklist 2—Material change of use*, *Checklist 3—Reconfiguring a lot*, *Checklist 4—Operational work*, or *Checklist 5—Building work*.

If you are unsure how to answer any questions on this checklist, phone or visit your local government, or go to the Department of State Development, Infrastructure and Planning's (DSDIP) website at **www.dsdip.qld.gov.au**.

All terms used in this checklist have the meaning given in the *Sustainable Planning Act 2009* or the Sustainable Planning Regulation 2009.

Part 1—General questions

1.1 Is any part of the proposed development intended to be carried out on a Queensland heritage place under the *Queensland Heritage Act 1992*?

☒ No	• Continue to question 1.2
☐ Yes	• Complete part 2 of this checklist

1.2 Does the proposal involve development on a local heritage place?

☒ No	• Continue to question 1.3
☐ Yes	• Complete part 3 of this checklist

1.3 Is any part of the development on strategic port land or airport land (other than development for a material change of use that is inconsistent with the land use plan for the strategic port land or airport land mentioned in the Sustainable Planning Regulation 2009, Schedule 3, Part 1, Table 2, item 3 or 4)?

☒ No	• End of checklist – A development permit is not required for this aspect of development under Sustainable Planning Regulation 2009, Schedule 3, Part 1, Table 5
☐ Yes	• Complete part 4 of this checklist

Part 2—Queensland heritage place

2.1 Do any of the following apply to the proposal?

The proposed development is only ongoing maintenance or minor work permitted by a general	☐ Yes ☐ No

exemption certificate issued under section 75 of the *Queensland Heritage Act 1992*.	
An exemption certificate has been issued under the *Queensland Heritage Act 1992*.	☐ Yes ☐ No
The proposed development is liturgical development under section 78 of the *Queensland Heritage Act 1992*.	☐ Yes ☐ No
The work is being carried out by the state.	☐ Yes ☐ No
The work is being carried out in a priority development area.	☐ Yes ☐ No
The development is mentioned in schedule 4 of the Sustainable Planning Regulation 2009.	☐ Yes ☐ No

- If you answered **no** to all of the above, a development permit is required and this application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Queensland Heritage Place State Code* in the SDAP.
- Your application must include *IDAS form 3—Queensland heritage place*.
- If you answered **yes** to any of the above, a development permit is not required. End of part 2 of this checklist.

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 5, item 2
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 19

Part 3—Local heritage place

3.1 Do any of the following apply to the proposal?

The development is building works to be carried out by or on behalf of the state, a public sector entity or a local government	☐ Yes ☐ No
The development is for public housing	☐ Yes ☐ No
The development is to be carried out by the state on land designated for community infrastructure under the *Sustainable Planning Act 2009*.	☐ Yes ☐ No
The development is mentioned in schedule 4 of the Sustainable Planning Regulation 2009.	☐ Yes ☐ No
The local heritage place is on an airport lessee's airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*.	☐ Yes ☐ No

- If you answered **no** to all of the above, a development permit is required and your application to the local government, as assessment manager, must include *IDAS form 4—Local heritage place*.
- If you answered **yes** to any of the above, a development permit is not required.

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 5, item 3
- Sustainable Planning Regulation 2009, schedule 3, part 2, table 1, item 1
- *Airports Assets (Restructuring and Disposal) Act 2008*, section 54

Part 4—Strategic port land or airport land

4.1 Does the land use plan for the strategic port land or airport land state that the development is assessable development?

☐ No	• A development permit is not required for this aspect of development; end of this checklist.

☐ Yes	• A development permit is required and your application may include, where applicable:
	  • for a material change of use—*IDAS form 5—Material change of use assessable against a planning scheme*
	  • for building or operational work—*IDAS form 6—Building or operational work assessable against a planning scheme*
	  • for reconfiguring a lot—*IDAS form 7—Reconfiguring a lot*
	• The assessment manager will either be the local government or the port authority or DSDIP.

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 5, items 6 and 7

Privacy—Please refer to your assessment manager for further details on the use of information recorded in this checklist.

Disclaimer:

While DSDIP believes that the information contained on this checklist and provided as part of this process will be of assistance to you, it is provided on the basis that you will not rely on the information. It is your responsibility to make your own enquiries regarding the interpretation and application of the applicable legislation to your circumstances.

To the full extent permitted by law, DSDIP expressly disclaims all liability (including but not limited to liability for negligence) for errors or omissions of any kind or for any loss (including direct and indirect losses), damage or other consequence which may arise from your reliance on this process and the information contained on this checklist.

OFFICE USE ONLY

Date received | Reference numbers

The Sustainable Planning Act 2009 is administered by DSDIP. This checklist and all other required application materials should be sent to your assessment manager and any referral agency.

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Schedule 3 Assessable Development Checklist 4—Operational work

(*Sustainable Planning Act 2009* version 4.1 effective 1 October 2014)

This checklist only applies when the development application seeks approval for operational work. Before completing this checklist, please complete *Checklist 1—Various aspects of development*.

You may complete this checklist as part of your development application. The checklist will:

- help you identify whether you need to make a development application for the proposed development
- help you identify the relevant Integrated Development Assessment System (IDAS) form you need to complete as part of your application
- assist in identifying the assessment manager or referral agency for development that is assessable development under schedule 3 of the Sustainable Planning Regulation 2009.

If your development involves reconfiguring a lot, building work or material change of use, it is recommended you complete *Checklist 2—Material change of use*, *Checklist 3—Reconfiguring a lot*, or *checklist 5—Building work*, where relevant.

If you are unsure of any answers to questions, phone or visit your local government, or go to the Department of State Development, Infrastructure and Planning's website at **www.dsdip.qld.gov.au**.

All terms used in this checklist have the meaning given in the *Sustainable Planning Act 2009* or the Sustainable Planning Regulation 2009.

Part 1—General questions

1.1 Is the operational work clearing native vegetation on:

- **freehold land**
- **indigenous land**
- **any of the following under the *Land Act 1994*:**
  - **land subject to a lease**
  - **a road**
  - **trust land, other than indigenous land**
  - **land subject to a licence or permit?**

☒ No	• Continue to question 1.2
☐ Yes	• Complete part 2 of this checklist

1.2 Is any of the proposed operational work associated with reconfiguring a lot and the reconfiguration is also assessable development?

☒ No	• Continue to question 1.3
☐ Yes	• Complete part 3 of this checklist

1.3 Does any of the proposed operational work involve taking or interfering with:

- **water from a watercourse, lake or spring, or from a dam constructed on a watercourse or lake**
- **artesian water as defined under the *Water Act 2000*, schedule 4**
- **overland flow water**
- **subartesian water**

☒ No	• Continue to question 1.4
☐ Yes	• Complete part 4 of this checklist

1.4 Is the operational work the construction of a dam, or carried out in relation to a dam, and, because of the works, the dam must be failure impact assessed?

☒ No	• Continue to question 1.5
☐ Yes	• Complete part 5 of this checklist

1.5 Is any of the proposed operational work tidal works?

☐ No	• Continue to question 1.6
☒ Yes	• Complete part 6 of this checklist

1.6 Is any of the operational work proposed to be carried out completely or partly within a coastal management district?

☐ No	• Continue to question 1.7
☒ Yes	• Complete part 7 of this checklist

1.7 Is any of the proposed operational work for constructing or raising waterway barrier works as defined under the *Fisheries Act 1994*?

☒ No	• Continue to question 1.8
☐ Yes	• Complete part 8 of this checklist

1.8 Is any of the proposed operational work to be carried out completely or partly within a declared fish habitat area as defined under the *Fisheries Act 1994*?

☒ No	• Continue to question 1.9
☐ Yes	• Complete part 9 of this checklist

1.9 Is any of the proposed operational work removing, destroying or damaging marine plants as defined under the *Fisheries Act 1994*?

☒ No	• Continue to question 1.10
☐ Yes	• Complete part 10 of this checklist

1.10 Does the proposal involve operational works that are high impact earthworks in the Great Barrier Reef Wetland Protection Area?

☒ No	• Continue to question 1.11

☐	Yes	• Complete part 11 of this checklist

1.11 Does the proposal involve operational works that are the construction or modification of a levee?

☒	No	• End of checklist
☐	Yes	• Complete part 12 of this checklist

Part 2—Clearing native vegetation

2.1 Do any of the following apply?

The clearing is on premises to which structure plan arrangements apply.	☐ Yes ☐ No
The clearing is clearing, or for another activity or matter, mentioned in schedule 24, part 1 of the Sustainable Planning Regulation 2009.	☐ Yes ☐ No
The clearing is mentioned in schedule 24, part 2 of the Sustainable Planning Regulation 2009, as clearing for the particular land.	☐ Yes ☐ No

- If you answered **yes** to any of the above, this aspect of your operational work is not assessable development
- If you answered **no** to ALL of the above, continue to question 2.2

2.2 Is the proposed vegetation clearing for a relevant purpose under the *Vegetation Management Act 1999*, section 22A for one or more of the following?

A project declared to be a coordinated project under the *State Development and Public Works Organisation Act 1971*, section 26	☐ Yes ☐ No
Necessary to control non-native plants or declared pests	☐ Yes ☐ No
To ensure public safety	☐ Yes ☐ No
For relevant infrastructure and the clearing cannot reasonably be avoided or minimised	☐ Yes ☐ No
A natural and ordinary consequence of other assessable development for which a development approval was given under the repealed *Integrated Planning Act 1997*, or a development application was made under that Act, before 16 May 2003 and is outside an area declared to be a declared area part 2, division 4, subdivision 2 of the *Vegetation Management Act 1999*.	☐ Yes ☐ No
For fodder harvesting outside an area declared to be a declared area part 2, division 4, subdivision 2 of the *Vegetation Management Act 1999*:	☐ Yes ☐ No
For thinning	☐ Yes ☐ No
For clearing of encroachment	☐ Yes ☐ No
For an extractive industry outside an area declared to be a declared area part 2, division 4, subdivision 2 of the *Vegetation Management Act 1999*	☐ Yes ☐ No
For necessary environmental clearing	☐ Yes ☐ No
For high value agriculture clearing	☐ Yes ☐ No
For irrigated high value agriculture clearing	☐ Yes ☐ No
The Minister responsible for administering the *Vegetation Management Act 1999* is satisfied the development applied for is a for special indigenous purpose under the *Cape York Peninsula Heritage Act 2007* outside an area declared to be a declared area part 2, division 4, subdivision 2 of the *Vegetation Management Act 1999*	☐ Yes ☐ No

- If you answered **no** to ALL of the above, then the clearing is not for a relevant purpose and this aspect of the development is prohibited development. If this is the only aspect of vegetation clearing then that is the end of part 2 of this checklist, otherwise continue to question 2.3
- If **yes** to any of the above, continue to question 2.3

2.3	**Is the proposed vegetation clearing associated with a material change of use or reconfiguring a lot for which referral is required in relation to clearing vegetation under schedule 7, table 3, item 10 and table 2, item 4 of the Sustainable Planning Regulation 2009?**

☐ No	• The proposed operational work for clearing native vegetation is assessable development and a development permit is required • This application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Queensland vegetation management state code* in the State Development Assessment Provisions (SDAP) • You must complete *IDAS Form 11—Clearing native vegetation* • End of part 2 of this checklist
☐ Yes	• This aspect of development is assessable development • The chief executive of DSDIP may be a concurrence agency for the application (see schedule 7, table 2, item 4 and table 3, item 10 of the Sustainable Planning Regulation 2009) and will assess the application against the *Queensland vegetation management state code* in the SDAP • If DSDIP is a concurrence agency for the application, you must refer a copy of your application to DSDIP • End of part 2 of this checklist

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 1
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 4 and schedule 7, table 3, item 10
- *Vegetation Management Act 1999*, section 22A

Part 3—Operational work for reconfiguring a lot

3.1	**Is any part of the operational work for reconfiguring a lot in a priority development area?**

☐ No	• Continue to question 3.2
☐ Yes	• This aspect of the development is not assessable development • End of part 3 of this checklist

3.2 Do all of the following apply:

- **the land is in the area of a local government that, under the *South East Queensland Water (Distribution and Retail Restructuring) Act 2009*, is a participating local government for a distributor–retailer**
- **the participating local government is the assessment manager**
- **the development application is made before 1 March 2014**

☐ No	• This aspect of the development is assessable development and you will need a development permit • The local government will be the assessment manager for the application • End of part 3 of this checklist

☐ Yes	• This aspect of the development is assessable development and you will need a development permit • The local government will be the assessment manager for the application and the distributor–retailer (or SARA) will be a concurrence agency for the application. • End of part 3 of this checklist

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 2
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 47

Part 4—Taking or interfering with water

4.1 Is the proposed operational work to be carried out in a priority development area or on premises to which structure plan arrangements apply?

☐ No	• Continue to question 4.2
☐ Yes	• This aspect of development is not assessable development and does not require a development permit • End of part 4 of this checklist

4.2 Does any of the proposed operational work involve taking or interfering with water from a watercourse, lake or spring or from a dam constructed on a watercourse or lake?

☐ No	• End of part 4 of this checklist
☐ Yes	• Continue to question 4.3

4.3 Are the proposed works for any of the following purposes?

Taking water from a watercourse, lake or spring in an emergency situation for a public purpose or fighting a fire destroying, or threatening to destroy, a dwelling house	☐ Yes ☐ No
Taking water from a watercourse, lake or spring if: • the water is taken by the owner of land adjoining the watercourse, lake or spring • the water is taken for domestic purposes or stock purposes	☐ Yes ☐ No
Taking water from a watercourse, lake or spring for camping purposes or for watering travelling stock	☐ Yes ☐ No
Using a water truck to pump water	☐ Yes ☐ No

- If **no** to all of the above, continue to question 4.4
- If **yes** to any of the above, this aspect of development does not require a development permit.
  - If this is the only aspect of taking or interfering with water proposed then that is the end of part 4 of this checklist
  - If there are other aspects of taking or interfering with water proposed, continue to question 4.4

4.4 Are the proposed works self-assessable development under schedule 3, part 2, table 4, item 1 of the Sustainable Planning Regulation 2009?

☐ No	• Go to question 4.5

☐ Yes	• This aspect of development is self-assessable development and must comply with any relevant self-assessable code • If the proposal involves more than one aspect of operational work for taking or interfering with water, and the other aspect is not self-assessable development, then continue to question 4.5

4.5 Is the work for a water pump?

☐ No	• Continue to question 4.6
☐ Yes	• A development permit is required and this application will be assessed by the chief executive of DSDIP as assessment manager or concurrence agency against the *Sustainable management of water resources state code* in the SDAP • You must complete *IDAS form 13—Watercourse pump* • If this is the only aspect of taking or interfering with water proposed, then that is the end of part 4 of this checklist • If there are other aspects of taking or interfering with water proposed, then continue to question 4.6

4.6 Is the work for water storage (other than for a dam requiring failure impact assessment)?

☐ No	• Continue to question 4.7
☐ Yes	• A development permit is required and this application will be assessed by the chief executive of DSDIP as assessment manager or concurrence agency against the *Sustainable management of water resources state code* in the SDAP • You must complete *IDAS form 14—Water storage* • If this is the only aspect of taking or interfering with water proposed, then that is the end of part 4 of this checklist • If there are other aspects of taking or interfering with water proposed, then continue to question 4.7

4.7 Is the work for gravity diversion from a watercourse?

☐ No	• Continue to question 4.8
☐ Yes	• A development permit is required and this application will be assessed by the chief executive of DSDIP as assessment manager or concurrence agency against the *Sustainable management of water resources state code* in the SDAP • You must complete *IDAS form 15—Gravity diversion from a watercourse* • If this is the only aspect of taking or interfering with water proposed, then that is the end of part 4 of this checklist • If there are other aspects of taking or interfering with water proposed, then continue to question 4.8

4.8 Is the work for a watercourse diversion?

☐ No	• Continue to question 4.9
☐ Yes	• A development permit is required and this application will be assessed by the chief executive of DSDIP as assessment manager or concurrence agency against the *Sustainable management of water resources state code* in the SDAP • You must complete *IDAS form 17—Watercourse diversion* • If this is the only aspect of taking or interfering with water proposed, then that is the end of part 4 of this checklist • If there are other aspects of taking or interfering with water proposed, then continue to question 4.9

4.9 Is the work for other work for taking or interfering with water?	
☐ No	• End of part 4 of this checklist
☐ Yes	• A development permit is required and this application will be assessed by the chief executive of DSDIP as assessment manager or concurrence against the *Sustainable management of water resources state code* in the SDAP • You must complete *IDAS form 21—Other work in a watercourse* • End of part 4 of this checklist

Part 5—For particular dams

5.1 Is the proposed operational work for the following?	
The construction of a dam more than 10 metres in height and having a storage capacity of more than 1500 megalitres	☐ Yes ☐ No
The construction of a dam more than 10 metres in height and having a storage capacity of more than 750 megalitres and a catchment area that is more than three times its maximum surface area at full supply level	☐ Yes ☐ No
Work carried out in relation to an existing non-referable dam that will result in the dam being more than 10 metres in height and having a storage capacity of more than 1500 megalitres	☐ Yes ☐ No
Work to an existing non-referable dam that will result in the dam being more than 10 metres in height and having a storage capacity of more than 750 megalitres and a catchment area that is more than three times its maximum surface area at full supply level	☐ Yes ☐ No
Works that involve the increase of capacity of a non-referable dam by more than 10 per cent if the dam is: • more than 10 metres in height and having a storage capacity of more than 1500 megalitres, or • more than 10 metres in height and having a storage capacity of more than 750 megalitres and a catchment area that is more than three times its maximum surface area at full supply level	☐ Yes ☐ No
Works carried out in relation to a referable dam if, because of the works, the storage capacity of the dam will increase by more than 10% after the works are carried out.	☐ Yes ☐ No
Constructing a dam for which the chief executive under the *Water Supply (Safety and Reliability) Act 2008* has given a notice to have the dam failure impact assessed.	☐ Yes ☐ No

- If **no** to all of the above, the proposed operational work is not required to be failure impact assessed and is therefore not assessable development. This is the end of part 5 of this checklist
- If **yes** to any of the above, this application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Particular dams state code* in the SDAP.
  - You must complete *IDAS form 16—Particular dams*
  - End of part 5 of this checklist

Part 6—Tidal work

6.1 Is the proposed tidal work any of the following:	
Excluded work	☐ Yes ☒ No
Work that is self-assessable development under schedule 3, part 2, table 4, item 8 of the Sustainable Planning Regulation 2009	☐ Yes ☒ No
Work carried out in a priority development area	☐ Yes ☒ No

Work carried out on premises to which structure plan arrangements apply	☐ Yes ☒ No

- If **no** to all of the above, continue to question 6.2.
- If **yes** to any of the above, this aspect of development is not assessable development and a development permit is not required.

6.2 Is any of the proposed tidal work prescribed tidal work?

☐ No	• This application requires assessment by the chief executive of DSDIP as assessment manager or concurrence against the *Tidal works, or development in a coastal management district state code* in the SDAP • You must complete *IDAS form 23—Tidal works and development within coastal management districts* • End of part 6 of this checklist
☒ Yes	• You must complete *IDAS form 23—Tidal works and development within coastal management districts* • This application requires assessment by the local government as assessment manager and the chief executive of DSDIP will be a concurrence agency for the application; you must refer a copy of the application to DSDIP • End of part 6 of this checklist

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 5
- Sustainable Planning Regulation 2009, schedule 7, table 2, items 13 to 18

Part 7—Coastal management

7.1 Is the proposed operational work any of the following:

Excluded works	☐ Yes ☒ No
Work that is self-assessable development under schedule 3, part 2, table 4, item 8 of the Sustainable Planning Regulation 2009	☐ Yes ☒ No
Work carried out in a priority development area	☐ Yes ☒ No
Work carried out on premises to which structure plan arrangements apply	☐ Yes ☒ No

- If **no** to all of the above, continue to question 7.2
- If **yes** to any of the above, this aspect of development is not assessable development and a development permit is not required. End of part 7 of this checklist.

7.2 Is the proposed operational work for any of the following?

Interfering with quarry material as defined under the *Coastal Protection and Management Act 1995* on state coastal land above high-water mark	☒ Yes ☐ No
Disposing of dredge spoil or other solid waste material in tidal water	☐ Yes ☒ No
Constructing an artificial waterway	☐ Yes ☒ No
Removing or interfering with coastal dunes on land, other than State coastal land, that is in an erosion prone area as defined in the *Coastal Protection and Management Act 1995* and above high-water mark	☐ Yes ☒ No

- If you answered **no** to all of the above, a development permit is not required for this aspect of development and that is the end of part 7 of this checklist
- If you answered **yes** to any of the above,
  - This application may require assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Tidal works, or development in a coastal management district state code* in the SDAP
  - You must complete *IDAS form 23—Tidal works and development within coastal management districts*
  - End of part 7 of this checklist

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 5
- Sustainable Planning Regulation 2009, schedule 7, table 2, items 13 to 18

Part 8—Waterway barrier works

8.1 Is the proposed operational work any of the following:

Work that is self-assessable development under schedule 3, part 2 of the Sustainable Planning Regulation 2009	☐ Yes ☐ No
Work carried out on premises to which structure plan arrangements apply	☐ Yes ☐ No

- If **no** to all of the above,
  - A development permit is required for this aspect of development. This application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Constructing or raising waterway barrier works in fish habitats state code* in the SDAP
  - You must complete *IDAS form 27—Waterway barrier works*
  - End of part 8 of this checklist
- If **yes** to any of the above, this aspect of development is not assessable development and a development permit is not required. End of part 8 of this checklist.

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 6
- Sustainable Planning Regulation 2009, schedule 3, part 2
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 29

Part 9—Declared fish habitat area

9.1 Is the operational work reasonably necessary for any of the following?

The maintenance of existing structures, including for example the following structures, if the structures were constructed in compliance with all the requirements under any Act relating to a structure of that type: • boat ramps, boardwalks, drains, fences, jetties, roads, safety signs, swimming enclosures and weirs • powerlines or associated powerline infrastructure.	☐ Yes ☐ No
Educational or research purposes relating to the declared fish habitat area	☐ Yes ☐ No
Monitoring the impact of development on the declared fish habitat area	☐ Yes ☐ No

The construction or placement of structures, including for example, safety signs, swimming enclosures and aids to navigation, if: • the impact on the area is minor • the structures are constructed in compliance with all the requirements, under any Act relating to a structure of that type.	☐ Yes ☐ No
Public benefit works, including, for example, the construction of runnels for mosquito control, the removal of Lyngbya and seed collection for site rehabilitation, if the impact on the area is minor	☐ Yes ☐ No

- If **yes** to any of the above, a permit is not required for this aspect of development but the proposed work must comply with any applicable self-assessable codes. End of part 9 of this checklist.
- If **no** to all of the above:
  - A development permit is required and this application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency, against the *Development in or adjacent to a declared fish habitat area state code* in the SDAP
  - You must complete *IDAS form 27—Waterway barrier works*
  - End of part 9 of this checklist

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 7
- Sustainable Planning Regulation 2009, schedule 3, part 2, table 4, item 3
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 26

Part 10—Removal, destruction or damage of a marine plant

10.1 Is the proposed operational work any of the following?

For reconfiguring a lot that is assessable development under table 3, item 1, if there is a development permit in effect for the reconfiguration	☐ Yes ☐ No
For a material change of use that is assessable development, if there is a development permit in effect for the change of use	☐ Yes ☐ No
Self-assessable development under schedule 3, part 2 of the Sustainable Planning Regulation 2009	☐ Yes ☐ No
Carried out in a priority development area	☐ Yes ☐ No
Carried out on premises to which structure plan arrangements apply	☐ Yes ☐ No

- If **yes** to any of the above, this aspect of development is not assessable development and no development permit is required. End of part 10 of this checklist.
- If **no** to all of the above, continue to question 10.2

10.2 Is the proposed operational work any of the following?

Specified works in the area	☐ Yes ☐ No
Operational work that is a necessary and unavoidable part of installing or maintaining works or infrastructure required to support other development for which a development permit or compliance permit is not required or, if a development application or a request for compliance assessment is required, the permit is held or has been applied for.	☐ Yes ☐ No

- If **no** to all of the above, this aspect of development is prohibited development and a development application cannot be made. End of part 10 of this checklist.
- If **yes** to any of the above:
  - A development permit is required and this application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the Removal, destruction or damage of marine plants state code in the SDAP
  - You must complete IDAS form 26—Marine plants and declared fish habitat areas
  - End of part 10 of this checklist.

Section reference:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 8
- Sustainable Planning Regulation 2009, schedule 3, part 2
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 30

Part 11—Great Barrier Reef Wetland Protection Areas

11.1 Is the proposed operational work for a domestic housing activity only?

☐ No	• Continue to question 11.2
☐ Yes	• A development permit is not required for this aspect of development and this is the end of the checklist

11.2 Is the proposed operational work the natural and ordinary consequence of a material change of use or reconfiguring a lot for which the state was a concurrence agency under schedule 7, table 3, item 21A or table 2, item 43A of the Sustainable Planning Regulation 2009?

☐ No	• Continue to question 11.3
☐ Yes	• A development permit is not required for this aspect of development and this is the end of the checklist

11.3 Is the proposed operational work associated with government supported transport infrastructure or electricity infrastructure?

☐ No	• A development permit is required and this application requires assessment by the chief executive of DSDIP as assessment manager or concurrence agency against the *Wetland protection area state code* in the SDAP. • You must complete *IDAS form 33—Great Barrier Reef Wetland protection area* • End of part 11 of this checklist
☐ Yes	• A permit is not required for this aspect of development but the proposed work must comply with any applicable self assessable code • End of part 11 of this checklist

Part 12—Construction or modification of a levee

12.1 Will the proposed operational work result in any of the following off-property impacts:

A change to the flow path of overland flow water where it enters or exits the property	☐ Yes	☐ No
An increase in the velocity of flood flow beyond the boundaries of the property	☐ Yes	☐ No
An increase in flooded area beyond the boundaries of the property	☐ Yes	☐ No
An increase in flood height beyond the boundaries of the property	☐ Yes	☐ No

- If **no** to all of the above this development is categorised as a Category 1 levee and must comply with any applicable self-assessable code – end of this checklist
- If **yes** to any of the above continue to question 13.2

12.2 Will the proposed operational work result in any of the following impacts:	
An increase in flood height above the floorboards in an occupied building that results in 3 or more people being affected	☐ Yes ☐ No
An increase in flood velocity above the floorboards in an occupied building that results in 3 or more people being affected	☐ Yes ☐ No

- If **no** to all of the above:
  - This is categorised as a Category 2 levee and is subject to code assessment
  - A development permit is required and this application requires assessment by the local government as assessment manager against the applicable code for the construction or modification of a levee
  - You must complete *IDAS form 20—Interfering with overland flow water and construction or modification of a levee.*
  - End of this checklist.
- If **yes** to any of the above:
  - This is categorised as a Category 3 levee and is subject to impact assessment
  - A development permit is required and this application requires assessment by the local government as assessment manager against the applicable code for the construction or modification of a levee
  - This application will require assessment by the chief executive of DSDIP as concurrence agency against the *Construction or modification of levees state code* in the SDAP
  - You must complete *IDAS form 20—Interfering with overland flow water and construction or modification of a levee*.
  - End of this checklist.

Section references:

- Sustainable Planning Regulation 2009, schedule 3, part 1, table 4, item 11
- Sustainable Planning Regulation 2009, schedule 7, table 2, item 48.

Privacy—please refer to your assessment manager for further details on the use of information recorded in this form

Disclaimer:

While the Department of State Development, Infrastructure and Planning (DSDIP) believes that the information contained on this checklist and provided as part of this process will be of assistance to you, it is provided on the basis that you will not rely on the information. It is your responsibility to make your own enquiries regarding the interpretation and application of the applicable legislation to your circumstances.

To the full extent permitted by law, DSDIP expressly disclaims all liability (including but not limited to liability for negligence) for errors or omissions of any kind or for any loss (including direct and indirect losses), damage or other consequence which may arise from your reliance on this process and the information contained on this checklist.

OFFICE USE ONLY

Date received		Reference numbers	

The Sustainable Planning Act 2009 is administered by DSDIP. This checklist and all other required application materials should be sent to your assessment manager and any referral agency.

Department of State Development, Infrastructure and Planning
PO Box 15009 City East Qld 4002
tel 13 QGOV (13 74 68)
info@dsdip.qld.gov.au

www.dsdip.qld.gov.au

IDAS form 1—Application details

(*Sustainable Planning Act 2009* version 4.1 effective 4 July 2014)

This form must be used for **ALL** development applications.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

For all development applications, you must:

- complete this form (*IDAS form 1—Application details)*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form and any other IDAS form relevant to your application must be used for development applications relating to strategic port land and Brisbane core port land under the *Transport Infrastructure Act 1994* and airport land under the *Airport Assets (Restructuring and Disposal) Act 2008*. Whenever a planning scheme is mentioned, take it to mean land use plan for the strategic port land, Brisbane core port land or airport land.

PLEASE NOTE: This form is not required to accompany requests for compliance assessment.

This form can also be completed online using MyDAS at www.dsdip.qld.gov.au/MyDAS

Mandatory requirements

Applicant details (Note: the applicant is the person responsible for making the application and need not be the owner of the land. The applicant is responsible for ensuring the information provided on all IDAS application forms is correct. Any development permit or preliminary approval that may be issued as a consequence of this application will be issued to the applicant.)

Name/s (individual or company name in full)	**Douglas Shire Council c/- Projex Partners Pty Ltd**
For companies, contact name	**Daniel Berry**
Postal address	PO Box 2133
Suburb	Cairns
State	QLD
Postcode	4870
Country	Australia
Contact phone number	07 4041 5118
Mobile number (non-mandatory requirement)	-
Fax number (non-mandatory requirement)	07 4041 5113

Email address (non-mandatory requirement)	danielberry @ projexpartners.com.au
Applicant's reference number (non-mandatory requirement)	621 002

1. What is the nature of the development proposed and what type of approval is being sought?

Table A—Aspect 1 of the application (If there are additional aspects to the application please list in Table B—Aspect 2.)

a) What is the nature of the development? (Please only tick one box.)

☐ Material change of use ☐ Reconfiguring a lot ☐ Building work ☒ Operational work

b) What is the approval type? (Please only tick one box.)

☐ Preliminary approval under s241 of SPA ☐ Preliminary approval under s241 and s242 of SPA ☒ Development permit

c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)

Construction of sandbag groynes perpendicular to Newell Beach and beach nourishment to assist in the restoration of the shoreline following coastal erosion and storm events.

d) What is the level of assessment? (Please only tick one box.)

☐ Impact assessment ☒ Code assessment

Table B—Aspect 2 of the application (If there are additional aspects to the application please list in Table C—Additional aspects of the application.)

a) What is the nature of development? (Please only tick one box.)

☐ Material change of use ☐ Reconfiguring a lot ☐ Building work ☐ Operational work

b) What is the approval type? (Please only tick one box.)

☐ Preliminary approval under s241 of SPA ☐ Preliminary approval under s241 and s242 of SPA ☐ Development permit

c) Provide a brief description of the proposal, including use definition and number of buildings or structures where applicable (e.g. six unit apartment building defined as a *multi-unit dwelling*, 30 lot residential subdivision etc.)

d) What is the level of assessment?

☐ Impact assessment ☐ Code assessment

Table C—Additional aspects of the application (If there are additional aspects to the application please list in a separate table on an extra page and attach to this form.)

☐ Refer attached schedule ☒ Not required

2. Location of the premises (Complete Table D and/or Table E as applicable. Identify each lot in a separate row.)

Table D—Street address and lot on plan for the premises or street address and lot on plan for the land adjoining or adjacent to the premises (Note: this table is to be used for applications involving taking or interfering with water). (Attach a separate schedule if there is insufficient space in this table.)

☐ Street address **and** lot on plan (All lots must be listed.)

☒ Street address **and** lot on plan for the land adjoining or adjacent to the premises (Appropriate for development in water but adjoining or adjacent to land, e.g. jetty, pontoon. All lots must be listed.)

Street address					**Lot on plan description**		**Local government area** (e.g. Logan, Cairns)
Lot	Unit no.	Street no.	Street name and official suburb/ locality name	Post-code	Lot no.	Plan type and plan no.	
i)			Newell Beach	4873	374	SR533	Douglas Shire Council
ii)							
iii)							

Planning scheme details (If the premises involves multiple zones, clearly identify the relevant zone/s for each lot in a separate row in the below table. Non-mandatory)

Lot	Applicable zone / precinct	Applicable local plan / precinct	Applicable overlay/s
i)			
ii)			
iii)			

Table E—Premises coordinates (Appropriate for development in remote areas, over part of a lot or in water not adjoining or adjacent to land e.g. channel dredging in Moreton Bay.) (Attach a separate schedule if there is insufficient space in this table.)

Coordinates (Note: place each set of coordinates in a separate row)				**Zone reference**	**Datum**	**Local government area (if applicable)**
Easting	Northing	Latitude	Longitude			
~145.406364 And ~145.406202	~-16.429548 And ~-16.430554			56	☐ GDA94 ☒ WGS84 ☐ other	Douglas Shire Council

3. Total area of the premises on which the development is proposed (indicate square metres)

Approximately 40m^2 (up to 15m in length each) for each groyne: 300m^2 in total
Total area potentially requiring beach nourishment: 420m x 15 = 6,300m^2 in total

4. Current use/s of the premises (e.g. vacant land, house, apartment building, cane farm etc.)

Public use (beach)

5. Are there any current approvals (e.g. a preliminary approval) associated with this application? (Non-mandatory requirement)

☒ No ☐ Yes—provide details below

List of approval reference/s	Date approved (dd/mm/yy)	Date approval lapses (dd/mm/yy)

6. Is owner's consent required for this application? (Refer to notes at the end of this form for more information.)

☐ No

☒ Yes—complete either Table F, Table G or Table H as applicable

Table F	
Name of owner/s of the land	
I/We, the above-mentioned owner/s of the land, consent to the making of this application.	
Signature of owner/s of the land	
Date	

Table G	
Name of owner/s of the land	**Reserve Land for Recreation Purposes**
☒ The owner's written consent is attached or will be provided separately to the assessment manager.	

Table H	
Name of owner/s of the land	
☐ By making this application, I, the applicant, declare that the owner has given written consent to the making of the application.	

7. Identify if any of the following apply to the premises (Tick applicable box/es.)

☒ Adjacent to a water body, watercourse or aquifer (e.g. creek, river, lake, canal)—complete Table I

☐ On strategic port land under the *Transport Infrastructure Act 1994*—complete Table J

☒ In a tidal water area—complete Table K

☐ On Brisbane core port land under the *Transport Infrastructure Act 1994* (No table requires completion.)

☐ On airport land under the *Airport Assets (Restructuring and Disposal) Act 2008* (no table requires completion)

☐ Listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* (no table requires completion)

Table I
Name of water body, watercourse or aquifer
Coral Sea

Table J	
Lot on plan description for strategic port land	Port authority for the lot

Table K	
Name of local government for the tidal area (if applicable)	Port authority for the tidal area (if applicable)
Douglas Shire Council	N/A

8. Are there any existing easements on the premises? (e.g. for vehicular access, electricity, overland flow, water etc)

☒ No ☐ Yes—ensure the type, location and dimension of each easement is included in the plans submitted

9. Does the proposal include new building work or operational work on the premises? (Including any services)

☐ No ☒ Yes—ensure the nature, location and dimension of proposed works are included in plans submitted

10. Is the payment of a portable long service leave levy applicable to this application? (Refer to notes at the end of this form for more information.)

☒ No—go to question 12 ☐ Yes

11. Has the portable long service leave levy been paid? (Refer to notes at the end of this form for more information.)

☐ No

☐ Yes—complete Table L and submit with this application the yellow local government/private certifier's copy of the receipted QLeave form

Table L		
Amount paid	Date paid (dd/mm/yy)	QLeave project number (6 digit number starting with A, B, E, L or P)

12. Has the local government agreed to apply a superseded planning scheme to this application under section 96 of the *Sustainable Planning Act 2009*?

☒ No

☐ Yes—please provide details below

Name of local government	Date of written notice given by local government (dd/mm/yy)	Reference number of written notice given by local government (if applicable)

13. List below all of the forms and supporting information that accompany this application (Include all IDAS forms, checklists, mandatory supporting information etc. that will be submitted as part of this application. Note: this question does not apply for applications made online using MyDAS)

Description of attachment or title of attachment	Method of lodgement to assessment manager
Checklists 1 and 4	Email
IDAS Form 23	Email
Drawing 621-001-SK01	Email
Response to SDAP provisions	Email
Response to Schedule 4A	Email

14. Applicant's declaration

☒ By making this application, I declare that all information in this application is true and correct (Note: it is unlawful to provide false or misleading information)

Notes for completing this form

- Section 261 of the *Sustainable Planning Act 2009* prescribes when an application is a properly-made application. Note, the assessment manager has discretion to accept an application as properly made despite any non-compliance with the requirement to provide mandatory supporting information under section 260(1)(c) of the *Sustainable Planning Act 2009*

Applicant details

- Where the applicant is not a natural person, ensure the applicant entity is a real legal entity.

Question 1

- Schedule 3 of the Sustainable Planning Regulation 2009 identifies assessable development and the type of assessment. Where schedule 3 identifies assessable development as "various aspects of development" the applicant must identify each aspect of the development on Tables A, B and C respectively and as required.

Question 6

- Section 263 of the *Sustainable Planning Act 2009* sets out when the consent of the owner of the land is required for an application. Section 260(1)(e) of the *Sustainable Planning Act 2009* provides that if the owner's consent is required under section 263, then an application must contain, or be accompanied by, the written consent of the owner, or include a declaration by the applicant that the owner has given written consent to the making of the application. If a development application relates to a state resource, the application is not required to be supported by evidence of an allocation or entitlement to a state resource. However, where the state is the owner of the subject land, the written consent of the state, as landowner, may be required. Allocation or entitlement to the state resource is a separate process and will need to be obtained before development commences.

Question 7

- If the premises is listed on either the Contaminated Land Register (CLR) or the Environmental Management Register (EMR) under the *Environmental Protection Act 1994* it may be necessary to seek compliance assessment. Schedule 18 of the Sustainable Planning Regulation 2009 identifies where compliance assessment is required.

Question 11

- The *Building and Construction Industry (Portable Long Service Leave) Act 1991* prescribes when the portable long service leave levy is payable.
- The portable long service leave levy amount and other prescribed percentages and rates for calculating the levy are prescribed in the Building and Construction Industry (Portable Long Service Leave) Regulation 2002.

Question 12

- The portable long service leave levy need not be paid when the application is made, but the *Building and Construction Industry (Portable Long Service Leave) Act 1991* requires the levy to be paid before a development permit is issued.
- Building and construction industry notification and payment forms are available from any Queensland post office or agency, on request from QLeave, or can be completed on the QLeave website at www.qleave.qld.gov.au. For further information contact QLeave on 1800 803 481 or visit www.qleave.qld.gov.au.

Privacy—The information collected in this form will be used by the Department of State Development, Infrastructure and Planning (DSDIP), assessment manager, referral agency and/or building certifier in accordance with the processing and assessment of your application. Your personal details should not be disclosed for a purpose outside of the IDAS process or the provisions about public access to planning and development information in the *Sustainable Planning Act 2009*, except where required by legislation (including the *Right to Information Act 2009*) or as required by Parliament. This information may be stored in relevant databases. The information collected will be retained as required by the *Public Records Act 2002*.

OFFICE USE ONLY

Date received		Reference numbers	

NOTIFICATION OF ENGAGEMENT OF A PRIVATE CERTIFIER

To [ ] Council. I have been engaged as the private certifier for the building work referred to in this application

Date of engagement	Name	BSA Certification license number	Building classification/s

QLEAVE NOTIFICATION AND PAYMENT (For completion by assessment manager or private certifier if applicable.)

Description of the work	QLeave project number	Amount paid ($)	Date paid	Date receipted form sighted by assessment manager	Name of officer who sighted the form

The *Sustainable Planning Act 2009* is administered by the Department of State Development, Infrastructure and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

IDAS form 23—Tidal works and development within coastal management districts

(*Sustainable Planning Act 2009* version 3.0 effective 1 July 2013)

This form must be used for development applications for:

- operational work that is tidal works (including prescribed tidal works) or operational work within a coastal management district (mentioned in the Sustainable Planning Regulation 2009, schedule 7, table 2, item 13)
- material change of use that requires referral under the Sustainable Planning Regulation 2009, schedule 7, table 3, item 5 because it involves:
  - operational work carried out completely or partly in a coastal management district; or
  - building work carried out completely or partly in a coastal management district that is the construction of a new premises with a gross floor area (GFA) of at least 1000m^2 or the enlargement of the GFA of an existing premises by more than 1000m^2
- reconfiguring a lot that requires referral under the Sustainable Planning Regulation 2009, schedule 7, table 2, item 14 because the land is situated completely or partly in a coastal management district or the reconfiguration is in connection with the construction of a canal
- building work that requires referral under the Sustainable Planning Regulation 2009, schedule 7, table 1, item 11 because it is on land completely or partly seaward of a coastal building line.

You **MUST** complete **ALL** questions that are stated to be a mandatory requirement unless otherwise identified on this form.

Notes for completing this form

For all development applications you must:

- complete *IDAS form 1—Application details*
- complete any other forms relevant to your application
- provide any mandatory supporting information identified on the forms as being required to accompany your application.

Attach extra pages if there is insufficient space on this form.

All terms used on this form have the meaning given in the *Coastal Management and Protection Act 1995*, the Coastal Protection and Management Regulation 2003, the *Sustainable Planning Act 2009* (SPA) or the Sustainable Planning Regulation 2009.

This form can also be completed online using MyDAS at www.dsdip.qld.gov.au/MyDAS

Mandatory requirements

1. Confirm the following mandatory requirements accompany this application	**Confirmation of lodgement**	**Method of lodgement**
Written description of the proposal, including a report that addresses any relevant policies.	☒ Confirmed	

2. What is the nature of the work or development proposed by the application? (Tick all applicable boxes.)

☒ Operational work—complete table A
☐ Material Change of Use—complete table B
☐ Reconfiguring a Lot—complete table C
☐ Building Work—complete table D

Table A—Operational Work

Does the operational work involve the following? (Tick all applicable boxes.)

a) Tidal works as defined under the *Coastal Protection and Management Act 1995* (e.g. basins, breakwater, bridges, boat ramps, decks and boardwalks, docks, dockyards, groynes, jetties, marinas, pipelines, pontoons, powerlines, seawalls, slips, training walls, wharves and the reclamation of land under tidal water)?

☐ No ☒ Yes

If yes, what is the purpose?

Construction of up to six sandbag groynes perpendicular to Newell Beach and beach nourishment to assist in the restoration of the shoreline following coastal erosion and storm events.

☐ Private purpose (e.g. private pontoon)

☒ Another purpose (e.g. commercial marina)

Does the tidal works also require resource allocation under the *Coastal Protection and Management Act 1995*?

☐ No ☒ Yes

If applicable what is the estimated value of the proposed works?

Approximately $37,000.00

b) Interfering with quarry material as defined under the *Coastal Protection and Management Act 1995* (e.g. excavating or moving sand, gravel or any other earth material on state coastal land such as roads, esplanades, parks or unallocated state land) on state coastal land above high-water mark.

☐ No ☒ Yes

If yes, which of the following?

☒ Works for coastal management purpose involving beach nourishment, dune fencing, revegetation of dunal areas with endemic native plants, or stinger net enclosures.

☐ For purposes directly related to the provision of lifesaving or rescue services by a volunteer community organisation.

☐ For other purposes (please state below).

If applicable what is the estimated value of the proposed works?

c) Disposing of dredge spoil or other solid waste material in tidal water?

☒ No ☐ Yes

If applicable what is the estimated value of the proposed works?

d) Constructing an artificial waterway?

☒ No ☐ Yes

If applicable what is the length of the waterway?

e) Removing or interfering with coastal dunes on land, other than state coastal land, that is in an erosion prone area as defined in the *Coastal Protection and Management Act 1995* and above high water mark (e.g. lowering dune vegetation on freehold and leasehold land)?

☒ No ☐ Yes

If applicable what is the estimated value of the proposed works?

Table B—Material change of use

a) Does the material change of use involve the following? (Tick all applicable boxes.)

☐ Operational work carried out completely or partly in a coastal management district

b) Does the material change of use involve building work carried out completely or partly in a coastal management district that is:

☐ the construction of new premises with a gross floor area of at least 1000 m^2

☐ the enlargement of the gross floor area of existing premises by more than 1000 m^2

Table C—Reconfiguring a lot

a) Does the reconfiguring a lot involve the following? (Tick all applicable boxes.)

☐ Land situated completely or partly in a coastal management district

☐ The construction of a canal

b) How many lots will be created?

Table D—Building work

a) Is the building work on land completely or partly seaward of the coastal building line under the *Coastal Protection and Management Act 1995*?

☐ No ☐ Yes

3. Is the tidal works located within a local government tidal area? (Tick all applicable boxes)

☐ No ☒ Yes—provide details below

Local government:	**Douglas Shire Council**

Mandatory supporting information

4. Please provide the following information	**Confirmation of lodgement**	**Method of lodgement**
For all applications		
A statement addressing the relevant part(s) of the State Development Assessment Provisions (SDAP).	☒ Confirmed ☐ Not applicable	
For applications involving operational work that is tidal works		
A copy of the certificate of title for the land (including tidal land) that would abut or adjoin the proposed works.	☐ Confirmed ☒ Not applicable	
Plans showing: • the real property description and boundaries of the land (including tidal land) that would abut or adjoin the proposed works • the proposed works (including existing works to be removed) in relation to relevant tidal planes (e.g. mean high water springs) • the slope angles of the beds and banks of the tidal area and the finished levels of the proposed works.	☒ Confirmed ☐ Not applicable	
For tidal work that will occupy a navigable waterway provide a water allocation area plan providing evidence that the proposed work will not prejudice the access rights of adjoining property owners.	☐ Confirmed ☒ Not applicable	

Details of the largest vessel, if any, to be moored at the structure.	☐ Confirmed ☒ Not applicable	
For prescribed tidal works, details of how the proposed work addresses the IDAS code for prescribed tidal work in the Coastal Protection and Management Regulation 2003, schedule 4A.	☒ Confirmed ☐ Not applicable	
If applicable, certification that the design of tidal works is suitable for intended use, signed by a Registered Professional Engineer of Queensland (or equivalent).	☒ Confirmed ☐ Not applicable	
For applications involving material change of use		
Plans certified by a registered professional engineer of Queensland (RPEQ) or a registered surveyor showing: • the real property description and boundaries of the land • the proposed works in relation to the location of the coastal management district and coastal hazards.	☐ Confirmed ☒ Not applicable	
For applications involving reconfiguring a lot		
Plans certified by a registered surveyor showing: • the real property description and boundaries of the land • The location of the coastal management district and coastal hazards in relation to the land being reconfigured • Any land being surrendered as a separate lot on the plan of subdivision.	☐ Confirmed ☒ Not applicable	
For applications involving building works seaward of a coastal building line		
Plans certified by a registered professional engineer of Queensland (RPEQ): • the real property description and boundaries of the land • the proposed works in relation to the location of the coastal building line.	☐ Confirmed ☒ Not applicable	

Notes for completing this form

- Please ensure all applicable fees are paid, noting that referral agency fees are to be paid to the Department of Environment and Heritage Protection.
- For an application requiring referral to the Department of Transport and Main Roads (DTMR), it is recommended that the applicant contact DTMR to ensure that required information for assessment of the application is provided.

Privacy—Please refer to your assessment manager, referral agency and/or building certifier for further details on the use of information recorded in this form.

OFFICE USE ONLY

Date received		Reference numbers	

The *Sustainable Planning Act 2009* is administered by the Department of State Development, Infrastructure and Planning. This form and all other required application materials should be sent to your assessment manager and any referral agency.

Ref: 621-002-2015-002L

24 June 2015

Douglas Shire Council
PO Box 723
Mossman QLD 4873

ProjexPartners

PROJECT MANAGEMENT | ENGINEERING | PLANNING

Dear Sir/Madam,

NEWELL BEACH, NEWELL – PRESCRIBED TIDAL WORKS
APPLICATION FOR OPERATIONAL WORKS

Please find enclosed the following documentation in relation to this operational works application to provide coastal protection on Lot 374/SR533 Newell Beach by constructing up to six sand bag groynes and beach replenishment of Newell Beach. The applicant in this regard is the Douglas Shire Council.

- Checklists 1 and 4;
- IDAS Form 1 – Application Details;
- IDAS Form 23 – Tidal works and development within coastal management districts;
- Owners Consent approval;
- Drawing 621-002-SK01;
- Response to SDAP Module 10 and Module 14;
- Response to Schedule 4A of the Coastal Protection and Management Regulation 2003;
- "Newell Beach Erosion" report (Projex Partners, 16 April 2015).

Newell Beach has undergone significant erosion which threatens homes along Rankin Street, Olive Street, Cyril Close and Marine Parade. Council have previously undertaken emergency works in the form of beach nourishment to provide a buffer to the houses, however, erosion has resulted in the removal of this sand is beginning to encroach on beach front properties. It is understood that erosion of the beach is likely the result of a large sand bar which has formed at the Mossman River mouth, preventing longshore drift processes and the natural accretion of sand along Newell Beach.

Council wish to undertake coastal protection works by establishing up to six sand bag groyne structures on Newell Beach to assist in reinstating the beach profile. Council will be undertaking beach nourishment to restore the beach profile which the groynes will assist in maintaining by acting as a barrier and preventing sand migrating north via longshore drift. It is noted however that these works are preventative measures only and that processes which result in the natural accretion of sand along Newell Beach will not occur until the sand bar at the Mossman River reduces.

Please don't hesitate in contacting the undersigned should you wish to discuss any aspect of this application in further detail.

Kind regards,

DANIEL BERRY
Principal Engineer

Encl.

SUNSHINE COAST
Level 2, 9 Capital Place,
Lake Kawana Business Village, Birtinya, QLD 4575
PO Box 1415, Buddina, QLD 4575
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MACKAY
5 Peel Street,
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PO Box 11011, Mackay QLD 4740
t: (07) 4957 4988
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ABN: 62153518971

www.projexpartners.com.au

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

10.1 Tidal works, or development in a coastal management district state code

Table 10.1.1: All development

Performance outcomes	Acceptable outcomes	Response	Comment
PO1 Development in a coastal hazard area is compatible with the level of severity of the coastal hazard.	**AO1.1** Development is located outside a high coastal hazard area unless it is: (1) coastal-dependent development, or (2) compatible with inundation due to its nature or function, or (3) temporary, readily relocatable, or able to be abandoned, or (4) essential community service infrastructure, or (5) small - to medium-scale tourist development, or (6) redevelopment within an existing built-up urban area, or is redevelopment of built structures that cannot be relocated or abandoned. AND	Achieved	The sandbag groyne structures are located within a high coastal hazard area to assist in erosion control and are classified as coastal-dependent development. Beach nourishment activities are also coastal dependant.
	AO1.2 Development referred to in AO1.1(6) avoids being located within a high coastal hazard area, or where this is not practicable, minimises the exposure of people and permanent structures to coastal hazard impacts.	N/A	These works do not relate to development referred to in AO1.1 (6).
PO2 Development siting, layout and access in a coastal hazard area responds to potential inundation due to a defined storm tide event and minimises associated risks to personal safety and property.	**AO2.1** Development within a coastal hazard area is located, designed, constructed and operated to maintain or enhance the community's resilience to defined storm tide events by limiting the exposure of people and structures to associated impacts. AND	Achieved	The sandbag structures have been designed, located and constructed to assist in reducing erosion processes occurring and enhance resilience to storm tide events.
	AO2.2 Development mitigates any residual impacts from storm tide inundation in a coastal hazard area including by ensuring: (1) habitable rooms of built structures are located above the defined storm tide event level and any additional freeboard level that would ordinarily apply in a flood prone area under a relevant planning scheme standard, or (2) a safe refuge is available for people within the premises during a defined storm tide event, or (3) at least one evacuation route remains passable for emergency evacuations during a defined storm tide	Achieved	These works will assist in improving the shorelines resilience to storm tide events by promoting the build-up of sand.

Performance outcomes	Acceptable outcomes	Response	Comment
	event, including consideration of the capacity of the route to support the evacuation of the entire local population within a reasonably short timeframe (for example, 12 hours). AND		
	AO2.3 Development within a coastal hazard area is located, designed and constructed to ensure exposed structures can sustain flooding from a defined storm tide event. AND	Achieved	These works will assist in improving the shorelines resilience to storm tide events by promoting the build-up of sand.
	AO2.4 Essential community service infrastructure is: (1) located so that it is not inundated by a recommended storm tide event specified for that infrastructure, or (2) located and designed to ensure any components of the infrastructure that are likely to fail to function or may result in contamination when inundated by a storm tide (for example, electrical switch gear and motors, water supply pipeline air valves) are: (a) located above the peak water level for a recommended storm tide event, or (b) designed and constructed to exclude storm tide intrusions or infiltration (including by being located in the ground), or (c) able to temporarily stop functioning during a recommended storm tide event without causing significant adverse impacts to the infrastructure or the community. AND	N/A	These works do not involve community infrastructure.
	AO2.5 Emergency services infrastructure and emergency shelters, police facilities, and hospitals and associated facilities have an emergency rescue area above the peak water level for a recommended storm tide event.	N/A	These works do not impact any emergency services infrastructure.
PO3 Development directly, indirectly and cumulatively avoids an unacceptable increase in the severity of the coastal hazard, and does not significantly increase the potential for damage on the premises or to other premises.	**AO3.1** Development avoids increasing the number of premises from which people would need to be evacuated to prevent death or injury from a defined storm tide event.	Achieved.	These works will assist in reducing erosion risk along Newell Beach and therefore do not increase the severity of the coastal hazard.
PO4 Development avoids the release of	**AO4.1** Development that involves the manufacture or	N/A	These works do not involve the manufacture or storage of

Performance outcomes	Acceptable outcomes	Response	Comment
hazardous materials as a result of a natural hazard event. Editor's note: Applications should: (1) assess the risk of storm tide inundation releasing or otherwise exposing hazardous materials, including appropriate emergency planning and contingency measures. (2) applications are to be supported by a report certified by a Registered Professional Engineer of Queensland (RPEQ) that demonstrates this performance outcome will be achieved.	storage of hazardous materials in bulk are designed to: (1) prevent the intrusion of waters from a defined storm tide event into structures or facilities containing the hazardous materials, or (2) ensure hazardous materials remain secured despite inundation, including secure from the effects of hydrodynamic forcing associated with wave action or flowing water.		hazardous materials.
PO5 Natural processes and the protective function of landforms and vegetation are maintained in coastal hazard areas.	**AO5.1** Development in an erosion prone area within the coastal management district: (1) maintains vegetation on coastal landforms where its removal or damage may: (a) destablise the area and increase the potential for erosion, or (b) interrupt natural sediment trapping processes or dune or land building processes (2) maintains sediment volumes of dunes and near-shore coastal landforms, or where a reduction in sediment volumes cannot be avoided, increased risks to development from coastal erosion are mitigated by location, design, construction and operating standards (3) minimises the need for erosion control structures or riverbank hardening through location, design and construction standards (4) maintains physical coastal processes outside the development footprint for the development, including longshore transport of sediment along the coast (5) reduces the risk of shoreline erosion for areas adjacent to the development footprint unless the development is an erosion control structure (6) reduces the risk of shoreline erosion for areas adjacent to the development footprint to the maximum extent feasible in the case of erosion control structures. AND	Achieved	1) These works will not require the removal of marine plants. The area will be further stabilised following the establishment of the sandbag groyne structures. 2) Sediment volumes along Newell Beach will be temporarily impacted to reinstate the beach profile in front of the houses. The groynes may temporarily prevent sand travelling immediately north of the structure, however, once the beach profile is restored sand will overtop the structure and natural processes will continue. The impact to the beach north of the structure is expected to be minimal due to the short length of the structures. 3) These works are for erosion control purposes following severe erosion of Newell Beach. 4) The groynes have been designed to promote the accretion of sand on the southern side of the structure to reinstate the beach profile. The height of the structures have been designed so that once the desired beach profile has been achieved, sand will overtop the structure and natural process will continue and the structures will become buried. Beach nourishment activities (of up to 5,500m^3 / annum) will assist in reducing the impact of sand transport along the coast. 5) The development is an erosion control structure. 6) As discussed in Item 2 and 4, the groynes may prevent sand from travelling to the immediately north of the structure, however the area affected is

Performance outcomes	Acceptable outcomes	Response	Comment
			expected to be relatively minor with no long term impacts.
	AO5.2 Development in a storm tide inundation area is located, designed, constructed and operated to: (1) maintain dune crest heights, or where a reduction in crest heights cannot be avoided, mitigate risks to development from wave overtopping and storm tide inundation (2) maintain or enhance coastal ecosystems and natural features, such as mangroves and coastal wetlands, between the development and tidal waters, where the coastal ecosystems and natural features protect or buffer communities and infrastructure from storm tide inundation. AND	Achieved	1) These works will increase the coastal dunes resilience to storm tide events. 2) These works are not expected to impact on ecosystems.
	AO5.3 Redevelopment of built structures in the erosion prone area within a coastal management district: (1) avoids intensifying the use of the premises, or (2) demonstrates that any intensification of use will not result in an increase in the need for erosion control structures or riverbank hardening. AND	N/A	These works do not involve the redevelopment of built structures in the erosion prone area.
	AO5.4 Development that is coastal protection work involves: (1) beach nourishment undertaken in accordance with a program of beach nourishment works that source sediment of a suitable quality and type from outside the active beach system, or (2) the construction of an erosion control structure, where it is demonstrated that installing an erosion control structure is the only feasible option for protecting permanent structures from coastal erosion and those structures cannot be abandoned or relocated in the event of coastal erosion occurring. Editor's note: Applications for coastal protection work should be supported by a report certified by a Registered Professional Engineer of Queensland (RPEQ) that demonstrates how the engineering solution sought by the work will be achieved. Editor's note: Applications for erosion control structures should demonstrate the consideration of beach nourishment techniques, and include a statement of why nourishment (in whole or part)	Achieved	1) Council have previously undertaken beach nourishment as part of emergency works to provide protection to the houses fronting the beach. 2) The construction of the sandbag groynes is considered the most appropriate erosion control option. Although beach nourishment may restore the beach to its natural profile, erosion is likely to reoccur due to longshore drift processes prevented by the sandbar at the river mouth. The groynes will assist in providing increased protection during these events offering additional protection to the houses situated along Newell Beach. Separate to this application, Council is considering the removal of sand bars at some stage, which will improve the effectiveness of the groyne structure. The attached report "Newell Beach Erosion" (Projex Partners, 16 April 2015) outlines the review of the processes and the recommendations for the works.

Performance outcomes	Acceptable outcomes	Response	Comment
	has not been adopted as the preferred means of controlling the erosion risk. AND		
	AO5.5 Development involving reclamation: (1) does not alter, or otherwise minimises impacts on, the physical characteristics of a waterway or the seabed near the reclamation, including flow regimes, hydrodynamic forces, tidal water and riverbank stability (2) is located outside the active sediment transport area, or otherwise maintains sediment transport processes as close as possible to their natural state (3) ensures activities associated with the operation of the development maintain the structure and condition of vegetation communities and avoid wind and water run-off erosion. Editor's note: Applications for reclamation should be supported by a report certified by an RPEQ that demonstrates how the engineering solutions sought by the work will be achieved	N/A	These works do not involve reclamation.
PO6 Erosion prone areas in a coastal management district are maintained as development free buffers, or where permanent buildings or structures exist, coastal erosion risks are avoided or mitigated.	**AO6.1** Development locates built structures outside the part of the coastal management district that is the erosion prone area unless the development is listed under AO1.1 (1) – (5). AND	N/A	Works are considered to be coastal-dependant development.
	AO6.2 Development is located outside the erosion prone area unless it is redevelopment. AND	N/A	Works are considered to be coastal-dependant development.
	AO6.3 Coastal-dependent development: (1) locates, designs and constructs relevant buildings or structures to withstand coastal erosion impacts, including by use of appropriate foundations, or (2) installs and maintains coastal protection works to mitigate adverse impacts to people and permanent structures from coastal erosion at the location. AND	Achieved	These works will assist in mitigating adverse impacts to people and permanent structures from coastal erosion at the location by providing stabilisation to the shoreline and ensuring safe access to the foreshore.
	AO6.4 Development that is temporary, readily relocatable or able to be abandoned, or essential community service infrastructure:	N/A	These works are not for habitable development and considered to be coastal dependent requiring to be located beyond the coastal building line.

Performance outcomes	Acceptable outcomes	Response	Comment
	(1) locates built structures landward of an applicable coastal building line, or (2) where there is no coastal building line, locates habitable built structures landward of the alignment of adjacent habitable buildings, or locates lifesaver towers or beach access infrastructure to minimise its impacts on physical coastal processes, or (3) where it is demonstrated that (1) or (2) is not reasonable and (3) does not apply: (a) locates built structures as far landward as practicable (b) uses layout design to minimise the footprint of the development that remains within the erosion prone area. AND		
	AO6.5 Redevelopment of existing built structures not referred to in AO6.4, and excluding marine development: (1) relocates built structures outside that part of the erosion prone area that is within the coastal management district, or (2) relocates built structures as far landward as practicable, and landward of an applicable coastal building line, or (3) where there is no coastal building line: (a) relocates built structures landward of the alignment of adjacent habitable buildings, or (b) uses layout design to minimise the footprint of the development that remains within the erosion prone area, or (c) provides sufficient space seaward of the development within the premises to allow for the construction of erosion control structures. AND	N/A	Works do not involve redevelopment of existing built structures.
	AO6.6 Redevelopment of built structures in the erosion prone area within a coastal management district, which results in an intensification of use, mitigates the erosion threat to the development, having regard to: (1) design and construction standards (2) installing and maintaining on-site erosion control structures within the premises if the development is	N/A	These works are an erosion control structure and will not result in intensification of use.

Performance outcomes	Acceptable outcomes	Response	Comment
	not intended to be temporary.		
PO7 Private marine development avoids or minimises adverse impacts on coastal resources and their values, to the maximum extent reasonable.	**AO7.1** Coastal protection work that is in the form of beach nourishment uses methods of placement suitable for the location that do not interfere with the long-term use of the locality of, or natural values within or neighbouring, the proposed placement site. AND	N/A	These works are not for a private marine development.
	AO7.2 Marine development is located and designed to expand on or redevelop existing marine infrastructure unless it is demonstrated that it is not practicable to co-locate the development with existing marine infrastructure. AND	N/A	These works are for the construction of sand bag groynes and are not considered marine development.
	AO7.3 Marine development: (1) relies on a natural channel of a depth adequate for the intended vessels, or (2) where there are no feasible alternative locations for the facility in the local area that do not require dredging for navigation channel purposes: (a) involves capital dredging for new navigation channel purposes (b) is located, designed and operated to minimise the need for capital and subsequent maintenance dredging for navigation channel purposes. AND	N/A	Works are not related to this form of marine development.
	AO7.4 Development minimises dredging or the disposal of material in coastal waters during key biological events (such as fish aggregations or spawning) for species found in the area. AND	Achieved	Works do not involve dredging or disposal of material into coastal waters.
	AO7.5 Measures are to be incorporated as part of siting and design of the development to protect and retain identified ecological values and underlying ecosystem processes within or adjacent to the development site to the greatest extent practicable. This includes: (1) maintaining or restoring vegetated buffers between development and coastal waters to the extent	Achieved	(1.) Vegetated buffers will not be impacted by these works. (2.) There is no impact on the connectivity of ecosystems. (3.) Feeding, nesting and breeding sites will not be adversely impacted as a result of these works.

Performance outcomes	Acceptable outcomes	Response	Comment
	practicable, unless the development is within ports or airports, or is marine development (2) maintaining or enhancing the connectivity of ecosystems in consideration of the cumulative effect of the development in addition to existing developed areas (3) retaining coastal wetlands, seagrass beds and other locally important feeding, nesting or breeding sites for native wildlife. AND		These works are not expected to impact on the ecological values or ecosystem processes.
	AO7.6 Measures are incorporated as part of siting and design of the development to maintain or enhance water quality to achieve the environmental values and water quality objectives outlined in the *Environmental Protection (Water) Policy 2009.* AND	Achieved	Water quality will be maintained.
	AO7.7 Development avoids the disturbance of acid sulphate soils, or where it is demonstrated that this is not possible, the disturbance of acid sulphate soils is carefully managed to minimise and mitigate the adverse effects of the disturbance on coastal resources.	N/A	These works do not involve the disturbance of acid sulphate soils.
PO8 Coastal protection work is undertaken only as a last resort where erosion presents an imminent threat to public safety or permanent structures. Editor's note: Applications for coastal protection work must be supported by a report certified by an RPEQ that demonstrates how the engineering solution sought by the work will be achieved.	**AO8.1** Coastal protection work is only undertaken to protect existing permanent structures from imminent adverse coastal erosion impacts, and the structures cannot reasonably be relocated or abandoned. AND	Achieved	Significant storm tide events in the past have resulted in severe erosion along Newell Beach, posing a threat to the housing structures located along the beach front. These works are intended to mitigate the adverse effects of erosion and provide protection to the development in this area.
	AO8.2 Coastal protection work to protect private structures is undertaken on private land to the maximum extent reasonable. AND	N/A	Works are not undertaken to protect private structures on private land.
	AO8.3 Coastal protection work does not increase the coastal hazard risk for adjacent areas or properties.	Achieved	The groyne structures may temporarily restrict sand travelling immediately north of the structures, although the impact area is expected to be minimal. Furthermore, the groyne structures will be buried over time as the beach profile is restored due to beach nourishment and natural processes.
PO9 Development avoids adverse	**AO9.1** Development:	N/A	Works are to provide coastal protection through use of a

Performance outcomes	Acceptable outcomes	Response	Comment
impacts on matters of state environmental significance, or where this is not reasonably possible, impacts are minimised and an environmental offset is provided for any significant residual impacts to matters of state environmental significance that are prescribed environmental matters.	(1) is set back from matters of state environmental significance (2) avoids interrupting, interfering or otherwise adversely impacting underlying natural ecosystem components or processes and interactions that affect or maintain the matters of state environmental significance, such as water quality, hydrology, geomorphology and biological processes, or (3) incorporates measures as part of its location and design to protect and retain matters of state environmental significance and underlying ecosystem processes within and adjacent to the development site to the greatest extent practicable. Editor's note: Applications for development should identify any threatened species or their habitats, or threatened ecosystems that may be affected by the proposal. In particular, applications should identify and describe how the development avoids adverse impacts on any critical life stage ecological processes within or adjacent to the development area. AND		sandbag structure and will not significantly impact ecosystems or processes in the area.
	AO9.2 An environmental offset is provided for any significant residual impact on matters of state environmental significance that are prescribed environmental matters caused by the development. Editor's note: Applications for development should identify anticipated losses, and outline what actions are proposed to be undertaken to offset the loss in accordance with the relevant Queensland Environmental Offsets Policy.	Achieved	The sandbag structures are not expected to have significant adverse environmental impacts and as such, an offset is not considered to be required.
PO10 Development maintains or enhances general public access to or along the foreshore, unless this is contrary to the protection of coastal resources or public safety.	**AO10.1** Development adjacent to state coastal land or tidal water: (1) demonstrates that restrictions to public access are necessary for: (a) the safe or secure operation of development, or (b) the maintenance of coastal landforms and coastal habitat (2) separates residential, tourist and retail development from tidal water with public areas or public access facilities, or (3) maintains existing public access (including public access infrastructure that is in the public interest) through the site to the foreshore for:	Achieved	Public access to Newell Beach will be maintained via the existing designated nodal access points. The sandbag structures will not require the removal of any access points or impede on vehicle access points.

Performance outcomes	Acceptable outcomes	Response	Comment
	(a) pedestrians, via access points including approved walking tracks, boardwalks and viewing platforms, or (b) vehicles, via access points including approved roads or tracks. AND		
	AO10.2 Development adjacent to state coastal land, including land under tidal water: (1) is located and designed to: (a) allow safe and unimpeded access to, over, under or around built structures located on, over or along the foreshore (b) ensure emergency vehicles can access the area near the development, or (2) minimises and offsets any loss of access to and along the foreshore within two kilometres of the existing access points, and the access is located and designed to be consistent with (1)(a) and (b). AND	Achieved.	The proposed sandbag structures maintain safe access for all purposes, over and around the structures. The structures will not obstruct an existing emergency vehicle accesses.
	AO10.3 Any parts of private development that extend over tidal water are to be designed, constructed and used for marine access purposes only.	N/A	These works are not for private development.
PO11 Private marine development avoids structures attaching to, or extending across, non-tidal state coastal land abutting tidal waters.	**AO11.1** Private marine development and other structures such as decks or boardwalks for private use do not attach to, or extend across state coastal land that is situated above the high water mark. Editor's note: For occupation permits or allocations of State land, refer to the *Land Act 1994*.	N/A	These works are not for private development.
PO12 Further development of artificial waterways avoids or minimises adverse impacts on coastal resources and their values, and does not contribute to: (1) an increase in the risk of flooding or erosion (2) degradation of water quality (3) degradation and loss of matters of state environmental significance (including, but not limited to, coastal	**AO12.1** The design, construction and operation of artificial tidal waterways maintains the tidal prism volume of the natural waterway to which it is connected. AND	N/A	These works do not involve the construction of canals, dry land marinas and artificial waterways.
	AO12.2 The design, construction and operation of artificial tidal waterways does not increase risk from flooding. AND	N/A	These works do not involve the construction of canals, dry land marinas and artificial waterways.
	AO12.3 The design, construction and operation of an artificial waterway in connection with the reconfiguration of	N/A	The work does not involve the construction of canals, dry land marinas and artificial waterways.

Performance outcomes	Acceptable outcomes	Response	Comment
wetlands, fish habitat areas and migratory species habitat).	a lot ensures: (1) water inlet and outlets structures are of sufficient capacity to maintain the water quality within the waterway (2) water discharged from the artificial waterway protects the environmental values and water quality objectives of the receiving waters (3) dredged material is not disposed of to tidal water beyond the artificial waterway unless there is a beneficial reuse, e.g. beach nourishment. Editor's note: For more information on environmental values and water quality objectives see Schedule 1 of the Environment Protection (Water) Policy 2009. AND		
	AO12.4 The location of the artificial waterways avoids matters of state environmental significance, or does not result in any significant adverse impact on matters of state environmental significance.	N/A	The work does not involve the construction of canals, dry land marinas and artificial waterways.
PO13 Development does not involve reclamation of land below tidal water, other than for the purposes of: (1) coastal-dependent development, public marine development or community infrastructure (2) strategic ports, boat harbours or strategic airports and aviation facilities, in accordance with a statutory land use plan, where there is a demonstrated net benefit for the state or region and no feasible alternative exists (3) coastal protection work or work necessary to protect coastal resources or physical coastal processes.	No acceptable outcome is prescribed.	Achieved	These works are considered coastal-dependent development for the purpose of providing coast protection.

Performance outcomes	Acceptable outcomes	Response	Comment

Table 10.1.2: Operational work

Performance outcomes	Acceptable outcomes	Response	Comment
PO1 Tidal works that is private marine development does not result in adverse impacts to tidal land. Editor's note: In addressing this performance outcome, the applicant should also have regard to requirements for private marine development in the prescribed tidal works code in the Coastal Protection and Management Regulation 2003. Editor's note: Applications should be supported by a report certified by an RPEQ to demonstrate compliance with this performance outcome.	**AO1.1** The location and design of tidal works that is private marine development: (1) is on private land abutting tidal water and used for property access purposes (2) occupies the minimum area reasonably required for its designed purpose (3) is not to be roofed or otherwise covered (4) does not require the construction of coastal protection works, shoreline or riverbank hardening or dredging for marine access (5) does not adversely impact on public safety or public access and use of the foreshore.	N/A	The work is not private marine development.
PO2 Development does not result in the disposal of material dredged from an artificial waterway into coastal waters, with the exception of: (1) reclamation works, or (2) coastal protection works, or (3) the maintenance of an existing artificial waterway and the at-sea disposal of material that has previously been approved for the waterway.	No acceptable outcome is prescribed.	N/A	The work does not result in the disposal of material dredged from an artificial waterway into coastal waters.
PO3 The design and construction of an artificial waterway maintains coastal landforms.	**AO3.1** The design and construction of the artificial waterway provides for sand bypassing where this is necessary to prevent erosion of adjacent coasts and minimise sedimentation of the waterway. AND	N/A	The works do not involve the construction of an artificial waterway.
	AO3.2 Clean sand accumulating within an artificial waterway is returned to the active beach system, in preference to disposal on land.	N/A	The works do not involve the construction of an artificial waterway.
PO4 Development that involves dredging includes and complies with a management plan that demonstrates how environmental impacts will be managed and mitigated, and how the requirements of the National assessment guidelines for	**AO4.1** A management plan for the development: (1) directs the operation of the development (2) identifies disposal methods and disposal sites for the removed material for the construction and operational phases of the development (3) outlines how any adverse effects from extraction	N/A	These works do not involve dredging.

Performance outcomes	Acceptable outcomes	Response	Comment
dredging, Australia Government Department of the Environment, Water, Heritage and the Arts, 2009 will be met.	activities on sediment transport processes or adjacent coastal landforms will be mitigated or otherwise remediated by suitably planned and implemented beach nourishment and rehabilitation works. Editor's note: The development should comply with the National assessment guidelines for dredging, Australian Government Department of Environment, Water, Heritage and the Arts, 2009. AND		
	AO4.2 For land based disposal of dredged material, any area used for storing, dewatering, drying or rehandling dredged material as outlined in the dredge management plan is: (1) of sufficient size for the projected volume of dredged material from relevant capital or maintenance dredging (2) protected from future development that would compromise the use of the area for its intended purpose of material storage and dewatering. AND	N/A	These works do not involve dredging.
	AO4.3 For at-sea disposal of suitable dredged material, the dredge management plan specifies that material is placed at a dredged material disposal site only if it is demonstrated that it is not feasible to: (1) dispose of the material above the high water mark, if the material is from maintenance works for an existing artificial waterway for which at-sea disposal was previously approved, or (2) keep the dredged material within the active sediment transport system for the locality, or (3) use the material for beach nourishment or another beneficial purpose. AND	N/A	These works do not involve dredging.
	AO4.4 For at-sea disposal of dredged material where the marine spoil disposal site is a retentive (i.e. non-dispersive) site, the disposal site identified in the dredge management plan has the capacity to hold and retain the material within its boundaries during construction and operation of the development. Editor's note: The use of dredged material for a beneficial	N/A	These works do not involve dredging.

Performance outcomes	Acceptable outcomes	Response	Comment
	purpose could include development of port or other marine facilities, use for construction or industrial purposes, or use to create or modify land or waters for an approved environmental outcome (such as creation of a bird roosting site). Further information about beneficial uses is contained in the National assessment guidelines for dredging, Australian Government Department of Environment, Water, Heritage and the Arts, 2009		
Within a wild river area: riparian and wildlife corridor functions			
PO5 The clearing of native marine plants within a wild river area is minimised.	**AO5.1** Clearing of marine plants within a wild river area can only occur to the extent of the works, plus the prescribed area around the development to allow for maintenance.	N/A	This work is not in a wild river area.
PO6 Development within a wild river area does not impact fish passage.	No acceptable outcome is prescribed.	N/A	This work is not in a wild river area.
PO7 There is no net loss in marine plants beyond the extent of the works in a wild river area.	**AO7.1** Any marine plant damaged during construction in a wild river area is replaced at the completion of the development with the same species of plant in the disturbed area outside the footprint of the development.	N/A	This work is not in a wild river area.
PO8 Works within a wild river area do not impact on fish habitat values.	**AO8.1** Works located in tidal waters within a wild river area are located, designed, and constructed using materials to ensure that the activities do not impact on fish habitat values and function.	N/A	This work is not in a wild river area.
Within a wild river area: hydrological processes			
PO9 Development within a wild river area does not impound natural drainage lines or flow paths, during both construction and operation.	No acceptable outcome is prescribed.	N/A	This work is not in a wild river area.
Within a wild river area: geomorphic processes			
PO10 Excavation and filling for prescribed tidal work within a wild river area is carried out only to the extent necessary for the development.	No acceptable outcome is prescribed.	N/A	This work is not in a wild river area.
PO11 Works in a tidal area within a wild river area are designed and constructed in a way to ensure they do not adversely affect the stability of the bed and banks of any waterway.	**AO11.1** Where it is necessary to remove a marine plant, the root system must be left in the substrate to minimise disturbance to bed and banks. AND	N/A	This work is not in a wild river area.

Performance outcomes	Acceptable outcomes	Response	Comment
	AO11.2 When the works are completed, any tidal lands disturbed by activities beyond the footprint of the works are restored to pre-disturbance condition to promote natural restoration of marine plants and fish habitats.	N/A	This work is not in a wild river area.
Within a wild river area: water quality			
PO12 No pollutants are released from the activity.	No acceptable outcome is prescribed.	N/A	This work is not in a wild river area.

Table 10.1.3: Reconfiguring a lot

Performance outcomes	Acceptable outcomes	Response	Comment
PO1 Erosion prone areas in a coastal management district are maintained as development free buffers, or where permanent buildings or structures exist, coastal erosion risks are avoided or mitigated.	**AO1.1** Where reconfiguring a lot is proposed within the coastal management district, the erosion prone area within the lot, or land within 40 metres of the foreshore (whichever is greater), is surrendered to the State for public use unless: (1) the development is in a port or is for coastal-dependent development, or (2) the surrender of the land will not enhance coastal management outcomes, for example, because there is already substantial development seaward of the lot. Editor's note: Land surrendered to the State for public use under AO1.1 is to be: (1) placed in a State land reserve for beach protection and coastal management purposes under the Land Act 1994, with local government as trustee, or (2) managed for beach protection and coastal management purposes under another management regime to the satisfaction of the chief executive administering the Sustainable Planning Act 2009 and Land Act 1994, if it is demonstrated that AO1.1(1) cannot be reasonably achieved. (3) The Land Act 1994 also includes provisions for voluntary land surrender for freehold land to the satisfaction of the chief executive administering the Land Act.	N/A	These works do not involve reconfiguring a lot.
PO2 Development maintains or enhances general public access to or along the foreshore, unless this is contrary to the protection of coastal resources or public safety.	**AO2.1** Reconfiguring a lot that abuts the foreshore or tidal waters is designed to enhance public access if it involves the creation of 10 or more lots or the opening of a new road, unless it is for coastal-dependent development.	N/A	These works do not involve reconfiguring a lot.

Performance outcomes	Acceptable outcomes	Response	Comment
PO3 Development in connection with a canal enhances public access to coastal waters.	**AO3.1** The canal avoids intersecting with land or tidal land where the passage, use or movement of vessels in water could be restricted by the registered proprietor of the land. AND	N/A	These works do not involve reconfiguring a lot.
	AO3.2 The area of the canal relating to the development is surrendered to the State as a public waterway. AND	N/A	These works do not involve reconfiguring a lot.
	AO3.3 The plans of subdivision for the canal are consistent with Requirements for plans of subdivision of an artificial waterway, Department of Environment and Heritage Protection, 2013.	N/A	These works do not involve reconfiguring a lot.

Response column key:
☑ Achieved
P/S Performance solution
N/A Not applicable

14.1 Maritime safety state code

Table 14.1.1: Operational work

Performance outcomes	Acceptable outcomes	Response	Comment
Lighting			
PO1 Development avoids lighting that has the potential to interfere with aids to navigation.	**AO1.1** Development must ensure that at all times, all lights on or above the development site do not interfere with safe navigation in surrounding waterways by: (1) shielding lights to prevent glare or reflection (2) avoiding flood lighting which may reduce the visibility of aids to navigation (3) avoiding flashing or flickering lights which may be confused with aids to navigation (4) avoiding coloured lights such as green, blue or red lights, which may be confused with aids to navigation. AND	N/A	Works do not involve lighting.
	AO1.2 Lighting complies with section 3 of *AS 4282–1997 Control of the obtrusive effects of outdoor lighting.*	N/A	Works do not involve lighting.
Aids to navigation			
PO2 Development does not interfere with aids to navigation.	**AO2.1** Development must not interfere with any aid to navigation on the development site. AND	Achieved	Works are located close to shore and will not interfere with navigation.
	AO2.2 Development must not create any temporary or permanent obstruction of aids to navigation. AND	Achieved	Works are located close to shore and will not interfere with navigation.
	AO2.3 Development must keep the sight line of any aids to navigation which cross the land clear of obstructions. AND	Achieved	Works are located will not obstruct any site lines of any aids to navigation.
	AO2.4 Development must allow ongoing access to aids to navigation for maintenance purposes. AND	Achieved	Works are not located near or obstruct access to navigation aids.
	AO2.5 Development does not result in significant electrical or electro-magnetic emissions which may impede the operation of aids to navigation.	N/A	Proposed works do does not result in any electrical or electro-magnetic emissions.

Performance outcomes	Acceptable outcomes	Response	Comment
	AND		
	AO2.6 Development: (1) is not within 40 metres of an existing aid to navigation, or (2) does not, within 40 metres of an existing aid to navigation, remove any material that may destabilise the aid to navigation (including ground tackle).	Achieved	There are no nearby navigation aids which the works will interfere with.
Protection of navigable waterways			
PO3 Development does not encroach on the navigable waterway in a way that impedes the safe passage of vessels.	**AO3.1** Development is to be carried out in a manner that ensures the navigable waterway is open to vessel traffic at all times. Editor's note: Where development proposes to temporarily or permanently limit the depth of a navigable waterway or the size of vessels which can navigate a waterway, it is recommended that a vessel traffic management plan be provided. It is also recommended a marine execution plan be submitted to the regional harbour master 30 days prior to the commencement of works. AND	Achieved	Navigable waterways will remain open during and after the completion of the works.
	AO3.2 Development: (1) does not extend beyond the quayline, or (2) if there is no quayline, any structures that are part of the development do not extend beyond that of approved neighbouring structures. AND	Achieved	Works will not extend past the quayline.
	AO3.3 Development does not limit either the depth of a navigable waterway or the size of vessels which can safely navigate the waterway. Editor's note: Where development closes or impedes vessel traffic in a navigable channel, the applicant must prepare a vessel traffic management plan. It is also recommended a marine execution plan be submitted to the Regional Harbour Master 30 days prior to the commencement of works. AND	Achieved	Works will not impact on navigation access.
	AO3.4 Development involving the demolition of structures in a navigable waterway, including piling, must ensure the	N/A	Works do not involve piling or demolition of structures.

Performance outcomes	Acceptable outcomes	Response	Comment
	entire structure is removed. AND		
	AO3.5 Structures, including all freestanding piles, must be appropriately lit and clearly visible to approaching vessels, and reflective tape must be fitted to all structures to enhance visibility during the hours of darkness. Editor's note: Where necessary, the Regional Harbour Master may require the installation of aids to navigation on structures.	N/A	Works are to construct two groyne structures and will not require lighting.
PO4 Development does not adversely affect navigable access to neighbouring premises.	**AO4.1** Development, including structures and any vessel berthed at the structures: (1) if the development involves a finger pontoon, boat ramp or abuts a park or public area—has a setback area that maintains a safe navigable access to adjoining properties, or (2) otherwise—retains a 1.5 metre setback from the water allocation side boundaries.	Achieved	Development does not adversely affect navigable access to neighbouring premises.

Queensland

Coastal Protection and Management Act 1995

Coastal Protection and Management Regulation 2003

Current as at 1 July 2014

Part 3 Specific outcomes and probable solutions Table

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Character and amenity (generally)—prescribed tidal work in a canal			
1.1 Prescribed tidal work in a canal and for a private purpose is compatible with its location, having regard to the following— (a) the character and amenity of the work's immediate surroundings and the locality within which the work is located; (b) if the relevant planning scheme states the desired character or amenity for the work's immediate surroundings or the locality within which the work is located—the stated desired character or amenity.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (c), prescribed tidal work does not extend past the side boundary or extended side boundary of the lot connected to the work; (b) subject to paragraph (c), prescribed tidal work is not roofed; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b); (d) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) to (c).	N/A	Works are not for private purpose.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
1.2 Prescribed tidal work in a canal and for a non-private purpose is compatible with its location, having regard to the following— (a) the character and amenity of the work's immediate surroundings and the locality within which the work is located; (b) if the relevant planning scheme states the desired character or amenity for the work's immediate surroundings or the locality within which the work is located—the stated desired character or amenity.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (c), prescribed tidal work used for a commercial purpose does not extend past the side boundary or extended side boundary of the lot connected to the work; (b) subject to paragraph (c), prescribed tidal work is not roofed unless it is the main access to land; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard stated in paragraph (a) or (b); (d) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) to (c).	N/A	Works are not located in a canal.

Schedule 1

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
Character and amenity (generally)—prescribed tidal work not in a canal			

2.1 Prescribed tidal work not in a canal and for a private purpose is compatible with its location, having regard to the following— (a) the character and amenity of the work's immediate surroundings and the locality within which the work is located; (b) if the relevant planning scheme states the desired character or amenity for the work's immediate surroundings or the locality within which the work is located—the stated desired character or amenity.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (e), prescribed tidal work does not extend past the side boundary or extended side boundary of the lot connected to the work; (b) subject to paragraph (e), prescribed tidal work is the only work of its type along the edge of the tidal water fronting the lot connected to the work; (c) subject to paragraph (e), prescribed tidal work that is a boardwalk or independent deck is not roofed; (d) subject to paragraph (e), prescribed tidal work other than a boardwalk or deck is not roofed unless it is the main access to land; (e) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a), (b), (c) or (d)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a), (b), (c) or (d); (f) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) to (e).	N/A	Works are not for private purpose.

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Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
2.2 Prescribed tidal work not in a canal and for a non-private purpose is compatible with its location, having regard to the following— (a) the character and amenity of the work's immediate surroundings and the locality within which the work is located; (b) if the relevant planning scheme states the desired character or amenity for the work's immediate surroundings or the locality within which the work is located—the stated desired character or amenity.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (c), prescribed tidal work used for a commercial purpose does not extend past the side boundary or extended side boundary of the lot connected to the work; (b) subject to paragraph (c), prescribed tidal work used for a commercial purpose is not roofed unless it is the main access to land; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent the standard is more stringent than the standard mentioned in paragraph (a) or (b); (d) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) to (c).	Achieved	Works are undertaken on state land for which owners consent has been applied for. The proposed sandbag groynes will, over time, be buried as the beach profile is restored and will therefore not impact on the character or amenity of the area.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Character and amenity (height, scale and size)			
3.1 Prescribed tidal work is of a height, scale and size to ensure the work is compatible with the character and amenity of its location, having regard to the following— (a) the height, scale and size of the natural features of the work's immediate surroundings and the locality within which the work is located; (b) the height, scale and size of the existing buildings or other structures in the work's immediate surroundings and the locality within which the work is located; (c) if the relevant planning scheme states the desired height, scale or size of buildings or other structures in the work's immediate surroundings or the locality within which the work is located—the stated desired height, scale or size.	The height, scale and size of the prescribed tidal work is consistent with each relevant planning scheme standard.	Achieved	The proposed structures will be designed so the sand will overtop the structure once the beach profile is restored. The length of the structures have been designed to capture sands on the southern side, however not completely restrict sand from travelling north of the structure. Thus, the structures will be sized appropriately for the required purposes of providing erosion control and will be buried over time to avoid impacts to the amenity of the beach.

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Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Character and amenity (materials and colours)			
4.1 The materials used for, and the colours of, prescribed tidal work are compatible with the character and amenity of the work's location, having regard to the following— (a) the natural features of the work's immediate surroundings and the locality within which the work is located; (b) the existing buildings or other structures in the work's immediate surroundings and the locality within which the work is located; (c) if the relevant planning scheme states the desired materials to be used for, or desired colours of, buildings or other structures in the work's immediate surroundings or the locality within which the work is located—the stated desired materials or colours.	The materials used for, and colours of, the prescribed tidal work are consistent with each relevant planning scheme standard.	Achieved	The proposed tidal works will consist of geotextile fabric filled with sand. Furthermore, the structures will be buried under sand over time and will therefore be consistent with the character and amenity of the location.

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Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Lighting			
5.1 Lighting, other than an aid to navigation, for prescribed tidal work is installed in a way to ensure the security and safe use of the work without causing significant adverse effects on the amenity of the locality within which the work is located.	The lighting for the prescribed tidal work, other than an aid to navigation, is consistent with the following standards— (a) subject to paragraph (c), lighting for prescribed tidal work is hooded and directed downwards; (b) subject to paragraph (c), each lighting standard, to the extent relevant; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent the standard is more stringent than the standard mentioned in paragraph (a) or (b); (d) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) to (c).	N/A	Works are for the construction of sandbag groyne structures which will be buried over time. Therefore these works do not require lighting.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
Signage			
6.1 A sign erected or otherwise placed in position for prescribed tidal work, other than a sign erected or placed for safety reasons or under an Act— (a) is compatible with the character and amenity of the work's immediate surroundings and the locality within which the work is located; and (b) is not a dominant feature of the work, unless the dominance is for safety reasons.	A sign erected or otherwise placed in position for prescribed tidal work, other than a sign erected or placed for safety reasons or under an Act, is consistent with the following standards— (a) subject to paragraph (c), a sign erected or placed in position for identifying prescribed tidal work, or the owner of the work, is the only sign erected or placed in position for identifying the work or owner; (b) subject to paragraph (c), a sign erected or otherwise placed in position for prescribed tidal work is integrated into the design and construction of the work; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a); (d) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a), (b) and (c).	N/A	Works are for the construction of sandbag groyne structures which will be buried over time. Therefore these works do not require signage.

Schedule 1

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Earthwork and vegetation			
7.1 Excavation and filling for prescribed tidal work— (a) is carried out only to the extent reasonably necessary for the work; and (b) does not have a significant adverse effect on— (i) the natural features of the tidal water under, within or over which the work is located; or (ii) the level of the surface of the land under the tidal water under, within or over which the work is located, or any foreshores near the work.	The earthwork and filling for the prescribed tidal work is consistent with each relevant planning scheme standard.	Archived	Beach nourishment is to be undertaken to restore the beach profile to previous beach levels prior to the current erosion,

7.2	The location of prescribed tidal work ensures vegetation is cleared or disturbed only to the extent reasonably necessary for the work.	The vegetation in the tidal water, under within or over which the prescribed tidal work is located, or on land under the tidal water, is cleared or disturbed in a way consistent with each relevant planning scheme standard.	Achieved	No vegetation in the tidal water, under within or over which the prescribed tidal work is located, or on land under the tidal water, is proposed to be cleared or disturbed.
7.3	Any vegetation damaged, destroyed or removed by prescribed tidal work under, within or over tidal water other than an artificial waterway, is replaced with appropriate vegetation.	Vegetation affected by the prescribed tidal work is dealt with in a way consistent with the following standards— (a) subject to paragraph (b), vegetation damaged, destroyed or removed by prescribed tidal work is replaced with native vegetation for the locality within which the work is located, to the extent it is reasonably practicable to replace the vegetation with native vegetation;	Achieved	It is not expected that works will require the removal of any vegetation.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
	(b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a); (c) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) and (b).		
Public access—availability			

8.1	Prescribed tidal work does not have a significant adverse effect on the availability of public access to foreshores, including public access proposed in the relevant planning scheme.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), prescribed tidal work does not involve the erection or placement of any physical barrier preventing existing access, along a public accessway, to the foreshores near the work; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a); (c) any other relevant planning scheme standard that is not inconsistent with the standards mentioned in paragraphs (a) and (b).	Achieved	These works will not impact on access to the beach. Nodal public access points (beach accesses) will be maintained.
Public access—safety				
9.1	The location and design of prescribed tidal work does not adversely affect the safety of members of the public accessing the foreshores.	Public access to foreshores near the prescribed tidal work is consistent with each relevant planning scheme standard.	Achieved	The structures will not present a risk to public safety and over time will be buried under sand.

Schedule 1

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Navigable access to, or egress from, non-tidal work lots			
10.1 Prescribed tidal work does not adversely affect navigable access to, or navigable egress from, any non-tidal work lot.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), if the lot connected to prescribed tidal work (the ***connected lot***) adjoins a non-tidal work lot, the work does not extend past the connected lot's side boundary, or extended side boundary, adjoining the non-tidal work lot; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	These works do not impact navigable access to any non-tidal work lot.
Infrastructure, including, access, parking, sewerage and water services			

11.1 Prescribed tidal work has appropriate infrastructure, including, in particular, road access, parking facilities, sewerage services and water services, having regard to— (a) the nature and scale of the work; and (b) the number of people that may be on or at the work at any time; and (c) the number of vehicles that may be on or moored at the work at any time; and (d) the protection of any foreshores near the work and the vegetation and marine plants on the foreshores.	The infrastructure for prescribed tidal work is consistent with each relevant planning scheme standard.	N/A	These works do not require additional infrastructure.

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Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Design, construction and safety—all prescribed tidal work			
12.1 Prescribed tidal work is designed and constructed in a way to ensure it is structurally sound, having regard to the following— (a) relevant engineering standards; (b) the location of the work; (c) the purpose for which the work is to be used; (d) the impact of flooding, tidal influences and hydrodynamic changes.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), each Australian Standard relevant to the design or construction of structures, to the extent requirements stated in the Standard apply to the design or construction of prescribed tidal work; (b) if a relevant planning scheme standard is more stringent than any standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	Achieved	The design of the structure has been certified by an RPEQ.

12.2 Prescribed tidal work does not adversely affect the structural integrity of any existing revetment or seawall or another existing structure.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), prescribed tidal work, including any shore abutment, piling or other structure connected with the work— (i) does not place an additional load on any existing revetment or seawall or another existing structure; or (ii) can be structurally supported by an existing revetment or seawall or another existing structure; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	Achieved	These works will be isolated and not adversely affect the structural integrity of any nearby revetments, seawalls or existing structures.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
12.3 Prescribed tidal work is designed and constructed in a way to ensure it does not adversely affect the stability of the bed and banks of any tidal water.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), prescribed tidal work does not cause, by changing the flow of water, the removal of, or disturbance to, the sediment on the bed and banks of any tidal water; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	Achieved	The designed structures are to provide an improvement in the bank stability.

12.4 Prescribed tidal work is designed and constructed using materials having a long life in marine environments, having regard to their ability to resist the following— (a) attack by marine organisms; (b) corrosion; (c) deterioration resulting from abrasion or immersion in seawater.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), each Australian Standard relevant to the materials that should be used, or the measures that should be taken to treat materials used, for structures, to the extent the requirements stated in the Standard apply to structures located in a marine environment; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	Achieved	The structure will consist of geotextile fabric filled with sand. These materials have been used successfully in these environments in the past at various locations along the east coast of Australia.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
12.5 Prescribed tidal work is designed and constructed in a way to ensure it does not adversely affect the operation or maintenance of any existing stormwater outlet.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (c), vessels moored at prescribed tidal work do not impede the discharge of stormwater; (b) subject to paragraph (c), prescribed tidal work does not restrict access to any stormwater outlet; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	These works do not affect the operation or maintenance of any existing stormwater outlets.

12.6 Prescribed tidal work is designed and constructed in a way to ensure it does not adversely affect the water quality of any tidal water, including, in particular, as a result of— (a) release, into the tidal water, of materials used in the construction of the work; or (b) disturbance to the sediment on the bed and banks of the tidal water; or (c) exposure to acid sulphate soils.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), each Australian Standard relevant to the design or construction of structures under, within or over tidal water, to the extent the requirements stated in the Standard are directed at maintaining the water quality of tidal water; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	Achieved	These works do not involve the movement or disturbance of any hazardous materials which may affect the water quality.

Column 1 **Specific outcome**	Column 2 **A probable solution**	Column 3 **Outcome**	Column 4 **Comment**
12.7 Prescribed tidal work is designed and constructed in a way to ensure it is safe for persons standing or walking on the work.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (c), any surface of prescribed tidal work on which a person may stand or walk is— (i) not slippery; and (ii) does not have any feature that may cause the person to trip or fall; (b) subject to paragraph (c), any part of prescribed tidal work that is unsafe for persons standing or walking on the work is surrounded by adequate barriers to deter persons from entering the part; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	Achieved	The sandbag groynes will be stable structures and will be buried under the beach surface over time. They will not present an increased risk to persons. The structures are being used in high profile, high usage areas elsewhere in Queensland.

12.8 Appropriate measures are taken for prescribed tidal work for a non-private purpose to ensure an unsupportable live load is not applied to the work by persons or vehicles.	The design and construction of the prescribed tidal work is consistent with the following standards— (a) subject to paragraph (b), prescribed tidal work has erected or placed in position on or near the work, a sign that— (i) is visible at all times; and (ii) states the maximum live load that may be applied to the work, in terms of the maximum number of persons that may be on the work at any given time or the maximum number of vehicles of a particular type that may be on or moored at the work at any given time;	Achieved	The sandbag structures will be designed to support the loads it is likely to be subject to (i.e. people and wave action). Signage is not required for this type of structure.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
	(b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).		
12.9 Prescribed tidal work, other than a boardwalk or an independent deck for a private purpose, is designed and constructed in a way that ensures the use of tidal water in a canal for a non-maritime purpose is minimised.	The design and construction of the prescribed tidal work is consistent with each relevant planning scheme standard.	N/A	Works are not for a private purpose.

12.10 Prescribed tidal work that is a boardwalk or an independent deck and for a private purpose, is designed and constructed in a way that ensures the use of tidal water in a canal for a non-maritime purpose is minimised.	(s 6(2) solution) The design and construction of the boardwalk or deck is consistent with the following standards— (a) subject to paragraph (c), a boardwalk or independent deck does not extend more than 3m from the waterfront boundary of the lot connected to the boardwalk or deck; (b) subject to paragraph (c), a boardwalk or independent deck is at least 3m inside of the side boundary or extended side boundary of the lot connected to the boardwalk or deck; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works are not for a private purpose.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Design, construction and safety—boat ramps and slip ways for private purpose			
13.1 Prescribed tidal work that is a private boat ramp or private slip way is designed and constructed in a way to ensure it is structurally sound while also ensuring the top of each wall at the edge of the boat ramp or slip way is level with the surface of the land on which the boat ramp or slip way is located.	(s 6(2) solution) The design and construction of the boat ramp or slip way is consistent with the following standards— (a) subject to paragraph (c), the walls at the edge of a boat ramp or slip way penetrate into the earth at least 600mm below the surface of the land on which the boat ramp or slip way is located; (b) subject to paragraph (c), the surface of a boat ramp or slip way is no more than 200mm above the surface of the land on which it is located; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works are not for private use.

13.2 Prescribed tidal work that is a private boat ramp or private slip way is designed and constructed in a way to ensure the safe movement of vehicles or persons over the boat ramp or slip way.	(s 6(2) solution) The design and construction of the boat ramp or slip way is consistent with the following standards— (a) subject to paragraph (d), the upper surface of a boat ramp or slip way has a width of no less than 3.6m; (b) subject to paragraph (d), the whole upper surface of a boat ramp or slip way is treated to prevent it from becoming slippery by using any of the following methods— (i) forming grooves over the surface, as close as possible to 40mm wide, 20mm deep and 150mm apart, and at an angle as close as possible to 70º to the centre-line of the boat ramp or slip way;	N/A	Works are not for private use.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
	(ii) covering the surface with a substance ordinarily used on slippery surfaces to prevent skidding; (iii) making, through a physical act, the surface coarse before it sets, including, for example, by raking the surface; (c) subject to paragraph (d), the upper surface of a boat ramp or slip way for which a winch is not used to hoist or haul vessels onto the boat ramp or slip way is at a gradient of not steeper than— (i) if the surface is treated by using a method mentioned in paragraph (b)(i) or (ii)—1:8; or (ii) otherwise—1:10; (d) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a), (b) or (c)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a), (b) or (c).		

Design, construction and safety—bridges			
14.1 Prescribed tidal work that is a bridge does not adversely affect existing public use of any tidal water, including, for example, use of the tidal water for canoeing, swimming or other recreational activities.	The design and construction of the bridge, including any abutment connected with the bridge, is consistent with the following standards— (a) subject to paragraph (b), the clearance levels under a bridge are high enough to allow continued public use of any tidal water over which it is constructed; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a bridge.

Column 1 **Specific outcome**	Column 2 **A probable solution**	Column 3 **Outcome**	Column 4 **Comment**
14.2 Prescribed tidal work that is a bridge does not adversely affect the flow of tidal water under the bridge.	The design and construction of the bridge is consistent with the following standards— (a) subject to paragraph (b)— (i) if a bridge can be adequately supported without erecting or placing a foundation support in tidal water—no foundation support to support the bridge is erected or placed in the tidal water; or (ii) otherwise—only the minimum number of foundation supports required to support the bridge is used; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a bridge.
Design, construction and safety—boardwalks and independent decks			

15.1 Prescribed tidal work that is a boardwalk or an independent deck and for a private purpose is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the boardwalk or deck is consistent with the following standards— (a) subject to paragraph (d), a boardwalk or independent deck accessible to vehicular traffic is able to support at least a live load of 3.0kPa plus an axle load of 10kN; (b) subject to paragraph (d), a boardwalk or independent deck that is not accessible to vehicular traffic and that is for individual use is able to support at least a live load of 2.0kPa; (c) subject to paragraph (d), a boardwalk or independent deck that is not accessible to vehicular traffic and that is for group use is able to support at least a live load of 3.0kPa;	N/A	Works do not involve the construction of an independent deck or boardwalk.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
	(d) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a), (b) or (c)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a), (b) or (c).		

15.2 Prescribed tidal work that is a boardwalk or an independent deck and for a non-private purpose is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design or construction of the boardwalk or deck is consistent with the following standards— (a) subject to paragraph (c), a boardwalk or independent deck accessible to vehicular traffic is able to support at least the following— (i) a distributed live load of 5.0kPa; (ii) a concentrated live load of 4.5kN; (iii) the load of the largest vehicle capable of being on the boardwalk or deck; (b) subject to paragraph (c), a boardwalk or independent deck not accessible to vehicular traffic is able to support at least the following— (i) a distributed live load of 5.0kPa; (ii) a concentrated live load of 4.5kN; (c) if a relevant planning scheme standard is more stringent than the	N/A	Works do not involve the construction of an independent deck or boardwalk.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
15.3 Prescribed tidal work that is a boardwalk or an independent deck does not prevent or hinder remedial work being undertaken on any bank of tidal water or for any existing retaining wall, revetment or seawall or another existing structure.	The design and construction of the boardwalk or deck is consistent with the following standards— (a) subject to paragraph (b), a boardwalk or independent deck either— (i) can be easily dismantled and reassembled; or (ii) does not restrict the movement of machinery ordinarily used for remedial work to any bank of tidal water or any existing retaining wall, revetment or seawall or other existing structure; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of an independent deck or boardwalk.

Design, construction and safety—jetties and piers			
16.1 Prescribed tidal work that is a jetty or pier and for a private purpose is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the jetty or pier is consistent with the following standards— (a) subject to paragraph (d), a jetty or pier accessible to vehicular traffic is able to support at least a live load of 3.0kPa plus an axle load of 10kN; (b) subject to paragraph (d), a jetty or pier that is not accessible to vehicular traffic and that is for individual use is able to support at least a live load of 2.0kPa; (c) subject to paragraph (d), a jetty or pier that is not accessible to vehicular traffic and that is for group use is able to support at least a live load of 3.0kPa;	N/A	Works do not involve the construction of a jetty or pier.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
	(d) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a), (b) or (c)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a), (b) or (c).		

16.2 Prescribed tidal work that is a jetty or pier and for a non-private purpose is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the jetty or pier is consistent with the following standards— (a) subject to paragraph (c), a jetty or pier accessible to vehicular traffic is able to support at least the following— (i) a distributed live load of 5.0kPa; (ii) a concentrated live load of 4.5kN; (iii) the load of the largest vehicle capable of being on or moored at the jetty or pier; (b) subject to paragraph (c), a jetty or pier not accessible to vehicular traffic is able to support at least the following— (i) a distributed live load of 5.0kPa; (ii) a concentrated live load of 4.5kN; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a jetty or pier.

Column 1 **Specific outcome**	Column 2 **A probable solution**	Column 3 **Outcome**	Column 4 **Comment**
16.3 Prescribed tidal work that is a jetty or a pier is designed and constructed in a way to ensure it remains above water at all times.	The design and construction of the jetty or pier is consistent with the following standards— (a) subject to paragraph (b), either— (i) the level of the deck of a jetty or pier is at least 300mm above the water at highest astronomical tide; or (ii) piles or other markers indicate the presence of the jetty or pier when it is inundated; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a jetty or pier.

16.4 Prescribed tidal work that is a jetty or pier and for a private purpose is designed and constructed in a way to ensure it is of a size suitable for maritime use while still minimising the amount of tidal water occupied by it.	(s 6(2) solution) The design and construction of the jetty or pier is consistent with the following standards— (a) subject to paragraph (b), all parts of the deck of a jetty or pier have a width of at least 900mm and not more than 3m; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a jetty or pier.

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Design, construction and safety—pipelines and other underground services			
17.1 The design and construction of prescribed tidal work that is a pipeline, or another underground service used instead of a pipeline, does not adversely affect the ability of vessels to be anchored near the work.	(s 6(2) solution) The design and construction of the pipeline or underground service is consistent with the following standards— (a) subject to paragraph (b), a pipeline or other underground service is installed at least 1.2m below the surface of land, after it is installed; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a pipeline or underground services.
Design, construction and safety—pontoons			

18.1 Prescribed tidal work that is a pontoon, for a private purpose, and not used only for rowing, is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (c), a pontoon for individual use is able to support at least a live load of 1.5kPa; (b) subject to paragraph (c), a pontoon for group use is able to support at least a live load of 2.0kPa; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a pontoon.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
18.2 Prescribed tidal work that is a pontoon, for a non-private purpose, and not used only for rowing, is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (c), a pontoon open for use by the general public or used for a commercial purpose is able to support at least the following— (i) a distributed live load of 3.0kPa; (ii) a concentrated live load of 4.5kN; (b) subject to paragraph (c), a pontoon other than a pontoon mentioned in paragraph (a) is able to support at least the following— (i) a distributed live load of 2.0kPa; (ii) a concentrated live load of 4.5kN; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a pontoon.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
18.3 Prescribed tidal work that is a pontoon and used only for rowing is designed and constructed in a way to ensure— (a) it is able to support its intended loads, having regard to its relevant loading matters; and (b) it is safe for persons using the pontoon to launch and retrieve rowing vessels.	(s 6(2) solution) The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (c), the access walkway of a pontoon used only for rowing is able to support at least a live load of 3.0kPa; (b) the flotation unit of a pontoon used only for rowing is able to support at least a live load of 1.5kPa; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a pontoon.

18.4 Prescribed tidal work that is a pontoon is designed and constructed in a way to ensure any load applied to the pontoon by a person or thing on the pontoon does not cause the pontoon to tip over or tilt to a degree causing the person or thing to fall off the pontoon.	(s 6(2) solution) The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (f), a pontoon's access walkway extends at least 500mm onto the pontoon's flotation unit; (b) subject to paragraph (f), a pontoon's access walkway is constructed with a material that has a non-slippery surface; (c) for a pontoon used only for rowing—subject to paragraph (f), at least 75mm of the height of the pontoon's flotation unit remains above the water over which it is constructed if a distributed live load is applied to half of the surface of the pontoon's flotation unit and all of the surface of the pontoon's access walkways;	N/A	Works do not involve the construction of a pontoon.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
	(d) for a pontoon other than a pontoon mentioned in paragraph (c)—subject to paragraph (f), the top surface of the pontoon's flotation unit remains above the water over which it is constructed if a distributed live load of 1.5kPa is applied to half of the surface of the pontoon's flotation unit and all of the surface of the pontoon's access walkways; (e) subject to paragraph (f), the whole base of the pontoon's flotation unit remains in contact with the water over which it is constructed at all times and tilts no more than 15º at any time; (f) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a), (b), (c), (d) or (e)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a), (b), (c), (d) or (e).		

18.5 Prescribed tidal work that is a pontoon is designed and constructed in a way to ensure it remains above the water at all times.	The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (b), the pontoon's abutment is located no less than 300mm above the water at high water mark; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	Works do not involve the construction of a pontoon.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
18.6 Prescribed tidal work that is a pontoon is designed and constructed in a way to ensure that if tidal water levels change, the pontoon's flotation unit will— (a) rise and fall to allow for the change; and (b) not be separated from the lot to which the pontoon is connected.	The design and construction of the pontoon is consistent with the following standards— (a) subject to paragraph (c), the pontoon's flotation unit is— (i) attached, through the pontoon's system for mooring the unit, to concrete anchors in the bank landward of the pontoon; or (ii) moored by piles; (b) subject to paragraph (c), if a tidal water level change resulting from a 1% probability flood event would cause a pontoon's flotation unit to detach from the system for mooring the unit— (i) the standard applying under paragraph (a); and (ii) the pontoon's flotation unit is restrained with a tethering system so that it can withstand the effects of the event; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a pontoon.

18.7 Prescribed tidal work that is a pontoon identifies the lot to which the pontoon is connected.	(s 6(2) solution) The design and construction of the pontoon is consistent with the following standards— (a) a label that identifies the lot to which the pontoon is connected is written or stamped on, or fixed to, the outside of the pontoon's flotation unit; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringentthanthestandardmentioned in paragraph (a).	N/A	Works do not involve the construction of a pontoon.

Schedule 1

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Design, construction and safety—retaining walls, revetments and seawalls			
19.1 Prescribed tidal work that is a retaining wall, revetment or seawall, is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the retaining wall, revetment or seawall is consistent with the following standards— (a) subject to paragraph (b), a retaining wall, revetment or seawall is able to support at least a distributed live load of 3.0kPa; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	The works are not a retaining wall, revetment or seawall.

19.2 Prescribed tidal work that is a retaining wall, revetment or seawall, is designed and constructed in a way to ensure it can withstand— (a) any tendency of overturning or sliding; and (b) any other effects of waves or changes in water levels on the retaining wall, revetment or seawall.	(s 6(2) solution) The design and construction of the retaining wall, revetment or seawall is consistent with the following standards— (a) subject to paragraph (c), a retaining wall, revetment or seawall has a factor of safety of no less than 1.5; (b) subject to paragraph (c), a retaining wall, revetment or seawall is able to withstand the effect of waves, or waves and water levels, resulting from a storm or other natural event of a magnitude that has a 2% or lower probability of occurring in any calendar year; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	The works are not a retaining wall, revetment or seawall.

Column 1	Column 2	Column 3	Column 4
Specific outcome	**A probable solution**	**Outcome**	**Comment**
19.3 Prescribed tidal work that is a retaining wall, revetment or seawall not founded upon rock, is designed and constructed to protect the seaward side of retaining wall, revetment or seawall from erosion.	(s 6(2) solution) The design and construction of the retaining wall, revetment or seawall is consistent with the following standards— (a) subject to paragraph (c), a retaining wall, revetment or seawall provides for a sub-layer or enough filter material to ensure it is reasonably likely to remain in place for at least 50 years; (b) subject to paragraph (c), the bottom edge of the base of a retaining wall, revetment or seawall is reasonably likely to prevent any adverse effects from potential erosion of the soil under the retaining wall, revetment or seawall for at least 50 years; (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	The works not a retaining wall, revetment or seawall.

19.4 Prescribed tidal work that is a retaining wall, revetment or seawall, is not adversely affected by hydrostatic pressure behind the retaining wall, revetment or seawall.	The design and construction of the retaining wall, revetment or seawall is consistent with the following standards— (a) subject to paragraph (b), a retaining wall, revetment or seawall provides for drainage holes, and suitable filter material behind the holes, to relieve any hydrostatic pressure behind the retaining wall, revetment or seawall; (b) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a).	N/A	The works are not a retaining wall, revetment or seawall.

Schedule 1

Column 1 Specific outcome	Column 2 A probable solution	Column 3 Outcome	Column 4 Comment
Design, construction and safety—wharves			
20.1 Prescribed tidal work that is a wharf is designed and constructed in a way to ensure it is able to support its intended loads, having regard to its relevant loading matters.	(s 6(2) solution) The design and construction of the wharf is consistent with the following standards— (a) subject to paragraph (c), a major wharf, or a minor wharf accessible to vehicular traffic, is able to support at least the following— (i) a distributed live load of 5.0kPa; (ii) a concentrated live load of 13kN; or (b) subject to paragraph (c), a minor wharf not accessible to vehicular traffic is able to support at least the following— (i) a distributed live load of 5.0kPa; or (ii) a concentrated live load of 4.5kN; or (c) if a relevant planning scheme standard is more stringent than the standard mentioned in paragraph (a) or (b)—the relevant planning scheme standard, to the extent it is more stringent than the standard mentioned in paragraph (a) or (b).	N/A	Works do not involve the construction of a wharf.

Author Emma Seccull
File / Ref number 2015/001922
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Queensland Government

Department of
Natural Resources and Mines

5 May 2015

Projex Partners
Attn: Tyler Hall
PO Box 2133
Cairns QLD 4870

Dear Mr Hall

Application for Owners Consent for Operational Works on land described as Lot 374 on Crown Plan SR533.

The department hereby gives owner's consent to the above development application for Operational Works for the construction of geofabric groynes along the eroded extent of land described as Lot 374 on SR533 located on Newell beach.

Although owners consent for the development application has been provided, your client is always required to comply with the purpose, terms and conditions of the Reserve for Recreation purposes, described at Lot 374 on SR533 and undertake works only if and when the development application has been approved by the assessment manager, and in accordance with the conditions of that approval.

A copy of this letter is to be attached to your IDAS Form 1 as the required evidence of owners consent.

Your client will also need to comply with all other legislative and regulatory requirements which may also include approvals that are not part of the assessment of the development application under the *Sustainable Planning Act 2009* (SPA) e.g. a marine park permit if in a marine park.

Further, please note that the above consent will expire on **5 November 2015**. Should the development application not be lodged with the assessment manager prior to this date, your client will be required again to lodge the IDAS Form 1 and any attachments with this Department with a further request for owners consent - any further request will need to be reconsidered by the Department.

It is also advised that any land use activities must comply with the *Aboriginal Cultural Heritage Act 2003* or the *Torres Strait Islander Heritage Act 2003*.

Finally, owner's consent is required under SPA to enable the application to be considered properly made for lodging with the assessment manager and is a completely separate process to assessment of the application under SPA.

Accordingly, the Department may act at a later date as assessment manager, concurrence/ referral agency, or advice agency in the assessment of the development application - providing owners consent will not influence any statutory role the Department may have in this assessment.

If you wish to discuss this matter please contact Emma Seccull on (07) 4742 3010. Please quote reference number 2015/001922 in any future correspondence.

All future correspondence relative to this matter is to be referred to the contact Officer at the address below or by email to Townsville.SLAMS@dnrm.qld.gov.au. Any hard copy correspondence received will be electronically scanned and filed. For this reason, it is recommended that any attached plans, sketches or maps be no larger than A3-sized.

Yours sincerely

Rianha Rolland
Senior Land Officer
A duly authorised delegate of the Minister
under the current Land Act (Ministerial) Delegation

Newell Beach Erosion

Newell Beach

Reference Number: 621-001-001R Rev D

For Douglas Shire Council

April 2015

Prepared by:

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D	16/04/15	Executive Summary Added – Final Issue	DJW	PJM	PJM

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1 Executive Summary

Significant erosion has occurred at Newell Beach over the years. The erosion problem has been progressive with a significant volume of sand having been lost from the beach over the last 20 years as observed by local residents. The erosion is impacting on the values and desirable features of the area and more recently has begun to have an impact on the adjacent beach-front properties with the shoreline eroding into back yards.

The erosion problem at Newell Beach is compounding. The observed sand loss is resulting in a steepening of the beach profile and therefore significantly reducing the beaches natural defence against subsequent storm events. This is because the waves are impacting on the beach steeper relative to the beach profile and suspending more sand (less sand is suspended on flatter beaches).

Beaches are not static features, but very dynamic and fluctuations in their position are the result of the prevailing coastal processes. These processes are typically a combination of ocean swell waves and wind generated waves. As waves approach the coastline their energy brings sand into suspension and the ocean currents transport the sand to another location, which is to the north along the Queensland coast line. This process is known as longshore drift. Under calm conditions the sand may shift only a fraction of a distance, however during an extreme storm event large distance sand migration can cause beaches to change significantly in a short period of time. If the longshore drift process is in imbalance (more sand leaves than arrives) then a beach will observe a loss in sand over time.

Anecdotal advice from Newell Beach residents has revealed that over the last 15 to 20 years sand loss from Newell Beach has resulted in a steepening of the beach profile. Advice is also that the sand bar at the mouth of the Mossman River has newly formed and over time it has grown. Its growth was initially away from the coast and it now continues its growth north of, and parallel to, the beach.

An inspection of Newell Beach by Projex Partners' Daryl Walker and Douglas Shire Council's Mr Paul Hoye has revealed that significant erosion is apparent at the beach, particularly in front of existing residences. This is obvious from the exposed roots of vegetation in the area and the reduction in beach front property back yard areas. In a subsequent site visit on 25 March 2015 by Daryl Walker and Peter Mathers of Projex Partners and Paul Hoye of Douglas Shire Council, Paul Hoye noted that the sand bar is also resulting in a re-direction of the Mossman River outlet to the north along Newell Beach (it was previously to the south). In significant rainfall events, significant debris (logs) have been observed travelling parallel to the beach.

There have been some significant storms in the area over the last 20 years and more recently those associated with Severe Tropical Cyclone Larry in 2006, Severe Tropical Cyclone Yasi in 2011 and Tropical Cyclone Ita in April of this year. These type of events and other significant storms cause strong wave action on the beaches and also result in significant increase in the flow, velocity and turbulence within the coastal river systems. It is well documented that during significant storm events, the increased flow, velocity and turbulence within river systems can result in the transport of sediments from upstream within rivers to the river mouth. Once these sediments

meet the ocean the flow is dissipated due to ocean swell and waves. This reduction in velocity results in the sediments settling to the river/ocean bed near the river mouth creating sand bars.

Council has advised that there are large sand deposits within the Mossman River system and it is possible that over the years this sand has been transported by storm events to the river mouth and has settled to the river/ocean floor creating the observed sand bar at Newell Beach. A series of similar events over the years has contributed to the growth of the sand bar. Its growth is exacerbated, not only from storm events re-occurring and depositing further sand, but also by capturing the sand transported north along the coast line by the longshore drift process. This is causing the sand bar to continue increasing in. As the sand bar has grown, it has created an ever increasing barrier to the natural longshore drift processes, capturing sand that would otherwise have been deposited on Newell Beach. This interruption of sand movement creates an imbalance in the longshore drift process. Sand is moving north, but replenishment sand not arriving at Newell beach because it is being blocked by the sand bar. With no sand arriving at Newell Beach and sand continuing to depart, the result is a continually eroding beach.

Furthermore, it is possible that the re-direction of the Mossman River outlet to the ocean by the sand bar is contributing to Newell Beach erosion. The outlet is now directed northward along the beach edge and could be contributing to sand mobilisation.

Further consideration of the Mossman River has identified that there is a risk of the outlet continuing to move due to the restriction/blockage caused by the sand bar. If not rectified, over time the river outlet may re-align. The potential impacts of a re-aligned river outlet and the associated consequences have not formed part of this investigation.

The following works are recommended to be trialled to assist in the reduction of beach erosion and replenishing the sand at Newell Beach. It is noted that not any one of the following steps is likely to result in replenishment of the beach on its own and that all three steps are recommended to be undertaken concurrently. Once they are all completed, the trial should be regularly observed for effectiveness.

Step 1 - Emergent Protection Works

It is recommended that Council commence sand replacement works as soon as possible to reinstate the eroded portion of the freehold properties to provide immediate sand replenishment. The sand should be placed at a suitable profile from the properties to the existing beach such that pedestrian safety is not compromised.

Step 2 - Geofabric Groynes

Construct geofabric groynes with five (5) tonne Elcorock bags along the eroded extent of Newell beach to assist in the prevention of sand loss in the area via the long shore drift process. The groynes should be designed and installed to an extent such that it will result in an ultimate profile that is desirable. They should eventually be submerged by the captured sand and hence any impacts on beach amenity should reduce over time.

Step 3 - Sand Bar Dredging

The sand bar that has formed at the southern end of Newell Beach at the Mossman River mouth should be dredged to allow the natural longshore drift processes to be restored. The dredging should also be undertaken in such a way that allows restoration of the original Mossman River outlet geometry to eliminate the observed north flowing current adjacent to Newell Beach. The dredging will enable the sand that is removed from Newell Beach to be replenished from the south, improving the Newell Beach's longshore drift balance. The dredged sand should be placed on the beach between the groynes to an appropriate profile so that improved protection is provided from future storm events.

Monitoring of the Mossman River mouth will be required over time to determine if the sand bar returns and a dredging/maintenance program is recommended to prevent reoccurrence in the future. This is not uncommon along the Queensland coast line.

It is noted that all of the above recommended remedial actions are considered urgent due to evidence that erosion is occurring at increasing rates.

2 Introduction

Significant erosion has occurred at Newell Beach over the years. The erosion problem has been progressive with a significant volume of sand having been lost from the beach over the last 20 years as observed by local residents. The erosion is impacting on the values and desirable features of the area and more recently has begun to have an impact on the adjacent beach-front properties with the shoreline eroding into back yards.

The erosion problem at Newell Beach is compounding. The observed sand loss is resulting in a steepening of the beach profile and therefore significantly reducing the beaches natural defence against subsequent storm events. This is because the waves are impacting on the beach steeper relative to the beach profile and suspending more sand (less sand is suspended on flatter beaches).

Projex Partners have been engaged by Douglas Shire Council to undertake a desktop study into the erosion at Newell Beach.

Newell Beach is identified below in **Figure 2.1**.

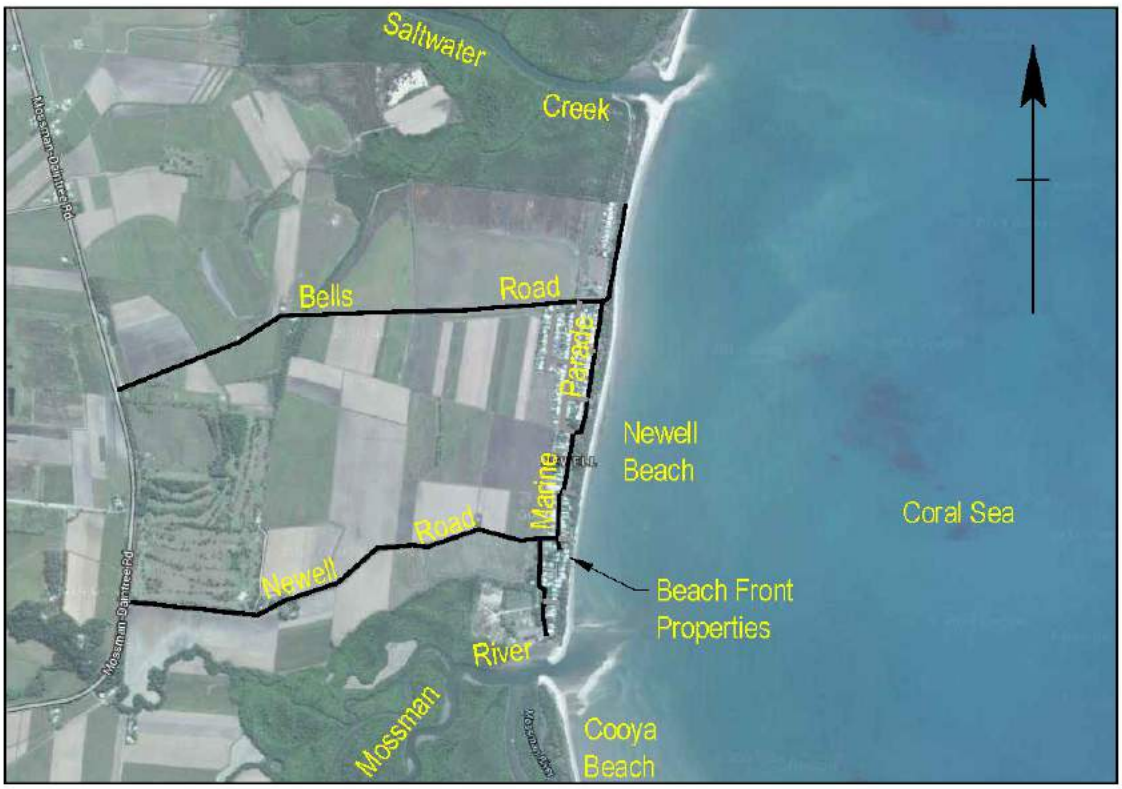

Figure 2.1 – Aerial Photograph of Newell Beach (courtesy of Google Maps)

The purpose of the study is to assess the possible causes and provide advice on options for reducing erosion and replenishing the beach sand. More specifically, the objectives of this study are as follows:

- Provide a statement on the values of Newell Beach;
- Undertake a desktop review of beach erosion mechanisms;
- Discuss the Newell Beach Erosion Observations;
- Consider possible erosion mechanisms causing sand loss at Newell Beach;
- Undertake a desktop review of options available for replenishing sand at Newell Beach based on the identified possible erosion causes and make recommendations on works to improve sand retention at Newell Beach;
- Provide an estimate of cost to undertake the recommended work; and
- Provide advice on further works required.

3 Newell Beach Values

Newell Beach is a public access sand beach located within the Douglas Shire that stretches from the Mossman River mouth to Saltwater Creek (a distance of approximately 2.4km) in Newell, Queensland. About 28 residential properties enjoy beach frontage from just north of the Mossman River mouth for a distance of approximately 620m north. The remainder of the foreshore area (Marine Parade) provides public access to Newell Beach for a length of approximately 1.9km. Marine Parade then turns into a dirt road providing access to the Saltwater Creek mouth.

Newell Beach is an important community asset for the region. This section provides brief comment on the values relevant to the study area.

3.1 Social Values

The major social values of the Newell Beach area are recreation, open space and coastal protection.

The open space of Newell Beach is easily accessed and provides residents and tourists with recreational opportunities. Key activities that are undertaken within the study area include socialising, relaxation, kite surfing, ocean kayaking, fishing, swimming, walking and picnicking. Combined with the coastal amenity and climate of Far North Queensland, these aspects create the lifestyle and opportunities that attract residents and tourists to the area.

3.2 Economic Values

In terms of profile and employment, tourism and agriculture (predominantly sugar cane) are the largest industries in the Douglas Shire area, which includes Newell Beach. Tourism attracts a significant number of visitors each year. With the major attractions for visitors being related to the coast line, effective management of these areas is imperative to continued growth of the tourism industry.

3.3 Built Environment

The natural protection that coastal foreshores like Newell Beach provide to the built environment should also be recognised.

3.4 Ecological Values

The coastal foreshores of the Far North Queensland area contain important coastal eco-systems including dunes, beaches and headlands. These systems also support unique species and habitat for flora and fauna.

4 Beach Erosion Mechanisms

Beaches are not static features, but very dynamic and fluctuations in their position are the result of the prevailing coastal processes. These processes are typically a combination of ocean swell waves and wind generated waves.

Ocean swell waves propagate to the shoreline from the deep ocean. They experience significant modification as they approach the shoreline by refraction, bed friction and shoaling. Wind generated sea waves are not substantially affected by the offshore characteristics prior to breaking near the shoreline.

As waves approach the coastline their energy brings sand into suspension and the ocean currents transport the sand to another location. Sand on the sea-bed is mobilised by every ocean swell wave or wind generated wave passing over it. Under calm conditions the sand may shift only a fraction of a distance, however during an extreme storm event large distance sand migration can cause beaches to change significantly in a short period of time.

Changes in beaches due to extreme events are normally remembered because of the significant change in such a short period. Such a change can be obvious to the casual observer. However, slow and gradual changes often go unnoticed. An avid beach observer will notice the constant and continual reshaping of a beach over time.

4.1 Longshore Drift

Longshore drift (also known as longshore transport or littoral drift) is the movement of sand along the coastline. It occurs by the cycle of waves washing up onto the beach and then receding back. Waves (both swell and wind waves) typically meet the beach at an oblique angle. Sand particles are suspended by the waves and moved up the beach at this same angle, being relocated from their original position. Waves then will recede back to the ocean almost perpendicular to the shoreline (they don't recede back to where they came from). The sand particles are therefore once again relocated to a new position. Over many wave cycles sand particles are transported in in a zig-zag pattern along the beach. **Figure 4.1** shows this process.

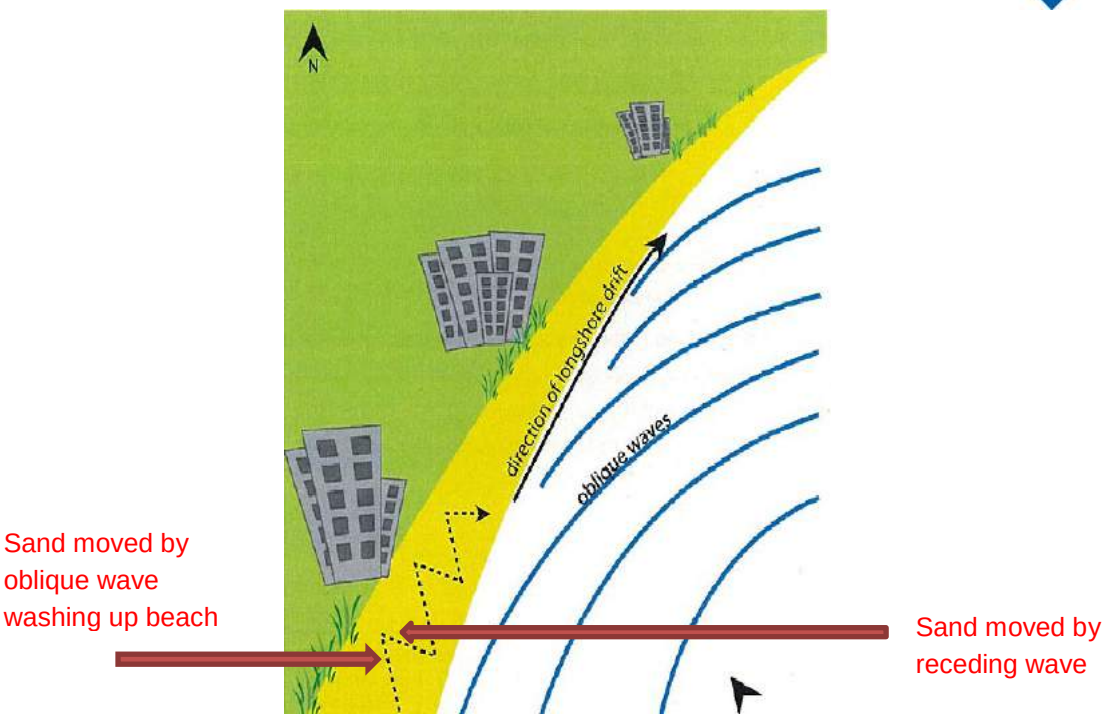

Figure 4.1 – Longshore Drift Mechanism (courtesy of Gold Coast City Council)

Movement of sand by longshore drift is influenced by the strength of the swell (swell waves) and the strength and direction of the prevailing winds (wind waves). The prevailing winds at Newell Beach are south-easterly which results in longshore drift moving sand in a northerly direction along the beach. The strength of the swell and prevailing winds determine how quickly the sand is transported in this direction, but the movement of sand along a beach by the longshore drift mechanism is typically a slow process and will not be obvious in a short period of time to casual observers.

4.2 Storms

Unlike longshore drift, storms can cause very quick sand movement at a beach. The increased strength of wave action suspends sand particles for longer and can move sand particles much further than the longshore drift process. This can quickly result in sand being transported offshore and once it settles to the ocean bed it can form sand-bars. Parts of the beach may be significantly eroded in a short period of time due to the stronger waves generated by storms.

Once a storm subsides and during periods of calmer weather, the milder wave climate slowly moves this deposited sand back onshore (under the longshore drift process) which can re-establish the beach over time. If the longshore drift sand transport is in balance (i.e. sand arriving and sand departing is equal) then these processes do not involve any net loss or gain of sediment at the beach. If the longshore transport is not in balance, then this can result in a net loss or gain of sand to a beach.

If the longshore transport is imbalanced then the sand loss will eventually result steepening of the beach. This will then result in the beach being exposed to a higher risk of erosion from future storms due to waves impacting the beach at a steeper angle.

5 Newell Beach Observations

Anecdotal advice from a Newell Beach resident has revealed that over the last 15 to 20 years sand loss has resulted in a steepening of the beach profile. Advice is also that a sand bar has formed at the mouth of the Mossman River (on its southern side) and over time it has grown away from the coast and now continues its growth north of, and parallel to, the coast line. **Figure 5.1** identifies the sand bar.

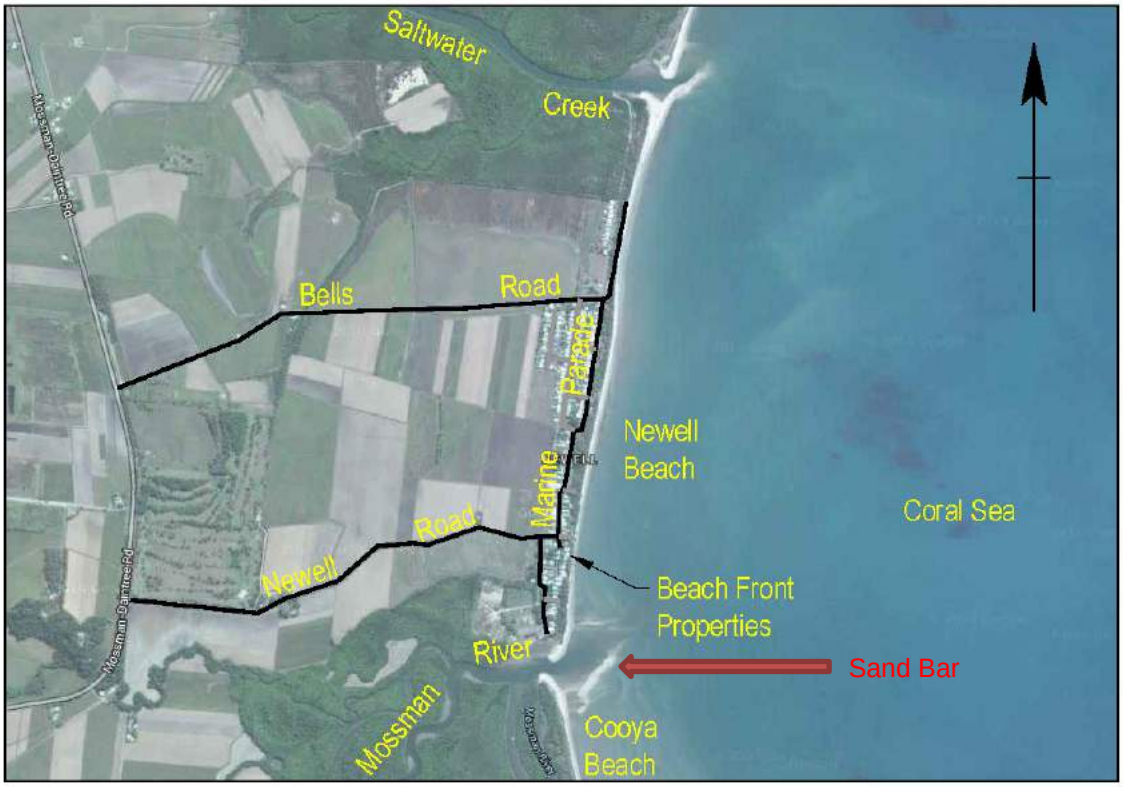

Figure 5.1 – Sand Bar at Newell Beach (photograph courtesy of Google Maps)

An inspection of Newell Beach by Projex Partners' Daryl Walker and Douglas Shire Council's Mr Paul Hoye on 22nd October 2014 revealed that significant erosion is apparent at the beach, particularly in front of the existing residences. This is obvious from the exposed roots of vegetation in the area. Also obvious is the reduction in the beach front properties back yard areas by benchmarking with fence, pool and deck infrastructure being exposed. There does not appear to be any significant erosion along the beach north of the residences.

The approximate extent of erosion is shown in **Figure 5.2** and the following photographs show the site observations.

Figure 5.2 – Approximate Extent of Erosion (photograph courtesy of Google Maps)

Photo 5.1 – Sand Bar at Southern End of Newell Beach looking from Cooya Beach

Photo 5.2 – Walking Along the Sand Bar from the Beach

Photo 5.3 – Erosion at Beach Front Property No. 1

Photo 5.4 – Erosion at Beach Front Property No. 2

Paul Hoye is a Newell Beach resident and confirms that over time he has witnessed the sand loss and that the beach profile has steepened. During the site visit when comparing the Newell Beach profile to the adjacent beach to the south (Cooya Beach - refer **Figure 1.1** for location) it was observed that the Cooya Beach profile is significantly flatter. Further inspection of Cooya Beach by Daryl Walker and Wayne Knight of Projex Partners revealed that Cooya Beach does not have the same erosion issues that are obvious at Newell Beach. The northern end of Cooya Beach is actually showing evidence of an increasing sand deposit adjacent to the sand bar.

Photo 5.5 – Cooya Beach

Photo 5.6 – Cooya Beach Sand Deposit with Sand Bar Upper Left of Photo

In a subsequent site visit on 25 March 2015 by Daryl Walker, Peter Mathers and Wayne Knight of Projex Partners and Paul Hoye of Douglas Shire Council, Paul Hoye noted that the sand bar is also resulting in a re-direction of the Mossman River outlet to the north along Newell Beach. In significant rainfall events, significant debris (logs) have been observed travelling parallel to the beach.

Further consideration of the Mossman River has identified that there is a risk of the outlet continuing to move due to the restriction/blockage caused by the sand bar. If not rectified, over time the river outlet may re-align. The potential of this and associated consequences have not formed part of this investigation.

It was also noted that the beach had experienced further erosion during the recent tropical Cyclone Nathan. It was noted that the erosion was extending further north and appears to be happening at a quicker rate than has previously been the case, perhaps indicating that the imbalance in long shore drift is exacerbating.

For these reasons, remedial actions which attempt to address these problems are considered urgent.

6 Possible Mechanisms Causing Sand Loss

There have been some significant storms in the area over the last 20 years and more recently those associated with Severe Tropical Cyclone Larry in 2006, Severe Tropical Cyclone Yasi in 2011 and Tropical Cyclone Ita in April of this year. These type of events and other significant storms cause strong wave action on the beaches and also result in significant increase in the flow, velocity and turbulence within the coastal river systems.

It is well documented that during significant storm events, the increased flow, velocity and turbulence within river systems can result in the transport of sediments from upstream within rivers to the river mouth. Once these sediments meet the ocean the flow is dissipated due to the ocean swell and wind generated waves. This reduction in velocity results in the sediments settling to the river/ocean bed near the river mouth creating sand bars.

Council has advised that there are large sand deposits within the Mossman River system and it is possible that over the years this sand has been transported by storm events to the river mouth and has settled to the river/ocean floor creating the observed sand bar at Newell Beach. A series of similar events over the years has contributed to the growth of the sand bar. Its growth is exacerbated, not only from storm events re-occurring and depositing further sand, but also by capturing the sand transported north along the coast line by the longshore drift process. This is causing the sand bar to continue increasing in size and growing north and parallel to the beach line. As the sand bar has grown, it has created an ever increasing barrier to these natural longshore drift processes, capturing sand that would otherwise have been deposited on Newell Beach. Not only is this demonstrated by the sand bar extending to the north, but also growing in width (also demonstrated by the sand deposits at the northern end of Cooya Beach as identified in **Section 5**). This interruption of sand movement creates an imbalance in the longshore drift process because wave action between the sand bar and the beach continues to transport sediment away from Newell Beach as described by the process in **Section 4.1**.

With no sand arriving at Newell Beach and sand continuing to depart, the result is a continually eroding beach.

Section 5 of this report identified that Cooya Beach immediately to the south of Newell Beach is not showing the same significant level of erosion as Newell. This is because the longshore drift processes contributing sand to Cooya Beach is not being interrupted by a sand bar or other blockage (refer **Figure 6.1**).

Furthermore, it is possible that the re-direction of the Mossman River outlet to the ocean by the sand bar is contributing to Newell Beach erosion. The current required to mobilise such debris as described in **Section 5** would be significant and it is therefore possible that the velocity associated with the current is also mobilising sand.

Photo 6.1 – Southern Cooya Beach (courtesy of Google Maps)

7 Newell Replenishment Recommendations

The following works are recommended to be trialled to assist in reducing erosion and replenishing the sand at Newell Beach. It is noted that not any one of the following steps is likely to result in replenishment of the beach on its own and that all three steps are recommended to be undertaken concurrently. Once they are all completed, the trial should be regularly observed for effectiveness.

7.1 Step 1 - Emergent Protection Works

It is recommended that Council commence sand replacement works as soon as possible to reinstate the eroded portion of the freehold properties to provide immediate sand replenishment. It is understood that Council have access to a sand source which is dredged from the Mossman River and that local operators are available to transport and place the sand. The sand should be placed at a suitable profile from the properties to the existing beach such that pedestrian safety is not compromised.

7.2 Step 2 - Geofabric Groynes

Construct geofabric groynes with five (5) tonne Elcorock bags along the eroded extent of Newell beach to assist in the prevention of sand loss in the area via the long shore drift process.

Construction may reduce sand movement north of the groynes and therefore temporarily impact on sand deposition immediately north of the groyne extents. However, this should only be a temporary effect until the beach profile in front of the properties is restored. Sand will then migrate over the buried groynes. The groynes should be designed and installed to an extent such that it will result in an ultimate profile that is desirable. They will eventually be submerged by the captured sand and reduce the impact on beach amenity.

There are a variety of proprietary products available, with an example being the Geofabric Australia Elcorock shoreline protection system. This has proven a popular product in Queensland with it being used successfully for this same application in many beaches along the east coast, including Yamba, Gold Coast, Sunshine Coast, Bundaberg and Russell Heads south of Cairns.

Elcorock utilises robust geotextile containers designed to be filled with sand (or other infill material) that are then placed to form a stable, durable structure. They are a proven system that has been available for over 20 years and have withstood coastal abrasion, vandalism and UV damage during this time. It provides a cost effective alternative to the traditional coastal erosion protection systems made from concrete and rock armour. Elcorock literature is contained within **Appendix A**. Case studies for Elcorock installation are included in **Appendix B**.

The Elcorock bags have a life of approximately 10 years. On restoration of the longshore drift balance after dredging works are undertaken (refer **Section 7.3** below) the bags may no longer be necessary and could potentially be removed.

7.3 Step 3 - Sand Bar Dredging

The sand bar that has formed at the southern end of Newell Beach at the Mossman River mouth should be dredged to allow the natural longshore drift processes to be restored. The dredging should also be undertaken in such a way that allows restoration of the original Mossman River outlet geometry to eliminate the observed north flowing current adjacent to Newell Beach. The dredging will enable the sand that is removed from Newell Beach to be replenished from the south, improving the Newell Beach's longshore drift balance.

The dredged sand should be placed on the beach between the groynes to an appropriate profile so that improved protection is provided from future storm events.

Monitoring of the Mossman River mouth will be required over time to determine if the sand bar returns.

A dredging/maintenance program is also recommended to prevent reoccurrence in the future. This is not uncommon along the Queensland coast line.

8 Cost Estimate for Recommended Works

We have prepared preliminary cost estimates to install the Geofabric Groynes and undertake Sand Bar Dredging works recommended in **Section 7** above based on our experience with similar works undertaken on the Sunshine Coast. Details of the preliminary estimates are provided below.

8.1 Emergent Protection Work

It is understood that Council have commenced sand replenishment emergent protection works and that the cost is being managed through established day labour rates. We have therefore not estimated the cost associated with this work.

8.2 Geofabric Groyne

Based on our experience of supply and installation of these bags in other areas we estimate that each bag (2.5m long x 1.75m wide) can be supplied and installed for a cost of $800 excluding GST.

It is estimated that an average of approximately five (5) bags will be required for each groyne. This will provide an average groyne length of 12.5m. Six (6) groynes are proposed and therefore a total of 30 bags are estimated to be required.

An estimate of cost is:

- Supply and install bags $20,000
- Professional fees and application charges $ 8,000
- Sub-total (excluding GST) $28,000
- Contingency (20%) $ 5,600
- Total (excluding GST) $33,600

Refer to Concept Design drawing 621-002-SK01 in Appendix C showing the recommended layout.

8.3 Sand Bar Dredging

From site observations it is estimated that the sand bar is approximately 500m long and varies between 20m and 5m in width. The average depth of sand to be removed is estimated to be 2m. This provides an estimated volume of 20,000m³ of sand.

Hall Contracting operates an advanced fleet of cutter suction dredges and has a long history of undertaking successful beach replenishment projects in Queensland. We have had preliminary discussions with Hall Contracting regarding an estimate of cost to undertake dredging works at Newell Beach. Preliminary cost advice from Hall Contracting in relation to dredging the sand and pumping it onto Newell Beach is:

- Mobilisation $200,000
- Sand dredging ($10/m³) $200,000
- Sub-Total $400,000

- Contingency (20%) $ 80,000
- Total $480,000

Alternatively, an excavator could be mobilised onto the sand bar to excavate the sand, if the sand bar can support it. This could be performed by a local Council approved supplier and would negate the need for the expensive dredge mobilisation costs.

It is unlikely however that this method would be able to remove the entire sand bar and perhaps only from the mouth of the river back to the southern limit of the sand bar could be removed without the assistance of a barge. It is not known how effective this reduced sand bar removal will be in preventing further erosion although it is expected it will provide some significant benefit and it may prove to be the only sand bar removal works that are required. Only trial and monitoring will determine this.

If this method of sand bar removal is used it is likely that trucks would need to be loaded on the beach at the southern side of the river in order to transport the sand via the local road network to replenish the Newell Beach Erosion areas to the north of the river.

To date no cost estimate has been undertaken for this method of sand bar removal. Further discussions with local contractors are recommended in the first instance.

9 Approvals Required

The following approvals are required to enable works to proceed:

- ERA 16 from the Department of Environment and Heritage Protection for the dredging activity
- Approval from the Department of Transport and Main Roads via the Harbour Master for dredging activities and installation of geofabric bags.
- Operational Works approval from Douglas Shire Council.

10 References

Reeve, D, Chadwick, A, Flemming, C (2012) Coastal Engineering: Processes, Theory and Design Practice, 2nd Edition.

Gold Coast City Council (2014). Longshore Drift: Coastal Processes on the Gold Coast.

Gold Coast City Council (2014). Beach Erosion: Coastal Processes on the Gold Coast.

Gibb, J.G., Depledge, D.R. (1980). Coastal Erosion at Paekakariki, Wellington's West Coast.

GeoResources (2014). Landforms, Erosion and Longshore Drift.

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Sunshine Coast Council (2012), Maroochydore Beach Nourishment Feasibility Report.

Appendix A

Elcorock General Brochure

ELCOROCK®

Shoreline Protection System

General Brochure

Photo by Katrina Lawrence courtesy of the City of Greater Geelong

QUALITY - SUPPORT - EXPERTISE

GEOFABRICS®

ELCOROCK® is a shoreline protection system utilising robust geotextile containers designed to be filled with sand (or other infill material), that are then placed to form a stable, durable structure.

The versatility and durability of the **ELCOROCK®** containers allow construction of a wide variety of coastal structures – including groynes, walls, reef structures and other applications for marine and inland waterways.

ELCOROCK® is a world-leading system, with structures built on open beaches over 20 years ago surviving Australia's harsh coastal environment. The **ELCOROCK®** system is supported by extensive research, including design methods, durability reports and environmental analysis.

The **ELCOROCK®** shoreline protection system is an alternative building material to traditional coastal methods such as concrete, rock armour, steel or timber. Geofabrics supports the **ELCOROCK®** system with research, specialist installation equipment and design assistance.

The **ELCOROCK®** sand container product range covers a large range of sizes and systems ranging from hand filled 40kg containers to hydraulically filled mega sand containers and tubes. Specialist filling and placement equipment is available for most container sizes to provide both a consistent and attractive finish.

FUNCTIONS

Erosion control

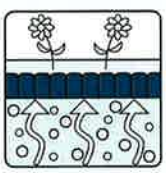
ELCOROCK® structures restrict the loss or movement of sand through wave action, tidal currents and wave currents.

Wave dissipation

ELCOROCK® structures can reduce the size and energy of waves by assisting the wave to break away from the foreshore, thereby providing sheltered waters in the lee of the structure.

Shoreline protection

ELCOROCK® structures protect the shoreline by resisting the erosive forces from wave action or tidal events.



Environmental enhancement

ELCOROCK® structures provide a base upon which organisms grow in the ocean or river systems. Such growth is vital to the health and diversity of the natural environment.

SEA WALLS AND REVETMENTS

The durability, permeability, stability and flexibility of ELCO**ROCK**® sand containers provide an excellent solution for construction of sea walls and revetments.
ELCO**ROCK**® sand containers have a number of advantages over traditional rock sea wall construction methods including -

- Reducing beach contamination as there are no rocks to be displaced.
- Lowering the environmental footprint, due to the use of in-situ materials and reduced need for importation of fill materials.
- Increasing the public amenity through increased public access and lower OHS risk.

The use of vandal deterrent geotextile layers in structures where public access is high increases the durability of the ELCO**ROCK**® structures.

GROYNES AND BREAKWATERS

ELCO**ROCK**® containers are widely used in the construction of groynes and breakwaters, which extend into the wave zone to control the movement of sand and provide marina and beach protection. The type of ELCO**ROCK**® container used is dependent primarily upon the wave climate. The ELCO**ROCK**® containers have proven durability over many years in the aggressive, exposed marine environments. The use of vandal deterrent ELCO**ROCK**® containers provides a softer, visually acceptable finish, allowing the structure to blend into the existing environment.

RIVERBANK PROTECTION

Increased boating or flood activity has led to increased erosion of riverbanks and lake shorelines. The ELCO**ROCK**® system helps resist erosive forces, whether it be through revetment structures, river training, groynes or protecting boat ramps. Using locally available fill material enables ELCO**ROCK**® containers to provide a cost-effective solution. The durability, resistance to UV and abrasion and the soft finish of the ELCO**ROCK**® system all provide advantages over rock structures in inland waterways.

CUSTOM STRUCTURES

ELCO**ROCK**® containers have been used for a wide variety of applications, including artificial reefs, bunds, cofferdams and temporary working platforms. The range and capabilities of our manufacturing facilities makes the most difficult application possible. The ELCO**ROCK**® system has been used in many emergency protection works where rapid installation is required, such as sea wall toe protection and sand dune protection. The system can also be removed after the structure has served its purpose, with little risk or inconvenience to beach users.

ADVANTAGES OF THE ELCOROCK® SYSTEM

Proven Durability	ELCO**ROCK®** structures have been in place for over 20 years in the harsh Australian environment. The durability of ELCO**ROCK®** is proven over many dimensions, including: • UV resistant to the harshest conditions in the world, • Vandal deterrent fabric, • Excellent abrasion resistance. In-field durability research confirms the durability of the ELCO**ROCK®** system in the harshest coastal conditions, including cyclones.
Increased Public Amenity	ELCO**ROCK®** structures enhance the public amenity of the coastal area, through – • Providing a structure that people can easily access and use, • Reducing beach contamination from rock walls displacing and putting rocks over the beach front, • Reducing the OHS risks associated with foreshore structures, • Reducing the site impact during construction through reducing the number of trucks required to visit site.
Structural Stability	ELCO**ROCK®** sea walls and revetments can be designed for structural stability through proven design methods.
Environmentally Friendly	ELCO**ROCK®** structures provide a base upon which marine growth develops, enhancing the local biodiversity. ELCO**ROCK®** structures also use locally available fill material, reducing the need for trucking of fill materials to site.
Cost Effective	ELCO**ROCK®** structures compare favourably to traditional coastal structures, both with initial installed cost and whole-of-life costings.
Design and Installation Support	ELCO**ROCK®** sand containers are supported by technical assistance from our Geofabrics engineers. Installation equipment is also available to help ensure efficient and correct installation.

SUPPORT DOCUMENTATION

Specifications	ELCO**ROCK®** Data Sheets
Installation Guidelines	• ELCO**ROCK®** 0.75m³ Installation Guidelines • ELCO**ROCK®** 2.5m³ Installation Guidelines • ELCO**ROCK®** Mega Containers Installation Guidelines
Support Equipment Documents	• ELCO**ROCK®** 0.30m³ & 0.75m³ Filling Frames • ELCO**ROCK®** 0.75m³ J-Bins • ELCO**ROCK®** 2.5m³ Filling & Placement Apparatus • Sewing Machine
Technical Notes	ELCO**ROCK®** Design Guidelines
Other	• ELCO**ROCK®** CD • ELCO**ROCK®** Online Seminars • ELCO**ROCK®** Cost Calculator • ELCO**ROCK®** Research Reports

MELBOURNE	SYDNEY	NEWCASTLE	COFFS HARBOUR	PERTH	ADELAIDE
(03) 8586 9111	(02) 8785 8800	(02) 4951 2688	(02) 6653 5706	(08) 9249 5411	(08) 8162 5855
Fax: (03) 8586 9186	Fax: (02) 9821 3670	Fax: (02) 4951 3055	Fax: (02) 6653 5706	Fax: (08) 9249 5447	Fax: (08) 8162 5755
HOBART	**BRISBANE**	**TOWNSVILLE**	**BUNDABERG**	**GOLD COAST**	**DARWIN**
(03) 6273 0511	(07) 3279 1588	(07) 4774 8222	(07) 4155 9968	(07) 5594 8600	0407 523 669
Fax: (03) 6273 0686	Fax: (07) 3279 1589	Fax: (07) 4774 8655	Fax: (07) 4155 9968	Fax: (07) 5563 3727	Fax: (08) 8984 1614

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M114-06/13

Appendix B

Elcorock Case Studies

Coastal

Case Study

Project: Maroochy Beach Groyne
Date: November 2001
Client: Maroochy Shire Council
Location: Sunshine Coast, Queensland

Geofabrics AUSTRALASIA PTY LTD

Due to the ongoing erosion of Maroochydore beach, the Maroochy Shire Council instructed WBM Oceanics to assess the cause of the problem and recommend an interim solution. Modelling at the Queensland hydraulics laboratory identified that beach nourishment together with a groyne located at the northern end of the beach would meet the criteria.

Due to the success of the Maroochydore ELCORock® sea wall constructed as emergency protection to the Cotton Tree caravan park, the council called for the design and construction of a groyne constructed from Geosynthetic sand containers. The tender called for a groyne 2.5m high by 100m long which could withstand 3m high waves. Another important criteria was that the geotextile should provide some form of vandal resistance.

Filling and Placement Apparatus

June 2006

The Council selected the ELCO Solutions proposal, designed by ICM, consisting of a multiple container structure, which would maximise flexibility, and minimise the potential effects of vandalism. The design incorporated a number of innovative features, namely:

- Vandal Deterrent Composite Geotextile.
- 5 tonne Sand Containers.
- Specialised Filling & Placing Apparatus.

The groyne was constructed well within schedule, even allowing for the steep learning curve, which is always associated with the development of new technology.

A total of 650 2.5m^3 **ELCORock®** containers were used to construct this visually pleasing and cost effective structure. This structure, a world first, reinforces ELCO Solutions Australia's reputation as the world leaders in the field of construction using Geotextile Sand Containers.

www.geofabrics.com.au

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Technical Enquiries: 1800 4 BIDIM (1800 424 346)

Case Study

Project: Maroochy Beach Groynes, 2, 3, & 4
Date: April 2003
Client: Maroochy Shire Council
Location: Sunshine Coast, Queensland

Geofabrics AUSTRALASIA PTY LTD

The first ELCORock groyne constructed using 2.5m^3 containers in November 2001, had proven to be a success. The structure was stable under severe wave attack, was user friendly, aesthetically pleasing and the vandal deterrent geotextile had performed beyond expectations.

This allowed the council to approve the second phase of project which consisted of a further 3 groynes to protect the exposed headland. The groynes were as follows:
Groyne 2 – 92m long & up to 3.9m high
Groyne 3 – 47m long & up to 3.25m high
Groyne 4 – 71m long & up to 3.9m high
The areas between the groynes were nourished with 30,000m^3 of sand from a sand source north of the Maroochy River.

During construction 2003

Completed Project 2003

ELCO Solutions Australia provided the specialised, filling and placement equipment, to ensure effective filling and simplified placement of containers. A total of 2,000 No. 2.5m^3 vandal deterrent containers were used for the construction of the 3 groynes. The construction period was 2 months.

A close working relationship between the client, contractor and supplier ensured the project was completed on time and within budget.

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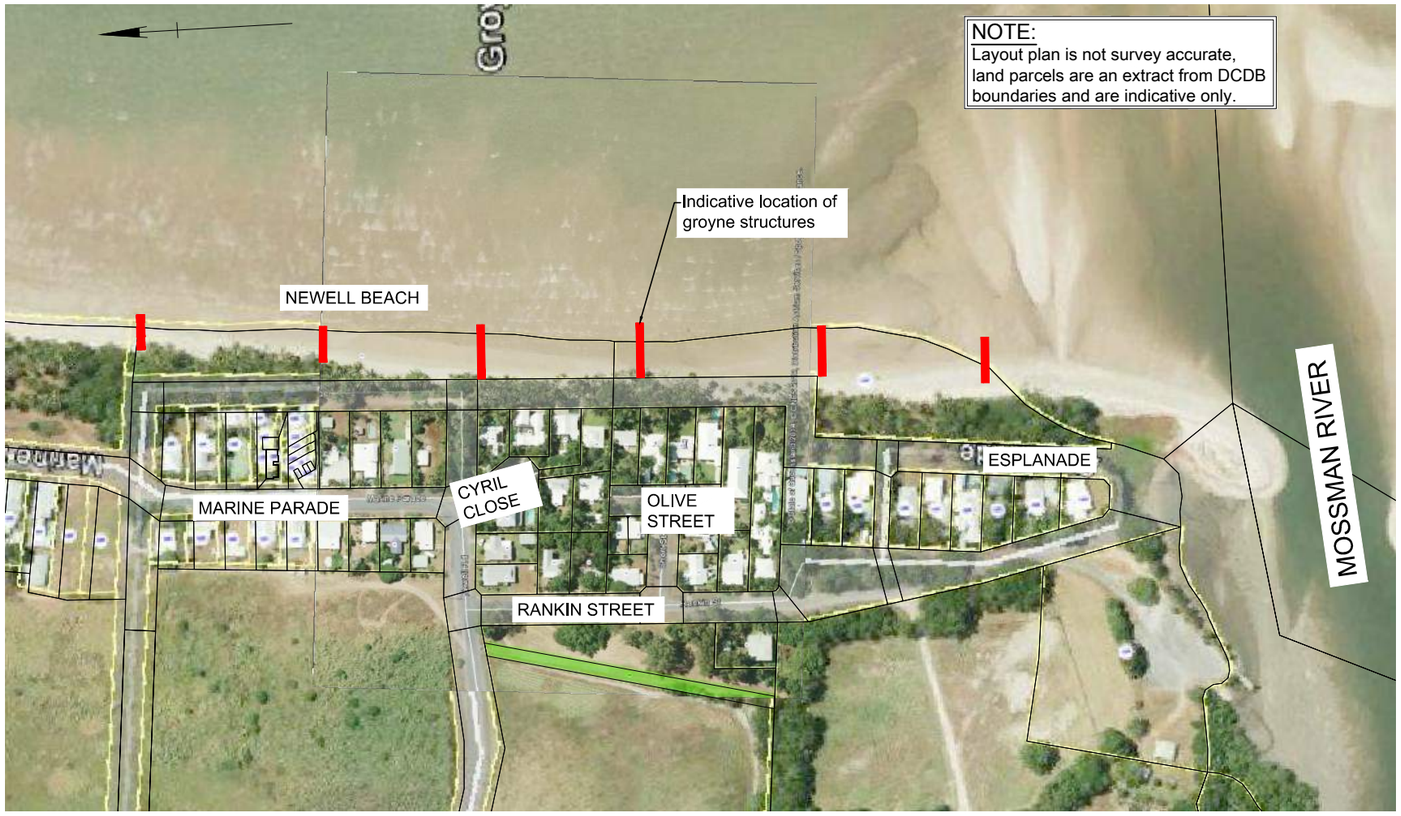
Technical Enquiries: 1800 4 BIDIM (1800 424 346)

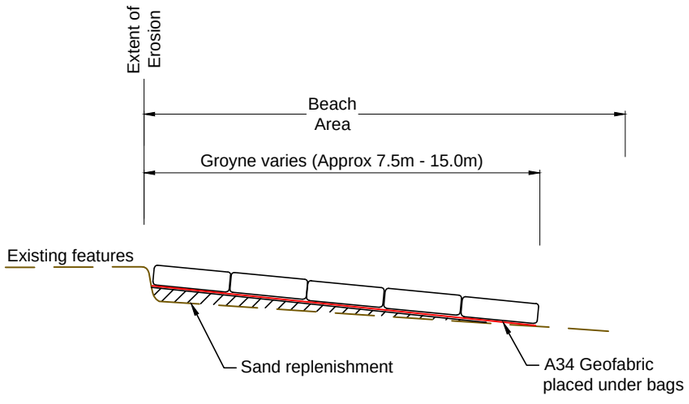
Appendix C

Concept Design Drawing 621-002-SK01

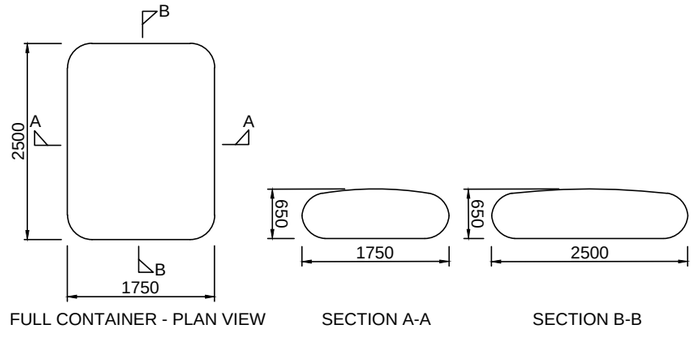


LAYOUT PLAN
SCALE: 1:4000 (A3)

LOCALITY PLAN
SCALE: 1:20000 (A3)



TYPICAL LONGITUDINAL SECTION
SCALE: 1:200 (A3)



FULL CONTAINER - PLAN VIEW SECTION A-A SECTION B-B

2.5m3 ELCORock DIMENSIONS (5223 BAGS)
N.T.S

SANDBAG NOTES:

1. Containers to be filled with council provided sand.
2. Containers to be 2.5m^3 ELCOROCK (5223) or approved equivalent.
3. ELCOROCK containers to have vandal-proof coating
4. Bidum A34 geofabric matting or approved similar to be laid under bags

CONCEPT DESIGN

Projex Partners
PROJECT MANAGEMENT - ENGINEERING - PLANNING
SUNSHINE COAST (07) 5493 3649 MACKAY (07) 4957 4988 CAIRNS (07) 4041 5118
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CLIENT: DOUGLAS SHIRE COUNCIL

No.	Description	Date	Drawn	Design	Check	RPEQ
2	AMENDMENTS TO TYPICAL SECTION	16/04/15	CS	TH	PM	PM
1	CONCEPT ONLY	20/02/15	CS	TH	DW	

APPROVED
RPEQ 6954

SCALE
1:100 0 1 2 3 4 5 6 A1
1:200 A3
1:2000 0 20 40 60 80 100 120 A1
1:4000 A3
1:10000 0 100 200 300 400 500 600 A1
1:20000 A3

NEWELL BEACH GROYNE

CONCEPT DESIGN

DRAWING NUMBER 621-002-SK01
REVISION 2

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