

COUNCIL ASSESSMENT REPORT

<b>Panel Reference</b>	PPSSTH-102 and PAN-98150
<b>DA Number</b>	RA21/1000
<b>LGA</b>	Shoalhaven City Council
<b>Proposed Development</b>	Extractive Industry (Sand Mine – Terara Shoalhaven Sands) – Proposed extension to approved dredge area
<b>Street Address</b>	<p>The following parcels of land form the subject site:</p> <ul style="list-style-type: none"> <li>• Lot 1 DP 1184790 at Terara Rd Terara (located on Pig Island)</li> <li>• Lot 2 DP 1184790 at Terara Rd Terara (located on Pig Island)</li> <li>• Lot 3 DP 1184790 at Terara Rd Terara (located on Pig Island)</li> <li>• Lot 4 DP 1184790 at Terara Rd Terara (located on Pig Island)</li> <li>• Bed of Shoalhaven River below the Mean High Water Mark</li> </ul>
<b>Applicant/Owner</b>	<p>Applicant: SAM 8888 Pty Ltd C/- Ernest Panucci</p> <p>Owner: Burruga Island Pty Ltd (Lots 1-4 DP 1184790)</p> <p>Department of Planning &amp; Environment – Crown Land (Bed of the Shoalhaven River below the mean high water mark)</p>
<b>Date of DA Lodgement</b>	18 May 2021
<b>Total No. of Submissions (No. of Unique Objections)</b>	Three (3) Submissions
<b>Recommendation</b>	Deferred Commencement Approval
<b>Regional Development Criteria (Schedule 6 of the SEPP (Planning Systems) 2021)</b>	<p>Section 7, Schedule 6 of the SEPP (Planning Systems) 2021:</p> <p><b>Particular designated development</b></p> <p><i>Development for the purposes of—</i></p> <p><i>(a) extractive industry facilities that meet the requirements for designated development under the Environmental Planning and Assessment Regulation 2021, Schedule 3, section 26</i></p>
<b>List of all relevant s4.15(1)(a) matters</b>	<ul style="list-style-type: none"> <li>• State Environmental Planning Policy (Planning Systems) 2021</li> <li>• State Environmental Planning Policy (Resilience and Hazards) 2021</li> <li>• State Environmental Planning Policy (Biodiversity and Conservation) 2021</li> <li>• Shoalhaven Local Environmental Plan 2014</li> </ul>
<b>List all documents submitted with this report for the Panel's consideration</b>	<p>Environmental Impact Statement</p> <ul style="list-style-type: none"> <li>• Prepared by Allen Price &amp; Associates dated May 2012 (APA Ref No. 21519).</li> <li>• Prepared by EA Panucci and PDC Lawyers and Town Planners dated 7<sup>th</sup> May 2021.</li> <li>• Supplementary Information prepared Martens Consulting Engineers dated 29<sup>th</sup> September 2022 (Ref No. P1806743JC05V01).</li> </ul> <p>Dredging Plan</p> <ul style="list-style-type: none"> <li>• Prepared by Mitchell McCormac (No Date or Ref No).</li> </ul> <p>Survey Plan of Dredge Area and Seagrass Location</p> <ul style="list-style-type: none"> <li>• Prepared by Johnston Procter Surveyors dated 28<sup>th</sup> September 2022 (Drawing No. 14152 (L).</li> <li>• Prepared by Mac Drafting dated 27<sup>th</sup> February 2023 (Drawing No. RA21-1000-1 Rev 1).</li> </ul> <p>Dredge Area Comparison Plan</p> <ul style="list-style-type: none"> <li>• Prepared by Johnston Procter Surveyors dated 5<sup>th</sup> December 2018 (Drawing No. 14152 (G)).</li> </ul>

	<p>Flora &amp; Fauna Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated November 2012 (Ref No. 110377JR04V02)</li> <li>• Prepared by Peter Dalmazzo dated 15<sup>th</sup> March 2019.</li> <li>• Prepared by Peter Dalmazzo dated 27<sup>th</sup> September 2022.</li> </ul> <p>Letter of Undertaking for Adaptive Management Strategy - Biodiversity</p> <ul style="list-style-type: none"> <li>• Prepared by Lodge Environmental dated 17<sup>th</sup> February 2023 (LE1637).</li> </ul> <p>Flood Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated February 2019 (Ref No. 1806743JR04V02).</li> <li>• Refuge Stock Mounds prepared by Martens Consulting Engineers dated 5<sup>th</sup> August 2020 (Ref No. 14042800JC01V02).</li> <li>• Supplementary Information in response to Further Information Request dated 19<sup>th</sup> September 2022 (Ref No. 1806743JC03V01).</li> <li>• Supplementary Information in response to Shoalhaven City Council &amp; Biodiversity &amp; Conservation Division Comments dated 27<sup>th</sup> February 2023 (Ref No. P1806743JC06V01).</li> </ul> <p>Geomorphology Supplementary Information</p> <ul style="list-style-type: none"> <li>• Prepared by Fluvial Systems Pty Ltd dated 18<sup>th</sup> September 2022 (Ref No. 22004_terara sand_shoalhaven).</li> <li>• Prepared by Fluvial Systems Pty Ltd dated February 2023 (Ref No. d:\fluvial systems\consulting 2016 -\22004_terara sand_shoalhaven\report)</li> <li>• Letter of Undertaking for Adaptive Management Strategy – Geomorphology.</li> <li>• Prepared by Fluvial Systems Pty Ltd dated 27<sup>th</sup> February 2023.</li> </ul> <p>Mine Safety Management Plan</p> <ul style="list-style-type: none"> <li>• Prepared by Shoalhaven Sand Pty Ltd dated 1<sup>st</sup> February 2012 .</li> </ul> <p>Qualitative Ambient Air Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Clearsafe Environmental Solutions dated 14<sup>th</sup> February 2012 (Ref No. 1144-01-A-AQ).</li> </ul> <p>Estuarine Water Quality Impact Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated March 2019 (Ref No. P1806743JR06V02).</li> </ul> <p>Estuarine &amp; Water Surface Monitoring Plan</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated May 2019 (Ref No. P1806743JR05V01).</li> <li>• Prepared by Martens Consulting Engineers dated September 2022 (Ref No. 1806743JR05V02).</li> <li>• Supplementary Information in response to Further Information Request Prepared by Martens Consulting Engineers dated 16<sup>th</sup> September 2022 (Ref No. 2106743JC04V01).</li> <li>• Final Report prepared by Martens Consulting Engineers dated February 2023 (Ref No. P1806743JR05V04).</li> </ul> <p>River Stability Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated March 2019 (Ref No. P1806743JR01V01).</li> </ul> <p>Recreational Fishing &amp; Bait Collection Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Peter Dalmazzo dated 17<sup>th</sup> January 2019.</li> </ul> <p>Land Resource Assessment</p> <ul style="list-style-type: none"> <li>• Prepared by Martens Consulting Engineers dated March 2019 (Ref No. P1806743JR07V01).</li> </ul>
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Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

	<p>Waste Minimisation &amp; Management Plan</p> <ul style="list-style-type: none"> <li>Prepared by Applicant (No Date or Ref. Number).</li> </ul> <p>Rehabilitation Management Plan</p> <ul style="list-style-type: none"> <li>Prepared by Martens Consulting Engineers dated April 2019 (Ref No. P1806743JR08V01).</li> </ul> <p>Environmental Noise Impact Assessment</p> <ul style="list-style-type: none"> <li>Prepared by Harwood Acoustics dated 14<sup>th</sup> March 2019 (Ref No. 1808009E-R).</li> </ul> <p>Contamination Assessment</p> <ul style="list-style-type: none"> <li>Prepared by Martens Consulting Engineers dated April 2019 (Ref No. P1806743JR03V01).</li> </ul> <p>Acid Sulfate Soils Assessment</p> <ul style="list-style-type: none"> <li>Prepared by Martens Consulting Engineers dated April 2019 (Ref No. P1806743JR02V01).</li> </ul> <p>Aboriginal Due Diligence Advice</p> <ul style="list-style-type: none"> <li>Prepared by Biosis dated 30 January 2020 (Ref No. Matter 31375).</li> </ul>	
<b>Clause 4.6 requests</b>	Not Applicable	
<b>Summary of key submissions</b>	<ul style="list-style-type: none"> <li>Water quality impacts.</li> <li>Flood afflux upon Lower Shoalhaven Floodplain communities.</li> <li>Significance of impacts upon threatened species of migratory shorebirds and the 'Swamp Oak and Salt Marsh' Endangered Ecological Community (ECC).</li> <li>Management of the coastal environment.</li> <li>Long term scouring and bank erosion impacts upon the Terara Levee.</li> <li>Acid sulfate soils - impacts.</li> </ul>	
<b>Report prepared by</b>	Justin Lamerton, Shoalhaven City Council	
<b>Report date</b>	6 April 2023	
<b>Summary of s4.15 matters</b> <b>Have all recommendations in relation to relevant s4.15 matters been summarised in the Executive Summary of the assessment report?</b>		Yes
<b>Legislative clauses requiring consent authority satisfaction</b> <b>Have relevant clauses in all applicable environmental planning instruments where the consent authority must be satisfied about a particular matter been listed, and relevant recommendations summarized, in the Executive Summary of the assessment report?</b>		Yes
<b>Clause 4.6 Exceptions to development standards</b> <b>If a written request for a contravention to a development standard (clause 4.6 of the LEP) has been received, has it been attached to the assessment report?</b>		Not applicable
<b>Special Infrastructure Contributions</b> <b>Does the DA require Special Infrastructure Contributions conditions (S7.24)?</b> <b>Note: Certain DAs in the Western Sydney Growth Areas Special Contributions Area may require specific Special Infrastructure Contributions (SIC) conditions</b>		Not applicable
<b>Conditions</b> <b>Have draft conditions been provided to the applicant for comment?</b> <b>Note: in order to reduce delays in determinations, the Panel prefer that draft conditions, notwithstanding Council's recommendation, be provided to the applicant to enable any comments to be considered as part of the assessment report</b>		Draft Conditions prepared by internal and external referral authorities have been made available for the applicant's review

*Note: This report is a revised Section 4.15 Assessment Report (Version 2) which has been amended following consideration of the proposal and Council Assessment Report by the Southern Regional Planning Panel (SRPP) on 16 May 2023.*

## 1. Executive Summary

### The Site

The site is described as Lots 1 to 4 DP 1184790 which represents all four allotments making up 'Pig Island' and the bed of the adjacent Shoalhaven River below the mean high water mark.

Pig Island is a landform located entirely within the Shoalhaven River at approximately 1.5km due east of the Nowra Bridge. The townships of Nowra and Bomaderry are located within proximity to the south-west and north-west of the Island respectively. The village of Terara is located directly to the south of the Island.

The Shoalhaven River anabranches to the north and the south as it meanders towards the Pacific Ocean which is located at approximately 11km downstream. The River commences in the Gourock Range in the Eastern Highlands, is approximately 332 kilometres in length and drops 860 metres in elevation through to its connection with the Pacific Ocean. Pig Island is the first major landform within the lower River system. It is known to collect sediment deposits including sand from natural processes through its significant upstream system. These sediment deposits collect on the western and northern ends of the Island.

The bed of the Shoalhaven River immediately to the north-west of Pig Island therefore forms part of the development site and is identified as the location where the proposed dredge expansion would take place.

The below image depicts the subject site and its proximity to other nearby landforms.

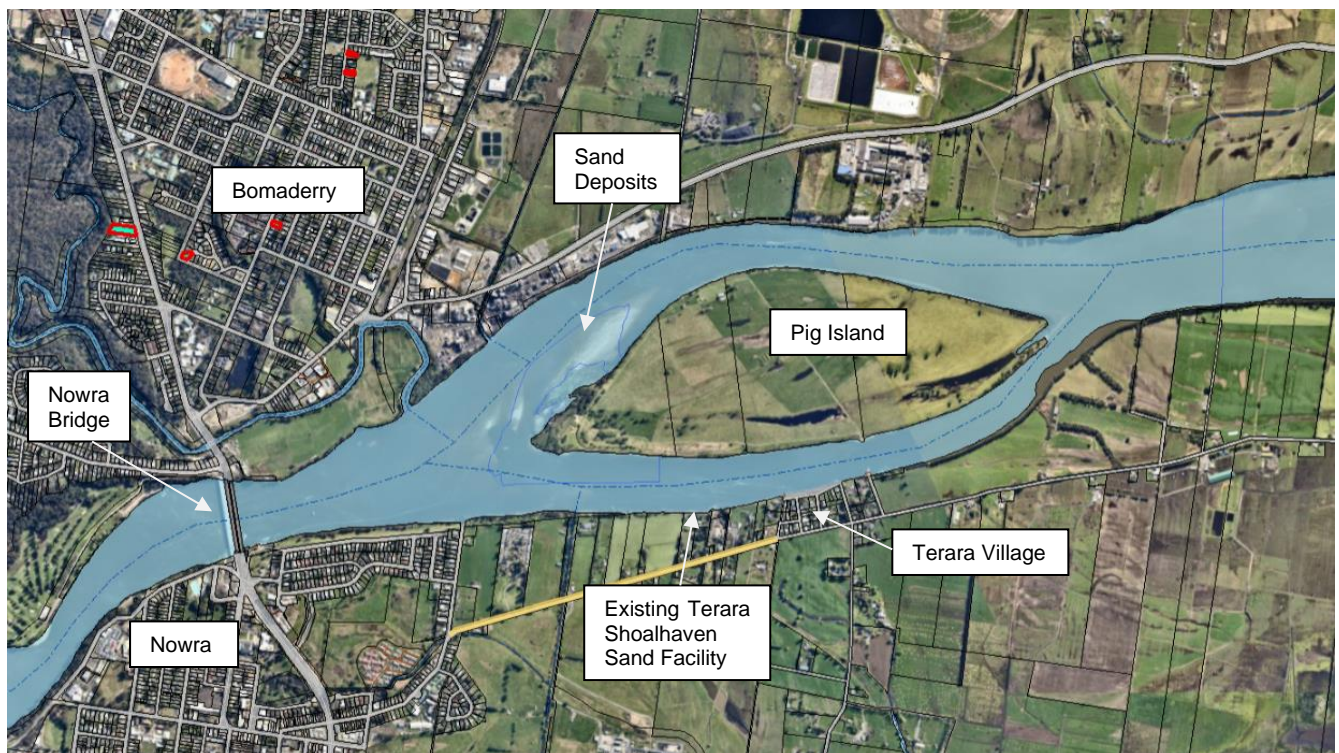


Figure 1 – Subject Site

Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

Approvals history

Terara Shoalhaven Sand Pty Ltd (formerly Terara Sand Pty Ltd) was originally granted a Permissive Occupancy approval to extract mineral (sand) from the bed of the River and process it into coarse river sand for distribution as part of PO1968/29 on 1<sup>st</sup> October 1968.

The existing approval for sand extraction at the site was issued by the Southern (then) Joint Regional Planning Panel as part of RA12/1000 issued on 28th August 2014. The approval permitted up to 100,000 tonnes of sand to be extracted per annum with the proponent advising in the submitted Environmental Impact Statement that on average, 60,000 tonnes was extracted per annum under the current approval and extraction licence issued in 2014. The sand was won and extracted from the bed of the River and transported to the adjacent premises owned by Terara Sand located at No. 125 Terara Rd Terara (land based) for processing.

The approval granted consent for an extension to the approved dredge area, which based upon previous sand extraction rates, was to enable an extension to the extraction timeframe for a period of a further 25 to 30 years. Documentation prepared as part of RA12/1000 was in accordance with the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW Department of Planning on 11<sup>th</sup> November 2011.

The current approved extraction area is marked in red in Figure 2 below.



Figure 2 – Existing Approved Location

The process involves 'the extraction of sand out of the sediment material dredged from the River, and separation from shells, carbonates, and other fines'. From here, the sand product is on sold to other businesses and operations for use within the locality. Existing facilities located at Terara Shoalhaven Sand's land based operations are depicted in Figure 3 below:

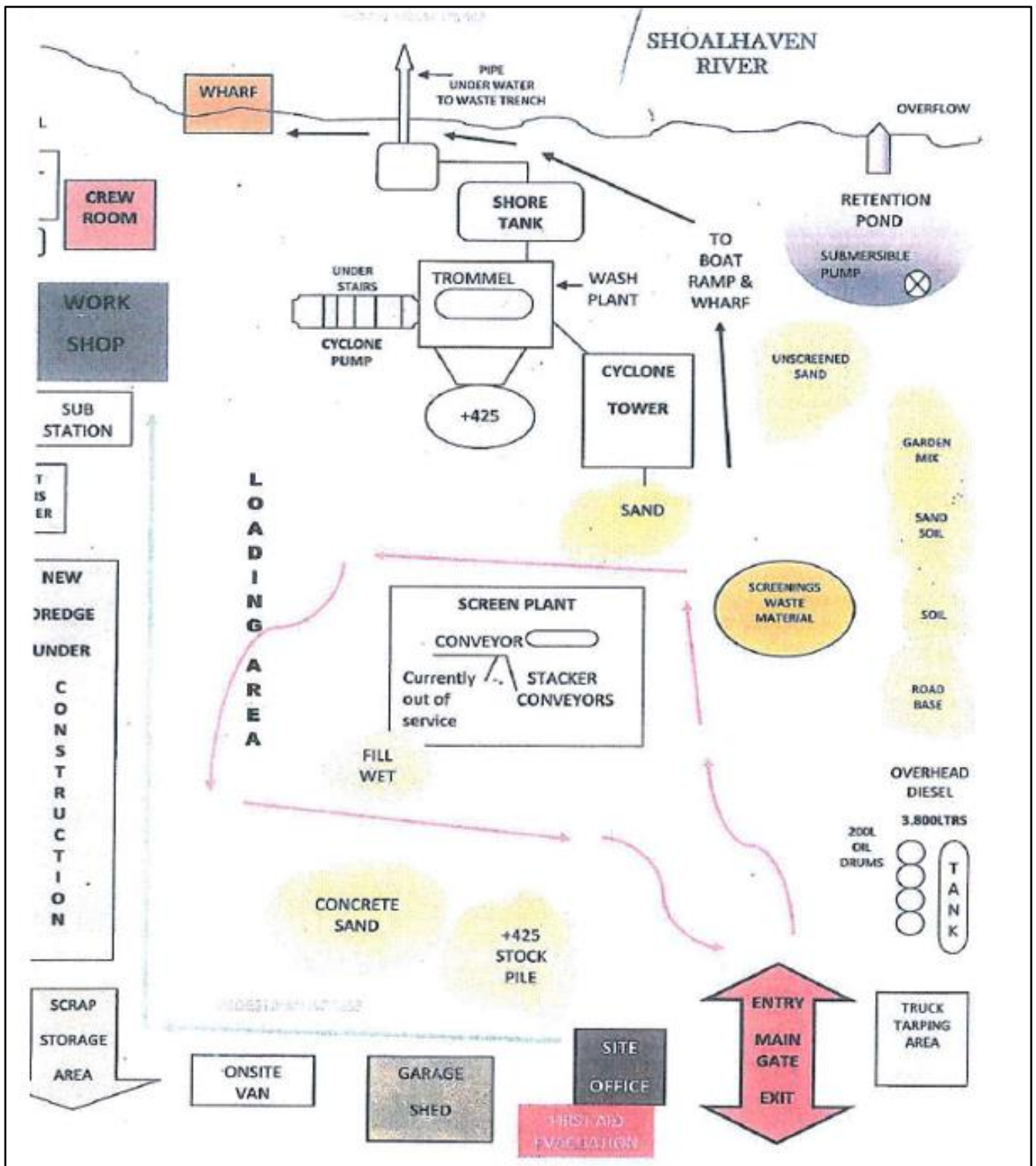


Figure 3 – Terara Shoalhaven Sands Facility

# Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

## Proposed development

The current proposal is to extend the approved dredge extraction area over an area on the northern and western side of Pig Island noting that the sand supply from the previous approved and licenced extraction area has been exhausted following operations conducted in the previous seven (7) years. The intention of the proposed extension is to provide a sand supply that would last for approximately 19 to 40 years (the timeframe is largely dependent upon extraction volumes and rates).

The extended dredge area would cover an area of more than 10 hectares and is depicted in Figure 4 below (Note: The area is denoted in dark blue hatching. The area denoted in light blue hatching does not form part of the current application area and would be subject to a separate future application).

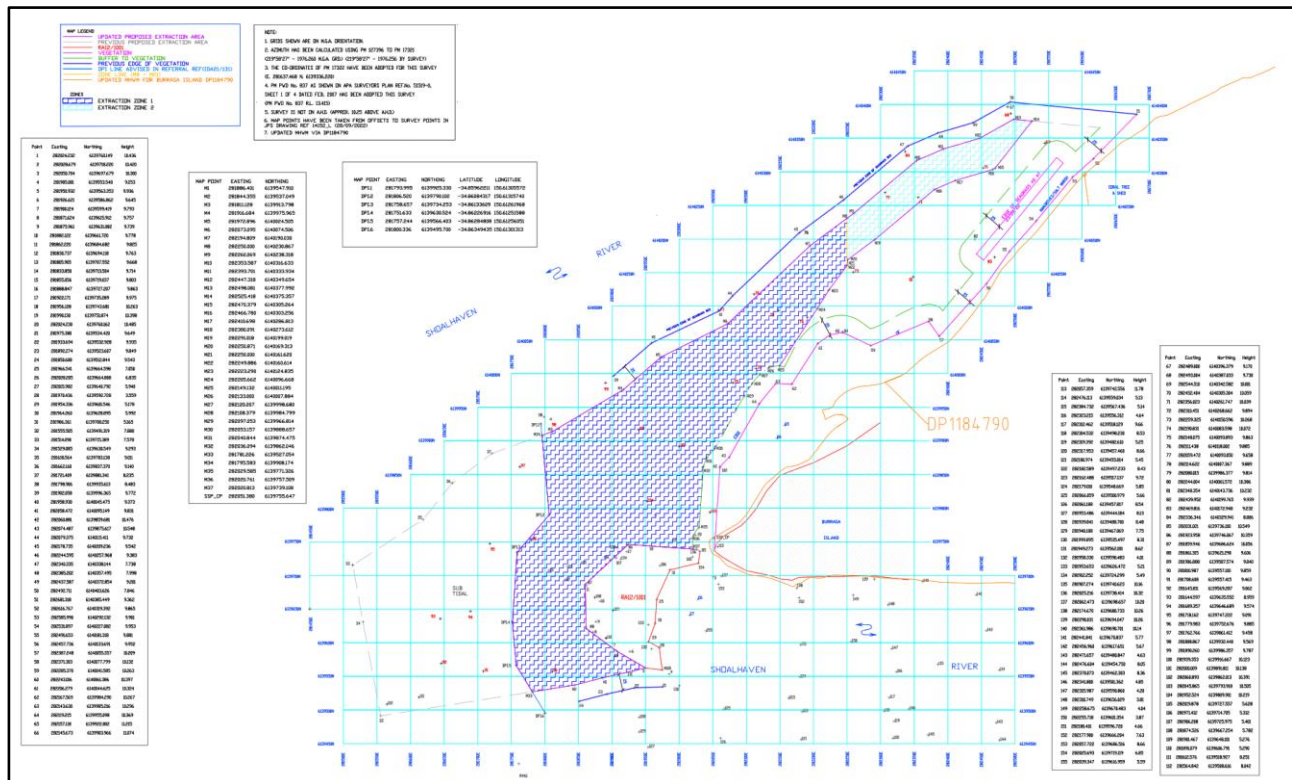


Figure 4 – Proposed Expanded Dredge Area

The proposal also involves the placement of three stock mounds on Pig Island which would be made up of fines disposed following the removal of material from the bed of the River and following separation from coarse river sand.

The applicant's proposed location for the stock mounds is depicted in the below excerpt from the supplementary flood study. However it is noted that the final location of the mounds (as discussed further in the Report) must be amended to ensure they are located wholly within areas mapped as 'High Hazard Flood Storage' area only. This is required to ensure that the location of the stock mounds permits ongoing compliance with applicable requirements including the Shoalhaven Development Control Plan 2014, Chapter G9 – Development on Flood Prone Land and the Floodplain Development Manual.



Figure 5 – Application Location for Proposed Stock Mounds

A detailed assessment of the proposal has been carried out against applicable legislation, Acts, Plans, and Policies with the outcome of the assessment detailed in the following sections of this Report.

#### Key Assessment Issues – Environmental Impacts & Deferred Commencement Conditions

Key issues identified in the assessment of the application relate to the potential environmental impacts relating to:

- flooding,
- geomorphology, and
- biodiversity.

Following consideration of the likely impacts of the proposal, the assessment recommends determination by way of deferred commencement development consent in order to ensure these are adequately addressed. This includes the following requirements being imposed as conditions (requirements) to be addressed, prior to an Operational Consent being issued and prior to the proponent being able to act on the Consent.

##### i) Flooding and Stock Mounds

In accordance with Chapter G9 – Development on Flood Prone Land of the Shoalhaven Development Control Plan (SDCP) 2014, filling/earthworks are prohibited on land classified 'High Hazard Floodway'.

Council notes that the submitted plans depict the construction of part of the stock mounds within areas of Pig Island designated 'High Hazard Floodway', which is prohibited. In order for compliance with the SDCP 2014 to be demonstrated, the deferred commencement condition will require that all stock mounds be located wholly within the areas designated 'High Hazard Flood Storage' only.

It is considered that through this deferred commencement condition, the potential impacts of the development will be adequately managed and the development is capable of support.

**Note:** It is noted that subpoint (b) of the below condition has been included following the previous consideration of this report by the SRPP and rereferral of the application to Council's Flood Engineers (see page 30 of this report).

***Flooding – Filling within High Hazard Floodway Areas***

*A professional engineer, (as defined in the National Construction Code) must submit to the satisfaction of Council, certification that the following items have been detailed on an amended submitted Stock Mound Plan*

- a) All proposed filling is kept outside of areas mapped as High Hazard Floodway in the Lower Shoalhaven River Flood Study (Cardno, 2022) for the 2050 scenario 1% AEP event.*
- b) Detail must be provided confirming that batters associated with the livestock fill mounds are also retained outside the High Hazard Floodway in the Lower Shoalhaven River Flood Study (Cardno, 2022) for the 2050 scenario 1% AEP event.*

*Reason: In accordance with the recently released Lower Shoalhaven River Flood Study, whilst the majority of Pig Island is designated with a flood hazard category of 'High Hazard Floodway', there a number of locations on Pig Island which have the designation, 'High Hazard Flood Storage'.*

ii) Geomorphology – Adaptive Management Plan

Council's Natural Resources and Floodplain Section advised as part of their final referral response that the information submitted by the applicant including an amended Geomorphological Assessment adequately responded to Council's concerns regarding bank erosions / scour impacts upon levee banks and other infrastructure.

While the concerns regarding geomorphological impacts were found to be adequately addressed, the Natural Resources and Floodplain Section considered a Letter of Undertaking submitted by the applicant to inform a future Adaptive Management Strategy. The Adaptive Management Strategy would set objectives, monitoring strategies and mechanisms, and response methods to ensure ongoing operations avoid adverse geomorphic impacts to the river bed and coastal infrastructure including the levee banks. Through the requirements of this condition, it is considered that the potential impacts on geomorphology are capable of being adequately managed and the proposal is capable of support.

***Adaptive Management Plan – Geomorphology***

*An Adaptive Management Plan – Geomorphology must be prepared by a suitably qualified consultant and be submitted to the Shoalhaven City Council for approval.*

*The plan must, as a minimum:*

- a) Elaborate on the commitments made in the approved Letter of Undertaking for an Adaptive Management Strategy – Geomorphology prepared by Fluvial Systems, dated 27 February 2023.*
- b) Be developed in collaboration with Shoalhaven City Council and the NSW Department of Planning and Environment.*
- c) Set clear purpose and objectives to avoid significant impact to geomorphic processes and forms in the Lower Shoalhaven River. This includes but is not limited to the existing P1L1 Riverview Road and P1L2 Terara flood levees.*
- d) Detail performance measures and specific measurement methodologies for monitoring. This will include but not be limited to regular river bed and bank surveys.*

- e) *Detail frequency of monitoring and reporting.*
- f) *Define the study area and monitoring extent.*
- g) *Describe the activity and current baseline conditions of the monitored area.*
- h) *Define triggers for the adaptive management strategy and outline relevant response mechanisms. This includes the immediate cessation of extraction if these triggers are reached or exceeded.*
- i) *Define the extent of liability for damages and repairs to infrastructure and property as a result of potential significant adverse impacts from the activity.*

iii) Biodiversity Impacts

Council's Environmental Services Section considered the following documentation submitted by the applicant as part of their final referral response:

- An amended Extraction Area Plan which reduced the proposed dredge area extent to affect a maximum of 2.09 hectares of isolated intertidal sand flats.
- Revised Biodiversity Conservation Act 2016, Section 7.3 Test of Significance which confirmed that entry into the Biodiversity Offsets Scheme (BOS) was not triggered.

Concerns regarding biodiversity impacts were found to be adequately addressed via the submission of the abovementioned amended documentation and the Environmental Services Section considered a Letter of Undertaking submitted by the applicant to inform a future Adaptive Management Strategy. This Adaptive Management Strategy will set objectives, monitoring strategies and mechanisms, and response methods to ensure ongoing operations avoid adverse biodiversity impacts to the local estuarine environment. It is considered that through this deferred commencement condition, the potential impacts of the development will be adequately managed and the development is capable of support.

***Biodiversity Adaptive Management Plan***

*A Biodiversity Adaptive Management Plan must be prepared by a suitably qualified ecological consultant and be submitted to the Council for approval.*

*The plan must, as a minimum:*

- a) *Elaborate on the commitments made in the approved Letter of Undertaking relating to an Adaptive Management Strategy prepared by Lodge Environmental, dated 17th February 2023.*
- b) *Address all items listed in section 8.4 and section 8.5 of the Biodiversity Assessment Method (DPIE, 2020).*
- c) *Review management actions and monitoring required by Conditions 32 and 44 of DS15/1297 and incorporate these into the Plan.*
- d) *Set clear objectives and measurable performance indicators for management and monitoring.*
- e) *Define the study area.*
- f) *Describe the activity and current baseline conditions of the study area.*
- g) *Identify links to legislation, other plans and documents.*
- h) *Describe the threats and processes that influence the objectives with reference made to biodiversity values identified by Council (Environmental Assessment Officer referrals 1 and 2, as well as DPE's Biodiversity Conservation Division referral and DPIE Fisheries GTA).*
- i) *Detail all management actions to be considered and how these will be implemented. Management actions must include education to all contractors and workers.*
- j) *Describe how the management actions and monitoring program will achieve objectives. Monitoring must include observational techniques (such as systematic bird point counts, photo-point monitoring and GPS vegetation mapping) as well as assessment of modelling (such as preparation of bathymetric maps).*
- k) *Monitoring to assess of the effectiveness of management actions.*

- l) *Describe the responsibilities and detail who will carry out the implementation and monitoring plans.*
- m) *Detail the procedure to analyse and evaluate monitoring data against measurable performance indicators.*
- n) *Provide procedures to respond and adapt management actions and monitoring if performance indicators are exceeded.*

*A summary of the results of the implementation of the above must be provided to Council as part of the six-monthly Audit to continue operation of the approved works. If the six-monthly Audit report is not provided, all works must cease.*

## 2. Application Details

**Applicant:** SHOALHAVEN CITY COUNCIL

**Owner:** Burruga Island Pty Ltd (Lots 1-4 DP 1184790)  
Department of Planning & Environment – Crown Land (Bed of the Shoalhaven River below the mean high water mark)

**Capital Investment Value:** \$100,000.00 (total estimate of all activities forming part of the process as nominated by the applicant within their submitted documentation).

**Disclosures:** No disclosures with respect to *the Local Government and Planning Legislation Amendment (Political Donations) Act 2008* have been made in accordance with the submitted Pre-DA Application Form

## 3. Detailed Proposal

### Proposed Development

The applicant has an existing approval for Extractive Industries (Sand Extraction won from the Shoalhaven River) issued as part of Regional Approval No. RA12/1001. The current proposal is for expansion of the existing Extractive Industries proposal to cover a wider area of the Shoalhaven River. The depth of the dredge operations is described as -6.7m AHD within the original submitted Environmental Impact Statement and Land Resource Assessment. (Note that the General Terms of Approval issued by Department of Primary Industries – Fisheries will limit the depth of dredging operations to -6.0m AHD)

### Extraction Area Site Conditions

The extraction area has been described in the submitted Land Resource Assessment as being:

- **Topography:** The sand flats for the proposed dredging area are slightly undulating, with site slopes < 2%. The site is located on sand flats in the tidal portion of Shoalhaven River at the western portion of Pig Island. The southeast portion of the proposed dredging area (closest to the western end of Pig Island) has an elevation of 0.2m AHD, - 0.3m AHD in the northern, - 1.1m AHD in the eastern and - 2.7 m AHD in the western portion.
- **Expected Geology:** The Wollongong 1:250,000 Geological Series Sheet S1 56.9 (1966) describes site geology as alluvium, gravel, swamp deposits and sand dunes. The NSW Environment and Heritage eSPADE website identifies the site as having Shoalhaven soil landscapes consisting of alluvium – gravel, sand, silt and clay derived mainly from sandstone and shale overlying buried estuarine sediments.
- **Extraction Amount / Length:** Involves the extraction of sand via dredge of up to 100,000 tonnes per annum over 19 to 40 years.
- **Surrounding Vegetation:** Consists of swamp oak, saltmarsh, mangroves, Acacia, seagrasses, and non-native species as depicted in the following image with a buffer of 25m to vegetation

# Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

## Extent of Proposed Dredging

The below plan at Figure 6 shows the extent of the original submitted dredge area lodged with the DA, being an area of 26 hectares.



Figure 6 – Original Proposed Dredge Area Layout

The below plan at Figure 7 shows the extent of the revised reduced dredge area lodged with the DA, being an area of 10.5 hectares.

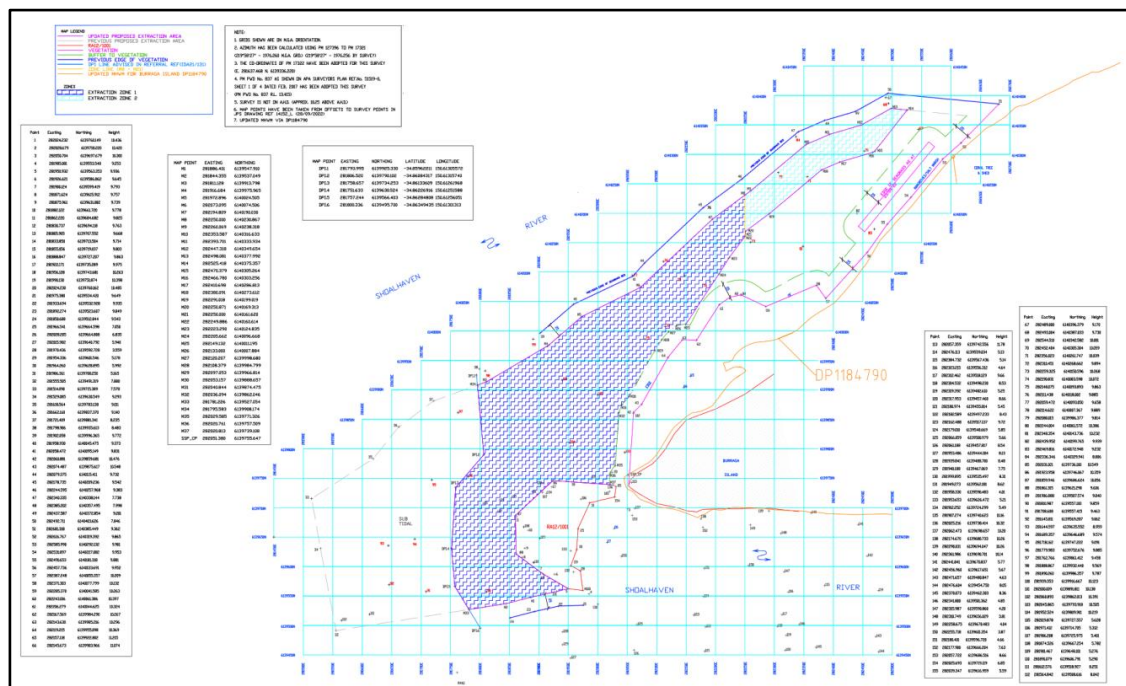


Figure 7 – Current Proposed Layout

Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

The total dredge area was reduced from 26 ha to 10.5 ha to minimise the extent of impact to intertidal sand/mud flats which forms the habitat for a number of species of threatened and endangered migratory shorebirds. Specifically, the amount of intertidal sand/mud flats which would be impacted has been reduced from 9 ha to 2.09 ha.

The below comparison plan at Figure 8 is also provided to demonstrate the extent of the reduction in the dredge area (original areas now removed in marked in dark red).

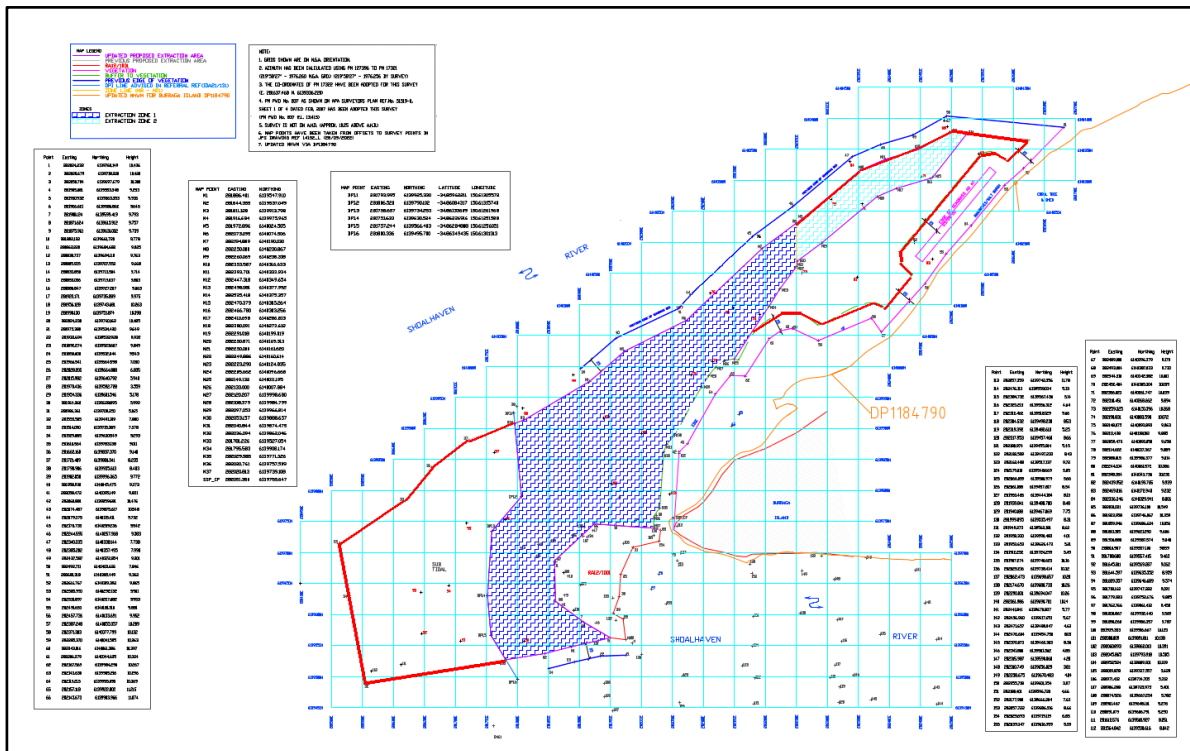


Figure 8. Comparison plan of original and revised proposed areas for dredging

## Dredging process

The following provides a description of dredging process as described by the applicant:

- The dredging method is cutter suction. There is a cutter head with a suction pipe mounted behind. A spud is used to hold the back of the dredge in place which provides the centre of the arc, slew ropes are then connected to anchors on either side of the dredge.
- The timing of the dredging is dependent on the extraction rate / sale rate for the year, noting the current extraction license allows for Terara Shoalhaven Sands (TSS) to dredge a maximum of 100,000 tonnes of material a year.
- The applicant has advised that the proposed dredge area would provide a sand extraction supply for a period of 30 years – however based upon the reduction in the dredge area from 26 ha to 10.5 ha (close to half) and the maximum extraction rate – it is considered that an approval time limit of 15 years is appropriate. This timeframe could be included in the consent.
- Extracted material is then taken to the existing TSS facility at 125 Terara Rd where sand is extracted from other materials including shells, carbonates, and other fines.
- Sand material is then on sold to businesses, companies, etc as part of normal business practices.
- Fines left over from mined material are either exported offsite, disposed using sedimentation ponds approved as part of DA91/2897, or would be disposed via the use of proposed stock mounds which would be installed on Pig Island.

Figures 4, 5 and 7 above depict the layout of the proposed development with respect to the surveyed location of the proposed dredge area, proposed stock mounds relative to Pig Island, and the location of where extracted material would be processed into sand.

A Dredging Plan was submitted with the Application which describes the systems used and method of dredging associated with the development, a follows:

- The dredging method is cutter suction. There is a cutter head with a suction pipe mounted behind. A spud is used to hold the back of the dredge in place which provides the centre of the arc, we then use slew ropes connected to anchors on either side of the dredge.
- The timing of the dredging is dependent on the extraction rate/ sale rate for the year.
- Current extraction license allows for TSS to dredge a maximum of 100,000 tonnes of material a year. This should provide a resource to the local area for approximately 30 years.
- Upon completion the dredged area will fill up with a combination of fine sand, organic material and silt, as a result of floods within the river system. The areas previously dredged to 6m are now 2m deep at low tide.

#### 4. Subject Site and Surrounds

##### Site Description

Street address:	Terara Rd Terara and Bed of the Shoalhaven River Below the Mean High Water Mark.
Title details:	Lot 1 to 4 DP 1184790
Zoning:	The site is zoned RU1 Primary Production (Pig Island) and W2 Recreational Waterways (Bed of the Shoalhaven River below the mean high water mark) under the <i>Shoalhaven Local Environmental Plan 2014</i> (SLEP).
Site dimensions:	The subject land is approximately 132.9ha (Pig Island – 122.4ha and Bed of Shoalhaven River 10.5 ha approx.).
Topography	Dredge Area (Elevation of 0.2m AHD in the southern, - 0.3m AHD in the northern, -1.1m AHD in the eastern and - 2.7 m AHD in the western portion)
Vegetation:	The site comprises vegetation to the south, east and west of the proposed dredge area as depicted in Figure above – consisting of Acacia, mangroves, saltmarsh, seagrass, swamp oak, and non-native species.
Existing buildings:	<p>Existing homestead and associated farm buildings located on Pig Island. No works are proposed to these structures and they would not be used as part of the proposal.</p> <p>Existing facilities including buildings (office, work sheds, and extractive material separation infrastructure) located at TSS facilities at 125 Terara Rd Terara. Note: The existing TSS facilities are existing and therefore do not form part of the subject application.</p>

### **Surrounding Site**

The site is located approximately 1.5km to the east of the Nowra Bridge over the Shoalhaven River. On the southern bank of the River is the Terara Village, adjoining industrial properties such as the Terara Shoalhaven Sands land-based premises, and farmland. On the northern bank of the River is the Manildra development and adjoining farmland.

Within the wider locality is the Nowra urban area and CBD (approximately 1.5km to the south west of the site), the Bomaderry urban area and village centre (located approximately 1km to the north west of the site), and the Shoalhaven River mouth and Shoalhaven Heads township located 11km downstream to the east.

The below photographs at Images 1 to 10 provide a further visual perspective of the site and the surrounding locality:



Image 1 – View of western and northern side of Pig Island and proposed dredge location (with existing dredge equipment in the foreground).



Image 2 –View of eastern edge of Pig Island and existing dredge area and equipment



Image 3 – View of northern side of Pig Island and proposed dredge location



Image 4 – View of development on northern bank of Shoalhaven River (Manildra and Farmland)



Image 5 – View from dredge site looking west towards the Nowra Bridge



Image 6 – View of development on southern bank of Shoalhaven River (Terara Village)



Image 7 – View of development on southern bank of Shoalhaven River (Terara Shoalhaven Sands Dock and Facility)



Image 8 – View of Pig Island looking east towards existing homestead and sheds



Image 9 – View of Pig Island looking south towards proposed stock mound location



Image 10 – View of existing Terara Shoalhaven Sands land based facilities

## 5. Background / Previous Development Approvals

<b>Action(s)</b>	<b>Date</b>
Permissive Occupancy Approval No. PO1978/29 issued for extraction of mineral (sand) from the Shoalhaven River and processing into coarse river sand for distribution.	1 October 1968
Development Approval No. DA91/2897 was issued for a sedimentation trench on Pig Island.	10 August 1993
Development Approval issued for a filter and overflow dam on Pig Island.	11 February 1994
Regional Approval No. RA12/1001 was issued by the Southern Regional Joint Planning Panel for Extractive Industries (Sand Dredging) at a defined location within the Shoalhaven River and then processing facility to be carried out at a facility located at No. 125 Terara Rd Terara.  A maximum extraction rate of 100,000 tonnes per annum was required as a condition of consent. However based upon previous extraction rates, the approval was expected to have a timeframe of 30 years.	28 August 2014
Modification Application No. DS15/1020 was issued approving a Modification to Conditions 26 – 32 of the Regional Approval.	4 <sup>th</sup> February 2015
Modification Application No. DS15/1297 was issued approving a Modification to Conditions 26, 29, 30 and 32 and approving the deletion of Condition 28.	4 <sup>th</sup> October 2017

## 6. Consultation and Referrals

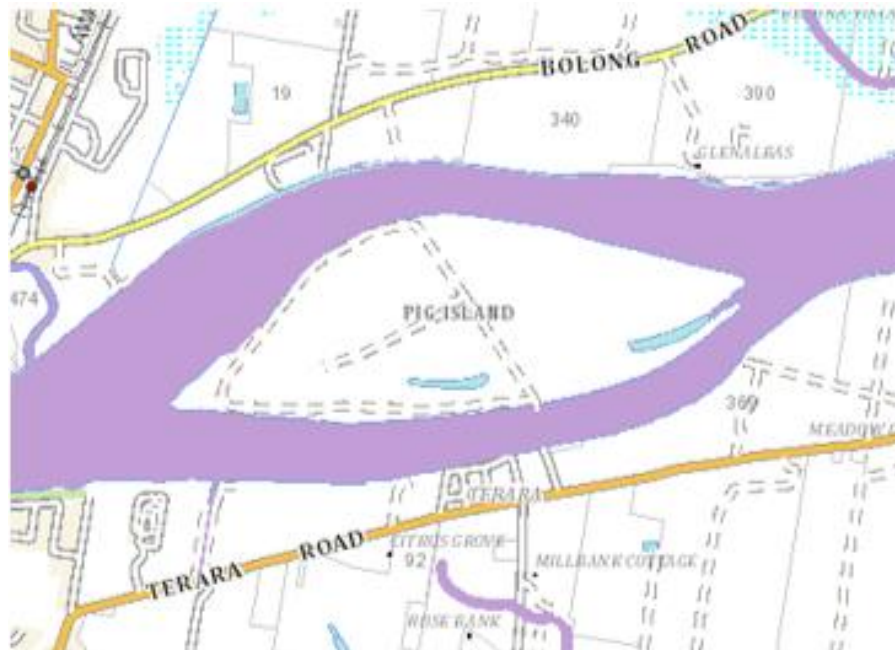
### Internal Referrals

Internal referrals were provided in response to the development application as described below.

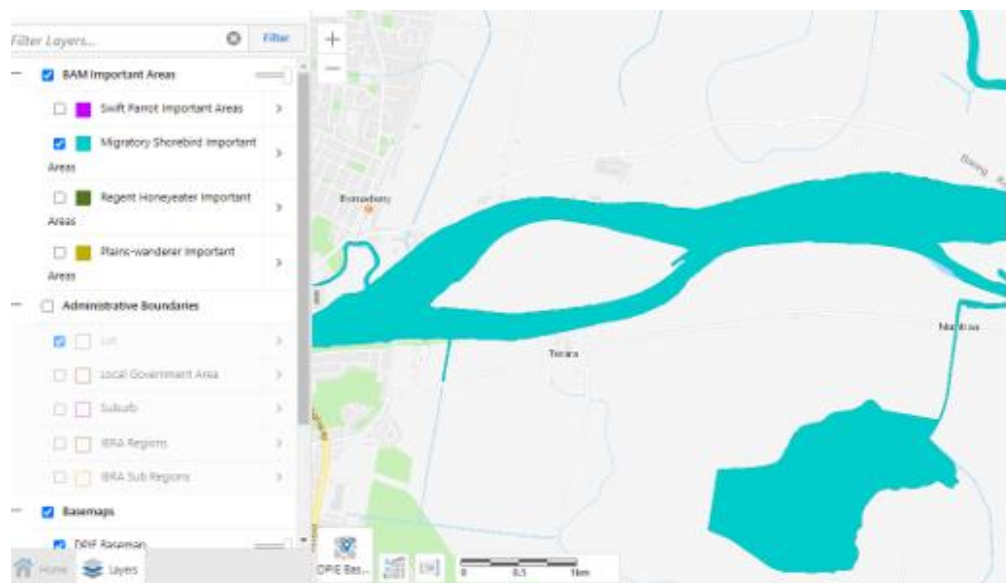
<b>Council Section</b>	<b>Comments</b>
<b>Environmental Assessment Officer (EAO)</b>	<p><b>1<sup>st</sup> referral response – 17 January 2022</b></p> <p>Provided by the EAO on 17<sup>th</sup> January 2022 having consideration for the Fauna and Flora Assessment and the biodiversity impacts associated with the proposal.</p> <p>As part of the response, referral to the Department of Planning and Environment – Biodiversity Conservation Division (DPE-BCD) was recommended, with responses as detailed below.</p> <p>Further Information was requested to enable the completion of the assessment which related to the following matters:</p> <p><u>Impacts to Marine Vegetation</u></p> <p>The submitted Fauna and Flora Assessment must be amended to incorporate the following:</p> <ol style="list-style-type: none"> <li>A 25 metre buffer is to be placed between the vegetation and the dredge boundary to “reduce the risk of slumping into the dredge hole”.</li> <li>The Report does not provide adequate justification for the use of this buffer width and we remain concerned that significant indirect impacts to this vegetation could occur. Further justification for applying this width should be provided.</li> <li>Mapping of vegetation communities and habitats in the Assessment is reliant on dated information and reports ranging from 1985-2010 and partial mapping of the proposal based on 2018 aerial provided in Figure 7. While it is important to acknowledge previous work and review the changing nature of habitat and threatened ecological communities occurring in and adjacent to the river, given the extent of works, an assessment using up-to-date mapping that reflects current conditions is required to be provided.</li> <li>Mapping of Plant Community Types (PCTs), threatened ecological communities and threatened species habitat is required.</li> <li>The proposal will impact the saltmarsh and Swamp Oak Floodplain Forest on the island. The Test of Significance must consider all threatened entities which will be directly or indirectly impacted.</li> </ol> <p><u>Impacts to Threatened Species of Migratory Shorebirds</u></p> <p>The area to be dredged comprises approximately 9 hectares of mudflat which provides foraging habitat for shorebirds. It is estimated that a total of 26.8 hectares of this type of habitat occurs within the Shoalhaven estuary. Regardless of other types of suitable available habitat, the removal of this area is a significant proportion of the total area of mudflat.</p> <p>Two Commonwealth listed shorebird species have been recorded foraging close to the site on Pig Island (bar-tailed godwit and eastern curlew). Other significant species known to occur in the estuary, including the black-tailed godwit and curlew sandpiper, may also use the area.</p> <p>At the time of assessment, the subject site was not on the Biodiversity Values Map. The site is now on the Biodiversity Values Map (listed as having “threatened species or communities with potential for serious and irreversible</p>

	<p>impacts” - added to map 27/9/2021). While the Biodiversity Values Map does not trigger the BOS in this case, further work is required to determine if the BOS is triggered via the Test of the Significance. We do not consider the conclusions from the submitted Test of Significance as providing sufficient evidence to demonstrate that a significant impact will not occur.</p> <p>As such, the submitted Fauna and Flora Assessment must be amended to incorporate the following:</p> <ol style="list-style-type: none"> <li>ToS – Either further information is required to justify no significant impact, or if it cannot be provided, a precautionary approach should apply and a Biodiversity Development Assessment Report prepared in accordance with the BOS.</li> <li>Provide an assessment against up to date data. The Assessment presently relies on survey effort completed in 2011 and Birdlife data recorded by volunteers (and NPWS staff) between 2010 and 2011. Council notes that recent data between 2013 and 2017 can be viewed on Birddata – Birdlife Australia and contains records of EPBC Act and BC Act listed species including Bar-tailed Godwit (2016, 2017), Little Tern (2016), Eastern Curlew (2017), Whimbrel (2013) and White-bellied Sea-Eagle (2014). Birddata also contains notes stating that “really high numbers of foraging non-listed birds”, Masked Lapwing and White-faced Heron, have also been observed on the northern / western side of Pig Island.</li> <li>Indirect impacts on shorebirds downstream at the highly significant river mouth have not been adequately considered.</li> </ol> <p><u>Biodiversity Offsets Scheme</u></p> <p>Taking into consideration, the requirements listed at Items 11 and 12 of the referral response, Council’s EAO finds that, “<i>based on the information provided and application of the Threatened Species Test of Significance Guidelines / precautionary principle, entry into the Biodiversity Offset Scheme (BOS) is triggered by the proposal due to a significant impact to migratory shorebirds</i>”.</p> <p>As such, a Biodiversity Development Assessment Report (BDAR) must be prepared by an accredited assessor in accordance with the Biodiversity Assessment Methodology (BAM) 2020.</p> <p>Note: As detailed in section 7 of the Report below and as detailed in the below further referral responses, Council found following submission of further information and consideration of likely impacts that the BOS has not been triggered.</p> <p><b>2<sup>nd</sup> referral response – 13 December 2022</b></p> <p>Provided by the EAO on 13<sup>th</sup> December 2022 following a review of the initial Fauna and Flora Assessment and recent Supplementary Information to the Fauna and Flora Assessment.</p> <p><u>Impacts to Threatened Species of Migratory Shorebirds</u></p> <p>Areas of the proposed development have been mapped by the number of sources as providing important or priority habitats for shorebirds, including:</p> <ul style="list-style-type: none"> <li>NSW Government Biodiversity Values Map as habitat for <i>Threatened species or communities with potential for serious and irreversible impacts</i> (mapped in 2021)</li> <li>NSW Government Important habitat maps for a threatened species (mapped in 2021)</li> </ul>
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- Jacket and Craven 2009
- *Threatened migratory shorebird habitat mapping project* (DEC 2006)



*Biodiversity Values Map (Updated Version) – Whilst not mapped at the time of lodgement of the application, this is an important factor which the assessment authority has a duty to consider.*



*NSW Government Important habitat maps – Identifies the site as habitat for the Bar-tailed Godwit, Black-tailed Godwit, Curlew Sandpiper, Eastern Curlew. Important habitat maps identify areas that are considered essential to support critical life stages of the species. The Important habitat mapping is restricted to species that are highly mobile and difficult to reliably detect by survey, and for which DPE holds extensive, long-term data sets.*



Figure 9. Map of shorebird habitats around Pig Island (Jacket and Craven (2009)). SHMU1 and SHMU10 were mapped as mud. SHSM1 was mapped as saltmarsh. Jacket and Craven attributed medium priority for actions to improve habitat value to areas mapped light green and high priority to the areas mapped red.

*Historical mapping completed by Jacket and Craven in 2009, also identifies areas of the development as priority habitat for shorebirds.*

The Shoalhaven has been recognised as an internationally significant site for Eastern Curlew and nationally important for Pacific Golden Plover, Lesser Sand Plover and Ruddy Turnstone. Based on the data sources reviewed, the development area is recognised to provide habitat (at least occasionally) for the following listed species:

Species	NSW BC Act listing	Commonwealth EPBC Act listing
Bar-tailed Godwit <i>Limosa lapponica</i>	Not listed	Migratory*#
Black-tailed Godwit <i>Limosa limosa</i>	Vulnerable	Migratory*#
Curlew Sandpiper <i>Calidris ferruginea</i>	Endangered	Critically Endangered Migratory*#
Eastern Curlew <i>Numenius madagascariensis</i>	Not listed	Critically Endangered Migratory*#
Lesser Sand Plover <i>Charadrius mongolus</i>	Vulnerable	Endangered Migratory*#
Pacific Golden Plover <i>Pluvialis fulva</i>	Not listed	Migratory*#
Ruddy Turnstone <i>Arenaria interpres</i>	Not listed	Migratory*#

Given that there are several sources identifying the development area as important or priority habitat for shorebirds, and recognition that it is inherently difficult to make an assessment of impacts to migratory shorebirds based on survey data (DPIE 2021), Council cannot concur with the assessment made in the *Flora and Fauna Report – Additional Information* that concludes that the development footprint does not provide habitat for the identified shorebirds.

	<p><u>Indirect Impacts to Migratory Shorebird Habitat</u></p> <p>As a consequence of the dynamic nature of the river system, it is difficult to accurately determine the full suite of indirect impacts resulting from the proposed development to biodiversity values. However, the following is noted:</p> <ul style="list-style-type: none"> <li>• The Fluvial Systems Pty Ltd (September 2022) report states that under modelled flood event scenarios, <i>the side and top surfaces of the three proposed mounds are exposed to velocities 2.1 – 5.2 m/s for the PMF event, which would likely result in scour of the mounds</i>. There is concern regarding how the scouring of the mounds would affect sedimentation of downstream habitats, namely the highly significant downstream habitats used by migratory shorebirds.</li> <li>• Given the operation is proposed to be conducted over a 30 year period (i.e. up to the year 2053) and considered the recent unpredictability of flood and drought events, it is difficult to be confident whether the extracted area will recover to the extent that it will replace the shorebird habitat lost, or over which time this will occur.</li> <li>• The assessment of indirect impacts resulting from the proposal to biodiversity disputes the mapping provided without sufficient evidence and fails to reference the impacts suggested by other specialist reports provided and raise by other Council teams/DPE.</li> </ul> <p><u>Precautionary Principle</u></p> <p>Given that the outcome of the predicted impact assessment and modelling cannot be guaranteed, there is a chance that the proposal will result in a significant impact to migratory shorebirds, and potentially <i>Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions</i> and <i>Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions</i> endangered ecological communities. When applying the principles of Ecologically Sustainable Development, Council reminds the determining authority that the risks to the environment must be considered along with the economic and social considerations.</p> <p>Section 6(2a) of the <i>Protection of the Environment Administration Act 1991 Act</i>, prescribes that lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.</p> <p>The following case law supports the application of the precautionary principal in proposals similar to RA21/1000:</p> <ul style="list-style-type: none"> <li>• <i>Clippers Anchorage Pty Ltd v Port Stephens Council</i> [2018] NSWLEC 1029</li> <li>• <i>Providence Projects Pty Ltd v Gosford City Council</i> [2006] NSWLEC 52</li> <li>• <i>BT Goldsmith Planning Services Pty Ltd</i> (2005) NSWLEC</li> <li>• <i>BGP Properties Pty Ltd v Lake Macquarie City Council</i> (2004) 138 LGERA 237</li> <li>• <i>Murrumbidgee Ground-water Preservation Association v Minister for Natural Resources</i> (2004) NSWLEC 122</li> </ul> <p>Given the uncertainties surrounding the direct and indirect impacts of the proposal to biodiversity values, the Precautionary Principal is to be applied and a significant impact is to be assumed for State and Commonwealth listed migratory shorebirds.</p> <p><b>3<sup>rd</sup> referral response – 6 March 2023</b></p> <p>Provided by the EAO on 6<sup>th</sup> March 2023 following a review of the following documents, which were submitted to enable the three part BC Act 2016 test to</p>
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	<p>be passed, and to enable ongoing management to be carried out in a way which is deemed acceptable:</p> <ul style="list-style-type: none"> <li>• <i>Letter of Undertaking relating to an Adaptive Management Strategy</i> prepared by Lodge Environmental, dated 17 February 2023</li> <li>• Proposed Extraction Area Drawing Number RA21/1001-1 (Mac Drafting) resulting in a reduced extraction area that avoided impacts to an area of inter-tidal sand flats.</li> </ul> <p>The EAO advised that the Peter Dalmazzo Flora and Fauna Reports should not form part of the approved documents, however be sent to the Regional Planning Panel along with EAO Referrals 1 &amp; 2 to provide context to biodiversity issues and how the following conclusions have been reached:</p> <p><b>Background</b></p> <p>An initial letter of undertaking was presented by Lodge Environmental (LE) on 17<sup>th</sup> February (D23/64819). This was reviewed along with the revised extraction alignment provided by the applicant on the 20<sup>th</sup> February 2023.</p> <p>Review comments by Councils Biodiversity team were returned to LE and the applicant on 20<sup>th</sup> February requesting further information.</p> <p><b>Review</b></p> <p>A review of the revised letter of undertaking provided on 22<sup>nd</sup> February 2022 found:</p> <ul style="list-style-type: none"> <li>• Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species is referenced in Appendix C Significant Impact Criteria. Council will have the opportunity to ensure these key references are used to establish context in the introduction for the Adaptive Management Plan to be submitted prior to commencement.</li> <li>• Conditions would be recommended to refer to ensure an Adaptive Management Plan aligns with the wording from the DPIE Biodiversity Assessment Method 2020 which forms the framework for this Plan (Deferred Commencement Section).</li> <li>• Direct and indirect impact thresholds will be included in conditions (Parts C and I). Council will also have the opportunity to ensure all indirect impacts are monitored and mitigated in the Adaptive Management Plan prior to commencement.</li> <li>• Threatened ecological communities –Saltmarsh TEC requirements addressed. Swamp Oak Floodplain Forest is well outside of the proposed stock mound locations as shown below. As such, no Test of Significance is required for this TEC. Conditions will ensure impacts are avoided (Parts C and I).</li> <li>• Ongoing monitoring to be carried out as part of any Adaptive Management Plan (AMP). Systematic bird survey is covered by two monitoring field visits proposed. Council can require more if needed when reviewing the AMP.</li> <li>• Clause 7.3 Test of Significance Species are accepted and the test for ‘serious or irreversible impacts has been covered off.</li> <li>• The significant impact criteria is accepted and no referral to the federal government is required.</li> </ul> <p>Based upon the above, the EAO found following assessment of the likely impacts of the development, that the subject proposal is capable of support subject to recommended conditions of consent (including a detailed deferred commencement condition requiring a Biodiversity Adaptive Management Strategy) – see Deferred Commencement Section of Draft Consent.</p>
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<p>Natural Resources Floodplain (NR&amp;F)</p>	<p><b>1<sup>st</sup> referral response – 24 October 2022</b></p> <p>Referral response provided by the NR&amp;F Team on 24<sup>th</sup> October 2022.</p> <p><u>Flooding</u></p> <p>Response provided advising that the proposed stock mounds (as considered in technical reports including the updated Flood Impact Assessment and Fauna and Flora Assessment) be removed in order for impacts associated with flooding to be addressed.</p> <p>This advice was provided based upon the following comments summarised within the referral response:</p> <ul style="list-style-type: none"> <li>• The Shoalhaven River and Pig Island comprises a High Hazard Floodway combined hazard and hydraulic category in the <i>Lower Shoalhaven River Floodplain Risk Management Study &amp; Plan (2011)</i> and the <i>Draft Lower Shoalhaven River Flood Study (2022)</i> which underwent public exhibition earlier this year.</li> <li>• <i>DCP Chapter G9: Development on Flood Prone Land</i>, identifies that filling in High Hazard Floodway areas is not suitable for development.</li> <li>• Therefore, the proposed filling on Pig Island is inconsistent with a merit-based assessment in accordance with DCP Chapter G9. As there are no exemptions from this performance criteria, constructions of stock refuge mounds in High Hazard Floodways, as proposed, are not supported by DCP Chapter G9.</li> <li>• The NSW Floodplain Development Manual (2005) identifies floodways as areas that even if only partially blocked would cause a significant increase in flood levels and/or significant redistribution of flood flow, which may in turn adversely affect others.</li> <li>• Further to this Clause 5.21 (2)(a) of the Shoalhaven LEP 2014 identifies that “Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development is compatible with the flood function and behaviour on the land”. As noted above filling of High Hazard Floodway areas is not compatible with the flood function and behaviour on the land at Pig Island.</li> <li>• No Flood Compliance Report as required by DCP Chapter G9 has been submitted to assess the proposed development against the acceptable solutions and performance criteria in DCP Chapter G9 and Clause 5.21 of SLEP 2014.</li> <li>• The proposed mounds are expected to be the key contributor to any potential adverse flood impacts (water level afflux and velocity increases). Therefore when removed from the development application it is unlikely that there would be any unacceptable adverse flood impacts.</li> </ul> <p>It was concluded that, subject to the removal of the flood mounds from the proposal, the development would not have an unacceptable impact upon flooding and would be conditioned accordingly.</p> <p><u>Geomorphology / Potential Impacts upon Bank Erosion</u></p> <p>Response provided advising that based upon current submitted information, it cannot be guaranteed that the proposal would not have an adverse impact upon bank stability and stability associated with the Terara levee bank.</p> <p>This advice was provided based upon the following comments summarised within the referral response:</p>
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	<ul style="list-style-type: none"> <li>• The River Stability Bank Erosion &amp; Flow Paths Report concludes that erosion along both banks of the Lower Shoalhaven River south of Nowra Bridge is ongoing and widespread. The assessment included a desktop assessment of previous studies, site inspections and analysis of flood modelling results.</li> <li>• The Martens report identified no indications that historic or current dredging operations may impact erosion and bank instability, but did not specifically indicate this has not or could not be a contributing factor for bank instability.</li> <li>• It is noted that recent visual audit reports have identified at least five locations in which there are earthen levee slips in the location of the current dredge extent. These have all been caused by undercutting of steep banks, leading to tension cracks and then earthen slips.</li> <li>• Whilst the geomorphology analysis has identified numerous likely contributing factors for bank erosion, given the highly dynamic environment it is possible that dredge operations may be a contributing factor to previous and future bank and levee damage. Hence there is still some concern that existing dredge operations area and proposed dredge expansion area could potentially contribute to increased bank instability which could impact the structural integrity of the Riverview Road and Terara flood levees.</li> <li>• The River Stability Bank Erosion &amp; Flow Paths Report and the Geomorphology Supplementary Information are to a great extent relying on existing studies and a desktop assessment approach. Neither study includes a detailed fluvial geomorphology assessment to determine the short- and long-term impacts on nearby levees and infrastructure as a result of the proposed expanded dredging area.</li> <li>• It is however unclear as to what potential long-term impacts the dredging may have on other infrastructure upstream of the proposed expanded dredge area, including but not limited to wharfs and pontoon structures adjacent Wharf Rd and the bridges. Dredge operations in a river bed can potentially result in the development of a head cut that would propagate upstream depending on shear stress and stream power impacts on in-situ riverbed material.</li> <li>• Bed lowering has the potential to steepen batters which would contribute to erosion, tension cracks and potential earthen levee failures.</li> <li>• The fluvial geomorphology assessment should also assess and comment on the potential impact of changes in riverbed profile on the structural integrity of existing structures constructed within the river over time. Clarification is sought as to whether these hydraulic model outputs have been considered as part of the fluvial geomorphology assessment.</li> </ul>
	<p><b>2<sup>nd</sup> referral response – 15 March 2023</b></p> <p>Re-referral response provided by the NR&amp;F Unit on 15<sup>th</sup> March 2023.</p> <p>The following summarising comments were made:</p> <ul style="list-style-type: none"> <li>• Draft flood conditions of consent have been provided for consideration by the Regional Planning Panel.</li> <li>• Draft conditions of consent have been provided.</li> </ul> <p>The above summarising comments are supported by the following commentary provided by the NR&amp;F Unit:</p> <p><u><i>Proposed Flood Refuge Mounds:</i></u></p> <p>According to the recently released <i>Lower Shoalhaven River Flood Study (2022)</i>, the site is now predominantly mapped as a High Hazard Floodway area, with some minor areas mapped as High Hazard Flood Storage. It is also noted that</p>

	<p>prior to the adoption of the Lower Shoalhaven River Flood Study (2022) on 23 January 2023, the entire island was mapped as High Hazard Floodway as per the Lower Shoalhaven River Floodplain Risk Management Study &amp; Plan – Climate Change Assessment (Webb, McKeon and Associates, 2011). Hence at the time the DA was lodged for this project, the proposed area in which filling is proposed was mapped entirely as High Hazard Floodway.</p> <p>The majority of the proposed flood refuge mounds are located within the High Hazard Floodway combined hazard and hydraulic category, with some parts of the mounds within the High Hazard Flood Storage category (based on the latest mapping in the Lower Shoalhaven River Flood Study, 2022).</p> <p>Previous referrals and meetings between the applicant and Council officers indicated that filling was not supported in High Hazard Floodway areas as this was inconsistent with the NSW Floodplain Development Manual (2005), DCP Chapter G9 and Clause 5.21 (2) of the SLEP, and there was no supporting information to establish consistency with current controls.</p> <p>The applicant has reduced the number, footprint, and top level of the proposed mounds when compared with the original mound extent. Fill mounds are presently proposed in Lot 2, Lot 3 and Lot 4 DP 1184790 on Pig Island. The proposed fill mounds in Lot 2 and Lot 3 are partially located in areas mapped with some minor High Hazard Flood Storage areas, however the proposed fill mound for Lot 4 is fully located in a High Hazard Floodway area.</p> <p>As noted in previous referrals and meetings between the applicant and Council officers, the Shoalhaven DCP Chapter G9 requires High Hazard Floodway areas to be kept free of fill and/or obstructions (Performance Criteria P2). As there are no exemptions from this performance criteria, construction of stock refuge mounds in High Hazard Floodway areas, as proposed, are con-compliant with the Performance Criteria included in DCP Chapter G9.</p> <p>It is noted that the proposed development has been assessed as a Land Use Category E – Earthworks in accordance with Schedule 2 of DCP Chapter G9. The Supplementary Flood Assessment (Martens, February 2023) incorrectly assessed the proposed filling as Land Use Category F – Resource Management / Agriculture. Whilst the proposed purpose of the mounds may be stock refuge, constructing them requires earthworks in flood prone land mapped partially or entirely as High Hazard Floodway.</p> <p>The <i>NSW Floodplain Development Manual (2005)</i> identifies floodways as areas that even if only partially blocked would cause a significant increase in flood levels and/or significant redistribution of flood flow, which may in turn adversely affect others. Therefore, filling in High Hazard Floodway areas is inconsistent with the <i>NSW Floodplain Development Manual (2005)</i>.</p> <p>It is noted that Martens has undertaken a flood impact assessment for the proposed flood refuge mounds on adjacent land, where “no impacts” have been assessed as +/- 10mm. It is noted that this requirement was only requested for the 1% AEP event for existing urban areas in accordance with afflux requirements in Councils Engineering Design Specifications. The afflux maps provided in the Supplementary Flood Assessment (Martens, February 2023) identify that afflux up to and including the 1% AEP event can satisfy this requirement. Greater afflux would be permitted in more extreme events.</p> <p>Noting the above, it is pertinent for a deferred commencement condition be imposed which requires all stock refuge mounds be removed from areas mapped within a hazard category of High Hazard Floodway via an amended Plan to areas of High Hazard Flood Storage only. This is considered to be</p>
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	<p>acceptable following a consideration of the likely impacts of the development (condition recommended for inclusion in the Deferred Commencement Section of any consent).</p> <p><u><i>Adaptive Management Strategy – Geomorphology:</i></u></p> <p>The additional information provided, as requested by Council, have been reviewed, and following a consideration of the likely impacts of the proposal is accepted as adequately responding to Council's concerns regarding bank erosions / scour impacts upon levee banks and other infrastructure.</p> <p>The draft development consent recommends a deferred commencement condition requiring the development of an Adaptive Management Strategy – Geomorphology in collaboration with Council and NSW State Government agencies (condition recommended for inclusion in the Deferred Commencement Section of any consent).</p>
	<p><b>Supplementary Referral Response of Late Information – 15 May 2023</b></p> <p>A referral response was received from the Natural Resources and Flood (NR&amp;F) Section on 15 May 2023 following consideration of submission of an amended Flood Impact Assessment submitted by the applicant prior to the Determination Meeting for the SRPP.</p> <p>The Flood Impact Assessment was submitted by the applicant in response to Council's draft consent condition preliminary imposing a deferred commencement condition regarding flooding impacts, as follows:</p> <p><u><i>Flooding – Filling within High Hazard Floodway Areas</i></u></p> <p><i>A professional engineer, (as defined in the National Construction Code) must submit for approval by Council, evidence that the following item is detailed on the relevant plans:</i></p> <p><i>i) All proposed filling is kept outside of areas mapped as High Hazard Floodway in the Lower Shoalhaven River Flood Study (Cardno, 2022) for the 2050 scenario 1% AEP event.</i></p> <p>The NR&amp;F Section advised as follows:</p> <p><i>I have reviewed the provided document. The applicant just needs to confirm that the areas identified for livestock fill mounds represents the footprint of the mounds (i.e., not the top with the batters extending into High Hazard Floodway areas). No details have been provided other than area of the mounds and fill levels (i.e., no batters etc.). Once confirmed, it can be satisfied that the deferred commencement condition has been met.</i></p> <p>As such it is recommended an additional point be added to the deferred commencement condition which incorporates the following requirement:</p> <p><i>ii) Detail must be provided confirming that batters associated with the livestock fill mounds are also retained outside the High Hazard Floodway in the Lower Shoalhaven River Flood Study (Cardno, 2022) for the 2050 scenario 1% AEP event.</i></p>
Coastal Management	<p><b>Referral response provided by the Coastal Management Team on 9<sup>th</sup> November 2022.</b></p> <p>Concerns were raised that the proposed dredge footprint could impact on flow paths within the river, and possibly exacerbate bank erosion. The NR&amp;F Section in collaboration with the Coastal Management team have further assessed the</p>

	likely impacts based on the amended details submitted and have recommended the approval of the application subject to deferred commencement conditions (condition recommended for inclusion in the Deferred Commencement Section of any consent).
Environmental Health Officer (EHO)	<p><b>Referral response provided by the EHO on 2<sup>nd</sup> November 2022.</b></p> <p>Response recommending conditions be imposed within any consent relating to:</p> <ul style="list-style-type: none"> <li>• Preparation of an Acid Sulfate Soils Management Plan (ASSMP) for review and acceptance by the EHO prior to works commencing (Part C).</li> <li>• Monthly estuarine water quality testing is to be undertaken accordance with Figure 4 of the Estuarine Water Quality Impact Assessment prepared by Martens Consulting Engineers (Part I).</li> <li>• Use of the site in accordance with the recommendations of the acoustic report (Part I).</li> <li>• Monitoring of stockpiles and road conditions must be undertaken as part of the development (Part I). This should include but not be limited to: <ul style="list-style-type: none"> <li>i. Management and monitoring of stockpiles to prevent air pollution or dust nuisance to sensitive receptors;</li> <li>ii. implementation and/or maintenance of watering systems (whether truck or sprinklers) to be utilised and allowing application of moisture to road surfaces and stockpiles;</li> <li>iii. Maintenance and/or implementation of a meteorological station.</li> </ul> </li> </ul>

Internal referral comments are referred to as required in the s4.15 assessment throughout this report.

### External Referrals

<b>Agency</b>	<b>Comments</b>
DPE Biodiversity Conservation Division	<p>Referral response received from DPE-BCD Division on 8<sup>th</sup> December 2022.</p> <p>Advice provided that BCD continues to have concerns regarding floodplain risk management, river stability and water quality issues, and biodiversity.</p> <p>The concerns raised are summarised as follows:</p> <p><u>Floodplain Risk Management</u></p> <p>Based on our review of the Supplementary Flood Assessment letter, we remain concerned over floodplain risk management issues. Specifically, the proposal to place livestock refuge mounds within the high hazard floodway area on Burruga Island (aka Pig Island) is inconsistent with the NSW Floodplain Development Manual (2005), Council's DCP as well as Clause 5.21 (2) of the LEP and there is no supporting information to establish consistency with current controls.</p> <p>It is demonstrated in the supplementary assessment provided by the proponent that any development including the proposed stock mound fill would not be compatible with the flood function and behaviour at that location. The proposal to place the fill in a floodway for the purpose of refuge poses safety concerns as it presents a risk to life for both people and stock that can otherwise be avoided. It remains unclear how emergency management evacuation requirements have been assessed as any people or stock on the island need to evacuate at the early stages of a Shoalhaven River flood rather than encouraged to seek refuge on filled low flood island areas until evacuation is no longer safely possible and the fill is overwhelmed by fast flowing floodwater.</p>

*Council Comment: Subject to amendment of the stock mound location as suggested within the NR&F Section response out of the High Hazard Storage Area, the proposal would be suitable as it relates to impacts associated with flooding.*

#### River Stability

In addition to impacts on flood behaviour, proposed dredging and subsequent filling in the Shoalhaven River main channel floodway poses increased risks to the stability of the river channel and flood mitigation assets at Terara. The proposal to fill Burruga Island with fine materials is likely to cause erosion impacts. These impacts have not been adequately assessed and no strategies have been established to offset and manage those impacts. The overall geomorphological instability of the Shoalhaven River channel in this area is well known to be associated with large floods, evidenced since the initial settlement of Terara and as such, any development activities that increase erosion risks to existing development and assets including the Terara Flood Levee, and the overall river environment, warrants a detailed assessment that is not evident.

*Council Comment: In accordance with the response from the NR&F Section, the likely geomorphological impacts of the development have been adequately considered and would be suitably managed, subject to implementation of the future Adaptive Management Strategy.*

#### Water Quality

Our previous water quality concerns have not been addressed adequately. The adopted site specific trigger Values (SSTVs) for turbidity are not considered to be realistic. The default ANZECC guidelines quoted in Table 7 of 10-50 NTU is not appropriate.

The value of 50 is for lowland rivers, 10 is the default ANZECC value for estuaries. This value has been superseded by trigger values within DPE sampling and analysis protocols (DPE 2016) based on many years of data for reference estuaries in NSW.

These guidelines recommend a turbidity trigger value for river estuaries of 3, 3.1 and 6 depending on whether the site is within the lower, middle or upper part of the estuary based on salinity. A much lower SSTV should be applied consistent with consideration of best practice guidelines and council's long term dataset averages.

The actions to follow if the SSTVs are not met have not been adequately described. The interim management and mitigation responses that would be implemented (as conveyed in section 3.11.5) need to be clear and consistent with our previous advice.

*Council Comment: Noting that the Environmental Protection Authority have issued General Terms of Approval providing terms of approval for the development, it is considered that water quality impacts are capable of being managed subject to the issued conditions of consent (See Part B – Conditions 8).*

#### Biodiversity

We continue to have concerns regarding biodiversity issues previously raised in our letter dated 1<sup>st</sup> March 2022 (ref: DOC22/151355).

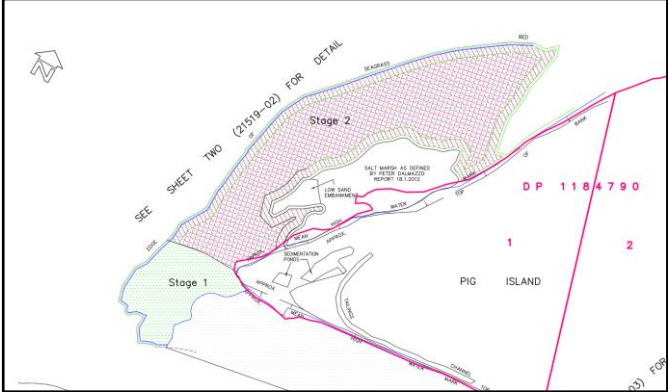
	<p>The additional information provided on threatened shorebirds within the Shoalhaven River, including more recent Birdlife Australia records has some value, however it is still difficult to conclude that the area is not used by listed species at certain times.</p> <p>Suitable habitat, which is very limited in extent, occurs at the development site. It is also difficult to conclude that existing survey data gives a full picture of the importance of this habitat given the opportunistic and historical nature of some records. The difficulty in relying on survey data is why the subject species are now assessed via the “Important Habitat Mapping” under the Biodiversity Assessment Method (BAM) as opposed to requiring survey.</p> <p>The test of significance conclusions generally relies on the absence of threatened shorebird records for the Pig Island area; however, it is our view that those species described on the Important Habitat Map should be assumed present. Based on the revised test of significance, we consider it is still difficult to conclude there will not be a significant impact on shorebirds.</p> <p>In particular, the area of mudflat at Pig Island is 9.04 ha, with the total area of mudflat in the Shoalhaven estuary mapped as 26.80 ha. While we acknowledge that shorebirds utilise a range of habitats, the proportion of mudflat to be removed (34%) is concerning. Cumulative impacts of current and past habitat removal have not been considered.</p> <p>Given the extensive loss of shorebird habitat at the development site, we recommend that further measures be considered to avoid potential impacts to this habitat. This may include re-designing the development to minimise the area of habitat lost, and/or reviewing alternative locations to extract the resource.</p> <p>If the Consent Authority is to approve the development application, we recommend that an Adaptive Management Strategy to protect threatened birds and their habitat be required as a Condition of Approval. Regardless of whether a Biodiversity Development Assessment Report is required or not, this Strategy could be modelled on section 8.5 of The Biodiversity Assessment Method (BAM) – Adaptive management for uncertain biodiversity impacts.</p> <p>Regarding protection of EECs, we recommend that impact avoidance measures, as specified in Section 4.1 of the Flora and Fauna Report – Additional Information, be adopted in approval conditions, with further detail provided within an Environmental Management Plan.</p> <p><i>Council Comment: In accordance with the response from Council’s EAO, the likely biodiversity impacts of the development have been adequately considered and would be suitably managed, subject to implementation of the future Adaptive Management Strategy.</i></p>
	<p>Note: A re-referral to the DPE – BCD Division was not carried out. However the comments made in their most recent referral response formed a basis for Council’s final Further Information Request sent to the applicant.</p> <p>Council is now satisfied, following consideration of the likely impacts of the development, that the reasons for not supporting the proposal have been addressed based upon the further information submitted to Council in response the Request.</p> <p>The response items were reviewed in detail by Council’s internal NR&amp;F and EAO Units and found to be capable of a recommendation for approval subject to deferred commencement requirements (conditions recommended for inclusion in the Deferred Commencement Section of any consent).</p>

RMS Maritime	Referral response provided by RMS Maritime on 22 <sup>nd</sup> October 2021.  Advice provided that RMS Maritime have no objections to the proposal, assessed on the grounds of impacts to safe navigation.
Natural Resource Access Regulator (NRAR)	Referral response from NRAR provided on 1 <sup>st</sup> July 2022.  Advice provided that a Controlled Activity Approval is not required as it is exempt under Schedule 4, section 18 of the Water Management (General) Regulation 2018. This exemption was subject to a lease, licence or permit being from NSW Crown Lands.
Environmental Protection Authority (EPA)	Referral response provided by the EPA on 25 <sup>th</sup> November 2022 providing General Terms of Approval.  General Terms of Approval were provided recommending consent subject strict procedures: <ul style="list-style-type: none"> <li>• Water quality monitoring validation.</li> <li>• Trigger response protocol development.</li> <li>• Estuarine and surface water quality monitoring.</li> <li>• Resource recovery framework.</li> </ul>
Department of Primary Industries DPI) – Fisheries	Referral response provided by DPI – Fisheries on 14 <sup>th</sup> December 2022 providing General Terms of Approval.  General Terms of Approval were provided recommending consent subject strict procedures: <ul style="list-style-type: none"> <li>• No dredging permitted west of the line marked in Figure of the GTAs.</li> <li>• No dredging permitted where seagrass becomes established within the dredging footprint area unless a further permit to harm marine vegetation is lodged and approved per the Fisheries Management Act.</li> <li>• Dredging to a maximum depth of -6m AHD.</li> <li>• Minimum 25m wide buffer between the dredging area existing seagrass, mangrove, saltmarsh, etc.</li> <li>• No dredging of mangroves or seagrasses permitted.</li> <li>• Annual monitoring to take place of riverbank erosion, distribution of marine vegetation, and surveys of the dredge area.</li> <li>• The monitoring is to ensure the 25m buffer zone is being suitably maintained.</li> <li>• Best practice erosion and sediment control measures to be used.</li> <li>• An Acid Sulfate Soils Management is required.</li> <li>• No pipelines permitted to be used, including those to the on land processing facility.</li> <li>• Operational Plan outlining procedures to avoid harm to marine vegetation to be formulated.</li> </ul>

### Regional Planning Panel

A briefing meeting with the Southern Regional Planning Panel was held on Wednesday 9<sup>th</sup> March 2022 which raised a number of additional matter which were to be addressed by the applicant. The applicant provided a response to the issues identified which is provided below:

<b><i>Regional Planning Panel Issues to be Resolved</i></b>	<b><i>Applicant comments</i></b>
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<p><i>Further information on the material to be dredged (grain size distribution and composition) including a clear dredging plan which identifies method, timing, shape of the dredged area upon completion, setbacks or slopes to seagrasses and banks of the island, and ongoing monitoring and review.</i></p>	<p>A Dredging Plan was submitted by the applicant in support of the proposal as a response to Council's Further Information request.</p>
<p><i>Clarification as to whether the original DA from 2012 sought approval for the larger area that is now the subject of this DA. If so, the reasons the larger area was refused should be outlined.</i></p>	<p>The original Regional Application No. RA12/1001 proposed a 2-Stage dredging operation, an excerpt which can be seen below:</p>  <p>In the Report to the Planning Panel prior to the deferral, the Council identified the following in its assessment against potential impacts for Stage 2:</p> <p><i>With reference to Stage 2, the applicant acknowledges that additional flora and fauna assessment is required to resolve environmental issues associated with this stage. Given that no detailed flora and fauna assessment has been provided for Stage 2, Council has been unable to undertake an adequate assessment and is therefore unable to determine whether the works proposed as part of Stage 2 are likely to have a significant effect on threatened species, populations or ecological communities, or their habitats. It is therefore unclear, at this time, whether an SIS will be required due to the impacts, in part, Stage 2 may have on the two EEC's that are located in this stage. As such, Council is unable to recommend approval of Stage 2 of the amended proposal. Therefore, in accordance with Part 4, Division 2, Section 80 (Determination) of the EPA Act, any development consent granted will be partial (i.e. for Stage 1 only subject to conditions).</i></p> <p>As part of the Minutes of the Southern Joint Regional Planning Panel (ITEM 1 – 2012STH015) held on 18<sup>th</sup> June 2013, the Application was deferred back to Council staff which included a recommended for removal of any reference to Stage 2, as follows:</p>

	<p><i>Motion:</i></p> <p><i>That:</i></p> <p><i>a) The development application RA12/1001 2012STH015 – Extension of area over the Shoalhaven River where sand is won via dredging be deferred for a further report that addresses the following:</i></p> <ol style="list-style-type: none"> <li><i>1. A clear understanding of what is now being considered;</i></li> <li><i>2. The relationship of existing consents to what is currently proposed and whether these operate as an integral function of the proposal or as a separate activity;</i></li> <li><i>3. Identification of mitigation measures needed for the amended proposal and their appropriateness or otherwise;</i></li> <li><i>4. <u>Deletion of any reference of Stage 2;</u> and</i></li> <li><i>5. Appropriate owners consent.</i></li> </ol> <p><i>b) The applicant be required to provide the relevant information to assist Council in providing the report, specifically the owner's consent</i></p> <p><i>c) The matter be reported to the panel as a matter of urgency.</i></p> <p><i>Moved Alison McCabe Seconded Mark Grayson</i></p> <p><b>MOTION CARRIED [UNANIMOUSLY]</b></p> <p>Subsequently, an amended Dredging Plan was submitted which depicted only the works previously described as Stage 1. The amended layout was supported and an approval given by the Southern Joint Regional Planning Panel on 28<sup>th</sup> August 2014.</p>
<p><i>With respect to the stockpile mounds on Pig Island:</i></p> <ul style="list-style-type: none"> <li><i>• a description of the current and proposed stabilisation or revegetation program for the mounds,</i></li> <li><i>• a description of the potential for acid sulphate soils risks from the stockpiled material,</i></li> <li><i>• an assessment of potential air quality impacts from fines being blown from the stockpiles into nearby settlements and environments, an assessment of the potential for the stockpiled fines being remobilised into the water column during rain or by floodwaters, and any potential water quality impacts at and</i></li> </ul>	<p>The applicant proposes:</p> <ul style="list-style-type: none"> <li>• The construction of three Stock Refuge Mounds – one each located on Existing Lot 2, 3, and 4.</li> <li>• Planning approval for the mounds to be constructed utilising the fines from the sand dredging process.</li> <li>• Construction of the stock mounds in accordance with Department of Primary Industry Guidelines.</li> <li>• Detailed earthworks plans to be prepared at CC stage to confirm livestock refuge mound design.</li> </ul> <p>In order to ensure the proposed stock mounds are appropriately constructed and ensure compliance with relevant planning requirements, Council recommends:</p>

<p><i>downstream of the site associated with this. The assessment should consider any water quality sampling or modelling relevant to the site, and</i></p> <ul style="list-style-type: none"> <li>Any expected flooding impacts associated with the mounds. The assessment should consider the past performance of the mounds and their future response during floods, including both the likelihood of the mounds being washed away versus the impact to flood levels in the unlikely event that the stock mounds remain stable during a major flood.</li> </ul>	<ul style="list-style-type: none"> <li>The submission of an amended Stock Mound Plan as a deferred commencement requirement, depicting their location within areas designated only as High Hazard Flood Storage not High Hazard Floodway.</li> <li>Revegetation of the stock mounds as part of the construction works to ensure that impacts to air and water quality due to disposal of fines is not caused.</li> <li>Council cannot issue a Construction Certificate for civil works alone. Any requirements associated with the construction of stock mounds would be dealt with as general and prior to works commencement conditions.</li> </ul> <p>Compliance with Council's EHOI recommendations relating to air quality and acid sulfate soils would be applied within any recommended consent.</p>
<p><i>A description of this potential for Aboriginal Heritage items to be disturbed on the river bed during dredging and an unexpected finds protocol should this occur.</i></p>	<p>The applicant advised:</p> <ul style="list-style-type: none"> <li>A Native Title Claim under the Native Title Act 1993 (Comm) has been made by the South Coast People, Tribunal file #NC2017/003, and accepted 31/1/2018. The claim is yet to be determined. The claim is far reaching and includes the majority of the NSW South Coast east of the dividing range, south of Liverpool and down to the East Boyd State Forest.</li> </ul> <p>The current arrangement between Terara Sands and Lands Department NSW is that royalties are paid to Lands and collected on behalf of the NSW government. If Native Title (NT) is established royalty monies paid and collected will be distributed to the successful claimants.</p>
<p><i>Clarification of the current requirements for Aboriginal consultation for this DA (e.g., 2010 guidelines or similar), and a description of how the EIS meets the requirements or otherwise.</i></p>	<p>The applicant advised:</p> <ul style="list-style-type: none"> <li>Consultations with the Nowra Local Aboriginal Lands Council was undertaken in accordance with the document Aboriginal cultural heritage consultation requirements for proponents 2010, Part 6 NP&amp;WA 1974. The NLALC is the incorporated body for this part of the NSW South Coast and its council has the requisite knowledge of the area as to Aboriginal Heritage.</li> <li>The due diligence report and accompanying management plan prepared by Biosis notes that no Aboriginal Heritage items were found in its investigations on the island and sand banks. The plan of management outlines the procedures to be adhered to if any Aboriginal Heritage items are found. This plan of management forms part of DA12/1001.</li> <li>Accompanying the application is a letter from the NLALC which was presented to the council and signed by the CEO on behalf of the council. The</li> </ul>

	NLALC states that it has no objections to the dredging however if a successful claim is made and determined it wants to share in the royalties.
<i>An assessment of the potential for visual impacts arising from the development, and associated mitigation measures.</i>	<p>Requested at Item 15(d) of Council's RFI Request dated 19<sup>th</sup> April 2022.</p> <p>Noting the applicant's response within the 'Additional Information Response Cover Letter' and 'Geomorphology Assessment', this item has not been addressed in the response provided by the applicant.</p> <p>However Council notes that there are current dredging operations which have been undertaken in this location for many years. Further the process for sand extraction and associated equipment is not proposed to be modified. As such, Council assesses that there would be no further visual impact associated with the proposal over and above that which is already present.</p> <p>Council finds that the proposal would not have an adverse visual impact upon the surrounding built environment.</p>
<i>Clarification of the licences that are currently held and will be required in relation to this DA approval (e.g. controlled activity approval, EPA licence, Crown Lands licence, and others if required).</i>	<p>Licences and approvals required to operate the proposed development include:</p> <ul style="list-style-type: none"> <li>• Crown Land Licence to operate the proposed development within a Crown water course.</li> <li>• An Environmental Protection Licence pursuant to section 43a and 47 of the Protection of the Environment Operations (POEO) Act 1997 (Scheduled Development).</li> <li>• Approval under section 201 of the Fisheries Management Act 1994.</li> </ul>
<i>Clarification of the monitoring and response regime to be implemented during dredging operations, to monitor for and respond to potential environmental and other impacts.</i>	<p>Adaptive Management Strategies would be required as Deferred Commencement requirements to in particular permit the ongoing monitoring and mitigating of any impacts associated with biodiversity an geomorphology which result from the proposed development.</p> <p>These will be requirements which need to be resolved prior to any operational consent being given. This approach is considered appropriate following consideration of the likely impacts of the development.</p>
<i>A description of the formation of the estuary (geomorphology) at and downstream of the dredging operations, including the formation of Pig Island (e.g. during the Holocene period).</i>	A detailed response has been provided within the submitted Geomorphological Assessment – Supplementary Information prepared by Fluvial Systems Pty Ltd.

<p><i>Use of historical and other data (such as historical photographs, historical river surveys, and presumably, survey data presumably collected by the dredging operators over time in association with their past EPA licence, academic research papers such as by RC Carvalho of University of Wollongong, eg) to provide an assessment of:</i></p> <ul style="list-style-type: none"> <li><i>• changes in the location and depth of the channels and banks at and downstream of the dredging operations, from prior to dredging to present day the rate of infilling of deep dredge holes, and infilling of the dredge area more broadly, including recent flood events, over the last 20+ years</i></li> <li><i>• the impact of deep dredge holes on nearby channels (in terms of channel location and depth).</i></li> </ul>	<p>A detailed response has been provided within the submitted Geomorphological Assessment – Supplementary Information prepared by Fluvial Systems Pty Ltd.</p>
<p><i>An assessment of the sedimentological data (such as the samples collected by the dredging operators in accordance with their EPA licence, and academic research papers as noted above), to clearly describe:</i></p> <ul style="list-style-type: none"> <li><i>• the volume of sediment removed during dredging (annually),</i></li> <li><i>• for the dredged material, the proportion of sand extracted versus the proportion of material returned to the stock mounds and/or the river, and the grain size(s) of returned material,</i></li> <li><i>• existence of acid sulphate soils and the potential for this material to be exposed during operations or in stock mound.</i></li> </ul>	<p>A detailed response has been provided within the submitted Geomorphological Assessment – Supplementary Information prepared by Fluvial Systems Pty Ltd.</p>
<p><i>Given that the sand resource is finite and is being removed permanently from the sediment system, and that past and future approvals are sought for 20 to 50 years or more, assessment of the potential long-term impacts from dredging is sought, including:</i></p> <ul style="list-style-type: none"> <li><i>• long term impacts to Shoalhaven's beaches and beaches further north given that a substantial portion of sand sized material is being removed by dredging rather than being supplied to the coast (noting that the Shoalhaven/Crookhaven River is one of only 2 rivers in NSW that supplies sand sized material to the coast). This assessment needs also to consider the combined impact of the dam built</i></li> </ul>	<p>A detailed response has been provided within the submitted Geomorphological Assessment – Supplementary Information prepared by Fluvial Systems Pty Ltd.</p>

<p><i>upstream in 1976 that will already have contributed to a reduced sand supply to the estuary and coast,</i></p> <ul style="list-style-type: none"> <li><i>the long-term changes in the geomorphology of the lower estuary due to the increase in tidal regimes from training of the Shoalhaven River and how this may have interacted or will interact with dredging impacts, and future long-term impacts of sea level rise which is expected to increase the tidal ranges in the estuary and may therefore change the impact of dredging operations on surrounding channels and banks.</i></li> </ul>	
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## 7. Statutory Considerations

This report assesses the proposed development/use against relevant Commonwealth, State, Regional and Local Environmental Planning Instruments and policies in accordance with section 4.15 (1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The following planning instruments and controls apply to the proposed development:

### (a) Biodiversity and Conservation Act 2016

The proposed development has been assessed under Part 7, Clause 7.2 *Development or activity “likely to significantly affect threatened species”*.

(1) *For the purposes of this Part, development or an activity is **likely to significantly affect threatened species** if—*

- (a) it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3, or*
- (b) the development exceeds the biodiversity offsets scheme threshold if the biodiversity offsets scheme applies to the impacts of the development on biodiversity values, or*
- (c) it is carried out in a declared area of outstanding biodiversity value*

Overall, Council’s EAO found that the proposal does not trigger entry into the Biodiversity Offsets Scheme (BOS) and that a Biodiversity Development Assessment Report (BDAR) is therefore not required to be submitted in support of the proposal as required under the Act. This position was founded based upon a consideration of the likely impacts of the proposal and the following:

- At the time of lodgement of the Development Application, the subject site was not mapped on the Biodiversity Values Map. However the site has since been mapped as depicted below: Notwithstanding, the DA does not enter the BOS via this method given the site was not mapped at the time of lodgement.
- The site does not trigger entry into the BOS based upon area of vegetation to be removed, noting that there is no minimum lot size which applies to the development site within the Shoalhaven River.
- The third method of triggering entry into the Biodiversity Offsets Scheme is whether it is likely to significantly affect threatened species or ecological communities, or their habitats, according to the test in section 7.3 of the BC Act 2016.

As detailed in the referral response provided by Council's EAO and following consideration of the following, it was found that the proposal would not have a significant impact (serious or irreversible impact) upon State and Commonwealth listed species of migratory shorebirds:

- S7.3 Test of Significance prepared by Lodge Environmental (Ref No. LE1637 dated 17<sup>th</sup> February 2023).
- Letter of Undertaking for the future Adaptive Management Strategy prepared by Lodge Environmental (Ref No. LE1637 dated 17<sup>th</sup> February 2023).
- Amended Extraction Area Plan depicting a large reduction in the proposed dredge area to minimise impacts to inter-tidal sand flats and to accord with the recommended GTAs provided by DPI Fisheries.

#### **(b) Fisheries Management Act 1994 (NSW)**

The proposed development has been assessed under the s201 of the *Fisheries Management (FM) Act 1994*, due to the proposal requiring a permit to carry out dredging or reclamation work (extractive industries involving an extension to the existing approved dredge area).

The Department of Primary Industries – Fisheries has reviewed the proposal and has found that approval is permitted subject to a list of General Terms of Approval. A further note was included, that given dredging associated with the previous approval had taken place outside the licenced and approved area, that ongoing audit and management procedures be imposed within any consent.

In accordance with Section 3 – Objects of Act of the FM Act 1994, regard for the following is required:

- (a) *to conserve fish stocks and key fish habitats, and*
  - (b) *to conserve threatened species, populations and ecological communities of fish and marine vegetation, and*
  - (c) *to promote ecologically sustainable development, including the conservation of biological diversity,*
- and, consistently with those objects—*
- (d) *to promote viable commercial fishing and aquaculture industries, and*
  - (e) *to promote quality recreational fishing opportunities, and*
  - (f) *to appropriately share fisheries resources between the users of those resources, and*
  - (g) *to provide social and economic benefits for the wider community of New South Wales, and*
  - (h) *to recognise the spiritual, social and customary significance to Aboriginal persons of fisheries resources and to protect, and promote the continuation of, Aboriginal cultural fishing.*

Council finds that the proposed development is compliant with the objects of the FM Act 1994 for the following reasons:

- Response from RMS Maritime has confirmed that the proposal would not have an adverse impact upon safe navigation of the Shoalhaven River by commercial and recreational watercraft (dated 22<sup>nd</sup> October 2021).
- Description of impacts to bait collection was provided as part of the Recreational Fishing and Bait Collection Assessment (prepared by Peter Dalmazzo dated 17<sup>th</sup> January 2019). This assessment concluded that live bait from the Shoalhaven estuary including nippers, poddy mullet, green weed and squirt worms are present. Whilst acknowledging that the extraction of material from the bed of the Shoalhaven River would have some impact on habitat, it is noted that the Report concludes that intertidal sandy beach and shallow subtidal areas adjacent to the past extraction areas on the southern side of the island have remained viable as worm collection areas. Noting that these areas would not be impacted, it is considered that the impact to bait collection species habitat is considered to be acceptable.

- The extent of the overall dredge area has reduced from a total area of 26 hectares (original submission) to approximately 10.5 hectares (amended and reduced extent following submission of recent amended plan), which results in a large reduction of the impact to the habitat area.
- The Recreational Fishing and Bait Collection Assessment advises that fishing around Pig Island occurs in the channels to the north and south of the island, noting that recreational fishing on the sand flats in the proposed extraction area is limited by tidal water depth. In the deeper water areas that have previously been dredged there are recreational fishing opportunities for various species including Mulloway. The Report concludes that the proposal would convert several hectares of shallow water fishing area to deep water fishing area over a period of several years, however that recreational fishing habitat would still be available and that, during extraction operations there would be little impact on fishing activities as people in boats could fish quite close to the dredge.
- The proposal was integrated development pursuant to the FM Act 1994 and the Department of Primary Industries – Fisheries. DPI Fisheries concluded that the proposal would not have an adverse impact upon fish stocks and that there is no net loss of key fish habitats upon which they depend subject to conditional requirements.
- Based upon the above, it is considered that impacts to bait collection and recreational fishing has been appropriately considered.

### **(c) Protection of the Environment Operations (POEO) Act 1997**

The proposed development involves the carrying out of a scheduled activity in accordance with sections 43a and 47 of the Protection of the Environment Operations (POEO) Act 1997, as follows:

*16 Crushing, grinding or separating*

*(1) This clause applies to crushing, grinding or separating, meaning the processing of materials (including sand, gravel, rock or minerals, but not including waste of any description) by crushing, grinding or separating them into different sizes.*

*(1A) However, this clause does not apply to the processing of materials by crushing, grinding or separating that occurs as part of an activity that is declared to be a scheduled activity by—*

*(a) clause 33 (Railway activities—railway infrastructure construction), or*

*(b) clause 35 (Road construction).*

*(2) The activity to which this clause applies is declared to be a scheduled activity if it has a capacity to process more than 150 tonnes of materials per day or 30,000 tonnes of materials per year.*

The Environmental Protection Authority (EPA) has reviewed the proposal and has found that approval is permitted subject to a list of General Terms of Approval including a reduction in the area and limitation on the depth of proposed dredging.

In addition, the EPA noted that the information submitted as part of the Estuarine and Water Quality Monitoring Plan had not addressed the further requirements listed within the Additional Information Request. It was therefore required that two additional conditions be imposed further to the issued GTAs that address requirements relating estuarine and water quality management. These additional conditions are provided within the GTAs referenced within Condition 8 under Part B of the Draft Determination and are briefly described by the EPA as:

*1) A special condition requiring:*

*a) The matters outlined at Attachment B to be addressed in the proposed Interim Water Quality Monitoring Program (validation sampling).*

*b) Validation sampling to be completed within 3 months of the commencement of works; and*

*c) A Water Quality Modelling Validation Report to be provided to the EPA within 4 weeks upon completion of validation sampling.*

*2) A special condition requiring development of a Trigger Response Protocol and adjustment (as required) to the proposed water quality monitoring points based on the findings of the validation sampling.*

#### **(d) Crown Land Management Act 2016 (NSW)**

The proposed development will be located on a Crown water course (Shoalhaven River). The waterway land is owned and managed by Crown Land and therefore, the applicant is required to obtain a licence under section 2.20 of the *Crown Land Management Act 2016*.

Crown Lands provided their owner's consent for lodgement of the Development Application with Council, however further advised as follows in a response provided on 15<sup>th</sup> March 2022 (Note: Crown Lands comments are provided in regular font and Council's comment / response is provided in italics):

- *The applicant currently has an expired Crown land licence over the existing consent area being RA12/1001. Should RA21/1000 be approved, the applicant will be required to make an application to Crown lands to seek legal occupation over the extension area prior to any dredging occurring within this area. However in order for a licence to be able to be issued, the following further requirements were required to be addressed in order for such a future licence to be able to be issued:*

- It is suggested that Council give consideration to the findings of any recent investigations prepared as part of the Scoping Phase of the CMP in its review of applicant responses to CI 13 SEPP Coastal Management.

*See further assessment in Report below against the CMP.*

- The Council should be satisfied that critical infrastructure (i.e. the flood levee) on Council managed Crown land is not at greater risk from alterations to local morphology and potential riverbank stability due to a proposed increase in the extraction area

*This comment is noted, and has been explored in detail by Council's Natural Resources & Floodplain (NR&F) Unit. Impacts to coastal infrastructure such as flood levee banks will be required to be closely monitored as works commence within the specified area – which incorporates ongoing monitoring as part of the Adaptive Management Strategy – Geomorphology.*

- The DA needs to clarify the timeframe / consent period that is associated with the development. The EIS needs to assess potential and cumulative impacts over the proposed lifetime of the development.

*The timeframe within the EIS as identified as being 19-40 years. However it is noted that the applicant has applied for a maximum extraction rate of 100,000 tonnes per annum – which matches the conditions of their previous issued approval.*

- It is recommended that Council give consideration to any PoM prepared under the CLM Act for R45715. If there is a PoM in place, the proposed development should be consistent with the objectives and actions of the PoM, particularly actions related to foreshore or river bank management.

*As part of any determination, monitoring procedures taking place as part of the existing issued consent would need to be incorporated in addition to any further requirement issued by Integrated referrals and as deemed necessary by the consent authority.*

- The Council should be satisfied that natural or built values and assets on or adjoining Crown land are not at greater risk from alterations to local morphology and potential riverbank stability due to a proposed increase in the development footprint.

*As above – An adaptive management strategy for geomorphology will be required to be developed, which includes monitoring and triggers and measures to be implemented where*

*any potential impacts to infrastructure has been identified as part of the procedures of the Strategy.*

- Council should be satisfied that the proposed development will not impact on Council's existing sewer infrastructure or be in conflict with future easements on Crown land for such infrastructure.

*The proposal would not be likely to impact upon existing public sewer infrastructure.*

- The draft Commercial Dredging and Extraction Audit on Coastal Crown Lands, currently under preparation by Crown Lands, indicates that the existing operation on the Shoalhaven River has the potential to impact seagrass.

*The proposal has been amended with a buffer of 25m being provided to seagrass. A further condition has been imposed as part of the DPIE Fisheries GTAs which limits the extent of the development to minimise impacts of the proposal against seagrasses and other marine vegetation.*

## **(e) Environmental Planning and Assessment Act 1979**

### **Section 4.36 – State Significant Development (SSD)**

Pursuant to section 4.36 of the Act, development that is declared to be SSD is referred to within the Planning Systems SEPP. The Minister for Planning is the consent authority for SSD. The proposal does not trigger the criteria for SSD.

### **Section 4.46 – Integrated Development**

The subject development is considered integrated development as the proposal triggers the requirements for other separate approvals, including *Fisheries Management Act 1994* as it requires a permit to carry out dredging or reclamation work and *Protection of the Environment Operations Act 1997* as it involves the carrying out of a scheduled activity.

As detailed in the Report above, General Terms of Approval have been issued by each respective Authority in relation to works carried out under these legislative provisions.

### **Section 7.11 - Shoalhaven Contribution Plan 2019**

The proposed development is not considered to trigger contributions required by the Shoalhaven Contribution Plan 2019.

### **Local Government Act 1993**

Activities identified under section 68 of the *Local Government Act 1993* require prior approval from Council before the activity can be carried out, except in so far as this Act, the regulations or a local policy adopted under Part 3 allows the activity to be carried out without that approval.

The proposal does not intend to carry works that require a section 68 approval.

## **8. Statement of Compliance/Assessment**

The following provides an assessment of the submitted application against the matters for consideration under section 4.15 of the EP&A Act.

**(a) Any planning instrument, draft instrument, DCP and regulations that apply to the land**

**i) Environmental Planning Instruments**

The following Environmental Planning Instruments apply to the assessment of the subject DA:

- *State Environmental Planning Policy (Resources and Energy) 2021*
- *State Environmental Planning Policy (Planning Systems) 2021*
- *State Environmental Planning Policy (Resilience and Hazards) 2021*
- *Shoalhaven Local Environmental Plan 2014*

State Environmental Planning Instruments Policies

**State Environmental Planning Policy (Resources and Energy) 2021**

Note: for the purposes of this assessment, the provisions which directly apply to the development have been considered.

Provision	Response
<p><b>2.10 Determination of permissibility under local environmental plans</b></p> <p><i>(1) If a local environmental plan provides that development for the purposes of mining, petroleum production or extractive industry may be carried out on land with development consent if provisions of the plan are satisfied—</i></p> <p style="padding-left: 40px;"><i>(a) development for that purpose may be carried out on that land with development consent without those provisions having to be satisfied, and</i></p> <p style="padding-left: 40px;"><i>(b) those provisions have no effect in determining whether or not development for that purpose may be carried out on that land or on the determination of a development application for consent to carry out development for that purpose on that land.</i></p> <p><i>(2) Without limiting subsection (1), if a local environmental plan provides that development for the purposes of mining, petroleum production or extractive industry may be carried out on land with development consent if the consent authority is satisfied as to certain matters specified in the plan, development for that purpose may be carried out on that land with development consent without the consent authority having to be satisfied as to those specified matters.</i></p>	<p>In accordance with Section 2.10, the development is permissible via the function of Section 164 of the Regulations 2021 under the provisions relating to expansion, extension, and intensification of an existing lawful use.</p> <p>No matters are specified within the SLEP 2014 to validate the permissibility of extractive industries.</p>
<p><b>2.17 Compatibility of proposed mine, petroleum production or extractive industry with other land uses</b></p> <p><i>Before determining an application for consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must—</i></p> <p style="padding-left: 40px;"><i>(a) consider—</i></p> <p style="padding-left: 80px;"><i>(i) the existing uses and approved uses of land in the vicinity of the development, and</i></p> <p style="padding-left: 80px;"><i>(ii) whether or not the development is likely to have a significant impact on the uses that, in the opinion of the consent authority having regard to land use trends, are likely to be the preferred uses of land in the vicinity of the development, and</i></p>	<p>The requirements of this clause have been considered in the assessment of this application.</p> <p>The compatibility of the extractive industry has been considered in the context of surrounding land uses and the following is noted:</p> <ul style="list-style-type: none"> <li>- There is a wide range of uses within the vicinity, ranging from industrial (Manildra and existing Terara Sands facilities) to residential (Terara Village).</li> </ul>

<p><i>(iii) any ways in which the development may be incompatible with any of those existing, approved or likely preferred uses, and</i></p> <p><i>(b) evaluate and compare the respective public benefits of the development and the land uses referred to in paragraph (a)(i) and (ii), and</i></p> <p><i>(c) evaluate any measures proposed by the applicant to avoid or minimise any incompatibility, as referred to in paragraph (a)(iii).</i></p>	<ul style="list-style-type: none"> <li>- The development and its impact on sensitive land uses such as Terara has been considered as part of the assessment, in particular as it relates to impacts including amenity, geomorphology, and coastal processes.</li> <li>- The use has been taking place at the site since 1968 and is not a new use introduced to the landscape.</li> <li>- The development would have no further impact to surrounding locality in terms of amenity than the existing use, noting the same machinery and extraction methods would be used.</li> <li>- Conditions of consent, including complaints register and Management Audit Report would be imposed to assist in managing impacts to the surrounding locality.</li> </ul> <p>The consent authority can be satisfied that the compatibility of the proposal with other land uses has been considered and addressed through the assessment of the proposal and the recommended conditions of consent.</p>
<p><b>2.20 Natural resource management and environmental management</b></p> <p><i>(1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner, including conditions to ensure the following—</i></p> <p><i>(a) that impacts on significant water resources, including surface and groundwater resources, are avoided, or are minimised to the greatest extent practicable,</i></p> <p><i>(b) that impacts on threatened species and biodiversity, are avoided, or are minimised to the greatest extent practicable,</i></p> <p><i>(c) that greenhouse gas emissions are minimised to the greatest extent practicable.</i></p> <p><i>(2) Without limiting subsection (1), in determining a development application for development for the purposes of mining, petroleum production or extractive industry, the</i></p>	<p>Conditions are recommended on the draft consent to ensure the development is carried out in an environmentally responsible manner in accordance with this clause.</p> <p>As detailed above, referral response from the EAO has revealed that the proposal complies with the Biodiversity Conservation Act 2016 and does not trigger entry to the BOS.</p> <p>To ensure a significant impact is not experienced to the threatened and endangered species of fauna and flora, conditions would be imposed within any consent which requires ongoing monitoring and adaptive management throughout the life of the development.</p>

<p><i>consent authority must consider an assessment of the greenhouse gas emissions (including downstream emissions) of the development, and must do so having regard to any applicable State or national policies, programs or guidelines concerning greenhouse gas emissions.</i></p>	<p>The consent authority can be satisfied that the recommended conditions aimed at ensuring that the development is undertaken in an environmentally responsible manner have been included in the recommended draft consent to meet the requirements of this clause.</p>
<p><b>2.21 Resource recovery</b>  <i>(1) Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider the efficiency or otherwise of the development in terms of resource recovery.  (2) Before granting consent for the development, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at optimising the efficiency of resource recovery and the reuse or recycling of material.  (3) The consent authority may refuse to grant consent to development if it is not satisfied that the development will be carried out in such a way as to optimise the efficiency of recovery of minerals, petroleum or extractive materials and to minimise the creation of waste in association with the extraction, recovery or processing of minerals, petroleum or extractive materials.</i></p>	<p>The method of extraction is reflective of existing procedures for resource recovery. It is noted that the methodology proposed has operated successfully for a number of years.</p> <p>No further conditions are required for optimisation of the recovery process.</p>
<p><b>2.22 Transport</b>  <i>(1) Before granting consent for development for the purposes of mining or extractive industry that involves the transport of materials, the consent authority must consider whether or not the consent should be issued subject to conditions that do any one or more of the following—  (a) require that some or all of the transport of materials in connection with the development is not to be by public road,  (b) limit or preclude truck movements, in connection with the development, that occur on roads in residential areas or on roads near to schools,  (c) require the preparation and implementation, in relation to the development, of a code of conduct relating to the transport of materials on public roads.  (2) If the consent authority considers that the development involves the transport of materials on a public road, the consent authority must, within 7 days after receiving the development application, provide a copy of the application to—  (a) each roads authority for the road, and  (b) the Roads and Traffic Authority (if it is not a roads authority for the road).</i></p> <p><b>Note—</b>  Section 7 of the <a href="#">Roads Act 1993</a> specifies who the roads authority is for different types of roads. Some roads have more than one roads authority.</p>	<p>The applicant has proposed that fines left over from the sand extraction process would be reused as stock mounds on Pig Island.</p> <p>This would have the effect of minimising the number of truck movements to remove unsaleable material from the site.</p> <p>The method of transport of existing extracted saleable sand material is via road which is equivalent to the method used for the existing extractive industry.</p> <p>The proposal would not result in a greater number of truck movements from the site over and above that presently experienced.</p> <p>In this regard, the proposed transport measures are considered to be appropriate.</p>

<p>(3) <i>The consent authority—</i>  <i>(a) must not determine the application until it has taken into consideration any submissions that it receives in response from any roads authority or the Roads and Traffic Authority within 21 days after they were provided with a copy of the application, and</i>  <i>(b) must provide them with a copy of the determination.</i></p> <p>(4) <i>In circumstances where the consent authority is a roads authority for a public road to which subsection (2) applies, the references in subsections (2) and (3) to a roads authority for that road do not include the consent authority.</i></p>	
<p><b>2.23 Rehabilitation</b></p> <p>(1) <i>Before granting consent for development for the purposes of mining, petroleum production or extractive industry, the consent authority must consider whether or not the consent should be issued subject to conditions aimed at ensuring the rehabilitation of land that will be affected by the development.</i></p> <p>(2) <i>In particular, the consent authority must consider whether conditions of the consent should—</i>  <i>(a) require the preparation of a plan that identifies the proposed end use and landform of the land once rehabilitated, or</i>  <i>(b) require waste generated by the development or the rehabilitation to be dealt with appropriately, or</i>  <i>(c) require any soil contaminated as a result of the development to be remediated in accordance with relevant guidelines (including guidelines under clause 3 of Schedule 6 to the Act and the <a href="#">Contaminated Land Management Act 1997</a>), or</i>  <i>(d) require steps to be taken to ensure that the state of the land, while being rehabilitated and at the completion of the rehabilitation, does not jeopardize public safety.</i></p>	<p>A Rehabilitation Management Plan prepared by Martens has been submitted in association with the application which details measures for recovery of dredged areas. The Plan <i>‘provides a range of environmental management strategies for protecting the long-term environmental and ecological values of areas of the Shoalhaven River in the vicinity of the proposed resource extraction works’</i>.</p> <p>The report outlines recommended rehabilitation and stabilisation measures to be implemented once resource extraction works are concluded. This includes leaving extraction areas for a minimum of 10 years following the completion of dredging works, revegetation of ‘edges’, periodic monitoring of water quality with remediation measures should there be significant changes, annual monitoring of river bank conditions and remedial works should the proposed extraction works impact the stability of riverbanks or riverine vegetation. It is considered that the recommendations of this report are adequate to address the requirements of this clause.</p> <p>The Plan is recommended be approved under Condition 1 of the draft consent.</p>

### State Environmental Planning Policy (Planning Systems) 2021

The proposal is categorised as a Regional Significant Development under section 7 of Schedule 6 of the SEPP.

#### ***Particular designated development***

*Development for the purposes of—*

*(a) extractive industry facilities that meet the requirements for designated development under the Environmental Planning and Assessment Regulation 2021, Schedule 3, section 26.*

As such the proposal is required to be determined by the Regional Planning Panel in accordance with section 4.7 of the EP&A Act.

### State Environmental Planning Policy (Resilience and Hazards) 2021

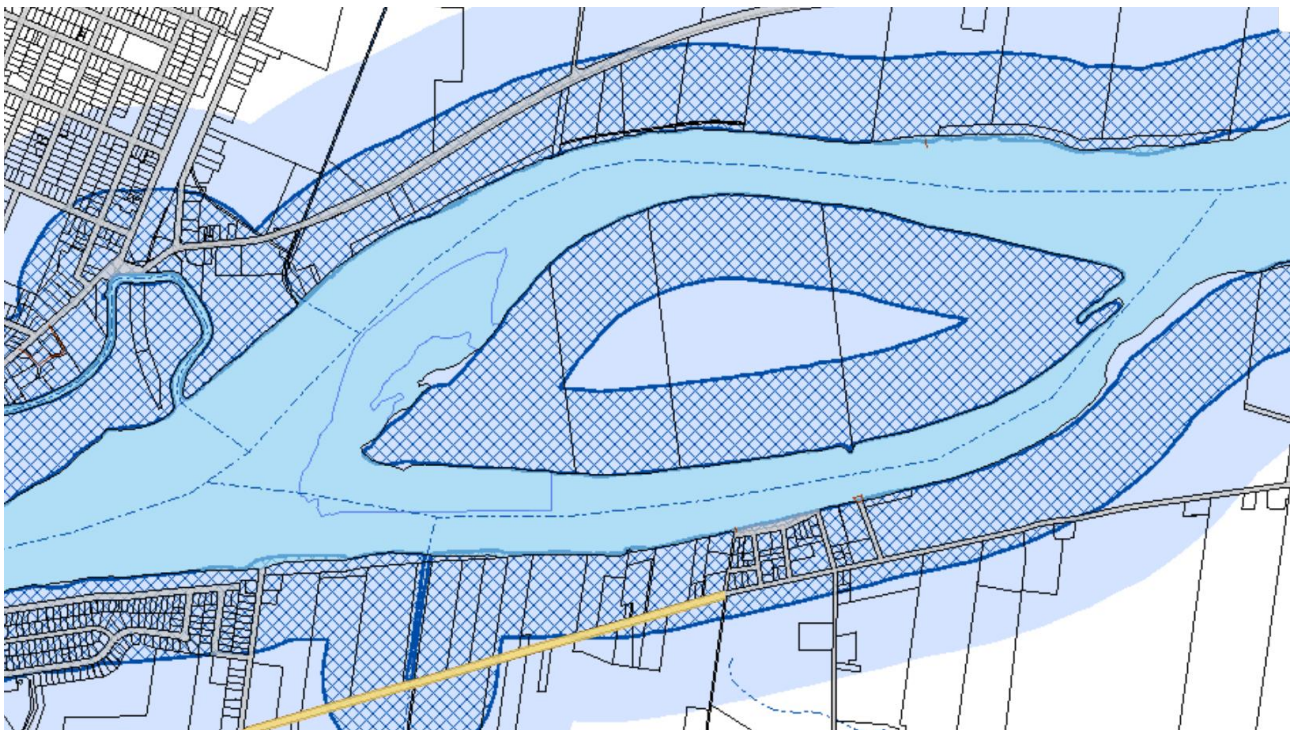


Figure 7 – Coastal Management

#### Chapter 2 Coastal management, Section 2.10

The site is mapped as being located within the 'Coastal Environment Area' within SEPP (Resilience and Hazards) 2021. As such, section 2.10 applies.

#### *Section 2.10 – Development on land within the coastal environment area*

*(1) Development consent must not be granted to development on land that is within the coastal environment area unless the consent authority has considered whether the proposed development is likely to cause an adverse impact on the following—*

- (a) the integrity and resilience of the biophysical, hydrological (surface and groundwater) and ecological environment,*
- (b) coastal environmental values and natural coastal processes,*
- (c) the water quality of the marine estate (within the meaning of the Marine Estate Management Act 2014), in particular, the cumulative impacts of the proposed development on any of the sensitive coastal lakes identified in Schedule 1,*

- (d) marine vegetation, native vegetation and fauna and their habitats, undeveloped headlands and rock platforms,*
- (e) existing public open space and safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
- (f) Aboriginal cultural heritage, practices and places,*
- (g) the use of the surf zone.*

*(2) Development consent must not be granted to development on land to which this section applies unless the consent authority is satisfied that—*

- (a) the development is designed, sited and will be managed to avoid an adverse impact referred to in subsection (1), or*
- (b) if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or*
- (c) if that impact cannot be minimised—the development will be managed to mitigate that impact.*

The site (including Pig Island) is classified as being a 'Coastal Environment Area'. Whilst the Crown Waterway is not specifically mapped as being part of the mapped 'Coastal Environment Area' area as shown in Figure 7 above, it is intrinsically linked to Pig Island and therefore must be considered when assessing the impacts against the 'Coastal Environment Area' in accordance with Section 2.10 of the Policy.

The proposal has been modified to reduce impacts upon marine vegetation since its initial lodgement, which has included a substantial reduction in the proposed dredge area. The reduction in the dredge area was undertaken to match the conditional requirements imposed by DPI Fisheries in their General Terms of Approval and to ensure that the Test of Significance against Clause 7.3 of the BC Act did not reveal that entry to the Biodiversity Offsets Scheme would be triggered. The reduction in the dredge area, in conjunction with ongoing monitoring procedures to be employed post-consent – would ensure that impacts the Coastal Environment Area can be managed and prevented where possible.

The requirement for an Adaptive Management Plan – Geomorphology to be developed as a Deferred Commencement Condition will ensure the management of potential impacts forms part of the ongoing operations of the development and must be agreed upon by Council prior to the operation of the consent. Accordingly, the consent authority can be satisfied that the requirements of section 11 of the SEPP have been satisfactorily addressed.

#### Chapter 2 Coastal management, Section 2.11

The site is mapped as being located within the 'Coastal Use Area' within SEPP (Resilience and Hazards) 2021 per Figure 7 above. As such, section 2.11 applies which requires as follows:

- (1) Development consent must not be granted to development on land that is within the coastal use area unless the consent authority—*
  - (a) has considered whether the proposed development is likely to cause an adverse impact on the following—*
    - i) existing, safe access to and along the foreshore, beach, headland or rock platform for members of the public, including persons with a disability,*
    - ii) overshadowing, wind funnelling and the loss of views from public places to foreshores,*
    - iii) the visual amenity and scenic qualities of the coast, including coastal headlands,*
    - iv) Aboriginal cultural heritage, practices and places,*
    - v) cultural and built environment heritage, and*
  - ii) is satisfied that—*
    - i) the development is designed, sited and will be managed to avoid an adverse impact referred to in paragraph (a), or*

- ii) *if that impact cannot be reasonably avoided—the development is designed, sited and will be managed to minimise that impact, or*
- iii) *if that impact cannot be minimised—the development will be managed to mitigate that impact, and*
- iv) *has taken into account the surrounding coastal and built environment, and the bulk, scale and size of the proposed development.*

The overall scale of the development has been reduced through the assessment of the proposal regarding the biodiversity constraints affecting the site and the final proposed scale and size of the development is of a size suitable for the surrounding coastal and built environment. Through the reduction in scale of the proposed extraction area, the proposal also reduced potential impacts on the elements identified in (1)(a) of the above clause to avoid and better mitigate potential impacts.

As noted above, as part of its further request for information and as detailed in the Briefing with the Planning Panel, Council requested the applicant provide further advice regarding the expected visual amenity impacts of the development upon the surrounding built environment. Whilst this matter was not addressed by the applicant in response to the Planning Panel's request, as the proposal seeks to utilise existing infrastructure to assist with extraction of sand, and no additional or new infrastructure is proposed, it is considered that visual impacts would not be significantly altered from that of the existing approved development. It is further considered that upon review of the existing visual amenity impacts of the development that there are no significant detrimental impacts on the landscape and accordingly the continuation of the infrastructure in the area is not of concern. It is therefore considered that this component is capable of support.

Cultural heritage values have been considered and local aboriginal organisations consulted as part of the lodgement process as required by the SEARs issued by the DPE. An Aboriginal Heritage Due Diligence Report was submitted with the proposal prepared by Biosis (30 Jan 2020, Ref 31375), which concluded that *“the study area possesses low archaeological potential to contain Aboriginal sites due to the landscape context in which the study area is situated ... Though the tidal flat upon which the site is located would have been utilized for resource gathering, it is considered unlikely that deposits or objects would have been preserved due to high levels of erosion along the western bank of pig island. The proposed works are therefore considered unlikely to have an impact on Aboriginal cultural heritage values. resulted in no significant issues being raised as part of the consultation process”* (p.11). The recommendations of this report are reflected in recommended Conditions 18 and 19 of the draft consent.

Safe navigation of the waterway and access to the coast would not be adversely impacted as stated in the referral response by the RMS Maritime.

It is therefore considered that the proposal would be acceptable as it relates to the assessment provided against potential impacts to the 'Coastal Use Area'. The consent authority can be satisfied that potential adverse impacts have been considered and addressed through the assessment of the application and the recommended conditions of consent.

## **Shoalhaven LEP 2014**

### Land Zoning

The site is zoned both W2 – Recreational Waterways (Shoalhaven River below the MHW) and RU1 Primary Production (Pig Island) under the LEP as shown below.

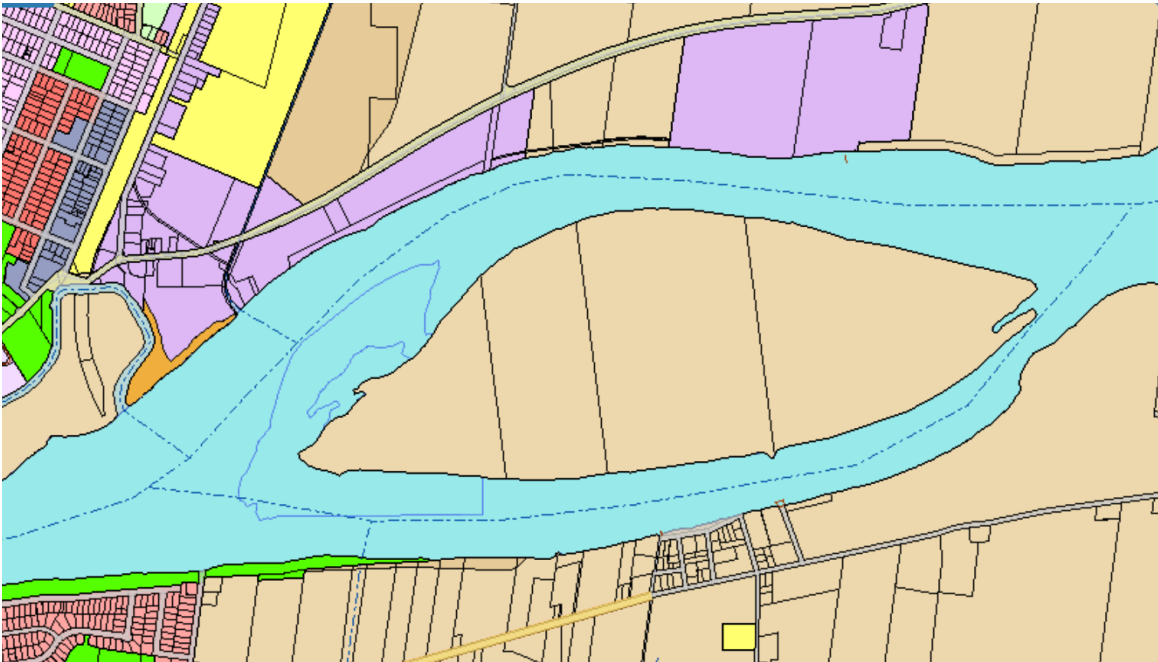


Figure 8. Shoalhaven LEP 2014 zoning map excerpt

#### Characterisation and Permissibility

The proposal is best characterised as *Industries (Extractive Industries)* under the SLEP 2014. The proposal is prohibited in W2 Recreational Waterways Zone however is permissible with consent within the RU1 Primary Production Zone. Notwithstanding this the development is permissible as an existing use in accordance with section 163 of the *Environmental Planning and Assessment (EP&A) Regulation 2021*:

#### **163 Certain development allowed**

- (1) An existing use may, subject to this Part—
  - a) be enlarged, expanded or intensified, or
  - b) be altered or extended, or
  - c) be rebuilt, or
  - d) be changed to another use, but only if the other use is a use that may be carried out with or without development consent under the Act, or
  - e) if it is a commercial use—be changed to another commercial use, including a commercial use that would otherwise be prohibited under the Act, or
  - f) if it is a light industrial use—be changed to another light industrial use or a commercial use, including a light industrial use or commercial use that would otherwise be prohibited under the Act.

As such, the proposal is an expansion of an existing use and is therefore in accordance with section 163 of the EP&A Regulation 2021 within Zone W2. Further to this per section 164 (excerpt below), the proposed expansion of the existing use is for the same use and is to be carried out within the land on which the existing use was carried out prior to the development becoming prohibited under SLEP 2014.

#### **164 Enlargement, expansion and intensification of existing uses**

- (1) Development consent is required for any enlargement, expansion or intensification of an existing use.
- (2) The enlargement, expansion or intensification must be—
  - a) for the existing use and for no other use, and
  - b) carried out only on the land on which the existing use was carried out immediately before the relevant day.

In accordance with the Environmental Planning and Assessment (EP&A) Act 1979, the term 'land' is defined as follows:

**land** includes—

- (a) the sea or an arm of the sea,
- (b) a bay, inlet, lagoon, lake or body of water, whether inland or not and whether tidal or non-tidal, and
- (c) a river, stream or watercourse, whether tidal or non-tidal, and
- (d) a building erected on the land.

It is noted that the land in this instance is the 'bed of the Shoalhaven River below the mean high water mark'. In accordance with the above definition for land under the EP&A Act, this term includes a river, stream, or water course, whether tidal or non-tidal.

Given the relevant land associated with the development is recognised in the above definition noting its existence as a river, the enlargement, expansion of intensification of the existing use is found to be on the land on which the existing use was carried out immediately before the relevant day.

As such, it is found that the enlargement, expansion, and intensification of the use benefits from existing use rights in accordance with Section 164 of the Regulations.

#### Clause 2.3 - Zone objectives

The consent authority must have regard to the objectives for development in a zone when determining a development application in respect of land within the zone. The objectives of the W2 Recreational Waterways zone are outlined below:

- *To protect the ecological, scenic and recreation values of recreational waterways.*
  - Ecological, scenic, and recreation values of the Shoalhaven River within the vicinity of the development has been considered. The assessment has revealed that these values would not be adversely impacted, noting:
    - Ecological – Biodiversity has been considered in detail against legislation requirements including the Biodiversity Conservation Act 2016. Subject to conditions recommended by the Environmental Assessment Officer, including adoption of an adaptive management strategy to monitor ongoing and changing conditions of the waterway, and associated requirements, it is considered that the proposal has satisfactorily addressed ecological values associated with the recreational waterway. The Remediation Management Plan will further ensure that the land is returned to an acceptable state following the conclusion of the extractive industry.
    - Scenic values have been considered. Noting that the proposal would utilise existing dredge equipment and there would be no change to the process of extraction, no further impact to visual and scenic amenity would be experienced over and above that which has occurred at the site for a number of years.
    - Recreational values have been considered in detail, noting that an assessment of potential impact to bait collection and recreational fishers in addition to navigation of the channel has been carried out. The outcomes of the assessment has revealed that that the proposal has satisfactorily addressed recreational values associated with the recreational waterway.
- *To allow for water-based recreation and related uses.*
  - It is found that use of water based recreation such as use of marine craft in the vicinity of extraction works is not likely to be adversely impacted. This consideration is made noting that concurrence advice from RMS Maritime has confirmed that they have no objections to the development on the grounds of safe navigation of the channel. This is due to the fact that no work are proposed within existing established navigation channels.

- *To provide for sustainable fishing industries and recreational fishing.*
  - In accordance with the conclusions drawn in the above assessment against the Objects of the FM Act 1994, Council finds that the proposed development is not likely to have an adverse impact upon fishing industries, recreational fisheries or associated functions such as navigation of river channels adjacent to the extraction location.

Overall, Council finds that the proposed sand extraction would remain consistent with the objectives for the W2 Recreational Waterways zone, noting that operational procedures for mining of sand would remain largely unchanged to that which has previously been carried out. It is further noted that the response from RMS Maritime revealed that there were no concerns relating to access and egress by marine vessels as part of the subject development.

The objectives of the RU1 Primary Production zone are outlined below:

- *To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.*
- *To encourage diversity in primary industry enterprises and systems appropriate for the area.*
- *To minimise the fragmentation and alienation of resource lands.*
- *To minimise conflict between land uses within this zone and land uses within adjoining zones.*
- *To conserve and maintain productive prime crop and pasture land.*
- *To conserve and maintain the economic potential of the land within this zone for extractive industries.*

The use of proposed stock mounds on the RU1 zoned Pig Island is considered to represent compliance with the objectives of the zone, noting that it would protect and conserve the use of the land for grazing. The stock mounds would provide safety for grazing animals during flood events occurring within the surrounding river system. The use of the land for this purpose would also support the use of the In for the purpose of extractive industries as described within Objective No. 6.

#### SLEP 2014 Clauses

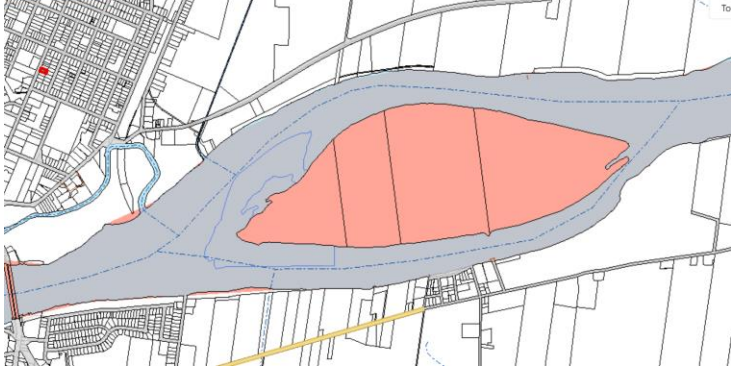
<b>Clause</b>	<b>Comments</b>	<b>Compliance</b>
<b>Part 2 Permitted or prohibited development</b>		
<b>2.6 Subdivision – Consent requirements</b>	The application does not seek consent for the subdivision of the site.	N/A.
<b>2.7 Demolition requires development consent</b>	The application does not seek consent for demolition works as part of the development.	N/A.
<b>Part 4 Principal development standards</b>		
<b>4.3 Height of buildings</b>	A maximum building height of 11 metres applies to the site.  The application does not propose any building on site.	N/A
<b>4.4 Floor space ratio</b>	Not applicable.	N/A
<b>Part 5 Miscellaneous provisions</b>		
<b>5.10 Heritage conservation</b>	The site is not identified as a local heritage item nor is it within a heritage conservation area. The site is not located at proximity of local heritage items or conservation area.  As noted in the applicant's response to the Further Information Request, the site as well as a large portion of the eastern coast of Australia is the subject of a Native Title land claim.	N/A

	<p>Notwithstanding, there are no identified mapped items of aboriginal cultural heritage significance within the proposed extractive area and consultation was held with local aboriginal organisations as required by the SEARs where no issues were raised within the consultation process.</p> <p>The proposal is therefore considered acceptable as it relates to heritage conservation.</p>	
<p><b>5.21</b> <b>Flood planning</b></p>	<p>The site is mapped within the 1% AEP flood area and flood planning area. The siting of the development is also mapped within a flood hazard category area of 'High Hazard Floodway' with parts of Pig Island mapped as 'High Hazard Flood Storage' pursuant to the recently released Lower Shoalhaven River Floodplain Study.</p> <p>The proposed stock mounds on Pig Island are currently depicted on the submitted documentation as being partially within the Floodway and Storage Areas. Subject to the recommended deferred commencement condition provided by the NR&amp;F Section – the following objectives would be achieved:</p> <p>(2) <i>Development consent must not be granted to development on land the consent authority considers to be within the flood planning area unless the consent authority is satisfied the development—</i></p> <ul style="list-style-type: none"> <li>a) <i>is compatible with the flood function and behaviour on the land, and</i></li> <li>b) <i>will not adversely affect flood behaviour in a way that results in detrimental increases in the potential flood affectation of other development or properties, and</i></li> <li>c) <i>will not adversely affect the safe occupation and efficient evacuation of people or exceed the capacity of existing evacuation routes for the surrounding area in the event of a flood, and</i></li> <li>d) <i>incorporates appropriate measures to manage risk to life in the event of a flood, and</i></li> <li>e) <i>will not adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses.</i></li> </ul> <p>(3) <i>In deciding whether to grant development consent on land to which this clause applies, the consent authority must consider the following matters—</i></p> <ul style="list-style-type: none"> <li>a) <i>the impact of the development on projected changes to flood behaviour as a result of climate change,</i></li> <li>b) <i>the intended design and scale of buildings resulting from the development,</i></li> <li>c) <i>whether the development incorporates measures to minimise the risk to life and ensure the safe evacuation of people in the event of a flood,</i></li> <li>d) <i>the potential to modify, relocate or remove buildings resulting from development if the surrounding area is impacted by flooding or coastal erosion.</i></li> </ul>	<p>Complies</p>
<b>Part 7 Additional local provisions</b>		
<p><b>7.1</b> <b>Acid sulfate soils</b></p>	<p>The site is identified as being Class 1, 2, 3, and 4.</p>	<p>Complies</p>

	<p>A recommendation has been made by the EHO for inclusion of the requirement for an Acid Sulfate Soils Management within any consent as follows:</p> <p><i>An Acid Sulfate Soil Management Plan (ASSMP) must be developed specifically addressing excavation of acid sulfate soil, or potential acid sulfate soils by a qualified environmental consultant with experience in the assessment of acid sulfate soils. The report must be submitted to Shoalhaven City Council's Environmental Health Unit for review and acceptance.</i></p> <p>This requirement is recommended for imposition as Condition 13 within Part C of the Draft Determination.</p>	
<p><b>7.2</b> <b>Earthworks</b></p>	<p>The objective of this clause is to ensure that earthworks for which development consent is required will not have a detrimental impact on environmental functions and processes, neighbouring uses, cultural or heritage items or features of the surrounding land.</p> <p>The impacts of the earthworks associated with the stock mounds would be capable of being managed by conditions of consent in the event of an approval to provide for stability and vegetation of mounds which would assist in mitigating potential impacts to coastal processes and functions through the release of sediments into the water course.</p> <p>This requirement is recommended for imposition as Condition 34 within Part I of the Draft Determination.</p>	<p>Capable of complying via condition.</p>
<p><b>7.2A</b> <b>Stock Mounds</b></p>	<p>The objective of this clause is to ensure that earthworks for stock mounds will not have a detrimental impact on environmental functions and processes on land at or below the flood planning level or affected by acid sulfate soils.</p> <p>It is noted that the stock mounds are proposed at a location which is both High Hazard Floodway and High Hazard Flood Storage and in a location subject to Class 1, 2, 3, and 4 acid sulfate soils.</p> <p><i>Despite any other provision of this Plan, development consent is required for earthworks for the purposes of a stock mound on land to which this clause applies if—</i></p> <ul style="list-style-type: none"> <li><i>(a) the land is at or below the flood planning level, or</i></li> <li><i>(b) the land is identified as Class 1, Class 2, Class 3 or Class 4 on the <a href="#">Acid Sulfate Soils Map</a> and development consent is not otherwise required for the earthworks under clause 7.1.</i></li> </ul> <p>The applicant has applied for consent for the stock refuge mounds as part of the subject development application. A detailed assessment with regard to flood impacts and requirements relating to acid sulfate soils management is contained within this Report, and has revealed that compliance would be achieved subject to recommended conditions of consent.</p> <p>Such recommended conditions are recommended for imposition as: Deferred Commencement Condition Subsection C, Conditions 13 and 14 of Part C of the Draft Determination.</p>	<p>Complies</p>

<p><b>7.4</b> <b>Coastal risk planning</b></p>	<p>This clause applies to the land identified as “Coastal Risk Planning Area” on the Coastal Risk Planning Map. The site is not identified on the map and accordingly this clause does not apply.</p>	<p>N/A</p>
<p><b>7.5</b> <b>Terrestrial biodiversity</b></p>	<p>This clause applies to land—</p> <ul style="list-style-type: none"> <li>(a) identified as “Biodiversity—habitat corridor” or “<i>Biodiversity—significant vegetation</i>” on the <i>Terrestrial Biodiversity Map</i>, and</li> <li>(b) <i>situated within 40m of the bank (measured horizontally from the top of the bank) of a natural waterbody.</i></li> </ul> <p>A small area of Pig Island is identified as being of Terrestrial Biodiversity – Significant Habitat, however it is noted that the stock mounds have been proposed for installation at a location which is outside of the mapped area.</p>	<p>Complies</p>
<p><b>7.6 Riparian and Watercourses</b></p>	<p>(2) This clause applies to all of the following—</p> <ul style="list-style-type: none"> <li>(a) land identified as “Riparian Land” on the <a href="#">Riparian Lands and Watercourses Map</a>,</li> <li>(b) land identified as “Watercourse Category 1”, “Watercourse Category 2” or “Watercourse Category 3” on that map,</li> <li>(c) all land that is within 50 metres of the top of the bank of each watercourse on land identified as “Watercourse Category 1”, “Watercourse Category 2” or “Watercourse Category 3” on that map.</li> </ul> <p>The site is within a Watercourse Category 1 being the Shoalhaven River and therefore this section applies.</p> <p>(3) Before determining a development application for development on land to which this clause applies, the consent authority must consider—</p> <ul style="list-style-type: none"> <li>(a) whether or not the development is likely to have any adverse impact on the following— <ul style="list-style-type: none"> <li>(i) the water quality and flows within the watercourse,</li> <li>(ii) aquatic and riparian species, habitats and ecosystems of the watercourse,</li> <li>(iii) the stability of the bed and banks of the watercourse,</li> <li>(iv) the free passage of fish and other aquatic organisms within or along the watercourse,</li> <li>(v) any future rehabilitation of the watercourse and its riparian areas, and</li> </ul> </li> <li>(b) whether or not the development is likely to increase water extraction from the watercourse, and</li> <li>(c) any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development.</li> </ul> <p>As part of the assessment of impacts to riparian areas and water courses, impacts to the stability of bed and banks is required to be considered. Noting the potential impacts associated with the proposed extraction activities, this is considered to be an important consideration.</p> <p>In particular, impacts such as slumping from batter edges associated with the intertidal zone must be considered. This has</p>	<p>Complies</p>

	<p>the potential not only to impact upon bank stability, but also upon viable habitat for threatened and endangered species of migratory shorebirds.</p> <p>Per the submitted River Stability Assessment, evidence (see below excerpt) has suggested that historical dredging activities has not had an impact upon channel and river stability:</p> <table border="1" data-bbox="496 443 1219 779"> <tr> <td>1979</td><td>Little change to channel form. First evidence of dredging activities.</td><td>Removal of some resource to the Island's south up to Island banks. Significant deposition of material to the Islands west and south, and deposition to northern, north eastern and south eastern banks.</td></tr> <tr> <td>1993</td><td>Little channel form change. Dredging has continued.</td><td>Deposit to the Island's west has vegetated. Smaller deposits further north west and south have also vegetated. Seagrass extent to the Islands south has been modified, however to the west and north west appears to have increased.</td></tr> <tr> <td>2001</td><td>Little channel form change. Dredging has continued.</td><td>Deposition has continued to the west and north west. Deposit has stabilised further with more vegetation. Western tip of Island has rounded. Seagrasses noted in inundated areas surrounding the sub-tidal deposit area.</td></tr> </table> <p>Noting the little channel form change over the years, the River Stability Assessment concludes that:</p> <ol style="list-style-type: none"> <li><i>1. The impacts of proposed works on riverine vegetation are anticipated to be insignificant, based on assessment of historical dredging operations impacts.</i></li> <li><i>2. Historical extraction works do not appear to have been a significant cause of existing bank erosion in the study area.</i></li> <li><i>3. Flow velocity changes due to extraction works would be insignificant and are unlikely to lead to a change in sedimentation / erosion processes along the river bank.</i></li> <li><i>4. The proposed expanded extraction area is outside of areas with significant existing aquatic vegetation (seagrass and seaweed) and works are not expected to impact on these areas. An adequate buffer will be applied.</i></li> </ol> <p>Subject to the conditions being imposed as a requirement of any consent, Council finds that the proposal would not have an adverse impact upon water quality, biodiversity, stability of beds and banks, and rehabilitation, subject to monitoring , rehabilitation, and triggers for prevention of impacts associated with the implementation of adaptive management strategies to manage potential adverse risks such as biodiversity and geomorphology.</p> <p>Such requirements have been imposed as requirements within both Part C of the Draft Determination, highlighting requirements to be achieved prior to works commencing and within Part I, highlighting requirements to be implemented as ongoing requirements during operations.</p> <p>Such requirements include:</p> <ul style="list-style-type: none"> <li>• Requirements during operations including: <ul style="list-style-type: none"> <li>○ Implementation of ongoing monitoring associated with adaptive management strategies for geomorphology to monitor and prevent bank and batter instability.</li> </ul> </li> <li>• Implementation of the submitted Rehabilitation Management Plan following completion of operations including: <ul style="list-style-type: none"> <li>○ Exhausted resource extraction areas are to be left for a minimum of 10 years following completion of dredging works to allow for these areas to be replenished (i.e.</li> </ul> </li> </ul>	1979	Little change to channel form. First evidence of dredging activities.	Removal of some resource to the Island's south up to Island banks. Significant deposition of material to the Islands west and south, and deposition to northern, north eastern and south eastern banks.	1993	Little channel form change. Dredging has continued.	Deposit to the Island's west has vegetated. Smaller deposits further north west and south have also vegetated. Seagrass extent to the Islands south has been modified, however to the west and north west appears to have increased.	2001	Little channel form change. Dredging has continued.	Deposition has continued to the west and north west. Deposit has stabilised further with more vegetation. Western tip of Island has rounded. Seagrasses noted in inundated areas surrounding the sub-tidal deposit area.	
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	<p>sediment to accumulate) via typical river flows and larger flood events.</p> <ul style="list-style-type: none"> <li>○ 'Edges' of exhausted resource extraction areas are to be allowed to revegetate (where depth is adequate to do so) in order to stabilise the sides of the dredge hole created by dredging.</li> <li>○ Annually monitor river bank conditions for a period of 2 years (or in accordance with consent conditions) in the vicinity of, and upstream and downstream of the extraction area.</li> </ul>	
<b>7.8 Scenic Protection</b>	<p>The site is mapped being an area of scenic amenity value – see excerpt below:</p>  <p>In deciding whether to grant development consent for development on land to which this clause applies, the consent authority must—</p> <ol style="list-style-type: none"> <li><i>consider the visual impact of the development when viewed from a public place and be satisfied that the development will involve the taking of measures that will minimise any detrimental visual impact, and</i></li> <li><i>consider the number, type and location of existing trees and shrubs that are to be retained and the extent of landscaping to be carried out on the site, and</i></li> <li><i>consider the siting of the proposed buildings.</i></li> </ol> <p>It is noted that the applicant did not provide a response to Council's Further Information Request requesting an assessment of the impact of the development on visual amenity associated with the surrounding locality including where viewed from the Nowra Bridge.</p> <p>It is assessed that the visual impact of the development is however acceptable. This assessment has been made taking into consideration the fact that the equipment used for the present operations would also be used for the proposed operations, with no new or additional infrastructure proposed to be used. As such, there would be largely no visual change between the current operations (which was determined by way of approval and therefore found to be acceptable) and the proposed operations.</p> <p>Further, the location of the dredge equipment would be on the northern side of Pig Island on the northern bank of the Island which is considered of a less sensitive nature due to its proximity to and the combination of multiple influencing factors in this location including the Manildra industrial operation and farmland. Additionally, the equipment would be located further away from residences within Terara village than that of the existing operations.</p>	Complies

**ii) Draft Environmental Planning Instrument**

Not applicable.

**iii) Any Development Control Plan**

**Shoalhaven DCP 2014**

The following chapters of Shoalhaven Development Control Plan 2014 apply to the subject development application assessment:

**Generic Chapters**


- Chapter 2: General Environmental Considerations
- G1: Site Analysis, Site Design and Building Materials
- G2: Sustainable Stormwater Management and Erosion/Sediment Control
- G4: Tree and Vegetation Management
- G5: Biodiversity Impact Assessment
- G6: Coastal Management Areas
- G7: Waste Minimisation and Management
- G9: Development on Flood Prone Land
- G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines

This chapter is assessed in the Table below.

<b>Chapter 2 General and Environmental Considerations</b>		<b>Achieved</b>
<b>2. Potentially Contaminated Land</b>	<p>The site is not mapped as being potentially contaminated land.</p> <p>However, a Contamination Assessment was prepared in support of the proposed development as required by the SEARs. The Assessment was prepared by Martens Consulting Engineers dated April 2019 (Ref No. P1806743JR03V01).</p> <p>The Report has concluded the following:</p> <p style="padding-left: 40px;"><i>The associated results found that all sampling including benzene, toluene, ethylbenzene, xylenes, and naphthalene (BTEXN), Total recoverable hydrocarbons (TRH), Polycyclic aromatic hydrocarbons (PAH), heavy metals, OCP/OVP pesticides and PFAS. All results came back as acceptable in accordance with the NEPC (2013) National Environmental Protection (Assessment of Site Contamination) Measure thresholds. with the exception of one sample which had an exceedance for nickel.</i></p> <p>Council's EHO reviewed the proposal as part of their referral response and noted the findings of the assessment. On this basis, no conditional requirements were requested to be imposed.</p>	Yes
<b>European Heritage</b>	<p>The site is not a heritage item nor is it within a heritage conservation area. The nearest listed heritage items are within the Terara Village which is also identified as a heritage character area.</p> <p>A precautionary condition would be recommended to apply during site works should European heritage be found, to ensure compliance. Refer Condition 18 within Part F of the Draft Determination</p>	Yes, subject to standard conditions
<b>Aboriginal Cultural Heritage</b>	<p>A search of notified Aboriginal objects and declared Aboriginal places in NSW revealed no Aboriginal sites are recorded at the site of the proposed development. As such, it is found that the site is not identified as containing any Aboriginal cultural heritage, practices or places. This aligns with the fact that no concerns were raised as part of the</p>	Yes, subject to standard conditions (Part F)

Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

	<p>consultation process with local Aboriginal organisations as part of the pre-assessment process required by the SEARs.</p> <p>A precautionary condition would be recommended to apply during site works should Aboriginal cultural heritage be found, subject to standard conditions ensure compliance. Refer Condition 17 within Part F of the Draft Determination</p>	
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<b>Generic Chapters</b>	<b>Achieved</b>
<b>G1: Site Analysis, Sustainable Design and Building Materials</b>	
<p>The proposal is in respects of coastal protection works related to the protection and enhancement of the natural attributes of the site. The rock revetment modification works will serve to prevent further erosion.</p> <p>The proposed works will maintain and protect views and provide an improved foreshore area to surrounding residents.</p>	Yes
<b>G2: Sustainable Stormwater Management and Erosion/Sediment Control</b>	
<p>The provisions of this chapter have been considered and given there are no physical structures proposed which require disposal via a legal point of discharge, it is found that there are no conditional requirements relating to stormwater disposal.</p>	Yes
<b>G4: Tree and Vegetation Management</b>	
<p>The applicant has amended the proposal to minimise impacts to marine vegetation species found to inhabit Pig Island and its immediate surrounding area including Acacia, mangroves, saltmarsh, seagrasses, swamp oak, and non-native species.</p> <p>A 25m buffer is proposed between the edge of the dredge area and any existing known aquatic vegetation species.</p> <p>To ensure the proposal does not impact upon aquatic vegetation it is noted that as part of their issued GTAs, the DPI – Fisheries as also requested that no dredging is to take place to the west of the below marked line:</p>	Yes
	

<p>It was further noted by DPI Fisheries that:</p> <p><i>The distribution of seagrass can change and fluctuate in response to flood events and between El Nino and La Nina weather patterns. Section 3.1.4 of the Flora and Fauna Assessment for this proposal conducted in 2019 by Dalmazzo provides a good summary of research that shows seagrass distribution in the Shoalhaven can vary following flood events and then recover.</i></p> <p><i>Further, a desktop assessment of historical aerial photography shows that over time mangrove colonisation has occurred along Pig Island and saltmarsh has established adjacent to the north-western corner of Pig Island.</i></p> <p>Noting the ability for marine vegetation to change and redisperse over time, DPI Fisheries has correctly noted that a permit to harm marine vegetation is required should there be a redistribution that results in vegetation being present within the proposed extractive area. Such a condition would be imposed within any consent. Refer DPI – Fisheries GTAs referenced as Condition 7 within Part B of the Draft Determination.</p> <p>The applicant subsequently submitted an amended Dredging Area Plan which limited the extent of proposed dredging. The dredge area has been modified to reflect the abovementioned requirements imposed by the DPI – Fisheries and also to minimise impacts to coastal intertidal sandflats / habitat for migratory shorebirds. The modified and reduced dredge extent has therefore been assessed as being compliant with Chapter G4.</p>	
<p><b>G5: Biodiversity Impact Assessment</b></p>	
<p>In accordance with Chapter G5 of the SDCP 2014, compliance is required to be demonstrated with the following acceptable solutions:</p> <p><i>A.1.1 Native vegetation and threatened species habitats are retained in perpetuity on sites identified with high ecological value.</i></p> <p><i>A.2.1 Where possible avoid either directly or indirectly impacting threatened species, populations and TECs.</i></p> <p>As detailed in the referral response provided by the DPE – BCD, threatened species habitats (in the form of State and Commonwealth listed species of migratory shorebirds) are not proposed to be retained. It was found that the area of mudflat to be removed at Pig Island is 9.04 ha, with the total area of mudflat in the Shoalhaven estuary mapped as 26.80 ha, represents a significant loss of habitat. While it is acknowledged that shorebirds utilise a range of habitats, the proportion of mudflat to be removed (34%) is concerning and is not accepted.</p> <p>To address this matter, the applicant has submitted a Statement of Intentions prepared by Lodge Environmental. The Statement was reviewed by Council's EAO.</p> <p>The EAO has found, following review of the Statement submitted by Lodge Environmental, that the concerns expressed by the DPE – Biodiversity Conservation Division have now been suitably addressed and results in compliance with the provisions of Chapter G5 being achieved.</p> <p>This position has been founded based upon the following:</p> <ul style="list-style-type: none"> <li>• The Statement of Intentions submitted by Lodge Environmental.</li> <li>• Referral response from Council's EAO finding that the Statement sufficiently addresses the requirements of the Biodiversity Conservation Act 2016.</li> <li>• Entry into the Biodiversity Offsets Scheme is not triggered by the proposed development.</li> <li>• Modifications and reductions to the dredge footprint area has been made to protect and maintain a large area of intertidal sandflats previously proposed for extraction s part of the initial submitted documentation.</li> </ul>	<p>Yes</p>

<b>G7: Waste Minimisation and Management Controls</b>	
<p>As indicated by the applicant in the submitted documentation, waste from the sand extraction process would continue to be disposed via existing means including physical removal from the site and disposal within the approved sedimentation tranches and dam. However in addition, disposal of fines via stock mounds are also proposed.</p> <p>Consideration of the acceptability of this method of disposal has been considered in other Sections of this Report.</p>	Yes, subject to conditions.
<b>G9: Development on Flood Prone Land</b>	
<p>The site is located within the ‘Lower Shoalhaven River’ Flood Prone land area and formed part of the recently released Lower Shoalhaven River Flood Study. The Study found that Pig Island is predominantly within a High Hazard Floodway and partially within a High Hazard Flood Storage Area.</p> <p>An amended Flood Study was submitted by Martens Consulting Engineers dated 27<sup>th</sup> February 2023 (Ref No. P1806743JC06V01). It was reviewed in detail by Council’s Natural Resources and Floodplain (NR&amp;F Section).</p> <p>Following a review of the likely impacts of the proposal by the NR&amp;F Section, an amended Stock Mound Plan would be required to be submitted as a deferred commencement condition, whereby all stock mounds are wholly contained within the High Hazard Flood Storage Areas and not within the High Hazard Floodway Area.</p> <p>The purpose of this requirement is to ensure that the proposal complies with the matrix depicted within Schedule 2, with the following specific commentary being provided:</p> <p><i>The applicant has reduced the number, footprint, and top level of the proposed mounds when compared with the original mound extent. Fill mounds are presently proposed in Lot 2, Lot 3 and Lot 4 DP 1184790 on Pig Island. The proposed fill mounds in Lot 2 and Lot 3 are partially located in areas mapped with some minor High Hazard Flood Storage areas, however the proposed fill mound for Lot 4 is fully located in a High Hazard Floodway area.</i></p> <p><i>As noted in previous referrals and meetings between the applicant and Council officers, the Shoalhaven DCP Chapter G9 requires High Hazard Floodway areas to be kept free of fill and/or obstructions (Performance Criteria P2). As there are no exemptions from this performance criteria, construction of stock refuge mounds in High Hazard Floodway areas, as proposed, are non-compliant with the Performance Criteria included in DCP Chapter G9.</i></p> <p><i>Noting the above, it is pertinent for a deferred commencement condition be imposed which requires all stock refuge mounds be removed from areas mapped within a hazard category of High Hazard Floodway via an amended Plan to areas of High Hazard Flood Storage only.</i></p>	Compliant
<b>G26: Acid Sulphate Soils and Geotechnical (Site Stability) Guidelines</b>	
<p>The site is identified as being Class 1, 2, 3, and 4.</p> <p>A recommendation has been made by the EHO for inclusion of the requirement for an Acid Sulfate Soils Management within any consent as follows:</p> <p><i>An Acid Sulfate Soil Management Plan (ASSMP) must be developed specifically addressing excavation of acid sulfate soil, or potential acid sulfate soils by a qualified environmental consultant with experience in the assessment of acid sulfate soils. The report must be submitted to Shoalhaven City Council’s Environmental Health Unit for review and acceptance.</i></p>	Yes

**iiia) Any planning agreement that has been entered into under section 7.4, or any draft planning agreement that a developer has offered to enter into under section 7.4**

None applicable.

**iv) Environmental Planning and Assessment Regulation 2021**

<b>Clause</b>	<b>Comment</b>
cl. 23 Persons who may make development applications	In accordance with Clause 23(6), the applicant is a lessee of Crown Land who has made the Development Application with the owner's consent of the Crown.

**v) REPEALED**

**(b) The Likely impacts of that development, including environmental impacts on the natural and built environments, and social and economic impacts in the locality**

<b>Heads of Consideration</b>	<b>Comment</b>
Natural Environment	<p>As stated in the Dredging Plan and following completion of dredging activities, the dredged area will fill up with a combination of fine sand, organic material and silt, as a result of floods within the river system. The areas previously dredged to 6m are now 2m deep at low tide indicating that whilst dredged areas will be replaced with material, it is not representative of material previously dredged and is not capable of being further dredged for on sale given the poorer quality of the material.</p> <p>As such, without proper management, there are potential geomorphological impacts to surrounding banks and river infrastructure including impacts such as bank instability, levee bank failures, and potential flood afflux to riverfront communities.</p> <p>Following consideration of the likely impacts of the development and subject to recommended conditions, Council finds that the site and surrounding estuarine environment is capable of being monitored, managed, and rehabilitated to not have an adverse impact upon the natural environment as it relates to geomorphology.</p> <p>Potential impacts as described above would be managed in an ongoing manner following implementation of:</p> <ul style="list-style-type: none"> <li>○ The Adaptive Management Strategy for Geomorphology (required in accordance with the Deferred Commencement Section of the Consent).</li> </ul> <p>Potential biodiversity impacts to the subject site and locality include loss of habitat for threatened and endangered species of migratory shorebirds due to removal of intertidal mudflats, loss of endangered ecological communities of flora including mangroves, saltmarshes, and seagrasses, and impacts to bait collection species associated with recreational fishing.</p> <p>Following consideration of the likely impacts of the development and subject to recommended conditions, Council finds that the site and surrounding estuarine environment is capable of being monitored, managed, and rehabilitated to not have an adverse impact upon the natural environment as it relates to biodiversity.</p> <p>Potential impacts as described above would be managed in an ongoing manner following implementation of:</p> <ul style="list-style-type: none"> <li>○ Implementation of the Adaptive Management Strategy - Biodiversity at all stages of the life cycle of the development – refer Conditions 11, 21, and 31.</li> </ul>

<b>Heads of Consideration</b>	<b>Comment</b>
	<ul style="list-style-type: none"> <li>Requirements within the Ongoing Section (Part I) of the Draft Determination being implemented.</li> <li>Implementation of the Remediation Management Plan – Condition 1.</li> </ul>
Built Environment	A consideration of the likely impacts of the proposal has revealed that the application would be unlikely to have an adverse impact upon the surrounding built environment, most notably the community of Terara, subject to implementation of deferred commencement condition requirements relating to managing flooding and geomorphology within the Shoalhaven River, to prevent afflux and impacts to Levee Banks (condition recommended for inclusion in the Deferred Commencement Section of any consent)..
Social Impacts	The proposal will not be likely to have an adverse social impact upon the surrounding locality, noting that the method of operation would largely remain the same as the present operations, including that the same extraction rate has been applied for.
Economic Impacts	The proposal has the potential to generate a positive economic impact to the surrounding locality through the provision of a resource to the wider surrounding locality, noting that there are minimal similar operations within the region capable of providing the product.

#### **(c) Suitability of the site for the development**

For the reasons outlined in the assessment of this Report above, the Council finds that the proposed development is likely to be suitable for the site.

#### **(d) Submissions made in accordance with the Act or the regulations**

The proposed development was notified and advertised in accordance with the requirements for Designated Development in accordance with the EP&A Act and Regulations. It was advertised between 6 October and 5 November 2021. A total of three (3) unique submissions were received which has raised the following issues:

- Water Quality.
  - The Environmental Protection Authority have imposed conditional requirements to ensure ongoing monitoring of water quality as part of the operating requirements of the development.
- Flood afflux upon Lower Shoalhaven Floodplain communities.
  - Subject to relocation of stock mounds to 'High Hard Flood Storage Areas, monitoring and mitigation of potential impacts to the Flood Levee Banks', and proposed conditions from the Natural resources & Floodplain Section, the proposal would be managed to avoid adverse flood afflux to the community of Terara and associated and nearby communities (Deferred Commencement Section).
  - Condition to be imposed requiring a Flood Emergency Evacuation Plan as a Prior to Works Commencing requirement (refer Condition 14 of Part C of the Draft Determination).
- Significance of impacts upon threatened species of migratory shorebirds and the 'Swamp Oak and Salt Marsh' EEC.
  - As detailed in the response from Council's EAO, the dredge area has been offset to void impacts to EECs and in co junction with the area restriction imposed by DPI Fisheries, the dredge area was reduced to avoid and minimise impacts to the EECs.
- Management of the coastal environment.

- An adaptive management strategy relating to geomorphology would be required to be prepared before any operational approval is issued. The purpose is to ensure that coastal infrastructure is not adversely impacted by the proposed development.
- Long term scouring and bank erosion impacts upon the Terara Levee.
  - As Above. An adaptive management strategy relating to geomorphology would be required to be prepared before any operational approval is issued. The strategy would detail ongoing monitoring requirements and frequency, and trigger points for operations to be ceased in the event that the monitoring procedures reveal that the operations have caused impacts to levees.
- Acid sulfate soils.
  - Conditional requirements to manage potential for acid sulfate soils would be imposed within any consent as recommended by Council's EHO(Part C).

A late submission was received direct to the NSW Southern Joint Regional Planning Panel (JRPP) on 16<sup>th</sup> May 2023. The following matters were raised in the submission received with those matters being addressed as follows:

- *Impacts on commercial and recreational fishing have not been addressed.*
  - This matter has been explored further in the Assessment Report above – refer assessment above against Section 3 – Objects of the *Fisheries Management Act 1994*. It is noted that impacts to bait collection and associated impacts to recreational fishing has the potential to represent both a social and economic issue if not appropriately addressed and is therefore considered to be a 'head of consideration' for this Application. As such, this matter has been addressed accordingly.

To summarise, Council's assessment has revealed that the proposal would not have an adverse impact given:

- Response from RMS Maritime has confirmed that the proposal would not have an adverse impact upon safe navigation of the Shoalhaven River by commercial and recreational watercraft (dated 22<sup>nd</sup> October 2021).
- Description of impacts to bait collection was provided as part of the Recreational Fishing and Bait Collection Assessment (prepared by Peter Dalmazzo dated 17<sup>th</sup> January 2019). This assessment concluded that live bait from the Shoalhaven estuary including nippers, poddy mullet, green weed and squirt worms are present. Whilst acknowledging that the extraction of material from the bed of the Shoalhaven River would have some impact on habitat, it is noted that the Report concludes that intertidal sandy beach and shallow subtidal areas adjacent to the past extraction areas on the southern side of the island have remained viable as worm collection areas. Noting that these areas would not be impacted, it is considered that the impact to bait collection species habitat is considered to be acceptable.
- The extent of the overall dredge area has reduced from a total area of 26 hectares (original submission) to approximately 10.5 hectares (amended and reduced extent following submission of recent amended plan), which results in a large reduction of the impact to the habitat area.
- The Recreational Fishing and Bait Collection Assessment advises that fishing around Pig Island occurs in the channels to the north and south of the island, noting that recreational fishing on the sand flats in the proposed extraction area is limited by tidal water depth. In the deeper water areas that have previously been dredged there are recreational fishing opportunities for various species including Mulloway.
- The Report concludes that the proposal would convert several hectares of shallow water fishing area to deep water fishing area over a period of several years, however that recreational fishing habitat would still be available and that, during extraction operations

there would be little impact on fishing activities as people in boats could fish quite close to the dredge.

- Based upon the above, it is considered that impacts to bait collection and recreational fishing has been appropriately considered.
- *The impacts of the spoil/waste deposited on the island has not been addressed.*
  - The proposed development is proposed to utilise the same procedures associated with previous operations which is already approved. As such, a detailed assessment of approved infrastructure on Pig Island including sedimentation ponds has not been undertaken.
  - It is noted that the stock mounds proposed for construction on Pig Island are a new element to the proposal which was not present in previous approvals. Detail regarding requirements for stabilisation including revegetation of the mounds would be conditioned to ensure impacts to air and water quality are minimised.
  - A further detailed Waste Management Plan has been included as an additional condition of consent. This would be required to detail all waste streams associated with the development and how these streams would be disposed of to avoid impacts to the environment and to prevent impacts to surrounding residents including those of Terara village.
- *The visual impact of the waste piles from Terara has not been addressed.*
  - Visual impacts are considered to be a 'head of consideration' and are a potential social impact if not adequately addressed.
  - The waste piles would in fact be utilised as stock mounds. They will be revegetated to assist with air and water quality.
  - However the revegetation would also assist in minimising visual impacts to residents of Terara village, noting that the revegetation would be required to be undertaken utilising native species reflective of the surrounding environment.
- *Terara Village is a Heritage Conservation Area.*
  - Council acknowledges that Terara Village is mapped in accordance with the *Shoalhaven Local Environmental Plan (SLEP) 2014* as being a heritage conservation area and as containing a number of items of local European heritage significance.
  - An assessment of impacts to items of both Aboriginal and European heritage significance has been undertaken within the Report above (refer Section 5.10 of the SLEP 2014).
- *The long, long history of development without consent, operating without the relevant licenses, and non-compliance with consent conditions by the applicant has not been addressed.*
  - Appropriate action will be taken by the authority empowered to conduct compliance activity for any works undertaken without consent.
  - There are separate procedures under the Act where these matters can be investigated to ensure any works undertaken accord with the consent
  - Works undertaken without consent however is not an assessment matter for consideration under s4.15 of the EP&A Act 1979.
  - Notwithstanding, conditions of consent would be applied to ensure there is continuous monitoring of activities, such as:
    - Implementation of a Management Audit Report (MAR) as an ongoing requirement.
    - Audit requirements as spelt out in the Adaptive Management Strategies for geomorphology and biodiversity.
    - Requirement for register of complaints to be maintained and which is available to Council upon request.

## (e) The Public Interest

The public interest has been taken into consideration, including assessment of the application against applicable planning controls, public notification to the proposed development, internal referrals, and consideration of relevant policies. Having regard for the outcomes of the assessment as described above, it is found that the proposal would be within the public interest.

## 9. Delegations

### Guidelines for use of Delegated Authority

The Guidelines for use of Delegated Authority have been reviewed and the assessing officer does not have the Delegated Authority to determine the Development Application.

Given the proposal is regionally significant development under Schedule 6 of SEPP (Planning Systems) 2021, the application must be determined by the Southern Regional Planning Panel.

## 10. Summary of Reports Considered with this Application & Key Conclusions

Report / Document Title	Key Conclusions
Proposed Extraction Area Plan (Ref No. RA21-1000-1) prepared by Mac Drafting dated 27 <sup>th</sup> February 2023	Amended extraction extent reduced noting: <ul style="list-style-type: none"> <li>- DPI Fisheries General Terms of Approval requiring the reduction in dredge area as a condition of consent.</li> <li>- Reduced to minimise impacts to intertidal mud/sand flats from 9 ha to 2.09 ha.</li> <li>- Reduced to facilitate compliance with the Biodiversity Conservation Act 2016.</li> </ul>
Geomorphology Supplementary Information <ul style="list-style-type: none"> <li>• Prepared by Fluvial Systems Pty Ltd dated 18<sup>th</sup> September 2022 (Ref No. 22004_terara sand_shoalhaven).</li> <li>• Prepared by Fluvial Systems Pty Ltd dated February 2023 (Ref No. d:\fluvial systems\consulting 2016 -\22004_terara sand_shoalhaven\report\)</li> </ul>	Key Conclusions <ul style="list-style-type: none"> <li>- There are many potential agents that contribute to bank erosion and bed instability, such as long-term channel realignment downstream, wind- and boat-wake generated wave actions, tidal oscillation, groundwater seepage, rapid water drawdown, flood events and tidal flows.</li> <li>- The lower Shoalhaven River has extensive evidence of active bank erosion, although the relative contributions of fluvial scour, mass failure or subaerial erosion processes to erosion have not been established.</li> <li>- Infrastructure on the banks that is not protected by revetment is at risk of damage, independent of dredging operations.</li> <li>- Under the Proposed conditions, some areas of the banks could experience elevated bed shear stress under flood conditions, while other areas could experience reduced bed shear stress. Nowra Bridge abutments are protected by revetments and are not at risk of bank erosion.</li> <li>- Recent visual audit reports by Council have identified at least five locations in which there are earthen levee slips in the location of the current dredge extent. These have all apparently been caused by undercutting of steep banks, leading to tension cracks and earthen slips.</li> </ul>

	<ul style="list-style-type: none"> <li>- Whether the dredging itself was responsible for undercutting the banks, or whether this was related to high shear stress and/or degraded vegetation cover is not known.</li> <li>- The available knowledge and literature does not link dredging operations to bank failure, but it is important to ensure that operations are undertaken in such a manner that this is avoided.</li> </ul>
Letter of Undertaking for Adaptive Management Strategy – Geomorphology prepared by Fluvial Systems Pty Ltd dated 27 <sup>th</sup> February 2023	<p>Purpose</p> <ul style="list-style-type: none"> <li>- The key purpose of the Adaptive Management Strategy will be to avoid significant impact to geomorphic processes and forms in the lower Shoalhaven River.</li> </ul> <p>Monitoring</p> <ul style="list-style-type: none"> <li>- The geomorphic monitoring will involve regular bed and bank surveys. Bed surveys will be undertaken using sounding undertaken at sufficient intensity to characterise the morphology of the entire bed of the river from the downstream extent of dredging to an agreed upstream location, such as Nowra Bridge. The downstream extent of the survey should be adjusted as dredging proceeds.</li> </ul> <p>Performance measures</p> <ul style="list-style-type: none"> <li>- Performance measures will be developed by a geomorphologist, in consultation with relevant agencies, and will relate to variables or indicators remaining within tolerable limits, or expected range of variability.</li> </ul> <p>Triggers and mechanisms</p> <ul style="list-style-type: none"> <li>- The key trigger for implementation of the Adaptive Management Strategy will be when a variable is observed to fall outside the agreed range of variability, as determined by suitable statistical tests. If triggered, the Adaptive Management Strategy will result in the immediate cessation of extraction.</li> </ul>
Letter of Undertaking – Adaptive Management Strategy – Biodiversity (Ref No. LE1637) prepared by Lodge Environmental dated 17 <sup>th</sup> February 2023.	<p>Purpose</p> <ul style="list-style-type: none"> <li>- The key purpose will be to avoid significant impacts to the following entities: <ul style="list-style-type: none"> <li>• Threatened and migratory shorebirds and their foraging habitat.</li> <li>• Seagrass beds (highlighted by DPI Fisheries).</li> <li>• Saltmarsh habitat (a Threatened Ecological Community) that is present adjacent to and downstream of the proposed extraction area.</li> <li>• Pied Oystercatcher and Little Tern potential breeding habitat (exposed sandbars and adjacent saltmarsh). Other threatened shorebirds will be subject to the Adaptive Management Strategy if located.</li> </ul> </li> </ul> <p>Monitoring</p> <ul style="list-style-type: none"> <li>- Monitoring associated with the Strategy will include physical monitoring periods, as well as monitoring of key habitat features by analysing satellite imagery.</li> </ul> <p>Performance measures</p> <ul style="list-style-type: none"> <li>- Areas that are quantified will establish a baseline area of extent, with a decrease of greater than</li> </ul>

Planning Report – S4.15 Assessment (V2) – Lots 1-4 DP 1184790 Terara Rd, TERARA and Bed of Shoalhaven River below the Mean High Water Mark

	<p>10% deemed unacceptable. Maintaining pre-extraction areas of extent for both migratory shorebird habitat and seagrass beds will be the primary performance measures.</p> <p>Triggers and mechanisms</p> <ul style="list-style-type: none"> <li>- The key trigger for implementation of the Adaptive Management Strategy will be a decrease in the area of extent of either migratory shorebird habitat or seagrass beds equal to or greater than 10% of the pre-extraction area of extent. If triggered, the Adaptive Management Strategy will result in the immediate cessation of extraction.</li> </ul>
<p>Estuarine &amp; Surface Water Quality Monitoring Plan (Ref No. P1806743JR05V04) prepared by Martens Consulting Engineers dated Feb 2023</p>	<p>This estuarine and surface water monitoring plan (ESWMP) has been prepared in satisfaction of the Secretary's Environmental Assessment Requirements (SEARs) issued by the NSW DPIE) (22 June 2018) for the proposed expansion of the existing sand extraction area in the vicinity of Burruga Island</p> <p>This ESWMP updates the version released on 1 May 2018 in response to Shoalhaven City Council's (SCC) request for information (the RFI) (19 April 2022, ref RA21/1000) and provides:</p> <ol style="list-style-type: none"> <li>1. A summary of existing baseline water quality data.</li> <li>2. An interim water quality monitoring plan for validating water quality modelling.</li> <li>3. An operational water quality monitoring plan to be applied during extraction.</li> </ol>
<p>Environmental Noise Impact Assessment (Ref No. 1808009E-R) prepared by Harwood Acoustics dated 14<sup>th</sup> March 2019</p>	<p>Project specific noise trigger levels are derived from the NSW Environment Protection Authority's (EPA) Noise Policy for Industry 2017 based on background noise surveys undertake, project noise trigger levels during the day time period were developed, being 47 dBA in Nowra along Riverview Rd and 45 dBA at the Shoalhaven Village Caravan Park.</p> <p>Calculations show noise emission from the operation of the dredge will meet the project trigger noise levels at all receptor locations without the need for noise controls other than those outlined in the Report.</p> <p>Recommendations are administrative and include restricting the operation of the dredge to day time hours only, as defined by the EPA and ensuring the dredge does not operated closer than 120 metres from any residential receptor.</p>
<p>Rehabilitation Management Plan (Ref No. P1806743JR08V01) prepared by Martens Consulting Engineers dated April 2019</p>	<p>The RMP provides a range of environmental management strategies for protecting the long-term environmental and ecological values of areas of the Shoalhaven River in the vicinity of the proposed resource extraction works.</p> <p>This RMP applies to the river bed and bank areas adjacent to the proposed and existing resource extraction areas, and areas on the mainland and Pig</p>

	<p>Island where land based activities related to the resource extraction take place.</p> <p>The following measures are recommended to be implemented after completion of extraction works:</p> <ul style="list-style-type: none"> <li>- Former dredged area to be left for a minimum of 10 years to allow for sediment replenishment.</li> <li>- Regular periodic monitoring of water quality and river bank conditions.</li> <li>- Implement appropriate bank stabilisation and / or bank revegetation works, where required.</li> </ul>
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## 11. Conclusion

This application has been assessed having regard for section 4.15 (Matters for consideration) under the *Environmental Planning and Assessment Act 1979*. The assessment against s4.15 has revealed that the development is compliant with applicable legislation including:

- Environmental Planning and Assessment (EP&A) Act 1979.
- Environmental Planning and Assessment (EP&A) Regulation 2021.
- State Environmental Planning Policy (Resources and Energy) 2021
- State Environmental Planning Policy (Planning Systems) 2021
- State Environmental Planning Policy (Resilience and Hazards) 2021
- Shoalhaven Local Environmental Plan (SLEP) 2014.
- Shoalhaven Development Control Plan (SDCP) 2014.

Other legislation which has been considered as part of the assessment includes:

- Biodiversity Conservation (BC) Act 2016
- Fisheries Management (FM) Act 1994.
- Protection of the Environment Operations (POEO) Act 1997
- Crown Land (Management) Act 2016

As part of the assessment of the Application, expert referral comments and recommendations were sought from the following internal and external authorities:

- Environmental Health Officer
- Natural Resources & Floodplain (NR&F) Section
- Coastal Management Section
- Environmental Assessment Officer
- Shoalhaven Water
- DPI – Fisheries
- Environmental Protection Authority
- Natural Resources Access Regulator
- RMS Maritime
- DPIE BCD Division

The detailed assessment conducted by the development assessment officer in conjunction with advice, GTAs, and recommended conditions of consent from referrals and re-referrals to internal and external bodies, revealed that the following three primary issues remained outstanding and which needed to be addressed:

## **Biodiversity**

Council's Environmental Assessment Officer (EAO) conducted a review of the following further information submitted in response to a Further Information Request issued by Council:

- *Letter of Undertaking relating to an Adaptive Management Strategy prepared by Lodge Environmental, dated 17 February 2023*
- *Proposed Extraction Area Drawing Number RA21/1001-1 (Mac Drafting) resulting in a reduced extraction area that avoided impacts to an area of inter-tidal sand flats.*

The EAO conducted an assessment against the three part BC Act 2016 test and found that entry to the BOS Scheme was not triggered. In particular, the review of the further information provided found:

- Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species is referenced in Appendix C Significant Impact Criteria. Council will have the opportunity to ensure these key references are used to establish context in the introduction for the Adaptive Management Plan to be submitted prior to commencement.
- Conditions would be recommended to refer to ensure an Adaptive Management Plan aligns with the wording from the DPIE Biodiversity Assessment Method 2020 which forms the framework for this Plan (Deferred Commencement Section).
- Direct and indirect impact thresholds will be included in conditions (Parts C and I). Council will also have the opportunity to ensure all indirect impacts are monitored and mitigated in the Adaptive Management Plan prior to commencement.
- Threatened ecological communities –Saltmarsh TEC requirements addressed. Swamp Oak Floodplain Forest is well outside of the proposed stock mound locations as shown below. As such, no Test of Significance is required for this TEC. Conditions will ensure impacts are avoided (Parts C and I).
- Ongoing monitoring to be carried out as part of any Adaptive Management Plan (AMP). Systematic bird survey is covered by two monitoring field visits proposed. Council can require more if needed when reviewing the AMP.
- Clause 7.3 Test of Significance Species are accepted and the test for 'serious or irreversible impacts has been covered off.
- The significant impact criteria is accepted and no referral to the federal government is required.

Based upon the above, Council's EAO found following assessment of the likely impacts of the development, that the subject proposal is capable of support subject to recommended conditions of consent. It is the conclusion of this assessment that this matter has been adequately addressed to meet the relevant planning controls. The proposal is considered to be capable of support by the consent authority with the inclusion of the recommended conditions of consent.

## **Geomorphology**

Council's NR&F Section conducted a review of the following further information submitted in response to a Further Information Request issued following the DPIE BCD advice:

- *Supplementary Information to Geomorphology Assessment prepared by Fluvial Systems Pty Ltd (dated February 2023).*
- *Letter of Undertaking for Adaptive Management Strategy – Geomorphology prepared by Fluvial Systems Pty Ltd (dated 27<sup>th</sup> February 2023).*

The additional information provided was reviewed, and following a consideration of the likely impacts of the proposal is accepted as adequately responding to concerns regarding bank erosions / scour impacts upon levee banks and other infrastructure.

The draft development consent recommends a deferred commencement condition requiring the development of an Adaptive Management Strategy – Geomorphology in collaboration with Council and NSW State Government agencies (condition recommended for inclusion in the Deferred Commencement Section of any consent). It is considered that this key element of the assessment

of the proposal has been adequately addressed by the applicant and the recommended conditions of consent will ensure that the development and ongoing operations are acceptable.

### **Flooding**

Council's NR&F Section conducted a review of the following further information submitted in response to a Further Information Request issued following the DPIE BCD advice:

- *Amended Flood Impact Assessment prepared by Martens Environmental Consulting (Ref No. P1806743JC06V01 dated 27<sup>th</sup> February 2023).*

The following summarising comments were made:

- Draft flood conditions of consent have been provided for consideration by the Regional Planning Panel.
- Draft conditions of consent have been provided.

The above summarising comments are supported by the following summarising commentary provided by the NR&F Unit:

According to the recently released *Lower Shoalhaven River Flood Study (2022)*, the site is now predominantly mapped as a High Hazard Floodway area, with some minor areas mapped as High Hazard Flood Storage. It is also noted that prior to the adoption of the Lower Shoalhaven River Flood Study (2022) on 23 January 2023, the entire island was mapped as High Hazard Floodway as per the Lower Shoalhaven River Floodplain Risk Management Study & Plan – Climate Change Assessment (Webb, McKeon and Associates, 2011). Hence at the time the DA was lodged for this project, the proposed area in which filling is proposed was mapped entirely as High Hazard Floodway.

The applicant has reduced the number, footprint, and top level of the proposed mounds when compared with the original mound extent. Fill mounds are presently proposed in Lot 2, Lot 3 and Lot 4 DP 1184790 on Pig Island. The proposed fill mounds in Lot 2 and Lot 3 are partially located in areas mapped with some minor High Hazard Flood Storage areas, however the proposed fill mound for Lot 4 is fully located in a High Hazard Floodway area.

Noting the above, it is pertinent for a deferred commencement condition be imposed which requires all stock refuge mounds be removed from areas mapped within a hazard category of High Hazard Floodway via an amended Plan to areas of High Hazard Flood Storage only. This is considered to be acceptable following a consideration of the likely impacts of the development (condition recommended for inclusion in the Deferred Commencement Section of any consent).

### **Water Quality**

Water quality of the Shoalhaven River was a key concern from a number of agencies including Council's EHO, DPE Biodiversity Conservation Division and the EPA. The application was submitted with an Estuarine Water Quality Impact Assessment prepared by Martens Consulting Engineers dated March 2019 (Ref No. P1806743JR06V02). The report outlines the TUFLOW AD modelling that has been undertaken to assess the water quality impacts of the proposed extractive industry. The report states that the *"modelling of the proposed expanded dredge pit under typical tidal flushing cycles has demonstrated that those operations will not materially alter water chemistry in the River, either during or after cessation of daily dredging Activities"*. Further to this it concludes that *"the proposed expanded dredge pit operations are not likely to detrimentally impact on Shoalhaven River or estuarine water quality. No cumulative impacts are expected as any impacts are < 0.2% change and very short lived, being in the order of few hours after cessation of daily operations"*.

The abovementioned agencies and stakeholders have reviewed the submitted information and concluded the development application is capable of support subject to conditions. Notably the EPA

imposed two further conditions further to the issued GTAs that address requirements relating estuarine and water quality management. These additional conditions are provided within the GTAs referenced within Condition 8 under Part B of the Draft Determination and require further water quality monitoring based on validation sampling.

It is considered that the likely impacts of the development on water quality have been suitably assessed by the applicant, and with the imposition of the recommended conditions of consent the proposed development can be suitably managed to prevent, mitigate and respond to any potential impacts on water quality.

## **12. Recommendation**

It is recommended that Development Application No. RA21/1000 be granted deferred commencement development consent, subject to the recommended conditions in the attached Draft Determination Notice.