

Before the Independent Hearing Panel
Appointed by the Southland Regional Council

Under the Resource Management Act 1991 (**RMA**)

In the matter of an application by **South Port NZ Limited** to dredge parts of
the Bluff Harbour

Statement of evidence of Mike Moore

29 March 2022

Applicant's solicitor:

Michael Garbett
Anderson Lloyd
Level 12, Otago House, 477 Moray Place, Dunedin 9016
Private Bag 1959, Dunedin 9054
DX Box YX10107 Dunedin
p + 64 3 477 3973
michael.garbett@al.nz

**anderson
lloyd.**

Qualifications and experience

- 1 My name is **Mike Moore**.
- 2 I am Principal of Mike Moore Landscape Architects, a Dunedin based consultancy, and have been in my current position since 1994. Prior to this I was employed as a Landscape Architect at Palmerston North and Dunedin City Council.
- 3 I have a Bachelor of Science degree (BSc) in Geography from University of Canterbury (1983), a Post Graduate Diploma in Landscape Architecture (DipLA) from Lincoln University (1985), and a Master of Regional Resource Planning (MRRP) from University of Otago. I am a registered member of the New Zealand Institute of Landscape Architects (NZILA).
- 4 My work involves both landscape design and planning and has had a particular emphasis on landscape assessment since I started my own practice. I have prepared numerous natural character, landscape and visual assessments on projects of various scales and character around New Zealand, including dwellings, subdivisions, port expansions, wind farms, cycle trails, mines, river bank and coastal protection structures, and hydro-electric developments. I have also been involved in natural character and landscape assessment work for Councils to assist with the development of District and Regional planning provisions, in particular, Dunedin, Clutha and Gore District Plans, as well as a coastal natural character and landscape assessment study for the Otago Regional Council.
- 5 I prepared the report titled 'Bluff Harbour Capital Dredging Project, Natural Character, Landscape and Visual Effects Assessment Report', dated 18 December 2020, included in the application for resource consents at Appendix 10.
- 6 I have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014. This evidence has been prepared in accordance with it and I agree to comply with it. I have not omitted to consider material facts known to me that might alter or detract from the opinions expressed.

Scope of evidence

- 7 I have been asked to prepare evidence in relation to the natural character, landscape, and visual amenity effects of the proposed dredging and spoil disposal activities. This includes:
 - (a) A description of the landscape / seascape character;

- (b) A summary of the key aspects of the proposed development impacting natural character, landscape values and visual amenity;
 - (c) An assessment of the natural character attributes and the effects of the proposed activities on these attributes;
 - (d) An assessment of the landscape values and the effects of the proposed activities on these values;
 - (e) An assessment of the visual effects of the proposed activities on amenity values; and
 - (f) An assessment of the proposed activities against those statutory provisions relevant to natural character, landscape and amenity effects.
- 8 An A3 graphic supplement forms part of my evidence and is included as **Appendix 1**.

Executive summary

- 9 Two different landscape / seascape character areas are impacted by the proposed capital dredging works. These are Bluff Harbour (specifically, the harbour entrance and port area), and the Foveaux Strait coastline adjacent to Tiwai Point just east of the Bluff Harbour entrance.
- 10 The proposed capital dredging works will impact the Bluff Harbour area through further blasting and dredging of the channel and port berth areas, whilst the Tiwai Point ocean coast area is the site for the proposed sediment and rock disposal to sea. The e3 Scientific report outlines a suite of mitigation measures designed to minimize adverse effects on the marine ecology.
- 11 The entrance and port area of Bluff Harbour is significantly modified and I have assessed the coastal environment in this area (both terrestrial and marine) as having a moderate - low natural character rating overall. I have assessed the natural character effects of the proposed works as adverse in nature and low (minor) in degree. This rating takes account of the proposed mitigation measures, and reflects the already significantly modified character of the area, the temporary nature of many of the effects of the proposed works, and the proven resilience and ability to recover from disturbance, of the marine species in the area.
- 12 The Tiwai Point ocean coast area is also significantly modified but less so than Bluff Harbour, and I have assessed the coastal environment in this area (both terrestrial and marine) as having a moderate natural character

rating overall. I have assessed the natural character effects of the proposed works as being adverse in nature but low (minor) in degree. This rating reflects the existing modest ecological values in this high energy marine environment, the considerably modified character of the terrestrial environment, the habitat diversity associated with rock disposal, the forecast low impact of increased sediment disposal and the temporary nature of many of the effects of the proposed works.

- 13 Neither the Bluff Harbour entrance and port, nor Tiwai Point ocean coast areas have outstanding or other recognized landscape significance. I have assessed the landscape and visual amenity effects of the proposed development as adverse / very low (less than minor) in both cases. These ratings reflect the minimal and temporary nature of the visual effects of the proposed development, and in the case of Bluff Harbour, the low sensitivity / high capacity to absorb change of the landscape due to the existing port character.
- 14 It is my conclusion that the proposed capital dredging works are consistent with the statutory provisions relevant to natural character, landscape and visual amenity effects.

Landscape / seascape character description

- 15 Two distinct landscape contexts form the settings for this proposed development. These are Bluff Harbour, and in particular the harbour entrance and area in the vicinity of the port where the dredging and possible rock disposal to land will take place; and the Foveaux Straight coast off Tiwai Point, where the offshore sediment and rock disposal is proposed.

Bluff Harbour

- 16 Bluff Harbour is a shallow tidal inlet off Foveaux Straight, sheltered from the prevailing westerly winds by the low hill forms of Bluff Hill (Motupōhue), Flat Hill and Three Sisters to the west. Its northern and eastern sides are defined by low lying peat land overlying quaternary gravels of both alluvial and marine origin¹, and the harbour extends into Awarua Bay to the east. The harbour entrance between Tiwai and Stirling Points is narrow – approximately 550m wide, and is characterised by strong tidal currents.
- 17 Whilst much of Awarua Bay is minimally impacted by built elements or agricultural development, Bluff Harbour, particularly near its entrance, is highly modified. On the western shore is the town of Bluff and the port

¹ Turnbull I & Allibone A, 2002, Geology of the Murihiku Area, Institute of Geological and Nuclear Sciences Ltd

facilities including reclaimed land, stockpile areas, cranes, tanks and wharves. Above and around the town, Bluff Hill retains some indigenous vegetation but there is also exotic forest, and scrub and vegetation patterns are not particularly coherent on the natural landform. To the east, is the Tiwai Point Aluminum Smelter with its long wharf, large building complex and tall smoke stack.

- 18 Within the harbour itself, the natural channel has been previously dredged and deepened, there are navigational marker structures, and there is also regular shipping activity. The sea floor near the harbour entrance is characterised by bedrock Norite and a coarse sand substrate, whilst further inside the harbour there are finer sediments.²
- 19 The harbour is host to resilient and common marine species. The soft sediments provide habitat for a few infaunal and epifaunal species. Whilst the harbour entrance channel has been highly modified by previous blasting, the rocky substrate has since recolonized and contributes diverse rocky reef habitat including fish and bird feeding grounds. The strong tidal flushing provides for high water quality.³
- 20 **Figures 1 – 6 and 10 - 11** in Appendix 1 illustrate the character of the Bluff Harbour landscape.

Tiwai Point Ocean Coast

- 21 Geomorphologically, this landscape is fairly consistent from Tiwai Point eastward toward Waituna Lagoon, being characterised by extensive gravel beach ridges, bounded on the ocean side by active sand and quartz gravel beaches, and on the inland side by estuaries or peaty, swampy land. The vegetation is characterised by marram grass on the dunes, grading back into wind shorn, and largely indigenous shrubland. The beaches face Foveaux Strait and the area is exposed to southerly and westerly winds. Dog Island, and further out, Ruapuke Island, are visible.
- 22 Whilst the area is generally devoid of significant modification, at the Tiwai Point end the smelter structures, a large capped bund and a pine woodlot influence the naturalness of the landscape, as does the visibility of Bluff and industrial port elements.

² e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

³ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

- 23 The marine environment in this area is a high energy one with sandy benthic habitat subject to both tidal and wave action. This is not an environment favoured by marine flora and fauna. The existing sediment disposal site is 6 – 8m deep and characterised by fine – medium sands with little epifauna. The sediments in this area are well mobilized by current and wave action and are not accumulating. The proposed rock disposal site is 13 – 15m deep and characterised by thick dead shell hash, overlain by fine silts and sands, except where there are shell hash ridges. There is little infaunal abundance and diversity, and minimal epifauna.⁴
- 24 **Figures 7 - 9** in Appendix 1 illustrate the character of the Tiwai Point ocean coast landscape.

The proposed development

- 25 The proposed development has been described by others. My brief summary of the key aspects of the development proposed, impacting natural character, landscape and amenity values is as follows:
- (a) The key actions involved in deepening the Bluff Harbour channel are:
- (i) drilling and blasting rock outcrops;
 - (ii) dredging the fractured rock using a bucket dredge;
 - (iii) dredging of loose rock material and sediment using a suction dredge;
 - (iv) disposal of sediment at an existing consented disposal site approximately 150m offshore from the smelter area on Tiwai Peninsula, as shown in **Figure 12** in Appendix 1; and
 - (v) Disposal of rock at a new disposal site approximately 600m offshore from the smelter area on Tiwai Peninsula, as shown in Figure 12.
- 26 The drilling, blasting, dredging and disposal works are anticipated to take up to 9 months, with work being undertaken as conditions and consent requirements permit, more or less continuously over this period. The area to be dredged is shown in **Figure 13** in Appendix 1 with deepening of up to 1m proposed. Approximately 40,000 m³ of rock material and 110,000 m³ of sediment is estimated to be involved. The rock will be deposited over an

⁴ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

area of approximately 130,000m², to heights of approximately 0.5m. The sediment will be deposited regularly, in relatively small amounts at a time (approximately 700m³) over the course of the dredging operation.

- 27 Blasting to break up the rock will have a short (approximately 20 – 30 seconds per blast) water boil effect that will be visible on the sea surface. Approximately 120 days of blasting are estimated, with blasts limited to one occasion per day. Likewise, dredging and deposition of sediment and rock will cause sediment plume effects that will be visible on the sea surface for limited periods before dispersing and filtering out. **Figures 14 and 15** in Appendix 1 provide an indication of the visual effects associated with these activities.
- 28 The e3 Scientific, 2020 evidence outlines mitigating factors and various proposed mitigation measures to minimize the adverse marine ecology effects of the proposed works.

Natural character assessment

- 29 The NZILA Landscape Assessment Guidelines defines natural character as:

‘Natural character is the distinct combination of an area’s natural characteristics and qualities, including degree of naturalness.’⁵

- 30 As outlined in Policy 13(2) of the New Zealand Coastal Policy Statement 2020, natural character assessment includes consideration of both biophysical and human experiential attributes. My evidence will highlight the relevant findings of other witnesses insofar as they describe the biophysical attributes of the natural character of the coastal marine area involved, and effects of the proposed works on this. It will also address the experiential natural character attributes of the area and the effects of the proposal on these.

Existing natural character

- 31 I have assessed the existing level of natural character in the coastal environments impacted by the proposed development on a continuum from very low (totally modified) to very high (pristine) using a 7 point scale (shown below). The assessment has regard to both biophysical and sensory attributes, both marine and terrestrial.

⁵ Te Tangi A Te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. April 2021

Natural character assessment scale

<i>Very low</i>	<i>Low</i>	<i>Moderate - low</i>	<i>Moderate</i>	<i>Moderate - high</i>	<i>High</i>	<i>Very high</i>
-----------------	------------	-----------------------	-----------------	------------------------	-------------	------------------

Bluff Harbour

- 32 Marine abiotic processes and landforms have moderate-low natural character in this area. The natural harbour entrance channel has been previously deepened and the harbour shoreline is highly modified by reclamation and other development in the vicinity of the port. Tidal flows still operate relatively unconstrained and water quality is good.
- 33 As regards marine biotic systems, despite modification, marine habitats are predominantly characterised by resilient and common marine species. The soft sediment provides habitat for a few infaunal and epifaunal species and previously disturbed areas have been recolonized. Rocky reef areas contribute habitat complexity and provide abundant interstices for small invertebrates, fish and algal species. This then creates productive seabird feeding grounds. Marine mammals will also venture into the harbour in pursuit of schools of fish.⁶
- 34 In terms of terrestrial abiotic processes and landforms, and biotic processes, the shoreline and land adjacent near the harbour entrance, is highly modified by reclamation, port development and the urban area of Bluff on the western side of the harbour. The shoreline on the Tiwai side is more natural. Urban, port and industrial development, as well as rural land use more widely, has significantly modified the natural vegetation.
- 35 Whilst experiential natural character is still expressed through the presence of water / tidal flows, and natural shoreline forms on the Tiwai side of the harbour, the urban, port and industrial elements and activities dominate the natural elements.
- 36 Overall, I have assessed natural character in the Bluff Harbour environment as moderate-low.

Tiwai Point Ocean Coast

- 37 The marine environment in this area is a high energy one with sandy benthic habitat subject to both tidal and wave action. The existing sediment disposal site is 6 – 8m deep and characterised by fine – medium sands.

⁶ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

The sediments in this area are well mobilized by current and wave action and are not accumulating. The proposed rock disposal site is 13 – 15m deep and characterised by thick dead shell hash, overlain by fine silts and sands, except for where there are shell hash ridges.⁷ Overall, despite the presence of the sediment disposal site, the marine abiotic processes and landforms are largely natural.

- 38 Given the high energy levels, this is not a marine environment favoured by marine flora and fauna. The existing sediment disposal site has little epifauna. The proposed rock disposal site has little infaunal abundance and diversity, and minimal epifauna.⁸ Whilst ecological values in this area are modest, natural marine biotic systems are largely unmodified.
- 39 As regards terrestrial abiotic processes and landforms, and biotic processes, beach forms are relatively natural in response to wave and current processes, and dune forms are modified to an extent by introduced marram grass. Modified landforms including bunds reduce naturalness. The area is recovering from burning and grazing and retains some natural character generally. This is modified by introduced marram grass and the presence of other exotic species – particularly pines.
- 40 The experiential natural character of the area is significantly modified by the large scale built elements including the smelter buildings, the modified landforms and the presence of a large pine woodlot.
- 41 Overall, I have assessed natural character in the Tiwai Point ocean coast environment as moderate.

Natural character effects assessment

- 42 Natural character effects describe the impact of the works on the biophysical integrity and natural processes of the areas affected, as well as sensory / experiential effects on perceptions of natural character. Their degree is determined with reference to the amount of existing modification and the sensitivity of the existing environment to change, and the scale and nature of the proposed development. The degree of effect has been rated in terms of a 7 point scale from very low to very high as outlined below. As

⁷ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

⁸ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

per the NZILA Best Practice Guide⁹, I relate the 7 point degree of effects rating scale to the relevant RMA terminology as shown:

Natural character degree of effects assessment scale

<i>Very low</i>	<i>Low</i>	<i>Low- mod</i>	<i>Moderate</i>	<i>Mod- high</i>	<i>High</i>	<i>Very high</i>
<i>Less than minor</i>	<i>Minor</i>		<i>More than minor</i>		<i>Significant</i>	

Bluff Harbour

- 43 Bluff Harbour is a highly modified environment but retains significant marine biotic values. The proposed works will involve further deepening of the already modified harbour entrance channel and further dredging of sediment. This will obviously impact the marine life in the areas directly affected.
- 44 The proposed works will have no further impact on shoreline forms or the terrestrial environment. They will modify the seabed, but this is already modified by previous blasting and dredging. Any impacts on tidal flows are assumed to be minimal, and impacts on water quality will be of short duration.
- 45 There will be adverse effects on marine ecosystems as outlined in the e3 Scientific report, 2020 however, the harbour has been subject to previous blasting and dredging works and the marine ecosystems have proven to be resilient and have recovered. In general, the e3 Scientific report assesses the level of residual impact on marine biota (taking account of proposed mitigation measures) as low. The exception to this is with regard to the impacts of blasting on mobile marine species, which is assessed as moderate. Overall, taking account of the existing level of modification, and the short term nature of blasting effects, I assess effects on biophysical integrity and natural processes generally, as adverse / low.
- 46 The proposed works will be experienced as the presence of dredges working in the channel, and associated water boil and sediment plume effects from blasting and dredging respectively. The dredges will be

⁹ Te Tangi A Te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. April 2021

transient but regularly present as tidal windows and conditions permit, over the 4 – 6 week suction dredging period as outlined in the AEE. Water boil effects will last only 20 – 30 seconds per blast and will occur only once per day. It is estimated that there will be approximately 120 days of blasting over an 8 month period. Sediment plume effects will occur irregularly and will rapidly disperse and settle out of sight.

- 47 All these effects will detract from natural character but in my assessment, the magnitude of the adverse effects will be mitigated by the already highly modified state of this part of the harbour and its use as a working port. The effects will also be of a temporary nature, with no long term impacts beyond approximately 9 months. Overall, I assess experiential natural character effects as adverse / low.

Tiwai Point Ocean Coast

- 48 The effects of the proposed works in this area will be further sediment disposal within the existing sediment disposal site area, and disposal of rock at a new disposal site area nearby in deeper water. As discussed in the evidence of Gary Teear, the increased sediment disposal will result in increased sand movement to the beach by natural marine processes, effectively acting as beach nourishment. The proposed rock disposal will create a low profile rock reef feature on the seabed and Mr Teear's evidence is that this will have no effect on the existing coastal processes. Bryony Miller's evidence is that the high energy character of the marine environment in this vicinity means that there is little biotic life. Whilst the proposed rock disposal will result in a new 'unnatural' seafloor feature in the disposal area, this will have the effect of creating habitat diversity for marine life. The increased sediment supply is 'unnatural' but there is already sediment being disposed of in this area and natural processes will mobilise it to build up the beach and dunes in the area through natural processes already occurring. Overall, I assess effects on biophysical integrity and natural processes generally, as adverse / low.
- 49 The proposed works will be experienced as the occasional presence of dredges depositing material offshore from the beach, and associated sediment plume effects over the limited time period of the works. The dredges will be transient but regularly present as conditions permit over the 4 – 6 week period as outlined in the AEE. Sediment plume effects will rapidly disperse and settle out of site.
- 50 These effects will temporarily detract from natural character but in my assessment, the magnitude of the adverse effects will be mitigated by the already modified state of this part of the coast due to the proximity to the

port and the presence of the smelter. Overall, I assess experiential natural character effects as adverse / low.

Landscape assessment

51 Landscape is defined in the NZILA Landscape Assessment Guidelines¹⁰ as follows:

‘Landscape embodies the relationship between people and place: it includes the physical character of an area, how the area is experienced and perceived, and the meanings associated with it’.

52 As expressed in the definitions, the NZILA Landscape Assessment Guidelines conceive of landscape as comprising the physical environment, people’s perceptions of it, and the meanings and values associated with it. Assessment of landscape attributes and effects overlaps with natural character but has a wider focus and also includes consideration of associative cultural and social factors.

Existing landscape values

53 My assessment of the values of the Bluff Harbour and Tiwai Point landscapes is set out below.

Bluff Harbour

54 The New Zealand Geopreservation Inventory¹¹ shows two sites of importance in this area i.e. Bluff and Tiwai Point hornfels (located to either side of the Bluff Harbour entrance) and Bluff double estuary coastal features (mapped to cover Bluff Harbour excluding the entrance / port area, and Awarua Bay). Significant natural values are discussed for the Bluff Harbour and Awarua Bay area in the RCP including high water quality, highly rated natural character and important wading bird habitat, but it appears that these relate mostly to Awarua Bay and the upper Bluff Harbour areas rather than the port and harbour entrance areas. The Proposed Southland Water and Land Plan (2018) includes the wetlands adjoining Bluff Harbour as regionally significant wetland.

55 The Bluff Harbour landscape is an interesting mix of natural and built elements. The town nestles in the shelter of Bluff Hill and the power of the natural marine and wind elements are evident. Naturalness is expressed in

¹⁰ Te Tangi A Te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. April 2021

¹¹ www.geomarine.org.nz

the presence of indigenous vegetation on Bluff Hill and Tiwai Point, the natural rocky shorelines, where present, and the patterns of shoreline kelp, tidal currents and sand flats within the harbour. It is significantly modified however, by reclaimed landforms in the port area, large structures such as the Aluminium smelter buildings and stack, wharf structures and stockpiles, and by urban development within the town. More widely, natural landscape patterns are modified by agricultural land use including incoherent vegetation patterns on the hill landforms in places.

- 56 Whilst naturalness is low, memorability is high. The area has a strongly utilitarian character based on a working port in a challenging physical setting. Transient elements such as the presence of seabirds, the movement of boats and variable moods associated with the weather conditions add to this.
- 57 There are highly significant cultural and social associative landscape values in this area. Bluff Hill (Motupōhue) is a Statutory Acknowledgement site for its association with Ngati Mamoe chief Te Rakitauneke. The harbour has significance to tangata whenua for mahinga kai (flounders and pipi), as a place of settlement and for urupa. Tiwai Point has significance for stone quarries and workshops for adze making.¹² Bluff is also highly significant in terms of its European heritage – as a place of early Maori – European contact and as the earliest European settlement in the South Island (1824). There are sites associated with whaling activities including hulks in the harbour dating from this era.¹³ There are also WW2 era gun emplacement, observation post and radar communication sites.¹⁴
- 58 Bluff Harbour / Awarua Bay is included in the list of outstanding natural features and landscapes (ONFL) in the Invercargill City District Plan, and is mapped as such, excluding the urban area of Bluff and the smelter zone at Tiwai. The Invercargill Coastal Landscape Study¹⁵ maps the northern part of Bluff Harbour, including the CMA as ONFL but excludes the southern part including the port area. In the RCP, Bluff Harbour is not identified as an 'Area Containing Significant Values' (although Awarua Bay is).
- 59 Whilst there are biophysical natural character values of high significance in the wider area, the southern part of Bluff Harbour in the vicinity of the port

¹² DoC, 2016, Southland Murihiku Conservation Management Strategy, Department of Conservation

¹³ DoC, 2016, Southland Murihiku Conservation Management Strategy, Department of Conservation

¹⁴ DoC, 2016, Southland Murihiku Conservation Management Strategy, Department of Conservation

¹⁵ Boffa Miskell, 2013, Invercargill Coastal Landscape Study Discussion Document. Environment Southland and Invercargill City Council

and harbour entrance is significantly modified – although it does retain some natural character. The harbour landscape is interesting and memorable for its stark juxtaposition of natural and built elements but naturalness, and wild and scenic values are low. The area rates highly however in terms of cultural and social associative landscape values, related to its importance to tangata whenua and its heritage significance.

Tiwai Point Ocean Coast

- 60 The RCP notes that the Tiwai Peninsula vegetation has significance for the presence of species which are normally found in subalpine settings, representing the southern extent of their range. It states that the peninsula is ‘a fine example of recovering vegetation subsequent to cessation of burning and grazing by domestic animals’, and that there is also significant invertebrate fauna. The Southland Murihiku Conservation Management Strategy¹⁶ notes that Foveaux Straight has important habitat for shellfish, flatfish and other fish species, as well as marine mammals, whales and seabirds.
- 61 In general, the area is highly expressive of its formative processes – particularly the action of waves and longshore drift, and wind in forming the sweeping beach and dunes. The windswept character is evident in the composition and stature of the vegetation cover. Aesthetically and in general, this landscape has high naturalness and memorability values based on minimal built elements and landforms and vegetation cover with a largely natural appearance (albeit modified by introduced marram grass). It has qualities of wilderness and spaciousness due to its open ocean setting and low relief. Transient factors such as the presence and sound of seabirds and variable moods and sea states associated with different weather conditions are important.
- 62 At the western end of the peninsula however, these naturalness and wilderness values are considerably modified by the presence of the large scale built elements associated with the smelter, the presence of an exotic pine woodlot, the transmission line and a large capped bund. The visibility of Bluff across the Bluff Harbour entrance also reduces the naturalness and wilderness values.
- 63 There are highly significant cultural and social associative landscape values in this area. Foveaux Straight (Rakiura / Te Ara a Kowa) is a Statutory Acknowledgement area for its significance for mahinga kai, as a highway / trade route, and as an area of settlement. Tiwai Point also has significance

¹⁶ DoC, 2016, Southland Murihiku Conservation Management Strategy, Department of Conservation

for stone quarries and workshops for adze making.¹⁷ More widely, there is a mataitai reserve around the southern and western side of Motupōhue (Bluff Hill). The area is also highly significant in terms of its European heritage – as a place of early Maori – European contact.

- 64 Bluff Harbour / Awarua Bay (covering the Tiwai Peninsula, but excluding the smelter site) is included in the list of outstanding natural features and landscapes in the Invercargill City District Plan. In the RCP, it is not identified as an ‘Area Containing Significant Values’.
- 65 Tiwai Peninsula has significant natural character and landscape values including biophysical, sensory and associative attributes. At its western end however, these values are considerably modified by the presence of the smelter and associated elements.

Landscape effects assessment

- 66 Landscape effects are described in the NZILA landscape assessment guidelines as follows:

Landscape effects are consequences for landscape values of changes to landscape attributes. Change itself is not an effect. Landscapes are always changing.

- 67 I assess the landscape effects of the development against the landscape values discussed below, and those inherent in the relevant statutory provisions. Landscape effects may be positive or adverse in nature and as for natural character, I rate the degree of effect in terms of the 7 point rating scale, related to the RMA terminology as follows:

Landscape degree of effect assessment scale

<i>Very low</i>	<i>Low</i>	<i>Low- mod</i>	<i>Moderate</i>	<i>Mod- high</i>	<i>High</i>	<i>Very high</i>
<i>Less than minor</i>	<i>Minor</i>		<i>More than minor</i>		<i>Significant</i>	

¹⁷ DoC, 2016, Southland Murihiku Conservation Management Strategy, Department of Conservation

Bluff Harbour

- 68 The landscape effects of the proposal within the Bluff Harbour area will be:
- (a) Further modification to the morphology of the shipping channel. This will not be generally visible;
 - (b) Temporary effects associated with the dredging works including water boil effects following blasting (estimated duration 20 – 30 seconds, once per day over approximately 120 days), sediment plume effects associated with dredging works (expected to rapidly disperse given the proposed controls on timing of dredging operations in relation to tidal flows), and the presence of the dredge vessels themselves.
- 69 In terms of landscape values and sensitivity, this landscape has high capacity to absorb these effects. The area is already highly modified and the channel has been deepened previously. The dredging activity and associated effects of water boil, sediment plume and dredge presence will be transient and the activity overall will only last up to 9 months. Whilst sediment plumes will have temporary adverse effects on water quality, the presence of the dredge vessels will not be unexpected in an area which already has significant shipping activity. Dredging activities will not impact the rocky shorelines to either side of the harbour entrance where the Bluff hornfels rock is located, nor will any heritage features or sites be affected.
- 70 Overall, it is my assessment that adverse effects on landscape values associated with the proposed dredging and deposition works in this area will be very low.

Tiwai Point ocean coast

- 71 The landscape effects of the proposal within the Tiwai Point ocean coast area will be:
- (a) Further disposal of sediment within the existing sediment disposal area approximately 150m offshore from the beach. This will potentially modify the naturalness of the seabed (but only minimally as discussed above under natural character effects) but will not have general visibility;
 - (b) The creation of a new marine rock disposal area approximately 600m offshore. This will modify the naturalness of the seabed (but as discussed under natural character effects, will also create habitat diversity for marine species) but will not have general visibility; and

- (c) Temporary effects associated with the rock and sediment disposal including sediment plume effects (expected to rapidly disperse), and the presence of the dredge vessels themselves, and
- (d) Increased sand build up on the beach and dunes adjacent to the sediment disposal site. This will be via natural depositional processes and take natural forms.

72 As discussed above, adverse marine natural character effects have been assessed as low, and likewise, adverse landscape character effects more generally, will be minimal. The rock and sediment disposal activity and associated effects of sediment plume and dredge presence will be transient and the activity overall will only last up to 9 months. Whilst sediment plumes will have temporary adverse effects on water quality, the presence of the dredge vessels will not be unexpected in an area close to a port and which already has significant shipping activity. The wider setting is already significantly modified by the presence of the smelter and associated elements, including the pine plantation and bund landforms. There will be minimal impact on the terrestrial environment including beach forms, and the activity will have no permanent effect on attributes of wildness. No heritage sites or features are impacted and any adverse effects on transient values such as the presence of wildlife will be temporary and are not considered to be more than moderate.¹⁸

73 Overall, it is my assessment that adverse effects on landscape values associated with the proposed deposition works in this area will be very low.

Visual amenity effects

74 Visual effects describe the impact of the proposal on the views available to people and the impact of this on amenity values. Amenity values are defined in the RMA as:

‘those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes’.

75 Visual effects are determined with reference to the sensitivity of viewers to change and the value placed on existing views, and the scale and character of the proposal.

¹⁸ e3 Scientific, 2020, South Port Capital Dredging Assessment of Marine Environmental Effects. South Port NZ Ltd

- 76 In terms of viewer numbers, the most significant viewpoints toward the proposed dredging and disposal sites are to the west, within and around the town of Bluff. My report includes an assessment of the visual effects of the works from viewpoints chosen to provide a representative spread of areas visually impacted. I do not repeat that here but summarise my overall conclusion as to visual amenity effects as follows:
- 77 The works proposed will generally have no long term visual effect and the effects during the dredging period will be transient, associated with the presence of dredge vessels, sediment plumes and occasionally water boil effects from blasting. In the context of the working port environment, these will not appear out of place or inappropriate. Overall, I assess adverse visual amenity effects as very low.

Assessment against the relevant statutory provisions

- 78 My report includes an assessment against the relevant provisions of the Invercargill City District Plan, the Regional Coastal Plan for Southland, the Southland Regional Policy Statement, the New Zealand Coastal Policy Statement (NZCPS) and the RMA which I will not repeat here. My conclusion however, is that the proposed capital dredging works are consistent with the statutory provisions relevant to natural character, landscape and visual amenity effects.
- 79 The areas proposed for dredging and deposition, whilst in close proximity, are not within identified ONFL's. The geologically significant Bluff hornfels to either side of the Bluff Harbour entrance will not be impacted by the proposed works. It is my assessment that given the modified character of the immediate setting of the works and their temporary, transient nature, any adverse effects on landscape values will be very low (less than minor).
- 80 Insofar as visual effects are concerned, any adverse amenity effects associated with the works will be temporary and of very low significance overall. Once the works are complete, there will be no effect of structures or vessels on the open space attributes of the Bluff Harbour or Foveaux Strait.
- 81 As regards Policy 13 of the NZCPS, it is my assessment that the areas of Bluff Harbour and the Tiwai Point ocean coast impacted by the proposed works are not areas with outstanding natural character, and that the project therefore needs to be consistent with Policy 13 (1) (b) rather than (a). With regard to this, measures are proposed to minimise adverse natural character effects, and I assess the adverse effects on natural character as being low (not significant).

- 82 With reference to NZCPS Policy 15, the dredging and deposition activities proposed are not within areas identified as ONFL's. It is my assessment that they will not give rise to significant adverse effects, and that their temporary/transient nature acceptably mitigates adverse effects on landscape values.
- 83 Overall, it is my assessment that the adverse effects of the proposed dredging and deposition works on natural character at Bluff Harbour and offshore at Tiwai Point, will be no more than low (minor). No outstanding natural features and landscapes are impacted directly, and adverse effects on landscape and visual amenity values will be very low (less than minor).

Submissions and the Section 42A officers report

- 84 There are no issues raised in submissions or in the Section 42A officer's report, that relate specifically to natural character, landscape or visual amenity effects.

Conclusion

- 85 The proposed capital dredging works will impact the Bluff Harbour area through further blasting and dredging of the channel and port berth areas, whilst the Tiwai Point ocean coast area is the site for the proposed sediment and rock disposal to sea.
- 86 The entrance and port area of Bluff Harbour is significantly modified and I have assessed the coastal environment in this area (both terrestrial and marine) as having a moderate - low natural character rating overall. I have assessed the natural character effects of the proposed works as adverse / low (minor).
- 87 The Tiwai Point ocean coast area is also significantly modified but less so than Bluff Harbour, and I have assessed the coastal environment in this area (both terrestrial and marine) as having a moderate natural character rating overall. I have assessed the natural character effects of the proposed works as adverse / low (minor).
- 88 Neither the Bluff Harbour entrance and port, nor Tiwai Point ocean coast areas have outstanding or other recognized landscape significance. I have assessed the landscape and visual amenity effects of the proposed development as adverse / very low (less than minor) in both cases.

89 It is my conclusion that the proposed capital dredging works are consistent with the statutory provisions relevant to natural character, landscape and visual amenity effects.

Mike Moore
29 March 2022