GLASSON HUXTABLE
LANDSCAPE ARCHITECTS

Mananui Project

Landscape and Visual Assessment of Effects

By

Glasson Huxtable Landscape Architects Ltd

December 2024 – Revision 2

Document Quality Assurance	
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Status:	Final – Revision 2
Date:	4th of December2024

1 EXECUTIVE SUMMARY

Westland Mineral Sands Co. Limited seeks to obtain consent for mineral sands mining and processing to obtain garnet, ilmenite, and lesser concentrations of gold and other minerals, and to construct the necessary infrastructure to do so. These minerals are present within a 140ha site (with a 112ha application area) at 713 Ruatapu Road (SH6), Mananui on the West Coast of New Zealand.

The Landscape and Visual Assessment which follows, has determined the potential landscape and visual effects arising from the proposed mining extraction and processing activity. As part of this, the existing landscape character and amenity value of the location has been evaluated. The landscape and visual effects during and at the end of the mining operation have been assessed against this, as well as the relevant statutory provisions. Design principles are also incorporated by way of mitigation and rehabilitation to assist where values may be potentially affected.

The Landscape and Visual Assessment determined that:

- The Application does not fall within the coastal environment.
- An adverse effect on the proposed outstanding value of the surrounding landscape will be avoided.
- The Application will result in positive effects on the quality of the environment long term.

Landscape Effects

Overall, when comparing the landscape effects of the mining activity compared to the existing environment, the proposed changes are considered appropriate for the location. The Application is considered to have a *low to moderate (minor) adverse effect on landscape character, during the Project* and a *low (minor) positive effect on landscape character in the longer term*. This is primarily due to the changes in landform, the carefully chosen application area, the responsive mining methodology, the limited mining disturbance area, and the ability for progressive rehabilitation to occur. Furthermore, a new Ecological Rehabilitation Area will augment the eastern edge of the site, increase the buffer zone for the wetland, and allow for continuous and condensed rehabilitation, which would unlikely occur otherwise.

Visual Effects

In terms of the visual effects generated by the Application, it can be anticipated that as mining moves across the application area, there will be a transient effect on both public and private viewers. The Application is considered to have a *low to moderate (minor) adverse visual effect on viewers in the vicinity* and *very low (less than minor) adverse visual effect for those located further afield*. From some viewpoints, effects will be greater during the formative years of the mine life as planting is juvenile. However, this is balanced by mining activity primarily starting at the furthest point from residences and SH6.

The establishment of setbacks, bunds and mitigation planting will assist to screen mining activity from view. Likewise, the use of recessive colours, limiting the active mining disturbance area, pumping of material, and progressive rehabilitation will also help to reduce visual effects. Where views are obtainable, visual effects will arise from the change in landuse and landform, vegetation removal, and the addition of the Processing Plant, ancillary structures, lighting, access, and movement.

Overall, it is determined that the Application is appropriate for the location, provided the recommended mitigation measures are implemented.

2 INTRODUCTION

Glasson Huxtable has been engaged by Westland Mineral Sands Co. Limited ('the Applicant') to undertake a Landscape and Visual Assessment ('Assessment'). This assessment is based on the site at 713 Ruatapu Road (SH6), Mananui, in the Westland District on the West Coast of New Zealand. The Applicant seeks to obtain Resource Consent to undertake mineral sands mining and processing to obtain garnet, ilmenite, and the lesser concentrations of gold, and to construct the necessary infrastructure to do so. The entire site is 140ha in size, with mining proposed for an application area of 112ha within this.

This Assessment looks to determine the potential landscape and visual effects arising from converting the existing farming activity to extraction activity ('the Application') short term. As part of this, the existing landscape character and amenity value of the location has been evaluated. The landscape and visual effects during and at the end of the mining operation have then been assessed against this, as well as the relevant statutory provisions. Design principles have been incorporated by way of mitigation and rehabilitation to assist where values may be potentially affected.

This Landscape and Visual Assessment is one of a number of specialist assessments, which will determine the effects arising from the Application. It forms part of the Assessment of Environmental Effects for the Resource Consent Application from the *Westland District Council* and the *West Coast Regional Council*.

3 METHODOLOGY

This Assessment has been prepared in accordance with the concepts and principles outlined within *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines*.[1] A summary of the Landscape and Visual Assessment Criteria is appended as Appendix 1, a Graphic Supplement as Appendix 2, and Landscape Mitigation as Appendix 3.

3.1 Desktop Study

As part of preparing to write this Assessment, information was compiled through a desktop study. This included understanding and collating the following:

- Relevant planning information and statutory provisions.
- Existing aerials, topography, vegetation, neighbouring properties, and land uses.
- Mining methodology, staging and layout (including setback areas).
- Design details and the location of the Processing Plant Area.
- Final levels and rehabilitation information.

3.2 Site Visit

A site visit was conducted by Naomi Crawford and Mark Huxtable of Glasson Huxtable on the 30th and 31st of May 2023. The first day focused on visiting external viewpoints and included the Mananui Bush Walk, Mananui Tramline (Māhinapua Walkway), Tūwharewhare (Māhinapua Creek), Lake Māhinapua, and SH6. The second day included visiting the application (mining) area itself alongside the Project team. Later that same day, the application area was viewed from the West Coast Treetop Walk. The weather on both days was cloudy with intermittent rain, fairly typical conditions for the West Coast.

Later in 2023, a further site visit was undertaken on the 11th of December in sunny weather. This subsequent visit confirmed findings, and included visiting neighbouring properties, and travelling by boat along Tūwharewhare (Māhinapua Creek). All site visits assisted with understanding the application area, its wider context and taking photographs. They also informed the site layout, assessment of landscape and visual effects and recommendations for mitigation.

[1] *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Tuia Pito Ora New Zealand Institute of Landscape Architects, 2022. For further information, refer to: https://nzila.co.nz/about/te-tangi-a-te-manu.

3.3 Relevant Experience

As well as being an NZILA Registered Landscape Architect, the author has undertaken relevant previous Projects involving mining and extractive landuse activity. Her experience has included Aylesbury, Frew's and Whiterock Quarries (Canterbury), Wakamarina Gold Mine (Marlborough), Nine Mile Mineral Sands (Buller), Barrytown Mineral Sands (Grey), and Kakaramea and Ngāruawāhia Sand Extraction Sites (Waikato). The author also has experience conducting Landscape and Visual Assessments, participating in expert conferencing and presenting at hearings, for complex Projects involving multi-disciplinary team approaches across Aotearoa.

4 THE EXISTING LANDSCAPE

This chapter of the assessment includes two parts:

- Identifying the relevant landscape context. It is important to understand the Mananui area to ensure that any modification can be integrated without unacceptable effect.
- Describing, and interpreting the character and the values of the area – physical, associative, and perceptual. Analysing these attributes is pertinent to understanding the potential effects of the Application on these values.

Definition of the Term 'Landscape'

The *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines* recommends the following definition for landscape: *"Landscape embodies the relationship between people and place. It is the character of an area, how the area is experienced and perceived, and the meanings associated with it."*[2] This definition focuses on landscape as the relationship between people and place. The following sections outline the relevant landscape context and describe the landscape character – at a Wider Context (West Coast), Intermediate Context (Mananui) and for the application area itself.

4.1 Wider Context – West Coast of the South Island of New Zealand

The site for the Project is located on the West Coast (Te Tai Poutini) of the South Island of New Zealand. It is one of the more remote areas of the country and stretches from Kahurangi Point in the north to Awarua Point in the south, a distance of 600km's covering an area of 23,276km^2. To the west is the Tasman Sea and to the east are the Southern Alps. Much of the land is rugged, and the sea is rough, with the majority of the population residing near the coast. The landscape is scenic, with wild coastlines, mountains, rivers, and a high proportion of native bush. The West Coast is the only part of New Zealand where significant tracts of lowland forest remain. The region has high rainfall due to the prevailing north-westerly wind pattern and the location of the Southern Alps.

The region has an important history which is associated with prospecting materials and minerals. This includes the West Coast Gold Rush (between 1864 and 1867), the mining of coal (beginning in 1860's, hitting a peak in the 1880's and with several coal mines still in operation today) and the felling of native timber. These days, the region is valued for its abundance of greenstone (pounamu),

[2] *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines*, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022, refer to page 76, section 4.20.

mining opportunities, tourism ventures, and small-scale farming. The main centres of Westport, Greymouth and Hokitika, are located on the coast and at river mouths.[3] The establishment of businesses in these locations is due to the availability of flat land, ease of access and proximity to transportation (sea, river, and road).[4]

4.2 Intermediate Context – Mananui and Surrounds

4.2.1 Physical Attributes

The intermediate context for the Project is known as Mananui. It is situated on SH6, between the township of Hokitika (7km to the north) and Ross (19km to the south). Mananui covers the area from where Tūwharewhare (Māhinapua Creek) crosses SH6 in the north, to the forested areas of the Mananui Bush Walk and Māhinapua Scenic Reserve in the south. Immediately beyond this is Lake Māhinapua and the small settlement of Ruatapu. Mananui is divided by SH6 (Ruatapu Road), which runs parallel to the coast, but setback by 500m. Further inland, Tūwharewhare (Māhinapua Creek) also runs parallel before gently tapering westwards towards the coast.

The landform of Mananui is gently undulating. The vast open Tasman Sea lies to the west and the dense bush clad hillsides to the east. The coastal edge is made up of a steep sand dune with a significant drop off towards the coast. From the top of this dune, the landscape is vast, but thinner to the north, than the south. Beyond SH6, the topography becomes more undulating. The two most notable landscape features lie to the east and south-east of Mananui, being Tūwharewhare (Māhinapua Creek) and Lake Māhinapua. These are both discussed in further detail below.

Over the years, the landuse in Mananui and the surrounding areas has been substantially modified by vegetation removal associated with gold dredging, flax harvesting, timber milling and farming. The timber industry in Mananui was prompted by the 1864 gold rush, resulting in the operation of two sawmills. This was supported by the inland waterway of Tūwharewhare (Māhinapua Creek) which transported goods and people between Hokitika and Ross before the development of the road and rail. As a result, Mananui had a township from the early 1900's until the closure of the second mill in 1967. Nowadays, the Mananui Tramline (Māhinapua Walkway) and the historic relics alongside the track are all that remains of this endeavour. The Mananui area is sparsely populated

[3] These three main centres are home to the three local government districts: Buller, Grey, and Westland.
[4] Many industries are well established, but there are also instances where activities have now closed down.

and supported by a scattering of farm dwellings and lifestyle properties linked by SH6. The majority of the pastoral landscape is used for farming, alongside a mixture of businesses. These include West Coast Scenic Waterways (cruises and kayak hire), small-scale accommodation providers, Māhinapua Hotel, and the larger industrial operation of Westco Lumber Limited (manufacturing pine and based in Ruatapu). Recreation opportunities are plentiful are described in more detailed below:

Mananui Bush Walk

The Mananui Bush Walk is located off SH6 and is accessible from a carpark opposite the south-western corner of the site. The walk itself is 1.1km through a remnant totara forest to the coast, returning via the same track.

Mananui Tramline (Māhinapua Walkway)

The Mananui Tramline (also known as the Māhinapua Walkway) is part of the larger West Coast Wilderness Trail. There is a dedicated carpark off SH6, adjacent to the northern corner of the site. From here, the track runs along the northern boundary, towards Tūwharewhare (Māhinapua Creek). The track passes through a range of pastoral, wetland, and forested areas near Lake Māhinapua. The 6km walkway can be walked or biked in either direction.

Tūwharewhare (Māhinapua Creek)

Tūwharewhare (Māhinapua Creek) runs parallel to and forms the eastern border of the site. It stems from Lake Māhinapua and continues north for 7.4km until it meets the Hokitika River. There is the option to book a boat cruise or hire a kayak to explore the wetland.

Māhinapua Scenic Reserve

Māhinapua Scenic Reserve is located immediately to the south of the site. It is one of the few local areas that preserves an almost continuous forest from the Southern Alps to the Tasman Sea.

Lake Māhinapua

Lake Māhinapua, is a 3km^2 bush-clad lake south of the site. Here, opportunities are provided for camping, picnicking, bush walking, bird watching, fishing, swimming, and boating. Walks in the vicinity of Lake Māhinapua include:

- *Picnic Point* - accessible from the eastern end of the Mananui Tramline (Māhinapua Walkway), this walk leads to a small beach beside Lake Māhinapua (650m one way).
- *Jum Michel Track* – accessible from the northern end of the camping area at Lake Māhinapua (1km one way).
- *Bellbird Walk* – accessible from the southern end of the camping area, this walk circles an old gold-dredge pond (450m loop).
- *Swimmers Beach* – accessible from the northern end of the main Lake Māhinapua carpark, the track leads to a secluded beach (900m one way).

The landcover in Mananui varies greatly. From expansive areas of undulating green pasture to intact mixed podocarp forests and wetlands. From west to east: The coastal dune is covered in marram grass, gorse and regenerating native shrubs such as mahoe, flax, and coprosma. Beyond this, the area has largely been cleared of its indigenous forest to make way for pasture, although some isolated fragments of bush remain with kahikatea surrounded by shrubby native vegetation. Further inland, Tūwharewhare (Māhinapua Creek) is home to a kahikatea swamp forest with flax which grows profusely. To the south: The forest around Lake Māhinapua ranges from rimu-kamahi on the terraces, flax and rushes at the lake edge, ancient dune forest (around the Jum Michel walk), and totara forest (as seen at Mananui Bush).

4.2.2 Associative Attributes

Initially Lake Māhinapua was an important mahinga kai (food gathering) place, and a source of kuta (bamboo spike sedge) for weaving. After a significant battle between Ngāti Waewae of Ngāi Tahu and Ngāti Wairangi Māori in the 17th century, the lake became wāhi tapu (sacred). This means that mana whenua will not swim in or harvest food from the lake. In 1893 an area (almost 100ha) along the Tūwharewhare (Māhinapua Creek) and around Lake Māhinapua was gazetted as a reserve. Later, the Lake Māhinapua Scenic Reserve was established to offer protection. In 1998, the lakebed was vested in Poutini (West Coast) Ngāi Tahu as part of a treaty settlement.

The applicant has frequently engaged with Te Runanga o Ngati Waewae and Te Runanga o Makaawhio throughout the development of this application and continues to do so.

4.2.3 Perceptual Attributes

In its simplest form, perceptual attributes can be summarised by the sensory experience of the environment as experienced by humans. For the Mananui area, this includes:

- The ability to hear the sea but not view where the waves meet the shore.[5]
- The contrast between the wide-open pastoral areas and the impermeable bush clad areas.
- The presence of wind-blown vegetation angled inland.
- The beauty of Tūwharewhare (Māhinapua Creek) with reflections visible on a clear still day.
- The presence of sand in humps and hollows.
- The emptiness of the area with movement and noise (other than the wind) confined to individual properties and the intermittent cars travelling along SH6.

4.2.4 Neighbouring Properties

SH6 links the various coastal settlements of the area together. Properties neighbouring the application area are used for farming activity, small businesses, and/or lifestyle blocks. Neighbouring properties identified as being in the immediate vicinity are listed below. For further information associated with these properties, refer to Section 11.3: Private Viewpoints from within Mananui.

Immediate Neighbours - East of SH6 (Listed North to South)		
Address	**Identifying Features**	**Distance from the Application Area**
605 Ruatapu Road	Main northern neighbour at 30.59ha. Much of their southern boundary adjoins the Mananui Tramline (Māhinapua Walkway) with the walkway easement across their property.	582m from the edge of the main dwelling to the application area.
663 Ruatapu Road	Property plus house bus on the northern side of the Mananui Tramline (Māhinapua Walkway) carpark. There is a Resource Consent Application for a single residential dwelling and accessory buildings (applied for on 25th of May 2023 and currently on hold).	48m from the edge of the dwelling to the application area.
669 Ruatapu Road	Property beside the north-western corner of the application area. Beside the Māhinapua Walkway carpark.	20m from the edge of the dwelling to the application area.
677 Ruatapu Road	Property directly adjacent to the north-western boundary of the application area. Southern neighbour to 669 Ruatapu Road.	16m from the edge of the dwelling to the application area.

[5] Often the vastness of the ocean meeting the horizon can be viewed in the distance, but due to the steepness of the beach, the point at which the waves meet the shore is generally not visible unless you are on the beach itself.

Immediate Neighbours - West of SH6 (Listed North to South)		
Address	**Identifying Features**	**Distance from Application Area**
548 Ruatapu Road	This 8.43ha property has a dwelling positioned against the southern boundary. The details of the current Resource Consent are uncertain.	258m from the edge of the dwelling to the application area.
604 Ruatapu Road	No existing dwellings, only farm sheds . 20.55ha in size.	60m from the application area boundary.
682A Ruatapu Road	An existing dwelling on 3.94ha of land.	323m from the edge of the dwelling to the application area.
682B Ruatapu Road	There has previously been consent granted (now lapsed) to build on this vacant 3.66ha lot within 130m of the mean high-water springs.	20m from the application area boundary.
694 Ruatapu Road	Dwelling closest to the highway, near the application area. Owner has consent for multiple dwellings on his land.	52m from the edge of the dwelling to the application area.
696 Ruatapu Road	Largest western neighbour at 60.44ha. There are two existing dwellings.	204m from the edge of the dwellings to the application area.
866 Ruatapu Road	Property located south-west of the application area.	258m from the edge of the dwelling to the application area.

4.3 The Application Area – 713 Ruatapu Road (SH6)

The application area itself is located south of Hokitika at 713 Ruatapu Road (SH6), Mananui. The legal description is Lot 3 DP 366769 BLK VII Māhinapua, and geographic location $42^{0}46$'S and $170^{0}55$'E. The site is approximately 140ha in size, with mining proposed for an application area of 112ha within this. It is bordered to the west by SH6 and to the east by the Tūwharewhare (Māhinapua Creek). Private land holdings with residential dwellings are located to the north and west, and Māhinapua Scenic Reserve is located to the south.

The landform is undulating with a change in height of 10-12m between the eastern and the western boundaries. There are also 3-4m level fluctuations (humps and hollows) due to historical dune ridges running north to south. This is a result of the movement of sediment (sand) over thousands of years. In places, it is hard to distinguish between the historical dunes and where the surface drainage has been altered to improve farming production. There is one artificial naturalised channel and several

modified drains on the property.[6] Along the eastern edge, there is an escarpment <10m high distinctly separating Tūwharewhare (Māhinapua Creek) and the application area. In the centre, an artificial drainage channel has been cut through to allow drainage of the farmland into the creek.

Over the years there has been significant modification to the application area as a result of vegetation removal, recontouring for better drainage, and farming practices. Today, the property is leased by a local farmer from WMS Land Co Ltd. A driveway in the centre provides access from SH6 to a farmhouse and three farm sheds. Another access point and further shed is located in the south-western corner. Dairy activity is supported by irregular sized paddocks with a mixture of deer fencing, typical post and wire fences, and portable electric fencing.

Vegetation prior to clearance and farming of the site was a back dune complex of tall forest comprised of rimu-rata/kamahi-hinau forest and kahikatea forest in the damper areas and totara in the drier areas.[7] Today, the landcover of the majority of the application area is exotic pastoral grass (78%), which is occupied for grazing. There is also 4.2ha of fragmented remnant vegetation made up of areas of kahikatea treeland (5%), kamahi scrub (2%), podocarp broadleaved forest (both grazed and non-grazed 5%), kahikatea swamp forest (3%) and a carex-flax wetland (7%). Each of the different areas are described in more detail below:

Northern Boundary

The northern boundary of the application area is fenced off by tall deer fencing from the Mananui Tramline (Māhinapua Walkway). It has an open pastoral character. In places, sedges are present, following drainage pathways.

Southern Boundary

The southern boundary of the application area has exotic pastoral grass. Immediately over the fence is the Māhinapua Scenic Reserve. This reserve contains dense mature vegetation with a mixed podocarp forest of rimu, matai, totara, miro, and kahikatea.

[6] According to the Project Ecologist, Vaughan Keesing of BlueGreen Ecology, the artificial channel is a 250m intermittent system within the largest forest fragment, with only 50m of stable habitat.
[7] An example of this forest type is found to the south of the site, within the Māhinapua Scenic Reserve.

Western Boundary

The western boundary is where the application area meets SH6. It is comprised of exotic weedy species and pastoral grass. An existing hedgerow type bund (predominantly gorse) runs along ¾ of the boundary.

Eastern Boundary

The eastern third of the application area contains remnant fragments of podocarp-broadleaved forest. This vegetation occurs in swathes and is not continuous. It is also fully accessible to stock. These fragments are not considered virgin bush as there is evidence of thinning of the timber species. There is also clear degradation in quality when compared to the surrounding vegetation within the Māhinapua Scenic Reserve. Plant species include kahikatea at the centre, surrounded by rimu, mahoe, lancewood, wineberry, kamahi, muelenbeckia, karamu, coprosma, griselinia and tree fuchsia.

A long thin band of open pasture grass averaging 25-30m wide sits between this vegetation and the almost continuous and visually impermeable vegetation of the eastern escarpment. This mixed broadleaf forest consists of similar species to that previously described. Eventually, the escarpment drops off to meet the edge of the Tūwharewhare (Māhinapua Creek) and surrounding wetland. The water height in the creek can change markedly, depending on the level of Lake Māhinapua, the time of year and weather patterns.

5 PROPOSAL

5.1 Background to the Application

Mining activity has occurred on the West Coast of the South Island of New Zealand since early European settlement. Historically this site was known as 'Reserve No. 271'. Within the *Mananui Sands Archaeological Appraisal,*[8] there is reference to a survey plan dated from 1897. This plan illustrates mining occurred adjacent to the application area. The report also mentions that there were five prospecting license applications submitted in 1900. This matches records that show that mineral exploration has taken place within the application area since this time.[9]

In more recent years, Tenrag (Hardie Pacific) was granted an initial exploration licence in 2015. Later that same year, they joined with American Company, Barton Garnet to undertake detailed processing, mining, marketing, and engineering studies. Along with a well-developed design, an *Assessment of Environmental Effects* was prepared ready to lodge for resource consent. However, in 2020, Barton exited the Project due to market conditions and the cost of logistics. At this time, the exploration, mining licences and data were transferred back to Tenrag. Tenrag has since passed this on to Westland Mineral Sands Co. Ltd (Westland Mineral Sands).

5.2 Proposed Operations

The Applicant, Westland Mineral Sands, is applying for consent to undertake extraction at 713 Ruatapu Road (SH6). The proposed activity includes mineral sands mining to obtain ilmenite, garnet, and the lesser concentrations of gold, along with the necessary infrastructure to do so. Mining is proposed for an application area of 112ha within the 140ha site. Work is proposed to be completed over a 16-year period, including 10 years of productive mining plus time for site establishment, rehabilitation, and decommissioning. The resource available to be mined is estimated to be 13.8 million tons of sand with approximately 24.2% Heavy Mineral Concentrate (HMC). It is likely to contain garnet (18.7%), ilmenite (5.5%) and lesser amounts of gold. The deposit is located at the surface and ranges in thickness from 4m-13m. 60% of the available resource is located above the

[8] *Mananui Mineral Sands: An Archaeological Appraisal*, report prepared by Heritage Properties Limited, 5th July 2023.

[9] Previous explorers include Alluvial Gold Oceania (1930's), Carpentaria Exploration (1967-1972), Consolidated Traders Mining Limited (1987-1988), Frewen and Hyndman (1989), Placer Gold Resources (2007-2012), Westland Minerals Limited (2010-2015), Frosty Creek Limited (2012-2015), NZ Garnet Limited (2015-2019) and Tenrag Limited (2020-2022). Exploration activities have generally consisted of drilling, augering and test pitting.

water table ('dry sand'), with the remaining 40% below the water table ('wet sand'). All of the different stages of the Project are described below:

5.3 Pre-Mining

Several tasks need to be completed before mining can begin. Items relevant to landscape include:

5.3.1 Imposing Setbacks

- 10m from the northern and southern boundaries.
- 20m from the western boundary (30m from the edge of tarseal).
- 85m from the neighbouring residents in the north-western corner.

5.3.2 Enabling Works

- Removal of topsoil within the Plant Area – this provides material for the central bund.
- Construction of the site entrance on SH6 – this provides entry to the Processing Plant area.
- Construction of the water treatment ponds using an excavator and trucks – this material will be used to construct additional bunds and stockpiled for plant commissioning purposes.
- Construction of the Wet Concentrator Plant and ancillary structures – refer to Section 5.6.1.

5.3.3 Constructing Bunds

As material becomes available, the following bunds will be constructed:

- Central Bund along the western boundary/SH6 (for mitigating visual effects): 650m long, 12m wide, 3m high. This will be constructed from the removal of material from the plant site and will take approximately 3 months from site establishment.
- Southern Bund along the western boundary/SH6 (for mitigating noise/visual effects): 270m long, 12m wide, 3m high. This will be constructed from material excavated from the ponds and will take approximately 3 months from when the ponds are excavated out.
- Northern Bund along the western boundary/SH6 (for mitigating noise/visual effects): 640m long, 12m wide, 3m high. This will be constructed from material from either the ponds or the mine starter pit and take approximately 3 months.
- Temporary bunds constructed near the northern boundary when mining activity comes within 150m of it until boundary planting is established to provide visual screening, 10-18m long, 2m high.

5.3.4 Planting

- Completing planting along, on top, and in between central, southern, and northern bunds.
- Completing planting along the northern boundary.
- Infill planting along the eastern embankment in selected areas to 'plug' any gaps.[10]

5.3.5 Excavating the Mine Starter Pit

Excavation of the starter pit will occur concurrently with the construction of the Processing Plant Area. Mining will begin in the south-western corner of the application area, with 70x286m of topsoil being removed. This material will be used to create the southern and northern bunds along the western boundary and initial topsoil stockpile. Following this, a 50x150-200m starter pit of 60,000m^3 of material will be dug out using excavator and dump trucks to expose the water table. This work will mark the start the dredge pond, and work towards the designed depth and width for full production.

5.4 During Mining

5.4.1 Vegetation and Topsoil Clearance

Vegetation and topsoil clearance activities will occur during the hours of 0700-1900. The vegetation to be removed within the application area comprises approximately 4ha of various smaller forest remnants. These will be removed as needed in order to access the high grade minerals contained in the sand underneath. The areas where the forest remnants remain coincides with the highest grade of minerals on the site, and this high grade material assists with the viability of the mineral sands proposal.

Topsoil (0.1-0.6m thick) will be removed 2-3 weeks prior to mining from in front of the mine path by a bulldozer, excavator, and dump trucks. This will leave a 70x286m(2ha) area of sand exposed. Depending on the location of the mining, the topsoil material will either be moved to the tailings area, stockpiled to the side of the mine path for rehabilitation, or used to build temporary bunds. In areas where indigenous vegetation is present, vegetation will be removed and used for rehabilitation through Vegetation Direct Transfer (VDT). This method is further explained in Section 5.4.5.

[10] All new bunding and planting is outlined in further detail under Section 12: Recommendations, and also visually illustrated within Appendix 3: Landscape Mitigation.

5.4.2 Mineral Extraction

Mining and processing will occur 24-hours a day, 7 days per week, following a 10-year mining sequence (refer to the Application Plan in Appendix 3: Landscape Mitigation.). Once the starter pit is established, mining will be undertaken by a sand dredge that sits within the mine pond initially excavated to the ground water level. The dredge will float, initially working across the southern boundary, moving west to east. Starting in this location will allow the hydrology and geotechnical aspects of the mine to be confirmed. Mining will then move along the eastern edge of the application area. Once in sequence, mining will follow a north-south pattern of 70m strips across the application area.[11] Working in this way follows the existing topography, and allows for longer, straighter mine paths. It also lets mining occur furthest from SH6 early on, ensures the area along the wetland is completed in a single pass, and allows time for mitigation planting to establish.

The mining void will be 70x100m in size (0.5ha), with an approximate 10m batter either side of the pond, with 22-27^0 sloped sides for stability. Mining will occur to an average depth of 7m and to a maximum depth of 13m.[12] This means that a proportion of the mining will occur below the water table. As such, a 4x15m self-propelled floating dredge will be used (refer to images within Appendix 2: Graphic Supplement). The dredge has a catamaran hull and is made up of an operator's station, power unit, hydraulics, dredge pump, cutterhead, and discharge hose. It works by the steel cutter teeth carving away at the mining face. The material continuously collapses down the slope into the dredge path.

The average mining advance rate will be 2000m per year, or 170m per month, or 6m per day. The rate of advancement (and size of the mining void) works like an elastic band, directly corresponding with the ore thickness and grade being mined. The greater the thickness/grade, the slower the advancement rate. In addition, Years 1 and 2 advancement rates will be slower due to thicker ore and the start-up period. The final mine pass will occur along the northern boundary, with the final mine void occurring in the north-eastern corner, later being developed into a wetland.

[11] The mine pond will be on average 50m x 100m (0.5ha), with an approximate 10m batter on either side of the pond.
[12] The material to be recovered sits at about the same depth, it is the topography which changes.

5.4.3 Screening and Processing

Once material has been obtained, it will then be high pressure pumped through the dredge arm to the discharge hose which leads to the Field Screening Unit. This unit will sit outside the mine void and move parallel to it. It will screen out the oversize material such as rocks, gravel, and very coarse sand (+2-3mm) and return it to the tailings area. The tailings area is expected to be 70x570m (4ha). The remaining Run of Mine (ROM) material under 2mm will be pumped across land to the onsite WCP for processing.[13] The continuous pumping of material removes the need for large stockpiles and eliminates the use of trucks for transportation. At the WCP, the sand will be processed to produce the HMC, containing garnet (70%), ilmenite (30%), and lesser amounts of gold. This material will then be trucked off site for export via Greymouth Port. The remaining tailings, quartz sand and slimes will be pumped back to the tailings area and dewatered for disposal.

5.4.4 Progressive Rehabilitation

Progressive rehabilitation aims to minimise the amount of disturbed area at any one time and promptly return the area post mining back to pasture. As the mining pit advances, the void left behind will be progressively backfilled by tailings. This work is completed by a bulldozer, dump truck, and grader during daylight hours. Together they will create temporary cascading water settling ponds over an area of approximately 50x200m. As the tailings build up to the final landform height (an average of 1.5m lower overall), the land will be recontoured ready for topsoil and pastoral grass to be sown as soon as possible. The tailings deposition will progress at a similar rate to mining. The maximum size of the disturbed area at any one time, is anticipated to be 27.7ha (refer to Section 5.6.2: Maximum Disturbed Area).

The progressive rehabilitation also includes the creation of an 'Ecological Rehabilitation Area' along the eastern boundary. Key components include:

- Establishing an Ecological Rehabilitation Area across the 1st and 2nd mining strips. This area will consist of a minimum 30m wide strip of revegetation and wetlands adjacent to the Tūwharewhare (Māhinapua Creek) escarpment.
- As part of the above, establishing two wetland areas totalling 1.52ha at existing low points. Note: the northern-most 0.85ha wetland will be established at the end of the mine life.

[13] A series of pipes will be laid along a service corridor between the plant area and the mining void. These pipes (and pumps where necessary) are responsible for the majority of the material transfer within the application area and will continuously move as the mining pit advances.

- Constructing a new stock fence along the western edge of the rehabilitated area.[14]
- Implementing pest control within the Ecological Rehabilitation Area.
- Returning all rehabilitated areas outside of the above zones to pasture for grazing.
- Implementing aerial seeding if necessary to increase grass coverage.

5.4.5 Vegetation Direct Transfer

A 7.12ha Ecological Rehabilitation Area will be created along the eastern edge of the application area. This new area will consist of approximately 4.75ha of Vegetation Direct Transfer (VDT) and 2.37ha of new wetlands. Vegetation Direct Transfer (VDT) involves:

- Removing and stockpiling (or transferring) a small strip of vegetation slash each month (approximately 170m) to allow progression of the mining path.
- Placing debris from the removed plants over a 30x1700m area projecting out from and along the existing eastern escarpment. This involves laying down logs, soil, seeds, berries etc. to create a seed bed/area for new plants to grow.
- Allowing the natural regeneration process to take the lead.
- Including infill planting for support and enrichment plus canopy closure where necessary.[15]
- Establishing new boundary fencing along the outside of the Ecological Rehabilitation Area.

Due to the mining staging progressing across the site in panels, there will be periods of time during years 1 to 3 where both rehabilitated areas and existing fragments of vegetation co-exist. Not all remnant vegetation will be removed at the same time.

5.5 Post Mining

5.5.1 Final Landform

Work towards the final landform will occur progressively throughout the mining process. The proposed final levels will gently slope from east to west, from 9mRL to 6mRL. The removal of HMC from the site will result in a reduction in ground level by approximately 1.5m overall, however the site will be rehabilitated to minimise the impacts of this reduction. The final landform is illustrated

[14] In order to support a straighter final fence layout, 2.24ha of land (not planted) will be gifted alongside the Ecological Rehabilitation Area.

[15] Enrichment planting will consist of wineberry, karamu, kahikatea, rimu, hinau, broadleaf, mahoe, muelenbeckia, totara and lancewood.

within the Rehabilitated Site Plan in Appendix 3: Landscape Mitigation. Following the completion of mining:

- The plant and ancillary structures will be removed, and the area converted back to pasture.
- The final mining void in the northeastern corner will be converted into a wetland. There will be 2.37ha of new wetlands total: southern: 0.52ha, northern: 1.01ha and final void: 0.85ha.[16]
- New fencing and farm infrastructure will be progressively established.
- A 28.45ha Ecological Reserve will be created from:
    - 4.75ha of reestablished revegetation/VDT, plus
    - 1.52ha of (2) wetlands, plus
    - 2.24ha of additional reserve area (grassed), plus
    - 19.94ha of the existing Māhinapua Wetland and escarpment (which forms the south-eastern corner of the site, outside of the application area).
- The new Ecological Reserve will be vested to either a Crown agency or local mana whenua (subject to subdivision consent or a form of conservation covenant).
- There will be the potential to provide community recreational access linking the Mananui Tramline (Māhinapua Walkway) and Lake Māhinapua through the new Ecological Reserve.
- There will be approximately 112ha of pasture returned to use for grazing purposes.

5.6 Further Details on the Proposal

5.6.1 Processing Plant Area

The Wet Concentrator Plant (WCP) is located 2/3 along the western boundary, setback by 150m from SH6 and located 450m north of the south-western corner. Located within a 4.4ha envelope, it is accompanied by 3860m^2 of buildings and structures including an office (500m^2), plant maintenance workshop (350m^2), plant laboratory (100m^2), mine machinery maintenance workshop (350m^2), water tanks (300m^2), power transformer (200m^2), control room (60m^2), carparking areas (with 45 carparks), stockpiles, and a water treatment area (refer to Appendix 2 for further details). The WCP and associated infrastructure will take approximately 12 months to construct.

[16] Wetland species will consist predominantly of rautahi, purei, pukio, karamu, cabbage tree, white pine, edgar's rush, manuka, harakeke, and raupō.

The WCP (supported by the buildings and structures previously listed) will be painted in a recessive colour which gets lighter as it gets taller to help blend in with the environment.[17] This will assist the buildings to blend in with the surrounding environment, as lower parts of structures are likely to be viewed against vegetation, whilst taller parts will be viewed against the skyline. The WCP will operate 24 hours a day, 7 days a week, using physical separation – gravity and magnetics to remove the heavy minerals from the sand. The WCP will be the largest building on site, at 17m high and 2000m^2.[18] All buildings and structures will be removed at the completion of the Project.

5.6.2 Maximum Disturbed Area

A conservative 27.7ha maximum disturbance area has been sought, which equates to 25% of the application area or 20% of the entire site. However, the average disturbed area is anticipated to be less than this.

Activity Resulting in Disturbed Area	**Area (Hectares)**
Topsoil stripping - ahead of mine path	2
Dredge pond	0.7
Tailings area and topsoil replacement	4
Short term topsoil stockpiling	2.0
Short term out of pit dump	3.0
Drains (ore/tailings separation)	6.4
Service corridors and roads	3.0
Vegetation re-establishment	3.0
Total Disturbed Area	24.1
15% contingency	3.6
Maximum Disturbed Area	**27.72**
Plant area	4.4*

Due to the nature of the mining methodology, continuously moving void, and progressive rehabilitation and revegetation, some flexibility in the disturbed area is required.

*The 4.4ha Processing Plant Area is excluded from the Maximum Disturbed Area calculations because this will be constructed first and stabilised prior to mining.

[17] Refer to Section 12: Recommendations, for details on the recessive colours to be used.
[18] According to the *Westland District Plan*, the application area is located within the rural zone. Within this the permitted height limit is 8m and up to 25m as a controlled activity.

5.6.3 Lighting

Lighting will be used to support the processing plant area and mining void. This lighting will be kept to a minimum to avoid disturbance but be sufficient to ensure a safe working environment. All lighting will be specifically designed to reduce the effect of light spill as much as possible. As such, all lighting will not exceed 2.0 lux light spill (horizontal and vertical) onto any adjoining property. Fixed lighting will also be pointed downward, shielded to avoid light spill, operate primarily in the yellow-orange spectrum, be filtered to reduce blue light, only illuminate the object or area intended, and be mounted as close to the ground as possible. In addition, the dredge lighting will be low level lighting. Seaward visibility is restricted as the dredge is inside the dredge pit 2-5m below ground level and generally operating in a north-south orientation.

5.6.4 Access and Vehicle Movement

The application area will be accessed by a new 150m private access road, constructed perpendicular to the western boundary, and located 640m from the southern boundary. At its eastern end, there will be a looped turn around circle to assist heavy vehicles to access the product loadout zone. In addition, the existing farmhouse access will be retained, and the southern farm access will be closed.

Heavy vehicles will be used during the construction and establishment of the site. Once the plant has been commissioned, the site will generate approximately 70 heavy vehicle movements per day and up to 165 light vehicle movements from staff, visitors, and service vehicles. Peak hour traffic generation is predicted to be 48 vehicle movements per hour (including light vehicles). Temporary access routes will be formed between the Processing Plant Area and mine void and along service corridors, with existing farm tracks utilised where possible. For material being transported offsite, there will be approximately 10,000 truck movements per annum based on 30 tonnes being carried per truck. These trucks will travel along SH6 towards Greymouth Port and return via the same route.

5.6.5 Proposed Machinery and Equipment

Machinery proposed to be used within the application area includes:**

Type	Model	Number
Dredge	7012 HP Versi-Dredge	1
Dozer	Cat D6 LGP	1
40t Excavator	Volvo EC380	1
20t Excavator	Volvo EC220	1
Mini Excavator		1
Articulated trucks (2 operating at one time)	Volvo A40D	2
Grader or similar	Cat 120	2
Product loader –or similar.	Volvo L150	2
Product loader	IT62	1
Field vibrating screen		1
Integrated Tool Carrier loader for site servicing of pipelines and service corridors	IT960 IT	1
Field booster pumps on rom feed slurry and tailings return.	Electric 6/4 warman pumps	Varies depending on distance

**Additional mining equipment and vehicles may be used on site, including a variety of pumps (including land based, floating and submersible) and light 4WD vehicles for the transport of mining personnel. The lists above are indicative of what machinery and equipment is likely required, however, the exact supplier/model may differ when mining operations commence.

5.6.6 Water Management

The Application intends to reuse as much water as possible to minimise top up requirements. There is no plan to discharge water to the adjacent creek or wetland. Three settling ponds and a process water dam are proposed to be constructed near the Processing Plant Area.

5.6.7 Management Plans

The Project will be operated in accordance with the following plans in relation to landscape effects:

- Landscape Mitigation Plan, Schedule of Species, and Recommended Colour Palette (refer to Appendix 3).
- Ecological Species Management Plan.
- Erosion and Sediment Control Plan.
- Rehabilitation Plan.

6 PERMITTED BASELINE

6.1 Permitted Activities

There are a wide range of activities permitted within the application area under the *West Coast Land and Water Regional Plan* and the *Westland District Plan (WDP)*. These activities provide an indication of the acceptable level of effects permitted in this rural environment. They include:

- Humping and hollowing, flipping or 'v blading' of land outside of riparian margins up to 5ha per annum – including the visual effect arising from exposed land.[19]
- Earthworks - including the ability to extract material at a rate of 5,000m^3/ha per year, which could result in ground level reduction, and adjacent to rivers which are <3m in width.
- Dairying – including activity such as tanker movements and night-time lighting.
- No limit on site coverage or size farm buildings, other than an 8m height limit (and up to 25m as a controlled activity).
- A 300m^2 controlled and 800m^2 discretionary limit for non-farming buildings.
- The establishment of shelterbelts and/or woodlots – for example the Applicant could lawfully establish a forestry block (which would be an option for revenue generation from the Emissions Trading Scheme), which has the potential to block neighbouring views.
- Vegetation clearance of 2000m^2 per year.[20]

6.2 Permitted Baseline Conclusion

In evaluating the permitted baseline content, it is feasible to rely on the outcomes to inform possible effects. However, in the context of this assessment, the author has been asked to conservatively consider effects independent of the permitted baseline, which has been done.

[19] It is acknowledged that humping and hollowing activity usually would occur to a depth of 1-2m, whereas mining activity goes to a greater depth (in this case a maximum of 13m with an average of 7m).
[20] This amount increases to 5000m^2 per year under the Proposed Te Tai o Poutini District Plan.

7 DETERMINING THE EXTENT OF THE COASTAL ENVIRONMENT

This section of the assessment has carefully considered whether the application area falls within the 'coastal environment'. This is because Section 6(a) of the *Resource Management Act (RMA)* requires Resource Consent Applications to recognise and provide for the preservation of the natural character of the coastal environment as a matter of national importance:

RMA Section 6(a): Matters of National Importance

"…managing the use, development, and protection of natural and physical resources" including:

a) *"The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development."*[21]

The *New Zealand Coastal Policy Statement (NZCPS)* is a national policy statement under the RMA. The purpose of the NZCPS is to state policies in order to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. Within the preamble, it states that one of the challenges in promoting sustainable management is that *"The coastal environment varies in nature and extent around the country."*[22]

As such, an evaluation of the application area against the statutory provisions and best practice has been completed in the following sections of the report. This assessment has informed whether the author considers the application area is within the coastal environment. Defining the Application as within the coastal environment would engage all the objectives and policies of the NZCPS, as well as Policy 9 of the *West Coast Regional Policy Statement (RPS).*

As part of this coastal evaluation process the following documents have been reviewed:

- *Resource Management Act (RMA),* 1991.
- *New Zealand Coastal Policy Statement (NZCPS)*, 2010.
- *Proposed Te Tai o Poutini Plan (TTPP),* notified in 2022.
- *Brown West Coast Landscape Study*, 2013 and 2022.
- *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines*, 2022.

[21] The RMA does not provide a definition for what constitutes the 'coastal environment'.
[22] New Zealand Coastal Policy Statement, preamble section, bullet point 1.

7.1 New Zealand Coastal Policy Statement

The seaward extent of the coastal environment is clearly defined as 12 nautical miles from the New Zealand mainland and islands. However, the inland extent of the coastal environment varies and can be less obvious. For the Application in question, the coastal environment is not mapped in statutory documents such as the WDP, but it is mapped in the Proposed TTPP (which has less weight until it becomes operational).

The NZCPS includes objectives and policies with respect to the preservation of the natural character of the coastal environment. Case law has determined that the principles of Policy 1 assist to define the coastal environment: *"Recognising that the extent and characteristics of the coastal environment* (will) *vary from region to region and locality to locality; and the issues that arise may have different effects in different localities."*

This sits alongside the theory that the extent of the coastal environment is: *"…one of those theoretically difficult questions which will usually yield to the facts and a liberal dose of common sense."*[23] In lieu of a definition for the coastal environment, the NZCPS, lists matters that contribute to the natural character of the coastal environment.[24] This list comprises of the natural physical environment and how it is perceived and experienced in context. As such, there is the expectation that site specific expert assessment will occur.[25]

The table which follows provides an evaluation of the application area against Policy 1 of the NZCPS. This evaluation contributes to understanding whether the coastal processes, influences, or qualities of the application area are 'significant', and whether the area is deemed to be within the coastal environment.

[23] The Environmental Defence Society Inc v Thames-Coromandel District Council case acknowledged that the case law definition has not advanced beyond the broad judgement approach of a 1990 decision: Kaupokonui Beach Society NZEnvC Decision No. W 030/2008, paragraph 37.

[24] *New Zealand Coastal Policy Statement*, 2010. Refer to Policies 1, 13 and 15.

[25] See application in *Mainpower NZ*, at [317].

NZCPS Policy 1	Evaluation of the Application Area
1. Recognise that the extent and characteristics of the coastal environment vary from region to region and locality to locality; and the issues that arise may have different effects in different localities.	The NZCPS states that the coastal environment varies in nature and extent around the country. The general approach to determine whether an area is within the coastal environment is to consider Policy 1. The author has also considered any relevant plan provisions about the region's coastal environment, and case law.
2. Recognise that the coastal environment includes: (a) The coastal marine area (CMA).	The CMA is defined as the area from the MHWS to 12 nautical miles off the coast. The application area sits outside of this zone and is used for farming. This landuse is not associated with or dependant on the coast. SH6 runs parallel to the application area and divides it from the sea.
(b) Islands within the coastal marine area.	There are no islands within the application area.
(c) Areas where coastal processes, influences or qualities are significant,[26] including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these.	There are no coastal and marine landforms (headlands, peninsulas, cliffs, reefs, spits, bays, surf breaks or springs) associated with the application area other than dunes. The *"dune ridges* (are) *the product of a transgressive sand ridge adjacent to Mahinapua Lake and Tūwharewhare (Māhinapua Creek) from around 8,000-9,000 years ago, followed by a set of regressive ridges extending out to the current coastline formed in the middle Holocene."* In essence, *"the more extensive dune formation followed the shifting of the course of the Hokitika River, as the coastlines eventually rectified to the current coastline. We see more continuity between the current coastal processes and the middle Holocene processes."*[27] The dunes illustrate the historical movement of sediment (sand). The formative coastal process are not legible unless you look for it, view areas of erosion or dig down into it. There are no other coastal processes such as tides or waves visible within or from the application area. To the east of the application area is Tūwharewhare (Māhinapua Creek) and the Māhinapua Wetland. Natural elements, processes and patterns are more evident around these two features. The above information illustrates that coastal processes, influences or qualities are not significant within the application area.

[26] *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, provide a definition for the term 'significant' (page 151) and describe it as having 'major magnitude or importance - more than a moderate influence or view'. It can also be characterised as 'high' or 'very high' or the upper part of the minor-moderate-major scale.
[27] Section 5.3.3 of the Hydrological and Water Quality Assessment.

(d) Areas at risk from coastal hazards.	The application area is not listed as an area at risk of coastal hazards in the *West Coast Regional Coastal Plan,* the subsequent NIWA Review, or the Proposed TTPP.
(e) Coastal vegetation and the habitat of indigenous coastal species including migratory birds.	In terms of vegetation, the Courts have previously relied on the composition of vegetation – whether the 'bulk' of it is coastal or not.[28] Vaughan Keesing (Project Ecologist) has confirmed that *"vegetation prior to clearance and farming of the site, was a back dune complex of tall forest comprised of: rimu-rata/kamahi-hinau forest and kahikatea forest in the damper areas and totara in the drier – coastal areas. An example of this forest type is found to the south of the site, within Lake Māhinapua Department of Conservation Scenic Reserve, (Singers & Rogers, 2014), (Leathwick et al., 2004).* *The 'coastal environment' has shifted over 1000's of years and the vegetation community today suggests that the influence of the coast is pronounced in the first 100m back from the harakeke sand edge. The sequence is from the active foredune to stabilising hind dune with harakeke to stable hind dune in mahoe to old dune in totara-kamahi. The extent of the coastal environment vegetation ends at the western side of SH6."* The above quote illustrates that the vegetation within the application area is not deemed to be coastal.
(f) Elements and features that contribute to the natural character, landscape, visual qualities, or amenity values.	The application area is modified with vegetation clearance, drainage channels, and pastoral farming activity. There is one artificial channel and several modified drains.[29] Experiential attributes include being able to hear the sea but not see or smell it. There is also the darkness of the night sky with only scattered dwellings. No coastal activities such as shipping, boating, swimming, surfing, fishing, or gathering kai moana are accessible from the application area. There is some evidence of coastal weather patterns with wind swept vegetation. Wave patterns are not visible.
(g) Items of cultural and historic heritage in the coastal marine area or on the coast.	The inland area has a rich European and Māori history. Lake Māhinapua was formerly a coastal lagoon, but with the build-up of coastal dune systems, became a shallow inland lake, with several channels flowing into and out of it. Lake Māhinapua was also the place of a significant battle between Ngāi Tahu and Ngāti Wairangi Māori, and is regarded as sacred. The proposed *TTPP* identifies Tūwharewhare (Māhinapua Creek) as an area of significance to Māori, and

[28] *Mainpower NZ*, at [319].

[29] According to the Project Ecologist, Vaughan Keesing of BlueGreen Ecology, the artificial channel is a 250m intermittent system within the largest forest fragment, with only 50m of stable habitat.

	the south-eastern corner of the site (outside the application area) as a proposed ONL. According to the *Mananui Mineral Sands: An Archaeological Appraisal*[30] the Mananui Tramline would have serviced the Mananui Sawmills, which are recorded as archaeological site J33/215, located north-east of the application area. There were also four small houses present along the northern boundary of the application area by 1912. These are recorded as archaeological site J33/215. These houses were likely associated with the home for aged and infirm miners established in the area from 1887. Although the archaeological sites are documented in a 1912 survey plan, the sites are not currently listed within the *WDP* maps. None of the above cultural or historical heritage items are located within the coastal marine area or on the coast.
(h) Inter-related coastal marine/terrestrial systems, including the intertidal zone.	The application area is not in the intertidal zone.
(i) Physical resources and built facilities, including infrastructure, that have modified the coastal environment.	There is one farmhouse with ancillary farm structures within the application area. There are no coastal features such as quays, wharves, lighthouses, ports, shipwrecks, shipping channels, or other infrastructure within the application area.

7.2 Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines

The national guidelines for preparing landscape assessment contain the following guidance in instances where the inland extent has not been identified:[31]

- The coastal environment is the area in which coastal processes, influences or qualities are significant. Significant means major – more than a moderate influence or view.
- The inland boundary should be identified with respect to the physical landscape character.
- The land and sea should be considered together when deciding on the inland boundary.
- The extent will vary from place to place.
- The extent should derive from the environment rather than potential effects.

[30] *Mananui Mineral Sands: An Archaeological Appraisal*, report prepared by Heritage Properties Limited, 5th July 2023.
[31] *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Tuia Pito Ora New Zealand Institute of Landscape Architects, 2022. Refer to: Identify the Relevant Area and Assessing Natural Characteristics, pages 211 – 226.

Taking this into consideration, the existing landscape character and values of the area inform the extent of the coastal environment. In some landscapes, this is obvious through a leading ridgeline behind the coast, a change in landform or landcover, or a physical attribute such as a river.[32] However, for this Application, the inland extent of the coastal environment is less apparent. As such, the application area has been assessed against the characteristics and values specific to the coastal environment as outlined in the guidelines.[33] The evaluation below contributes to understanding if the coastal processes, influences, or qualities of the application area are in fact 'significant'.

Te Tangi a te Manu: Characteristics and Values of the Coastal Environment	**Evaluation of the Application Area**
Coastal and marine landforms. E.g., Headlands, peninsulas, cliffs, dunes, reefs, spits, bays, underwater topography, sediments.	No obvious coastal and marine landforms other than historical dunes visible within the application area.
Coastal and marine biota and ecosystems. E.g., Pōhutukawa, kelp, seabirds, fish, dune ecosystems, reef ecosystems.	Historical dune systems running across the application area are approximately 8000-9000 years old.
Coastal processes. E.g., Tides, waves, weather, erosion, deposition.	The sand deposits within the application area are not part of an active dune system.
Coastal human features. E.g., Quays, wharves, lighthouses, ports, shipwrecks, shipping channels, infrastructure.	No coastal human features visible within the application area.
Land use patterns oriented to the sea. E.g., The location and form of coastal towns and settlements, orientation of transport.	The application area is located between Hokitika and the small settlement of Ruatapu, linked by SH6. It is used for pastoral farming.
Coastal activities. E.g., Shipping, boating, swimming, surfing, fishing, kai moana gathering, star gazing.	No coastal activities are accessible from the application area.
Coastal weather patterns. E.g., Sea mist, on/offshore winds, wave patterns	Evidence of coastal weather patterns with wind swept vegetation.
Views to and from the sea.	The sea is not easily visible from the application area.
Other experiential aspects. E.g., The sound and smell of the sea, lap of the tides, reflected light on the sky, the taste of kai moana.	The sea can be heard. There is also the experiential aspect of the dark night sky with only scattered dwellings.

[32] While property boundaries may be appropriate for some purposes, they often do not follow the natural landscape.

[33] As listed in the national guidelines for preparing landscape assessment: *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Tuia Pito Ora New Zealand Institute of Landscape Architects, 2022. Refer to the section on Coastal Environment Landscapes, pages 92-94.

7.3 Proposed Te Tai o Poutini Plan

The *Te Tai o Poutini Plan (TTPP)* is the proposed combined District Plan for the Buller, Grey, and Westland District Councils.[34] Once adopted, it will replace the individual District Plans. The TTPP defines the 'coastal environment' through a Coastal Environment Overlay (CEO) identified on the TTPP maps. This CEO was delineated by the *Brown West Coast Landscape Study*,[35] which evaluated the extent of the coastal environment in accordance with a modified version of Policy 1 of the NZCPS.[36] Assessment criteria included:

A) Areas That Are Physically Linked to the Coastal Marine Area:

1. Areas that are directly subject to wave action and tidal inundation/movement, and which contain/define the inter-tidal margins of the CMA.
2. Coastal drainage systems, including catchments and headwaters that feed into the CMA.
3. Landforms and vegetation cover that are directly affected/modified by exposure and proximity to the CMA – through wind action, wave action and salt exposure.

B) Areas Whose Character is Substantially Defined by their Proximity to the Coastal Marine Area:

1. Areas within which the CMA is a dominant to significant visual entity.
2. Locations whose landscape character and amenity are clearly influenced by proximity to, and a sense of connection with, the CMA.
3. Locations within which items of cultural and historic heritage are found that are linked to, or within the CMA.

Through conducting the *Brown West Coast Landscape Study*, Brown noted that in some locations, the extent of the coastal environment is harder to define. For example, the ranges often provide spectacular views towards the Tasman Sea, but often do so from a considerable distance. As such, if this landform was used to define the inland extent of the coastal environment, it would have resulted in exceptionally large areas being classified as coastal. To avoid this, Brown identified the areas that derive most, or a very large proportion, of their character from visual connection with the

[34] The *Te Tai o Poutini Plan* has been notified and submissions closed on the 11th of November 2022.

[35] The *Brown West Coast Landscape Study* documents include the: '*West Coast Landscape Study: Maps, Photos and Schedules*, Brown NZ Ltd, May 2013', '*West Coast Landscape and Natural Character Study 2012 and 2013, Explanation of Assessment Methodologies*, Brown NZ Ltd, March 2021', and '*West Coast Landscape Study, Review of Outstanding Natural Landscapes and Areas of High and Outstanding Natural Character*, Brown NZ Ltd, March 2022'.

[36] Brown translated Policy 1 of the NZCPS into criteria that were meaningful 'on the ground', that he could use to assess the extent of the coastal environment.

coastal marine environment, and which convey a marked sense of being shaped (especially in terms of their vegetation cover) by the physical processes derived from close proximity to the sea.[37]

The proposed CEO confirms the inland extent of the coastal environment as SH6, which is adjacent to the western boundary of the application area. This is consistent with the author's assessment.

7.4 Conclusion: Determining the Extent the Coastal Environment

An evaluation of the application area against the statutory provisions and best practice has determined that the application area is not within the coastal environment. Primarily, this is a result of the natural physical environment and how it is perceived and experienced in context. For Mananui, the extent of the coastal environment diminishes gradually the further inland you travel.

Rationale for the application area not being located within the coastal environment includes:

- The coastal processes, influences or qualities are not significant.
- The application area not being part of the coastal marine area or intertidal zone.
- The application area not being at risk of coastal hazards.
- The sand deposits within the application area not being part of an active dune system.
- The formative coastal process of the dunes not being overly legible.
- The vegetation within the application area being noticeably different to that near the beach.
- The application area not having visible coastal features or landforms (other than the dunes which are not overly legible).
- The current landuse not being associated with or dependant on the coast.
- There being no coastal activities directly accessible from the application area.
- The interaction of the application area with the coast being difficult to define.

[37] TTPP Section 32 Report: Coastal Environment, pages 76-77.

8 STATUTORY PROVISIONS

This section of the assessment reviews and summarises the statutory provisions relevant to landscape matters. The purpose of reviewing the provisions is to help frame the assessment. It is not to undertake a full planning assessment of the Application against the provisions.[38]

The identified statutory provisions relevant to this landscape assessment include the:

- *Resource Management Act (RMA),* 1991.
- *National Policy Statement for Freshwater Management (NPS-FM),* 2020.
- *West Coast Regional Policy Statement (WCRPS),* 2020.
- *Westland District Plan (WDP),* 2002.
- *Te Tai o Poutini (TTPP),* a proposed plan notified on the 14th of July 2022.

The important questions raised by the statutory provisions are:

- Will the Application cause adverse effects on the natural character, natural features and/or landscape of the Mananui area?
- Will the Application cause adverse effects on the amenity values and/or quality of the environment of the Mananui area?
- If there are adverse effects, will any of these be significant?
- Are there any adverse cumulative effects?

8.1 Statutory Provisions to be considered by this Assessment.

8.1.1 Resource Management Act

The *Resource Management Act (RMA)* provides the statutory framework for managing the effects of activities on the environment and is therefore a critical component to any development. Section 6 and 7 of the RMA, and its elaboration in the lower order statutory documents, provides the framework for most landscape assessments, including this one. An evaluation against the applicable landscape objectives and policies is included in the following sections.

[38] As recommended by the *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines* on page 237.

Resource Management Act	Applicable Objectives and Policies	Evaluation
Section 6 – Matters of National Importance: *"…managing the use, development, and protection of natural and physical resources…"*	*b) "The protection of outstanding natural features and landscapes from inappropriate subdivision, use and development."*	The application area is not currently listed as part of an ONL or ONF. However, the south-eastern most corner of the site is proposed as an ONL under the TTPP. Refer to Section 8.2 which discusses this aspect in detail.
	c) "The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna."	The effect of the Application on existing landcover is evaluated under Landscape Effects, Section 10.2.3.
Section 7 – Other Matters: *"…managing the use, development, and protection of natural and physical resources…"*	*c) "The maintenance and enhancement of amenity values."*	The effect of the Application on amenity values is discussed under Section 8.4.
	f) "The maintenance and enhancement of the quality of the environment."	The effect of the Application on the quality of the environment is discussed under Section 8.4.

8.1.2 National Policy Statement for Freshwater Management

The National Policy Statement for Freshwater Management (NPS-FM) sets out the objectives and policies for freshwater management under the RMA. Underpinning the NPS-FM is the concept of Te Mana o te Wai. This refers to the fundamental importance of water and recognises that protecting the health of freshwater, protects the health and well-being of the wider environment. It is about restoring and preserving the balance between water, the wider environment, and the community. An evaluation against the applicable landscape objectives and policies is included below:

NPS-FM	Applicable Objectives and Policies	Evaluation
Policy 6	*"There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted."*	I have considered the Ecological Assessment, which states that the application area has been carefully considered to exclude the Māhinapua (Tūwharewhare) Wetland. This means there will be no loss of extent of natural inland wetland environment as a result of the Application. Rehabilitation measures such as increased planting along the eastern boundary will contribute to an increased buffer zone for the wetland.
Policy 7	*"The loss of river extent and values is avoided to the extent practicable."*	
Policy 8	*"The significant values of outstanding water bodies are protected."*	

8.1.3 West Coast Regional Policy Statement

The *Regional Policy Statement (RPS)* provides a broad framework for managing the West Coast's natural and physical resources under the RMA. It includes the significant resource management issues that are important to the West Coast, and identifies regionally significant issues and objectives, policies, and methods. An assessment of the relevant sections of the RPS is as follows:

West Coast Regional Policy Statement	Applicable Objectives and Policies	Evaluation
Section 7A Natural Character	*Objective 1. Protect the natural character of the region's wetlands, and lakes and rivers and their margins, from inappropriate subdivision, use and development.*	Refer to Section 8.3 which summarises the existing natural character and assesses the effects of the Application on these values and against the criteria identified in Section 7A of the WCRPS.
	Policy 2. Protect the elements, patterns, processes, and qualities that together contribute to the natural character of wetlands, and lakes and rivers and their margins from inappropriate subdivision, use and development.	
Section 7B Natural Features and Landscapes	*Objective 1. Protect the region's outstanding natural features and outstanding natural landscapes from inappropriate subdivision, use and development.*	The application area is not currently listed as part of an ONL or ONF. However, the south-eastern most corner of the site is proposed as an ONL under the TTPP. Refer to Section 8.2 which discusses this aspect in detail.

8.1.4 Westland District Plan

The *Westland District Plan (WDP)* provides a framework of environmental standards that sets out how the Council and the community would like the natural and physical resources within the district to be used, developed, and managed. The WDP has numerous policies and objectives relating to landscape because the West Coast environment is unique to New Zealand. An assessment of the relevant sections of the WDP is as follows:

Westland District Plan	Applicable Objectives and Policies	Evaluation
Natural Character		
Section 3.6 Mineral Resources	*Objective 3.6.3. To avoid, remedy or mitigate mining's adverse effects on natural environments, landscapes, and waterways.*	Refer to Sections 8.2 to 8.4 which discusses these aspects in detail.
Section 3.10 Landscape	*Objective 3.10.1. To ensure development does not impinge on the integrity of landscapes in Westland.*	
Section 3.10 Landscape	*Objective 3.10.2. To maintain and protect the existing scenic and open and diverse character of Westland District, dominated by natural dynamic processes.*	Refer to Section 8.3 which discusses these aspects in detail.
Section 4.8 Landscape	*Policy A. The continuity of the mountains to sea landscape in Westland… shall be protected by ensuring development considers the landscape setting.*	
Amenity Values		
Section 4.4 Amenity	*Policy E. The effects of activities which can be seen as adversely affecting the overall environmental amenity of the district shall be avoided.*	Maintenance and enhancement of the quality of the environment is discussed under Section 8.4.
Landuse		
Section 3.10 Landscape	*Objective 3.10.3. To ensure that land uses, buildings and development have regard to the natural landscapes in which they are located or seek to be located.*	The effect of the Application on existing landuse is evaluated under Section 10.2.2. This ensures that adjacent landuse activities are compatible in the rural area or adverse effects satisfactorily mitigated.
Section 4.7 Land and Soil Quality	*Policy B. Landuse activities in the rural area should avoid, mitigate, and remedy their adverse effects on adjoining land uses, the community, and ecosystems.*	
Indigenous Vegetation		
Section 4.8 Landscape	*Policy B. The contribution of indigenous vegetation to the landscape character of the district shall be recognised and its clearance controlled.*	The effect of the Application on existing landcover is evaluated under Section 10.2.3.
Section 4.9 Natural Habitats and Ecosystems	*Policy B. The protection and enhancement of areas of significant indigenous vegetation and habitats of indigenous fauna… will be encouraged.*	
Rehabilitation		
Section 4.13 Mineral Resources	*Policy A. The establishment of mineral related activities should incorporate… appropriate rehabilitation of disturbed areas.*	Refer to Section 12 which discusses rehabilitation in detail.

8.1.5 Proposed Te Tai O Poutini Plan

The *Te Tai o Poutini Plan (TTPP)* is the proposed combined District Plan for the Buller, Grey, and Westland Districts. Its purpose is to manage landuse activities and subdivision across the region. Once adopted, it will replace the individual District Plans. As the TTPP is within the early stages of the process, it has been given limited consideration.[39]

Te Tai o Poutini Plan	Applicable Plans, Objectives and Policies	Evaluation
Zoning, Plan 69.	The application area is proposed as a 'General Rural Zone'.	This is similar to its existing 'Rural' zoning.
Environmental and Cultural Values, Plan 69.	The 'Coastal Environment' is defined as the area between the coast and SH6 and excludes the application area.	This is consistent with the author's findings that the application area sits outside of the coastal environment (refer to Section 7).
Environmental and Cultural Values, Plan 69.	An area to the south and south-east is identified as an 'Outstanding Natural Landscape' (ONL). This includes the south-eastern corner of the site, the southern part of Tūwharewhare (Māhinapua Creek), the entirety of Lake Māhinapua and the established perimeter vegetation.	A portion of the site is identified as being part of a future ONL. This ONL area sits outside of the application area and will not be affected by the Project. Furthermore, consent conditions placed upon the Application will ensure this ONL area is protected.

[39] The *Te Tai o Poutini Plan* has been notified and submissions closed on the 11th of November 2022.

8.2 Outstanding Natural Features and Landscapes

Natural features or natural landscapes are characterised by their predominance of natural components (landform, vegetation, water bodies) over built components. Internationally recognised for its outstanding natural landscapes and outstanding natural features, the West Coast is attracting large numbers of tourists seeking natural experiences. Ensuring that the West Coast Region retains this identity requires management of significant adverse effects.

Under section 6(b) of the RMA, Councils must recognise and provide for the protection of Outstanding Natural Landscapes (ONL's) and Outstanding Natural Features (ONF's) from inappropriate subdivision, use and development as a matter of national importance. The scale of an ONL/ONF is usually identified within the plan of the decision-making body. Each area has been previously determined through an assessment process that identifies whether the landscape or feature is *"conspicuous, eminent, especially because of excellence or remarkable."*[40,41] Such landscapes are usually so obvious that no further need for expert analysis is required, aside from determining where the landscape begins and ends.

It can be assumed that the South Westland landscape between Ross and Jacksons Bay, which consists of mountains, hills, glaciers, rivers, and podocarp forest is a high-quality landscape (and in places an ONL). To the north between Ross and Hokitika (which includes the application area), large parts of the vegetated plain have been converted to pastoral land. These areas include small industries, houses, and farm buildings, with the mountains forming a backdrop in the distance. Immediately adjacent to the application area is Tūwharewhare (Māhinapua Creek), Māhinapua Scenic Reserve, and Lake Māhinapua, consisting of a large wetland-stream system, forest, and lake. This landscape is deemed to be of very high quality due to the landscape's intact nature, rich biodiversity and cultural importance. The application area is in stark contrast to this, with the majority of it having been cleared of its former vegetation. Large swathes of grassland and slender strips of remnant forest are all that remain.

[40] Outstanding Natural Features and Landscapes are also referred to in *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines* on pages 187-189.

[41] As defined by:C180/99, Wakatipu Environmental Society Inc v Queenstown Lakes District Council, paragraphs 82 and 99.

Under the WCRPS and WDP maps, the application area and its surrounding landscape are not listed as having either ONL or ONF values. This is likely due to the previous felling of vegetation, the partially modified landform, and conversion to farming activity. However, under the previously commissioned (but non-ratified) *Brown Landscape Study*[42] and more recently proposed TTPP, the application area is not listed as an ONL, but the south-eastern corner of the site, the southern part of Tūwharewhare (Māhinapua Creek), the entirety of Lake Māhinapua and the established vegetation around it, are listed as an ONL.

The key attributes which contribute to Lake Māhinapua being proposed as outstanding are:[43]

- The extensive and homogenous mature swamp forest around the entire lake fringe that directly interacts with the open waters of the lake.
- The intact sequences of wetland and swamp species through to canopy native forest.
- The tranquillity of the lake with the unmodified sequences of native forest amplifying the natural qualities of the landscape.

In response to these findings, a conservative approach has been taken, to assess the effects of the mining activity on the 'outstanding' value of this landscape. This has concluded that, there will be *no adverse effect arising from mining activity on the outstanding value of the landscape.* This is due to:

- The ONL area being part of a separate landscape entity, with the author agreeing that the ONL boundaries accurately reflect the area which is classified as 'outstanding'.
- The proposed ONL area being located outside of the planned mineral extraction area.
- The separation between the mining activity and Tūwharewhare (Māhinapua Creek).
- The distance between the mining activity and Lake Māhinapua.
- The physical, perceptual, and associative values of Lake Māhinapua ONL being retained.
- The ability to mine the eastern boundary in one consistent strip in a condensed time period.
- The rehabilitation and mitigation planting proposed along the eastern boundary.
- The fact that there will be a limited mining disturbance area at any one time.
- Conditions being placed upon the Application to actively avoid, remedy, or mitigate any adverse environmental effects on the proposed ONL environment.

[42] The *'Brown West Coast Landscape Study'* commissioned by *Grey District Council* identified outstanding landscapes and natural features located in areas outside of the public conservation lands administered by DoC. For further information, refer to *'West Coast Landscape Study (2013), Coastal Outstanding Natural Landscapes/Features, Map 6/10.'*

[43] For further information, refer to *West Coast Landscape Study* (2013), Schedule, Unit 26: Lake Māhinapua.

8.3 Natural Character

Natural character is not the same as natural features and landscapes or amenity values. Natural features and landscapes are places (or areas). Whilst natural character is the value perceived to be derived from the natural characteristics and qualities of such places or areas.[44,45] Natural character occurs in greater to lesser degrees in a continuum from the pristine to the modified environments. This reflects the modified nature of landform, water surface and vegetative cover dependant on natural elements, patterns, and processes.

An area's remnant natural character may be important even though it is highly modified. In addition, preserving and protecting natural character does not necessarily mean maintaining status quo or avoiding development. The purpose of assessing natural character is to inform its management. Restoration and rehabilitation of natural character can also occur.

This assessment has considered the effects of the mining activity on the natural character of the adjacent creek, wetland, lake, and their margins. Section 6 of the RMA requires the *"preservation of the natural character of … wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development."* Section 7A of the RPS also identifies that these important areas contribute to natural character values of the region.

This is relevant to the Application because the south-eastern corner of the site (but not the application area), falls within the margin of the Tūwharewhare (Māhinapua Creek). To evaluate the effect of the Application, the existing characteristics and qualities which make up the site and the wider Mananui environment have been analysed.[46]

In terms of the application area, the Tūwharewhare (Māhinapua Creek) and wetland exhibits a high value of naturalness through the scenic kahikatea swamp forest surrounded by flax. Reflections in the water are visible on a clear day. Likewise, nearby Māhinapua Scenic Reserve and Lake Māhinapua also exhibit high values. In contrast, the modified pastoral plain either side of SH6 (and which the application area is part of) has downgraded natural character due to the removal of

[44] *Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines*, Tuia Pito Ora New Zealand Institute of Landscape Architects, 2022, page 205.
[45] The natural character of the application area is further described under Section 4: Existing Landscape Context.
[46] The degree or level of natural character within the environment depends on, a) the extent to which the natural elements, patterns and processes occur and b) the nature and extent of modification to the ecosystems and landscape.

vegetation, land disturbance, and the scattering of houses, farm buildings, roads, and powerlines throughout the landscape.

Natural character values for the application area include:

- The rural environment.
- The darkness of the night sky.
- The openness and expansiveness of the landscape (until the edge of the bush).
- The physical humps and hollows of the historical dune landform.
- The presence of a small number of drains leading towards the creek.
- The landscape being uncluttered by structures.
- The presence of isolated fragments of vegetation and in places, noticeably wind-blown.
- The emptiness of the area with limited and infrequent movement and noise.
- The close relationship to the diverse (and more 'natural') landscapes nearby.

Section 7A, Policies 2 and 3 of the RPS provides a set of regionally consistent criteria to identify and assess the natural character of wetlands, and lakes and rivers and their margins and to determine whether an activity (Application) is appropriate. They include:

Policy 2: *Protect the elements, patterns, processes, and qualities that together contribute to the natural character of wetlands, and lakes and rivers and their margins from inappropriate subdivision, use and development.*

Policy 3: *When determining if an activity is appropriate, the following matters must be considered:*

a) *The degree and significance of actual or potential adverse effects on the elements, patterns, processes, and qualities that contribute to natural character.*
b) *The value, importance, or significance of the natural character at the local, or regional level.*
c) *The degree of naturalness.*
d) *The potential for cumulative effects to diminish natural character, and the efficacy of measures proposed to avoid, remedy, or mitigate such effects.*
e) *The vulnerability of the natural character to change, and its capacity to accommodate change, without compromising its values.*

Taking the above into account, it can be concluded that the proposed mining activity will have the following effect on natural character:

- The rural environment will be modified short term to include mining activity. This diversification is not uncharacteristic with mining, farming, and milling occurring previously.
- The exotic pastoral grass will be lost temporarily, and the isolated fragments of vegetation will be removed permanently.
- The landform of the application area will be excavated with resource stockpiled.
- The generally uncluttered landscape will have new structures added short term. These will take up a small proportion of the overall site.
- The openness of the landscape will be modified with the addition of bunds and planting in select locations for visual screening. Nevertheless, the larger landscape forms of plain, swampland, troughs and hills will continue to be the dominant elements.
- The emptiness of the area will evolve with the addition of machinery and movement, some which will be contained within the plant area or mine pit.
- The darkness of the night sky will be periodically interrupted with the addition of lighting for the mine plant, mine pit, trucks, and nighttime activity.
- The application area will be progressively rehabilitated as mining is completed.

As noted above, the application area has reduced natural character due to human modification of the area, the addition of built form, stock having unrestricted access to vegetation, vegetation removal, and the invasion of weeds and pests. It is considered that the Application *will result in a low (minor), short term adverse effect on natural character for both the application area and locality* during mining. Longer term, with mining activity complete, and rehabilitation implemented (new planting, fencing and reserve area), *there will be a positive low to moderate (minor) effect on natural character.*

8.4 Amenity Values and the Quality of the Environment

Section 7(c) and 7(f) of the RMA requires decision makers to have regards to *'amenity values'* and the *'quality of the environment.'* A definition for 'amenity' is found under Section 2 of the RMA and includes: *"…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."* This mirrors the definition outlined within *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines,* which is concerned about the relationship of people with the physical, associative, and perceptual dimensions of the landscape.

Amenity values can be influenced by factors such as viewing position (roads or walking tracks), who is viewing it (recreationalists or travellers), the degree of change in the landscape a viewer can accommodate, and the value inhabitants and travellers place on a location.[47] The amenity values for this location relate to the:

- Diverse landscape made up of many different landscape components and characteristics.
- High natural character around the site (but not for the application area which is modified).
- Openness and generally unbuilt landscape.
- Contrast between the wide-open pastoral areas with long views and the impermeable bush.
- The beauty of Tūwharewhare (Māhinapua Creek) with reflections visible on a clear still day.
- The emptiness of the area with movement and noise (other than the wind) confined to individual properties and the intermittent cars travelling along SH6.

A definition for the term 'environment' is found under Section 2 of the RMA, and includes:

- Ecosystems and their constituent parts, including people and communities.
- All natural and physical resources.
- Amenity values.
- The social, economic, aesthetic, and cultural conditions which affect the matters stated in paragraphs (a) to (c) or which are affected by those matters.

When considering the term 'maintenance and enhancement' (Sections 7(c) and 7(f)) it is important to understand that the RMA also provides for positive effects and environmental enhancement,

[47] Many of the issues discussed under natural character can also affect amenity values such as landform and landcover.

including restoration and rehabilitation. This is something which can sometimes be overlooked in the focus of avoiding, remedying, and mitigating the adverse effects of an Application.

The key issues for landscape amenity are the effect on the natural environment, the local ambience and outlook, and the addition of activity, noise, and light. The magnitude of effect depends on the viewing location, orientation, landform, and vegetation screening as to what change is apparent.

The Application will result in the openness and largely unbuilt area being changed in the short term through the addition of the plant, ancillary buildings, machinery, movement, bunding, screening vegetation and the mine pit itself. The existing farming landuse will also temporarily change to mining.[48] For a 16 year period, the mining operation will change the rural character of the immediate landscape.[49] However, only a part of the application area at any one time will be affected by the mining activity alongside the use of the Processing Plant. This *will result in a transitional low (less than minor) adverse effect on amenity, resulting in gradual change across the application area as the Project progresses*.

In terms of positive effects and environmental enhancement, this will occur through the rehabilitation of the new Ecological Rehabilitation Area near the eastern escarpment and the addition of new planting along the western and northern boundaries. Rehabilitation will occur progressively as each section of mining is completed. At the end of mining, it also includes the potential for additional public access linking Māhinapua Walkway and Lake Māhinapua together. For these reasons, *long-term there is deemed to be a low to moderate (minor) positive effect on the quality of the environment.*

[48] This will not change the diversity of the wider landscape or the landscape character.
[49] The 16 year period includes 10 years of productive mining plus time for site establishment, rehabilitation and decommissioning.

9 IDENTIFIED ISSUES

This section of the report helps frame the assessment of landscape and visual effects. The landscape and visual issues arise from the introduction of the Proposal to the landscape setting and the subsequent changes to the existing landscape character at the site and broader context. The purpose of this assessment is to address the below issues, while considering the statutory planning framework which sets out certain expectations for the site and wider setting.

All landscape issues are unique to this assessment and arise from the Application. They include:

- Determining whether the Application area falls within the coastal environment.
- The short-term change in landscape character from farming to mining and processing.
- The short-term effect arising from construction activity associated with site establishment.
- The change of landcover with vegetation and pasture loss.
- The proposed Processing Plant (WCP) being over the 8-metre permitted height limit, but within the anticipated height (the 25m controlled activity height limit) by WDC.
- The addition of new structures, ponds, fences, roads, machinery, bunds, and planting.
- The effects arising from the mining activity itself.
- The preservation of natural systems (wetlands, vegetation, and farmland).
- The protection of identified visual values (important viewpoints and vistas).[50]
- The effects of the Application on natural character and natural features.
- The effects of the Application on amenity values and the quality of the environment.
- The viability of resuming farming once the mining operation is complete.
- The opportunity for the Application to result in positive effects including restoration, rehabilitation, and environmental enhancement.

[50] This includes the change in amenity experienced from private properties, users of SH6 and the neighbouring recreational areas.

10 LANDSCAPE ASSESSMENT

10.1 Preface

Change in a landscape does not necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways. These changes are both natural and human induced. Often, they can be the result of landform or vegetation modification or the introduction of new structures, activities, infrastructure, or facilities into the landscape. What is important in managing landscape change, is that adverse effects are avoided or sufficiently mitigated to ameliorate the effects of the change.

The degree to which landscape effects are generated by the Application depends on:

- The degree to which the Application contrasts, or is consistent, with the surrounding landscape.
- The predictable and likely known future of the locality.
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character of the area.

Landscape and visual effects generated by an Application can be perceived as:

- Positive (beneficial) contributing to the visual character and quality of the environment.
- Negative (adverse), detracting from existing character and quality of the environment.
- Neutral (benign), with essentially no effect on the existing character or quality of the environment.

10.2 Landscape Assessment

The landscape assessment that follows evaluates the effects of the mining activity on the landscape character and amenity when compared to the existing rural activity. It also assists in determining whether the proposed changes are appropriate for the location.

10.2.1 Effects on Landform

The existing landform of the application area is similar to the wider environment with the undulating plain defined to the west by SH6 and to the east by Tūwharewhare (Māhinapua Creek). Topographical features (as described within Section 4.3) are a result of ongoing geological processes illustrated by the 3-4m humps and hollows and the 10-12m fall in elevation towards SH6.

The application area and the wider area of Mananui exhibit a number of natural systems (as discussed previously) including the creek, lake, bush, and farmland. It is a careful balancing act to preserve and protect natural systems, alongside the desire to mine a natural resource. Through careful management and design, the area with the highest value in the eastern and south-eastern part of the site has been excluded from the application area. This means that no wetlands will be mined by the Project. In addition, setback boundaries have been implemented between the parcel boundaries and the mining disturbance area. These setbacks are 20m from the western boundary, and 10m from the northern and southern boundaries. Mining on the eastern boundary will cease at the top of the escarpment prior to Tūwharewhare (Māhinapua Creek).

As described in the Section 5: Proposal, all changes to the landform resulting from mining activity (other than the construction of bunds and planting) will occur within the mining disturbance area. The maximum size of the disturbed area (at any one time) is anticipated to be 27.7 ha, with the average disturbed area anticipated to be less (refer to Section 5.6.2: Maximum Disturbed Area). Due to the nature of the mining methodology, continuously moving void, and progressive rehabilitation and revegetation, some flexibility in the disturbed area is required.

Conclusion to Landform Effects

In summary, changes to the landform as a result of the Application include:

- The short-term effect arising from site establishment to construct the Processing Plant and other facilities, hardstand, and access road.
- Earthworks to excavate the three ponds.
- Earthworks to construct both permanent and temporary visual bunds.
- Preparation earthworks to strip topsoil prior to each panel being mined.
- Extraction earthworks (mining via a dredge) in a north/south orientation.
- The stockpiling of material for processing.
- The backfilling of sands and topsoil into the mine void once mining is complete.
- Progressive rehabilitation to achieve the final landform, slope, and drainage.

It is anticipated that the final landform will be similar to the existing (albeit at a lower elevation) and continue to fall from east to west. On average it will be 1.5m lower due to extraction having taken place. Rehabilitation will minimise the effects of this reduction through the landform being

recontoured and re-established into pasture (or vegetation). The final landform will be flatter, with less ponding and better drainage. It will also not be out of context with the surrounding Mananui environment. For these reasons, there is deemed to be a *moderate (minor) adverse effect on landform* during the mining activity (due to the mining disturbance area being limited in size), and a *low (less than minor) adverse effect on landform* once mining and rehabilitation are complete.

10.2.2 Effects on Landuse

The application area was selected for its availability of suitable materials for extraction. In essence, the existing farming operation which has occurred for many years, will change short term to mining extraction. This change in landuse will result in effects arising from site establishment, the addition of new buildings, structures and the access road, and the use of machinery, stockpiles, ponds, bunds, fences, and planting. The mining extraction itself also has an effect on landuse. Although the proposed landuse is different to anything currently occurring within Mananui, it is not dissimilar to that occurring within the vicinity of Ross and inland in the Rimu channel.

The appropriateness of the short term landuse for mining is determined by the following factors:

- The consent being for 16 years, with the mining activity being for approximately 10 years.
- All buildings and facilities being only for the life of the Project.
- The activity being setback from the landscape features such as Tūwharewhare (Māhinapua Creek), Māhinapua Scenic Reserve, Lake Māhinapua, and neighbouring properties.
- The Application staging allowing for progressive rehabilitation to occur.
- The mining activity not affecting the compatibility of landuse within adjacent areas.
- The ability for the application area to return to a pastoral landscape for farming once again.
- The rehabilitated land resulting in an improved land resource for farming with the ability for straighter fences and optimal paddock sizes.

<u>Conclusion to Landuse Effects</u>

For these reasons listed above, it is concluded the Application will overall have a *low (less than minor) short term adverse effect on landuse*. Upon completion of mining and once rehabilitation has occurred, this will reduce even further.

10.2.3 Effects on Landcover

The existing landcover is discussed under Section 4.3.3, and states that the majority of the application area is made up of exotic pastoral grass with only fragments of vegetation remaining. This pasture is often disturbed by farming practices – mowing, tilling and stock grazing.

Landcover to be Avoided

All of the existing almost continuous, visually impermeable, and mixed broadleaf vegetation lining the eastern boundary and in the south-eastern corner of the site (outside of the application area) will remain untouched by the Application, although there are minerals which could be extracted, located within the eastern embankment, Tūwharewhare (Māhinapua Creek) and wetland environment.

Landcover to be Removed

The main change to landcover resulting from the Application, will be the short-term shift from grassland to mining. In addition to the removal of pastoral landcover, some isolated fragments (approximately 4ha in total) of vegetation will also be removed. This vegetation is not continuous nor considered virgin bush. It is low value due to stock interference and weed infestation. When compared to the wider landscape, these fragments are of a small scale and fairly insignificant.

Landcover as Mitigation

New mitigation planting will occur along the western boundary with SH6 (both on the bunds and as infill planting in between them) and along the northern boundary with the Māhinapua Walkway (refer to the Landscape Mitigation Plan in Appendix 3).[51] This new planting will be locally sourced.[52] Additional planted areas will assist to strengthen the buffer between the mining activity and existing landscape features, visually soften and screen views, and provide numerous ecological benefits.

Landcover to be Rehabilitated

For the eastern part of the application area, there will also be the addition of an 'Ecological Rehabilitation Area'. This 7.12ha area will be created from approximately 4.75ha of vegetation fragments, from across 10 areas being removed, relocated, and revegetated into one condensed

[51] It was decided during the design process to not have a bund along the northern boundary as the cost of moving material was not worth the benefit the bund would provide. A long single bund could also make the walkway feel 'hemmed in'.
[52] All new plant species will be carefully considered to fit within the Mananui environment.

area along the eastern boundary plus 2.37ha of three new wetlands. This work (apart from the creation of wetland 3 in the final mine void) will occur during the 1st and 2nd mining strips, in the first 3 years of the Project, adjacent to the Tūwharewhare (Māhinapua Creek) escarpment (refer to the Rehabilitation Plan in Appendix 3).

Existing vegetation fragments will be felled and stockpiled (or transferred) each month to allow progression of the mining path. The debris (including logs, soil, seeds, berries etc.) will be placed across the new rehabilitation area to create a seed bed for new plants to grow. Natural regeneration will take the lead, with infill planting for enrichment where deemed necessary. In addition, there will be a new stock-proof fence constructed along the outside edge,[53] pest control and weed management. For the remainder of the application area, once mining is complete, a gradual restoration to a pastoral landcover will occur.

Conclusion to Landcover Effects

In summary, there are a number of mitigation and rehabilitation measures proposed to reduce the effects of the Application on landcover. They include:

- Augmenting the buffer along the eastern edge with an 'Ecological Rehabilitation Area' through 4.75ha VDT plus 2.37ha of new wetlands = 7.12ha total.
- Planting on top and between a series of bunds which run adjacent to the western boundary (Bunds = 1.078ha and Infill planting = 0.180ha).
- Planting along the northern boundary of the Mananui Tramline (Māhinapua Walkway) (0.541ha).
- Remediating the remainder of the landcover back to pasture once mining is complete.

While the landcover of the application area will be temporarily disrupted by the Application, it is recognised that the mining area has been sensitively chosen and will not affect any of the existing higher value areas. In addition, the application area will support new planting on the western and northern boundaries. The new Ecological Rehabilitation Area on the eastern boundary will strengthen the more intact escarpment vegetation through increasing the width of the planted buffer to the wetland. This rehabilitation is considered to be a more positive effect than reinstating the vegetation in the same place where it is fragmented from surrounding higher quality vegetation.

[53] In order to support a straighter final fence layout, 2.24ha of land will be gifted alongside the Ecological Rehabilitation Area.

For these reasons, there is anticipated to be *a low (minor) adverse effect on landcover* during mining. In the longer term, there will be a *low to moderate positive effect on landcover* once new planting has established.

10.3 Landscape Effects Summary

Overall, when comparing the landscape effects of the mining activity compared to the existing farming operation, it is determined that the proposed changes are appropriate for the location. The Application is considered to have a *low to moderate (minor) adverse effect on landscape character*, during mining and a *low (minor) positive effect on landscape character* in the longer term. This is due to the carefully chosen mining disturbance area, the short timeframe, the graduation of effects across the application area (largely dependent on when and where the mining activity is occurring), and the ability for continuous and condensed rehabilitation to occur.

11 VISUAL ASSESSMENT

11.1 Preface

The effect of the Application on visual amenity relates to the visibility of the proposed mining activity from different viewpoints, and the effect that the short-term change of the landuse from pastoral farming to mining might have on the locality's amenity value. Much depends upon where the Application is visible from and how successful the recommendations are to mitigate any effects.

The degree to which visual effects are generated by the Application depends on:

- The proportion of the Application that is visible, determined by the observer's position relative to the objects viewed.
- The distance and foreground context within which the Application is viewed, and the backdrop and context within which the Application is viewed.
- The number of viewers, their location and whether they are static or moving in relation to the view.
- The time of day and weather conditions within which the Application is viewed.

The main viewing audience consists of:

- Locals and tourists using SH6 to travel between Hokitika and places south of the site.
- Recreationalists using the local amenities that offer views of the application area, including the Māhinapua Walkway, Tūwharewhare (Māhinapua Creek), Māhinapua Scenic Reserve, and the Mananui Bush Walk.
- Residents of private properties.

The visual effects of the Application have been assessed from a number of public and private viewpoints. These are discussed below and are also illustrated within the Graphic Supplement.

11.2 Public Viewpoints from within Mananui

Public viewpoints from the Mananui area include views from SH6, the Māhinapua Walkway, Tūwharewhare (Māhinapua Creek), and the carpark of the Mananui Bush Walk. All of these locations will experience some degree of change in visual amenity as a result of the Application. What is visible is largely dependent on the location of the viewer.

11.2.1 Viewers from SH6

For users of Ruatapu Road/SH6 (the main coastal road between Ross and Hokitika), the application area is viewed to the east when travelling in either a northern or southern direction. Views are for a short duration of approximately one minute and seen at speed (in a 100km/hr zone) amongst the foreground gorse bund (at the northern end) and the wider landscape. Longer views into the application area is afforded from slower road users such as cyclists.

Northern Approach from SH6

The northern approach along SH6 contains a handful of farmhouses and rural residential dwellings. Once near these dwellings, the application area is visible, with Tūwharewhare (Māhinapua Creek) and Māhinapua Scenic Reserve in the background, and the mountains in the distance. Once adjacent to the application area, views are restricted for large lengths by an existing gorse hedge which is bunded between SH6 and the application area. This makes the viewer look to the west or down the highway to the landscape beyond.

The Application will result in a change from pastoral to mining activity, with the taller parts of Processing Plant, ancillary structures, and stockpiles visible, but setback from the highway by 150m. In addition, the new access road and truck movements will be experienced transiently along this viewpoint. To mitigate these effects, a series of 3m high bunds are proposed along the SH6 boundary and around the north and south-western corners of the application area (refer to the Landscape Mitigation in Appendix 3). Additional planting on top of the bunds and infill planting in between them will ensure a consistent visual screen is established over time. This in turn will screen movement, extraction, processing and rehabilitation activities, and the use of recessive colours will help the taller Processing Plant to recede into the environment.

The proposed Application Plan in Appendix 3 illustrates that mining will not occur near SH6 until the later stages of the Application. This allows the maximum amount of time for planting to establish to screen mining activity for when it occurs near the western boundary. However, the Processing Plant and ancillary structures will be present from the outset. As such, the length and location of the mitigation bunds has been dictated by where they are most needed to screen and soften views from

the start.[54] With this mitigation in place, the Application is anticipated to have a *low to moderate (minor) adverse visual effect on users of SH6,* with the effect reducing to a *low (less than minor) adverse effect* as planting establishes and provides more height and further screening.

Southern Approach from SH6

The southern approach along SH6 is visually confined by the bush of the Māhinapua Scenic Reserve (to the east) and the Mananui Bush Walk (to the west). Views of the application area are only possible once almost next to it, where the bush gives way to an open view across the pasture. The effects of the Application from this viewpoint will be similar to that when approaching from the north. Additionally, the starter pit (mine void) will begin close to the south-western corner of the application area. This means that mitigation measures (3m bunding and planting) are even more important in this location to screen the activity which will occur behind the bund in the early stages. The 3m bund height means that even with planting in its infancy, sufficient height is achieved.

11.2.2 Viewers from the Mananui Tramline

The Mananui Tramline (also referred to as the Māhinapua Walkway) shares a border with the northern boundary of the application area. From this walkway, views of parts of the application area can be gained. Much depends on viewing location, direction of travel, landform, and vegetation.

Western End of the Mananui Tramline

The Māhinapua Walkway Carpark is located off SH6 and sits adjacent to the north-western corner of the application area.[55] To reach Tūwharewhare (Māhinapua Creek) (650m away) it takes about 12 minutes' walk.[56] In this location, both pedestrians and cyclists have wide views over the pasture and long views towards the indigenous vegetation to the east of the application area and the Mananui Scenic Reserve. Cyclists experience the view more quickly than pedestrians. Views into the application area conclude when approaching and crossing the wetland vegetation flanking Tūwharewhare (Māhinapua Creek).

The greatest visual effect on users of this part of the Māhinapua Walkway will occur when mining activity is closest to it. This will happen periodically at the end of each mining stage as the dredge

[54] The amount of material available to construct the bunds has been restricted by what is available through site establishment within the application area.
[55] The carpark is small in size and can provides parking for 8-10 vehicles.
[56] The walkway is 4m wide and flanked by 2m deer fences either side.

and Field Screening Unit turns from north to south (refer to the Application Plan in Appendix 3). Topsoil clearance, extraction, rehabilitation, vehicles, and the pumping of material will all be visible. To minimise this visual effect, temporary 2m high bunds will be constructed when the activity comes within 150m of the northern boundary.

New clusters of trees and shrubs will also be planted within the 10m mining setback area in front of the temporary bunds to provide more permanent screening of the application area and the Processing Plant. Together these two measures will assist to soften and screen views of the application area, as well as positively enhance the edge of the walkway.[57] Taking this into account, the Application is anticipated to have a *low to moderate (minor) adverse visual effect on users of the western end of the Māhinapua Walkway.* Once vegetation establishes this will reduce to a *low (less than minor) adverse visual effect.*[58]

Viewers from Mananui Tramline (elevated)

This walkway is part of a larger network (the West Coast Wilderness Trail) used by multi-day walkers and cyclists. The Māhinapua Walkway joins this track after crossing Tūwharewhare (Māhinapua Creek) (discussed above). For most of high water level track, outward views (including those towards the application area) are restricted by the density of vegetation beside the walkway. However, an elevated a view of the application area viewed in the distance occurs through a gap in the vegetation on a corner of the track.

Since the original consent application was prepared, the track has been widened and this corner viewpoint has been constructed into a formalised lookout complete with signage and bike stands. As a result, changes arising from the Application will now be more visible from this location. Changes include vegetation removal (mainly in years 2 and 3), new planting and temporary bunding along the northern boundary, periodic mining extraction and rehabilitation activities (when towards the northern end of the mining area), vehicle movement and an extension to the wetland at the end of mining. Long views of the Processing Plant and ancillary structures will also be visible, framed by the foreground vegetation and seen against the open skyline.

[57] Although it is acknowledged that new planting will take time to establish and grow in height.
[58] As an alternative angle, there will be some users (viewers) who find the mining activity interesting and appreciate the opportunity to see it.

Due to the limited number of viewing 'windows' from most of the track (apart from the lookout), the transient nature of viewers, and distance to the application area, the Application is anticipated to have a *low (less than minor) adverse visual effect* on viewers from this elevated part of the walkway. From the lookout itself, changes will be seen in the distance for the lifetime of the mining activity amongst the wider landscape. For some individuals this may offer an interesting insight into mining activity from an elevated vantage point.

11.2.3 Viewers from Tūwharewhare (Māhinapua Creek)

Tūwharewhare (Māhinapua Creek) is used for commercial river cruises and kayak users as well as informally by recreationalists.[59] The route travelled, is usually between the golf course (north of the site) to Lake Māhinapua (south of the site) return. From the creek, the water level sits at approximately 5m below the application area, meaning views of the area are restricted by both topography and existing vegetation.

From Tūwharewhare (Māhinapua Creek) and its fringes, there will be little change visible as a result of the Application. This is due to the limited views of the application area beyond the wetland. In 1-2 locations, there are small gaps through the vegetation towards the site, but the viewing angle is restricted by the height of the embankment and existing riparian vegetation in the foreground. To close off these views, further planting will be undertaken within the application area to 'plug' the small gaps along the eastern boundary. Behind this, as the mining progresses, felled trees, shrubs, and other organic matter up to 2m in height will augment eastern boundary through the Ecological Rehabilitation Area. With this screening, rehabilitation, and the limited number of viewing opportunities towards the application area, the Application is anticipated have a *very low (less than minor) adverse visual effect on viewers from Tūwharewhare (Māhinapua Creek).*

11.2.4 Viewers from the Coastline

The Mananui Bush Walk is located off SH6 and is accessible from a carpark opposite the south-western corner of the application area.[60] The walk itself is 1.1km through a remnant totara forest to the coast, returning via the same track. This track provides the only public access to the coastline within 1km of the application area. On the coastline, there is a steep slope from the dune to the

[59] West Coast Scenic Waterways hold a concession through the Department of Conservation to operate the cruises.
[60] Views into the application area from the Mananui Bush Walk carpark are currently available. This view will become screened by the new bund and planting proposed for along the south-western corner of the application area.

foreshore, making it difficult to view the application area from the sea and vice versa. Intermittent informal tracks cut through the dunes, but due to the dense shrubby growth, foot access to the top of the dunes is limited.

Although specific areas on the top of the dunes would be high enough to experience distant views of the application area (540m away), the dunes are rarely utilised. In addition, new bunding and planting along the western boundary will soften and screen the base of any structures visible from this location. For these reasons, the Application is anticipated have a *very low (less than minor) adverse visual effect on viewers from the coastline.*

11.2.5 Viewers from the Air

Hokitika airport is 7.9km north of the application area. When taking off towards the south (or landing from this direction), views of the application area are seen from an elevated position as part of the much larger surrounding landscape.[61] The following changes will be recognisable as a result of the Application:

- Bare earth incurred by the topsoil stripping, mining activity, and rehabilitation.
- New bunding, fencing, and planting.
- Felled trees, shrubs and organic matter stockpiled to encourage regenerating vegetation.
- Vehicle and dredge movement.
- New structures including the plant, buildings, carparking, stockpiles, ponds, and access road.
- Lighting at night from structures and vehicles.

Although bare earth can be quite noticeable, the disturbed area (made up of stripping, mining, and rehabilitation) will be limited at any one time by the strip-mining methodology. Mined material will be transported across the application area via slurry pumps as opposed to reliance on trucking (which would have an increased visual effect). Sowing grass as quickly as possible to rehabilitate the disturbed areas will also help to minimise the visual effects. Taking this mitigation into consideration, the Application is anticipated have a *low (less than minor) adverse visual effect on viewers from the air,* as changes will be viewed at a distance and within the wider context.

[61] A photo illustrating how the application area is viewed from the air was taken by the author when flying from Hokitika to Christchurch and is included in the Graphic Supplement.

11.3 Private Viewpoints from within Mananui

There are a number of neighbouring dwellings located in close proximity to the application area. (Refer to the Graphic Supplement for the location of each dwelling).[62] These residences are located either side of SH6, and all (bar one) are situated parallel to, or north of, the application area. From a combination of desktop analysis and observations from roadside viewpoints and the application area, the effect on these properties has been summarised by answering the following questions:

- What do these residences currently view?
- What are the changes as a result of the Application?
- Do these changes create any adverse effects? If so, how could these be mitigated?

11.3.1 Viewers from Residences on the Eastern Side of SH6

Residents on the eastern edge of SH6 currently view the application area as part of the wider landscape.[63] Dwellings located within 100m of the application area or adjacent to it will experience the greatest visual change. These properties will view the new Processing Plant (at 17m high) and ancillary buildings as well as the potential effects of lighting at night. Mining activity will come closest to these property boundaries as it periodically approaches the northern boundary and makes turns from north to south, and to complete the final mining strip in Year 10.

To soften and screen views, a 3m high planted bund is proposed around the north-western corner of the application area (adjacent to numbers 669 and 677 Ruatapu Road). In addition, permanent planting and temporary bunding is proposed along the northern boundary (refer to the Landscape Mitigation Plan in the Appendix 3). Visible changes (with mitigation measures in place) will include long views of the Processing Plant (recessively coloured and located a minimum of 1075m away) and possible movement associated with mining activity. Additionally, truck movements along SH6 associated with the Project will also be visible in the context of the highway. With mitigation, the Application is anticipated to generate a *low to moderate (minor) adverse visual effect on neighbouring properties on the eastern side of SH6*.

[62] It should be noted that at the time of writing this assessment, the author has not visited the neighbouring private properties. Instead, conclusions have been drawn from visiting outside property boundaries and from analysing desktop research. Site visits onto private properties (with landowner permission) may be required in due course.

[63] Residences on the eastern side of SH6 near the application area include: numbers 663, 669, and 677 Ruatapu Road.

11.3.2 Viewers from Residences on the Western Side of SH6

Residents on the western edge of SH6 include a cluster of dwellings to the north-west of the application area and a few further afield to the north.[64] These dwellings are, on average, set back further from SH6 than their eastern counterparts. They are also primarily orientated to the west, away from the application area and towards the coastline. SH6 sits between the application area and these residences. Views of mining activities will be difficult to garner for western dwellings due the below ground nature of the pit and the bunding and planting proposed along the western edge (SH6 boundary) of the application area. As such, the primary visual effects on the western properties will be long views towards the Processing Plant at a minimum of 950m away, additional truck movement along SH6, and the potential effects of lighting at night. With mitigation, the Application is anticipated to generate a *low (less than minor) adverse visual effect on neighbouring properties on the western side of SH6*.

11.3.3 Viewers from Residences Further Afield

In addition to the residences mentioned above, there are a further five dwellings[65] within 1km of the application area.[66] For these outlying residences, the visual effects generated by the Application are limited to truck movements along SH6, long views towards the Processing Plant, ancillary structures and the wider site, and a possible small amount of light spill. Any adverse effects will be minimised by mitigation measures and the distance of the viewer from the application area. The Processing Plant's prominence in the sky will be mitigated by the use of planting to soften along the western and northern boundaries, and the use of recessive colours, and it being viewed against the bush in the background. For these reasons, the Application is determined to have a *very low (less than minor) adverse visual effect on residents further afield.*

11.3.4 Viewers from Recently Consented Properties

Three of the neighbouring properties near to the application area have indicated they may add further dwellings in the future. It can be assumed that the effect on any new dwelling will be similar to the effect on the existing dwellings which have already been assessed. The table below indicates the properties in question:

[64] Residences on the western side of SH6 near the application area include numbers 682A, 682B, 694, and 696 Ruatapu Road.

[65] The five residences include: numbers 548, 604, 605 and 610 Ruatapu Road (to the north of the application area) and 866 Ruatapu Road (to the south of the application area).

[66] This is representative of the intermediate area's density of pastoral farming and large lot rural living.

Address	Details of Consent
604 Ruatapu Road	This property doesn't appear to have an existing dwelling and offers a large parcel to work within. It is likely that any new dwelling would be constructed to the west of the powerlines running through the property. The details of the consent are uncertain (no consents in place). The effect for any new dwelling on this property would be similar to that on other viewers from residences on the western side of SH6.
682B Ruatapu Road	There has previously been consent granted to build on this vacant lot within 130m of the mean high-water springs. Even though the status of this consent has lapsed, the owner may reapply in future. It is reasonable to expect that any future dwelling might be located in line with the two houses to the south or situated further to the west. The effect for any new dwelling on this property would be similar to that on other viewers from residences on the western side of SH6.
663 Ruatapu Road	This property has a Consent Application on hold as of May 2023, which hasn't yet been granted. The effect for any new dwelling on this property would be similar to that on other viewers from residences on the eastern side of SH6.

11.3.5 Viewers from the Treetops Walkway

As mentioned previously, the application area was viewed from the West Coast Treetop Walk. The application area is visible from the highest point of the largest tower, at the distance of approximately 2.6km across Lake Māhinapua. Due to this long distance and the surrounding vegetated landscape, any change visible from this location would be *negligible*.

11.4 Other Potential Visual Effects

More detail has been provided for some of the visual effects on the receptors identified above:

11.4.1 Lighting

Design details for lighting have been outlined under Section 5.6.3. In terms of effects generated, lighting will be used to support the plant area and mining void. This lighting will be kept to a minimum to avoid disturbance but be sufficient to ensure a safe working environment. Lighting will not significantly affect the existing environment due to light already generated by the farm properties in the Mananui area. In terms of lighting for the dredge, the effects of this will be limited as the dredge sits in the pit, 2-5m below ground level.

11.4.2 Vehicle Movement

As identified previously in Section 5.6.4: Access and Vehicle Movement, SH6 provides regionally significant infrastructure, connecting the site with Hokitika to the north and Ross to the south. Additional movement associated with the Application will have the greatest effect on those who live nearby, as opposed to those who briefly pass the application area. In terms of the visual effect of internal trucks and machinery operating within the application area, there will be a recognisable shift in intensity when compared to the current farming operation. Although, the effects of this movement have been somewhat limited by the decision to internally pump material across the site as opposed to rely on trucking. Additional movement will generally be focused around the active mining area and the plant area. From many viewpoints, this movement will be screened from view.

11.4.3 Visual 'Bulk' of the Processing Plant

The Processing Plant (WCP) will be the largest new structure within the application area and also within Mananui. In addition, part of the plant is taller than the 8m permitted height limit, but within the 25m controlled activity height limit imposed by the *Westland District Plan*. The following measures are proposed to mitigate the visual effects generated by the plant:

- The plant has been carefully located within the application area. At the request of the author, the plant was moved 100m further south and setback from SH6 by 150m during the design process.
- The interface between the plant area and the SH6 will be softened and screened by a 3m high planted bund and additional planted areas in between.
- The plant will be painted in two recessive colours, with a darker colour used where the plant is viewed against background vegetation and a lighter colour used where the plant is viewed against the sky. This will assist the plant to recede into the surrounding environment.
- The plant is designed to receive material via slurry pumps rather than rely on trucking.[67]
- The plant area will be disassembled at the completion of mining and rehabilitation.

11.5 Visual Effects Summary

In summary, the visual effects of the Application will primarily arise from:

- The short-term change in landuse from pastoral to mining extraction.

[67] The slurry pipes will follow the sequence of the dredge excavation unit, allowing for the transportation of material via pump between the mining void and the Processing Plant and to transfer the tailings back to the mining void.

- Vegetation removal and then stockpiling of material for VDT rehabilitation.
- Changes in landform, particularly the effect of the stockpiles, the mining pit and bare earth.
- The addition of the Processing Plant, ancillary facilities, and lighting.
- The addition of a new access road and internal roading.
- The movement of vehicles and machinery on SH6 and within the application area.
- The visibility of the active mining disturbance area as it moves across the application area.
- The addition of new mitigation bunding, planting, and fencing.
- The change in character from open to more enclosed along the boundaries of the application area.

In general, it can be anticipated that as mining moves across the application area, there will be a transient nature of effects on both public and private viewers. In some areas, views into the application area will be greater in the formative years of the mine life as planting is still establishing. However, this is balanced by the fact mining activity will start at the furthest point from the residences and the majority of public viewpoints. In addition, the size of the active mining disturbance will be limited at any one time.

The use of pumps to transport material to and from the Processing Plant will greatly minimise the need for trucking within the application area (reducing the potential visual effect of movement). Likewise, as bunds are formed and mitigation planting establishes, activity will progressively be screened from view. Out of all the components which make up this Application, the Processing Plant has the greatest visual effect due to its height and its uniqueness in the surrounding landscape. However, it is considered that once the recommendations are implemented (carefully siting it, using recessive colours, screening it from view, and removing it upon completion of the Project), this will be sufficiently mitigated.

Overall, during the Application, there is anticipated to be a *low to moderate (minor) adverse visual effect on both public and private viewers in the vicinity.* For those further afield, this is anticipated to be a *very low (less than minor) adverse visual effect.* This is the result of the limited visibility of the activities, the staged approach working across the application area, the short term timeframe of the mine life, and the use of mitigation measures.

12 RECOMMENDATIONS

This section outlines the proposed recommendations to mitigate the landscape and visual effects of the Application. These recommendations have been developed alongside the design for the mining activity and supporting infrastructure. Other disciplines have had collaborative input also. The recommendations which follow should be read alongside Section 5: Proposal, and the plans and cross sections contained in Appendix 3: Landscape Mitigation.

12.1 Pre-Mining

Activity	Location	Details	Desired Outcome/Timeframe
Setback Area - Illustrated by the Mining Application Plan within Appendix 3			
Establishing a setback for the mining disturbance area.	20m setback from SH6. 10m setback from the northern and southern boundaries. (Illustrated on the Mining Application Plan within Appendix 3).	Provides a buffer between mining activity and the adjacent natural features, properties and SH6.	The setbacks assist to mitigate adverse effects on adjacent properties. They will be established prior to mining and maintained throughout mining. (For the Life of the Application)
Bunding – Illustrated by the Landscape Mitigation Plan and cross sections within Appendix 3.			
Constructing a central bund alongside SH6.	Within the 20m setback from SH6.	650m long, 12m wide, 3m high. Includes a curved top and sides which gently taper to meet the existing landform.	Along with planting, the new bunds will assist to mitigate adverse visual effects for users of SH6 and residents of neighbouring properties. They will be established prior to mining as material becomes available and remain long term. (Permanent) Central Bund: constructed from the removal of material from the plant site, taking approximately 3 months from site establishment. Southern Bund: constructed from material excavated from the ponds, taking approximately 3 months from when the ponds are excavated out. Northern Bund: constructed from material from the ponds or the starter pit, taking approximately 3 months.
Constructing a southern bund alongside SH6.	Within the 20m setback from SH6. Wraps around the south-western corner	270m long, 12m wide, 3m high. Includes a curved top and sides which gently taper to meet the existing landform.	
Constructing a northern bund alongside SH6.	Within the 20m setback from SH6. Wraps around the north-western corner, adjacent to residences.	640m long, 12m wide, 3m high. Includes a curved top and sides which gently taper to meet the existing landform.	

Planting – Illustrated by the Landscape Mitigation Plan and cross sections within Appendix 3.			
Planting the three new bunds along the western SH6 boundary.	Planting will occur on the front faces and on top of the new bunds.	Includes a mixture of shrubs and trees. Refer to cross sections in the Landscape Mitigation document (Appendix 3).	New planting will assist to screen mining activity from users of SH6 and residents of neighbouring properties through the establishment of a fast growing, dense screen. Plants will be sourced and planted to allow the maximum growth time prior to mining activity beginning. (Permanent)
Planting between each of the three new bunds along the western SH6 boundary.	Planting will occur as 'infill' between each of the bunds.	Includes a mixture of shrubs and trees. Refer to cross sections in the Landscape Mitigation document (Appendix 3).	
Planting along the Mananui Tramline (Māhinapua Walkway) northern boundary.	Planting will occur on the northern border, within the 10m setback.	Includes a mixture of groundcovers, shrubs, and trees. Refer to cross sections in the Landscape Mitigation document (Appendix 3).	New planting will assist to soften and some in places screen views into the application area from the walkway through the establishment of fast growing, dense planting. Planting will also enhance the walkway edge, a positive effect of the Project that will remain in perpetuity. Plants will be sourced and planted to allow the maximum growth time prior to mining activity beginning. (Permanent)
Including infill planting along the eastern boundary to 'plug' gaps.	On the eastern boundary in the 1-2 places where required.	Includes a small number of shrubs and trees to 'plug' views.	Infill planting provides screening of mining activity from the creek and wetland environment. This will be on an 'as required' basis, established prior to mining activity and maintained long term. (Permanent)
Ensuring all new plant species are appropriate, healthy and a suitable size.	Across the site. An indicative plant species list is outlined in Appendix 3.	Plant species will be sourced from the Westland ecological district and hardened off to suit the Mananui conditions.	Meeting these criteria will ensure new planting thrives. It also promotes fast-growing shrubs which will be able to provide visual screening quickly. Planting will be further refined during detailed design and planting will occur during site establishment. (For the Life of the Application)
Colours and Materiality – Illustrated at the end of Appendix 3.			
Ensuring all buildings and structures use recessive colours.	The Wet Concentrator Plant and ancillary structures.	Preferred colours are those in the neutral, earthy, and natural colour ranges. The plant will use	Ensures buildings use recessive colours to recede into the existing environment. This also mitigates issues with reflectivity and glare. Colours will also be adopted during construction and maintained throughout mining.

		two colours: Resene Woodland (below 5m) and United Paints Papyrus White (above 5m).	(For the Life of the Application)
Ensuring the design of the Processing Plant avoids light spill as much as possible.	The Processing Plant Area.	Windows will be carefully located. All blue light will be filtered or reduced to operate primarily within the yellow-orange spectrum, be pointed downwards, and shielded.	Limiting light spill at night will reduce the visual effect on the receiving environment. All lighting will not exceed 2.0 lux light spill onto any adjoining property. These details will be included as part of detailed design, adopted during construction, and maintained throughout mining. (For the Life of the Application)
Fencing – Illustrated by the northern boundary cross sections within Appendix 3.			
Shifting the current northern deer fence to align with the mining setback boundary.	On the northern boundary parallel to the Mananui Tramline (Māhinapua walkway).	A new lower post and wire or timber fence will be erected in its place.	Moving the existing fence inside the boundary will be completed prior to mining activity commencing. It will protect the new planting from disturbance by temporary bunds or mining activity and later on from stock There is the opportunity to promote the enhancement of this walkway edge as a positive benefit of the Application. (Permanent)

12.2 During Mining

Activity	Location	Details	Desired Outcome/Timeframe
Mining Sequence - Illustrated by the Mining Application Plan within Appendix 3			
Mining to be undertaken in north/south orientation.	Across the application area.	50m wide mining strips.	Mining in a north/south orientation follows the existing topography, allows for longer straighter mine paths, lets mining occur furthest from SH6 early on, ensures the area nearest the wetland is completed in a single pass, and allows time for mitigation planting to establish. (For the Life of the Application)
Maximum Disturbed Area - Illustrated by the Mining Application Plan within Appendix 3			
Only disturbing part of the	In selected locations across the	Maximum 27.7ha disturbed area.	Some flexibility in disturbed area is required due to the nature of the mining methodology, continuously moving void,

application area at any one time.	application area.		and progressive rehabilitation and revegetation. (For the Life of the Application)
Pumping			
Pumping of material between the mine void, processing plant and tailings.	Across the application area.	Continuous pumping of material removes the need for large stockpiles and the use of trucks.	Pumping of material between the mine void, processing plant and tailings area will reduce the visual effect of machinery moving on site. (For the Life of the Application)
Bunding - Illustrated by the northern boundary cross sections within Appendix 3			
Constructing temporary bunds alongside the northern boundary.	Within the 10-year final mining strip along the northern boundary.	Individual bunds will be 10-18m long and 2m high.	Constructing temporary bunds when mining comes within 150m of the northern boundary will assist to mitigate adverse effects on users of the walkway and neighbouring residents whilst new planting establishes. (Temporary – as required)
Planting			
Maintaining all new and existing planting areas.	Across the application area	Includes weeding, spraying, staking, use of plant guards, watering, fertilising, trimming, releasing, replacement plants and pest removal.	Maintaining new planting ensures plants are vigorous and thriving, in order to provide more effective mitigation. (For the Life of the Application)
Progressive Rehabilitation - Illustrated by the Mining Application Plan within Appendix 3.			
Progressive rehabilitation - during mining operations.	Following the active mining area.	The redistribution of tailings followed by regrading and recontouring.	Progressive rehabilitation will restore a suitable landform and drainage. (For the Life of the Application)
Providing sufficient growing medium.	Following regrading and recontouring of the active mining area.	Spreading 100-150mm topsoil to provide sufficient growing medium. Sowing or hydro-seeding grass.	By re-grassing as soon as possible, it will limit the amount of time bare earth is visible and prepare areas to be returned to pastoral grazing once again. (For the Life of the Application)
Direct Vegetation Transfer/Ecological Rehabilitation Area - Illustrated by the Ecological Rehabilitated Area cross sections and Final Landform and Rehabilitation Plan within Appendix 3.			
Creating an Ecological Rehabilitation Area.	Focusing on the 1st and 2nd mining strips, in the first 3 years.	Retaining cleared vegetation for 4.75ha of VDT.	The Ecological Rehabilitation Area will use vegetation direct transfer (VDT) plus enrichment planting .(Permanent)

Establishing new boundary fencing.	Located to the west of the Ecological Rehabilitation Area.	Typical post and wire farm fencing.	New fencing will prohibit stock from having access to vegetation or rehabilitated areas. (Permanent)
Removing, stockpiling and/or transferring vegetated slash each month.	Allows for progression of the mine path.	Material will consist of tree trunks, branches, and organic matter.	Recycling felled vegetation will contribute to the regeneration of vegetation across the application area during and post-mining. (Permanent)
Placing debris from the removed plants.	Follows the progression of the mine path.	Laying down logs, soil, seeds, berries etc. to create a seed bed/area for new plants to grow.	
Allowing the natural regeneration process to take the lead.	Follows the progression of the mine path.	Including infill planting for support, enrichment, and canopy closure where necessary.	
Establishing two wetland areas at existing low points.	Along the eastern boundary.	Establishing new wetlands with planting in and around them.	Establishing two new wetlands provides the opportunity to enrich the biodiversity of the site. (Permanent)

12.3 Final Rehabilitation and Landform

The main objective is to return the application area after mining activity is complete, to a condition which is compatible with the surrounding landscape. This means that conditions such as contouring, drainage, and plant growing medium must support pasture growth and production.

Activity	Location	Details	Desired Outcome/Timeframe
Final Landform - Illustrated by the Final Landform and Rehabilitation Plan within Appendix 3.			
Establishing a suitable landform for pastoral farming to occur once again.	Across the application area.	The aim is for the final levels to gently slope from east to west, from 9mRL to 6mRL along SH6.	The removal of HMC from the site will result in a reduction in ground level by approximately 1.5m overall. Work towards the final landform suitable for farming will occur progressively throughout the mining process. (Permanent)

Removal of Structures			
Removal of the Plant and ancillary structures.	Across the application area.	Removal of all buildings, structures, tanks etc.	The area will be gradually converted back to pasture. (Permanent)
Final Mining Void Wetland			
The final mining void will be converted into a wetland.	North-eastern corner.	Additional planting will assist to covert the area into a wetland.	After the final mine strip is mined in Year 10, the conversion of the final mining void into a wetland will occur. (Permanent)
Fencing - Illustrated by the Final Landform and Rehabilitation Plan within Appendix 3.			
Establishing new fencing and farm infrastructure.	Across the application area.	New fencing will assist with paddock layout	Straighter, more regular shaped paddocks will assist with farming logistics. New fencing will be progressively established. (Permanent)
Ecological Reserve - Illustrated by the Final Landform and Rehabilitation Plan within Appendix 3.			
Creation of an Ecological Reserve.	Eastern edge of the application area and south-eastern edge of the site.	The Ecological Rehabilitation Area along with the Māhinapua Wetland part of the site will be vested to either a Crown agency or local mana whenua.	The new Ecological Reserve will have the potential to link the Mananui Tramline and Lake Māhinapua. (Permanent).

13 CONCLUSION

Westland Mineral Sands Co. Limited seeks to obtain consent for mineral sands mining and processing to obtain garnet, ilmenite, and lesser concentrations of gold and other minerals, and to construct the necessary infrastructure to do so. These minerals are present within a 140ha site (with a 112ha application area) at 713 Ruatapu Road (SH6), Mananui on the West Coast of New Zealand.

The Landscape and Visual Assessment has determined the potential landscape and visual effects arising from the proposed mining extraction and processing activity. As part of this, the existing landscape character and amenity value of the location has been evaluated. The landscape and visual effects during and at the end of the mining operation have been assessed against this, as well as the relevant statutory provisions. Design principles are also incorporated by way of mitigation and rehabilitation to assist where values may be potentially affected.

This Landscape and Visual Assessment has determined that:

- The Application does not fall within the coastal environment.
- Adverse effect on the proposed outstanding value of the surrounding landscape will be avoided.
- The Application will result in positive effects on the quality of the environment long term.

Landscape Effects

Overall, when comparing the landscape effects of the mining activity compared to the existing environment, the proposed changes are considered appropriate for the location. The Application is considered to have a *low to moderate (minor) adverse effect on landscape character, during the Project* and a *low (minor) positive effect on landscape character in the longer term*. This is primarily due to the changes in landform, the carefully chosen application area, the responsive mining methodology, the limited mining disturbance area, and the ability for progressive rehabilitation to occur. Furthermore, a new Ecological Rehabilitation Area will augment the eastern edge of the site, increase the buffer zone for the wetland, and allow for continuous and condensed rehabilitation, which would unlikely occur otherwise.

Visual Effects

In terms of the visual effects generated by the Application, it can be anticipated that as mining moves across the application area, there will be a transient effect on both public and private viewers. The Application is considered to have a *low to moderate (minor) adverse visual effect on viewers in the vicinity* and *very low (less than minor) adverse visual effect for those located further afield*. From some viewpoints, effects will be greater during the formative years of the mine life as planting is juvenile. However, this is balanced by mining activity primarily starting at the furthest point from residences and SH6.

The establishment of setbacks, bunds and mitigation planting will assist to screen mining activity from view. Likewise, the use of recessive colours, limiting the active mining disturbance area, pumping of material, and progressive rehabilitation will also help to reduce visual effects. Where views are obtainable, visual effects will arise from the change in landuse and landform, vegetation removal, and the addition of the Processing Plant, ancillary structures, lighting, access, and movement.

Overall, it is determined that the Application is appropriate for the location, provided the recommended mitigation measures are implemented.

APPENDICES

Appendix 1 – Landscape and Visual Assessment Criteria

Appendix 2 – Landscape Graphic Supplement

Appendix 3 – Landscape Mitigation

APPENDIX 1: LANDSCAPE AND VISUAL ASSESSMENT CRITERIA

An Introduction to Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines

This assessment has been prepared in accordance with the concepts and principles outlined within *Te Tangi a te Manu: Aotearoa Landscape Assessment Guidelines*. These guidelines were published by Tuia Pito Ora, the New Zealand Institute of Landscape Architects (NZILA) in July 2022. For further information on the guidelines, please refer to https://nzila.co.nz/about/te-tangi-a-te-manu.

Origins of Te Tangi a te Manu

These national guidelines are the result of more than four years' mahi, collaboration and consultation. They encapsulate the best collective wisdom of landscape architects working in landscape assessment under New Zealand's legislative framework. They also include insight from researching case law, reviewing findings of Landscape Assessment workshops,[68] and understanding best practice landscape guidelines from both New Zealand and overseas.[69] The guidelines are at the forefront of emerging practice internationally and will continue to evolve over time.

Whilst previous assessment approaches[70] have been built on the physical, associative, and perceptual realms of landscape, the guidelines underpinning this assessment go further. They promote a Te Ao Māori and Te Ao Pākehā partnership approach to landscape, binding together the layers of people and land across time and place. In doing so, the guidelines ensure that both tāngata whenua and tāngata tiriti values and perspectives are captured and equally shared and understood.

Purpose of Te Tangi a te Manu

Ultimately these guidelines (and subsequently this assessment) seek to assist decision-makers[71] and others[72] to manage and improve landscape values within a statutory planning context. Consequently, they also provide a much stronger platform for Landscape Architects and allied professionals to assess and manage landscapes. As part of undertaking this assessment, the assessor has identified the landscape's character and values (and the attributes on which those values

[68] Landscape Assessment Methodology workshops were held across New Zealand in November 2017 by the NZILA.

[69] This includes the *New Zealand Quality Planning Landscape Guidance Note*, as well as the well-known United Kingdom *Landscape Institute and Institute of Environmental Management and Assessment, Guidelines for Landscape and Visual Impact Assessment (GLVIA3)*, 3rd Edition, published in 2013.

[70] The guidelines replace *NZILA Best Practice Note 10.1: Landscape Assessment and Sustainable Management*, 2010.

[71] 'Decision-makers' means the Environment Court, boards of inquiry, council commissioners, and some council officers with certain delegated authority.

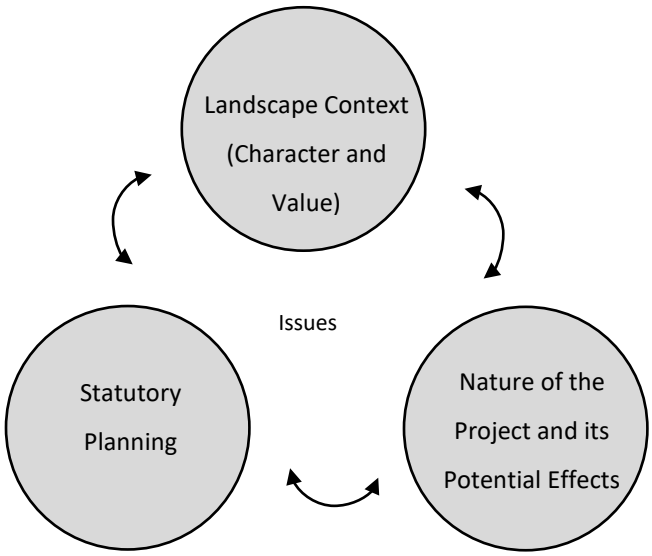
[72] 'Others' means everyone else involved in statutory planning processes.

depend), assessed the effects of the Project on these values, and designed mitigation measures to maintain and improve values. Whilst undertaking this work, a structured approach has been used to ensure that findings are clear and objective. Judgement is based on skills and experience, supported by explicit evidence and reasoned argument. This approach is consistent with the Environment Court's 'Code of Conduct for Expert Witnesses.[73]

Methodology underpinning Te Tangi a te Manu

This assessment has adopted a principles-based approach that has allowed the methodology to be tailored to the Project. This approach emphasises transparency and reason, rather than adherence to prescriptive methods. Following a prescriptive method is not possible, because all landscape assessments vary (in type and scale) and require the need to interpret the different types of information and values (objective and subjective) inherent in landscapes.

This assessment focuses on the relevant issues for the decision maker. These issues arise from the drivers behind the assessment, the landscape context it is situated within, and the potential effects arising from the relevant statutory planning provisions. In addition, a concurrent iterative design process seeks to avoid, remedy, or mitigate adverse effects which may arise as a result of a Project.



Definition of the Term 'Landscape'

[73] *Environment Court of New Zealand, Expert Witnesses, Code of Conduct, Environment Court Practice Note,* 2014, Section 7.2. Available from: http://environmentcourt.govt.nz/assets/Documents/ Publications/2014-ENVC-practicenotes.pdf

This assessment defines the term 'landscape' as consistent with that contained within the guidelines: *"Landscape embodies the relationship between people and place. It is the character of an area, how the area is experienced and perceived, and the meanings associated with it."* [74]

Approach to Landscape and Visual Assessment

While landscape effects and visual effects are closely related, they form separate parts of this assessment. Understanding landscape effects includes assessing the potential effects of a Project on landscape character and values. Whereas for visual effects it includes assessing how a Project might change the physical landscape and in turn affect the viewing audience.

Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly changing over time in both subtle and more dramatic transformational ways. These changes are both natural and human induced. What is important in managing landscape change, is that adverse effects are avoided or sufficiently mitigated to ameliorate the effects of the change. The aim is to provide a high amenity environment through appropriate design outcomes.

Landscape Effects

Landscape effects are measured against the existing landscape context (character and value) and the landscape and visual outcomes as anticipated by the statutory planning framework. Landscape effects derive from changes in the physical landscape, which may give rise to changes in its character. This may in turn affect the perceived value ascribed to the landscape.

The degree to which landscape effects are generated by the Project depends on:

- The degree to which the Project contrasts, or is consistent, with the qualities of surrounding landscape.
- The predictable and likely known future of the locality.
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character of the area.

[74] Refer to page 76 of *Te Tangi a te Manu*. This definition is also consistent with that which evolved from the NZILA Landscape Assessment Methodology workshops held in November 2017.

When determining the overall level of landscape effect, it is important to be clear about what factors have been considered when making professional judgements. The following table helps to guide this process:

Contributing Factors		**Higher**	**Lower**
Landscape (sensitivity)	*Ability to absorb change*	The landscape context has limited existing landscape detractors which make it highly vulnerable to the type of change resulting from the proposed development.	The landscape context has many detractors and can easily accommodate the Project without undue consequences to landscape character.
	The value of the landscape	The landscape includes important biophysical, sensory, and shared and recognised attributes. The landscape requires protection as a matter of national importance (ONF/L).	The landscape lacks any important biophysical, sensory, or shared and recognised attributes. The landscape is of low or local importance.
Magnitude of Change	*Size or scale*	Total loss or addition of key features or elements. Major changes in the key characteristics of the landscape, including significant aesthetic or perceptual elements.	The majority of key features or elements are retained. Key characteristics of the landscape remain intact with limited aesthetic or perceptual change apparent.
	Geographical extent	Wider landscape scale.	Site scale, immediate setting.
	Duration and reversibility	Permanent. Long term (over 10 years).	Reversible. Short Term (less than 10 years)

Visual Effects

Visual effects are a subset of landscape effects. They are effects on landscape values as experienced in views. Visual effects relate to the changes that may occur to the view and visual amenity experienced by people because of changes to the landscape. Much depends on where the Project is visible from and how successful any mitigation is to mitigate any effects.

The degree to which visual effects are generated by a Project depends on:

- The proportion of the Project that is visible, determined by the observer's position relative to the objects viewed.

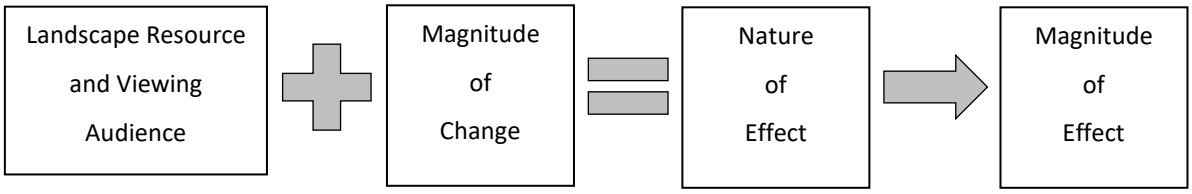
- The distance and foreground context within which the Project is viewed and the backdrop and context within which the Project is viewed.
- The number of viewers, their location and situation (static or moving) in relation to the view.

When determining the overall level of visual effect, the nature of the viewing audience is considered together with the magnitude of change resulting from the Project. The following table helps to guide this process:

Contributing Factors		**Higher**	**Lower**	**Examples**
The viewing audience (sensitivity)	*Ability to absorb* change	Views from dwellings and recreation areas where attention is typically focussed on the landscape.	Views from places of employment and other places where the focus is typically incidental to its landscape context. Views from transport corridors.	Dwellings, places of work, transport corridors, public tracks
	Value attached *to views*	Viewpoint is recognised by the community such as an important view shaft, identification on tourist maps or in art and literature. High visitor numbers.	Viewpoint is not typically recognised or valued by the community. Infrequent visitor numbers.	Acknowledged viewshafts, Lookouts
Magnitude of Change	*Size or scale*	Loss or addition of key features in the view. High degree of contrast with existing landscape elements (e.g., in terms of form scale, mass, line, height, colour and texture). In full view	Most key features of views retained. Low degree of contrast with existing landscape elements (e.g., in terms of form scale, mass, line, height, colour and texture. Glimpse/no view of the Project.	Higher contrast/lower contrast. Open views, partial views, glimpse views (or filtered), no views (or obscured)
	Geographical extent	Front on views. Near distance views. Change visible across a wide area.	Oblique views. Long distance views. Small portion of change visible.	Front or oblique views. Near distant, middle distant and long distant views.
	Duration and reversibility	Permanent. Long term	Transient/temporary. Short Term	Permanent (fixed), transitory (moving)

Landscape and Visual Assessment – Determining the Overall Level of Effects

This assessment identifies the magnitude of landscape and visual effects that are likely to be generated by the Project. It assesses both the nature (adverse, neutral, beneficial) and magnitude of effect (low, moderate, high) and the effectiveness of any proposed mitigation.



Landscape and Visual Assessment - Nature of Effects

This assessment also considers the nature of effects in terms of whether this will be positive (beneficial), neutral (benign) or negative (adverse), in the context within which it occurs. Neutral effects can also occur where landscape or visual change is benign. Effects can also be short term or permanent and/or cumulative. [75,76]

Landscape and Visual Assessment - Magnitude of Effects

Each effect within the assessment has been assigned a rating (magnitude of effect) to distinguish effects from one another and to assist with determining the need for landscape mitigation. Within the assessment, the specific nature of the effect is described, its magnitude is rated, and then the evaluation is justified. The seven-point scale of effects from *Te Tangi a te Manu* is as follows: [77]

					Significant[78]	
Less than Minor[79]		Minor	More than Minor			
Very low	Low	Low – Moderate	Moderate	Moderate – High	High	Very High

[75] Refer to footnote 140. on page 135 of *Te Tangi a te Manu* which describes the meaning of 'effect' in more detail and includes short term or permanent effects.

[76] For more information on cumulative effects, refer to pages 153-154 of *Te Tangi a te Manu*.

[77] Refer to pages 140 and 151 of *Te Tangi a te Manu* which covers this in more detail.

[78] The term 'significant' is only to be used when evaluating Policy 13(1)(b) and Policy 15(b) of the *New Zealand Coastal Policy Statement (NZCPS)*, where the test is 'to avoid significant adverse effects'.

[79] For more information on the terms 'minor,' 'less than minor,' and 'no more than minor', refer to pages 150-151 of *Te Tangi a te Manu.* An assessment of whether the effect generated by a Project are *"less than minor"* will generally involve a broader consideration of the effects of the activity, beyond landscape and visual effects. In addition, more than minor effects on individual elements or viewpoints, does not necessarily equate to more than minor landscape effects.

Widely used definitions across the landscape profession and included within *Te Tangi a te Manu* include (but are not limited to):

> Low: *"A slight loss to the existing character, features or landscape quality."*
> Moderate: *"Partial change to the existing character or distinctive features of the landscape and a small reduction in perceived amenity."* [80]
>
> In addition:
> 'More than Minor' is characterised as "moderate effects or above" on the 7-point scale.
> 'Minor' is characterised as *"low"* and *"low to moderate"* effects.
> 'Less than Minor' means insignificant. It can be characterised as *"very low"* and *"low"* effects. [81]

[80] Refer to page 141 and footnote 149 within *Te Tangi a te Manu*.

[81] Refer to page 150 and footnote 158 within *Te Tangi a te Manu*.

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